thermokon®

HOME OF SENSOR TECHNOLOGY

thanos EVO | P. 148

PRODUCTS

VALID FROM 1ST JANUARY 2022

SENSORS MADE IN GERMANY

USE

SR06 LCD

JOY

NOVOS Touch

Headquarters (5.300 m²)
in Mittenaar-Offenbach
(Administration and Production)

Factory (1.100 m²)
in Mittenaar-Bicken
(SMD assembling and Production)

SMD Assembly Lines

THERMOKON AT A GLANCE

» 2022

2022 **Extension** of the product portfolio to sensors with LoRaWAN® interface
2021 **Relaunch** thermokon.de and direct.thermokon.de becoming one
2020 **Establishing** a further SMD assembly line in Mittenaar-Bicken
2019 **Launch** of the new room sensors and operating units – **NOVOS**
2017 **Company Anniversary** 30 Years Thermokon Sensortechnik GmbH
2016 **Premiere** of the new and innovative enclosure „USE“
2015 **Launch** of the new design room operating unit „JOY“
2015 **Launch** of the solar-powered room operating unit SR06 LCD
2015 **Investment** into a new SMD assembly line
2015 **Establishing** Thermokon Sensor Technology Nederland B.V., Netherlands
2014 **Establishing** Thermokon Norge AS, Norway
2013 **New Company Headquarters** in Mittenaar-Offenbach
2013 **Establishing** Thermokon Sensortechnik Switzerland AG
2012 **A reason to celebrate:** 25 Years Thermokon Sensortechnik GmbH
2011 **Establishing** Thermokon Automation Equipment Co. Ltd., China
2011 **Launch of the** high-end touch room operating unit thanos

» 2010

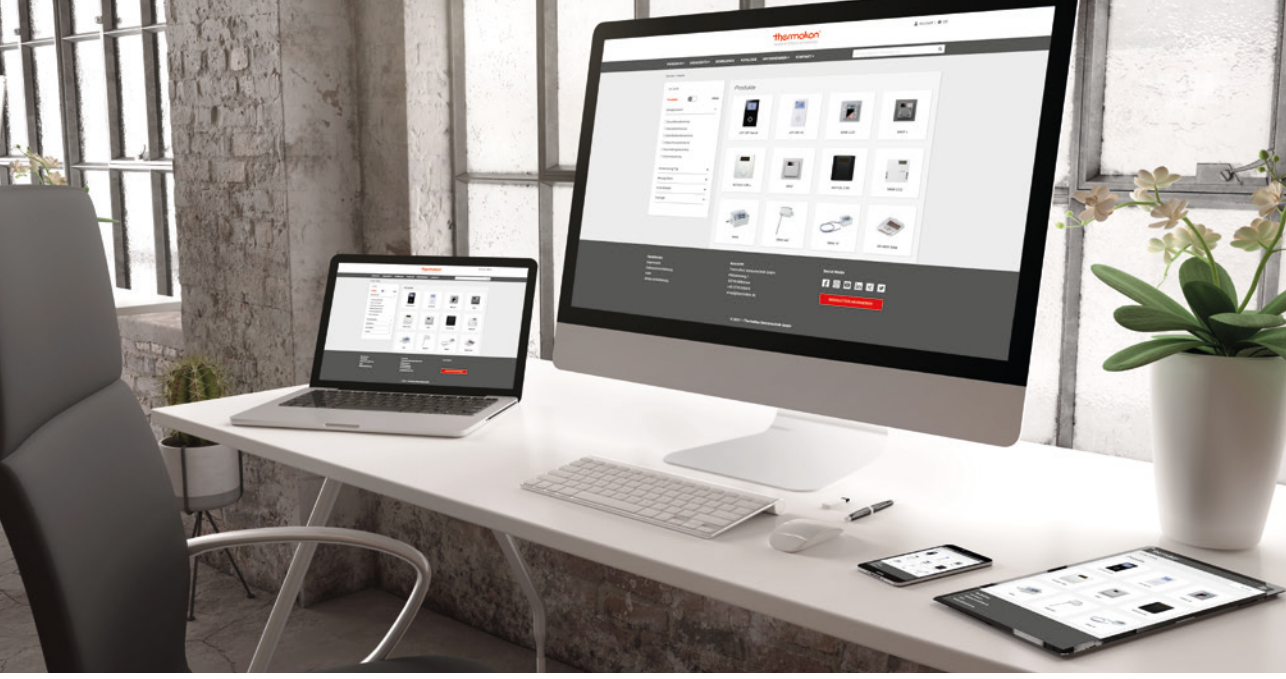
2009 **Extension** of the product portfolio to sensors with BACnet interface
2007 **Further extension** of the company building by 600 m²
2005 **Extension** of the product portfolio to sensors with Modbus interface
2004 **Launch** of the innovative wireless sensor system EasySens®
2002 **Launch** of the surface mounted room operating unit WRF04
2002 **Establishing** Thermokon-Danelko Elektronik AB, Sweden
2002 **Anniversary** 15 Years Thermokon Sensortechnik GmbH
2000 **Further extension** of the company building to 2.000 m²

» 2000

1998 **Establishing** Thermokon Components GmbH, Austria
1997 **Extension** of the company building in in Mittenaar-Bicken
1995 **First production** of humidity sensors
1995 **Extension** of the product portfolio to sensors with LON interface
1995 **First production** of mixed gas and brightness sensors
1995 **Launch** of a quality management system according to DIN EN ISO 9001
1994 **New company building** in Mittenaar-Bicken

» 1990

1987 **Development and production** of temperature sensors for the heating industry
1987 **Company foundation** of Thermokon Sensortechnik GmbH by Harald Zygan



thermokon® HOME OF SENSOR TECHNOLOGY | DIRECT easy for you

OUR WEBSITE – **YOUR ADVANTAGE!**

In addition to our new catalogue, we launch our new website with an extended range of functions. In order to give you an even better user experience, we have integrated the functionality of ThermokonDIRECT into our main page – you can now find all products and items directly on the main page. Use the convenient filter function and get the right item for your application in the blink of an eye.

The practical project management function allows you to quickly and conveniently select your required items at any time. Further you can order all items directly once you have registered and are eligible to order online*. Registering different billing and delivery addresses offers you enormous flexibility in order placement and saves you time in daily business.

» Your advantages:

- » Portfolio with more than 5000 online items
- » Project management for a flexible planning
- » Intelligent search via predefined filters or free text (e.g. item number or description)
- » Download of item-specific data sheets and media (BIM files, pictures, software, declarations of conformity, etc.)
- » Comparison function of multiple items or products

Additional functions for existing corporate customers:

- » Online ordering possiblity (24/7)*
- » Online package tracking*
- » View list and net prices*

REGISTER NOW:

www.thermokon.com

** The additional functions will be activated after checking eligibility*

Table of Contents

Thermokon: Home of Sensor Technology 8
USEapp / NOVOSapp 10
JOY Custom 12
LoRaWAN® 14
EasySens® 18
airConfig 20
airScan 22
References 24
Warranty / SI Protection 26

EasySens®

Room Operating Units

JOY SR Fancoil	Temperature, rel. humidity	28
JOY SR HC	Temperature, rel. humidity	32
SR06 LCD	Temperature, rel. humidity	36
SR07 x	Temperature, rel. humidity	40
NOVOS 3 SR x	Temperature, rel. humidity	43

Room Sensors

SR07	Temperature, rel. humidity	45
NOVOS 3 SR	Temperature, rel. humidity, CO2	47
SR04 CO2	CO2, temperature, rel. humidity	49

Sensors

SR65	Outdoor sensor temperature	51
SR65 AKF	Duct sensor temperature	52
SR65 TF	Cable sensor temperature	54
SR65 VFG	Contact sensor temperature	56

Light / Motion

MCS SR	Light, motion, temperature	58
SR-MDS	Light, motion, temperature	59
SR-MDS Solar	Light, motion	60
SR-MOC Solar	Motion	61
SR-MOW Solar	Motion	62
SR65 Li	Light	63

Input Modules

SR-MI	Smart meter (S0 signals)	64
SR65-3AI	Radio module with 3 inputs (0..10 V)	65
SR65 DI	Binary radio module	66

Window Contacts / Door Contacts

SRG02	Window handle (battery-free)	67
SRG-Basic	Window handle (battery-free)	68
SRW03	Window / door contact (battery-free)	69

Switches

Mini	Radio switch (battery-free)	70
55x55	Radio switch (battery-free)	72
BJ 63x63	Radio switch (battery-free)	74
Jung LS990	Radio switch (battery-free)	76
Hand-held	Radio hand-held switch (battery-free)	78
SR-KCS	Radio key-card switch (battery-free)	79

Gateways

STC65+ RS485 Modbus	80
STC65+ RS485 EVC	81
STC65-FTT LON	82
STC-BACnet IP	83

SRC65-BACnet MS/TP 84
STC-IoT 85
STC-KNX 86
STC-KNX UP 87
STC-dS / STC-dS HS 88 / 89

Actuators

STC-DO 90
STC-DO Light 91
STC-DO Blind 92
SRC-AO Climate 93
SRC-AO Dim 94
SRC-AO Multi 95
STC-DO8 96
SRC-ADO 98
STC-MSG Server 100
STC-MSG Server UP 101
SAB+ 102
SAB05 104

Repeater

SRE-Repeater 106
SRE-Repeater UP 107

LoRaWAN® / Bluetooth®

LoRaWAN® – Outdoor Sensors

AGS55+ LRW Temperature 110
FTA54+ LRW Temperature, humidity 112
WSA LRW Temperature, humidity 114
LA+ LRW CO2, VOC, temperature, humidity 116
Li65+ LRW Light, air pressure, temp., humidity 118

LoRaWAN® – Duct Sensors

AKF10+ LRW Temperature 120
MWF+ LRW Temperature 122
FTK+ LRW Temperature, humidity 124
LK+ LRW CO2, VOC, temperature, humidity 126

LoRaWAN® – Condensation Monitors

WK02+ LRW Condensation, temperature, humidity 128

LoRaWAN® – Leakage Detectors

LS02+ LRW Leakage 130

LoRaWAN® – Air Pressure Sensors

DPA+ LRW Differential pressue, volume flow 132

LoRaWAN® – Room Sensors

MCS LRW Motion, temperature, humidity 135

LoRaWAN® – Gateways

Gateway LRW Indoor Femto 136
Gateway LRW Outdoor LORIX One 137

BLE Switches (Bluetooth® Low Energy)

Mini BLE switch (battery-free) 138
55x55 BLE switch (battery-free) 140
Busch-Jaeger BLE switch (battery-free) 142
SR-KCS BLE BLE key-card switch (battery-free) 144

Table of Contents

Room Climate Control

Room Operating Units

JOY HC	Temperature, rel. humidity	**146**
thanos EVO	Temperature, humidity, CO2, VOC	**148**
NOVOS Touch	Temperature, humidity, CO2, VOC	**152**
NOVOS 7	Temperature, humidity, CO2, VOC	**156**
NOVOS 5 x	Temperature, humidity, CO2, VOC	**160**
NOVOS 3 x	Temperature, humidity, CO2, VOC	**165**
NOVOS 3 INC	Temperature, humidity	**170**
WRF07 x	Temperature, rel. humidity, CO2, VOC	**173**
WRF06 LCD	Temperature, rel. humidity	**180**
WRF06 x	Temperature	**184**
WRF06 INC	Temperature, rel. humidity	**186**
WRF04 x	Temperature	**188**
LCR Touch	Temperature, humidity, VOC	**191**
LCA	Temperature	**192**

Fan Coil Controller

JOY Fancoil	Temperature, rel. humidity	**193**
LCF02 Touch	Temperature	**196**
LCF02	Temperature	**198**
LCF Touch	Temperature	**200**
LCF	Temperature	**201**

Room Sensors Climate / Air Quality

NOVOS 5	Temperature, humidity, CO2, VOC	**202**
NOVOS 3	Temperature, humidity, CO2, VOC	**208**
NOVOS 7 move	Temperature, rel. humidity, CO2	**216**
NOVOS 5 move	Temperature, CO2	**217**
NOVOS 3 move	CO2	**218**
NOVOS 3 IR	Radiation temperature	**219**
WRF06	Temperature, rel. humidity, CO2, VOC	**220**
FTB+	Temperature, humidity	**227**
RDF18	Temperature	**229**
FT-RDF18+	Temperature, humidity	**230**
RDF-IR	Radiation temperature	**232**
RPF40/40+	Temperature, radiation temp.	**234/235**
RPF100/100+	Temperature	**237/238**
FTP+	Temperature, humidity	**240**
LP+	CO2, Temperature, humidity	**242**

Room Sensors Light / Motion

MDS	Light, motion, temperature	**244**
RDI	Motion	**245**
LDF+	Light	**246**
WRF06I	Motion	**249**
WRF04I	Motion	**251**

Room Hygrostats

FSR01	Rel. humidity	**252**

Outdoor Sensors

Outdoor Sensors Climate / Air Quality

AGS54+	Temperature	**254**
AGS55+	Temperature	**256**
FTA54+	Temperature, humidity	**260**
WSA	Temperature, humidity	**262**
LA+	Temperature, humidity, CO2, VOC	**264**

Outdoor Sensors Climate / Light

Li65+	Light, air pressure, temp., humidity	**268**

Duct Sensors

Duct Sensors Climate / Air Quality

AKF10+	Temperature	**272**
SFK02+	Temperature	**280**
SFK02+ FR	Temperature	**287**
MWF+	Temperature	**291**
MWF400+	Temperature	**294**
KFK01	Temperature	**297**
SFK01	Temperature	**300**
KFK03	Temperature	**302**
SFK03	Temperature	**307**
RG03	Temperature	**311**
RGS03	Temperature	**312**
FTK+	Temperature, humidity	**313**
LK+	CO2, VOC, temperature, humidity	**317**

Duct Hygrostats

FSK01	Humidity	**325**

Contact Sensors / Cable Sensors

Contact Sensors

VFG54+	Temperature	**328**
AF25	Temperature	**331**
AF25+	Temperature	**333**

Cable Sensors

TF25	Temperature	**335**
TF25+	Temperature	**339**
TF14	Temperature	**343**
TF14+	Temperature	**346**

Surface Sensors

PR25	Temperature	**348**
PR25+	Temperature	**350**
OF14	Temperature	**352**
OF14+	Temperature	**353**

Frost Protection / Condensation / Leakage

Condensation Monitors

WK02+	Condensation, temperature, humidity	**356**
WK01+	Condensation	**358**

Leakage Detectors

LS02+ (ext./flex)	Leakage	**360**

Frost Protection Thermostats

TFR	Temperature	**362**
TFRe	Temperature	**363**

Table of Contents

Pressure and Velocity

Air Pressure Sensors

DPA+	Differential pressure, volume flow	366
PS	Differential pressure	372
AVT	Air flow, temperature	373

Air Pressure / Liquid Sensors

DLF	Pressure	374

Liquid Sensors

DPL	Differential pressure	377

Manometer

MM	Differential pressure	378
DPG	Differential pressure	379
DPGe	Differential pressure	380

Power Thyristors

Single-Phase

TS1 1-phase	Power thyristor	382
TS3 1-phase	Power thyristor	384

Three-Phase

TS1 3-phase	Power thyristor	386
TS3 3-phase	Power thyristor	388
TS2 3-phase	Power thyristor	390

Accessories / Information

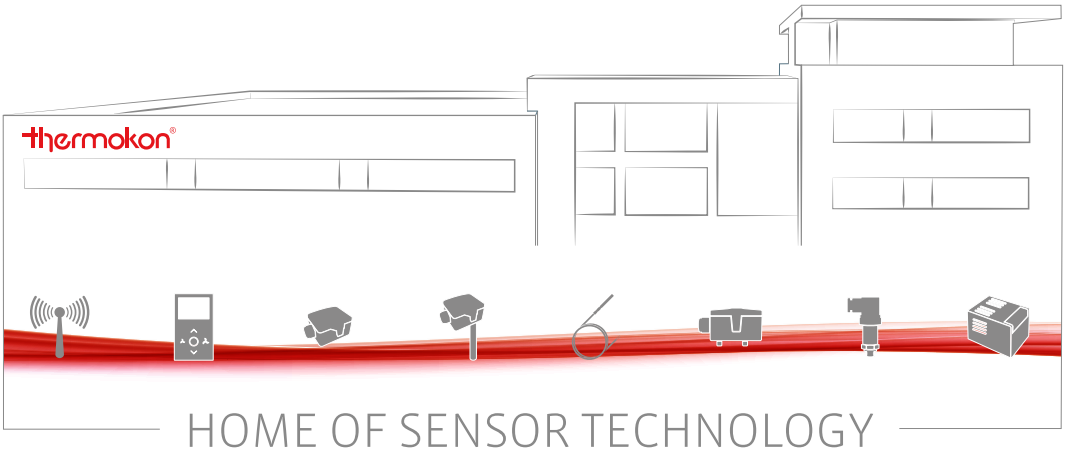
Mounting accessories general	392
Mounting accessories USE	393
Fastening and screwing	394
Thermowell pockets	395
Bonded pockets	396
Mounting flanges	397
Connections	398
Wires / Cables	398
Frames and enclosures	399
Valve adapters	400
Enclosure protection / Anti-theft protection	401
Filters	401
Power supplies	402
Batteries	402
Hardware	403
Storage media	403

Miscellaneous

Displays (DLF / DPL)	404
Special printing	404
Special painting	404
Special engraving/Special lasering	404
Material test report	405

General Information

Sensor characteristics	406
Glossary	408



FROM A SINGLE PRODUCT TO A SYSTEM SOLUTION

» ENERGY-EFFICIENT HIGH-TECH PRODUCTS

What started with the foundation of Thermokon Sensortechnik GmbH by Harald Zygan in 1987 has evolved to a success story quickly: The initial specialization on temperature sensors for the boiler industry was soon followed by an extension of the portfolio to sensor solutions for detection of relative humidity, air quality and brightness. Those products laid the foundation for energy-efficient products within our systems and solutions.

Nowadays, we are contributing actively to the sustainability of buildings as well as the reduction of CO2 emissions. When developing our high-tech products we pay especially attention to a lean and plug & play design so that our systems are “easy to install”. Of course, a time and cost-saving configuration is considered as well.

» CONTINUOUS GROWTH

Our growth to a Global Player involves a consequent optimization of our headquarters and included a new building in Mittenaar-Bicken in 1994. This building was continuously extended in the following years. In 2014 we moved our headquarters to a new location in Mittenaar-Offenbach.

A generous construction, latest technologies and ideal production conditions give us the flexibility and creativity for the development and production of advanced sensor solutions.

Modbus · BACnet · LON LOCAL OPERATING NETWORK · LoRaWAN®

KNX · digitalSTROM · enocean · Bluetooth®

OUR EXPERTISE – YOUR SUCCESS

For more than 35 years, Thermokon is recognized worldwide for leveraging standards in intelligent buildings with engineering, innovation and quality “Made in Germany”. Thanks to the development and production of sophisticated sensors and sensor systems we are creating an additional benefit for our customers all over the world. We focus on efficiency, sustainability and openness to new fields of technology as well as a close cooperation and thorough dialogue with our clients.

As a leader for innovation with a broad scope of applications we are continuously developing our portfolio further and offer decisive benefits with regards to product-related values, customised solutions and engineering. Our complete range of products is designed to energy-efficient buildings.

FROM MITTENAAR ACROSS THE GLOBE

Trend-setting sensors and sensor systems are developed and produced at our headquarters in Mittenaar-Offenbach with currently 230 employees. Besides our core values – safety, openness to new technologies and sustainability as well as our daily motivation striving for excellence in sensors, we established an own R&D department, an in-house test laboratory, a climatic chamber as well as an own SMD assembly line for our PCBs.

In addition, our finished goods warehouse ensures our delivery ability at any time. The responsible handling of resources in all corporate sectors is self-evident.

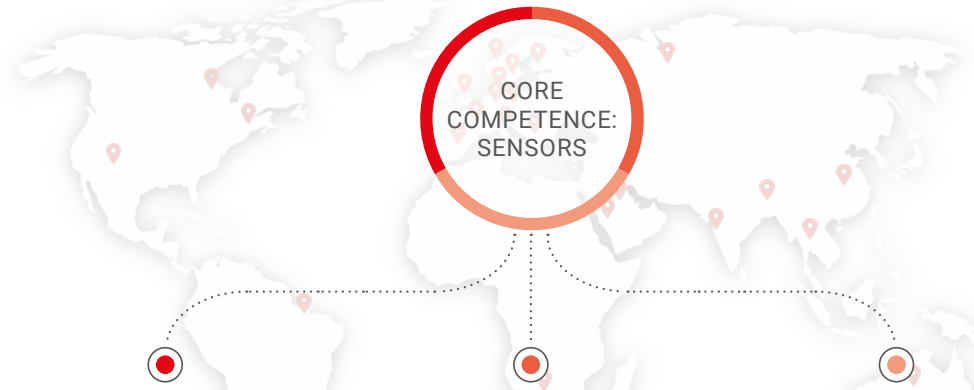
REPRESENTED IN MORE THAN 80 COUNTRIES

Our clients are manufacturers, system integrators, controller companies and strategic distributors in the HVAC industry and building automation. Our products and systems are exported all over the world.

A local support and presence is guaranteed by branches in Austria, Sweden, China, Switzerland, Finland and the the Netherlands as well as a sales agency in Russia. Due to a complementary cooperation with distributors in many parts of the world our product portfolio is available in more than 80 countries.

MADE IN GERMANY

FOR A SUSTAINABLE AND ECONOMICAL PARTNERSHIP



APPLICATION KNOW-HOW

We know and understand your applications. Thus we also understand your challenges and can interact with you on the same level.

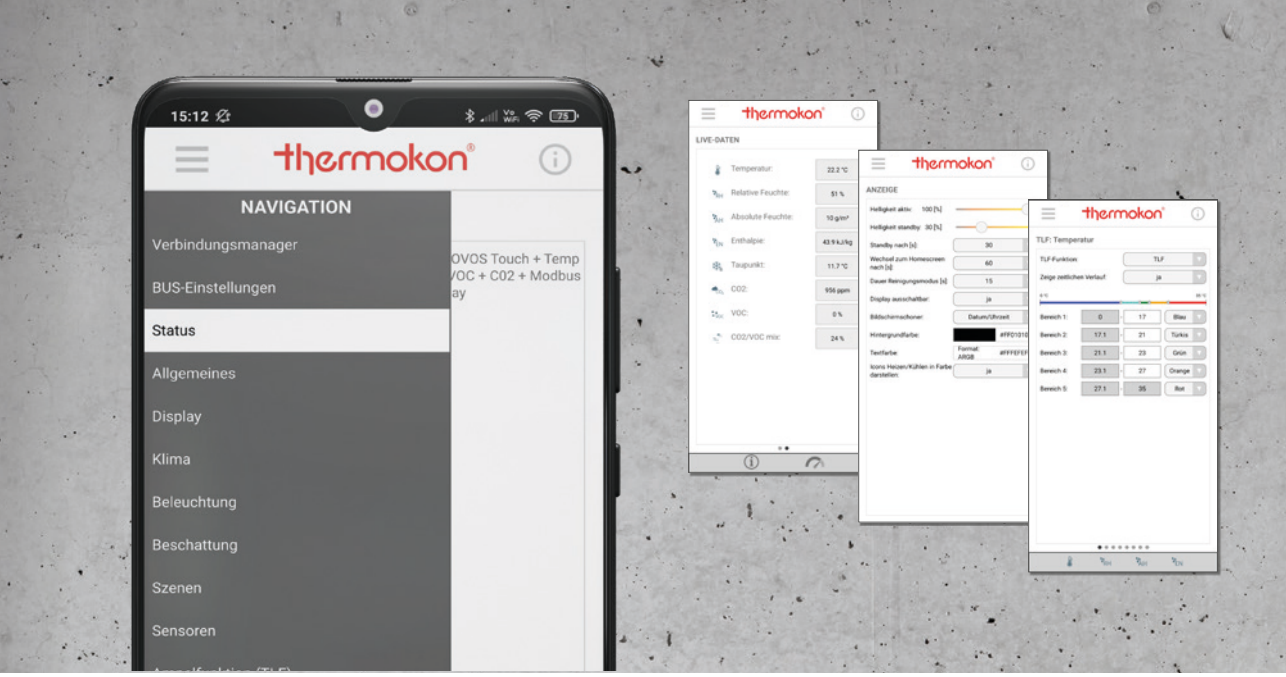
PROCESS KNOW-HOW

We anticipate your processes and make them more lean and efficient, enabling you to save time and money.

TECHNOLOGY KNOW-HOW

We have the required technical know-how to deliver you customized and efficient sensor solutions as well as services.

As the "Home of Sensor Technology" for building automation and HVAC Thermokon offers the essential knowledge to combine quality with efficiency to create customers' benefit by innovative solutions. Your success is guaranteed by our expertise. Thanks to well-engineered and high-grade products, a 5-year warranty with accommodating exceptions and proactive initiation of new innovations, you can rely on us at any time. Efficiency is an additional strength. We offer an excellent cost-performance ratio which pays off in terms of quality and service. Comprehensive sensor solutions are offered from a single source.



THERMOKON® APPS – FOR INDIVIDUAL CONFIGURATION

All "**USE**app" and "**NOVOS**app" based products are supplied with a fully functional standard configuration for direct mounting/ installation.

Via the app it is feasible to extend the range of use and to adapt the configuration individually to application requirements.

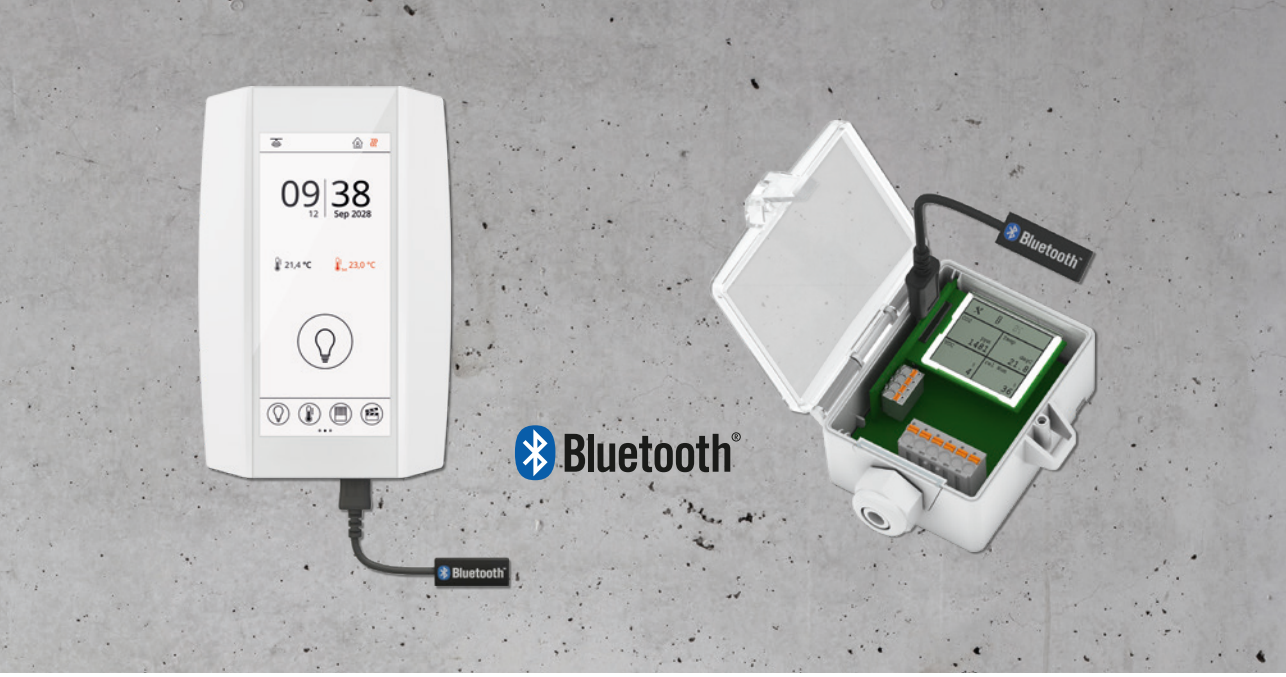
» **USE**app / **NOVOS**app – HIGHLIGHTS AND FEATURES

» Communication via Bluetooth® Low-Energy-Module (BLE)
» For use on mobile terminals (Android and iOS)
» Individual configuration of output signals
» Setting of different measuring ranges

» Additional adjustment of offset values
» Parameterization of Live-Zero-Signal (1..10 V etc.)
» Setting options for display indications
» Customized parameterization of traffic-light function (TLF)

» Setting of relay performance and thresholds
» Modbus address offset (extension)
» Possibility of firmware updates on-the-go (OTG)
» Adjustment of maintenance intervals

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30



Download on the App Store

*USE*app

GET IT ON Google Play

Download on the App Store

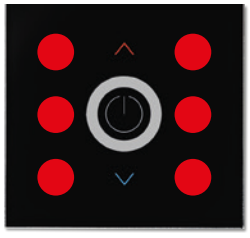
*NOVOS*app

GET IT ON Google Play

JOY CUSTOM – FUNCTIONAL INDIVIDUALISM

With the **JOY Custom*** you will get an individual room controller, that is optimally adapted to your requirements and desires. In addition to the classic functionality for controlling the setpoint temperature and adjusting fan speeds, our customized variants have four (JOY Fancoil) or six (JOY HC) additional, freely configurable buttons. Possible areas of application for the additional buttons would be e.g. switching lighting or controlling blinds or shades – the choice is yours! Graphical and customizable icons for the respective buttons as well as the possibility of having your own logo lasered into the real glass surface make the JOY Custom a unique user experience.

JOY Fancoil Custom with four customizable touch buttons



JOY HC Custom with six customizable touch buttons

» ADVANTAGES AND HIGHLIGHTS

- Elegant, flat design – high-quality finishing
- Flexibility due to different versions and master OFF button
- Available with EasySens® EnOcean wireless interface transmitting instantaneous telegrams at the touch of a button
- Demand-optimised control by setting up different user profiles
- Bidirectional controls using BACnet or Modbus thorugh a BMS system is possible
- **Now available with an integrated relative humidity sensor**

INSPIRATIONS

JOY Fancoil Custom

JOY HC Custom

** Minimum order quantity 100 pieces*

LoRaWAN® – LONG RANGE WIDE AREA NETWORK

Long Range Wide Area Network – short LoRaWAN®* – is a radio technology that is capable of transmitting data over a long distance and even from remote and hard-to-reach locations in an energy-efficient, cost-effective and secure manner. Due to the low energy consumption, the batteries of the sensors are extremely durable and can last for several years.

LoRaWAN® uses the so-called ISM frequency band around 868 MHz in Europe, for which no licence fees and no cellular costs are incurred. LoRaWAN® is heavily involved in the development of so-called „smart cities“. In Germany for example, cities and municipalities in particular are building a sustainable and process-optimised infrastructure for building security and monitoring or controlling street lighting.

In Switzerland, France and the Netherlands, telecommunications providers operate a nationwide network of gateways. In addition to the public networks, companies can also set up their own networks (private networks).

» ADVANTAGES

- Defined standard of the LoRa Alliance® with a broad ecosystem of members, products and world-wide references of active networks
- Location-independent access to all measured values through the Cloud
- Interference-resistant radio frequency range sub 1 GHz
- Configuring the device from virtually everywhere (Remote Configuration)
- Wide range of applications indoors and outdoors

Thermokon® is an official member of the LoRa Alliance®

LoRa Alliance® Member

» LONG DISTANCES

LoRa® provides long radio transmission ranges and a thorough signal penetration.

» OPEN STANDARD

Guaranteed high security and interoperability due to LoRaWAN® network protocol.

» HIGH ENERGY EFFICIENCY

Intelligent LoRaWAN® sensors reach up to 10 years lifetime battery-operated.

» BIDIRECTIONAL COMMUNICATION

LoRaWAN® enables bidirectional communication between sensors and network servers.

**LoRaWAN® is a registered trademark of the LoRa Alliance®*

» **STEP 1 – SENSOR:**
Sensor value acquisition and
bidirectional transmission

LoRaWAN®

» **STEP 2 – GATEWAY:**
Receiving and forwarding data

SYSTEM ARCHITECTURE:
CLOUD

» **STEP 3 – NETWORK SERVER (CLOUD):**
Network management and data routing

» **STEP 4 – APPLICATION SERVER:**
Data processing through IoT platforms,
e.g. visualisation (Datacake, etc.)

SYSTEM ARCHITECTURE:
BMS

Network server
integrated in gateway

Modbus
BACnet

» **STEP 3 – BUILDING MANAGEMENT SYSTEM (BMS):**
Integration into building management systems
e.g. via BACnet IP, Modbus TCP/IP, ...

TEMPERATURE
LIGHT
AIR QUALITY
LoRa®
MOTION
PRESSURE
HUMIDITY
SURVEILLANCE

EasySens®

The Self-Powered, Intelligent Wireless System

THE SELF-POWERED INTELLIGENT WIRELESS SYSTEM

The use of innovative technology makes it possible: The wireless EnOcean based system EasySens® enables a networked building automation – self-powered, intelligent and maintenance-free. Thus, EasySens® offers best possible flexibility for realizing individual requirements in new buildings and refurbishments.

» ADVANTAGES

- Cost saving thanks to Energy Harvesting
  Energy generation through motion, light and temperature
- Flexibility with sensor location – quick and easy mounting and commissioning
- Reduction of fire load
- Easy, wireless integration in existing buildings as well as retrofit adaptions to changed room layouts
- Direct mounting to representative measuring points
- Compatibility different manufacturers by using international standards (IEC 14543-3-10)
- **airConfig:**
  Convenient parameterization of the devices using special remote commissioning commands
- **airScan:**
  Field strength measuring system for evaluation and ideal placement of transmitters and receivers

TRANSMITTERS

RECEIVERS (TRANSCEIVER)

airConfig airScan

TOOLBOX

INTEROPERABLE SYSTEM INTEGRATION

BACnet digitalSTROM ETHERNET

KNX LON LOCAL OPERATING NETWORK Modbus

airConfig

airConfig – COMMISSIONING MADE EASY!

The use of EnOcean RF telegrams and the airScan USB transceiver make it possible: airConfig enables comfortable parameterization of your EasySens® devices by means of special remote commissioning commands.

No more direct interaction and tiresome accessing of devices in buildings. Benefit by a significant time-saving. Thus, the communication of your devices is guaranteed.

» ADVANTAGES

- Simple seamlessly learning-in, configuration and deletion of devices via RF technology
- Adjustment of configuration parameters – e.g. waking-up cycles or measuring ranges – in the device settings
- Transparent and central availability of relevant system information
- Uncomplicated handling of maintenance and support works
- Configuration of measured values (EEP) and sensor parameters
- Learning-in of sensors via Drag and Drop (Remote Management)
- Saving time resources (configuration via Copy and Paste)
- Remote access to product and project information
- Structured product presentation thanks to device ID
- Change of product configurations even at inaccessible mounting places
- Change of specifications and parameterization on-site or via remote access
- Password protected configuration of actuators
- Identification via visual and acoustic feedback

21.8°C
HALL
STOR.
POWDER
PROVIDE 4 FEET LONG
1.5" THICK SQUASH BLOCK
TYP.
+355.20
WP:
PL. 8"X8"X1/2"+

airScan – MEASURING AND MONITORING

You would like to plan and realize EasySens projects simply? Then airScan, the field strength measuring instrument of Thermokon, is the right tool for you: The traffic light indication (RSSI) displays the signal strengths received and shows reliably the optimal mounting place for transmitters and receivers. Even in daily use the work with airScan cannot be easier. On the well-structured surface all telegrams received are clearly listed and allocated to the corresponding product.

» ADVANTAGES

- Find the best location for your device
- Monitoring function for easy evaluation of radio frequency telegrams
- Logging, repeater function and possibility of remote maintenance
- Data export in CSV-, XML- or XLS data formats
- Generation and transmission of EnOcean telegrams
- Status detection of product ID, field strength and manufacturers of integrated products
- Full support of EEP2.6.3. standards
- Taking-over of desired EnOcean profile from a pre-defined EEP selection
- Definition of telegram content via input fields
- Easy and fast generation and transmission of telegrams
- Translation of various available measuring values
- Reliable information on signal quality or RSSI value of telegrams by colour indicator (traffic light system) or graphs
- Detailed evaluation of telegrams (data bytes, RSSI value, sub-telegrams etc.)
- Decoding of measuring values
- Background saving of received telegrams
- Possibility of data export as well as automated forwarding to a FTP server or an e-mail account

EUROPEAN CENTRAL BANK
FRANKFURT, GERMANY
MORE THAN 13.000 DEVICES

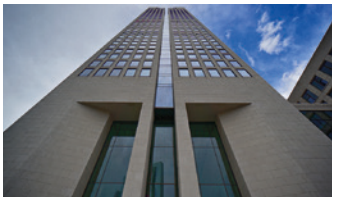
REFERENCES

Star Arctic Hotel
Saariselkä, Finland

Shell Global Headquarters
The Hague, Netherlands

Prime Tower
Zurich, Switzerland

Fondation Louis Vuitton
Paris, France



Opernturm
Frankfurt, Germany

Tomson Riviera Apartment Towers
Shanghai, China

KaDeWe
Berlin, Germany

Semperoper
Dresden, Germany

Grand Hyatt
Dubai, UAE

HAMAD INTERNATIONAL AIRPORT
DOHA, QATAR

Sheikh Abdullah Al Salem
Cultural Center, Kuwait City

Fairmont Hotel Four Seasons
Hamburg, Germany

University Oslo
Oslo, Norway

Generali Insurance, Zentrale
Trieste, Italy

State Opera
Wien, Austria

Konica Minolta
Milan, Italy

The National Gallery of Art
Washington D.C., USA

Ascot Racecourse
Ascot, England

European Patent Office
Munich, Germany

5 YEARS WARRANTY

» LASTING RELIABILITY

Due to high quality and durability of our products we offer a 5-year warranty from date of production for all products produced as of 01.01.2014.

You are interested in details? Please visit:
www.thermokon.de/en-gb/highlights/5-years-warranty

SI-PROTECTION

» FOR NON-CORRODING SENSORS

If the ambient temperature fluctuates around dew-point, condensatation might appear. For your sensors condensate can have unpleasant consequences: Humidity penetrates into the soldering point of the sensor, the sensor oxidizes and begins to corrode. Thus, the measuring result becomes unreliable. SI-Protection offers you a safe protection against corrosion damages, vibrations and measuring inaccuracies.

The contact points of the sensors are first coated with epoxy resin and with a casting compound afterwards. Due to the permanent connection with the insulation material of the wire a closed unit is established protecting the sensor reliably against vibration and humidity. This effect is additionally supported by the rolled pocket.

SI-Protection

16-point pressed
(protection class IP65)

rolled
(protection class IP67)

EasySens®

Innovative self-powered wireless technology generates energy by means of harvesting ambient light or motion. Interoperable, cost-effective and energy-efficient solutions in building automation are available using our wireless sensor system EasySens®.

Room Operating Units

JOY SR Fancoil	Temperature, rel. humidity	28
JOY SR HC	Temperature, rel. humidity	32
SR06 LCD	Temperature, rel. humidity	36
SR07 x	Temperature, rel. humidity	40
NOVOS 3 SR x	Temperature, rel. humidity	43

Room Sensors

SR07	Temperature, rel. humidity	45
NOVOS 3 SR	Temperature, rel. humidity, CO2	47
SR04 CO2	CO2, temperature, rel. humidity	49

Sensors

SR65	Outdoor sensor temperature	51
SR65 AKF	Duct sensor temperature	52
SR65 TF	Cable sensor temperature	54
SR65 VFG	Contact sensor temperature	56

Light / Motion

MCS SR	Light, motion, temperature	58
SR-MDS	Light, motion, temperature	59
SR-MDS Solar	Light, motion	60
SR-MOC Solar	Motion	61
SR-MOW Solar	Motion	62
SR65 Li	Light	63

Input Modules

SR-MI	Smart meter (S0 signals)	64
SR65-3AI	Radio module with 3 inputs (0..10 V)	65
SR65 DI	Binary radio module	66

Window Contacts / Door Contacts

SRG02	Window handle (battery-free)	67
SRG-Basic	Window handle (battery-free)	68
SRW03	Window / door contact (battery-free)	69

Switches

Mini	Radio switch (battery-free)	70
55x55	Radio switch (battery-free)	72
BJ 63x63	Radio switch (battery-free)	74
Jung LS990	Radio switch (battery-free)	76
Hand-held	Radio hand-held switch (battery-free)	78
SR-KCS	Radio key-card switch (battery-free)	79

Gateways

STC65+ RS485 Modbus	80
STC65+ RS485 EVC	81
STC65-FTT LON	82
STC-BACnet IP	83
SRC65-BACnet MS/TP	84
STC-IoT	85
STC-KNX	86
STC-KNX UP	87
STC-dS / STC-dS HS	88 / 89

Actuators

STC-DO	90
STC-DO Light	91
STC-DO Blind	92
SRC-AO Climate	93
SRC-AO Dim	94
SRC-AO Multi	95
STC-DO8	96
SRC-ADO	98
STC-MSG Server	100
STC-MSG Server UP	101
SAB+	102
SAB05	104

Repeater

SRE-Repeater	106
SRE-Repeater UP	107

JOY SR Fancoil

Fancoil thermostat with EnOcean radio interface in high-quality design for individual singleroom temperature- and fan control. A glass surface with intuitive touch control buttons and display combine design, feel and functionality in an outstanding way. The internal controller of the JOY calculates control values for fans and heating/cooling applications, which are provided via analog or digital outputs (depending on type). The integrated EnOcean interface also allows the control of a second heating circuit (e.g. using a radiator valve). The integration of various external sensors (e.g. window contacts, change-over, condensation sensors, etc.) is possible through a hard-wired connection or the EnOcean interface. These sensors enable temperature- and fan control tailored to the application. The device can be mounted in a standard flush-mounted box.

NEW: With additional, customizable touch buttons (see page 12)

Outputs	5DO (230 V)	EC AO2DO (230 V)	EC 3AO (24 V)
Fan (Relay)	3	–	–
EC Fan (0..10 V)	–	1	1
Heating/Cooling (Relay)	2	2	–
Heating/Cooling (0..10 V)	–	–	2
6-Way-Valve (0..10 V)	–	–	1*
Inputs	**5DO (230 V)**	**EC AO2DO (230 V)**	**EC 3AO (24 V)**
Universal (configurable)	3 / BUS: 2	3 / BUS: 2	3 / BUS: 2

** Instead of 2x 0..10 V (heating/cooling)*

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature, fan stage adjustment, standby/presence detection
Operating elements	5 touch buttons
Configuration	uConfig, BUS
Input	1x input for NTC10k or floating contact **5DO/AO2DO:** 1x input for potential contact (230 V ~) 1x input for floating contact **3AO:** 2x input for floating contact
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP: 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	**5DO/AO2DO:** 85..260 V ~ **3AO:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**5DO:** max. 2,5 VA (260 V ~) **AO2DO:** max. 3 VA (260 V ~) **3AO:** typ. 2,5 W (24 V =)
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, cover glass
Colour	pure white, black
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², inputs max. 1,0 mm²
Mounting	in standard EU box (Ø=60 mm, depth min. 45 mm)

Fan coil thermostat with radio interface temperature RS485 Modbus 85..260 V

Item description	Contr.	Item No.	Group	€
JOY SR FC 5DO temp RS485 Modbus white MVolt	✓	793117	ES1	238,40
JOY SR FC 5DO temp RS485 Modbus black MVolt	✓	799072	ES1	251,00
JOY SR EC AO2DO temp RS485 Modbus white MVolt	✓	763776	ES1	238,40
JOY SR EC AO2DO temp RS485 Modbus black MVolt	✓	793902	ES1	251,00

Fan coil thermostat with radio interface temperature RS485 Modbus 24 V

Item description	Contr.	Item No.	Group	€
JOY SR EC 3AO temp RS485 Modbus white 24 V	✓	701020	ES1	238,40
JOY SR EC 3AO temp RS485 Modbus black 24 V	✓	701037	ES1	251,00

Options	
Description	**€**
Add for additional humidity sensor	41,90
Change-over sensor NTC10k (model and price on request)	

Accessories			
Item description	**Item No.**	**Group**	**€**
microSD card 2 GB (JOY)	500098	AS1	12,50
Decorative frame JOY pure white	681452	AS1	13,50
Decorative frame JOY black	740951	AS1	13,50
Frame for surface mounting JOY pure white	760201	AS1	26,80
Frame for surface mounting JOY black	760195	AS1	26,80

JOY SR HC

Room thermostat with EnOcean wireless interface in high-quality design for individual temperature control, e.g. in hotel rooms or offices. A glass surface with intuitive touch control buttons and display combine design, feel and functionality in an outstanding way. The internal controller of the JOY calculates control values for fans and heating/cooling applications, which are provided via analog or digital outputs (depending on type). The integrated EnOcean interface also allows the control of a second heating circuit (e.g. using a radiator valve). The integration of various external sensors (e.g. window contacts, change-over, condensation sensors, etc.) is possible through a hard-wired connection or the EnOcean interface. These sensors enable temperature control tailored to the application. The device can be mounted in a standard flush-mounted box.

NEW: With additional, customizable touch buttons (see page 12)

Outputs	AO2DO (230 V)	3AO (24 V)
Heating/Cooling (Relay)	2	–
Heating/Cooling (0..10 V)	–	2
6-Way-Valve (0..10 V)	1	1*
Inputs	**AO2DO (230 V)**	**3AO (24 V)**
Universal (configurable)	2	2

** Instead of 2x 0..10 V (heating/cooling)*

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature, standby/presence detection
Operating elements	3 touch buttons
Configuration	uConfig, BUS
Input	1x input for NTC10k or floating contact **AO2DO:** 1x input for potential contact (230 V ~) 1x input for floating contact **3AO:** 2x input for floating contact
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	**AO2DO:** 85..260 V ~ **3AO:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, cover glass
Colour	pure white, black
Operating range temperature	0..+50 °C
Connection	terminal block, max. 1,5 mm², inputs max. 1,0 mm²
Mounting	in standard EU box (Ø=60 mm, depth min. 45 mm)

Room thermostat heating/cooling with radio interface temperature RS485 Modbus 85..260 V

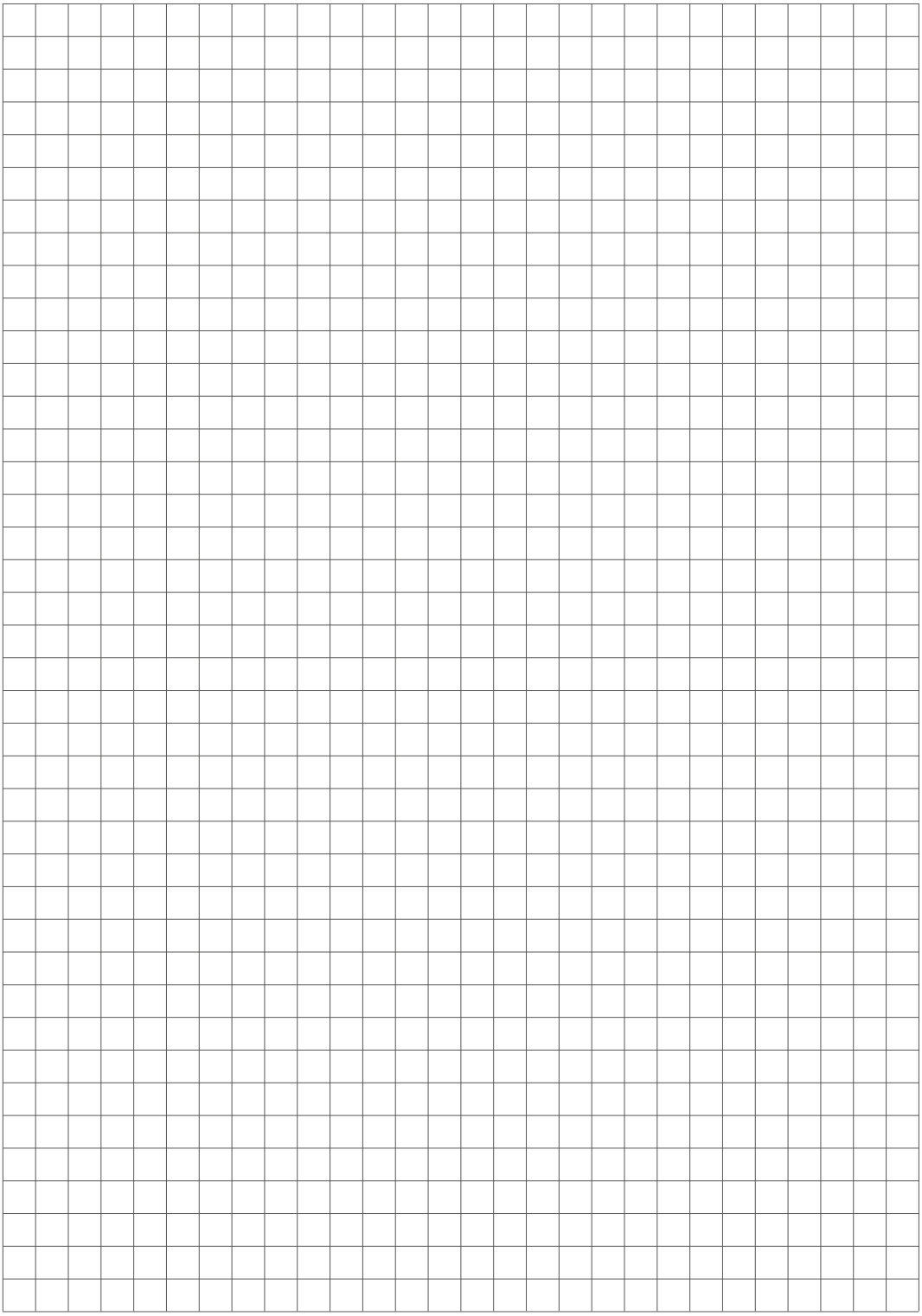
Item description	Contr.	Item No.	Group	€
JOY SR HC AO2DO temp RS485 Modbus white MVolt	✓	756914	ES1	238,40
JOY SR HC AO2DO temp RS485 Modbus black MVolt	✓	756938	ES1	251,00

Room thermostat heating/cooling with radio interface temperature RS485 Modbus 24 V

Item description	Contr.	Item No.	Group	€
JOY SR HC 3AO temp RS485 Modbus white 24 V	✓	700993	ES1	238,40
JOY SR HC 3AO temp RS485 Modbus black 24 V	✓	701006	ES1	251,00

Options	
Description	**€**
Add for additional humidity sensor	41,90
Change-over sensor NTC10k (model and price on request)	

Accessories			
Item description	**Item No.**	**Group**	**€**
microSD card 2 GB (JOY)	500098	AS1	12,50
Decorative frame JOY pure white	681452	AS1	13,50
Decorative frame JOY black	740951	AS1	13,50
Frame for surface mounting JOY pure white	760201	AS1	26,80
Frame for surface mounting JOY black	760195	AS1	26,80



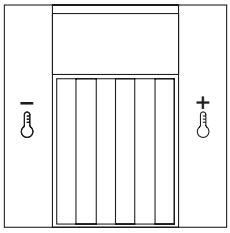
SR06 LCD

Energy-harvesting wireless room operating unit with an integrated LCD for the measurement of temperature and relative humidity (rH version). Depending on the type, temperature set point, fan stages, room occupancy, lighting or blinds can be controlled using the operating buttons on the device. The device transmits its measured values to corresponding receivers or gateways, which directly process the information or - depending on the application - forward it to a BMS controller. Using the SmartACK protocol, the bidirectional communication is capable of managing a local overwrite from BMS of e.g. set point, fan stages and room occupancy. The SR06 LCD can be wirelessly parameterized by using the airConfig software or alternatively through the optional USB programming interface. Although the SR06 LCD is a self-powered device, the energy capacitor of the device can also be charged via USB interface if required. It can be integrated into almost any 55x55 mm frames, allowing you to choose from many designs and frame manufacturers. The SR06 LCD is mounted by using the adhesive pad or screws.

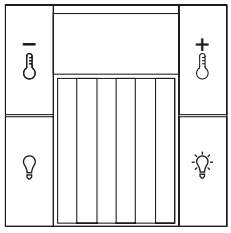
SR06 LCD 4T pure white brilliant, switch range Gira E2 pure white

SR06 LCD 2T+Light aluminium, switch range Gira E2 aluminium

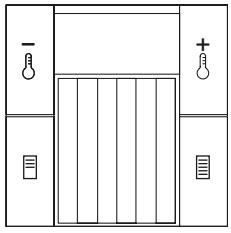
SR06 LCD 2T+Blind anthracite, switch range Gira E2 anthracite



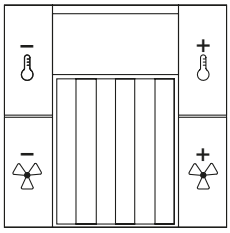
2T



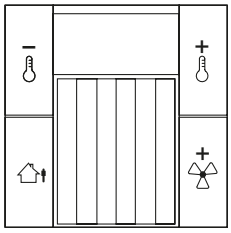
2T+Light



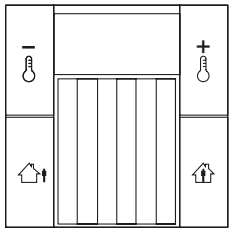
2T+Blind



4T Itype1



4T Itype2



4T Itype3

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment fan stage adjustment presence detection light ON/OFF blind UP/DOWN
Operating elements	2 buttons 4 buttons
Configuration	airConfig, Software/Plug-In for configuration
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	solar cell, maintenance-free LiPo-battery use of back-up battery possible for insufficiently lit environments, coin cell CR1632
Display	LCD 29x12 mm, monochrome
Enclosure	PC V0
Colour	white, pure white brilliant, aluminium, Jung aluminium
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	minimum illuminance at standard setting: 200 lx for 8 hours, for configuration an optional programming interface is available energy storage can be recharged with a separate USB-cable, to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless room operating unit temperature 2T			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T temp pure white brilliant	728843	ES2	204,80
SR06 LCD 2T temp aluminium	728881	ES2	204,80
SR06 LCD 2T temp Jung aluminium	728966	ES2	204,80
SR06 LCD 2T temp anthracite	728928	ES2	204,80

Wireless room operating unit temperature 2T+light			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T+Light temp pure white brilliant	728850	ES2	225,20
SR06 LCD 2T+Light temp aluminium	728898	ES2	225,20
SR06 LCD 2T+Light temp Jung aluminium	729000	ES2	225,20
SR06 LCD 2T+Light temp anthracite	728935	ES2	225,20

Wireless room operating unit temperature 2T+blind			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T+Blind temp pure white brilliant	731836	ES2	225,20
SR06 LCD 2T+Blind temp aluminium	728904	ES2	225,20
SR06 LCD 2T+Blind temp Jung aluminium	729017	ES2	225,20
SR06 LCD 2T+Blind temp anthracite	728942	ES2	225,20

Wireless room operating unit temperature 4T			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 4T ltype1 temp pure white brilliant	728874	ES2	220,80
SR06 LCD 4T ltype1 temp aluminium	728911	ES2	220,80
SR06 LCD 4T ltype1 temp Jung aluminium	729024	ES2	220,80
SR06 LCD 4T ltype1 temp anthracite	728959	ES2	220,80

Wireless room operating unit humidity + temperature 2T			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T temp_rH pure white brilliant	729031	ES2	246,70
SR06 LCD 2T temp_rH aluminium	729062	ES2	246,70
SR06 LCD 2T temp_rH Jung aluminium	729109	ES2	246,70
SR06 LCD 2T temp_rH anthracite	729147	ES2	246,70

Wireless room operating unit humidity + temperature 2T+light			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T+Light temp_rH pure white brilliant	693035	ES2	267,10
SR06 LCD 2T+Light temp_rH aluminium	729079	ES2	267,10
SR06 LCD 2T+Light temp_rH Jung aluminium	729116	ES2	267,10
SR06 LCD 2T+Light temp_rH anthracite	729154	ES2	267,10

Wireless room operating unit humidity + temperature 2T+blind			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 2T+Blind temp_rH pure white brilliant	729048	ES2	267,10
SR06 LCD 2T+Blind temp_rH aluminium	729086	ES2	267,10
SR06 LCD 2T+Blind temp_rH Jung aluminium	729123	ES2	267,10
SR06 LCD 2T+Blind temp_rH anthracite	729161	ES2	267,10

Wireless room operating unit humidity + temperature 4T			
Item description	**Item No.**	**Group**	**€**
SR06 LCD 4T ltype1 temp_rH pure white brilliant	729055	ES2	262,70
SR06 LCD 4T ltype1 temp_rH aluminium	729093	ES2	262,70
SR06 LCD 4T ltype1 temp_rH Jung aluminium	729130	ES2	262,70
SR06 LCD 4T ltype1 temp_rH anthracite	729178	ES2	262,70

Options	Switch ranges on page 409/410
Description	**€**
Labelling type 2 (ltype2)	0,00
Labelling type 3 (ltype3)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Coin cell CR1632	597814	AS1	4,55
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20
USB extension 3 m	574044	NET	14,90
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

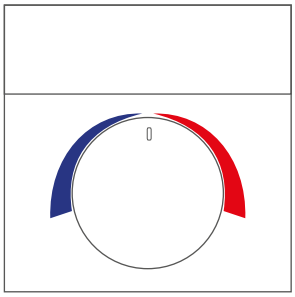
SR07 x

Energy-harvesting wireless room operating unit for the measurement of temperature and relative humidity (rH version) in living and office spaces. Also available with set point potentiometer, slide switch (for example ‚Day/Night') or occupancy button. The device transmits its values unidirectionally to receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller. It can be integrated into almost any 55x55 mm frames, allowing you to choose from many designs and frame manufacturers. The SR07 x is mounted by using the adhesive pad or screws.

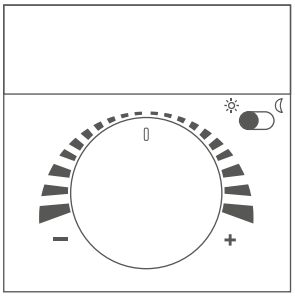
SR07 P aluminium,
switch range Gira E2

SR07 PT pure white brilliant,
switch range Gira E2

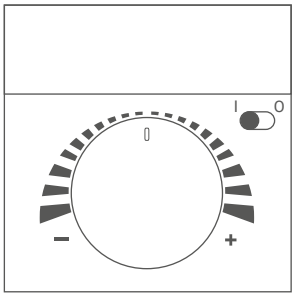
SR07 PMS (day/night) anthracite,
switch range Gira E2



BTypSF



PMS (day/night)



PMS (I / 0)

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature presence detection day/night operation operation I/0
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing

Technical Data	
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR1632
Enclosure	PC
Colour	white, pure white brilliant, aluminium, Jung aluminium
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

Wireless room operating unit temperature P

Item description	Item No.	Group	€
SR07 P temp pure white brilliant	634113	ES2	167,20
SR07 P temp aluminium	729246	ES2	167,20
SR07 P temp Jung aluminium	729314	ES2	167,20
SR07 P temp anthracite	729376	ES2	167,20

Wireless room operating unit temperature PT

Item description	Item No.	Group	€
SR07 PT temp pure white brilliant	729185	ES2	176,40
SR07 PT temp aluminium	729260	ES2	176,40
SR07 PT temp Jung aluminium	729321	ES2	176,40
SR07 PT temp anthracite	729383	ES2	176,40

Wireless room operating unit temperature PMS

Item description	Item No.	Group	€
SR07 PMS (day/night) temp pure white brilliant	729192	ES2	176,40
SR07 PMS (day/night) temp aluminium	729277	ES2	176,40
SR07 PMS (day/night) temp Jung aluminium	729338	ES2	176,40
SR07 PMS (day/night) temp anthracite	729390	ES2	176,40

Wireless room operating unit humidity + temperature P			
Item description	**Item No.**	**Group**	**€**
SR07 P temp_rH pure white brilliant	729208	ES2	209,10
SR07 P temp_rH aluminium	729284	ES2	209,10
SR07 P temp_rH Jung aluminium	729345	ES2	209,10
SR07 P temp_rH anthracite	729406	ES2	209,10

Wireless room operating unit humidity + temperature PT			
Item description	**Item No.**	**Group**	**€**
SR07 PT temp_rH pure white brilliant	729215	ES2	218,30
SR07 PT temp_rH aluminium	729291	ES2	218,30
SR07 PT temp_rH Jung aluminium	729352	ES2	218,30
SR07 PT temp_rH anthracite	729413	ES2	218,30

Wireless room operating unit humidity + temperature PMS			
Item description	**Item No.**	**Group**	**€**
SR07 PMS (day/night) temp_rH pure white brilliant	729239	ES2	218,30
SR07 PMS (day/night) temp_rH aluminium	729307	ES2	218,30
SR07 PMS (day/night) temp_rH Jung aluminium	729369	ES2	218,30
SR07 PMS (day/night) temp_rH anthracite	729420	ES2	218,30

Options	Switch ranges on page 409/410
Description	**€**
Default labelling P colour red+blue (ltypeSF)	6,80
Default labelling I/0 for slide switch (MS)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Coin cell CR1632	597814	AS1	4,55

NOVOS 3 SR x

Energy-harvesting wireless room operating unit in the NOVOS design for the integrated measurement of temperature and relative humidity (rH version) in living and office spaces as well as controls through operating elements such as set point and occupancy button. The device is mounted using the adhesive pad or screws included and transmits its values unidirectionally to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.

NOVOS 3 SR P

NOVOS 3 SR T

NOVOS 3 SR PT

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature presence detection
Operating elements	potentiometer (P) button (T)
Configuration	DIP switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery ER14505 (3,6 V)
Enclosure	PC V0
Colour	pure white, aluminium, black design cover alu or black available
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

Wireless room operating unit temperature				
Item description	**Item No.**	**On stock**	**Group**	**€**
NOVOS 3 SR P white temp	754064	⛃	ES2	146,30
NOVOS 3 SR T white temp	754071		ES2	151,50
NOVOS 3 SR PT white temp	754095		ES2	167,30
NOVOS 3 SR P white design temp	777964		ES2	146,30
NOVOS 3 SR PT white design temp	777988		ES2	167,30

Wireless room operating unit humidity + temperature				
Item description	**Item No.**	**On stock**	**Group**	**€**
NOVOS 3 SR P white temp_rH	754101	⛃	ES2	188,20
NOVOS 3 SR T white temp_rH	754118		ES2	193,40
NOVOS 3 SR PT white temp_rH	754125		ES2	209,20
NOVOS 3 SR P white design temp_rH	777971		ES2	188,20
NOVOS 3 SR PT white design temp_rH	777995		ES2	209,20

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
Battery ER14505 (lithium 3.6 V AA)	759182	AS1	7,65
Adhesive foil for NOVOS 3 SR with inner cut-outs	773386	AS1	2,10
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

SR07

Energy-harvesting wireless room sensor for measuring temperature in residential and commercial buildings. The SR07 transmits its measured values unidirectionally to compatible EasySens® receiving actuators or gateways, which forward the information to a BMS controller. It can be integrated into a wide range of common switch ranges and frames, allowing you to choose from many designs and frame manufacturers.

SR07 pure white brilliant,
switch range Gira E2

SR07 aluminium,
switch range Gira E2

SR07 anthracite,
switch range Gira E2

Technical Data	
Measured values	temperature, relative humidity
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR1632
Enclosure	PC
Colour	white, pure white brilliant, aluminium, Jung aluminium
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

Wireless room sensor temperature			
Item description	**Item No.**	**Group**	**€**
SR07 temp pure white brilliant	729437	ES2	149,10
SR07 temp aluminium	729444	ES2	149,10
SR07 temp Jung aluminium	729451	ES2	149,10
SR07 temp anthracite	729468	ES2	149,10

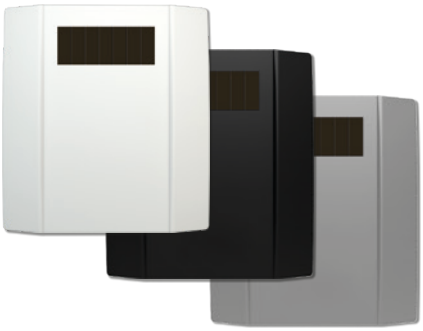
Wireless room sensor humidity + temperature			
Item description	**Item No.**	**Group**	**€**
SR07 temp_rH pure white brilliant	729550	ES2	191,00
SR07 temp_rH aluminium	729567	ES2	191,00
SR07 temp_rH Jung aluminium	729581	ES2	191,00
SR07 temp_rH anthracite	729598	ES2	191,00

Options	Switch ranges on page 409/410
Description	**€**
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Coin cell CR1632	597814	AS1	4,55

NOVOS 3 SR

Energy-harvesting wireless room sensor in the NOVOS design for measuring temperature in residential and commercial buildings. Mounted directly on the wall using the adhesive pad or screws included, the NOVOS 3 SR Temp transmits its measured values to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.



NOVOS 3 SR

NOVOS 3 SR CO2

Technical Data	
Measured values	temperature, relative humidity, CO2
Configuration	DIP switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery ER14505 (3,6 V)
Enclosure	PC V0
Colour	pure white, aluminium, black **Temp / Temp_rH:** design cover alu or black available (please specify colour when ordering)
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

Wireless room sensor temperature				
Item description	**Item No.**	**On stock**	**Group**	**€**
NOVOS 3 SR temp white	754040	⛀	ES2	130,50
NOVOS 3 SR temp white design	778008		ES2	130,50

Wireless room sensor humidity + temperature				
Item description	**Item No.**	**On stock**	**Group**	**€**
NOVOS 3 SR temp_rH white	754057	⛀	ES2	172,40
NOVOS 3 SR temp_rH white design	778015		ES2	172,40

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60

Wireless room sensor CO2 + temperature			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 SR CO2 temp white	789790	ES2	298,10

Wireless room sensor CO2 + temperature + humidity			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 SR CO2 temp_rH white	789820	ES2	340,00

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
Battery ER14505 (lithium 3.6 V AA)	759182	AS1	7,65
Adhesive foil for NOVOS 3 SR with inner cut-outs	773386	AS1	2,10
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

SR04 CO2

Wireless room sensor for measuring CO2, temperature and optionally relative humdity in residential and commercial buildings. Mounted directly on the wall using the adhesive pad or screws included, the NOVOS 3 SR Temp transmits its measured values to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.

Technical Data	
Measured values	temperature, relative humidity, CO2
Configuration	jumper
Sensor	NDIR (non-dispersive, infrared)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+51 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2550 ppm
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	max. 1,6 W (24 V =), 3,6 VA (24 V ~)
Display	LCD 29x12 mm, monochrome 3 LEDs for displaying air quality (traffic light function – TLF)
Enclosure	PC
Colour	pure white
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm² cable entry via rear opening, predetermined breaking point (bottom und top)
Mounting	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless room sensor CO2 + temperature			
Item description	**Item No.**	**Group**	**€**
SR04 CO2 temp	442510	ES2	308,20
SR04 CO2 temp LCD	467131	ES2	353,30
SR04 CO2 temp TLF	436557	ES2	324,00
SR04 CO2 temp LCD TLF	630634	ES2	369,10

Wireless room sensor CO2 + temperature + humidity			
Item description	**Item No.**	**Group**	**€**
SR04 CO2 temp_rH	434768	ES2	350,10
SR04 CO2 temp_rH LCD	462228	ES2	395,20
SR04 CO2 temp_rH TLF	516143	ES2	365,90
SR04 CO2 temp_rH LCD TLF	474757	ES2	411,00

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

SR65

Energy-harvesting wireless sensor for measuring temperature in outdoor areas or industrial environments (for example in cold stores, production halls and warehouses). The airConfig software can be used to parameterize the SR65 to customized measurement ranges, transmission intervals and wake-up times. When used in dark places (e.g. server rooms), a backup battery can be inserted.

SR65 Temp

SR65 Temp_rH

Technical Data	
Measured values	temperature, relative humidity
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, -20..+60 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Power supply	solar cell, maintenance-free internal super cap, use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	**Temp:** Sensor probe: Ø=6 mm, stainless steel V4A (1.4571) **rH:** Pipe: Ø=19 mm, PC, length 50 mm, with filter stainless steel wire mesh
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless outdoor sensor

Item description	Item No.	On stock	Group	€
SR65 temp	230001	⛃	ES2	149,90
SR65 temp_rH	540391	⛃	ES2	191,80

Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,55
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SR65 AKF

Energy-harvesting wireless duct sensor for the measurement of temperature in gaseous media of heating, ventilation and air-conditioning systems. The SR65 AKF can be configured via airConfig software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.

Technical Data	
Measured values	temperature
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, +10..+90 °C, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571)
Installation length	100 mm
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-40..+130 °C
Operating range temperature enclosure	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless duct/immersion sensor temperature			
Item description	**Item No.**	**Group**	**€**
SR65 AKF 100.06	630566	ES2	159,20

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

Thermowells						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛁	AS2	9,90

Thermowells						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛁	AS2	20,90
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473	⛁	AS2	20,20

SR65 TF

Energy-harvesting wireless cable sensor for measuring temperature in gaseous media in heating, ventilation and air-conditioning systems. The SR65 TF can be configured via airConfig software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.

Technical Data	
Measured values	temperature
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, -20..+60 °C, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571), rolled (IP67)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-40..+130 °C
Operating range temperature enclosure	-25..+65 °C
Protection (IP)	enclosure IP65, according to EN 60529
Connection cable	silicone, 0,25 mm², 2-wire
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless cable sensor temperature			
Item description	**Item No.**	**Group**	**€**
SR65 TF 050.06 L1000	245647	ES2	152,10

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+180 °C	2,00

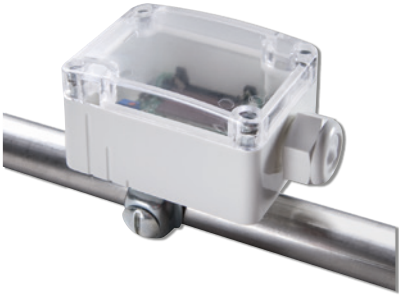
Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	14,20
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

Thermowells						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	⛃	AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛃	AS2	9,90

Thermowells						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	⛃	AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛃	AS2	20,90
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473	⛃	AS2	20,20

SR65 VFG

Energy-harvesting wireless contact sensor for measuring temperature on ducts/pipes.The SR65 VFG can be configured via air-Config software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.



Technical Data	
Measured values	temperature
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, +10..+90 °C, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	Sensor probe, brass, spring loaded sensor
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless contact sensor temperature			
Item description	**Item No.**	**Group**	**€**
SR65 VFG	239615	ES2	149,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

MCS SR

Multi-compact sensor with EnOcean interface for measuring temperature, humidity and motion.

MCS SR Occ

MCS SR Temp_rH

Technical Data	
Measured values	**Occ:** motion **Temp_rH:** temperature, relative humidity
Sensor	PIR (passive infrared)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	battery type AAA
Enclosure	PC V0
Colour	pure white, anthracite
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using included adhesive pad or screws
Delivery content	incl. adhesive foil for mounting incl. battery type AAA

Wireless room sensor motion			
Item description	**Item No.**	**Group**	**€**
MCS SR Occ white	792424	ES2	144,90
MCS SR Occ anthracite	792448	ES2	151,20

Wireless room sensor humidity + temperature			
Item description	**Item No.**	**Group**	**€**
MCS SR temp_rH white	799058	ES2	134,90
MCS SR temp_rH anthracite	799065	ES2	141,20

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,55

SR-MDS

The SR-MDS is a radio multi-sensor to measure light levels and detect motion. The SR-MDS is typically ceiling-mounted and powered by 24 V so as to permit reliable operations in rooms with low light levels (e.g. basements).

Technical Data	
Measured values	temperature, luminosity, motion
Configuration	jumper
Sensor	PIR (passive infrared) dectection range: 360 °, Ø=5 m at a sensor height of approx. 2,5 m
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+51 °C
Measuring range light	0..510 lux
Power supply	flex. 15..240 V =/~, battery LS14250 (3,6 V), (3x)
Power consumption	typ. 0,8 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	pure white
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable terminal block, max. 2,5 mm²
Notes	designed for constant light control applications

Wireless ceiling sensor light + motion (+ temperature)			
Item description	**Item No.**	**Group**	**€**
SR-MDS	396486	ES2	252,40
SR-MDS BAT	396462	ES2	252,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
Enclosure for surface mounting SR-MDS pure white	514439	AS1	53,30
Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	AS1	7,25

SR-MDS Solar

Energy-harvesting wireless radio multi-sensor to measure light levels and detect motion. The SR-MDS Solar can be integrated into compatible receiving actuators or gateways.

Technical Data	
Measured values	luminosity, motion
Configuration	airConfig
Sensor	PIR (passive infrared) dectection range: 102 °x92 °, Ø=5 m at a sensor height of approx. 2,8 m
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Measuring range light	0..510 lux (default setting) 0..1000 lux (10 bit) 0..1020 lux optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments: battery LS14250 (3,6 V)
Enclosure	PC, ABS
Colour	pure white
Operating range temperature	0..50 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. fixing kit rawlplugs and screws (2x each)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Wireless ceiling sensor light + motion				
Item description	**Item No.**	**On stock**	**Group**	**€**
SR-MDS Solar	591577	⛀	ES2	237,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SR-MOC Solar

Energy-harvesting wireless ceiling-mounted sensor for motion detection and integration into EasySens® receiving actuators or gateways.

Technical Data	
Measured values	motion
Configuration	buttons
Sensor	PIR (passive infrared) dectection range: 360 °, Ø=5 m at a sensor height of approx. 2,5 m
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR2032 terminal for external power supply 3..5 V =
Enclosure	PC
Colour	white
Operating range temperature	-10..+40 °C
Protection (IP)	IP50, according to EN 60529
Mounting	surface-mounted flat on base using included adhesive pad or screws

Wireless ceiling sensor motion

Item description	Item No.	On stock	Group	€
SR-MOC Solar	566070	●	ES2	180,20

Accessories

Item description	Item No.	Group	€
Coin cell CR2032	347013	AS1	4,55
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

SR-MOW Solar

Energy-harvesting wireless wall-mounted sensor for motion detection and integration into EasySens® receiving actuators or gateways.

Technical Data	
Measured values	motion
Configuration	buttons
Sensor	PIR (passive infrared) dectection range: with wide angle lens up to 15 m, with field lens up to 30 m when mounted at height 2,10 m
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR2032 terminal for external power supply 3..5 V =
Enclosure	PC
Colour	white
Operating range temperature	-10..+40 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using included adhesive pad or screws

Wireless wall sensor motion			
Item description	**Item No.**	**Group**	**€**
SR-MOW Solar	566094	ES2	157,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Coin cell CR2032	347013	AS1	4,55
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

SR65 Li

Energy-harvesting wireless light sensor for constant light control applications, saving energy by lowering the artificial light. The SR65 Li can furthermore be configured individually via airConfig.

Technical Data	
Measured values	luminosity
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Measuring range light	0..510 lux 0..1000 lux (10 bit) 0..1020 lux 300..30.000 lux (default setting) 600..60.000 lux
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529

Wireless outdoor sensor luminosity

Item description	Item No.	Group	€
SR65 Li	598354	ES2	185,80

Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,55
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SR-MI

EasySens® metering interface for wireless radio transmission of pulse signals for gas, water, electric and BTU meters with an S0 interface.

Technical Data	
Configuration	DIP switches
Input	3x S0-interface
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,2 W (24 V =), 0,4 VA (24 V ~)
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Delivery content	incl. external transmitting antenna with magnetic base

Wireless module

Item description	Item No.	Group	€
SR-MI	471428	ES2	187,30

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

SR65-3AI

The SR65-3AI has 3x 0..10 V inputs. The inputs can be wirelessly transmitted with the SR65-3AI to an EasySens® receiving actuator or can be integrated through gateways into existing BUS networks.

Technical Data	
Configuration	jumper
Input	3x analogue input, 0..10 V
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,2 W (24 V =), 0,4 VA (24 V ~)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm, plug-in terminal, max. 1,5 mm²

Wireless module

Item description	Item No.	Group	€
SR65-3AI	527071	ES2	149,90

SR65-DI

The SR65 DI is a wireless transmitter for the binary status of relay inputs. The status of the digital input is transmitted through radio to corresponding remote controllers in the EnOcean network or can be transferred through a gateway to any BUS network. It is often used as a push signal for night-time temperature reduction of heating controllers or ECO/comfort switching.

Technical Data	
Configuration	airConfig
Input	1x input for floating contact, contact resistance max. 1000 Ω
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	solar cell, maintenance-free internal super cap, battery LS14250 (3,6 V)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm, terminal block, max. 1,5 mm²
Delivery content	incl. battery LS14250 (3,6 V)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless binary module			
Item description	**Item No.**	**Group**	**€**
SR65-DI	267731	ES2	149,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Battery LS14250	315098	AS1	4,55
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SRG02

Battery- and wireless window handle for status monitoring of windows (lock option available) with radio interface. When actuated, the handle transmits a radio signal with the handle position to a receiving actuator or gateway. The window handle is used to optimize energy consumption in the building, as heating/cooling or ventilation gets deactivated when windows are open. Equipped with a variable length square spindle for profile depths of 32..42 mm for most common window frames.

aluminium pure white

aluminium steel grey

stainless steel

Technical Data	
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	aluminium (locking cylinder optional), stainless steel
Colour	pure white painted, steel grey painted
Operating range temperature	+5..+40 °C
Mounting	square spindle, variable lengths (for tread depth 32..42 mm)
Notes	lateral detent with precise detent position

Wireless window handle

Item description	Item No.	On stock	Group	€
SRG02 aluminium pure white	730747		ES1	116,00
SRG02 aluminium steel grey	730730		ES1	116,00
SRG02 stainless steel	730723		ES1	194,80
SRG02 lockable aluminium pure white	730716		ES1	166,50
SRG02 lockable aluminium steel grey	730709		ES1	166,50

SRG-Basic

Battery- and wireless window handle for status monitoring of windows (lock option available) with radio interface. When actuated, the handle transmits a radio signal (opened/closed) to a receiving actuator or gateway. The window handle is used to optimize energy consumption in the building, as heating/cooling or ventilation gets deactivated when windows are open. Equipped with a variable length square spindle for profile depths of 32..42 mm for most common window frames.

aluminium pure white

aluminium silver

aluminium steel grey

Technical Data	
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	aluminium
Colour	pure white, steel grey, silver
Operating range temperature	+5..+40 °C
Mounting	square spindle, variable lengths (for tread depth 32..42 mm)

Wireless window handle				
Item description	**Item No.**	**On stock**	**Group**	**€**
SRG-Basic aluminium pure white	768276	⛁	ES1	103,50
SRG-Basic aluminium silver	768283	⛁	ES1	103,50
SRG-Basic aluminium steel grey	768290		ES1	103,50

SRW03

Energy-harvesting wireless window contact for the status monitoring of windows and doors. Ideal for retrofitting applications in hotel rooms or office spaces to increase energy savings.

SRW03 / SRW03 BAT

SRW03 Dual BAT

Technical Data	
Sensor	reed contact and magnet
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments: **SRW03 BAT:** coin cell CR1225 **SRW03 Dual BAT:** battery type AAA
Enclosure	PC V0
Colour	pure white, anthracite
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using included adhesive pad or screws
Delivery content	incl. adhesive foil for mounting **SRW03 BAT:** incl. coin cell type CR1225 **SRW03 Dual BAT:** incl. battery type AAA
Notes	**SRW03 Dual BAT:** for 1 or 2-leaf windows

Wireless window/door contact

Item description	Item No.	Group	€
SRW03 white	778534	ES1	74,80
SRW03 anthracite	778541	ES1	81,10
SRW03 BAT white	793728	ES1	80,10
SRW03 BAT anthracite	793735	ES1	86,40
SRW03 Dual BAT white	778558	ES1	83,00
SRW03 Dual BAT anthracite	778565	ES1	89,30

Accessories

Item description	Item No.	Group	€
SRW03 BAT: Coin cell CR1225	727310	AS1	4,55
SRW03 Dual BAT: Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,55

Wireless Switches Mini

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds. The EasySens® radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.

4-channel blinds, pure white brilliant

2-channel light, aluminium

2-channel blinds, anthracite

Technical Data	
Operating functions	light ON/OFF blind UP/DOWN
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white brilliant, aluminium painted, anthracite
Operating range temperature	-25..+65 °C
Switch ranges	Thermokon mini
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	price including frame actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch Mini 2-channel light pure white brilliant	430647	ES2	71,30
Switch Mini 2-channel light aluminium painted	430661	ES2	71,30
Switch Mini 2-channel light anthracite	430623	ES2	71,30

Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch Mini 4-channel light pure white brilliant	430838	ES2	73,80
Switch Mini 4-channel light aluminium painted	430852	ES2	73,80
Switch Mini 4-channel light anthracite	430814	ES2	73,80

Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch Mini 2-channel blind pure white brilliant	430630	ES2	71,30
Switch Mini 2-channel blind aluminium painted	430654	ES2	71,30
Switch Mini 2-channel blind anthracite	430302	ES2	71,30

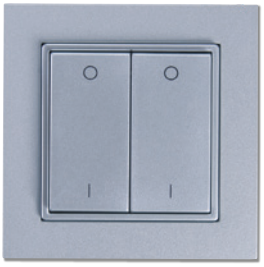
Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch Mini 4-channel blind pure white brilliant	430821	ES2	73,80
Switch Mini 4-channel blind aluminium painted	430845	ES2	73,80
Switch Mini 4-channel blind anthracite	430807	ES2	73,80

Options	
Description	**€**
Special printing on request	
Without printing on request	

Wireless Switches 55x55

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds. The EasySens® radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.

2-channel blinds
Gira E2 pure white



4-channel light
Gira E2 aluminium

4-channel blinds
Gira E2 anthracite

Technical Data	
Operating functions	light ON/OFF blind UP/DOWN
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
Operating range temperature	-25..+65 °C
Switch ranges	Berker, Busch-Jaeger, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel light 55x55 pure white matt	730167	ES1	77,40
Switch 2-channel light 55x55 pure white brilliant	730372	ES1	77,40
Switch 2-channel light 55x55 aluminium	730419	ES1	77,40
Switch 2-channel light 55x55 Jung aluminium	730457	ES1	77,40
Switch 2-channel light 55x55 anthracite	730495	ES1	77,40

Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel light 55x55 pure white matt	730181	ES1	79,80
Switch 4-channel light 55x55 pure white brilliant	730389	ES1	79,80
Switch 4-channel light 55x55 aluminium	730426	ES1	79,80
Switch 4-channel light 55x55 Jung aluminium	730464	ES1	79,80
Switch 4-channel light 55x55 anthracite	730501	ES1	79,80

Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel blind 55x55 pure white matt	730235	ES1	77,40
Switch 2-channel blind 55x55 pure white brilliant	730396	ES1	77,40
Switch 2-channel blind 55x55 aluminium	730433	ES1	77,40
Switch 2-channel blind 55x55 Jung aluminium	730471	ES1	77,40
Switch 2-channel blind 55x55 anthracite	730518	ES1	77,40

Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel blind 55x55 pure white matt	730365	ES1	79,80
Switch 4-channel blind 55x55 pure white brilliant	730402	ES1	79,80
Switch 4-channel blind 55x55 aluminium	730440	ES1	79,80
Switch 4-channel blind 55x55 Jung aluminium	730488	ES1	79,80
Switch 4-channel blind 55x55 anthracite	730525	ES1	79,80

Options	Switch ranges on page 409/410
Description	**€**
Special printing on request	
Without printing on request	
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Wireless Switches BJ 63x63

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds, especially for Busch-Jaeger (63x63mm) designs. The radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.

4-channel blinds,
future® linear studio white

4-channel light,
future® linear aluminium silver

2-channel blinds,
future® linear anthracite

Technical Data	
Operating functions	light ON/OFF blind UP/DOWN
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	anthracite, studio white, studio white matt available on request, ivory white alu silver, black matt available on request
Operating range temperature	-25..+65 °C
Switch range Busch-Jaeger	Busch-axcent®, carat®, future® linear, solo® (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000, frame designs Busch-Jaeger solo®, future® linear and Busch-axcent® at the same price, please ask for carat® Busch-balance® SI see Wireless Switches 55x55

Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel light BJ63x63 studio white	730532	ES1	79,80
Switch 2-channel light BJ63x63 ivory white	730570	ES1	79,80
Switch 2-channel light BJ63x63 alu silver	730631	ES1	79,80
Switch 2-channel light BJ63x63 anthracite	730754	ES1	79,80

Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel light BJ63x63 studio white	730549	ES1	82,30
Switch 4-channel light BJ63x63 ivory white	730587	ES1	82,30
Switch 4-channel light BJ63x63 alu silver	730648	ES1	82,30
Switch 4-channel light BJ63x63 anthracite	730761	ES1	82,30

Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel blind BJ63x63 studio white	730556	ES1	79,80
Switch 2-channel blind BJ63x63 ivory white	730594	ES1	79,80
Switch 2-channel blind BJ63x63 alu silver	730655	ES1	79,80
Switch 2-channel blind BJ63x63 anthracite	730778	ES1	79,80

Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel blind BJ63x63 studio white	730563	ES1	82,30
Switch 4-channel blind BJ63x63 ivory white	730600	ES1	82,30
Switch 4-channel blind BJ63x63 alu silver	730693	ES1	82,30
Switch 4-channel blind BJ63x63 anthracite	730785	ES1	82,30

Options	
Description	**€**
Special printing on request	
Without printing on request	
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®	4,80

Wireless Switches Jung LS 990

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds, especially for JUNG designs. The radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.

2-channel light,
LS 990 light grey

4-channel light,
LS 990 alpin white

4-channel blinds,
LS 990 white

Technical Data	
Operating functions	light ON/OFF blind UP/DOWN
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	white, light grey, alpin white
Operating range temperature	-25..+65 °C
Switch range Jung	LS 990
Delivery content	incl. adhesive foil for mounting
Notes	price including frame actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel light Jung LS 990 white	435390	ES1	119,20
Switch 2-channel light Jung LS 990 alpin white	435376	ES1	119,20
Switch 2-channel light Jung LS 990 light grey	435413	ES1	119,20

Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel light Jung LS 990 white	435475	ES1	123,60
Switch 4-channel light Jung LS 990 alpin white	435451	ES1	123,60
Switch 4-channel light Jung LS 990 light grey	435499	ES1	123,60

Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel blind Jung LS 990 white	435406	ES1	119,20
Switch 2-channel blind Jung LS 990 alpin white	435383	ES1	119,20
Switch 2-channel blind Jung LS 990 light grey	435420	ES1	119,20

Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel blind Jung LS 990 white	435482	ES1	123,60
Switch 4-channel blind Jung LS 990 alpin white	435468	ES1	123,60
Switch 4-channel blind Jung LS 990 light grey	435505	ES1	123,60

Options	
Description	**€**
Special printing on request	
Without printing on request	

Hand-helds

The EasySens® hand-held switch works as a remote control for EasySens® receiving actuators or gateways, which can integrate the wireless signals into an exisiting network and application.

Technical Data	
Operating elements	4 buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	maintenance-free electrodynamic energy generator
Operating range temperature	-25..+65 °C
Notes	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

Hand-held			
Item description	**Item No.**	**Group**	**€**
Hand-held switch 4-channel	314602	ES1	108,90

SR-KCS

Energy-harvesting wireless key card switch for occupancy-based control of lighting or air conditioning in rooms. The self-powered wireless EasySens® radio permits flexible installation on glass surfaces or walls using adhesive pads or screws.

Technical Data	
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white
Operating ranges temperature	-20..+60
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

Wireless switch			
Item description	**Item No.**	**Group**	**€**
SR-KCS	573573	ES2	89,70

STC65+ RS485 Modbus

Bidirectional gateway with RS485 Modbus interface for integration of up to 32 EasySens® devices. Freely programmable 32 channels allow for a bidirectional communication with 32 addresses (registers) and SAB+/SAB05 wireless valve actuators for example. The STC65+ RS485 Modbus includes an ext. transmitting/receiving antenna (2.5 m).

Technical Data	
Configuration	Software/Plug-In for configuration, BUS, jumper, DIP switches
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	bidirectional, transmitting/receiving channels: 32 (Rx) + 32 (Tx) + 32 (VA)
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,8 W (24 V =), 2 VA (24 V ~)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-20..+60 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, plug-in terminal, max. 1,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), communication with up to 15 SmartACK devices, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS

Item description	Item No.	On stock	Group	€
STC65+ RS485 Modbus	657372	⛃	ES2	266,60

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75

STC65+ RS485 EVC

Bidirectional gateway with serial RS485 interface and IP65 enclosure for integrating up to 64 EasySens® sensors or wireless switches into a network. Transmission of field-programmable telegrams to max. 127 addresses. The gateway includes an ext. transmitting/receiving antenna (2.5 m).

Technical Data	
Configuration	Software/Plug-In for configuration, BUS, jumper, DIP switches
Network technology	RS485 EVC
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	bidirectional, transmitting/receiving channels: in filter mode 64 (Rx) + 128 (Tx), in gateway mode ∞ (Rx) + 128 (Tx)
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,8 W (24 V =), 2 VA (24 V ~)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-20..+60 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, plug-in terminal, max. 1,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), communication with up to 15 SmartACK devices, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS

Item description	Item No.	On stock	Group	€
STC65+ RS485 EVC	657396	⛃	ES2	266,60

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75

STC65-FTT LON

Bidirectional gateway for connecting up to 11 EasySens® sensors and transmitters to controllers and control systems with LON interface. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON network. Especially designed to upgrade existing LON installations with wireless technologies for increased energy savings.

LON

Technical Data	
Configuration	Software/Plug-In for configuration, BUS
Network technology	LON FT (free topology)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	bidirectional, transmitting/receiving channels: 11 (Rx) + 11 (Tx)
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,8 W (24 V =), 0,9 VA (24 V ~)
Enclosure	PA6.6
Colour	pure white, transparent cover PC
Operating range temperature	-20..+60 °C
Protection (IP)	IP42, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm seal insert for double cable entry for wire max Ø=6 mm
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base incl. plug-in for turbo LONmaker
Notes	communication with up to 4 SmartACK devices magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS			
Item description	**Item No.**	**Group**	**€**
STC65-FTT LON	393904	ES2	319,30
STC65-FTT LON SmartACK	616638	ES2	319,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

STC-BACnet IP

The STC-BACnet IP gateway is designed for bidirectional communication between EasySens® devices and building management systems with a BACnet IP interface. Configuration can be easily performed with the EasySens® airConfig software tool. Details of the communication protocol are described in the software documentation accordingly. The delivery content includes an external antenna for achieving best transmission ranges.

Technical Data	
Configuration	airConfig, BUS
Network technology	BACnet IP
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	bidirectional, transmitting/receiving channels: ∞ (Rx) + 128 (Tx)
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =), 5 VA (24 V ~)
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) for network connection use a shielded standard Ethernet cable CAT 5 magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

STC-BACnet IP – Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-BACnet IP V3	773843	ES1	470,40

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SRC65-BACnet MS/TP

The unidirectional SRC65-BACnet MS/TP gateway allows the reception of information from EasySens® sensors, switches, room units and other transmitters. Details of the communication protocol are described in the software documentation accordingly. The delivery content includes an external antenna for achieving best transmission ranges.

Technical Data	
Configuration	BUS, jumper, DIP switches
Network technology	RS485 BACnet (MS/TP)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	unidirectional, receiving channels: 32 (Rx)
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,3 VA (24 V ~)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover PC
Operating range temperature	-20..+60 °C
Protection (IP)	IP42, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean -> BUS

Item description	Item No.	Group	€
SRC65-BACnet MS/TP	396431	ES1	289,70

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

STC-IoT

The STC-EnOcean IP gateway allows for an easy integration of EasySens® sensors and actuators into the Internet of Things (IoT). The new EnOcean-over-IP gateway communicates JSON streams or RestAPI command lines. The seamless commissioning and configuration can be done through any browser interface. The graphical dataflow-oriented processing of the EnOcean information can be performed by the integrated free Node-RED editor (https://nodered.org/) and enables simple, rule-based processing of information. It can further be used to send push notifications via SMS/e-Mail, if values exceed thresholds (additional required hardware not included). EasySens® devices can be integrated very easily into cloud-based applications. Compatible with IP-based controllers and display systems.

Technical Data	
Configuration	web interface
Network technology	TCP/IP
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	unidirectional, receiving channels: ∞ (Rx)
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =), 5 VA (24 V ~)
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) local documentation via web browser interface

Gateway EnOcean -> BUS

Item description	Item No.	Group	€
STC-IoT	669320	ES1	435,30

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

STC-KNX

Bidirectional gateway for connecting up to 32 EasySens® sensors or wireless switches to a KNX network. The device offers additional logical control blocks, which can be configured for: switching and dimming lights, blinds up/down, presence, set point adjustment, fan stages, humidity sensor, window contact/handle, binary input, light and motion.

Technical Data	
Configuration	BUS, ETS (KNX)
Network technology	KNX (TP1)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Data transmission	bidirectional, transmitting/receiving channels: 32 (Rx) + 32 (Tx)
Power supply	supply via BUS: 29 V = SELV
Power consumption	max. 12 mA
Display	graphic display monochrome (internal)
Enclosure	PC
Colour	white
Operating range temperature	-5..+45 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable plug-in terminal, max. Ø=0,8 mm cable entry via rear opening
Mounting	flush-mounted on standard EU box (Ø=60 mm)
Notes	product database (freeware via download)

STC-KNX – Gateway EnOcean <-> BUS			
Item description	**Item No.**	**Group**	**€**
STC-KNX	698948	ES1	408,10

STC-KNX UP

Flush-mounted bidirectional gateway for EasySens® sensors to integrate into a KNX network with a maximum of 8 channels. The STC-KNX UP offers logical control blocks, which can be configured for: switching and dimming lights, blinds up/down, presence, set point adjustment, fan stages, humidity sensor, window handle/contact, binary input, light and motion.

Technical Data	
Configuration	BUS, ETS (KNX)
Network technology	KNX (TP1)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Data transmission	bidirectional, transmitting/receiving channels: 8 (Rx) + 8 (Tx)
Power supply	supply via BUS: 29 V = SELV
Power consumption	max. 12 mA
Enclosure	ABS
Colour	blue
Operating range temperature	-5..+45 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable plug-in terminal, max. Ø=0,8 mm
Mounting	flush-mounted in standard EU box (Ø=60 mm)
Notes	product database (freeware via download)

Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-KNX UP	725132	ES1	300,70

STC-dS

Bidirectional gateway for extending a digitalSTROM system with EasySens® wireless devices like sensors, room units, valve actuators, switches, window contacts and window handles. These devices can be easily connected to an existing digitalSTROM network.

Technical Data	
Configuration	web interface
Network technology	digitalSTROM
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	external power supply (USB micro), 5 V =, 1 A
Power consumption	typ. 3,2 W (5 V =)
Enclosure	PC, ABS
Colour	white
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	USB micro (power supply) RJ45 socket (8P8C) 10/100 MBit/s Ethernet
Connection cable	patch cable, RJ45 plug
Delivery content	incl. external power supply incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS			
Item description	**Item No.**	**Group**	**€**
STC-dS	637442	DS1	438,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

STC-dS HS

Bidirectional gateway for extending a digitalSTROM system with EasySens® wireless devices like sensors, room units, valve actuators, switches, window contacts and window handles, designed to be mounted on DIN rail TS35 (35x7,5 mm) in accordance with EN 60715. The wireless devices can be seamlessly integrated and used like standard digitalSTROM components.

Technical Data	
Configuration	web interface
Network technology	digitalSTROM
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =), 5 VA (24 V ~)
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² RJ45 socket (8P8C) 10/100 MBit/s Ethernet
Connection cable	patch cable, RJ45 plug
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-dS HS	711340	DS1	438,60

Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

STC-DO

Bidirectional flush-mounted receiving actuator for EasySens® devices with one relay output. Functions/applications can be individually configured via airConfig software for e.g. heating with PWM, heating ON/OFF, signal contact, status feedback, hygrostat control, heating/cooling with PWM, light ON/OFF or fan speed control. The STC-DO is a universal relay acatuator that can be configured through airConfig depending on the application.

Technical Data	
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
Power consumption	typ. 1,5 W (24 V =), 3,4 VA (24 V ~), typ. 0,5 VA (230 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm)

Radio multi-function actuator				
Item description	**Contr.**	**Item No.**	**Group**	**€**
STC-DO airConfig 24 V	✓	593731	ES2	153,90
STC-DO airConfig 100..240 V	✓	593748	ES2	153,90

Accessories			
Item description	**Item No.**	**Group**	**€**
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

STC-DO Light

Bidirectional flush-mounted receiving actuator using EnOcean switch telegrams for lighting applications (e.g. light on/off, staircase function, twilight switch, etc.). The functions can be parameterised via a programming button.

Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	100..240 V ~
Power consumption	max. 0,5 mW (standby)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+40 °C
Protection (IP)	IP20, according to EN 60529
Connection	plug-in terminal, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Radio lighting actuator			
Item description	**Item No.**	**Group**	**€**
STC-DO Light 230 V	568371	ES2	153,90

STC-DO Blind

Bidirectional flush-mounted receiving actuator for blind applications compatible with EasySens® wireless switches and room operating units. The functions can be parameterised via programming button.

Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	100..240 V ~
Power consumption	max. 0,5 mW (standby)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+40 °C
Protection (IP)	IP20, according to EN 60529
Connection	plug-in terminal, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Radio shading actuator			
Item description	**Item No.**	**Group**	**€**
STC-DO Blind 230 V	568364	ES2	153,90

SRC-AO Climate

Unidirectional flush-mounted receiving actuator for room temperature control of proportional heating or cooling valves (type V with 1x 0..10 V), proportional heating and cooling valves (type VV with 2x 0..10 V) or 6-way valves (type 6WV).

Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	up to 32 devices can be learned in, per channel 1 room operating unit + 1 input module for night-time reduction + up to 10 window contacts or window handles can be learned in

Radio climate actuator

Item description	Contr.	Item No.	Group	€
SRC-AO Climate V	✓	508278	ES2	153,50
SRC-AO Climate 6WV	✓	530255	ES2	153,50
SRC-AO Climate VV	✓	508285	ES2	179,90

SRC-AO Dim

Unidirectional flush-mounted receiving actuator for dimming up to two 1..10 V or 0..10 V dimming actuators and electronic ballasts (ECGs) through EasySens® wireless switches. The SRC-AO DIM can accommodate up to 32 EasySens® wireless switches.

Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	up to 32 devices can be learned in

Radio dimming actuator			
Item description	**Item No.**	**Group**	**€**
SRC-AO Dim V	499606	ES2	153,90
SRC-AO Dim VV	502931	ES2	179,90

SRC-AO Multi

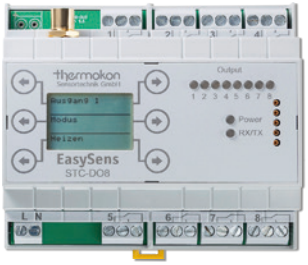
Unidirectional flush-mounted receiving actuator with two proportional 0..10 V outputs for converting EasySens® wireless sensors such as temperature, temperature setpoint, humidity, etc. into 0..10 V signals.

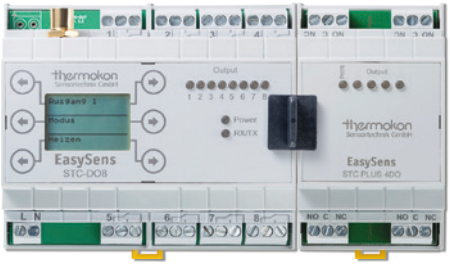
Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	per channel 1 transmitter can be learned in

Radio multi actuator			
Item description	**Item No.**	**Group**	**€**
SRC-AO Multi V	508315	ES2	153,90
SRC-AO Multi VV	508322	ES2	179,90

STC-DO8

Bidirectional receiving actuator for (DIN) rail mounting with 8 relay outputs (expandable up to 12 relay outputs using the ‚STC-PLUS 4DO' expansion module) for the evaluation of EnOcean sensors, switches and room operating units. Suitable for heating/cooling control, fan coil control, light switching, shutter and blind control. The delivery content includes an external antenna for achieving best possible transmission range.





Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	18..24 V = SELV, 24 V ~ (±10%) SELV 100..240 V ~
Power consumption	typ. 2 W (24 V =), 3,5 VA (24 V ~) 3,5 VA
Display	LCD 37,5x31,6 mm
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) for inductive and/or capacitive loads, a suitable protective circuit must be provided (varistor, RC element, inrush current limitation, ...)

Radio multi-relay actuator 100..240 V			
Item description	**Item No.**	**Group**	**€**
STC-DO8 100..240 V type1 heating/cooling	490030	ES2	357,20
STC-DO8 100..240 V type2 fancoil, heating/cooling	490047	ES2	357,20
STC-DO8 100..240 V type3 switch actuator	490054	ES2	357,20

Radio multi-relay actuator 24 V			
Item description	**Item No.**	**Group**	**€**
STC-DO8 24 V type1 heating/cooling	564458	ES2	357,20
STC-DO8 24 V type2 fancoil, heating/cooling	631495	ES2	357,20
STC-DO8 24 V type3 switch actuator	561273	ES2	357,20

Extension module			
Item description	**Item No.**	**Group**	**€**
STC-PLUS 4DO	517690	ES2	160,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90
Connector STC-DO8 to STC-PLUS 4DO	517577	AS1	8,30

SRC-ADO

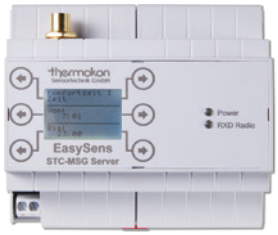
Unidirectional receiving actuator for (DIN) rail mounting with 4 analogue outputs 0..10 V and 2 (max. 4) potential-free relay outputs. For connecting EasySens® sensors, wireless switches, room operating units and wireless window contacts or window handles. Depending on the application, the device can be parameterized via software to control a fan coil unit with change-over, a PI controller for heating/cooling or 1..10 V dimmers or work as an interface between EasySens® wireless sensors and a BMS controller (overwrite wirelessly). The delivery content includes an external antenna for achieving best possible transmission range.

Technical Data	
Configuration	Software/Plug-In for configuration
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
Power consumption	typ. 3,5 W (24 V =), 6,5 VA (24 V ~), max. 5 VA (230 V ~)
Display	4 LEDs showing status of the device, 6 LEDs showing status of the device
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) for inductive and/or capacitive loads, a suitable protective circuit must be provided (varistor, RC element, inrush current limitation, ...)

Radio multi actuator 230 V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
SRC-ADO 4AA/2DO 100..240 V type dimming/heating/cooling	✓	267502	ES2	346,70
SRC-ADO 4AA/2DO 100..240 V type fancoil, change-over	✓	423236	ES2	346,70
SRC-ADO 4AA/4DO 100..240 V type dimming/heating/cooling	✓	273275	ES2	372,60
SRC-ADO 4AA/4DO 100..240 V type fancoil, change-over	✓	423243	ES2	372,60

Radio multi actuator 24 V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
SRC-ADO 4AA/2DO 24 V type dimming/heating/cooling	✓	420105	ES2	346,70
SRC-ADO 4AA/2DO 24 V type fancoil, change-over	✓	494816	ES2	346,70
SRC-ADO 4AA/4DO 24 V type dimming/heating/cooling	✓	455428	ES2	372,60
SRC-ADO 4AA/4DO 24 V type fancoil, change-over	✓	502955	ES2	372,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90



STC-MSG Server

The STC-MSG server is used for stand-alone solutions in combination with EasySens® room operating units and up to 8 or 16 SAB+/SAB05 radio valve actuators. An integrated scheduler can be individually set up as well as window contacts/handles can be learned in for increased energy savings. The parameterization of individual functions can be conducted through an integrated configuration menu using the display and respective buttons. The delivery content includes an external antenna for achieving best possible transmission range.

Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	100..240 V ~
Power consumption	3,5 VA
Display	graphic display monochrome
Enclosure	ABS
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	per channel 1 SAB + 1 room operating unit + 10 digital input modules, switches or presence detectors + 20 window contacts or window handles can be learned in, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Wireless controller heating/cooling				
Item description	**Contr.**	**Item No.**	**Group**	**€**
STC-MSG Server 8-channel	✓	501590	ES2	297,00
STC-MSG Server 16-channel	✓	507080	ES2	337,70

Accessories			
Item description	**Item No.**	**Group**	**€**
Antenna extension 10 m	257206	AS1	62,00
Antenna extension 20 m	257213	AS1	75,40
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

STC-MSG Server UP

The STC-MSG Server UP is is used for stand-alone solutions in combination with EasySens® room operating units and up to 5 SAB+/SAB05 radio valve actuators. It is possible to use the ‚energy lock' function by teaching-in wireless window contacts and window handles so that when a window is open, the SAB closes the valve and saves heating/cooling energy. The following number of sensors can be connected: 5 EasySens® valve actuators (SABx), 1 room unit e.g. NOVOS 3 SR x, SR06 LCD x or SR07 x, 10 digital input modules SR65 DI, EasySens® switches, EasySens® presence detectors (e.g. SR-MDS, SR-MOW), 20 window contacts SRW or window handles SRG.

Technical Data	
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	100..240 V ~, ,
Power consumption	typ. 0,5 VA (230 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) 5 SAB + 1 room operating unit + 10 digital input modules + 20 window contacts or window handles can be learned in

Wireless controller heating/cooling

Item description	Contr.	Item No.	Group	€
STC-MSG Server UP 24 V	✓	688222	ES2	146,40
STC-MSG Server UP 100..240 V	✓	550048	ES2	146,40

Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SAB+

Self-powered wireless EasySens® valve actuator for individual room temperature control. The new electronic heating valve actuator uses the temperature difference between the radiator and ambient room temperature to generate electrical energy by means of a thermo-electric generator. Sufficient energy can be stored in the integrated high-performance capacitor to ensure reliable operation even during periods of insufficient energy management (summer months, transition period between seasons). Adapters are available for numerous valve manufacturers.

Technical Data	
Measured values	temperature
Configuration	airConfig
Sensor	integrated digital temperature transmitter
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free thermal energy harvesting, maintenance-free LiPo-battery
Display	LED for status feedback, red
Enclosure	PC
Colour	pure white, aluminium
Operating range temperature	0..+50 °C
Protection (IP)	IP40, according to EN 60529
Connection	USB micro (power supply)
Mounting	screw mounting M30x1,5
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) operating noise <35 dB(A), nominal stroke 3,8 mm, automatically adjusting, regulation time 0,24 mm/s, pulling load >100 N the Micro-USB connection allows charging of the internal battery directly at the socket using an USB power supply

Radio valve actuator					
Item description	**Contr.**	**Item No.**	**On stock**	**Group**	**€**
SAB+ (Heating)	✓	669108	⛃	ES2	177,30

Accessories			
Item description	**Item No.**	**Group**	**€**
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20
Safety lock dismounting protection SAB	706148	AS1	11,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	26,70
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	26,70
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	26,70
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	26,70
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	26,70
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	26,70
Valve adapter SAB for Danfoss Z800	589079	AS1	26,70
Valve adapter SAB for Danfoss Z801	589086	AS1	26,70
Valve adapter SAB for Danfoss Z805	615181	AS1	26,70

SAB05

Battery-powered wireless EasySens® valve actuator for individual room temperature control. The SAB05 is compatible with the STC-MSG server (for stand-alone solutions) or EasySens® gateways to integrate into BUS networks. Parameterisation can be done through airConfig software. The SAB05 is completely wireless and powered by 3x AA batteries. Adapters are available for numerous valve manufacturers.

Technical Data	
Measured values	temperature
Configuration	airConfig
Sensor	integrated digital temperature transmitter
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	battery type AA (3x)
Display	LED for status feedback, multicoloured
Enclosure	PC, latching battery compartment lid
Colour	pure white, light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP40, according to EN 60529
Mounting	screw mounting M30x1,5
Delivery content	incl. battery type AA (3x)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) operating noise <35 dB(A), nominal stroke 3,8 mm, automatically adjusting, regulation time 0,24 mm/s, pulling load >100 N

Radio valve actuator					
Item description	**Contr.**	**Item No.**	**On stock**	**Group**	**€**
SAB05	✓	513753	⛃	ES2	150,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Safety lock dismounting protection SAB	706148	AS1	11,60
Battery protection SAB05	595612	AS1	20,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	26,70
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	26,70
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	26,70
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	26,70
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	26,70
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	26,70
Valve adapter SAB for Danfoss Z800	589079	AS1	26,70
Valve adapter SAB for Danfoss Z801	589086	AS1	26,70
Valve adapter SAB for Danfoss Z805	615181	AS1	26,70

SRE-Repeater

The SRE-Repeater is used for repeating radio telegrams between EnOcean transmitters and receivers/gateways. The repeater is typically used when transmission range problems occur between transmitter and receiver in an existing installation (e.g. due to walls being pulled in, furniture/cabinets being moved). Level 1, Level 2 and Smart Repeating (rule-based filters) can be set using the free airConfig software. Ideal for installation in suspended ceilings.

Technical Data	
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	flex. 15..240 V =/~
Power consumption	typ. 1 VA (15..240 V =/~)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover PC
Operating range temperature	-20..+60 °C
Protection (IP)	IP65, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Delivery content	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Wireless repeater			
Item description	**Item No.**	**Group**	**€**
SRE-Repeater MultiLevel internal antenna	593809	ES2	147,40
SRE-Repeater MultiLevel external antenna	593830	ES2	169,00

Accessories			
Item description	**Item No.**	**Group**	**€**
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20

SRE-Repeater UP

The SRE-Repeater UP is especially designed for flush-mounting and used for repeating radio telegrams between EnOcean transmitters and receivers/gateways. The repeater is typically used when transmission range problems occur between transmitter and receiver in an existing installation (e.g. due to walls being pulled in, furniture/cabinets being moved). Level 1, Level 2 and Smart Repeating (rule-based filters) can be set using the free airConfig software.

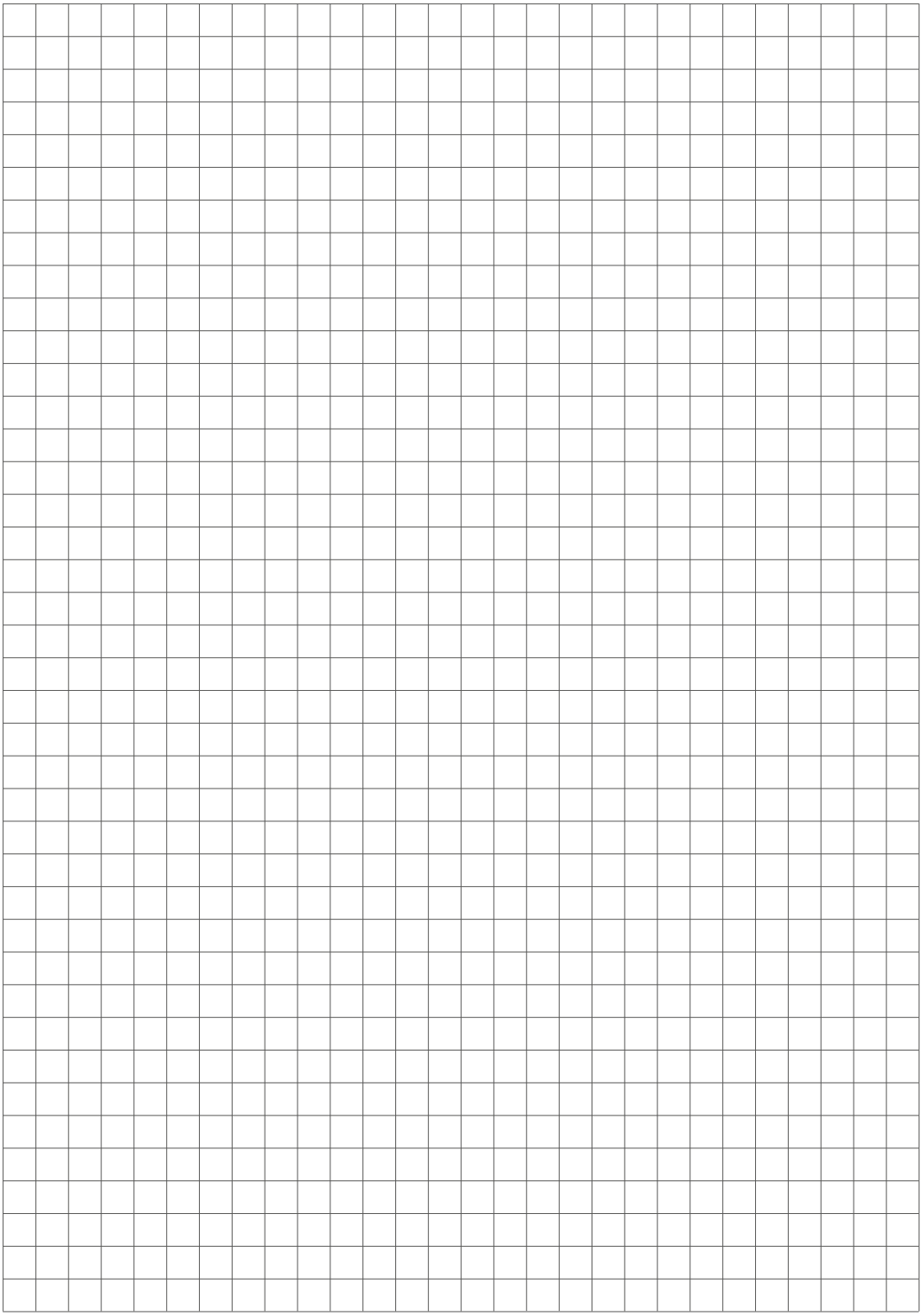
Technical Data	
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	100..240 V ~
Power consumption	typ. 0,5 VA (230 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Wireless repeater

Item description	Item No.	Group	€
SRE-Repeater UP MultiLevel	556736	ES2	123,70

Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	111,20



LoRaWAN®

LoRaWAN® is a radio technology that is capable of transmitting data over a long distance and even from remote and hard-to-reach locations in an energy-efficient, cost-effective and secure manner. Due to the low energy consumption, the batteries of the sensors are extremely durable and can last for several years.

Bluetooth®

Bluetooth® solutions gain more and more importance for modern lighting controls. Thanks to the wireless and batteryless switches of Thermokon 2,4 GHZ-BLE lighting systems can be controlled easily. The switches are ideal for switching and dimming of lights and for the call of lighting scenes.

LoRaWAN® – Outdoor Sensors

AGS55+ LRW	Temperature	110
FTA54+ LRW	Temperature, humidity	112
WSA LRW	Temperature, humidity	114
LA+ LRW	CO2, VOC, temperature, humidity	116
Li65+ LRW	Light, air pressure, temp., humidity	118

LoRaWAN® – Duct Sensors

AKF10+ LRW	Temperature	120
MWF+ LRW	Temperature	122
FTK+ LRW	Temperature, humidity	124
LK+ LRW	CO2, VOC, temperature, humidity	126

LoRaWAN® – Condensation Monitors

WK02+ LRW	Condensation, temperature, humidity	128

LoRaWAN® – Leakage Detectors

LS02+ LRW	Leakage	130

LoRaWAN® – Air Pressure Sensors

DPA+ LRW	Differential pressue, volume flow	132

LoRaWAN® – Room Sensors

MCS LRW	Motion, temperature, humidity	135

LoRaWAN® – Gateways

Gateway LRW Indoor Femto		136
Gateway LRW Outdoor LORIX One		137

BLE Switches (Bluetooth® Low Energy)

Mini	BLE switch (battery-free)	138
55x55	BLE switch (battery-free)	140
Busch-Jaeger	BLE switch (battery-free)	142
SR-KCS BLE	BLE key-card switch (battery-free)	144

AGS55+ LRW

Outdoor temperature sensor with external stainless steel probe (fast response) for measuring temperature in outdoor areas, cold rooms, greenhouses, production plants and warehouses. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

Technical Data	
Measured values	temperature
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V2A (1.4305)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)
Notes	external antenna available on request

Outdoor sensor temperature – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AGS55+ LRW	✓	797627	ES1	176,20

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

FTA54+ LRW

Outdoor sensor for measuring relative humidity and temperature in HVAC applications, greenhouses, industrial halls and in meteorology. The accuracy of the humidity sensor is 2%. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

Technical Data	
Measured values	temperature, relative humidity
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, PC, pure white, with filter stainless steel wire mesh
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. sun/rain protection PC, white
Notes	external antenna available on request

Outdoor sensor humidity + temperature – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTA54+ LRW	✓	797634	ES1	279,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

WSA LRW

Weatherproof humidity and temperature sensor for outdoor applications. The radiation shield protects the sensors from rain, hail and radiated heat. The curved shape of the plates ensure that air can move across the sensors to keep radiated temperature from rooftops and other surrounding surfaces away and guarantee proper measurement. Typical applications are meteorology, greenhouses and industrial environments. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces.

LoRaWAN®

Technical Data	
Measured values	temperature, relative humidity
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, Ø=19,5 mm, PA6, with filter stainless steel wire mesh weather protection PC, stainless steel
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Mounting	mounting at the wall or at a pole
Delivery content	incl. mounting set (screws and accessories)

Weather protected outdoor sensor humidity + temperature – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
WSA temp_rH LRW	✓	797801	ES1	388,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
Weather protection for FTK+, WSA (replacement)	625241	AS1	75,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

LA+ LRW

Air quality sensor for measuring CO2, mixed gas (VOC), optionally temperature and humidity outdoors and in areas requiring high IP protection class (e.g. underground stations, tunnels, exhibition halls, cold chains and greenhouses as well as in production halls and warehouses). In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

LA+

LA+ (Temp)

LA+ (Temp_rH)

Technical Data	
Measured values	temperature, relative humidity, CO2, VOC
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor, self-calibration
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	**Temp:** Sensor probe, stainless steel V2A (1.4305) **Temp+rH:** Pipe, PC, with filter stainless steel wire mesh
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. sun/rain protection PC, white

Technical Data	
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...) external antenna available on request

Outdoor sensor CO2 – LoRaWAN® (868MHz)

Item description	USEapp	Item No.	Group	€
LA+ CO2 temp LRW	✓	797641	ES1	394,80
LA+ CO2 temp_rH LRW	✓	797658	ES1	450,10
LA+ VOC temp LRW	✓	797665	ES1	374,50
LA+ VOC temp_rH LRW	✓	797672	ES1	416,40
LA+ CO2+VOC LRW	✓	797764	ES1	468,60
LA+ CO2+VOC temp LRW	✓	797771	ES1	514,80
LA+ CO2+VOC temp_rH LRW	✓	797788	ES1	570,10

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

Li65+ LRW

Outdoor sensor for measuring light, temperature, humidity and atmospheric pressure in outdoor areas, greenhouses, warehouses or industrial halls. The device has an integrated ambient light sensor with a precise optical filter adapted to the spectral sensitivity of human eyes. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

Li65+

Li65+ Temp_rH

LoRaWAN®

Technical Data	
Measured values	temperature, relative humidity, luminosity, atmospheric pressure
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, adjustable at the transducer, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Measuring range light	0..1000 lux (default setting), selectable from 6 ranges 0..200 lux | 0..1000 lux | 0..2 klux | 0..10 klux | 0..20 klux | 0..50 klux
Measuring range atm. pressure	500..1500 hPa
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, translucent cover PC
Operating range temperature	-30..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)
Notes	external antenna available on request

Outdoor sensor light – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
Li65+ LRW	✓	797795	ES1	199,90
Li65+ temp_rH LRW	✓	800181	ES1	266,80
Li65+ temp_rH_hPa LRW	✓	800198	ES1	308,70

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

AKF10+ LRW

Duct sensor for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). Combined with a thermowell pocket, it can be used as an immersion temperature sensor as well. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

LoRaWAN®

Technical Data	
Measured values	temperature
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571) suitable for usage in aggressive media
Installation length	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 450 mm
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-50..+160 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Mounting	when used as duct sensors: please use mounting flange MF6DS flexible (+90..+120 °C) or MF6 (brass, +120..+260 °C) for use as immersion sensors please use immersion pocket THVADS / THMSDS
Delivery content	incl. mounting flange MF6DS flexible incl. mounting set (screws and accessories)
Notes	external antenna available on request

Duct/immersion sensor -50..+160 °C – LoRaWAN® (868MHz)

Item description	USEapp	Item No.	Group	€
AKF10+ LRW 050.06	✓	797818	ES1	177,20
AKF10+ LRW 100.06	✓	797825	ES1	178,20
AKF10+ LRW 150.06	✓	797832	ES1	179,30
AKF10+ LRW 200.06	✓	797849	ES1	179,70
AKF10+ LRW 250.06	✓	797856	ES1	181,10
AKF10+ LRW 300.06	✓	797863	ES1	182,00
AKF10+ LRW 450.06	✓	797870	ES1	183,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Syringe thermal contact fluid	102308	AS1	1,60
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1	13,50

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	●	AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,90
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	10,50
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2	10,90
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2	12,50
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2	12,90
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2	13,20

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	●	AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	20,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	22,60
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2	23,70
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2	29,40
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2	30,80
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2	31,80
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	20,20

MWF+ LRW

Duct sensor for measuring the average temperature in air ducts. The sensor measures the mean temperature value throughout the entire length. A spring at the connection head reduces vibrations. Mounting angles are included in the delivery content. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

MWF+ LRW

Technical Data	
Measured values	temperature
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, optionally configurable via app or uConfig
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Installation length	3000 mm, 6000 mm
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-50..+80 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting flange incl. mounting set (screws and accessories) incl. installation set
Notes	external antenna available on request

Duct averaging sensor temperature – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ LRW L3000	✓	798020	ES1	253,60
MWF+ LRW L6000	✓	798037	ES1	262,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	7,05
Installation set TFR / MWF+	679466	AS1	9,35
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

FTK+ LRW

Duct sensor for measuring relative humidity and temperature in gaseous media of heating, ventilation and air-conditioning systems as well as clean rooms. The accuracy of the humidity sensor is 2%. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

FTK+ LRW

Technical Data	
Measured values	temperature, relative humidity
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output, -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, PA6, with filter stainless steel wire mesh, black, Ø=19,5 mm
Installation length	140 mm, 270 mm, 400 mm
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting flange incl. mounting set (screws and accessories)
Notes	air speed max. 12 m/s external antenna available on request

Duct sensor humidity + temperature – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 LRW	✓	797924	ES1	283,20
FTK+ 270 LRW	✓	797931	ES1	291,10
FTK+ 400 LRW	✓	797948	ES1	298,90

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
Mounting flange MF20	612562	AS1	13,10
Weather protection for FTK+, WSA (replacement)	625241	AS1	75,30
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

LK+ LRW

The maintenance-free and multi-functional duct air quality sensor measures CO2, mixed gas (VOC), temperature and humidity. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

LK+ LRW

LoRaWAN®

Technical Data	
Measured values	temperature, relative humidity, CO2, VOC
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, jumper, LoRaWAN® Downlink
Output signal temperature	scaling analogue output, 0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, Ø=19,5 mm, black, with filter stainless steel wire mesh
Installation length	180 mm, **models without temperature:** 150 mm
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting flange incl. mounting set (screws and accessories)

Technical Data	
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...) air speed 0,3..12 m/s external antenna available on request

Duct sensor CO2 – LoRaWAN® (868MHz)

Item description	USEapp	Item No.	Group	€
LK+ CO2 temp LRW	✓	797955	ES1	386,90
LK+ CO2 temp_rH LRW	✓	797962	ES1	428,80
LK+ VOC temp LRW	✓	797979	ES1	366,50
LK+ VOC temp_rH LRW	✓	797986	ES1	408,40
LK+ CO2+VOC LRW	✓	797993	ES1	460,70
LK+ CO2+VOC temp LRW	✓	798006	ES1	506,90
LK+ CO2+VOC temp_rH LRW	✓	798013	ES1	548,80

Accessories

Item description	Item No.	Group	€
Mounting flange MF20	612562	AS1	13,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

WK02+ LRW

Condensation sensor with LoRaWAN® interface as well as LED signal and a relay output to prevent condensation on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water flow upon condensation. The 'ext.' model uses a 2m remote sensor for a more flexible installation. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

LoRaWAN®

Technical Data	
Measured values	temperature, relative humidity, condensation
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, LoRaWAN® Downlink
Output signal temperature	scaling analogue output, 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing
Power supply	**24 V:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **230 V:** 230 V ~ (±10%)
Power consumption	**24 V:** typ. 0,8 W (24 V =), 1,6 VA (24 V ~) **230 V:** typ. 3,5 W (230 V ~)
Display	LED green – power supply OK, LED red – condensation
Enclosure	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm²
Connection cable	PVC, 0,25 mm², white
Length connection wire	2 m
Delivery content	incl. mounting base enclosure USE-L pure white, incl. mounting set (screws and accessories) incl. cable tie 140x3,6 mm incl. syringe thermal contact fluid 2 ml
Notes	external antenna available on request

Condensation sensor – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
WK02+ ext LRW 24 V L2000	✓	798181	HU2	264,80
WK02+ ext LRW 230 V L2000	✓	798198	HU2	264,80

Options	
Description	**€**
Add per meter of connection cable PVC	1,20

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

LS02+ LRW

Leakage detector with relay output and two signalling LEDs designed for alarm, control and monitoring applications of containers, false floors, suspended ceilings or rooms for preventing unintended ingress of water. The sensor can be adjusted to different heights so that the response time of the sensor can be adapted to the water level that is to be detected. The type flex detects water or liquid intrusion over the entire length of the sensor rod. Additionally to the LoRaWAN® interface a potential-free switching contact can be used for direct communication with a higher-level control system. Thanks to the compact design of the sensor rod, the sensor can be mounted in a variety of places (floors, ceilings, etc.) to save space. The sophisticated and highly flexible insulation braiding also allows direct mounting on water-bearing pipe systems. The sensor rod can easily be shortened on site. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

LS02+ ext.

LS02+ flex

Technical Data	
Measured values	leakage
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, LoRaWAN® Downlink
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**LS02+ ext.:** typ. 0,8 W (24 V =), 1,2 VA (24 V ~) **LS02+ flex:** typ. 0,6 W (24 V =), 1,6 VA (24 V ~)
Material in touch with media	**LS02+ ext.:** stainless steel V4A (1.4401) **LS02+ flex:** Sensor rod PVC sheathed with PBT braiding
Installation length	**LS02+ flex:** 2000 mm, 5000 mm, 20000 mm, 30000 mm
Display	LED green – power supply OK, LED red – alarm, leakage detected
Enclosure	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm²
Connection cable	PVC, 0,25 mm²
Length connection wire	**LS02+ ext.:** 5 m
Mounting	**LS02+ ext.:** level compensation through spring contacts **LS02+ flex:** additional fixation of the sensor rod possible with adhesive pads (see accessories)

Technical Data	
Delivery content	incl. mounting set (screws and accessories) incl. fixing kit rawlplugs and screws (2x each)

Water leak detector LS02+ ext. – LoRaWAN® (868MHz)

Item description	USEapp	Item No.	Group	€
LS02+ ext LRW L5000	✓	798136	HU2	220,20

Water leak detector LS02+ flex – LoRaWAN® (868MHz)

Item description	USEapp	Item No.	Group	€
LS02+ flex LRW L2000	✓	798143	HU2	255,70
LS02+ flex LRW L5000	✓	798150	HU2	303,40
LS02+ flex LRW L20m	✓	798167	HU2	541,90
LS02+ flex LRW L30m	✓	798174	HU2	700,90

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1	9,35
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

DPA+ LRW

Differential pressure transmitter for measuring and monitoring overpressure, underpressure, differential pressure and flow volume of air and other non-aggressive gases in fan and filter systems in duct applications. 8 adjustable pressure and flow volume ranges permit use in HVAC applications of clean rooms, process measurement and controls systems. In addition to LoRaWAN®, additional analog voltage outputs are available as interfaces. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. 'Dual' versions with 2 independent sensors for up to 2x differential pressures or 2x flow volume in a single enclosure are available. The mounting base (included in the delivery content) can be used to mount the DPA+ on a flat surface or on DIN rail TS35 (35x7,5 mm) in accordance with EN 60715.

DPA+

DPA+ Dual

DPA+
with additional cable entry
(refer to mounting accessories USE)

Technical Data	
Measured values	differential pressure, volume flow pressure in Pa or inchWC volume flow in m³/h or cfm optionally configurable via app or uConfig
Radio technology	LoRaWAN® (868MHz)
Configuration	USEapp, uConfig, DIP switches, LoRaWAN® Downlink
Measuring range pressure	**DPA250+:** 0..+25 | 0..+50 | 0..+100 | 0..+250 | -25..+25 | -50..+50 | -100..+100 | -150..+150 Pa, 0..+250 Pa (default setting) **DPA2500+:** 0..+2500 Pa (default setting), -100..+100 | 0..+100 | 0..+250 | 0..+500 | 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 Pa **DPA7000+:** 0..+7000 Pa (default setting), 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 | 0..+3000 | 0..+4000 | 0..+5000 | 0..+7000 Pa selectable at the device
Measuring range velocity	0..750.000 m³/h, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Enclosure	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-10..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, removable plug-in terminal, max. 2,5 mm² inputs max. 1,0 mm² pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft
Mounting	surface-mounted flat on base using screws, prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. mounting base enclosure USE-L pure white incl. mounting set (screws and accessories) incl. pressure connection set and 2 m PVC connection hose
Notes	output protection circuit (reverse polarity protected) external antenna available on request

Differential pressure and volume flow transducer – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LRW MultiRange	✓	798099	PR1	206,40
DPA2500+ LRW MultiRange	✓	798105	PR1	206,40
DPA7000+ LRW MultiRange	✓	798112	PR1	206,40

Dual differential pressure and volume flow transducer – LoRaWAN® (868MHz)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA2500+ Dual LRW	✓	798129	PR1	295,80

Options	
Description	**€**
Automatic zero-point calibration (AZ)	59,70
Automatic zero-point calibration dual (2x AZ)	119,30

Accessories			
Item description	**Item No.**	**Group**	**€**
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

MCS LRW

LoRaWAN® multicompact sensor for condition monitoring of up to 2 windows or doors and measurement of temperature, humidity, motion and brightness.

MCS LRW
(State / Temp_rH)

MCS LRW
(Lum)

MCS LRW
(Occ)

MCS LRW
(Lum / Occ)

LoRaWAN®

Technical Data	
Measured values	**State:** status **Temp_rH:** temperature, relative humidity **Lum:** luminosity **Occ:** motion, presence
Radio technology	LoRaWAN® (868MHz)
Configuration	App, LoRaWAN® Downlink
Power supply	battery type AAA
Enclosure	PC V0
Colour	pure white, anthracite
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using included adhesive pad or screws
Delivery content	incl. adhesive foil for mounting incl. battery type AAA

Radio compact room sensor – LoRaWAN® (868MHz)

Item description	Item No.	Group	€
MCS LRW State white	798204	ES1	89,40
MCS LRW State temp_rH white	798792	ES1	114,40
MCS LRW temp_rH white	798211	ES1	98,20
MCS LRW Lum temp_rH white	798808	ES1	119,20
MCS LRW Occ temp_rH white	798228	ES1	140,10
MCS LRW Occ Lum temp_rH white	798815	ES1	161,10

Accessories

Item description	Item No.	Group	€
Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,55

Gateway LRW Indoor Femto

Compact LoRaWAN® indoor gateway with external antenna. The connection to an external network server is made via an Ethernet interface. The gateway can be configured via a web interface.

Technical Data	
Radio technology	LoRaWAN® (868MHz)
Configuration	web interface
Network technology	TCP/IP
Power supply	external power supply (USB mini), 5 V =, 2 A
Display	4 LEDs showing status of the device
Colour	pure white
Operating range temperature	-10..+55 °C
Connection	USB mini (power supply) RJ45 socket (8P8C) 10/100 MBit/s Ethernet
Delivery content	incl. external power supply

Gateway LoRaWAN® -> IP				
Item description	**Item No.**	**On stock**	**Group**	**€**
Gateway LRW Indoor Femto	794633	●	ES1	252,00

Gateway LRW Outdoor LORIX One

Professional and compact LoRaWAN® outdoor gateway with external antenna. Thanks to the passive PoE connection, the gateway requires only one line for power supply and connection to an external network server. The configuration is done intuitively via an integrated web interface. Various mounting options are available, e.g. for wall or pole mounting.

Technical Data	
Radio technology	LoRaWAN® (868MHz)
Configuration	web interface
Network technology	TCP/IP
Power supply	24 V =, passive PoE
Power consumption	typ. 3 W (24 V =)
Colour	light grey
Operating range temperature	-30..+55 °C
Protection (IP)	IP65, according to EN 60529
Connection	RJ45 socket (8P8C) 10/100 MBit/s Ethernet
Mounting	mounting at the wall or at a pole
Delivery content	incl. external power supply, incl. passive PoE splitter

Gateway LoRaWAN® -> IP

Item description	Item No.	On stock	Group	€
Gateway LRW Outdoor LORIX One	794640	●	ES1	1120,40

Radio Switches BLE Mini

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.

4-channel blinds, pure white brilliant

2-channel light, aluminium

2-channel blinds, anthracite

Bluetooth®

Technical Data	
Operating functions	light ON/OFF/DIM, blind UP/DOWN/SET
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Configuration	NFC-based / DMC
Radio technology	Bluetooth® Low Energy (BLE), Beacon
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white brilliant, aluminium painted, anthracite
Operating range temperature	-25..+65 °C
Switch ranges	Thermokon mini
Mounting	surface-mounted flat on base using adhesive foil or screws
Notes	configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

Radio Switches BLE Mini – Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch Mini 2-channel BLE light pure white brilliant	731065	ES2	71,30
Switch Mini 2-channel BLE light aluminium painted	733946	ES2	71,30
Switch Mini 2-channel BLE light anthracite	733953	ES2	71,30

Radio Switches BLE Mini – Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch Mini 4-channel BLE light pure white brilliant	708425	ES2	73,80
Switch Mini 4-channel BLE light aluminium painted	733960	ES2	73,80
Switch Mini 4-channel BLE light anthracite	733977	ES2	73,80

Radio Switches BLE Mini – Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch Mini 2-channel BLE blind pure white brilliant	733984	ES2	71,30
Switch Mini 2-channel BLE blind aluminium painted	733991	ES2	71,30
Switch Mini 2-channel BLE blind anthracite	734004	ES2	71,30

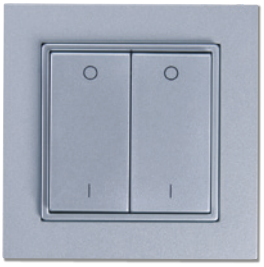
Radio Switches BLE Mini – Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch Mini 4-channel BLE blind pure white brilliant	734011	ES2	73,80
Switch Mini 4-channel BLE blind aluminium painted	734028	ES2	73,80
Switch Mini 4-channel BLE blind anthracite	734035	ES2	73,80

Options	
Description	**€**
Special printing on request	
Without printing on request	

Radio Switches BLE 55x55

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.

2-channel blinds
Gira E2 pure white



4-channel light
Gira E2 aluminium

4-channel blinds
Gira E2 anthracite

Bluetooth®

Technical Data	
Operating functions	light ON/OFF/DIM, blind UP/DOWN/SET
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Configuration	NFC-based / DMC
Radio technology	Bluetooth® Low Energy (BLE), Beacon
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
Operating range temperature	-25..+65 °C
Switch ranges	Berker, Busch-Jaeger, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000 configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

Radio Switches BLE 55x55 – Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel BLE light 55x55 pure white matt	734042	ES1	77,40
Switch 2-channel BLE light 55x55 pure white brilliant	734288	ES1	77,40
Switch 2-channel BLE light 55x55 aluminium	734318	ES1	77,40
Switch 2-channel BLE light 55x55 Jung aluminium	734325	ES1	77,40
Switch 2-channel BLE light 55x55 anthracite	734332	ES1	77,40

Radio Switches BLE 55x55 – Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel BLE light 55x55 pure white matt	734066	ES1	79,80
Switch 4-channel BLE light 55x55 pure white brilliant	734349	ES1	79,80
Switch 4-channel BLE light 55x55 aluminium	734356	ES1	79,80
Switch 4-channel BLE light 55x55 Jung aluminium	734363	ES1	79,80
Switch 4-channel BLE light 55x55 anthracite	734370	ES1	79,80

Radio Switches BLE 55x55 – Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel BLE blind 55x55 pure white matt	734110	ES1	77,40
Switch 2-channel BLE blind 55x55 pure white brilliant	734387	ES1	77,40
Switch 2-channel BLE blind 55x55 aluminium	734394	ES1	77,40
Switch 2-channel BLE blind 55x55 Jung aluminium	734400	ES1	77,40
Switch 2-channel BLE blind 55x55 anthracite	734417	ES1	77,40

Radio Switches BLE 55x55 – Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel BLE blind 55x55 pure white matt	734127	ES1	79,80
Switch 4-channel BLE blind 55x55 pure white brilliant	734424	ES1	79,80
Switch 4-channel BLE blind 55x55 aluminium	734479	ES1	79,80
Switch 4-channel BLE blind 55x55 Jung aluminium	734486	ES1	79,80
Switch 4-channel BLE blind 55x55 anthracite	734493	ES1	79,80

Options	Switch ranges on page 409/410
Description	**€**
Special printing on request	
Without printing on request	
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Radio Switches BLE BJ 63x63

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.

4-channel blinds,
future® linear studio white

4-channel light,
future® linear aluminium silver

2-channel blinds,
future® linear anthracite

Bluetooth®

Technical Data	
Operating functions	light ON/OFF/DIM, blind UP/DOWN/SET
Operating elements	**2-channel:** 1 switch **4-channel:** 2 switches
Configuration	NFC-based / DMC
Radio technology	Bluetooth® Low Energy (BLE), Beacon
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	anthracite, studio white, studio white matt available on request, ivory white, alu silver black matt available on request
Operating range temperature	-25..+65 °C
Switch range Busch-Jaeger	Busch-axcent®, carat®, future® linear, solo® (please specify the desired frame when ordering)
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000, frame designs Busch-Jaeger solo®, future® linear and Busch-axcent® at the same price, please ask for carat® Busch-balance® SI see Wireless Switches 55x55 configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

Radio Switches BLE BJ 63x63 – Wireless switch 2-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel BLE light BJ63x63 studio white	734516	ES1	79,80
Switch 2-channel BLE light BJ63x63 ivory white	734547	ES1	79,80
Switch 2-channel BLE light BJ63x63 alu silver	734554	ES1	79,80
Switch 2-channel BLE light BJ63x63 anthracite	734561	ES1	79,80

Radio Switches BLE BJ 63x63 – Wireless switch 4-channel light			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel BLE light BJ63x63 studio white	734509	ES1	82,30
Switch 4-channel BLE light BJ63x63 ivory white	734578	ES1	82,30
Switch 4-channel BLE light BJ63x63 alu silver	734585	ES1	82,30
Switch 4-channel BLE light BJ63x63 anthracite	734592	ES1	82,30

Radio Switches BLE BJ 63x63 – Wireless switch 2-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 2-channel BLE blind BJ63x63 studio white	734615	ES1	79,80
Switch 2-channel BLE blind BJ63x63 ivory white	734622	ES1	79,80
Switch 2-channel BLE blind BJ63x63 alu silver	735049	ES1	79,80
Switch 2-channel BLE blind BJ63x63 anthracite	735056	ES1	79,80

Radio Switches BLE BJ 63x63 – Wireless switch 4-channel blind			
Item description	**Item No.**	**Group**	**€**
Switch 4-channel BLE blind BJ63x63 studio white	734608	ES1	82,30
Switch 4-channel BLE blind BJ63x63 ivory white	735070	ES1	82,30
Switch 4-channel BLE blind BJ63x63 alu silver	735087	ES1	82,30
Switch 4-channel BLE blind BJ63x63 anthracite	735100	ES1	82,30

Options	
Description	**€**
Special printing on request	
Without printing on request	
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®	4,80

SR-KCS BLE

Energy-harvesting wireless key card switch for occupancy-based control of lighting or air conditioning in rooms. The self-powered wireless Bluetooth® radio permits flexible installation on glass surfaces or walls using adhesive pads or screws.

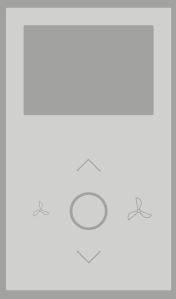
Bluetooth®

Technical Data	
Radio technology	Bluetooth® Low Energy (BLE)
Power supply	maintenance-free electrodynamic energy generator
Enclosure	PC
Colour	pure white
Operating range temperature	0..+40 °C
Protection (IP)	IP20, according to EN 60529
Mounting	surface-mounted flat on base using adhesive foil or screws
Delivery content	incl. adhesive foil for mounting

SR-KCS BLE – Wireless switch			
Item description	**Item No.**	**Group**	**€**
SR-KCS BLE	728126	ES2	89,70

Room Climate Control

Our room control units and room sensors enable the measured value acquisition and/or integrated operation of HVAC, lighting and shading in individual room control. Due to the sophisticated appearance and a variety of design options, the devices are particularly suitable for design-oriented facilities.



Room Operating Units

JOY HC	Temperature, rel. humidity	146
thanos EVO	Temperature, humidity, CO2, VOC	148
NOVOS Touch	Temperature, humidity, CO2, VOC	152
NOVOS 7	Temperature, humidity, CO2, VOC	156
NOVOS 5 x	Temperature, humidity, CO2, VOC	160
NOVOS 3 x	Temperature, humidity, CO2, VOC	165
NOVOS 3 INC	Temperature, humidity	170
WRF07 x	Temperature, rel. humidity, CO2, VOC	173
WRF06 LCD	Temperature, rel. humidity	180
WRF06 x	Temperature	184
WRF06 INC	Temperature, rel. humidity	186
WRF04 x	Temperature	188
LCR Touch	Temperature, humidity, VOC	191
LCA	Temperature	192

Fan Coil Controller

JOY Fancoil	Temperature, rel. humidity	193
LCF02 Touch	Temperature	196
LCF02	Temperature	198
LCF Touch	Temperature	200
LCF	Temperature	201

Room Sensors Climate / Air Quality

NOVOS 5	Temperature, humidity, CO2, VOC	202
NOVOS 3	Temperature, humidity, CO2, VOC	208
NOVOS 7 move	Temperature, rel. humidity, CO2	216
NOVOS 5 move	Temperature, CO2	217
NOVOS 3 move	CO2	218
NOVOS 3 IR	Radiation temperature	219
WRF06	Temperature, rel. humidity, CO2, VOC	220
FTB+	Temperature, humidity	227
RDF18	Temperature	229
FT-RDF18+	Temperature, humidity	230
RDF-IR	Radiation temperature	232
RPF40	Temperature, radiation temperature	234
RPF40+	Temperature, radiation temperature	235
RPF100	Temperature	237
RPF100+	Temperature	238
FTP+	Temperature, humidity	240
LP+	CO2, Temperature, humidity	242

Room Sensors Light / Motion

MDS	Light, motion, temperature	244
RDI	Motion	245
LDF+	Light	246
WRF06I	Motion	249
WRF04I	Motion	251

Room Hygrostats

FSR01	Rel. humidity	252

JOY HC

Room thermostat in high-quality design for individual temperature control, e.g. in hotel rooms or offices. A glass surface with intuitive touch control buttons and display combine design, feel and functionality in an outstanding way. The internal controller of the JOY calculates control values for heating/cooling applications, which are provided via analog or digital outputs (depending on type). The possible integration of various external sensors (e.g. window contacts, change-over, condensation sensors, etc.) allows temperature control tailored to the application. The device can be mounted in a standard flush-mounted box.

BACnet Modbus

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature, standby/presence detection
Configuration	uConfig, BUS
Input	1x input for NTC10k or floating contact **AO2DO:** 1x input for potential contact (230 V ~) 1x input for floating contact **3AO:** 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	**AO2DO:** 85..260 V ~ | **3AO:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 2,5 W (24 V =), max. 3 VA (260 V ~)
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, cover glass
Colour	pure white, black
Operating range temperature	0..50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², inputs max. 1,0 mm²
Mounting	in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	AO2DO (230 V)	3AO (24 V)
Heating/Cooling (Relay)	2	–
Heating/Cooling (0..10 V)	–	2
6-Way-Valve (0..10 V)	1	1*
Inputs	**AO2DO (230 V)**	**3AO (24 V)**
Universal (configurable)	3 / BUS: 2	3 / BUS: 2

** Instead of 2x 0..10 V (heating/cooling)*

NEW: With additional, customizable touch buttons (see page 12)

Room thermostat heating/cooling active

Item description	Contr.	Item No.	Group	€
JOY HC AO2DO temp white	✓	748995	RU1	184,90
JOY HC AO2DO temp black	✓	752039	RU1	197,50
JOY HC 3AO temp white	✓	725002	RU1	184,90
JOY HC 3AO temp black	✓	725019	RU1	197,50

Room thermostat heating/cooling RS485 Modbus

Item description	Contr.	Item No.	Group	€
JOY HC AO2DO temp RS485 Modbus white	✓	752046	RU1	191,70
JOY HC AO2DO temp RS485 Modbus black	✓	752053	RU1	204,30
JOY HC 3AO temp RS485 Modbus white	✓	723732	RU1	191,70
JOY HC 3AO temp RS485 Modbus black	✓	725026	RU1	204,30

Room thermostat heating/cooling RS485 BACnet (MS/TP)

Item description	Contr.	Item No.	Group	€
JOY HC AO2DO temp RS485 BACnet (MS/TP) white	✓	778701	RU1	191,70
JOY HC AO2DO temp RS485 BACnet (MS/TP) black	✓	778695	RU1	204,30
JOY HC 3AO temp RS485 BACnet (MS/TP) white	✓	778770	RU1	191,70
JOY HC 3AO temp RS485 BACnet (MS/TP) black	✓	778756	RU1	204,30

Options

Description	€
Add for additional humidity sensor	41,90
Change-over sensor NTC10k (model and price on request)	

Accessories

Item description	Item No.	Group	€
microSD card 2 GB (JOY)	500098	AS1	12,50
Converter RS485 Modbus – USB incl. driver CD	668293	NET	58,20
Decorative frame JOY pure white	681452	AS1	13,50
Decorative frame JOY black	740951	AS1	13,50
Frame for surface mounting JOY pure white	760201	AS1	26,80
Frame for surface mounting JOY black	760195	AS1	26,80

thanos EVO

The high-grade materials and sophisticated design of the thanos EVO make it an outstanding room unit for high-end residential or commerical buildings. With its 4.8“ touchscreen and up to 4 integrated sensors (temperature, relative humidity, CO2 and VOC), users can individually adjust multiple HVAC and lighting/blinds features. 2D room graphics make operations even more intuitive. External sensors and inputs enhance the multi-functionality of the thanos EVO.

thanosEVO

thanosEVO design

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Operating functions	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
Operating elements	touch screen
Configuration	NOVOSapp, uConfig, BUS, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX/LON:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing 0..85 KJ/kg enthalpy 0..50 | 0..80 g/m³ absolute humidity 0..+50 | -20..+80 °C dew point optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV **KNX/LON:** 24 V = (±10%) SELV
Power consumption	typ. 2,5 W (24 V =), 5 VA (24 V ~) **KNX/LON:** typ. 2,5 W (24 V =)
Display	TFT 4,8", 1120x480 px, capacitive touch technology
Enclosure	with thermal separation and sensor channel, PC V0
Colour	pure white, black, design frame anodised aluminium available
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	cable entry via rear opening **BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX/LON:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX/LON:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

Touchscreen room operating unit with up to 4 measured values – RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
thanos EVO white temp RS485 Modbus	✓	753913	RU1	450,00
thanos EVO white temp_rH RS485 Modbus	✓	753944	RU1	491,90
thanos EVO white CO2 temp_rH RS485 Modbus	✓	753968	RU1	554,80
thanos EVO white VOC temp_rH RS485 Modbus	✓	753982	RU1	544,30
thanos EVO white CO2+VOC temp_rH RS485 Modbus	✓	754002	RU1	607,20
thanos EVO black temp RS485 Modbus	✓	753920	RU1	462,60
thanos EVO black temp_rH RS485 Modbus	✓	753951	RU1	504,50
thanos EVO black CO2 temp_rH RS485 Modbus	✓	753975	RU1	567,40
thanos EVO black VOC temp_rH RS485 Modbus	✓	753999	RU1	556,90
thanos EVO black CO2+VOC temp_rH RS485 Modbus	✓	754019	RU1	619,80

Touchscreen room operating unit with up to 4 measured values – RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
thanos EVO white temp RS485 BACnet (MS/TP)	✓	766630	RU1	450,00
thanos EVO white temp_rH RS485 BACnet (MS/TP)	✓	780339	RU1	491,90
thanos EVO white CO2 temp_rH RS485 BACnet (MS/TP)	✓	775434	RU1	554,80
thanos EVO white VOC temp_rH RS485 BACnet (MS/TP)	✓	780353	RU1	544,30
thanos EVO white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771368	RU1	607,20
thanos EVO black temp RS485 BACnet (MS/TP)	✓	774352	RU1	462,60
thanos EVO black temp_rH RS485 BACnet (MS/TP)	✓	780360	RU1	504,50
thanos EVO black CO2 temp_rH RS485 BACnet (MS/TP)	✓	780377	RU1	567,40
thanos EVO black VOC temp_rH RS485 BACnet (MS/TP)	✓	780384	RU1	556,90
thanos EVO black CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771351	RU1	619,80

Touchscreen room operating unit with up to 4 measured values – KNX (TP1)					
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**	**€**
thanos EVO white temp KNX	✓	✓	780506	RU1	512,90
thanos EVO white temp_rH KNX	✓	✓	780513	RU1	554,80
thanos EVO white CO2 temp_rH KNX	✓	✓	780520	RU1	617,70
thanos EVO white VOC temp_rH KNX	✓	✓	780605	RU1	607,20
thanos EVO white CO2+VOC temp_rH KNX	✓	✓	780551	RU1	670,10
thanos EVO black temp KNX	✓	✓	780568	RU1	525,50
thanos EVO black temp_rH KNX	✓	✓	780575	RU1	567,40
thanos EVO black CO2 temp_rH KNX	✓	✓	780599	RU1	630,30
thanos EVO black VOC temp_rH KNX	✓	✓	780537	RU1	619,80
thanos EVO black CO2+VOC temp_rH KNX	✓	✓	780612	RU1	682,70

Touchscreen room operating unit with up to 4 measured values LON white				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
thanos EVO white temp LON	✓	779333	RU1	575,70
thanos EVO white temp_rH LON	✓	780407	RU1	617,60
thanos EVO white CO2 temp_rH LON	✓	780414	RU1	680,50
thanos EVO white VOC temp_rH LON	✓	780421	RU1	670,00
thanos EVO white CO2+VOC temp_rH LON	✓	780438	RU1	732,90
thanos EVO black temp LON	✓	780445	RU1	588,30
thanos EVO black temp_rH LON	✓	780452	RU1	630,20
thanos EVO black CO2 temp_rH LON	✓	780476	RU1	693,10
thanos EVO black VOC temp_rH LON	✓	780483	RU1	682,60
thanos EVO black CO2+VOC temp_rH LON	✓	780490	RU1	745,50

Options	
Description	**€**
Design frame anodised aluminium (gold, graphite, black or silver)	50,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS Touch

Covering the 4.8“ touchscreen below a real glass surface, the NOVOS Touch is the flagship model of the NOVOS family. With a maximum of up to 4 integrated sensors (temperature, relative humidity, CO2 and VOC) and the possibility of including external values as well, the NOVOS Touch brilliantly combines comfort and energy efficiency. Mutiple design options and colors provide individualism for the most diverse applications.

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Operating functions	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
Operating elements	touch screen
Configuration	NOVOSapp, uConfig, BUS, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX/LON:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing 0..85 KJ/kg enthalpy 0..50 | 0..80 g/m³ absolute humidity 0..+50 | -20..+80 °C dew point optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV **KNX/LON:** 24 V = (±10%) SELV
Power consumption	typ. 2,5 W (24 V =), 5 VA (24 V ~) **KNX/LON:** typ. 2,5 W (24 V =)
Display	TFT 4,8", 1120x480 px, capacitive touch technology
Enclosure	with thermal separation and sensor channel, PC V0
Colour	pure white, aluminium, black design cover NOVOS Touch glass black available
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	cable entry via rear opening **BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX/LON:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX/LON:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

Touchscreen room operating unit with up to 4 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS Touch white temp RS485 Modbus	✓	761802	RU1	417,80
NOVOS Touch white temp_rH RS485 Modbus	✓	761819	RU1	459,70
NOVOS Touch white CO2 temp_rH RS485 Modbus	✓	761826	RU1	522,60
NOVOS Touch white VOC temp_rH RS485 Modbus	✓	761833	RU1	512,10
NOVOS Touch white CO2+VOC temp_rH RS485 Modbus	✓	761840	RU1	575,00

Touchscreen room operating unit with up to 4 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS Touch white temp RS485 BACnet (MS/TP)	✓	778312	RU1	417,80
NOVOS Touch white temp_rH RS485 BACnet (MS/TP)	✓	780704	RU1	459,70
NOVOS Touch white CO2 temp_rH RS485 BACnet (MS/TP)	✓	780735	RU1	522,60
NOVOS Touch white VOC temp_rH RS485 BACnet (MS/TP)	✓	780766	RU1	512,10
NOVOS Touch white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780797	RU1	575,00

Touchscreen room operating unit with up to 4 measured values KNX (TP1)					
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS Touch white temp KNX	✓	✓	780681	RU1	480,70
NOVOS Touch white temp_rH KNX	✓	✓	780711	RU1	522,60
NOVOS Touch white CO2 temp_rH KNX	✓	✓	780742	RU1	585,50
NOVOS Touch white VOC temp_rH KNX	✓	✓	780773	RU1	575,00
NOVOS Touch white CO2+VOC temp_rH KNX	✓	✓	780803	RU1	637,90

Touchscreen room operating unit with up to 4 measured values LON				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS Touch white temp LON	✓	780698	RU1	543,50
NOVOS Touch white temp_rH LON	✓	780728	RU1	585,40
NOVOS Touch white CO2 temp_rH LON	✓	780759	RU1	648,30
NOVOS Touch white VOC temp_rH LON	✓	780780	RU1	637,80
NOVOS Touch white CO2+VOC temp_rH LON	✓	780810	RU1	700,70

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS Touch glass black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 7

The NOVOS 7 stands out for its well-known and intuitive user interface using a rotary push button and a 3.5“ TFT display. Four favourite buttons allow quick access to frequently used functions such as temperature set point or light control. Blinds and lights can thus be configured accordingly. The NOVOS 7 can be equipped with up to 4 integrated sensors (temperature, relative humidity, CO2 and VOC) and contributes to a comfortable room ambience and energy savings.

BACnet Modbus KNX LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Operating functions	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
Operating elements	rotary push button, 4 favourite buttons
Configuration	NOVOSapp, uConfig, BUS, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX/LON:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing 0..85 KJ/kg enthalpy 0..50 | 0..80 g/m³ absolute humidity 0..+50 | -20..+80 °C dew point optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV **KNX/LON:** 24 V = (±10%) SELV
Power consumption	typ. 2 W (24 V =), 4 VA (24 V ~) **KNX/LON:** typ. 2 W (24 V =)
Display	TFT 3,5“, 320x480 px
Enclosure	PC V0
Colour	pure white, aluminium, black design cover NOVOS 7 glass alu or black available
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	cable entry via rear opening **BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX/LON:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX/LON:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

Room operating unit with up to 4 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 7 white temp RS485 Modbus	✓	735018	RU1	289,00
NOVOS 7 white temp_rH RS485 Modbus	✓	735025	RU1	330,90
NOVOS 7 white CO2 temp_rH RS485 Modbus	✓	735032	RU1	393,80
NOVOS 7 white VOC temp_rH RS485 Modbus	✓	735063	RU1	383,30
NOVOS 7 white CO2+VOC temp_rH RS485 Modbus	✓	735094	RU1	446,20
NOVOS 7 white design temp RS485 Modbus	✓	761901	RU1	289,00
NOVOS 7 white design temp_rH RS485 Modbus	✓	761987	RU1	330,90
NOVOS 7 white design CO2 temp_rH RS485 Modbus	✓	762007	RU1	393,80
NOVOS 7 white design VOC temp_rH RS485 Modbus	✓	762014	RU1	383,30
NOVOS 7 white design CO2+VOC temp_rH RS485 Modbus	✓	762038	RU1	446,20

Room operating unit with up to 4 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 7 white temp RS485 BACnet (MS/TP)	✓	778329	RU1	289,00
NOVOS 7 white temp_rH RS485 BACnet (MS/TP)	✓	780841	RU1	330,90
NOVOS 7 white CO2 temp_rH RS485 BACnet (MS/TP)	✓	769037	RU1	393,80
NOVOS 7 white VOC temp_rH RS485 BACnet (MS/TP)	✓	780896	RU1	383,30
NOVOS 7 white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780926	RU1	446,20
NOVOS 7 white design temp RS485 BACnet (MS/TP)	✓	780971	RU1	289,00
NOVOS 7 white design temp_rH RS485 BACnet (MS/TP)	✓	781008	RU1	330,90
NOVOS 7 white design CO2 temp_rH RS485 BACnet (MS/TP)	✓	781046	RU1	393,80
NOVOS 7 white design VOC temp_rH RS485 BACnet (MS/TP)	✓	781077	RU1	383,30
NOVOS 7 white design CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	775342	RU1	446,20

Room operating unit with up to 4 measured values KNX (TP1)					
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 7 white temp KNX	✓	✓	780827	RU1	351,90
NOVOS 7 white temp_rH KNX	✓	✓	780858	RU1	393,80
NOVOS 7 white CO2 temp_rH KNX	✓	✓	780872	RU1	456,70
NOVOS 7 white VOC temp_rH KNX	✓	✓	780902	RU1	446,20
NOVOS 7 white CO2+VOC temp_rH KNX	✓	✓	780933	RU1	509,10
NOVOS 7 white design temp KNX	✓	✓	780988	RU1	351,90
NOVOS 7 white design temp_rH KNX	✓	✓	781015	RU1	393,80
NOVOS 7 white design CO2 temp_rH KNX	✓	✓	781053	RU1	456,70
NOVOS 7 white design VOC temp_rH KNX	✓	✓	781084	RU1	446,20
NOVOS 7 white design CO2+VOC temp_rH KNX	✓	✓	781114	RU1	509,10

Room operating unit with up to 4 measured values LON				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 7 white temp LON	✓	780834	RU1	414,70
NOVOS 7 white temp_rH LON	✓	780865	RU1	456,60
NOVOS 7 white CO2 temp_rH LON	✓	780889	RU1	519,50
NOVOS 7 white VOC temp_rH LON	✓	780919	RU1	509,00
NOVOS 7 white CO2+VOC temp_rH LON	✓	780957	RU1	571,90
NOVOS 7 white design temp LON	✓	780995	RU1	414,70
NOVOS 7 white design temp_rH LON	✓	781039	RU1	456,60
NOVOS 7 white design CO2 temp_rH LON	✓	781060	RU1	519,50
NOVOS 7 white design VOC temp_rH LON	✓	781091	RU1	509,00
NOVOS 7 white design CO2+VOC temp_rH LON	✓	781107	RU1	571,90

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 7 glass alu	12,60
Design cover NOVOS 7 glass black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 5 x

The surface-mounted NOVOS 5 x comes in the NOVOS design with an integrated temperature sensor. Possible operating elements are set point potentiometer, status LED with up to 7 selectable colors, rotary switch for fan stage control and a presence button. The connection terminal in the back part allows for pre-wiring. The device is furthermore available with an LCD and integrated traffic light function for indicating the status of measured values. Threshold values and display settings can be individually configured using the Thermokon NOVOSapp.

NOVOS 5 S

NOVOS 5 PSTD

passive / 0..10 V BACnet Modbus KNX

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Operating functions	setpoint adjustment temperature, fan stage adjustment, max. 5 stages, presence detection
Operating elements	potentiometer (P), rotary switch (S), button (T) with LED 24 V =
Configuration	NOVOSapp, uConfig, BUS, jumper, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable

Technical Data	
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV | **KNX:** 24 V = (±10%) SELV
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (24 V ~) | **KNX:** typ. 0,4 W (24 V =)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	PC V0
Colour	pure white, aluminium, black design cover pure white, alu or black available
Operating range temperature	-35..+70 °C
Protection (IP)	IP30, according to EN 60529
Connection	cable entry via rear opening **passive/TRV/BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **passive/TRV/BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Room operating unit temperature passive S

Item description	Item No.	Group	€
NOVOS 5 S white without sensor, FS5	730082	RU3	81,10
NOVOS 5 S white temp PT100, FS5	730129	RU3	89,00
NOVOS 5 S white temp PT1000, FS5	730150	RU3	91,40
NOVOS 5 S white temp PT1000 1/3 DIN, FS5	730204	RU3	95,00
NOVOS 5 S white temp Ni1000, FS5	730273	RU3	91,10
NOVOS 5 S white temp Ni1000TK5000, FS5	730303	RU3	95,00
NOVOS 5 S white temp NTC10k, FS5	730334	RU3	87,60

Room operating unit temperature passive S design

Item description	Item No.	Group	€
NOVOS 5 S white design without sensor, FS5	730105	RU3	81,10
NOVOS 5 S white design temp PT100, FS5	730136	RU3	89,00
NOVOS 5 S white design temp PT1000, FS5	730174	RU3	91,40
NOVOS 5 S white design temp PT1000 1/3 DIN, FS5	730211	RU3	95,00
NOVOS 5 S white design temp Ni1000, FS5	730280	RU3	91,10
NOVOS 5 S white design temp Ni1000TK5000, FS5	730310	RU3	95,00
NOVOS 5 S white design temp NTC10k, FS5	730341	RU3	87,60

Room operating unit temperature passive PSTD			
Item description	**Item No.**	**Group**	**€**
NOVOS 5 PSTD white without sensor, 10 kOhm, FS5	730112	RU3	106,90
NOVOS 5 PSTD white temp PT100, 10 kOhm, FS5	730143	RU3	114,80
NOVOS 5 PSTD white temp PT1000, 10 kOhm, FS5	730198	RU3	117,20
NOVOS 5 PSTD white temp PT1000 1/3 DIN, 10 kOhm, FS5	730228	RU3	120,80
NOVOS 5 PSTD white temp Ni1000, 10 kOhm, FS5	730297	RU3	116,90
NOVOS 5 PSTD white temp Ni1000TK5000, 10 kOhm, FS5	730327	RU3	120,80
NOVOS 5 PSTD white temp NTC10k, 10 kOhm, FS5	730358	RU3	113,40

Room operating unit temperature passive PSTD design			
Item description	**Item No.**	**Group**	**€**
NOVOS 5 PSTD white design without sensor, 10 kOhm, FS5	731683	RU3	106,90
NOVOS 5 PSTD white design temp PT100, 10 kOhm, FS5	731690	RU3	114,80
NOVOS 5 PSTD white design temp PT1000, 10 kOhm, FS5	731706	RU3	117,20
NOVOS 5 PSTD white design temp PT1000 1/3 DIN, 10 kOhm, FS5	731720	RU3	120,80
NOVOS 5 PSTD white design temp Ni1000, 10 kOhm, FS5	731737	RU3	116,90
NOVOS 5 PSTD white design temp Ni1000TK5000, 10 kOhm, FS5	731751	RU3	120,80
NOVOS 5 PSTD white design temp NTC10k, 10 kOhm, FS5	731775	RU3	113,40

Options	Labelling fan stages on page 164
Description	**€**
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,60
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 5 alu	12,60
Design cover NOVOS 5 black	12,60
LCD 29x35 mm, RGB backlight	45,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

NOVOS 5 x TRV

Room operating unit temperature active 0..10 (0..5) V					
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 S white temp TRV, FS5	✓	734936	RU3	166,50
NOVOS 5 S white design temp TRV, FS5	✓	734950	RU3	166,50
NOVOS 5 PSTD white temp TRV, pot_active, FS5	✓	734943	RU3	192,30
NOVOS 5 PSTD white design temp TRV, pot_active, FS5	✓	734967	RU3	192,30

NOVOS 5 x BUS

Room operating unit temperature RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 S white temp RS485 Modbus, FS5	✓	734974	RU2	206,20
NOVOS 5 S white design temp RS485 Modbus, FS5	✓	734998	RU2	206,20
NOVOS 5 PSTD white temp RS485 Modbus, FS5	✓	734981	RU2	232,00
NOVOS 5 PSTD white design temp RS485 Modbus, FS5	✓	735001	RU2	232,00

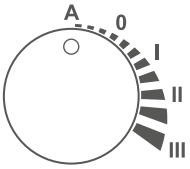
Room operating unit temperature RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 S white temp RS485 BACnet (MS/TP), FS5	✓	754217	RU2	206,20
NOVOS 5 S white design temp RS485 BACnet (MS/TP), FS5	✓	754415	RU2	206,20
NOVOS 5 PSTD white temp RS485 BACnet (MS/TP), FS5	✓	754255	RU2	232,00
NOVOS 5 PSTD white design temp RS485 BACnet (MS/TP), FS5	✓	754422	RU2	232,00

Room thermostat temperature KNX (TP1)					
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 S white temp KNX, FS5	✓	✓	781152	RU2	269,10
NOVOS 5 S white design temp KNX, FS5	✓	✓	781176	RU2	269,10
NOVOS 5 PSTD white temp KNX, FS5	✓	✓	781275	RU2	294,90
NOVOS 5 PSTD white design temp KNX, FS5	✓	✓	781237	RU2	294,90

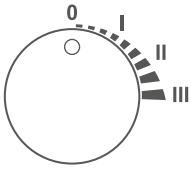
Options	Labelling fan stages on page 164
Description	**€**
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,60
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 5 alu	12,60
Design cover NOVOS 5 black	12,60
LCD 29x35 mm, RGB backlight	45,10
Add for additional humidity sensor	41,90
Add for additional CO2+VOC sensor	188,60
Add for additional CO2 sensor	136,20
Add for additional VOC sensor	125,70

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

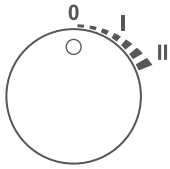
Labelling fan stages (FSx)



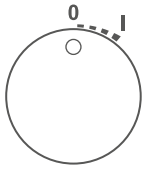
Auto – 0 – 1 – 2 – 3
(FS5)



0 – 1 – 2 – 3
(FS4)



0 – 1 – 2
(FS3)



0 – 1
(FS2)

NOVOS 3 x

The surface-mounted NOVOS 3 x comes in the NOVOS design with an integrated temperature sensor. Possible operating elements are set point potentiometer, status LED with up to 7 selectable colors and a presence button. It furthermore provides passive outputs to superior control systems. The separate back part with its connection terminals allows pre-wiring. Threshold values and display settings can be individually configured using the Thermokon NOVOSapp.

NOVOS 3 P

NOVOS 3 TD

NOVOS 3 PTD

passive / 0..10 V BACnet Modbus KNX

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Operating functions	setpoint adjustment temperature, presence detection
Operating elements	potentiometer (P), button (T) with LED 24 V =
Configuration	NOVOSapp, uConfig, BUS, jumper, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV **KNX:** 24 V = (±10%) SELV, supply via BUS: 29 V = SELV
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (24 V ~) | **KNX:** typ. 0,4 W (24 V =)
Display	**TD / PTD:** RGB LED
Enclosure	PC V0
Colour	pure white, aluminium, black design cover alu or black available (please specify colour when ordering)

Technical Data	
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	cable entry via rear opening **passive/TRV/BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **passive/TRV/BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Room operating unit temperature passive without sensor

Item description	Item No.	Group	€
NOVOS 3 P white without sensor, 10 kOhm	729574	RU3	36,50
NOVOS 3 P white design without sensor, 10 kOhm	729628	RU3	36,50
NOVOS 3 TD white without sensor	729604	RU3	41,70
NOVOS 3 TD white design temp without sensor	729635	RU3	41,70
NOVOS 3 PTD white without sensor, 10 kOhm	729611	RU3	57,50
NOVOS 3 PTD white design without sensor, 10 kOhm	729642	RU3	57,50

Room operating unit temperature passive PT100 DIN cl. B

Item description	Item No.	Group	€
NOVOS 3 P white temp PT100, 10 kOhm	729659	RU3	44,40
NOVOS 3 P white design temp PT100, 10 kOhm	729680	RU3	44,40
NOVOS 3 TD white temp PT100	729666	RU3	49,60
NOVOS 3 TD white design temp PT100	729697	RU3	49,60
NOVOS 3 PTD white temp PT100, 10 kOhm	729673	RU3	65,40
NOVOS 3 PTD white design temp PT100, 10 kOhm	729703	RU3	65,40

Room operating unit temperature passive PT1000 DIN cl. B

Item description	Item No.	Group	€
NOVOS 3 P white temp PT1000, 10 kOhm	729727	RU3	46,80
NOVOS 3 P white design temp PT1000, 10 kOhm	729758	RU3	46,80
NOVOS 3 TD white temp PT1000	729734	RU3	52,00
NOVOS 3 TD white design temp PT1000	729765	RU3	52,00
NOVOS 3 PTD white temp PT1000, 10 kOhm	729741	RU3	67,80
NOVOS 3 PTD white design temp PT1000, 10 kOhm	729772	RU3	67,80

Room operating unit temperature passive PT1000 1/3 DIN			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 P white temp PT1000 1/3 DIN, 10 kOhm	729789	RU3	50,40
NOVOS 3 P white design temp PT1000 1/3 DIN, 10 kOhm	729826	RU3	50,40
NOVOS 3 TD white temp PT1000 1/3 DIN	729796	RU3	55,60
NOVOS 3 TD white design temp PT1000 1/3 DIN	729833	RU3	55,60
NOVOS 3 PTD white temp PT1000 1/3 DIN, 10 kOhm	729802	RU3	71,40
NOVOS 3 PTD white design temp PT1000 1/3 DIN, 10 kOhm	729857	RU3	71,40

Room operating unit temperature passive Ni1000 DIN cl. B			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 P white temp Ni1000, 10 kOhm	729864	RU3	46,50
NOVOS 3 P white design temp Ni1000, 10 kOhm	729901	RU3	46,50
NOVOS 3 TD white temp Ni1000	729871	RU3	51,70
NOVOS 3 TD white design temp Ni1000	729918	RU3	51,70
NOVOS 3 PTD white temp Ni1000, 10 kOhm	729895	RU3	67,50
NOVOS 3 PTD white design temp Ni1000, 10 kOhm	729925	RU3	67,50

Room operating unit temperature passive Ni1000TK5000			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 P white temp Ni1000TK5000, 10 kOhm	729932	RU3	50,40
NOVOS 3 P white design temp Ni1000TK5000, 10 kOhm	729963	RU3	50,40
NOVOS 3 TD white temp Ni1000TK5000	729949	RU3	55,60
NOVOS 3 TD white design temp Ni1000TK5000	729970	RU3	55,60
NOVOS 3 PTD white temp Ni1000TK5000, 10 kOhm	729956	RU3	71,40
NOVOS 3 PTD white design temp Ni1000TK5000, 10 kOhm	729987	RU3	71,40

Room operating unit temperature passive NTC10k			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 P white temp NTC10k, 10 kOhm	729994	RU3	43,00
NOVOS 3 P white design temp NTC10k, 10 kOhm	730037	RU3	43,00
NOVOS 3 TD white temp NTC10k	730013	RU3	48,20
NOVOS 3 TD white design temp NTC10k	730044	RU3	48,20
NOVOS 3 PTD white temp NTC10k, 10 kOhm	730020	RU3	64,00
NOVOS 3 PTD white design temp NTC10k, 10 kOhm	730051	RU3	64,00

Options	
Description	**€**
Passive potentiometer 1 kΩ (poti_1k) or 5 kΩ (Poti_5k), for other values please request	0,00
Active potentiometer 0..10 V (poti_active)	24,80
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90

NOVOS 3 x TRV

Room operating unit temperature active 0..10 (0..5) V				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 P white temp TRV, pot_active	✓	734691	RU3	106,10
NOVOS 3 P white design temp TRV, pot_active	✓	734806	RU3	106,10
NOVOS 3 TD white temp TRV	✓	734714	RU3	111,30
NOVOS 3 TD white design temp TRV	✓	734837	RU3	111,30
NOVOS 3 PTD white temp TRV, pot_active	✓	734776	RU3	127,10
NOVOS 3 PTD white design temp TRV, pot_active	✓	734844	RU3	127,10

NOVOS 3 x BUS

Room operating unit temperature RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 P white temp RS485 Modbus	✓	734851	RU2	121,80
NOVOS 3 P white design temp RS485 Modbus	✓	734905	RU2	121,80
NOVOS 3 TD white temp RS485 Modbus	✓	734882	RU2	127,00
NOVOS 3 TD white design temp RS485 Modbus	✓	734912	RU2	127,00
NOVOS 3 PTD white temp RS485 Modbus	✓	734899	RU2	142,80
NOVOS 3 PTD white design temp RS485 Modbus	✓	734929	RU2	142,80

Room operating unit temperature RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 P white temp RS485 BACnet (MS/TP)	✓	754453	RU2	121,80
NOVOS 3 P white design temp RS485 BACnet (MS/TP)	✓	754484	RU2	121,80
NOVOS 3 TD white temp RS485 BACnet (MS/TP)	✓	754460	RU2	127,00
NOVOS 3 TD white design temp RS485 BACnet (MS/TP)	✓	754491	RU2	127,00
NOVOS 3 PTD white temp RS485 BACnet (MS/TP)	✓	754477	RU2	142,80
NOVOS 3 PTD white design temp RS485 BACnet (MS/TP)	✓	754507	RU2	142,80

Room thermostat temperature KNX (TP1)					
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 P white temp KNX	✓	✓	775243	RU2	184,70
NOVOS 3 P white design temp KNX	✓	✓	781596	RU2	184,70
NOVOS 3 TD white temp KNX	✓	✓	781565	RU2	189,90
NOVOS 3 TD white design temp KNX	✓	✓	781602	RU2	189,90
NOVOS 3 PTD white temp KNX	✓	✓	781589	RU2	205,70
NOVOS 3 PTD white design temp KNX	✓	✓	781619	RU2	205,70

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60
Add for additional humidity sensor	41,90
Add for additional CO2+VOC sensor	220,00
Add for additional CO2 sensor	167,60
Add for additional VOC sensor	157,20

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 3 INC

Room operating unit in the Thermokon NOVOS 3 enclosure with integrated temperature sensor. The unit is operated via a push-and-rotary switch and, depending on the version, has an additional button for presence detection or for adjusting fan stages. Coloured LEDs provide feedback on the currently set setpoint status (heating/cooling) or the respective fan stage. The connection terminal in the lower part of the enclosure allows wiring in advance. The threshold values can be individually configured via the Thermokon NOVOSapp.

NOVOS 3 INC

NOVOS 3 INC TD

NOVOS 3 INC FS5

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Operating functions	setpoint adjustment temperature, fan stage adjustment (max. 5 stages), presence detection, ECO function
Operating elements	rotary encoder/push button for setpoint adjustment/ECO function **TD:** button (T) with LED 24 V = **FSx:** button for fan stage adjustment with up to 5 stages
Configuration	NOVOSapp, uConfig, BUS, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV **KNX:** 24 V = (±10%) SELV
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **KNX:** typ. 0,4 W (24 V =)
Display	7 LEDs for displaying setpoint adjustment **TD:** LED for status feedback **FS5:** 4 LEDs showing fan stage
Enclosure	PC V0

Technical Data	
Colour	pure white, aluminium, black, design cover alu or black available (please specify colour when ordering)
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	cable entry via rear opening **BACnet/Modbus:** tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX:** removable plug-in terminal, max. Ø=0,8 mm
Mounting	base part can be mounted and wired separately **BACnet/Modbus:** flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws **KNX:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Room operating unit temperature RS485 Modbus

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 INC ECO white temp RS485 Modbus	✓	781626	RU2	187,00
NOVOS 3 INC TD ECO white temp RS485 Modbus	✓	781633	RU2	193,50
NOVOS 3 INC FS5 ECO white temp RS485 Modbus	✓	781640	RU2	208,00

Room operating unit temperature RS485 BACnet (MS/TP)

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 INC ECO white temp RS485 BACnet (MS/TP)	✓	781657	RU2	187,00
NOVOS 3 INC TD ECO white temp RS485 BACnet (MS/TP)	✓	781664	RU2	193,50
NOVOS 3 INC FS5 ECO white temp RS485 BACnet (MS/TP)	✓	781671	RU2	208,00

Room thermostat temperature KNX (TP1)

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 INC ECO white temp KNX	✓	781688	RU2	249,90
NOVOS 3 INC TD ECO white temp KNX	✓	781695	RU2	256,40
NOVOS 3 INC FS5 ECO white temp KNX	✓	781701	RU2	270,90

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60
Add for additional humidity sensor	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

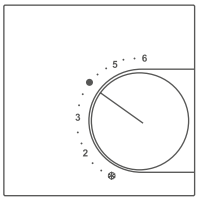
WRF07 x

An optically appealing flush-mounted room unit in the design of various switch frame manufacturers. Available in different colors and with different labeling options. Possible operating elements are potentiometers, LEDs, buttons and rocker switches. An integrated temperature sensor is optional. The removable terminal allows for pre-wiring.

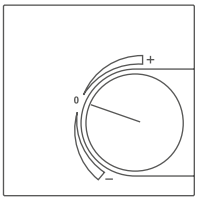
WRF07 P ltype1,
Gira E2 pure white matt

WRF07 PTD ltype1,
Gira E2 pure white matt

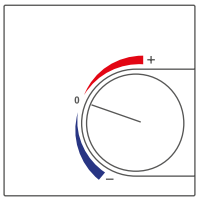
WRF07 PSD ltype1,
Gira E2 pure white matt



ltype1



ltype2



ltype6

passive / 0..10 V BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, CO2/VOC on request
Operating functions	setpoint adjustment temperature, fan stage adjustment, presence detection, status feedback via LED
Operating elements	potentiometer (P) Rotary switch for fan stage adjustment with up to 5 stages rocker switch (S) (2 fan stages, 3 fan stages) button (T)
Configuration	BUS, DIP switches
Input	**AO2V:** 2x input digital for floating switch contact **DI4:** 4x input digital for floating switch contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV **BACnet/Modbus (CO2 | VOC | CO2+VOC):** 15..35 V = SELV, 19..29 V ~ SELV

Technical Data	
Power consumption	**TRV3:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **BACnet/Modbus:** typ. 0,9 W (24 V =), 1 VA (24 V ~) **BACnet/Modbus (CO2 | VOC | CO2+VOC):** max. 1,6 W (24 V =), 3,9 VA (24 V ~) **LON:** typ. 1 W (24 V =), 2,5 VA (24 V ~)
Display	LED for status feedback
Enclosure	central disc in design of the manufacturer (varies depending on switch range)
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm) DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)
Delivery content	incl. frame **DO2R/DO2T/OVR/OVT:** incl. frame 2x with blind cover

Outputs		AO2V	DO2R	DO2T	OVR	OVT
0..10 V		2	–	–	1	1
Relay		–	2	–	1	–
Triac		–	–	2	–	1
Inputs	**DI4**	**AO2V**	**DO2R**	**DO2T**	**OVR**	**OVT**
Universal (configurable)	4	2	2	2	2	2

WRF07 x passive

Room operating unit temperature passive without sensor			
Item description	**Item No.**	**Group**	**€**
WRF07 P without sensor ltype1 Gira E2 pure white matt, 10 kOhm	202664	RU2	86,80
WRF07 PTD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	542883	RU2	119,80
WRF07 PSD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627917	RU2	123,40

Room operating unit temperature passive NTC10k			
Item description	**Item No.**	**Group**	**€**
WRF07 P NTC10k ltype1 Gira E2 pure white matt, 10 kOhm	400237	RU2	93,30
WRF07 PTD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628099	RU2	126,30
WRF07 PSD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627986	RU2	129,90

Room operating unit temperature passive PT100 DIN cl. B			
Item description	**Item No.**	**Group**	**€**
WRF07 P PT100 ltype1 Gira E2 pure white matt, 10 kOhm	628020	RU2	94,70
WRF07 PTD PT100 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	553278	RU2	127,70
WRF07 PSD PT100 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627924	RU2	131,30

Room operating unit temperature passive PT100 1/3 DIN			
Item description	**Item No.**	**Group**	**€**
WRF07 P PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm	628037	RU2	99,00
WRF07 PTD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628068	RU2	132,00
WRF07 PSD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627931	RU2	135,60

Room operating unit temperature passive PT1000 DIN cl. B			
Item description	**Item No.**	**Group**	**€**
WRF07 P PT1000 ltype1 Gira E2 pure white matt, 10 kOhm	399012	RU2	97,10
WRF07 PTD PT1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	291767	RU2	130,10
WRF07 PSD PT1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627948	RU2	133,70

Room operating unit temperature passive PT1000 1/3 DIN			
Item description	**Item No.**	**Group**	**€**
WRF07 P PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm	628044	RU2	100,70
WRF07 PTD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628075	RU2	133,70
WRF07 PSD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627955	RU2	137,30

Room operating unit temperature passive Ni1000 DIN cl. B			
Item description	**Item No.**	**Group**	**€**
WRF07 P Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm	400220	RU2	96,80
WRF07 PTD Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	529266	RU2	129,80
WRF07 PSD Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	678643	RU2	133,40

Room operating unit temperature passive Ni1000TK5000			
Item description	**Item No.**	**Group**	**€**
WRF07 P Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm	193634	RU2	100,70
WRF07 PTD Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628082	RU2	133,70
WRF07 PSD Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627979	RU2	137,30

Options	Switch ranges on page 409/410
Description	**€**
Passive potentiometer 1 kΩ (poti_1k) or 5 kΩ (Poti_5k), for other values please request	0,00
Active potentiometer 0..10 V (poti_active)	24,80
Rocker switch S with 3 fan stages (FS3: 1-0-2)	4,00
Additional button	24,40
Additional diode (LED)	20,00
Rotary switch for fan stage adjustment with up to 5 stages	on request
Labelling type 2 (ltype2)	5,20
Labelling type 6 colour red+blue (ltype6)	6,80
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

WRF07 x active 0..10 V

Room operating unit temperature active			
Item description	**Item No.**	**Group**	**€**
WRF07 P temp TRV3 ltype1 Gira E2 pure white matt, pot_active	243902	RU2	213,40
WRF07 PTD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	369602	RU2	246,40
WRF07 PSD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	332132	RU2	250,10

Options	Switch ranges on page 409/410
Description	**€**
Additional button	24,40
Additional diode (LED)	20,00
Labelling type 2 (ltype2)	5,20
Labelling type 6 colour red+blue (ltype6)	6,80
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
P/PTD: Add for additional humidity sensor	41,90
P/PTD: Add for additional CO2 sensor	62,90
P/PTD: Add for additional VOC sensor	52,40

WRF07 x BUS

Room operating unit with up to 4 measured values RS485 Modbus			
Item description	**Item No.**	**Group**	**€**
WRF07 P CO2 temp_rH RS485 Modbus ltype1 Gira E2 pure white matt	801683	RU2	296,50
WRF07 P VOC temp_rH RS485 Modbus ltype1 Gira E2 pure white matt	801690	RU2	286,00
WRF07 P CO2+VOC temp_rH RS485 Modbus ltype1 Gira E2 pure white matt	801706	RU2	348,90
WRF07 PTD CO2 temp_rH RS485 Modbus ltype1 Gira E2 pure white matt, LED green	801713	RU2	308,10
WRF07 PTD VOC temp_rH RS485 Modbus ltype1 Gira E2 pure white matt, LED green	801720	RU2	297,60
WRF07 PTD CO2+VOC temp_rH RS485 Modbus ltype1 Gira E2 pure white matt, LED green	801737	RU2	360,50

Options	Switch ranges on page 409/410
Description	**€**
Add to price of RS485 Modbus for RS485 BACnet (MS/TP)	0,00
Additional button	24,40
Additional diode (LED)	20,00
Labelling type 2 (ltype2)	5,20
Labelling type 6 colour red+blue (ltype6)	6,80
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

WRF07 x BUS DI4

Room operating unit temperature RS485 Modbus DI4			
Item description	**Item No.**	**Group**	**€**
WRF07 P DI4 temp RS485 Modbus ltype1 Gira E2 pure white matt	613910	RU2	191,70
WRF07 PTD DI4 temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	628181	RU2	203,30

Room operating unit temperature LON DI4			
Item description	**Item No.**	**Group**	**€**
WRF07 P DI4 temp LON ltype1 Gira E2 pure white matt	615600	RU2	261,60
WRF07 PTD DI4 temp LON ltype1 Gira E2 pure white matt, LED green	595230	RU2	274,30

WRF07 x BUS AO2V

Room thermostat heating/cooling RS485 BACnet (MS/TP) AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF07 P AO2V temp RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt	✓	628150	RU2	191,70
WRF07 PTD AO2V temp RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt, LED green	✓	628167	RU2	203,30

Room thermostat heating/cooling RS485 Modbus AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF07 P AO2V temp RS485 Modbus ltype1 Gira E2 pure white matt	✓	496094	RU2	191,70
WRF07 PTD AO2V temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	✓	497800	RU2	203,30

Room thermostat heating/cooling LON AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF07 P AO2V temp LON ltype1 Gira E2 pure white matt	✓	583374	RU2	261,60
WRF07 PTD AO2V temp LON ltype1 Gira E2 pure white matt, LED green	✓	628174	RU2	274,30

Options	Switch ranges on page 409/410
Description	**€**
Additional button	24,40
Additional diode (LED)	20,00
Rotary switch for fan stage adjustment with up to 5 stages	on request
Labelling type 2 (ltype2)	5,20
Labelling type 6 colour red+blue (ltype6)	6,80
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
Add for additional humidity sensor	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

WRF06 LCD

The flush-mounted room operating unit with set point adjustment, fan stage control and occupancy button can be used for an individual temperature control in living spaces as well as hotel and office rooms. With 4 push buttons and an integrated LCD for visualizing temperature, fan stage and occupancy, the WRF06 LCD VV can also control proportional valves directly besides the models to integrate into a Modbus RS485 or LON network. Removable terminals allow for pre-wiring.

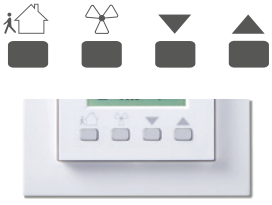
WRF06 LCD ltype1 pure white,
frame Gira E2 pure white matt

WRF06 LCD ltype1 anthracite,
frame Peha Aura Glas

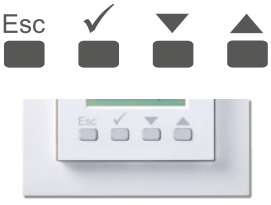
WRF06 LCD LON ltype2 aluminium,
frame Merten M-Plan aluminium

WRF06 LCD (DO2R/DO2T/OVR/OVT) ltype1 pure white,
frame two-fold with blind cover

labelling type 1 (ltype1)
standard for BUS / optionally for VV



labelling type 2 (ltype2)
optionally for models with BUS



labelling type 3 (ltype3)
standard for models VV

0..10 V Modbus LON

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature setpoint adjustment OK/cancel fan stage adjustment presence detection
Operating elements	4 buttons
Configuration	BUS, buttons, DIP switches
Input	**VV:** 2x input digital for floating contact to activate messages on the LCD display **DI4:** 4x input digital for floating switch contact **AO2V/DO2R/DO2T/OVR/OVT:** 2x input digital for floating switch contact
Network technology	RS485 Modbus, LON FT (free topology)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**VV:** typ. 0,8 W (24 V =), 2,5 VA (24 V ~) **BUS:** typ. 0,9 W (24 V =), 1 VA (24 V ~)
Display	LCD 34x21 mm, monochrome
Enclosure	PC
Colour	white, pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², pluggable
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
Mounting	flush-mounted in standard EU box (Ø=60 mm) **AO2V/DO2R/DO2T/OVR/OVT:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm) DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)

Outputs	AO2V	DO2R	DO2T	OVR	OVT
0..10 V	2	–	–	1	1
Relay	–	2	–	1	–
Triac	–	–	2	–	1
Inputs	**AO2V**	**DO2R**	**DO2T**	**OVR**	**OVT**
Universal (configurable)	2	2	2	2	2

Room operating unit temperature active			
Item description	**Item No.**	**Group**	**€**
WRF06 LCD temp VV ltype3 pure white matt	731089	RU2	204,60
WRF06 LCD temp VV ltype3 pure white brilliant	731102	RU2	204,60
WRF06 LCD temp VV ltype3 aluminium	731119	RU2	204,60
WRF06 LCD temp VV ltype3 Jung aluminium	731126	RU2	204,60
WRF06 LCD temp VV ltype3 anthracite	731133	RU2	204,60

Room operating unit temperature RS485 Modbus DI4			
Item description	**Item No.**	**Group**	**€**
WRF06 LCD DI4 temp RS485 Modbus ltype1 pure white matt	731140	RU2	204,60
WRF06 LCD DI4 temp RS485 Modbus ltype1 pure white brilliant	730068	RU2	204,60
WRF06 LCD DI4 temp RS485 Modbus ltype1 aluminium	731164	RU2	204,60
WRF06 LCD DI4 temp RS485 Modbus ltype1 Jung aluminium	731195	RU2	204,60
WRF06 LCD DI4 temp RS485 Modbus ltype1 anthracite	731201	RU2	204,60

Room operating unit temperature LON DI4			
Item description	**Item No.**	**Group**	**€**
WRF06 LCD DI4 temp LON ltype1 pure white matt	731218	RU2	294,70
WRF06 LCD DI4 temp LON ltype1 pure white brilliant	731232	RU2	294,70
WRF06 LCD DI4 temp LON ltype1 aluminium	731249	RU2	294,70
WRF06 LCD DI4 temp LON ltype1 Jung aluminium	731256	RU2	294,70
WRF06 LCD DI4 temp LON ltype1 anthracite	731263	RU2	294,70

Room thermostat heating/cooling RS485 Modbus AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 LCD AO2V temp RS485 Modbus ltype1 pure white matt	✓	415125	RU2	204,60
WRF06 LCD AO2V temp RS485 Modbus ltype1 pure white brilliant	✓	731379	RU2	204,60
WRF06 LCD AO2V temp RS485 Modbus ltype1 aluminium	✓	731386	RU2	204,60
WRF06 LCD AO2V temp RS485 Modbus ltype1 Jung aluminium	✓	731393	RU2	204,60
WRF06 LCD AO2V temp RS485 Modbus ltype1 anthracite	✓	731409	RU2	204,60

Room thermostat heating/cooling LON AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 LCD AO2V temp LON ltype1 pure white matt	✓	731454	RU2	294,70
WRF06 LCD AO2V temp LON ltype1 pure white brilliant	✓	731461	RU2	294,70
WRF06 LCD AO2V temp LON ltype1 aluminium	✓	731478	RU2	294,70
WRF06 LCD AO2V temp LON ltype1 Jung aluminium	✓	731485	RU2	294,70
WRF06 LCD AO2V temp LON ltype1 anthracite	✓	731492	RU2	294,70

Room thermostat heating/cooling RS485 Modbus IO				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 LCD DO2R temp RS485 Modbus ltype1 pure white matt	✓	731416	RU2	234,20
WRF06 LCD DO2T temp RS485 Modbus ltype1 pure white matt	✓	731423	RU2	234,20
WRF06 LCD OVR temp RS485 Modbus ltype1 pure white matt	✓	731430	RU2	234,20
WRF06 LCD OVT temp RS485 Modbus ltype1 pure white matt	✓	731447	RU2	234,20

Room thermostat heating/cooling LON IO				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 LCD DO2R temp LON ltype1 pure white matt	✓	731577	RU2	324,30
WRF06 LCD DO2T temp LON ltype1 pure white matt	✓	731584	RU2	324,30
WRF06 LCD OVR temp LON ltype1 pure white matt	✓	731607	RU2	324,30
WRF06 LCD OVT temp LON ltype1 pure white matt	✓	731676	RU2	324,30

Options	Switch ranges on page 409/410
Description	**€**
Labelling type 1 (ltype1)	0,00
Labelling type 2 (ltype2)	0,00
Labelling type 3 (ltype3)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
Switch ranges plastic 55x55: frame 2x with blind cover alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	7,90
Switch ranges plastic in further colours and/or >55 mm: frame 2x with blind cover (various manufacturers)	19,40
Switch ranges stainless steel | glass | aluminium: frame 2x with blind cover (various manufacturers)	61,90
Add for additional humidity sensor	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Converter RS485 Modbus – USB incl. driver CD	668293	NET	58,20
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

WRF06 x

A visually appealing flush-mounted room operating unit in the design of various switch frame manufacturers. Available in different colors and with different labeling options. Possible operating elements are rotary switches (fan stage adjustment), LEDs (optical status feedback), buttons (presence) and buttons for operating other peripheral devices. A temperature sensor can be added. The removable terminal allows for pre-wiring. It can be connected to Modbus RS485 and LON networks.

WRF06 S, Gira E2 pure white matt
standard labelling

WRF06 TD Gira E2 pure white matt

passive Modbus LON

Technical Data	
Measured values	temperature
Operating functions	fan stage adjustment, presence detection, status feedback via LED
Operating elements	rotary switch (S), button (T)
Network technology	RS485 Modbus, LON FT (free topology)
Power supply	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,9 W (24 V =), 1 VA (24 V ~)
Display	LED for status feedback
Enclosure	central disc in design of the manufacturer (varies depending on switch range)
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², pluggable
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Delivery content	incl. frame

Room operating unit temperature without sensor			
Item description	**Item No.**	**Group**	**€**
WRF06 S without sensor Gira E2 pure white matt, FS5	629201	RU2	91,40
WRF06 TD without sensor Gira E2 pure white matt, LED green	285964	RU2	70,50

Room operating unit temperature passive			
Item description	**Item No.**	**Group**	**€**
WRF06 TD PT100 Gira E2 pure white matt, LED green	564441	RU2	78,40
WRF06 TD PT100 1/3 DIN Gira E2 pure white matt, LED green	629409	RU2	82,70
WRF06 TD PT1000 Gira E2 pure white matt, LED green	629423	RU2	80,80
WRF06 TD PT1000 1/3 DIN Gira E2 pure white matt, LED green	629447	RU2	84,40
WRF06 TD Ni1000 Gira E2 pure white matt, LED green	195379	RU2	80,50
WRF06 TD Ni1000TK5000 Gira E2 pure white matt, LED green	629461	RU2	84,40
WRF06 TD NTC10k Gira E2 pure white matt, LED green	629324	RU2	77,00

Room operating unit temperature BUS				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 TD DI4 RS485 Modbus Gira E2 pure white matt, LED green		696487	RU2	225,50
WRF06 TD DI4 LON Gira E2 pure white matt, LED green		696555	RU2	251,40
WRF06 TD AO2V LON Gira E2 pure white matt, LED green	✓	696531	RU2	251,40

Options	Switch ranges on page 409/410
Description	**€**
Additional button	24,40
Additional diode (LED)	20,00
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

WRF06 INC

The flush-mounted room operating unit with an interface for RS485 Modbus or KNX is used for set point adjustment. An outstanding feature is the possibility to overwrite the status via Modbus RS485. It furthermore includes a push button for triggering an ECO mode to save energy. The central knob is used as a rotary push button. The set point can be changed as required by turning the button accordingly. The device status is visualized by LEDs i.e. heating/cooling.

WRF06 INC RS485 Modbus
Merten M-Smart polar white brilliant

WRF06 INC KNX
Gira E2 pure white matt

Technical Data	
Measured values	**Modbus/KNX:** temperature **KNX:** relative humidity
Operating functions	setpoint adjustment temperature, fan stage adjustment, standby/presence detection, ECO function, status feedback via LED
Operating elements	rotary encoder/push button for setpoint adjustment/ECO function **KNX:** button for fan stage adjustment
Configuration	BUS, DIP switches, ETS (KNX) (depending on type)
Network technology	RS485 Modbus, KNX (TP1)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	**Modbus:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **KNX:** supply via BUS: 29 V = SELV
Power consumption	typ. 0,3 W (24 V =), 0,9 VA (24 V ~)
Display	**Modbus/KNX:** 7 LEDs for displaying setpoint adjustment **Modbus:** LED for displaying the ECO mode function **KNX:** 4 LEDs showing fan stage
Enclosure	PA6.6
Colour	**KNX:** pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
Operating range temperature	-10..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	**Modbus:** terminal block, max. 1,5 mm², pluggable **KNX:** removable plug-in terminal, max. Ø=0,8 mm
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	**Modbus:** price including frame (Berker S.1, Merten M-Smart or Merten M-Plan)

Room operating unit temperature RS485 Modbus			
Item description	**Item No.**	**Group**	**€**
WRF06 INC temp RS485 Modbus Merten M-Smart polar white brilliant	698214	RU2	187,00

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
Converter RS485 Modbus – USB incl. driver CD	668293	NET	58,20

Room operating unit humidity + temperature KNX (TP1)				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 INC temp_rH KNX pure white matt	✓	781527	RU2	229,50
WRF06 INC temp_rH KNX pure white brilliant	✓	781503	RU2	229,50
WRF06 INC temp_rH KNX aluminium	✓	781534	RU2	229,50
WRF06 INC temp_rH KNX Jung aluminium	✓	781541	RU2	229,50
WRF06 INC temp_rH KNX anthracite	✓	781558	RU2	229,50

Options	Switch ranges on page 409/410
Description	**€**
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

WRF04 x RR

The surface-mounted room controller (with optional display) provides a comfortable and individual temperature control in living spaces, hotel and office rooms. Available operating elements are set point potentiometers, rotary switches for fan stage selection, buttons for occupancy and LEDs for status feedback. Depending on the type, proportional 0..10 V or 2-point valves can be controlled for heating and cooling. The terminal in the back part allows for pre-wiring.

WRF04 LCD P

WRF04 LCD PTD

WRF04 LCD PSD

WRF04 LCD PSTD

Modbus

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment temperature, fan stage adjustment (max. 5 stages), presence detection, status feedback via LED
Operating elements	potentiometer (P), rotary switch (S), button (T)
Configuration	BUS, DIP switches
Input	2x input for floating contact
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,4 W (24 V =), 0,6 VA (24 V ~)
Display	LCD 29x12 mm, monochrome LED for status feedback
Enclosure	PC
Colour	pure white
Operating range temperature	-35..+70 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm² cable entry via rear opening, predetermined breaking point (bottom und top)
Mounting	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

Outputs	AO2V	DO2R	DO2T	OVR	OVT
0..10 V	2	–	–	1	1
Relay	–	2	–	1	–
Triac	–	–	2	–	1
Inputs	**AO2V**	**DO2R**	**DO2T**	**OVR**	**OVT**
Universal (configurable)	2	2	2	2	2

Room thermostat heating/cooling RS485 Modbus AO2V

Item description	Contr.	Item No.	Group	€
WRF04 P AO2V temp RS485 Modbus	✓	419956	RU2	170,10
WRF04 PTD AO2V temp RS485 Modbus, LED green	✓	415613	RU2	178,50
WRF04 PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419949	RU2	197,80
WRF04 PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	480505	RU2	215,40
WRF04 LCD P AO2V temp RS485 Modbus	✓	420020	RU2	215,20
WRF04 LCD PTD AO2V temp RS485 Modbus, LED green	✓	415620	RU2	223,60
WRF04 LCD PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419987	RU2	242,90
WRF04 LCD PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	538442	RU2	260,50

Room thermostat heating/cooling RS485 Modbus IO DO2R

Item description	Contr.	Item No.	Group	€
WRF04 P DO2R temp RS485 Modbus, IO	✓	420266	RU2	215,80
WRF04 PTD DO2R temp RS485 Modbus, LED green, IO	✓	420273	RU2	224,30
WRF04 PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	420280	RU2	243,60
WRF04 LCD P DO2R temp RS485 Modbus, IO	✓	420327	RU2	260,90
WRF04 LCD PTD DO2R temp RS485 Modbus, LED green, IO	✓	420334	RU2	269,40
WRF04 LCD PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	628822	RU2	288,70

Room thermostat heating/cooling RS485 Modbus IO DO2T

Item description	Contr.	Item No.	Group	€
WRF04 P DO2T temp RS485 Modbus, IO	✓	420617	RU2	215,80
WRF04 PTD DO2T temp RS485 Modbus, LED green, IO	✓	420624	RU2	224,30
WRF04 PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	420631	RU2	243,60
WRF04 LCD P DO2T temp RS485 Modbus, IO	✓	420815	RU2	260,90
WRF04 LCD PTD DO2T temp RS485 Modbus, LED green, IO	✓	628846	RU2	269,40
WRF04 LCD PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	628839	RU2	288,70

Room thermostat heating/cooling RS485 Modbus IO OVR				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF04 P OVR temp RS485 Modbus, IO	✓	420679	RU2	215,80
WRF04 PTD OVR temp RS485 Modbus, LED green, IO	✓	420686	RU2	224,30
WRF04 PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420693	RU2	243,60
WRF04 LCD P OVR temp RS485 Modbus, IO	✓	420891	RU2	260,90
WRF04 LCD PTD OVR temp RS485 Modbus, LED green, IO	✓	420907	RU2	269,40
WRF04 LCD PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420914	RU2	288,70

Room thermostat heating/cooling RS485 Modbus IO OVT				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF04 P OVT temp RS485 Modbus, IO	✓	420747	RU2	215,80
WRF04 PTD OVT temp RS485 Modbus, LED green, IO	✓	420754	RU2	224,30
WRF04 PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	420761	RU2	243,60
WRF04 LCD P OVT temp RS485 Modbus, IO	✓	420952	RU2	260,90
WRF04 LCD PTD OVT temp RS485 Modbus, LED green, IO	✓	630122	RU2	269,40
WRF04 LCD PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	628877	RU2	288,70

Options	
Description	**€**
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,60
Labelling type 6 colour red+blue (ltype6)	6,80
Special printing on request	
Special painting available	

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting WRF04 pure white	111584	AS1	13,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
Special painting – prices on request	–		
Special painting setup costs (once per colour)	114998	NET	176,40
Special printing – order quantity 20..49 pcs. (each per colour)	–		17,20
Special printing – order quantity 50..99 pcs. (each per colour)	–		12,90
Special printing setup and tool costs (once for one-colour print)	115049	NET	176,40

LCR Touch

Room operating unit with an integrated temperature sensor (rH sensor optional) and touch surface for visualization of the measured values and room control. It provides connection to an RS485 Modbus network and additional three inputs. The LCR Touch forms the basis for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels or cinemas. The intuitive operation offers all relevant HVAC functions for an intelligent and energy-saving room automation.

Modbus

Technical Data	
Measured values	temperature, relative humidity, VOC
Operating functions	setpoint adjustment 0..+50 °C, fan stage adjustment, light ON/OFF/DIM, blind UP/DOWN, ECO function, status displays
Operating elements	5 touch buttons
Input	1x input for change-over sensor NTC10k 2x input digital for floating contact 1x ESI for window contact, dew point 1x OCC for presence detection, key card switch
Network technology	RS485 Modbus
Measuring range humidity	0..100% rH non-condensing
Power supply	24 V = (±20%) SELV, 24 V ~ (±20%) SELV
Power consumption	typ. 0,3 W (24 V =), 5 VA (24 V ~)
Display	LCD 64x41 mm, backlight white
Enclosure	ABS
Colour	pure white, frame silver
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening
Mounting	flush-mounted in standard EU box (Ø=60 mm)

Room operating unit temperature and optionally humidity RS485 Modbus

Item description	Item No.	Group	€
LCR Touch white temp RS485 Modbus	754323	RU1	155,10
LCR Touch white temp_rH RS485 Modbus	754347	RU1	197,00

Accessories

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

LCA

The flat surface-mounted bi-metallic room thermostat LCA with night-time lowering (ECO function) is designed for heating or cooling in 2-pipe systems in residential, industrial and commercial buildings. The set point can be selected through a large rotary knob. It is suitable for infrared heaters and other thermostat-controlled heating systems.
The flat surface-mounted bimetallic room controller LCA-D is designed for heating in 2-pipe systems in residential, industrial and commercial buildings. The set point can be adjusted through a large rotary knob. The operating mode is indicated by an LED.

LCA

LCA D

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment +5..+30 °C, day/night operation
Operating elements	rotary knob
Input	input for night setback -3 K, 230 V ~, floating
Power supply	230 V ~
Display	**LCA D:** LED – heating ON
Enclosure	ABS
Colour	pure white brilliant
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening
Mounting	flush-mounted on standard EU box (Ø=60 mm)

Room thermostat on surface active				
Item description	**Contr.**	**Item No.**	**Group**	**€**
LCA	✓	660822	RU1	34,90
LCA D	✓	660815	RU1	37,00

JOY Fancoil

Fancoil thermostat in high-quality design for individual single-room temperature- and fan control. A glass surface with intuitive touch control buttons and display combine design, feel and functionality in an outstanding way. The internal controller of the JOY calculates control values for fans and heating/cooling applications, which are provided via analog or digital outputs (depending on type). The possible integration of various external sensors (e.g. window contacts, change-over, condensation sensors, etc.) allows temperature and fan control tailored to the application. The device can be mounted in a standard flush-mounted box.

Outputs	5DO (230 V)	EC AO2DO (230 V)	EC 3AO (24 V)
Fan (Relay)	3	–	–
EC Fan (0..10 V)	–	1	1
Heating/Cooling (Relay)	2	2	–
Heating/Cooling (0..10 V)	–	–	2
6-Way-Valve (0..10 V)	–	–	1*
Inputs	**5DO (230 V)**	**EC AO2DO (230 V)**	**EC 3AO (24 V)**
Universal (configurable)	3 / BUS: 2	3 / BUS: 2	3 / BUS: 2

** Instead of 2x 0..10 V (heating/cooling)*

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature, fan stage adjustment, standby/presence detection
Operating elements	5 touch buttons
Configuration	uConfig, BUS
Input	1x input for NTC10k or floating contact **5DO/AO2DO:** 1x input for potential contact (230 V ~) 1x input for floating contact **3AO:** 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	**5DO/AO2DO:** 85..260 V ~ **3AO:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**5DO:** max. 2,5 VA (260 V ~) **AO2DO:** max. 3 VA (260 V ~) **3AO:** typ. 2,5 W (24 V =)
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, cover glass
Colour	pure white, black
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², inputs max. 1,0 mm²
Mounting	in standard EU box (Ø=60 mm, depth min. 45 mm)

NEW: With additional, customizable touch buttons (see page 12)

Fan coil thermostat temperature active

Item description	Contr.	Item No.	Group	€
JOY Fancoil 5DO temp white	✓	751940	RU1	184,90
JOY Fancoil 5DO temp black	✓	751957	RU1	197,50
JOY Fancoil EC AO2DO temp white	✓	751988	RU1	184,90
JOY Fancoil EC AO2DO temp black	✓	751995	RU1	197,50
JOY Fancoil EC 3AO temp white	✓	724975	RU1	184,90
JOY Fancoil EC 3AO temp black	✓	724982	RU1	197,50

Fan coil thermostat temperature RS485 Modbus				
Item description	**Contr.**	**Item No.**	**Group**	**€**
JOY Fancoil 5DO temp RS485 Modbus white	✓	751933	RU1	191,70
JOY Fancoil 5DO temp RS485 Modbus black	✓	751964	RU1	204,30
JOY Fancoil EC AO2DO temp RS485 Modbus white	✓	752015	RU1	191,70
JOY Fancoil EC AO2DO temp RS485 Modbus black	✓	752022	RU1	204,30
JOY Fancoil EC 3AO temp RS485 Modbus white	✓	723817	RU1	191,70
JOY Fancoil EC 3AO temp RS485 Modbus black	✓	724999	RU1	204,30

Fan coil thermostat temperature RS485 BACnet (MS/TP)				
Item description	**Contr.**	**Item No.**	**Group**	**€**
JOY Fancoil 5DO temp RS485 BACnet (MS/TP) white	✓	778749	RU1	191,70
JOY Fancoil 5DO temp RS485 BACnet (MS/TP) black	✓	778732	RU1	204,30
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) white	✓	778725	RU1	191,70
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) black	✓	778718	RU1	204,30
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) white	✓	778817	RU1	191,70
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) black	✓	778800	RU1	204,30

Options	
Description	**€**
Add for additional humidity sensor	41,90
Change-over sensor NTC10k (model and price on request)	

Accessories			
Item description	**Item No.**	**Group**	**€**
microSD card 2 GB (JOY)	500098	AS1	12,50
Converter RS485 Modbus – USB incl. driver CD	668293	NET	58,20
Decorative frame JOY pure white	681452	AS1	13,50
Decorative frame JOY black	740951	AS1	13,50
Frame for surface mounting JOY pure white	760201	AS1	26,80
Frame for surface mounting JOY black	760195	AS1	26,80

LCF02 Touch

Modern, touch-operated fan coil room thermostat designed for individual control of room temperature. It is tailored to be compatible with 2-pipe and 4-pipe fan coil units and modulating valves (PWM and 0..10 V). Furthermore, LCF02 Touch provides two configurable digital inputs for e.g. occupancy, window contacts, dew-point contact or change-over. Additionally, it is equipped with an input for external (remote) temperature sensors and an RS485 Modbus interface for overwriting controls parameters. With its flush-mounted design, the LCF02 Touch combines digital technology with a large touch screen (LCD), which makes up for an intuitive operation of the fan coil thermostat. It further provides an integrated scheduler with 7 days and 4 time periods.

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment temperature, fan stage adjustment, status displays
Operating elements	touch screen
Configuration	BUS
Input	1x input for additional external NTC10k 1x ESI for window contact, dew point 1x OCC for presence detection, key card switch
Network technology	RS485 Modbus
Power supply	24 V = (±10%) SELV, 24 V ~ (±20%) SELV
Power consumption	typ. 3 W (24 V =)
Display	LCD 64x64 mm, backlight white LCD 64x64 mm, backlight black touch technology
Enclosure	ABS, glass
Colour	pure white, black
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	5DO	2AO3DO	3AO2DO
Fan (Relay)	3	3	–
EC Fan (0..10 V)	–	–	1
Heating/Cooling (Relay)	2	–	2**
Heating/Cooling (0..10 V)	–	2	2
6-Way-Valve (0..10 V)	–	1*	1*
Inputs	**5DO**	**2AO3DO**	**3AO2DO**
Universal (configurable)	3	3	3

** Instead of 2x 0..10 V (heating/cooling)*
*** Additional heating register (3 stages)*

Fan coil thermostat temperature BUS

Item description	Contr.	Item No.	Group	€
LCF02 Touch 5DO RS485 Modbus 24 V white	✓	721035	RU1	175,70
LCF02 Touch 5DO RS485 Modbus 24 V black	✓	721004	RU1	175,70
LCF02 Touch 2AO3DO RS485 Modbus 24 V white	✓	721011	RU1	175,70
LCF02 Touch 2AO3DO RS485 Modbus 24 V black	✓	720984	RU1	175,70
LCF02 Touch 3AO2DO RS485 Modbus 24 V white	✓	721028	RU1	175,70
LCF02 Touch 3AO2DO RS485 Modbus 24 V black	✓	720991	RU1	175,70

Options

Description	€
Change-over sensor NTC10k (model and price on request)	

Accessories

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

LCF02

Modern and intuitive fan coil room thermostat designed for individual control of room temperature. It is tailored to be compatible with 2-pipe and 4-pipe fan coil units and modulating valves (PWM and 0..10 V). Furthermore, the LCF02 provides two configurable digital inputs for occupancy, window contact, dew-point contact or change-over, among other things. Additionally, it is equipped with an input for external (remote) temperature sensors and a RS485 Modbus interface for overwriting controls parameters. With its flush-mounted design, the LCF02 combines digital technology with a large display, making up for an intuitive room control.

Modbus

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment temperature, fan stage adjustment, status displays
Operating elements	5 touch buttons
Input	1x ESI for window contact, dew point 1x OCC for presence detection, key card switch **5DO/2AO3DO/3AO2DO:** 1x input for additional external NTC10k
Network technology	RS485 Modbus
Power supply	24 V = (±10%) SELV, 24 V ~ (±20%) SELV
Power consumption	typ. 0,3 W (24 V =)
Display	LCD 64x41 mm, backlight white
Enclosure	ABS
Colour	pure white
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	C	6WV	5DO	2AO3DO	3AO2DO
Fan (Relay)	3	3	3	3	–
EC Fan (0..10 V)	–	–	–	–	1
Heating/Cooling (Relay)	1***	–	2	–	2**
Heating/Cooling (0..10 V)	1***	–	–	2	2
6-Way-Valve (0..10 V)	–	1	–	1*	1*
Inputs	**C**	**6WV**	**5DO**	**2AO3DO**	**3AO2DO**
Universal (configurable)	2	2	3	3	3

Fan coil thermostat temperature active				
Item description	**Contr.**	**Item No.**	**Group**	**€**
LCF02 C fan coil	✓	684606	RU1	67,30
LCF02 6WV fan coil	✓	684613	RU1	67,30

Fan coil thermostat temperature BUS				
Item description	**Contr.**	**Item No.**	**Group**	**€**
LCF02 5DO RS485 Modbus 24 V	✓	703307	RU1	100,40
LCF02 2AO3DO RS485 Modbus 24 V	✓	703314	RU1	111,40
LCF02 3AO2DO RS485 Modbus 24 V	✓	703321	RU1	122,40

Options	
Description	**€**
Change-over sensor NTC10k (model and price on request)	

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95

** Instead of 2x 0..10 V (heating/cooling)*
*** Additional heating register (3 stages)*
**** Only cooling*

LCF Touch

Modern, touch-operated fan coil room thermostat used for individual control of room temperature. It is tailored to be compatible with both 2-pipe and 4-pipe fan coil units and modulating valves (PWM). The device combines digital technology with a large touch screen (LCD), which permits the single room controller to be used intuitively. It further provides an integrated scheduler with 7 days and 4 time periods. It is designed for mounting in a flush-mounted box.

Modbus

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment temperature, fan stage adjustment, status displays
Operating elements	touch screen
Output switch contact	2x contact NO, 1x heating, 1x cooling 3x contact NO, fan stages
Input	1x input for change-over sensor NTC10k
Network technology	RS485 Modbus
Power supply	90..265 V ~
Power consumption	0,9 VA (265 V ~)
Display	LCD 64x64 mm, backlight white, touch technology
Enclosure	ABS, glass
Colour	black
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Fan coil thermostat temperature active

Item description	Contr.	Item No.	Group	€
LCF Touch	✓	575768	RU1	134,70

Fan coil thermostat temperature BUS

Item description	Contr.	Item No.	Group	€
LCF Touch RS485 Modbus	✓	575775	RU1	150,30

Options

Description	€
Change-over sensor NTC10k (model and price on request)	

LCF

The fan coil room thermostat LCF has been designed for individual control of temperature in commercial, industrial and residential buildings. It is compatible with 2-pipe and 4-pipe applications and 3-stage fan coils. With its flush-mounted modern design, the device combines digital technology with a large LCD and operating buttons, which make up for an intuitive operation.

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment temperature, status displays
Operating elements	5 touch buttons
Output switch contact	2x contact NO, 1x heating, 1x cooling 3x contact NO, fan stages
Input	1x input for NTC10k or floating contact (optionally)
Power supply	90..265 V ~
Power consumption	max. 0,9 W
Display	LCD 36x49 mm, backlight white
Enclosure	ABS, scratch-resistant acrylic glass
Colour	pure white
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Fan coil thermostat temperature active

Item description	Contr.	Item No.	Group	€
LCF	✓	575751	RU1	48,00

Options

Description	€
Change-over sensor NTC10k (model and price on request)	

NOVOS 5

Active room sensor in the NOVOS 5 enclosure for measurement of temperature, humidity (relative and absolute humidity, enthalpy, dew point), CO2 and mixed gas (VOC) depending on the variant. The maintenance-free sensor contributes to a pleasant room climate and well-being. Typical applications include schools, office buildings, hotels or cinemas. The NOVOS 5 uses an LCD with color-changing backlight for displaying the measured values and exceeding threshold values. Different parameters like the display settings can be individually configured via Thermokon NOVOSapp. Optionally, operating elements for controlling HVAC systems can be added (see product NOVOS 5 x in the chapter ‚Room Operating Units').

0..10 V / 4..20 mA BACnet Modbus KNX

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Configuration	NOVOSapp, uConfig, BUS, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV **KNX:** 24 V = (±10%) SELV
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (24 V ~), max. 0,5 W (24 V =) **KNX:** typ. 0,4 W (24 V =)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	PC V0
Colour	pure white, aluminium, black design cover alu or black available
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	cable entry via rear opening tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX:** removable plug-in terminal, max. Ø=0,8 mm

Technical Data	
Mounting	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws base part can be mounted and wired separately **KNX:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 5 – temperature

Room sensor temperature active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 temp white LCD TRV	✓	733519	TP1	128,90
NOVOS 5 temp white LCD TRA	✓	733557	TP1	128,90
NOVOS 5 temp white design LCD TRV	✓	733533	TP1	128,90
NOVOS 5 temp white design LCD TRA	✓	733564	TP1	128,90

Room sensor temperature BUS				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 temp white LCD RS485 BACnet (MS/TP)	✓	754712	TP1	168,70
NOVOS 5 temp white LCD RS485 Modbus	✓	733571	TP1	168,70
NOVOS 5 temp white LCD KNX	✓	781992	TP1	231,60
NOVOS 5 temp white design LCD RS485 BACnet (MS/TP)	✓	754729	TP1	168,70
NOVOS 5 temp white design LCD RS485 Modbus	✓	733588	TP1	168,70
NOVOS 5 temp white design LCD KNX	✓	782005	TP1	231,60

NOVOS 5 – temperature + relative humidity

Room sensor humidity + temperature active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 temp_rH white LCD VV	✓	733595	HU1	170,80
NOVOS 5 temp_rH white LCD AA	✓	733601	HU1	170,80
NOVOS 5 temp_rH white design LCD VV	✓	733618	HU1	170,80
NOVOS 5 temp_rH white design LCD AA	✓	733625	HU1	170,80

Room sensor humidity + temperature BUS				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 temp_rH white LCD RS485 BACnet (MS/TP)	✓	754842	HU1	210,60
NOVOS 5 temp_rH white LCD RS485 Modbus	✓	733649	HU1	210,60
NOVOS 5 temp_rH white LCD KNX	✓	782043	HU1	273,50
NOVOS 5 temp_rH white design LCD RS485 BACnet (MS/TP)	✓	754859	HU1	210,60
NOVOS 5 temp_rH white design LCD RS485 Modbus	✓	733656	HU1	210,60
NOVOS 5 temp_rH white design LCD KNX	✓	782067	HU1	273,50

NOVOS 5 – CO2 + temperature + relative humidity

Room sensor CO2 with up to 3 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2 temp white LCD VV	✓	734202	AQ1	286,80
NOVOS 5 CO2 temp white LCD AA	✓	734240	AQ1	286,80
NOVOS 5 CO2 temp_rH white LCD 3xV	✓	734226	AQ1	328,70
NOVOS 5 CO2 temp_rH white LCD 3xA	✓	734264	AQ1	349,70
NOVOS 5 CO2 temp white design LCD VV	✓	734219	AQ1	286,80
NOVOS 5 CO2 temp white design LCD AA	✓	734257	AQ1	286,80
NOVOS 5 CO2 temp_rH white design LCD 3xV	✓	734233	AQ1	328,70
NOVOS 5 CO2 temp_rH white design LCD 3xA	✓	734271	AQ1	349,70

Room sensor CO2 with up to 3 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2 temp white LCD RS485 BACnet (MS/TP)	✓	755672	AQ1	325,60
NOVOS 5 CO2 temp_rH white LCD RS485 BACnet (MS/TP)	✓	755696	AQ1	367,50
NOVOS 5 CO2 temp white design LCD RS485 BACnet (MS/TP)	✓	755689	AQ1	325,60
NOVOS 5 CO2 temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755702	AQ1	367,50

Room sensor CO2 with up to 3 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2 temp white LCD RS485 Modbus	✓	734295	AQ1	325,60
NOVOS 5 CO2 temp_rH white LCD RS485 Modbus	✓	734639	AQ1	367,50
NOVOS 5 CO2 temp white design LCD RS485 Modbus	✓	734301	AQ1	325,60
NOVOS 5 CO2 temp_rH white design LCD RS485 Modbus	✓	734646	AQ1	367,50

Room sensor CO2 with up to 3 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2 temp white LCD KNX	✓	782210	AQ1	388,50
NOVOS 5 CO2 temp_rH white LCD KNX	✓	782234	AQ1	430,40
NOVOS 5 CO2 temp white design LCD KNX	✓	782258	AQ1	388,50
NOVOS 5 CO2 temp_rH white design LCD KNX	✓	782265	AQ1	430,40

NOVOS 5 – VOC + temperature + relative humidity

Room sensor VOC with up to 3 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 VOC temp white LCD VV	✓	735209	AQ1	243,90
NOVOS 5 VOC temp white LCD AA	✓	735247	AQ1	243,90
NOVOS 5 VOC temp_rH white LCD 3xV	✓	735223	AQ1	285,80
NOVOS 5 VOC temp_rH white LCD 3xA	✓	735261	AQ1	306,80
NOVOS 5 VOC temp white design LCD VV	✓	735216	AQ1	243,90
NOVOS 5 VOC temp white design LCD AA	✓	735254	AQ1	243,90
NOVOS 5 VOC temp_rH white design LCD 3xV	✓	735230	AQ1	285,80
NOVOS 5 VOC temp_rH white design LCD 3xA	✓	735278	AQ1	306,80

Room sensor VOC with up to 3 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 VOC temp white LCD RS485 BACnet (MS/TP)	✓	755719	AQ1	282,70
NOVOS 5 VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755733	AQ1	324,60
NOVOS 5 VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755726	AQ1	282,70
NOVOS 5 VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755757	AQ1	324,60

Room sensor VOC with up to 3 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 VOC temp white LCD RS485 Modbus	✓	735292	AQ1	282,70
NOVOS 5 VOC temp_rH white LCD RS485 Modbus	✓	735322	AQ1	324,60
NOVOS 5 VOC temp white design LCD RS485 Modbus	✓	735315	AQ1	282,70
NOVOS 5 VOC temp_rH white design LCD RS485 Modbus	✓	735346	AQ1	324,60

Room sensor VOC with up to 3 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 VOC temp white LCD KNX	✓	782272	AQ1	345,60
NOVOS 5 VOC temp_rH white LCD KNX	✓	782289	AQ1	387,50
NOVOS 5 VOC temp white design LCD KNX	✓	782296	AQ1	345,60
NOVOS 5 VOC temp_rH white design LCD KNX	✓	782302	AQ1	387,50

NOVOS 5 – CO2 + VOC + temperature + relative humidity

Room sensor CO2 + VOC with up to 4 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2+VOC white LCD VV	✓	735599	AQ1	345,80
NOVOS 5 CO2+VOC white LCD AA	✓	735667	AQ1	345,80
NOVOS 5 CO2+VOC temp white LCD 3xV	✓	735629	AQ1	366,80
NOVOS 5 CO2+VOC temp_rH white LCD 4xV	✓	735643	AQ1	408,70
NOVOS 5 CO2+VOC white design LCD VV	✓	735605	AQ1	345,80
NOVOS 5 CO2+VOC white design LCD AA	✓	735674	AQ1	345,80
NOVOS 5 CO2+VOC temp white design LCD 3xV	✓	735636	AQ1	366,80
NOVOS 5 CO2+VOC temp_rH white design LCD 4xV	✓	735650	AQ1	408,70

Room sensor CO2 + VOC with up to 4 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2+VOC white LCD RS485 BACnet (MS/TP)	✓	755559	AQ1	384,60
NOVOS 5 CO2+VOC temp white LCD RS485 BACnet (MS/TP)	✓	755597	AQ1	405,60
NOVOS 5 CO2+VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755658	AQ1	447,50
NOVOS 5 CO2+VOC white design LCD RS485 BACnet (MS/TP)	✓	755580	AQ1	384,60
NOVOS 5 CO2+VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755634	AQ1	405,60
NOVOS 5 CO2+VOC temp alu design LCD RS485 BACnet (MS/TP)	✓	771757	AQ1	418,20
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755665	AQ1	447,50

Room sensor CO2 + VOC with up to 4 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2+VOC white LCD RS485 Modbus	✓	735513	AQ1	384,60
NOVOS 5 CO2+VOC temp white LCD RS485 Modbus	✓	735728	AQ1	405,60
NOVOS 5 CO2+VOC temp_rH white LCD RS485 Modbus	✓	735742	AQ1	447,50
NOVOS 5 CO2+VOC white design LCD RS485 Modbus	✓	735520	AQ1	384,60
NOVOS 5 CO2+VOC temp white design LCD RS485 Modbus	✓	735735	AQ1	405,60
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 Modbus	✓	735759	AQ1	447,50

Room sensor CO2 + VOC with up to 4 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 5 CO2+VOC white LCD KNX	✓	782098	AQ1	447,50
NOVOS 5 CO2+VOC temp white LCD KNX	✓	782128	AQ1	468,50
NOVOS 5 CO2+VOC temp_rH white LCD KNX	✓	782142	AQ1	510,40
NOVOS 5 CO2+VOC white design LCD KNX	✓	782166	AQ1	447,50
NOVOS 5 CO2+VOC temp white design LCD KNX	✓	782173	AQ1	468,50
NOVOS 5 CO2+VOC temp_rH white design LCD KNX	✓	782197	AQ1	510,40

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 5 alu	12,60
Design cover NOVOS 5 black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 3

Room sensor in the NOVOS 3 enclosure for measurement of temperature (also available with passive temperature output), humidity (relative and absolute humidity, enthalpy, dew point), CO2 and mixed gas (VOC) depending on the variant. The maintenance-free sensor contributes to a pleasant room climate and well-being. Typical applications include schools, office buildings, hotels or cinemas. Different parameters can be individually configured via Thermokon NOVOSapp or uConfig. Optionally, operating elements for controlling HVAC systems can be added (see product NOVOS 3 x in the chapter ‚Room Operating Units').

passive / 0..10 V / 4..20 mA BACnet Modbus KNX

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Configuration	NOVOSapp, uConfig, BUS, jumper, ETS (KNX) (depending on type)
Input	**BACnet/Modbus:** 1x input for floating contact **KNX:** 1x input for NTC10k or floating contact 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP1)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C -50..+50 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV **KNX:** 24 V = (±10%) SELV, supply via BUS: 29 V = SELV
Power consumption	typ. 0,4 W (24 V =), max. 0,5 W (24 V =), 0,8 VA (24 V ~) **KNX:** typ. 0,4 W (24 V =)
Display	RGB LED, with traffic light function, threshold values configurable optionally configurable via app or uConfig
Enclosure	PC V0
Colour	pure white, aluminium, black design cover alu or black available
Operating range temperature	0..50 °C
Protection (IP)	IP20
Connection	cable entry via rear opening tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) **KNX:** removable plug-in terminal, max. Ø=0,8 mm

Technical Data	
Mounting	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws base part can be mounted and wired separately **KNX:** flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 3 – temperature

Room sensor temperature passive			
Item description	**Item No.**	**Group**	**€**
NOVOS 3 temp white PT100	728256	TP3	21,80
NOVOS 3 temp white PT100 1/3 DIN	755283	TP3	26,10
NOVOS 3 temp white PT1000	728386	TP3	24,20
NOVOS 3 temp white Ni1000	728409	TP3	23,90
NOVOS 3 temp white Ni1000TK5000	728416	TP3	27,80
NOVOS 3 temp white NTC10k	728423	TP3	20,40
NOVOS 3 temp white design PT100	728430	TP3	21,80
NOVOS 3 temp white design PT1000	728447	TP3	24,20
NOVOS 3 temp white design PT1000 1/3 DIN	728454	TP3	27,80
NOVOS 3 temp white design Ni1000	728461	TP3	23,90
NOVOS 3 temp white design Ni1000TK5000	728478	TP3	27,80
NOVOS 3 temp white design NTC10k	728485	TP3	20,40

Options	
Description	**€**
4-wire connection (4-wire)	6,10
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90

Room sensor temperature active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 temp white TRV	✓	731614	TP2	71,30
NOVOS 3 temp white TRA	✓	731621	TP2	71,30
NOVOS 3 temp white design TRV	✓	731638	TP2	71,30
NOVOS 3 temp white design TRA	✓	731645	TP2	71,30

Room sensor temperature BUS				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 temp white RS485 BACnet (MS/TP)	✓	754736	TP2	109,60
NOVOS 3 temp white design RS485 BACnet (MS/TP)	✓	754743	TP2	109,60
NOVOS 3 temp white RS485 Modbus	✓	731652	TP2	109,60
NOVOS 3 temp white design RS485 Modbus	✓	731669	TP2	109,60
NOVOS 3 temp white KNX	✓	782241	TP2	172,50
NOVOS 3 temp white design KNX	✓	782227	TP2	172,50

Options	
Description	**€**
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 3 – temperature + relative humidity

Room sensor humidity + temperature active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 temp_rH white VV	✓	731904	HU2	113,20
NOVOS 3 temp_rH white AA	✓	731911	HU2	113,20
NOVOS 3 temp_rH white design VV	✓	733472	HU2	113,20
NOVOS 3 temp_rH white design AA	✓	733489	HU2	113,20

Room sensor humidity + temperature BUS				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 temp_rH white RS485 BACnet (MS/TP)	✓	754866	HU2	151,50
NOVOS 3 temp_rH white design RS485 BACnet (MS/TP)	✓	754897	HU2	151,50
NOVOS 3 temp_rH white RS485 Modbus	✓	733496	HU2	151,50
NOVOS 3 temp_rH white design RS485 Modbus	✓	733502	HU2	151,50
NOVOS 3 temp_rH white KNX	✓	782203	HU2	214,40
NOVOS 3 temp_rH white design KNX	✓	782180	HU2	214,40

NOVOS 3 – CO2 + temperature + relative humidity

Room sensor CO2 with up to 3 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2 white V	✓	733663	AQ2	193,30
NOVOS 3 CO2 white A	✓	733724	AQ2	193,30
NOVOS 3 CO2 temp white VV	✓	733670	AQ2	241,70
NOVOS 3 CO2 temp white AA	✓	733731	AQ2	241,70
NOVOS 3 CO2 temp_rH white 3xV	✓	733687	AQ2	283,60
NOVOS 3 CO2 white design V	✓	733694	AQ2	193,30
NOVOS 3 CO2 white design A	✓	733755	AQ2	193,30
NOVOS 3 CO2 temp white design VV	✓	733700	AQ2	241,70
NOVOS 3 CO2 temp white design AA	✓	733762	AQ2	241,70
NOVOS 3 CO2 temp_rH white design 3xV	✓	733717	AQ2	283,60

Room sensor CO2 with up to 3 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2 temp white RS485 BACnet (MS/TP)	✓	755856	AQ2	280,50
NOVOS 3 CO2 temp_rH white RS485 BACnet (MS/TP)	✓	755870	AQ2	322,40
NOVOS 3 CO2 temp white design RS485 BACnet (MS/TP)	✓	755863	AQ2	280,50
NOVOS 3 CO2 temp_rH white design RS485 BACnet (MS/TP)	✓	755894	AQ2	322,40

Room sensor CO2 with up to 3 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2 temp white RS485 Modbus	✓	734165	AQ2	280,50
NOVOS 3 CO2 temp_rH white RS485 Modbus	✓	734172	AQ2	322,40
NOVOS 3 CO2 temp white design RS485 Modbus	✓	734189	AQ2	280,50
NOVOS 3 CO2 temp_rH white design RS485 Modbus	✓	734196	AQ2	322,40

Room sensor CO2 with up to 3 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2 temp white KNX	✓	782050	AQ2	343,40
NOVOS 3 CO2 temp_rH white KNX	✓	782036	AQ2	385,30
NOVOS 3 CO2 temp white design KNX	✓	782012	AQ2	343,40
NOVOS 3 CO2 temp_rH white design KNX	✓	781985	AQ2	385,30

NOVOS 3 – VOC + temperature + relative humidity

Room sensor VOC with up to 3 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 VOC white V	✓	734653	AQ2	177,30
NOVOS 3 VOC white A	✓	734738	AQ2	177,30
NOVOS 3 VOC temp white VV	✓	734660	AQ2	198,80
NOVOS 3 VOC temp white AA	✓	734745	AQ2	198,80
NOVOS 3 VOC temp_rH white 3xV	✓	734677	AQ2	240,70
NOVOS 3 VOC white design V	✓	734684	AQ2	177,30
NOVOS 3 VOC white design A	✓	734769	AQ2	177,30
NOVOS 3 VOC temp white design VV	✓	734707	AQ2	198,80
NOVOS 3 VOC temp white design AA	✓	734783	AQ2	198,80
NOVOS 3 VOC temp_rH white design 3xV	✓	734721	AQ2	240,70

Room sensor VOC with up to 3 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 VOC temp white RS485 BACnet (MS/TP)	✓	755900	AQ2	237,60
NOVOS 3 VOC temp_rH white RS485 BACnet (MS/TP)	✓	755948	AQ2	279,50
NOVOS 3 VOC temp white design RS485 BACnet (MS/TP)	✓	755924	AQ2	237,60
NOVOS 3 VOC temp_rH white design RS485 BACnet (MS/TP)	✓	755955	AQ2	279,50

Room sensor VOC with up to 3 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 VOC temp white RS485 Modbus	✓	734813	AQ2	237,60
NOVOS 3 VOC temp_rH white RS485 Modbus	✓	734820	AQ2	279,50
NOVOS 3 VOC temp white design RS485 Modbus	✓	734868	AQ2	237,60
NOVOS 3 VOC temp_rH white design RS485 Modbus	✓	734875	AQ2	279,50

Room sensor VOC with up to 3 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 VOC temp white KNX	✓	781978	AQ2	300,50
NOVOS 3 VOC temp_rH white KNX	✓	781961	AQ2	342,40
NOVOS 3 VOC temp white design KNX	✓	781954	AQ2	300,50
NOVOS 3 VOC temp_rH white design KNX	✓	781947	AQ2	342,40

NOVOS 3 – CO2 + VOC + temperature + relative humidity

Room sensor CO2 + VOC with up to 4 measured values active				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2+VOC white VV	✓	735353	AQ2	300,70
NOVOS 3 CO2+VOC white AA	✓	735421	AQ2	300,70
NOVOS 3 CO2+VOC temp white 3xV	✓	735360	AQ2	321,70
NOVOS 3 CO2+VOC temp_rH white 4xV	✓	735377	AQ2	363,60
NOVOS 3 CO2+VOC white design VV	✓	735391	AQ2	300,70
NOVOS 3 CO2+VOC white design AA	✓	735452	AQ2	300,70
NOVOS 3 CO2+VOC temp white design 3xV	✓	735407	AQ2	321,70
NOVOS 3 CO2+VOC temp_rH white design 4xV	✓	735414	AQ2	363,60

Room sensor CO2 + VOC with up to 4 measured values RS485 BACnet (MS/TP)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2+VOC white RS485 BACnet (MS/TP)	✓	755771	AQ2	339,50
NOVOS 3 CO2+VOC temp white RS485 BACnet (MS/TP)	✓	755795	AQ2	360,50
NOVOS 3 CO2+VOC temp_rH white RS485 BACnet (MS/TP)	✓	755818	AQ2	402,40
NOVOS 3 CO2+VOC white design RS485 BACnet (MS/TP)	✓	755788	AQ2	339,50
NOVOS 3 CO2+VOC temp white design RS485 BACnet (MS/TP)	✓	755801	AQ2	360,50
NOVOS 3 CO2+VOC temp_rH white design RS485 BACnet (MS/TP)	✓	755825	AQ2	402,40

Room sensor CO2 + VOC with up to 4 measured values RS485 Modbus				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2+VOC white RS485 Modbus	✓	735483	AQ2	339,50
NOVOS 3 CO2+VOC temp white RS485 Modbus	✓	735544	AQ2	360,50
NOVOS 3 CO2+VOC temp_rH white RS485 Modbus	✓	735568	AQ2	402,40
NOVOS 3 CO2+VOC white design RS485 Modbus	✓	735490	AQ2	339,50
NOVOS 3 CO2+VOC temp white design RS485 Modbus	✓	735575	AQ2	360,50
NOVOS 3 CO2+VOC temp_rH white design RS485 Modbus	✓	735582	AQ2	402,40

Room sensor CO2 + VOC with up to 4 measured values KNX (TP1)				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 3 CO2+VOC white KNX	✓	782159	AQ2	402,40
NOVOS 3 CO2+VOC temp white KNX	✓	782135	AQ2	423,40
NOVOS 3 CO2+VOC temp_rH white KNX	✓	782111	AQ2	465,30
NOVOS 3 CO2+VOC white design KNX	✓	782104	AQ2	402,40
NOVOS 3 CO2+VOC temp white design KNX	✓	782081	AQ2	423,40
NOVOS 3 CO2+VOC temp_rH white design KNX	✓	782074	AQ2	465,30

Options	
Description	**€**
TLF – traffic light function, RGB-LED indicating air quality	15,80
Enclosure in aluminium	12,60
Enclosure in black	12,60
Design cover NOVOS 3 alu	12,60
Design cover NOVOS 3 black	12,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

NOVOS 7 move

The portable stand-alone solution of NOVOS 7 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 7 for CO2 measurement as a “plug & monitor” solution. The intelligent traffic light function uses a TFT display and an acoustic signal to indicate when it is time to take appropriate action. For example, the yellow or red background indicates, that the CO2 concentration in the ambient air is too high and the room should be ventilated.

Technical Data	
Measured values	temperature, relative humidity, CO2
Operating elements	4 favourite buttons
Configuration	NOVOSapp, uConfig
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..5000 ppm, optionally configurable
Display	TFT 3,5“, 320x480 px, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Delivery content	incl. stand and power supply unit

Portable room sensor CO2 + temperature + humidity				
Item description	**NOVOSapp**	**Item No.**	**Group**	**€**
NOVOS 7 move CO2 temp_rH white	✓	779876	AQ1	355,20
NOVOS 7 move AP CO2 temp_rH white	✓	780117	AQ1	317,40
NOVOS 7 move UP CO2 temp_rH white	✓	780087	AQ1	347,80

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

NOVOS 5 move

The portable stand-alone solution of NOVOS 5 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 5 for CO2 measurement as a “plug & monitor” solution. The intelligent traffic light function uses an LCD to indicate when it is time to take appropriate action. For example, the yellow and red light of the LCD indicate, that the CO2 concentration in the ambient air is too high and the room should be ventilated.

Technical Data	
Measured values	temperature, CO2
Configuration	NOVOSapp, uConfig
Measuring range CO2	0..5000 ppm, optionally configurable
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Delivery content	incl. stand and power supply unit

Portable room sensor CO2 + temperature

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 move CO2 temp white LCD	✓	777636	AQ1	316,20
NOVOS 5 move AP CO2 temp white LCD	✓	780100	AQ1	278,50
NOVOS 5 move UP CO2 temp white LCD	✓	780070	AQ1	308,90

Accessories

Item description	Item No.	Group	€
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

NOVOS 3 move

The portable stand-alone solution of NOVOS 3 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 3 for CO2 measurement as a “plug & monitor” solution. The intelligent traffic light function uses an LED to indicate when it is time to take appropriate action. For example, the yellow and red light of the LED indicate, that the CO2 concentration in the ambient air is too high and the room should be ventilated.

Technical Data	
Measured values	CO2
Configuration	NOVOSapp, uConfig
Measuring range CO2	0..5000 ppm, optionally configurable
Display	RGB LED, with traffic light function, threshold values configurable optionally configurable via app or uConfig
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Delivery content	incl. stand and power supply unit

Portable room sensor CO2

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 move CO2 white TLF	✓	774314	AQ2	273,40
NOVOS 3 move AP CO2 white TLF	✓	780094	AQ2	235,70
NOVOS 3 move UP CO2 white TLF	✓	780063	AQ2	266,10

Accessories

Item description	Item No.	Group	€
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

NOVOS 3 IR

Surface-mounted room sensor for measuring the effective radiation in living rooms and offices. Designed for connection to control and display systems. For pre-wiring at the installation site, the back part with the connection terminals can be removed from the upper part of the housing.

Technical Data	
Measured values	radiation temperature
Material in touch with media	hemispherical ball, Ø=37 mm, aluminium, black
Enclosure	PC V0
Colour	pure white, aluminium, black
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	tool-free mountable spring clamp, max. 1,5 mm² cable entry via rear opening predetermined breaking point (bottom) or drilling mark (top)
Connection cable	2-wire
Mounting	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws base part can be mounted and wired separately

Room sensor radiation temperature passive

Item description	Item No.	Group	€
NOVOS 3 IR white PT1000	799164	TP2	82,70
NOVOS 3 IR white Ni1000	799171	TP2	82,40
NOVOS 3 IR white NTC10k	799188	TP2	78,90

Options

Description	€
Enclosure in aluminium	12,60
Enclosure in black	12,60

Accessories

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Special painting – prices on request	–		
Special painting setup costs (once per colour)	114998	NET	176,40

WRF06

Flush-mounted room sensor for temperature, humidity and air quality measurement in living rooms, offices etc. Designed for connection to controller and display systems. Due to the visual appearance and the matching design frames from various switch range manufacturers, the device is particularly suitable for design-oriented facilities. It can be mounted separately in a single frame or in a multiple frame. Optionally, it is possible to add operating elements for controlling HVAC systems from the device. Stainless steel versions are available on request.

WRF06 pure white,
frame Gira E2 pure white matt

FTW06 / WRF06 CO2/VOC pure white,
frame Gira E2 pure white matt

WRF06 CO2/VOC TLF pure white,
frame Gira E2 pure white matt

passive / 0..10 V BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, CO2, VOC
Configuration	Software/Plug-In for configuration, BUS, jumper, DIP switches (depending on type)
Input	**AO2V:** 2x input digital for floating switch contact **DI4:** 4x input digital for floating switch contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	0..+50 °C, scaling analogue output
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm
Measuring VOC (mixed gas)	heated metal oxide semiconductor, self-calibration
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **FTW06 BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**WRF06 TRV3:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **WRF06 BUS:** typ. 0,9 W (24 V =), 1 VA (24 V ~) **WRF06 CO2/VOC:** max. 1,6 W (24 V =), 3,9 VA (24 V ~) **FTW06 VV:** typ. 0,3 W (24 V =), 0,5 VA (24 V ~) **FTW06 Modbus:** max. 1,6 W (24 V =), 3,9 VA (24 V ~)
Display	3 LEDs for displaying air quality (traffic light function – TLF)
Enclosure	PC, central disc in design of the manufacturer (varies depending on switch range)
Colour	white, pure white brilliant, pure white matt, aluminium, Jung aluminium
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², pluggable
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

WRF06 temperature passive

Room sensor temperature passive			
Item description	**Item No.**	**Group**	**€**
WRF06 without sensor Gira E2 pure white matt	626194	TP1	39,90
WRF06 PT100 Gira E2 pure white matt	128933	TP1	47,80
WRF06 PT100 1/3 DIN Gira E2 pure white matt	137768	TP1	52,10
WRF06 PT1000 Gira E2 pure white matt	158299	TP1	50,20
WRF06 PT1000 1/3 DIN Gira E2 pure white matt	160773	TP1	53,80
WRF06 Ni1000 Gira E2 pure white matt	138314	TP1	49,90
WRF06 Ni1000TK5000 Gira E2 pure white matt	121866	TP1	53,80
WRF06 NTC10k Gira E2 pure white matt	191050	TP1	46,40

Options	Switch ranges on page 409/410
Description	**€**
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

WRF06 temperature active 0..10 V

Room sensor temperature active			
Item description	**Item No.**	**Group**	**€**
WRF06 TRV3 Gira E2 pure white matt	627160	TP1	118,20
WRF06 TRV3 Berker S.1 polar white brilliant	582865	TP1	118,20
WRF06 TRV3 Busch-Jaeger Busch-balance® SI alpin white	703925	TP1	118,20
WRF06 TRV3 Busch-Jaeger Reflex SI alpin white	172028	TP1	118,20
WRF06 TRV3 Jung A 500 alpin white	703949	TP1	118,20
WRF06 TRV3 Merten M-Smart polar white brilliant	703956	TP1	118,20

Options	Switch ranges on page 409/410
Description	**€**
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

WRF06 temperature BUS

Room sensor temperature RS485 Modbus			
Item description	**Item No.**	**Group**	**€**
WRF06 temp RS485 Modbus pure white matt	726825	TP1	132,30
WRF06 temp RS485 Modbus pure white brilliant	726801	TP1	132,30
WRF06 temp RS485 Modbus aluminium	726856	TP1	132,30
WRF06 temp RS485 Modbus Jung aluminium	726832	TP1	132,30
WRF06 temp RS485 Modbus anthracite	726818	TP1	132,30

Room sensor temperature RS485 Modbus DI4			
Item description	**Item No.**	**Group**	**€**
WRF06 DI4 temp RS485 Modbus pure white matt	781916	TP1	176,60
WRF06 DI4 temp RS485 Modbus pure white brilliant	781909	TP1	176,60
WRF06 DI4 temp RS485 Modbus aluminium	781893	TP1	176,60
WRF06 DI4 temp RS485 Modbus Jung aluminium	781886	TP1	176,60
WRF06 DI4 temp RS485 Modbus anthracite	781879	TP1	176,60

Room sensor temperature with control function RS485 Modbus AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 AO2V temp RS485 Modbus pure white matt	✓	762601	TP1	176,60
WRF06 AO2V temp RS485 Modbus pure white brilliant	✓	746359	TP1	176,60
WRF06 AO2V temp RS485 Modbus aluminium	✓	762625	TP1	176,60
WRF06 AO2V temp RS485 Modbus Jung aluminium	✓	762632	TP1	176,60
WRF06 AO2V temp RS485 Modbus anthracite	✓	762656	TP1	176,60

Room sensor temperature LON DI4			
Item description	**Item No.**	**Group**	**€**
WRF06 DI4 temp LON pure white matt	781466	TP1	202,50
WRF06 DI4 temp LON pure white brilliant	781459	TP1	202,50
WRF06 DI4 temp LON aluminium	781442	TP1	202,50
WRF06 DI4 temp LON Jung aluminium	781435	TP1	202,50
WRF06 DI4 temp LON anthracite	781428	TP1	202,50

Room sensor temperature with control function LON AO2V				
Item description	**Contr.**	**Item No.**	**Group**	**€**
WRF06 AO2V temp LON pure white matt	✓	781411	TP1	202,50
WRF06 AO2V temp LON pure white brilliant	✓	781404	TP1	202,50
WRF06 AO2V temp LON aluminium	✓	781398	TP1	202,50
WRF06 AO2V temp LON Jung aluminium	✓	781381	TP1	202,50
WRF06 AO2V temp LON anthracite	✓	781374	TP1	202,50

FTW06 temperature + relative humidity active 2x 0..10 V

Room sensor humidity + temperature active			
Item description	**Item No.**	**Group**	**€**
FTW06 temp_rH VV pure white matt	482721	HU1	224,50
FTW06 temp_rH temp_rH VV pure white brilliant	732161	HU1	224,50
FTW06 temp_rH VV aluminium	732178	HU1	224,50
FTW06 temp_rH VV Jung aluminium	732185	HU1	224,50
FTW06 temp_rH VV anthracite	732192	HU1	224,50

FTW06 temperature + relative humidity BUS

Room sensor humidity + temperature BUS			
Item description	**Item No.**	**Group**	**€**
FTW06 temp_rH RS485 Modbus pure white matt	732208	HU1	246,50
FTW06 temp_rH RS485 Modbus pure white brilliant	732215	HU1	246,50
FTW06 temp_rH RS485 Modbus aluminium	732222	HU1	246,50
FTW06 temp_rH RS485 Modbus Jung aluminium	732239	HU1	246,50
FTW06 temp_rH RS485 Modbus anthracite	732246	HU1	246,50

WRF06 CO2 active 0..10 V

Room sensor CO2 active			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 V pure white matt	732529	AQ1	246,30
WRF06 CO2 V pure white brilliant	731515	AQ1	246,30
WRF06 CO2 V aluminium	732536	AQ1	246,30
WRF06 CO2 V Jung aluminium	732543	AQ1	246,30
WRF06 CO2 V anthracite	725828	AQ1	246,30

WRF06 CO2 + temperature active 2x 0..10 V

Room sensor CO2 + temperature active			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 temp VV pure white matt	728492	AQ1	250,50
WRF06 CO2 temp VV pure white brilliant	724555	AQ1	250,50
WRF06 CO2 temp VV aluminium	732550	AQ1	250,50
WRF06 CO2 temp VV Jung aluminium	732567	AQ1	250,50
WRF06 CO2 temp VV anthracite	732123	AQ1	250,50

WRF06 CO2 + temperature + relative humidity active 3x 0..10 V

Room sensor CO2 + temperature + humidity active			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 temp_rH 3xV pure white matt	732598	AQ1	271,50
WRF06 CO2 temp_rH 3xV pure white brilliant	726641	AQ1	271,50
WRF06 CO2 temp_rH 3xV aluminium	732611	AQ1	271,50
WRF06 CO2 temp_rH 3xV Jung aluminium	726634	AQ1	271,50
WRF06 CO2 temp_rH 3xV anthracite	732628	AQ1	271,50

WRF06 CO2 BUS

Room sensor CO2 BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 RS485 Modbus pure white matt	732796	AQ1	254,70
WRF06 CO2 RS485 Modbus pure white brilliant	732802	AQ1	254,70
WRF06 CO2 RS485 Modbus aluminium	732819	AQ1	254,70
WRF06 CO2 RS485 Modbus Jung aluminium	732826	AQ1	254,70
WRF06 CO2 RS485 Modbus anthracite	732833	AQ1	254,70

WRF06 CO2 + temperature BUS

Room sensor CO2 + temperature BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 temp RS485 Modbus pure white matt	732840	AQ1	258,90
WRF06 CO2 temp RS485 Modbus pure white brilliant	732857	AQ1	258,90
WRF06 CO2 temp RS485 Modbus aluminium	732864	AQ1	258,90
WRF06 CO2 temp RS485 Modbus Jung aluminium	732871	AQ1	258,90
WRF06 CO2 temp RS485 Modbus anthracite	732321	AQ1	258,90

WRF06 CO2 + temperature + relative humidity BUS

Room sensor CO2 + temperature + humidity BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2 temp_rH RS485 Modbus pure white matt	732888	AQ1	279,90
WRF06 CO2 temp_rH RS485 Modbus pure white brilliant	732895	AQ1	279,90
WRF06 CO2 temp_rH RS485 Modbus aluminium	732901	AQ1	279,90
WRF06 CO2 temp_rH RS485 Modbus Jung aluminium	732918	AQ1	279,90
WRF06 CO2 temp_rH RS485 Modbus anthracite	728676	AQ1	279,90

WRF06 VOC + temperature active 2x 0..10 V

Room sensor VOC + temperature active			
Item description	**Item No.**	**Group**	**€**
WRF06 VOC temp VV pure white matt	732635	AQ1	239,90
WRF06 VOC temp VV pure white brilliant	731522	AQ1	239,90
WRF06 VOC temp VV aluminium	727358	AQ1	239,90
WRF06 VOC temp VV Jung aluminium	732659	AQ1	239,90
WRF06 VOC temp VV anthracite	732666	AQ1	239,90

WRF06 VOC + temperature BUS

Room sensor VOC + temperature BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 VOC temp RS485 Modbus pure white matt	732925	AQ1	248,30
WRF06 VOC temp RS485 Modbus pure white brilliant	732932	AQ1	248,30
WRF06 VOC temp RS485 Modbus aluminium	732949	AQ1	248,30
WRF06 VOC temp RS485 Modbus Jung aluminium	732963	AQ1	248,30
WRF06 VOC temp RS485 Modbus anthracite	732970	AQ1	248,30

WRF06 CO2 + VOC active 2x 0..10 V

Room sensor CO2 + VOC active			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2+VOC VV pure white matt	732420	AQ1	296,70
WRF06 CO2+VOC VV pure white brilliant	732437	AQ1	296,70
WRF06 CO2+VOC VV aluminium	732444	AQ1	296,70
WRF06 CO2+VOC VV Jung aluminium	732451	AQ1	296,70
WRF06 CO2+VOC VV anthracite	732468	AQ1	296,70

WRF06 CO2 + VOC + temperature + relative humidity active 4x 0..10 V

Room sensor CO2 + VOC + temperature + humidity active			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2+VOC temp_rH 4xV pure white matt	732475	AQ1	300,90
WRF06 CO2+VOC temp_rH 4xV pure white brilliant	732482	AQ1	300,90
WRF06 CO2+VOC temp_rH 4xV aluminium	732499	AQ1	300,90
WRF06 CO2+VOC temp_rH 4xV Jung aluminium	732505	AQ1	300,90
WRF06 CO2+VOC temp_rH 4xV anthracite	732512	AQ1	300,90

WRF06 CO2 + VOC BUS

Room sensor CO2 + VOC BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2+VOC RS485 Modbus pure white matt	732680	AQ1	305,10
WRF06 CO2+VOC RS485 Modbus pure white brilliant	732697	AQ1	305,10
WRF06 CO2+VOC RS485 Modbus aluminium	732703	AQ1	305,10
WRF06 CO2+VOC RS485 Modbus Jung aluminium	732710	AQ1	305,10
WRF06 CO2+VOC RS485 Modbus anthracite	732727	AQ1	305,10

WRF06 CO2 + VOC + temperature + relative humidity BUS

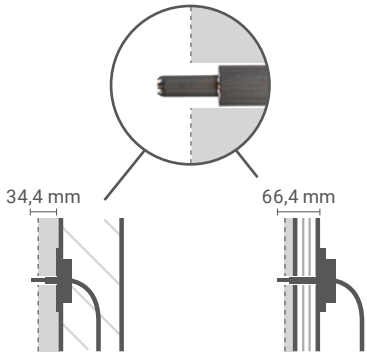
Room sensor CO2 + VOC + temperature + humidity BUS			
Item description	**Item No.**	**Group**	**€**
WRF06 CO2+VOC temp_rH RS485 Modbus pure white matt	732734	AQ1	330,40
WRF06 CO2+VOC temp_rH RS485 Modbus pure white brilliant	732741	AQ1	330,40
WRF06 CO2+VOC temp_rH RS485 Modbus aluminium	732758	AQ1	330,40
WRF06 CO2+VOC temp_rH RS485 Modbus Jung aluminium	732765	AQ1	330,40
WRF06 CO2+VOC temp_rH RS485 Modbus anthracite	732772	AQ1	330,40

Options	Switch ranges on page 409/410
Description	**€**
Add to price of RS485 Modbus for RS485 BACnet (MS/TP)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,80
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90
TLF – traffic light function, 3 LEDs indicating air quality	15,80

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

FTB+

Wall-mounted sensor for measuring relative humidity and temperature in a high quality and inconspicious stainless steel design. For plastering into flush-mounted boxes or installations in hollow walls. Especially designed for museums and exhibitions, where measuring accuracy and almost invisible sensors have to be installed due to architectural design. The precise measurements provided to a BMS system contribute to a comfortable room climate and prevent mold formation.



0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point adjustable at the transducer, optionally configurable
Power supply	**VV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **AA:** 15..24 V = (±10%) SELV **LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**VV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **AA:** max. 1 W (24 V =) **LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor head: Ø=13 mm, end of sensor Ø=7 mm, stainless steel V2A (1.4305)
Display	LCD 29x35 mm, RGB backlight
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-40..+120 °C
Protection (IP)	enclosure IP65, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **VV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,14 mm², grey
Mounting	plastering or installation in hollow wall
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

Wall-mounted sensor humidity + temperature active

Item description	USEapp	Item No.	Group	€
FTB+ VV 34.06 L15m	✓	689205	HU1	539,90
FTB+ VV 66.06 L15m	✓	689083	HU1	583,90
FTB+ AA 34.06 L15m	✓	700108	HU1	557,40
FTB+ AA 66.06 L15m	✓	700115	HU1	601,40

Options

Description	€
RS485 Modbus	47,20
RS485 BACnet (MS/TP)	47,20
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

RDF18

Ceiling flush-mounted sensor for temperature measurement in indoor spaces to be mounted inconspicuously into ceiling panels, thus contributing to an overall clean architectural design.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor head, Ø=30 mm, ABS, white
Operating range temperature	-35..+70 °C
Protection (IP)	IP30, according to EN 60529
Connection cable	PVC, 0,25 mm², 2-wire, grey
Mounting	facet mounting
Notes	active types for temperature and humidity available (FT-RDF18+)

Ceiling flush mount sensor temperature passive

Item description	Item No.	Group	€
RDF18 PT100 L1000	471237	TP2	38,20
RDF18 PT100 1/3 DIN L1000	471244	TP2	42,50
RDF18 PT1000 L1000	459235	TP2	40,60
RDF18 PT1000 1/3 DIN L1000	458276	TP2	44,20
RDF18 Ni1000 L1000	463669	TP2	40,30
RDF18 Ni1000TK5000 L1000	471251	TP2	44,20
RDF18 NTC10k L1000	457828	TP2	36,80

Options

Description	€
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add per meter of connection cable 2-wire -35..+100 °C	1,20
Add per meter of connection cable 3-wire -35..+100 °C	1,40
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

FT-RDF18+

Ceiling sensor for measuring relative humidity and temperature in rooms. The ideal solution for an inconspicuous, architectural integration into ceiling slabs or hollow walls. Especially designed for use in museums or showrooms. The precise measurements provided to a BMS system contribute to a comfortable room climate and prevent mold formation.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: **VV/AA:** 0..+50 °C (default setting) **LCD/BUS:** -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer, optionally configurable via app or uConfig
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point adjustable at the transducer, optionally configurable
Power supply	**VV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **AA:** 15..24 V = (±10%) SELV **LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**VV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **AA:** max. 1 W (24 V =) **LCD/BUS:** typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor head, Ø=30 mm, ABS, white
Display	LCD 29x35 mm, RGB backlight
Enclosure	**VV/AA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-35..+70 °C
Protection (IP)	IP30, enclosure IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **VV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	flat ribbon cable for mounting 15 mm from the sensor head, separable by means of RJ12 socket and plug, black
Mounting	facet mounting
Delivery content	incl. mounting set (screws and accessories) **VV/AA:** incl. mounting base enclosure USE-S pure white **LCD/BUS:** incl. mounting base enclosure USE-M pure white

Ceiling flush mount sensor temperature + humidity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FT-RDF18+ temp_rH VV	✓	659031	HU1	327,50
FT-RDF18+ temp_rH AA	✓	659055	HU1	345,00

Options	
Description	**€**
RS485 Modbus	47,20
RS485 BACnet (MS/TP)	47,20
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75

RDF-IR

Ceiling flush-mounted sensor for surface temperature measurement in rooms, office spaces and other workplaces. Using the infrared measuring principle, an averaged temperature over the circular detection range (optical detection range 80 ±5°) is calculated. If two IR sensors are used, the mean, minimum or maximum value of both temperature signals can be provided in addition to the individually measured temperatures of each sensor (configurable via Thermokon USEapp).

RDF-IR

RDF-IR Dual

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	radiation temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, adjustable at the transducer
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-20..+70 °C
Protection (IP)	IP30, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², 2x RJ45 socket **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	patch cable, RJ45 plug **Dual:** 2x patch cable, RJ45 plug
Delivery content	incl. mounting base enclosure USE-M pure white

Ceiling flush mount sensor radiation temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
RDF-IR V L1500	✓	699150	TP1	159,90
RDF-IR Dual VV 2xL1500	✓	699167	TP1	209,40

Ceiling flush mount sensor radiation temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
RDF-IR RS485 Modbus L1500	✓	774789	TP1	207,10
RDF-IR Dual RS485 Modbus 2xL1500	✓	774796	TP1	256,60
RDF-IR RS485 BACnet (MS/TP) L1500	✓	732604	TP1	207,10
RDF-IR Dual RS485 BACnet (MS/TP) 2xL1500	✓	748087	TP1	256,60

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Sensor wire 1,5 m with RJ45 connector	628785	AS1	6,20
Sensor wire 3 m with RJ45 connector	708852	AS1	8,00
Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,90

RPF40

Pendulum sensor for temperature measurement in large rooms like open space offices, arcades and production plants. Optionally available with black ball as a radiation sensor with long time constants for radiant heaters. Especially designed for control and display systems.

Technical Data	
Measured values	temperature, radiation temperature
Material in touch with media	Sensor head, PF31, white / black, Ø=40 mm
Operating range temperature	-35..+90 °C
Protection (IP)	IP30, according to EN 60529
Connection cable	PVC, 0,25 mm², 2-wire

Room pendulum sensor temperature passive

Item description	Item No.	Group	€
RPF40 PT100 white L1000	350006	TP2	56,40
RPF40 PT100 1/3 DIN white L1000	265621	TP2	60,70
RPF40 PT1000 white L1000	321068	TP2	58,80
RPF40 PT1000 1/3 DIN white L1000	329569	TP2	62,40
RPF40 Ni1000 white L1000	329279	TP2	58,50
RPF40 Ni1000TK5000 white L1000	144193	TP2	62,40
RPF40 NTC10k white L1000	351980	TP2	55,00

Options

Description	€
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add per meter of connection cable 2-wire -35..+100 °C	1,20
Add per meter of connection cable 3-wire -35..+100 °C	1,40
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50
Sensor head black (radiation sensor)	0,00

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	6,10

RPF40+

Pendulum sensor for temperature measurement in large rooms like open space offices, arcades and production plants. Optionally available with black ball as a radiation sensor with long time constants for radiant heaters. Especially designed for control and display systems.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, radiation temperature
Configuration	USEapp
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer **TRV/TRA:** 0..+160 °C (default setting) **BUS:** -20..+80 °C (default setting)
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **LCD/BUS:** typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor head, PF31, white, Ø=40 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Operating range temperature	-35..+70 °C
Protection (IP)	enclosure IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

Technical Data	
Connection cable	PVC, 0,25 mm², white
Delivery content	incl. mounting set (screws and accessories) **TRV/TRA:** incl. mounting base enclosure USE-S pure white **LCD/BUS:** incl. mounting base enclosure USE-M pure white

Room pendulum sensor temperature active			
Item description	**Item No.**	**Group**	**€**
RPF40+ TRV MultiRange white L1000	658409	TP2	125,10
RPF40+ TRA MultiRange white L1000	658416	TP2	125,10

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60
Sensor head black (radiation sensor)	0,00

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
Mounting base enclosure USE-M pure white	668354	AS1	8,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

RPF100

Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, arcades, production plants. Especially designed for control and display systems.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe: Ø=15 mm, stainless steel V2A (1.4305), length 100 mm, hex pressed (IP65)
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529
Connection cable	PVC, 0,25 mm², 2-wire, white

Room pendulum sensor temperature passive

Item description	Item No.	Group	€
RPF100 PT100 L1000	81566	TP2	73,30
RPF100 PT100 1/3 DIN L1000	90780	TP2	77,60
RPF100 PT1000 L1000	90827	TP2	75,70
RPF100 PT1000 1/3 DIN L1000	90865	TP2	79,30
RPF100 Ni1000 L1000	90902	TP2	75,40
RPF100 Ni1000TK5000 L1000	160612	TP2	79,30
RPF100 NTC10k L1000	91060	TP2	71,90

Options

Description	€
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add per meter of connection cable 2-wire -35..+100 °C	1,20
Add per meter of connection cable 3-wire -35..+100 °C	1,40
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	6,10

RPF100+

Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, arcades, production plants. Especially designed for control and display systems.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer **TRV/TRA:** 0..+160 °C (default setting) **BUS:** -20..+80 °C (default setting)
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **LCD/BUS:** 15..35 V = SELV 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =) 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **LCD/BUS:** typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe: Ø=15 mm, stainless steel V2A (1.4305), length 100 mm, hex pressed (IP65)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

Technical Data	
Connection cable	PVC, 0,25 mm², white
Delivery content	incl. mounting set (screws and accessories) **TRV/TRA:** incl. mounting base enclosure USE-S pure white **LCD/BUS:** incl. mounting base enclosure USE-M pure white

Room pendulum sensor temperature active

Item description	Item No.	Group	€
RPF100+ TRV MultiRange L1000	658423	TP2	142,00
RPF100+ TRA MultiRange L1000	658430	TP2	142,00

Options

Description	€
Add per meter of connection cable PVC	1,20
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
Mounting base enclosure USE-M pure white	668354	AS1	8,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

FTP+

Room pendulum sensor for sectional measurement of relative humidity and temperature in large and high spaces (e.g. exhibition halls, churches and similar applications). Alternatively, the output can also be set to measure absolute humidity, enthalpy or dew point rather than relative humidity. The design ensures optimal installation and precise measurements. The accuracy of the humidity sensor is 2%.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	-20..+80 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point adjustable at the transducer, optionally configurable
Power supply	**VV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **AA:** 15..24 V = (±10%) SELV **LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**VV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **AA:** typ. 1 W (24 V =) **LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe: Ø=20 mm, PA6, black, length 210 mm, with filter stainless steel wire mesh
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-20..+70 °C
Protection (IP)	IP20, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **VV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,14 mm², grey
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

Room pendulum sensor humidity + temperature active

Item description	USEapp	Item No.	Group	€
FTP+ VV L2000	✓	699952	HU1	181,90
FTP+ VV L4000	✓	699983	HU1	187,40
FTP+ AA L2000	✓	699976	HU1	199,40
FTP+ AA L4000	✓	700016	HU1	204,90

Options

Description	€
RS485 Modbus	47,20
RS485 BACnet (MS/TP)	47,20
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories

Item description	Item No.	Group	€
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

LP+

Room pendulum sensor for measuring CO2 in large rooms (exhibition halls, factories, museums etc.). The LP+ comes with an analogue 0..10 V output for connecting to a BMS or monitoring system.

0..10 V BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor head, black, length 126 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **VV:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **LCD/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,25 mm², white
Length connection wire	1,5 m, 3 m, 5 m, 7,5 m
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

Room pendulum sensor CO2 + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LP+ CO2 temp VV L5000	✓	690331	AQ1	296,50
LP+ CO2 LCD temp VV L5000	✓	764957	AQ1	341,60

Room pendulum sensor CO2 + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LP+ CO2 temp_rH RS485 Modbus L5000	✓	776233	AQ1	385,60
LP+ CO2 LCD temp_rH RS485 Modbus L5000	✓	774376	AQ1	430,70

Options	
Description	**€**
RS485 BACnet (MS/TP)	47,20
Add to price of RS485 Modbus for LON FT	79,60
2x floating contact NO for 24 V ~ or 24 V = / 3 A	47,20
LCD 29x35 mm, RGB backlight	45,10
Add for additional humidity sensor	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

MDS

Ceiling-mounted multi-sensor for detection of light and motion in rooms and office spaces. Energy-efficiency can be optimized through connecting the MDS to an automated constant light control and temperature reduction in unoccupied rooms. The flat design makes up for an inconspicuous installation in e.g. suspended ceilings. For mounting on concrete ceilings, a surface-mounted frame is available.

Technical Data	
Measured values	temperature, luminosity, motion
Configuration	potentiometer
Output switch contact	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 1 second..30 minutes, selectable at the device
Output signal temperature	0..+50 °C
Measuring range light	0..1000 lux (10 bit)
Dectection range	cone-shaped, detection range, angle 105°, 444 detection zones - with an installation height of 2,7 m circular detection range will have a r=7 m, max. range >5 m
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1,5 W (24 V =), 4 VA (24 V ~)
Enclosure	ABS
Colour	pure white
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm², pluggable
Mounting	ceiling flush mount or with enclosure for surface mounting

Ceiling flush mount sensor luminosity/motion active			
Item description	**Item No.**	**Group**	**€**
MDS Standard V	271318	LM2	197,00
MDS Standard temp VV	280433	LM2	213,90

Accessories			
Item description	**Item No.**	**Group**	**€**
Enclosure for surface mounting MDS pure white	448512	AS1	53,30

RDI

Ceiling-mounted sensor for motion detection in rooms. The small design (d=30mm) permits an inconspicuous installation in suspended ceilings. Available with 3 detection ranges (standard, small range, spot). The RDI can be used e.g. for an occupancy-based switching of lights or temperature reduction if unoccupied, which in return increases energy-efficiency.

RDI Standard

RDI Small Range

RDI Spot

Technical Data	
Measured values	motion
Output switch contact	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds
Dectection range	**Standard:** detection range, angle 110°/93° (H/V) - with an installation height of 2,5 m range detection will be 7,1x5,3 m, max. range 10 m **Small Range:** detection range, angle 100°/82° (H/V) - with an installation height of 2,5 m range detection will be 6x4,3 m, max. range 5 m **Spot:** detection range, angle 38°/22° (H/V) - with an installation height of 2,5 m range detection will be 1,7x1 m, max. range 5 m
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,5 W (24 V =), 1,1 VA (24 V ~)
Enclosure	ABS
Operating range temperature	-20..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	plug-in terminal, max. 1,5 mm²
Connection cable	PVC, 0,25 mm²
Mounting	ceiling flush mount

Ceiling flush mount sensor motion relay

Item description	Item No.	Group	€
RDI Standard	187060	LM2	96,70
RDI Small Range	426503	LM2	96,70
RDI Spot	436670	LM2	96,70

LDF+

Ceiling-mounted sensor used for the measurement of brightness or ambient light levels. Depending on the prism (straight or diagonal), light levels can be detected reliably and selectively in living rooms, offices and work spaces. The sensor is adapted to the spectral sensitivity of human eyes and contributes to a demand-based efficient control of light and sunblinds/shading systems. The remote sensor can be connected to the enclosure with a conventional RJ45 cable, allowing for an easy installation even in hardly accessible locations. If two sensors are used, the average, minimum or maximal value of both brightness signals can be provided in addtion to the independent measurements of each sensor (configurable via Thermokon USEapp).

straight prism

Dual

diagonal prism

Dual

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	luminosity
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Output switch contact	2x floating contact NO for 24 V ~ or 24 V = / 3 A
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Measuring range light	selectable from 6 ranges 0..200 lux | 0..1000 lux | 0..2 klux | 0..10 klux | 0..20 klux | 0..50 klux, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Material in touch with media	prism: acrylic glass clear straight (mainly for interior lighting) diagonal (mainly for outdoor lighting)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-25..+65 °C
Protection (IP)	IP30, enclosure IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **V/VV/A/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	patch cable, RJ45 plug, 2x patch cable, RJ45 plug
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

LDF+ active 0..10 V

Ceiling flush mount sensor luminosity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LDF+ V L1500 staight prism	✓	662604	LM2	168,70
LDF+ V L1500 diagonal prism	✓	662628	LM2	168,70
LDF+ A L1500 staight prism	✓	662635	LM2	168,70
LDF+ A L1500 diagonal prism	✓	662642	LM2	168,70
LDF+ V L1500 staight prism relay	✓	707336	LM2	211,90
LDF+ V L1500 diagonal prism relay	✓	707350	LM2	211,90

LDF+ Dual active 2x0..10 V

Dual ceiling flush mount sensor luminosity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LDF+ Dual VV 2xL1500 staight prism	✓	700849	LM1	219,40
LDF+ Dual VV 2xL1500 diagonal prism	✓	700856	LM1	219,40
LDF+ Dual AA 2xL1500 staight prism	✓	700863	LM1	236,90
LDF+ Dual AA 2xL1500 diagonal prism	✓	700870	LM1	236,90
LDF+ Dual VV 2xL1500 staight prism relay	✓	707374	LM1	262,60
LDF+ Dual VV 2xL1500 diagonal prism relay	✓	707381	LM1	262,60

LDF+ BUS

Ceiling flush mount sensor luminosity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LDF+ RS485 Modbus L1500 staight prism	✓	700887	LM1	199,00
LDF+ RS485 Modbus L1500 diagonal prism	✓	700894	LM1	199,00
LDF+ RS485 BACnet (MS/TP) L1500 staight prism	✓	700900	LM1	199,00
LDF+ RS485 BACnet (MS/TP) L1500 diagonal prism	✓	700917	LM1	199,00

LDF+ Dual BUS

Dual ceiling flush mount sensor luminosity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LDF+ Dual RS485 Modbus 2xL1500 staight prism	✓	700924	LM1	249,70
LDF+ Dual RS485 Modbus 2xL1500 diagonal prism	✓	700931	LM1	249,70
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 staight prism	✓	700948	LM1	249,70
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 diagonal prism	✓	700955	LM1	249,70

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Sensor wire 1,5 m with RJ45 connector	628785	AS1	6,20
Sensor wire 3 m with RJ45 connector	708852	AS1	8,00
Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,90
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

WRF06I

Flush-mounted sensor for motion detection in rooms. The WRF06I provides a relay contact for efficient light control or temperature reduction in unoccupied rooms. Especially designed for applications in residential and commercial buildings, offices and corridors. Available in different designs and colors of various switch frame manufacturers. The device is mounted in a flush-mounted standard EU box.

WRF06I Gira E2 pure white matt

WRF06I Jung AS 500 alpine white

Technical Data	
Measured values	motion
Output switch contact	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds
Dectection range	cone-shaped, detection range, angle 110°/93°, 80 detection zones - at a distance of 2,8 m the detection area will be about 7x5 m, max. range 10 m
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	max. 0,5 W (24 V =), 1,1 VA (24 V ~)
Enclosure	central disc in design of the manufacturer (varies depending on switch range)
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	plug-in terminal, max. 1,5 mm²
Switch ranges	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha
Mounting	flush-mounted in standard EU box (Ø=60 mm)
Delivery content	incl. frame

Wall sensor motion			
Item description	**Item No.**	**Group**	**€**
WRF06I Gira E2 pure white matt	187183	LM2	115,10
WRF06I Berker S.1 polar white	223997	LM2	115,10
WRF06I Busch-Jaeger Busch-balance® SI alpin white	630405	LM2	115,10
WRF06I Busch-Jaeger Reflex SI alpin white	413350	LM2	115,10
WRF06I Jung A 500 alpin white	630412	LM2	115,10
WRF06I Merten M-Smart polar white brilliant	630429	LM2	115,10

Options	Switch ranges on page 409/410
Description	**€**
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	13,10
Switch ranges stainless steel | glass | aluminium (various manufacturers)	41,90

Accessories			
Item description	**Item No.**	**Group**	**€**
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30

WRF04I

Wall-mounted sensor for motion detection in rooms. The WRF04I provides a relay contact for efficient light control or temperature reduction in unoccupied rooms. Especially designed for application in residential and commercial buildings, offices and corridors. The sensor can be directly mounted on the wall, in a flush-mounted standard EU box or a surface-mounted frame (see ‚Accessories').

Technical Data	
Measured values	motion
Output switch contact	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds
Dectection range	cone-shaped, detection range, angle 110°/93°, 80 detection zones - at a distance of 2,8 m the detection area will be about 7x5 m, max. range 10 m
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	max. 0,5 W (24 V =), 1,1 VA (24 V ~)
Enclosure	PC
Colour	pure white
Operating range temperature	-20..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening, predetermined breaking point (bottom und top)
Mounting	flush-mounted on standard EU box (Ø=60 mm) surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

Wall sensor motion relay

Item description	Item No.	Group	€
WRF04I relay	195812	LM1	101,20

Accessories

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	46,30
Frame for surface mounting WRF04 pure white	111584	AS1	13,90

FSR01

Hygrostat for ON/OFF control of ventilation and air conditioning, humidification and dehumidification equipment in rooms and office spaces, data centers, warehouses and similar applications.

Technical Data	
Measured values	relative humidity
Operating functions	threshold adjustment
Operating elements	rotary button
Measuring range humidity	30..100% rH non-condensing
Enclosure	PC
Colour	pure white
Operating range temperature	0..+60 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm², cable entry via rear opening, predetermined breaking point (bottom und top)
Mounting	flush-mounted on standard EU box (Ø=60 mm) surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

Room hygrostat on surface

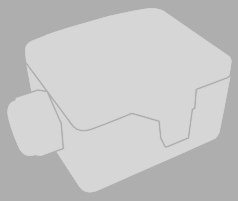
Item description	Item No.	Group	€
FSR01	427623	HU1	88,20
FSR01 internal adjuster	450607	HU1	88,20

Accessories

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90

Outdoor sensors

With our outdoor sensors, you always get the optimal solution for your application. Depending on type, the integrated sensor technology measures temperature, humidity, enthalpy, dew point, CO2 and VOC content, brightness or atmospheric air pressure and makes our products incomparably flexible.



Outdoor Sensors Climate / Air Quality

AGS54+	Temperature	**254**
AGS55+	Temperature	**256**
FTA54+	Temperature, humidity	**260**
WSA	Temperature, humidity	**262**
LA+	Temperature, humidity, CO2, VOC	**264**

Outdoor Sensors Climate / Light

Li65+	Light, air pressure, temp., humidity	**268**

AGS54+

Passive sensor for temperature measurement in oudoor areas, cold rooms, greenhouses, production plants and warehouses. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

Technical Data	
Measured values	temperature
Configuration	jumper
Enclosure	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm²
Delivery content	incl. mounting base enclosure USE-S pure white, incl. mounting set (screws and accessories)

Outdoor sensor temperature passive				
Item description	**Item No.**	**On stock**	**Group**	**€**
AGS54+ PT100	622837	●	TP2	16,50
AGS54+ PT100 1/3 DIN	622844		TP2	20,80
AGS54+ PT1000	622851	●	TP2	18,90
AGS54+ PT1000 1/3 DIN	622783		TP2	22,50
AGS54+ Ni1000	622806	●	TP2	18,60
AGS54+ Ni1000TK5000	622813	●	TP2	22,50
AGS54+ NTC10k	622790	●	TP2	15,10
AGS54+ NTC10k Precon	622868		TP2	15,10
AGS54+ NTC5k	624275		TP2	15,10
AGS54+ NTC20k	622875	●	TP2	15,10
AGS54+ NTC1,8k	643825		TP2	15,10
AGS54+ LM235Z	622820	●	TP2	17,00
AGS54+ KTY81-110	622899		TP2	12,70
AGS54+ KTY81-121	622905		TP2	12,70
AGS54+ KTY81-122	622912		TP2	12,70
AGS54+ KTY81-210	622929		TP2	12,70

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add to price of NTC10k for sensor NTC10k Carel	0,00
Add to price of NTC10k for sensor FeT/Staefa	25,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Sun/rain protection RS150	103329	AS1	25,10

AGS55+

Outdoor temperature sensor with external stainless steel probe (fast response) for measuring temperature in outdoor areas, cold rooms, greenhouses, production plants and warehouses. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

AGS55+

AGS55+ relay / BUS

AGS55+ LCD

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer **TRV/TRA/Basic:** -50..+50 °C (default setting) **Relay/LCD/BUS:** -20..+80 °C (default setting)
Power supply	**TRV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **Basic:** max. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V2A (1.4305)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA/Basic:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **passive/TRV/TRA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting set (screws and accessories) **passive/TRV/TRA/Basic:** incl. mounting base enclosure USE-S pure white **Relay/LCD/BUS:** incl. mounting base enclosure USE-M pure white

AGS55+ passive

Outdoor sensor temperature passive					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
AGS55+ PT100		622998	●	TP2	36,00
AGS55+ PT100 1/3 DIN		623001		TP2	40,30
AGS55+ PT1000		623018	●	TP2	38,40
AGS55+ PT1000 1/3 DIN		622943		TP2	42,00
AGS55+ Ni1000		622967		TP2	38,10
AGS55+ Ni1000TK5000		622974		TP2	42,00
AGS55+ NTC10k		622950		TP2	34,60
AGS55+ NTC10k Precon		623025		TP2	34,60
AGS55+ NTC5k		624268		TP2	34,60
AGS55+ NTC20k		623032		TP2	34,60
AGS55+ NTC1,8k		645812		TP2	34,60
AGS55+ LM235Z		622981		TP2	36,50
AGS55+ KTY81-110		623049		TP2	32,20
AGS55+ KTY81-121		623056		TP2	32,20
AGS55+ KTY81-122		623063		TP2	32,20
AGS55+ KTY81-210		623070		TP2	32,20

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add to price of NTC10k for sensor NTC10k Carel	0,00
Add to price of NTC10k for sensor FeT/Staefa	25,50

AGS55+ active

Outdoor sensor temperature active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
AGS55+ TRV MultiRange		623087	⛀	TP2	83,10
AGS55+ TRA MultiRange		623094	⛀	TP2	83,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

AGS55+ Relay / LCD

Outdoor sensor temperature active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AGS55+ TRV MultiRange Relais	✓	663069	TP2	130,30

Outdoor sensor temperature LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AGS55+ LCD TRV MultiRange	✓	658614	TP2	128,20
AGS55+ LCD TRA MultiRange	✓	658621	TP2	128,20
AGS55+ LCD TRV MultiRange Relais	✓	663076	TP2	175,40

AGS55+ BUS

Outdoor sensor temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AGS55+ RS485 Modbus	✓	658584	TP2	116,20
AGS55+ LCD RS485 Modbus	✓	658607	TP2	161,30
AGS55+ RS485 BACnet (MS/TP)	✓	699686	TP2	116,20
AGS55+ LCD RS485 BACnet (MS/TP)	✓	699693	TP2	161,30
AGS55+ LON	✓	658577	TP2	195,80
AGS55+ Basic RS485 Modbus	✓	747844	TP2	83,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
Sun/rain protection RS150	103329	AS1	25,10

FTA54+

Outdoor sensor for measuring relative humidity and temperature in HVAC applications, greenhouses, industrial halls and in meteorology. The output can also be configured to measure absolute humidity, enthalpy or dew point. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers and an LCD with traffic light indication enable a wide range of applications. The accuracy of the humidity sensor is 2%. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

FTA54+

FTA54+ LCD

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Power supply	**TRV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 1 W (24 V =) **Basic:** max. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, PC, pure white, with filter stainless steel wire mesh
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

Technical Data	
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. sun/rain protection PC, white

FTA54+ active

Outdoor sensor humidity + temperature active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
FTA54+ VV		659147	⛀	HU1	176,40
FTA54+ AA		659154	⛀	HU1	193,90
FTA54+ VV relay	✓	661003		HU1	223,60
FTA54+ LCD VV	✓	660983		HU1	221,50
FTA54+ LCD AA	✓	660990		HU1	239,00
FTA54+ LCD VV relay	✓	661010		HU1	268,70

FTA54+ BUS

Outdoor sensor humidity + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTA54+ RS485 Modbus	✓	659178	HU1	219,40
FTA54+ LCD RS485 Modbus	✓	661034	HU1	264,50
FTA54+ RS485 BACnet (MS/TP)	✓	700191	HU1	219,40
FTA54+ LCD RS485 BACnet (MS/TP)	✓	700214	HU1	264,50
FTA54+ Basic RS485 Modbus	✓	747752	HU1	176,40

Options	
Description	**€**
Add for additional passive temperature sensor	15,90
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20

WSA

Weatherproof humidity and temperature sensor for outdoor applications. The radiation shield protects the sensors from rain, hail and radiated heat. The curved shape of the plates ensure that air can move across the sensors to keep radiated temperature from rooftops and other surrounding surfaces away and guarantee proper measurement. Typical applications are meteorology, greenhouses and industrial environments.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output, -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer, optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point
Power supply	**VV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **AA:** 15..24 V = (±10%) SELV **BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**VV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **AA:** max. 1 W (24 V =) **BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe, Ø=19,5 mm, PA6, with filter stainless steel wire mesh weather protection PC, stainless steel
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**VV/AA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **VV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Mounting	mounting at the wall or at a pole
Delivery content	incl. mounting set (screws and accessories)

WSA active

Weather protected outdoor sensor humidity + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
WSA VV	✓	626408	HU2	285,20
WSA AA	✓	626415	HU2	302,70

Options	
Description	**€**
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60
Add for additional passive temperature sensor	15,90

WSA BUS

Weather protected outdoor sensor humidity + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
WSA temp_rH RS485 Modbus	✓	626439	HU1	328,10
WSA temp_rH RS485 BACnet (MS/TP)	✓	700184	HU1	328,10

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
Weather protection for FTK+, WSA (replacement)	625241	AS1	75,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

LA+

Air quality sensor for measuring CO2, mixed gas (VOC), optionally temperature and humidity outdoors and in areas requiring high IP protection class (e.g. underground stations, tunnels, exhibition halls, cold chains and greenhouses as well as in production halls and warehouses). For devices with CO2 and VOC, every output can be configured to be a mixed output (selectable ratio between CO2 and VOC). Devices with a relay option can be used as 2-point controllers or 2-stage controllers.

LA+

LA+ (Temp)

LA+ LCD (Temp_rH)

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type) CO2+VOC: each output can be set to get a variable mix of CO2 and VOC by configuration via app or uConfig
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point
Measuring range CO2	0..2000 ppm, 0..5000 ppm
Measuring VOC (mixed gas)	heated metal oxide semiconductor, self-calibration
Power supply	15..35 V = SELV, 19..29 V ~ SELV **A/AA:** 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~) **A/AA:** max. 2,5 W (24 V =)
Material in touch with media	**Temp:** Sensor probe, stainless steel V2A (1.4305) **Temp+rH:** Pipe, PC, with filter stainless steel wire mesh
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, for example to display the air quality, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover

Technical Data	
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **V/VV/3xV/A/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. sun/rain protection PC, white
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

LA+ CO2

Outdoor sensor CO2 active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ CO2 V		690171	AQ1	241,40
LA+ CO2 A	✓	693424	AQ1	241,40
LA+ CO2 temp VV	✓	700542	AQ1	287,60
LA+ CO2 temp AA	✓	700559	AQ1	305,10
LA+ CO2 temp VV relay	✓	700566	AQ1	334,80
LA+ CO2 temp_rH 3xV	✓	700573	AQ1	342,90

Options	
Description	**€**
LCD 29x35 mm, RGB backlight	45,10

Outdoor sensor CO2 BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ CO2 RS485 Modbus	✓	698719	AQ1	288,60
LA+ CO2 RS485 BACnet (MS/TP)	✓	700580	AQ1	288,60
LA+ CO2 temp RS485 Modbus	✓	700634	AQ1	334,80
LA+ CO2 temp RS485 BACnet (MS/TP)	✓	700641	AQ1	334,80

Options	
Description	**€**
Add for additional outdoor humidity sensor	55,30
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

LA+ VOC

Outdoor sensor VOC active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ VOC V	✓	698405	AQ1	221,10
LA+ VOC A	✓	698412	AQ1	221,10
LA+ VOC temp VV	✓	698399	AQ1	267,30
LA+ VOC temp AA	✓	698429	AQ1	284,80
LA+ VOC temp VV relay	✓	703086	AQ1	314,50
LA+ VOC temp_rH 3xV	✓	703093	AQ1	322,60

Options	
Description	**€**
LCD 29x35 mm, RGB backlight	45,10

Outdoor sensor VOC BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ VOC RS485 Modbus	✓	700597	AQ1	268,30
LA+ VOC RS485 BACnet (MS/TP)	✓	700603	AQ1	268,30
LA+ VOC temp RS485 Modbus	✓	703154	AQ1	314,50
LA+ VOC temp RS485 BACnet (MS/TP)	✓	703161	AQ1	314,50

Options	
Description	**€**
Add for additional outdoor humidity sensor	55,30
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

LA+ CO2+VOC

Outdoor sensor CO2 + VOC or mix active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ CO2+VOC VV	✓	698993	AQ1	361,40
LA+ CO2+VOC AA	✓	699006	AQ1	378,90
LA+ CO2+VOC VV relay	✓	700535	AQ1	408,60

Options	
Description	**€**
Add for additional passive temperature sensor	15,90
Add for additional temperature sensor	21,00
Add for additional outdoor humidity sensor	55,30
LCD 29x35 mm, RGB backlight	45,10

Outdoor sensor CO2 + VOC or mix BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LA+ CO2+VOC RS485 Modbus	✓	700610	AQ1	408,60
LA+ CO2+VOC RS485 BACnet (MS/TP)	✓	700627	AQ1	408,60
LA+ CO2+VOC temp_rH RS485 Modbus	✓	700658	AQ1	496,70
LA+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	700665	AQ1	496,70

Options	
Description	**€**
Add for additional passive temperature sensor	15,90
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Li65+

Outdoor sensor for measuring light, temperature, humidity and atmospheric pressure in outdoor areas, greenhouses, warehouses or industrial halls. The device has an integrated ambient light sensor with a precise optical filter adapted to the spectral sensitivity of human eyes. Relay outputs for a 2-point controller or a 2-stage 2-point controller allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

Li65+

Li65+ Temp

Li65+ Temp_rH

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, luminosity, atmospheric pressure
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, adjustable at the transducer
Measuring range humidity	0..100% rH non-condensing
Measuring range light	0..1000 lux (default setting) selectable from 6 ranges 0..200 lux | 0..1000 lux | 0..2 klux | 0..10 klux | 0..20 klux | 0..50 klux
Measuring range atm. pressure	500..1500 hPa
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, translucent cover PC
Operating range temperature	-30..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **V/VV/3xV/4xV/A/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm, **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

Li65+ active

Outdoor sensor light active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
Li65+ V	✓	662680	⛃	LM2	139,90
Li65+ A	✓	662697	⛃	LM2	139,90

Outdoor sensor light + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
Li65+ temp VV	✓	700672	LM1	164,90
Li65+ temp AA	✓	700689	LM1	182,40
Li65+ temp VV relay	✓	707305	LM1	208,10

Outdoor sensor light + temperature + humidity + atmospheric pressure active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
Li65+ temp_rH 3xV	✓	700696	LM1	206,80
Li65+ temp_rH_hPa 4xV	✓	700702	LM1	248,70

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Li65+ BUS

Outdoor sensor light + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
Li65+ temp RS485 Modbus	✓	700733	LM1	209,90
Li65+ temp RS485 BACnet (MS/TP)	✓	700740	LM1	209,90

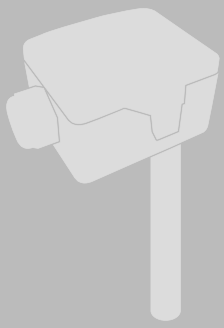
Outdoor sensor light + temperature + humidity + atmospheric pressure BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
Li65+ temp_rH RS485 Modbus	✓	700757	LM1	251,80
Li65+ temp_rH RS485 BACnet (MS/TP)	✓	700764	LM1	251,80
Li65+ temp_rH_hPa RS485 Modbus	✓	700771	LM1	293,70
Li65+ temp_rH_hPa RS485 BACnet (MS/TP)	✓	700788	LM1	293,70

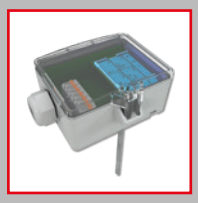
Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Duct Sensors

Our duct and immersion sensors reliably measure and monitor temperature, humidity content or air quality in ducts or pipes of heating, ventilation and air conditioning systems.





Duct Sensors Climate / Air Quality

AKF10+	Temperature	**272**
SFK02+	Temperature	**280**
SFK02+ FR	Temperature	**287**
MWF+	Temperature	**291**
MWF400+	Temperature	**294**
KFK01	Temperature	**297**
SFK01	Temperature	**300**
KFK03	Temperature	**302**
SFK03	Temperature	**307**
RG03	Temperature	**311**
RGS03	Temperature	**312**
FTK+	Temperature, humidity	**313**
LK+	CO2, VOC, temperature, humidity	**317**

Duct Hygrostats

FSK01	Humidity	**325**

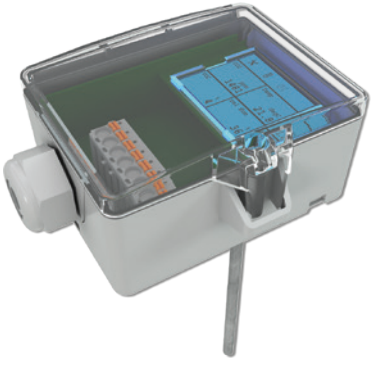
AKF10+

Duct sensor for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). Combined with a thermowell pocket, it can be used as an immersion temperature sensor as well. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

AKF10+

AKF10+

AKF10+ relay / BUS



AKF10+ LCD

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C **TRV/TRA:** 0..+160 °C (default setting) **Relay/LCD/BUS:** -20..+80 °C (default setting)
Power supply	**TRV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **Basic:** max. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe: Ø=6 mm, stainless steel V4A (1.4571)
Installation length	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 450 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA/Basic:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-80..+260 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **passive/TRV/TRA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting set (screws and accessories) **passive/TRV/TRA/Basic:** incl. mounting clip enclosure USE-S pure white **Relay/LCD/BUS:** incl. mounting flange MF6DS flexible

AKF10+ passive

Duct/immersion sensor -50..+150 °C – NTC10k			TP3
Item description	Item No.		€
AKF10+ NTC10k 050.06	620864		34,00
AKF10+ NTC10k 100.06	620871	⛁	35,30
AKF10+ NTC10k 150.06	620888	⛁	36,70
AKF10+ NTC10k 200.06	620895	⛁	37,30
AKF10+ NTC10k 250.06	620901		39,10
AKF10+ NTC10k 300.06	620918		40,30
AKF10+ NTC10k 450.06	620925		42,20

Duct/immersion sensor -50..+160 °C – PT100 DIN cl. B			TP3
Item description	Item No.		€
AKF10+ PT100 050.06	621175		35,40
AKF10+ PT100 100.06	621182	⛁	36,70
AKF10+ PT100 150.06	621199	⛁	38,10
AKF10+ PT100 200.06	621205	⛁	38,70
AKF10+ PT100 250.06	621212	⛁	40,50
AKF10+ PT100 300.06	621229		41,70
AKF10+ PT100 450.06	621236		43,60

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN		TP3
Item description	Item No.	€
AKF10+ PT100 1/3 DIN 050.06	621243	39,70
AKF10+ PT100 1/3 DIN 100.06	621250	41,00
AKF10+ PT100 1/3 DIN 150.06	621267	42,40
AKF10+ PT100 1/3 DIN 200.06	621274	43,00
AKF10+ PT100 1/3 DIN 250.06	621281	44,80
AKF10+ PT100 1/3 DIN 300.06	621298	46,00
AKF10+ PT100 1/3 DIN 450.06	621304	47,90

Duct/immersion sensor -50..+160 °C – PT1000 DIN cl. B			TP3
Item description	Item No.		€
AKF10+ PT1000 050.06	621311	⛁	37,80
AKF10+ PT1000 100.06	621328	⛁	39,10
AKF10+ PT1000 150.06	621335	⛁	40,50
AKF10+ PT1000 200.06	621342	⛁	41,10
AKF10+ PT1000 250.06	621359	⛁	42,90
AKF10+ PT1000 300.06	621366		44,10
AKF10+ PT1000 450.06	621373		46,00

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN		TP3
Item description	Item No.	€
AKF10+ PT1000 1/3 DIN 050.06	620796	41,40
AKF10+ PT1000 1/3 DIN 100.06	620802	42,70
AKF10+ PT1000 1/3 DIN 150.06	620819	44,10
AKF10+ PT1000 1/3 DIN 200.06	620826	44,70
AKF10+ PT1000 1/3 DIN 250.06	620833	46,50
AKF10+ PT1000 1/3 DIN 300.06	620840	47,70
AKF10+ PT1000 1/3 DIN 450.06	620857	49,60

Duct/immersion sensor -50..+160 °C – Ni1000 DIN cl. B			TP3
Item description	Item No.		€
AKF10+ Ni1000 050.06	620932		37,50
AKF10+ Ni1000 100.06	620949	⛁	38,80
AKF10+ Ni1000 150.06	620956	⛁	40,20
AKF10+ Ni1000 200.06	620963	⛁	40,80
AKF10+ Ni1000 250.06	620970	⛁	42,60
AKF10+ Ni1000 300.06	620987		43,80
AKF10+ Ni1000 450.06	620994		45,70

Duct/immersion sensor -50..+160 °C – Ni1000TK5000			TP3
Item description	Item No.		€
AKF10+ Ni1000TK5000 050.06	621007		41,40
AKF10+ Ni1000TK5000 100.06	621014	⛁	42,70
AKF10+ Ni1000TK5000 150.06	621021	⛁	44,10
AKF10+ Ni1000TK5000 200.06	621038	⛁	44,70
AKF10+ Ni1000TK5000 250.06	621045	⛁	46,50
AKF10+ Ni1000TK5000 300.06	621052		47,70
AKF10+ Ni1000TK5000 450.06	621069		49,60

Options	
Description	**€**
3-wire connection -50..+160 °C (3-wire)	2,20
4-wire connection -50..+160 °C (4-wire)	6,10
Temperature -80..+260 °C (T260)	12,10
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor DS18B20 1-wire	1,40
Add to price of NTC10k for sensor FeT/Staefa	25,50

AKF10+ active

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
AKF10+ TRV MultiRange 050.06		621595		TP3	82,00
AKF10+ TRV MultiRange 100.06		621601	⛃	TP3	83,00
AKF10+ TRV MultiRange 150.06		621618	⛃	TP3	84,00
AKF10+ TRV MultiRange 200.06		621625	⛃	TP3	84,40
AKF10+ TRV MultiRange 250.06		621632		TP3	85,80
AKF10+ TRV MultiRange 300.06		621649		TP3	86,80
AKF10+ TRV MultiRange 450.06		621656		TP3	88,00

Duct/immersion sensor -50..+160 °C active 4..20 mA					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
AKF10+ TRA MultiRange 050.06		621663		TP3	82,00
AKF10+ TRA MultiRange 100.06		621670	⛃	TP3	83,00
AKF10+ TRA MultiRange 150.06		621687	⛃	TP3	84,00
AKF10+ TRA MultiRange 200.06		621694	⛃	TP3	84,40
AKF10+ TRA MultiRange 250.06		621700		TP3	85,80
AKF10+ TRA MultiRange 300.06		621717		TP3	86,80
AKF10+ TRA MultiRange 450.06		621724		TP3	88,00

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V + relay					
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ TRV MultiRange 050.06 relay	✓	663304	TP2	158,00
AKF10+ TRV MultiRange 100.06 relay	✓	663311	TP2	159,00
AKF10+ TRV MultiRange 150.06 relay	✓	663328	TP2	160,00
AKF10+ TRV MultiRange 200.06 relay	✓	663335	TP2	160,40
AKF10+ TRV MultiRange 250.06 relay	✓	663342	TP2	161,80
AKF10+ TRV MultiRange 300.06 relay	✓	663359	TP2	162,80
AKF10+ TRV MultiRange 450.06 relay	✓	663366	TP2	164,00

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ LCD TRV MultiRange 050.06	✓	663380	TP2	159,60
AKF10+ LCD TRV MultiRange 100.06	✓	663397	TP2	160,60
AKF10+ LCD TRV MultiRange 150.06	✓	663403	TP2	161,60
AKF10+ LCD TRV MultiRange 200.06	✓	663410	TP2	162,00
AKF10+ LCD TRV MultiRange 250.06	✓	663427	TP2	163,40
AKF10+ LCD TRV MultiRange 300.06	✓	663434	TP2	164,40
AKF10+ LCD TRV MultiRange 450.06	✓	663441	TP2	165,60

Duct/immersion sensor -50..+160 °C active 4..20 mA LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ LCD TRA MultiRange 050.06	✓	663526	TP2	159,60
AKF10+ LCD TRA MultiRange 100.06	✓	663533	TP2	160,60
AKF10+ LCD TRA MultiRange 150.06	✓	663540	TP2	161,60
AKF10+ LCD TRA MultiRange 200.06	✓	663557	TP2	162,00
AKF10+ LCD TRA MultiRange 250.06	✓	663564	TP2	163,40
AKF10+ LCD TRA MultiRange 300.06	✓	663571	TP2	164,40
AKF10+ LCD TRA MultiRange 450.06	✓	663588	TP2	165,60

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ LCD TRV MultiRange 050.06 relay	✓	663458	TP2	158,70
AKF10+ LCD TRV MultiRange 100.06 relay	✓	663465	TP2	159,70
AKF10+ LCD TRV MultiRange 150.06 relay	✓	663472	TP2	160,70
AKF10+ LCD TRV MultiRange 200.06 relay	✓	663489	TP2	161,10
AKF10+ LCD TRV MultiRange 250.06 relay	✓	663496	TP2	162,50
AKF10+ LCD TRV MultiRange 300.06 relay	✓	663502	TP2	163,50
AKF10+ LCD TRV MultiRange 450.06 relay	✓	663519	TP2	164,70

Options	
Description	**€**
Temperature -80..+260 °C (T260)	12,10

AKF10+ BUS

Duct/immersion sensor -50..+160 °C RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ RS485 Modbus 050.06	✓	621823	TP2	117,20
AKF10+ RS485 Modbus 100.06	✓	621830	TP2	118,20
AKF10+ RS485 Modbus 150.06	✓	621847	TP2	119,30
AKF10+ RS485 Modbus 200.06	✓	621854	TP2	119,70
AKF10+ RS485 Modbus 250.06	✓	621861	TP2	121,10
AKF10+ RS485 Modbus 300.06	✓	621878	TP2	122,00
AKF10+ RS485 Modbus 450.06	✓	621885	TP2	123,30

Duct/immersion sensor -50..+160 °C RS485 Modbus LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ LCD RS485 Modbus 050.06	✓	663618	TP2	162,30
AKF10+ LCD RS485 Modbus 100.06	✓	663625	TP2	163,30
AKF10+ LCD RS485 Modbus 150.06	✓	663632	TP2	164,40
AKF10+ LCD RS485 Modbus 200.06	✓	663649	TP2	164,80
AKF10+ LCD RS485 Modbus 250.06	✓	663656	TP2	166,20
AKF10+ LCD RS485 Modbus 300.06	✓	663663	TP2	167,10
AKF10+ LCD RS485 Modbus 450.06	✓	663670	TP2	168,40

Duct/immersion sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ RS485 BACnet 050.06	✓	699174	TP2	117,20
AKF10+ RS485 BACnet 100.06	✓	699181	TP2	118,20
AKF10+ RS485 BACnet 150.06	✓	683838	TP2	119,30
AKF10+ RS485 BACnet 200.06	✓	699198	TP2	119,70
AKF10+ RS485 BACnet 250.06	✓	699204	TP2	121,10
AKF10+ RS485 BACnet 300.06	✓	699211	TP2	122,00
AKF10+ RS485 BACnet 450.06	✓	699228	TP2	123,30

Duct/immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ LCD RS485 BACnet 050.06	✓	699235	TP2	162,30
AKF10+ LCD RS485 BACnet 100.06	✓	699242	TP2	163,30
AKF10+ LCD RS485 BACnet 150.06	✓	682848	TP2	164,40
AKF10+ LCD RS485 BACnet 200.06	✓	699259	TP2	164,80
AKF10+ LCD RS485 BACnet 250.06	✓	699266	TP2	166,20
AKF10+ LCD RS485 BACnet 300.06	✓	699273	TP2	167,10
AKF10+ LCD RS485 BACnet 450.06	✓	699280	TP2	168,40

Duct/immersion sensor -50..+160 °C Basic RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AKF10+ Basic RS485 Modbus 050.06		747783	TP2	82,00
AKF10+ Basic RS485 Modbus 100.06		748032	TP2	83,00
AKF10+ Basic RS485 Modbus 150.06		747769	TP2	84,00
AKF10+ Basic RS485 Modbus 200.06		747790	TP2	84,40
AKF10+ Basic RS485 Modbus 250.06		748049	TP2	85,80
AKF10+ Basic RS485 Modbus 300.06		747776	TP2	86,80
AKF10+ Basic RS485 Modbus 450.06		748056	TP2	88,00

Options	
Description	**€**
Temperature -80..+260 °C (T260)	12,10

Accessories – passive / TRV / TRA

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit AKF10+ for enclosure USE-S	748551	AS1	7,55

Accessories – Relay / LCD / BUS

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Accessories

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Syringe thermal contact fluid	102308	AS1	1,60
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1	13,50

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	⛀	AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛀	AS2	9,90
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	⛀	AS2	10,50
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	⛀	AS2	10,90
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	⛀	AS2	12,50
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	⛀	AS2	12,90
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	⛀	AS2	13,20

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	⛀	AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛀	AS2	20,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	⛀	AS2	22,60
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	⛀	AS2	23,70
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	⛀	AS2	29,40
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	⛀	AS2	30,80
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	⛀	AS2	31,80
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	20,20

SFK02+

Immersion sensor for temperature measurement of gases and liquids in HVAC applications. The sensor can be optionally screwed directly into a bonded pocket (see accessories). Types SFKH02+ with a 70 mm neck pipe are designed for applications with insulation materials. The measuring insert can be exchanged without disassembling the entire sensor. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

SFK02+

SFKH02+

SFK02+ relay / BUS

SFK02+ LCD

SFKH02+ relay / BUS

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: **TRV/TRA:** 0..+160 °C (default setting) **Relay/LCD/BUS:** -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Basic:** typ. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=8 mm, stainless steel V4A (1.4571), G1/2“ Neck pipe (optionally): stainless steel V2A (1.4305), Ø=12 mm, length 70 mm
Installation length	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 450 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA/Basic:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **passive/TRV/TRA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting set (screws and accessories)

Immersion sensor -50..+150 °C – NTC10k		TP2
Item description	**Item No.**	**€**
SFK02+ NTC10k 050.08	622004	44,20
SFK02+ NTC10k 100.08	622011	45,10
SFK02+ NTC10k 150.08	622028	46,90
SFK02+ NTC10k 200.08	622035	49,10
SFK02+ NTC10k 250.08	622042	50,80
SFK02+ NTC10k 450.08	622059	53,50

Immersion sensor -50..+160 °C – PT100 DIN cl. B		TP2
Item description	**Item No.**	**€**
SFK02+ PT100 050.08	622295	45,60
SFK02+ PT100 100.08	622301	46,50
SFK02+ PT100 150.08	622318	48,30
SFK02+ PT100 200.08	622325	50,50
SFK02+ PT100 250.08	622332	52,20
SFK02+ PT100 450.08	622349	54,90

Immersion sensor -50..+160 °C – PT100 1/3 DIN		TP2
Item description	**Item No.**	**€**
SFK02+ PT100 1/3 DIN 050.08	622356	49,90
SFK02+ PT100 1/3 DIN 100.08	622363	50,80
SFK02+ PT100 1/3 DIN 150.08	622370	52,60
SFK02+ PT100 1/3 DIN 200.08	622387	54,80
SFK02+ PT100 1/3 DIN 250.08	622394	56,50
SFK02+ PT100 1/3 DIN 450.08	622400	59,20

Immersion sensor -50..+160 °C – PT1000 DIN cl. B		TP2
Item description	**Item No.**	**€**
SFK02+ PT1000 050.08	622417	48,00
SFK02+ PT1000 100.08	622424	48,90
SFK02+ PT1000 150.08	622431	50,70
SFK02+ PT1000 200.08	622448	52,90
SFK02+ PT1000 250.08	622455	54,60
SFK02+ PT1000 450.08	622462	57,30

Immersion sensor -50..+160 °C – PT1000 1/3 DIN		TP2
Item description	**Item No.**	**€**
SFK02+ PT1000 1/3 DIN 050.08	621946	51,60
SFK02+ PT1000 1/3 DIN 100.08	621953	52,50
SFK02+ PT1000 1/3 DIN 150.08	621960	54,30
SFK02+ PT1000 1/3 DIN 200.08	621977	56,50
SFK02+ PT1000 1/3 DIN 250.08	621984	58,20
SFK02+ PT1000 1/3 DIN 450.08	621991	60,90

Immersion sensor -50..+160 °C – Ni1000 DIN cl. B		TP2
Item description	**Item No.**	**€**
SFK02+ Ni1000 050.08	622080	47,70
SFK02+ Ni1000 100.08	622097	48,60
SFK02+ Ni1000 150.08	622103	50,40
SFK02+ Ni1000 200.08	622110	52,60
SFK02+ Ni1000 250.08	622127	54,30
SFK02+ Ni1000 450.08	622141	57,00

Immersion sensor -50..+160 °C – Ni1000TK5000		TP2
Item description	**Item No.**	**€**
SFK02+ Ni1000TK5000 050.08	622158	51,60
SFK02+ Ni1000TK5000 100.08	622165	52,50
SFK02+ Ni1000TK5000 150.08	622189	54,30
SFK02+ Ni1000TK5000 200.08	622196	56,50
SFK02+ Ni1000TK5000 250.08	622202	58,20
SFK02+ Ni1000TK5000 450.08	622219	60,90

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Temperature -80..+260 °C (T260)	12,10
Neck pipe 70.12 (for applications with insulation materials)	22,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210	-2,40

Immersion sensor -50..+160 °C active 0..10 (0..5) V				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ TRV MultiRange 050.08		622592	TP2	94,30
SFK02+ TRV MultiRange 100.08		622608	TP2	95,10
SFK02+ TRV MultiRange 150.08		622615	TP2	96,40
SFK02+ TRV MultiRange 200.08		622622	TP2	98,30
SFK02+ TRV MultiRange 250.08		622639	TP2	99,50
SFK02+ TRV MultiRange 450.08		622646	TP2	101,60

Immersion sensor -50..+160 °C active 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ TRA MultiRange 050.08		622653	TP2	94,30
SFK02+ TRA MultiRange 100.08		622660	TP2	95,10
SFK02+ TRA MultiRange 150.08		622677	TP2	96,40
SFK02+ TRA MultiRange 200.08		622684	TP2	98,30
SFK02+ TRA MultiRange 250.08		622691	TP2	99,50
SFK02+ TRA MultiRange 450.08		622707	TP2	101,60

Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ TRV MultiRange 050.08 relay	✓	665568	TP2	141,50
SFK02+ TRV MultiRange 100.08 relay	✓	665575	TP2	142,30
SFK02+ TRV MultiRange 150.08 relay	✓	665582	TP2	143,60
SFK02+ TRV MultiRange 200.08 relay	✓	665599	TP2	145,50
SFK02+ TRV MultiRange 250.08 relay	✓	665605	TP2	146,70
SFK02+ TRV MultiRange 450.08 relay	✓	665612	TP2	148,80

Immersion sensor -50..+160 °C active 0..10 (0..5) V LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ LCD TRV MultiRange 050.08	✓	665476	TP2	139,40
SFK02+ LCD TRV MultiRange 100.08	✓	665483	TP2	140,20
SFK02+ LCD TRV MultiRange 150.08	✓	665490	TP2	141,50
SFK02+ LCD TRV MultiRange 200.08	✓	665506	TP2	143,40
SFK02+ LCD TRV MultiRange 250.08	✓	665513	TP2	144,60
SFK02+ LCD TRV MultiRange 450.08	✓	665520	TP2	146,70

Immersion sensor -50..+160 °C active 4..20 mA LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ LCD TRA MultiRange 050.08	✓	665681	TP2	139,40
SFK02+ LCD TRA MultiRange 100.08	✓	665698	TP2	140,20
SFK02+ LCD TRA MultiRange 150.08	✓	665704	TP2	141,50
SFK02+ LCD TRA MultiRange 200.08	✓	665711	TP2	143,40
SFK02+ LCD TRA MultiRange 250.08	✓	665728	TP2	144,60
SFK02+ LCD TRA MultiRange 450.08	✓	665735	TP2	146,70

Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ LCD TRV MultiRange 050.08 relay	✓	665629	TP2	186,60
SFK02+ LCD TRV MultiRange 100.08 relay	✓	665636	TP2	187,40
SFK02+ LCD TRV MultiRange 150.08 relay	✓	665643	TP2	188,70
SFK02+ LCD TRV MultiRange 200.08 relay	✓	665650	TP2	190,60
SFK02+ LCD TRV MultiRange 250.08 relay	✓	665667	TP2	191,80
SFK02+ LCD TRV MultiRange 450.08 relay	✓	665674	TP2	193,90

Options	
Description	**€**
Temperature -80..+260 °C (T260)	12,10
Neck pipe 70.12 (for applications with insulation materials)	22,70

Immersion sensor -50..+160 °C RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ RS485 Modbus 050.08	✓	665742	TP2	130,40
SFK02+ RS485 Modbus 100.08	✓	665759	TP2	131,00
SFK02+ RS485 Modbus 150.08	✓	665766	TP2	132,50
SFK02+ RS485 Modbus 200.08	✓	665773	TP2	134,30
SFK02+ RS485 Modbus 250.08	✓	665780	TP2	135,40
SFK02+ RS485 Modbus 450.08	✓	665797	TP2	137,70

Immersion sensor -50..+160 °C RS485 Modbus LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ LCD RS485 Modbus 050.08	✓	665803	TP2	175,50
SFK02+ LCD RS485 Modbus 100.08	✓	665810	TP2	176,10
SFK02+ LCD RS485 Modbus 150.08	✓	665827	TP2	177,60
SFK02+ LCD RS485 Modbus 200.08	✓	665834	TP2	179,40
SFK02+ LCD RS485 Modbus 250.08	✓	665841	TP2	180,50
SFK02+ LCD RS485 Modbus 450.08	✓	665858	TP2	182,80

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ RS485 BACnet (MS/TP) 050.08	✓	699389	TP2	130,40
SFK02+ RS485 BACnet (MS/TP) 100.08	✓	699396	TP2	131,00
SFK02+ RS485 BACnet (MS/TP) 150.08	✓	699402	TP2	132,50
SFK02+ RS485 BACnet (MS/TP) 200.08	✓	699419	TP2	134,30
SFK02+ RS485 BACnet (MS/TP) 250.08	✓	699426	TP2	135,40
SFK02+ RS485 BACnet (MS/TP) 450.08	✓	699433	TP2	137,70

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ LCD RS485 BACnet (MS/TP) 050.08	✓	699440	TP2	175,50
SFK02+ LCD RS485 BACnet (MS/TP) 100.08	✓	699457	TP2	176,10
SFK02+ LCD RS485 BACnet (MS/TP) 150.08	✓	699464	TP2	177,60
SFK02+ LCD RS485 BACnet (MS/TP) 200.08	✓	699471	TP2	179,40
SFK02+ LCD RS485 BACnet (MS/TP) 250.08	✓	699488	TP2	180,50
SFK02+ LCD RS485 BACnet (MS/TP) 450.08	✓	699495	TP2	182,80

Immersion sensor -50..+160 °C Basic RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ Basic RS485 Modbus 050.08	✓	755986	TP2	94,30
SFK02+ Basic RS485 Modbus 100.08	✓	747837	TP2	95,10
SFK02+ Basic RS485 Modbus 150.08	✓	755993	TP2	96,40
SFK02+ Basic RS485 Modbus 200.08	✓	756006	TP2	98,30
SFK02+ Basic RS485 Modbus 250.08	✓	756013	TP2	99,50
SFK02+ Basic RS485 Modbus 450.08	✓	756020	TP2	101,60

Options	
Description	**€**
Temperature -80..+260 °C (T260)	12,10
Neck pipe 70.12 (for applications with insulation materials)	22,70

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Bonded pockets						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	61,70
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛀	AS1	49,60
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛀	AS1	56,80
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛀	AS1	63,90
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛀	AS1	70,30

SFK02+ FR

Immersion sensor with Ø=4 mm pocket for a fast response and integrated thermowell for temperature measurement of gases and liquids in HVAC applications. Bonded pockets are available as well (see ‚Accessories'). Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

SFK02+ FR

SFK02+ FR relay / BUS

SFK02+ FR LCD

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: **TRV/TRA:** 0..+160 °C (default setting) **Relay/LCD/BUS:** -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV, **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe 50 mm: Ø=4 mm Sensor probe 100/200 mm: Ø=6 mm, end of sensor Ø=4 mm stainless steel V4A (1.4571), G1/2“
Installation length	50 mm, 100 mm, 200 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover

Technical Data	
Operating range temperature	-50..+160 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **passive/TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting set (screws and accessories)

Immersion sensor -50..+150 °C – NTC10k		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR NTC10k 050.04	655545	47,60
SFK02+ FR NTC10k 100.06/04	640725	48,40
SFK02+ FR NTC10k 200.06/04	640763	52,50

Immersion sensor -50..+160 °C – PT100 DIN cl. B		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR PT100 050.04	665926	49,00
SFK02+ FR PT100 100.06/04	665933	49,80
SFK02+ FR PT100 200.06/04	665940	53,90

Immersion sensor -50..+160 °C – PT100 1/3 DIN		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR PT100 1/3 DIN 050.04	665957	53,30
SFK02+ FR PT100 1/3 DIN 100.06/04	665964	54,10
SFK02+ FR PT100 1/3 DIN 200.06/04	665971	58,20

Immersion sensor -50..+160 °C – PT1000 DIN cl. B		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR PT1000 050.04	655583	51,40
SFK02+ FR PT1000 100.06/04	638807	52,20
SFK02+ FR PT1000 200.06/04	640749	56,30

Immersion sensor -50..+160 °C – PT1000 1/3 DIN		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR PT1000 1/3 DIN 050.04	665988	55,00
SFK02+ FR PT1000 1/3 DIN 100.06/04	665995	55,80
SFK02+ FR PT1000 1/3 DIN 200.06/04	666008	59,90

Immersion sensor -50..+160 °C – Ni1000 DIN cl. B		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR Ni1000 050.04	666015	51,10
SFK02+ FR Ni1000 100.06/04	657280	51,90
SFK02+ FR Ni1000 200.06/04	666022	56,00

Immersion sensor -50..+160 °C – Ni1000TK5000		*TP2*
Item description	**Item No.**	**€**
SFK02+ FR Ni1000TK5000 050.04	655590	55,00
SFK02+ FR Ni1000TK5000 100.06/04	640732	55,80
SFK02+ FR Ni1000TK5000 200.06/04	640770	59,90

Options	
Description	**€**
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

Immersion sensor -50..+160 °C active 0..10 (0..5) V				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR TRV MultiRange 050.04		655620	TP2	97,70
SFK02+ FR TRV MultiRange 100.06/04		645881	TP2	98,30
SFK02+ FR TRV MultiRange 200.06/04		655637	TP2	101,60

Immersion sensor -50..+160 °C active 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR TRA MultiRange 050.04		655606	TP2	97,70
SFK02+ FR TRA MultiRange 100.06/04		645867	TP2	98,30
SFK02+ FR TRA MultiRange 200.06/04		655613	TP2	101,60

Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR TRV MultiRange 050.04 relay	✓	666169	TP2	144,90
SFK02+ FR TRV MultiRange 100.06/04 relay	✓	666176	TP2	145,50
SFK02+ FR TRV MultiRange 200.06/04 relay	✓	666183	TP2	148,80

Immersion sensor -50..+160 °C active 0..10 (0..5) V LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR LCD TRV MultiRange 050.04	✓	666091	TP2	142,80
SFK02+ FR LCD TRV MultiRange 100.06/04	✓	666107	TP2	143,40
SFK02+ FR LCD TRV MultiRange 200.06/04	✓	666114	TP2	146,70

Immersion sensor -50..+160 °C active 4..20 mA LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR LCD TRA MultiRange 050.04	✓	666121	TP2	142,80
SFK02+ FR LCD TRA MultiRange 100.06/04	✓	666138	TP2	143,40
SFK02+ FR LCD TRA MultiRange 200.06/04	✓	666145	TP2	146,70

Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR LCD TRV MultiRange 050.04 relay	✓	666190	TP2	190,00
SFK02+ FR LCD TRV MultiRange 100.06/04 relay	✓	666206	TP2	190,60
SFK02+ FR LCD TRV MultiRange 200.06/04 relay	✓	666213	TP2	193,90

Immersion sensor -50..+160 °C RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR RS485 Modbus 050.04	✓	666220	TP2	144,90
SFK02+ FR RS485 Modbus 100.06/04	✓	666237	TP2	145,50
SFK02+ FR RS485 Modbus 200.06/04	✓	666244	TP2	148,80

Immersion sensor -50..+160 °C RS485 Modbus LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR LCD RS485 Modbus 050.04	✓	666251	TP2	190,00
SFK02+ FR LCD RS485 Modbus 100.06/04	✓	666268	TP2	190,60
SFK02+ FR LCD RS485 Modbus 200.06/04	✓	666275	TP2	193,90

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR RS485 BACnet (MS/TP) 050.04	✓	699501	TP2	144,90
SFK02+ FR RS485 BACnet (MS/TP) 100.06/04	✓	699518	TP2	145,50
SFK02+ FR RS485 BACnet (MS/TP) 200.06/04	✓	699525	TP2	148,80

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
SFK02+ FR LCD RS485 BACnet (MS/TP) 050.04	✓	699532	TP2	190,00
SFK02+ FR LCD RS485 BACnet (MS/TP) 100.06/04	✓	699549	TP2	190,60
SFK02+ FR LCD RS485 BACnet (MS/TP) 200.06/04	✓	699556	TP2	193,90

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

MWF+

Duct sensor for measuring the average temperature in air ducts. The sensor measures the mean temperature value throughout the entire length. A spring at the connection head reduces vibrations. Mounting angles are included in the delivery content. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

MWF+ passive / active

MWF+ passive (NTCxx)

MWF+ relay / BUS

MWF+ LCD

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable via app or uConfig
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Installation length	3000 mm, 6000 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+80 °C
Protection (IP)	IP65, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm² **passive/TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm, **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting flange incl. mounting set (screws and accessories) incl. installation set

Duct averaging sensor -50..+80 °C			*TP1*
Item description	**Item No.**	**€**	
MWF+ PT1000 L3000	620413	88,00	
MWF+ PT1000 L6000	620420	98,00	
MWF+ Ni1000 L3000	620437	88,00	
MWF+ Ni1000 L6000	620444	98,00	
MWF+ Ni1000TK5000 L3000	675888	88,00	
MWF+ Ni1000TK5000 L6000	674324	98,00	
MWF+ Ni891 L3000	699297	124,50	
MWF+ Ni891 L6000	699303	159,80	

Duct averaging sensor 0..+50 °C			*TP1*
Item description	**Item No.**	**€**	
MWF+ NTC10k L3000	670128	121,40	
MWF+ NTC10k L6000	670135	137,90	
MWF+ NTC10k Precon L3000	670142	121,40	
MWF+ NTC10k Precon L6000	670159	137,90	
MWF+ NTC20k L3000	670166	121,40	
MWF+ NTC20k L6000	670173	137,90	

Duct averaging sensor temperature active 0..10 (0..5) V, 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ TRV MultiRange L3000		620475	TP1	146,40
MWF+ TRV MultiRange L6000		620482	TP1	155,40
MWF+ TRA MultiRange L3000		620499	TP1	146,40
MWF+ TRA MultiRange L6000		620505	TP1	155,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	7,05
Installation set TFR / MWF+	679466	AS1	9,35

Duct averaging sensor temperature active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ TRV MultiRange relay L3000	✓	662758	TP1	193,60
MWF+ TRV MultiRange relay L6000	✓	662765	TP1	202,60

Duct averaging sensor temperature active 0..10 (0..5) V 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ LCD TRV MultiRange L3000	✓	662772	TP1	191,50
MWF+ LCD TRV MultiRange L6000	✓	662789	TP1	200,50
MWF+ LCD TRA MultiRange L3000	✓	662796	TP1	191,50
MWF+ LCD TRA MultiRange L6000	✓	662802	TP1	200,50

Duct averaging sensor temperature active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ LCD TRV MultiRange relay L3000	✓	662819	TP1	238,70
MWF+ LCD TRV MultiRange relay L6000	✓	662826	TP1	247,70

Duct averaging sensor temperature RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ RS485 Modbus L3000	✓	662833	TP1	193,60
MWF+ RS485 Modbus L6000	✓	662840	TP1	202,60
MWF+ LCD RS485 Modbus L3000	✓	662857	TP1	238,70
MWF+ LCD RS485 Modbus L6000	✓	662864	TP1	247,70

Duct averaging sensor temperature RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF+ RS485 BACnet (MS/TP) L3000	✓	699310	TP1	193,60
MWF+ RS485 BACnet (MS/TP) L6000	✓	699327	TP1	202,60
MWF+ LCD RS485 BACnet (MS/TP) L3000	✓	699334	TP1	238,70
MWF+ LCD RS485 BACnet (MS/TP) L6000	✓	699341	TP1	247,70

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	7,05
Installation set TFR / MWF+	679466	AS1	9,35

MWF400+

Duct sensor for measuring the average temperature in air ducts. The sensor measures the mean temperature value throughout the entire length. A spring at the connection head reduces vibrations. Mounting angles are included in the delivery content. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

MWF400+

MWF400+ relay / BUS

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor rod, copper, bendable, Ø=4 mm Sensor neck, stainless steel V4A (1.4571), Ø=6 mm
Installation length	400 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**passive/TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC

Technical Data	
Colour	pure white, transparent cover
Operating range temperature	-30..+80 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **passive/TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting flange MF6DS flexible incl. mounting clip enclosure USE-S pure white incl. fixing kit rawlplugs and screws (2x each)

Duct averaging sensor -30..+80 °C passive

Item description	USEapp	Item No.	Group	€
MWF400+ PT100		654166	TP1	77,00
MWF400+ PT1000		660518	TP1	77,00
MWF400+ Ni1000		641395	TP1	77,00
MWF400+ Ni1000TK5000		641425	TP1	77,00
MWF400+ Ni891		699358	TP1	77,00
MWF400+ NTC10k		641449	TP1	75,10
MWF400+ NTC20k		670319	TP1	75,10
MWF400+ NTC1,8k		670333	TP1	75,10

Duct averaging sensor -30..+80 °C active

Item description	USEapp	Item No.	Group	€
MWF400+ TRV MultiRange		642088	TP1	135,30
MWF400+ TRA MultiRange		642095	TP1	135,30

Accessories

Item description	Item No.	Group	€
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	7,05
Mounting kit universal for enclosure USE	698511	AS1	9,75

Duct averaging sensor -30..+80 °C active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF400+ TRV MultiRange Relais	✓	662871	TP1	182,50

Duct averaging sensor -30..+80 °C active LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF400+ LCD TRV MultiRange	✓	662925	TP1	180,40
MWF400+ LCD TRA MultiRange	✓	662956	TP1	180,40

Duct averaging sensor -30..+80 °C 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF400+ LCD TRV MultiRange Relais	✓	662963	TP1	227,60

Duct averaging sensor -30..+80 °C BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
MWF400+ RS485 Modbus	✓	662970	TP1	224,50
MWF400+ LCD RS485 Modbus	✓	662987	TP1	269,60
MWF400+ RS485 BACnet (MS/TP)	✓	699365	TP1	224,50
MWF400+ LCD RS485 BACnet (MS/TP)	✓	699372	TP1	269,60

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-M pure white	668354	AS1	8,75
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	7,05
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

KFK01

Passive duct sensor for measuring air temperature and other gaseous media of HVAC applications (e.g. supply and exhaust ducts). The sensor can be mounted by means of a mounting flange. Combined with a thermowell, it can be used as an immersion temperature sensor as well.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4401)
Installation length	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 450 mm
Enclosure	shape J, aluminium
Operating range temperature	-80..+260 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm, terminal block, max. 1,5 mm²
Mounting	when used as duct sensors: please use mounting flange MF6DS flexible (+90..+120 °C) or MF6 (brass, +120..+260 °C) for use as immersion sensors please use immersion pocket THVADS / THMSDS

Duct/immersion sensor -50..+150 °C – NTC10k		*TP1*
Item description	**Item No.**	**€**
KFK01 NTC10k 050.06	626880	46,10
KFK01 NTC10k 100.06	626897	47,00
KFK01 NTC10k 150.06	626903	48,70
KFK01 NTC10k 200.06	626910	50,40
KFK01 NTC10k 250.06	626927	53,10
KFK01 NTC10k 300.06	626934	55,40
KFK01 NTC10k 450.06	626941	59,10

Duct/immersion sensor -50..+160 °C – PT100 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
KFK01 PT100 050.06	626446	47,50
KFK01 PT100 100.06	626453	48,40
KFK01 PT100 150.06	626477	50,10
KFK01 PT100 200.06	626484	51,80
KFK01 PT100 250.06	626491	54,50
KFK01 PT100 300.06	626507	56,80
KFK01 PT100 450.06	626514	60,50

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN		*TP1*
Item description	**Item No.**	**€**
KFK01 PT100 1/3 DIN 050.06	626521	51,80
KFK01 PT100 1/3 DIN 100.06	626538	52,70
KFK01 PT100 1/3 DIN 150.06	626545	54,40
KFK01 PT100 1/3 DIN 200.06	626552	56,10
KFK01 PT100 1/3 DIN 250.06	626569	58,80
KFK01 PT100 1/3 DIN 300.06	626576	61,10
KFK01 PT100 1/3 DIN 450.06	626583	64,80

Duct/immersion sensor -50..+160 °C – PT1000 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
KFK01 PT1000 050.06	626590	49,90
KFK01 PT1000 100.06	626606	50,80
KFK01 PT1000 150.06	626613	52,50
KFK01 PT1000 200.06	626620	54,20
KFK01 PT1000 250.06	626637	56,90
KFK01 PT1000 300.06	626644	59,20
KFK01 PT1000 450.06	626651	62,90

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN		*TP1*
Item description	**Item No.**	**€**
KFK01 PT1000 1/3 DIN 050.06	626675	53,50
KFK01 PT1000 1/3 DIN 100.06	626682	54,40
KFK01 PT1000 1/3 DIN 150.06	626699	56,10
KFK01 PT1000 1/3 DIN 200.06	626705	57,80
KFK01 PT1000 1/3 DIN 250.06	626712	60,50
KFK01 PT1000 1/3 DIN 300.06	626729	62,80
KFK01 PT1000 1/3 DIN 450.06	626736	66,50

Duct/immersion sensor -50..+160 °C – Ni1000 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
KFK01 Ni1000 050.06	626743	49,60
KFK01 Ni1000 100.06	626750	50,50
KFK01 Ni1000 150.06	626767	52,20
KFK01 Ni1000 200.06	626774	53,90
KFK01 Ni1000 250.06	626781	56,60
KFK01 Ni1000 300.06	626798	58,90
KFK01 Ni1000 450.06	626804	62,60

Duct/immersion sensor -50..+160 °C – Ni1000TK5000		*TP1*
Item description	**Item No.**	**€**
KFK01 Ni1000TK5000 050.06	626811	53,50
KFK01 Ni1000TK5000 100.06	626828	54,40
KFK01 Ni1000TK5000 150.06	626835	56,10
KFK01 Ni1000TK5000 200.06	626842	57,80
KFK01 Ni1000TK5000 250.06	626859	60,50
KFK01 Ni1000TK5000 300.06	626866	62,80
KFK01 Ni1000TK5000 450.06	626873	66,50

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor DS18B20 1-wire	1,40
Add to price of NTC10k for sensor FeT/Staefa	25,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995		AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008		AS2	9,90
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015		AS2	10,50
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022		AS2	10,90
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985		AS2	12,50
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039		AS2	12,90
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046		AS2	13,20

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152		AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817		AS2	20,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824		AS2	22,60
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848		AS2	23,70
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862		AS2	29,40
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879		AS2	30,80
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893		AS2	31,80
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	20,20

SFK01

Immersion sensor with an integrated thermowell for temperature measurement of liquids in HVAC applications (e.g. water lines or water tanks). The type SFKH01 with a 70 mm neck pipe is designed for applications using insulation materials. Bonded pockets are available as well (see ‚Accessories').

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe: Ø=8 mm, stainless steel V4A (1.4571), SW24, G1/2" Neck pipe (optionally): stainless steel V2A (1.4305), Ø=12 mm, length 70 mm
Installation length	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 450 mm
Enclosure	shape J, aluminium
Operating range temperature	-80..+260 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm²

Immersion sensor -50..+150 °C – NTC10k			*TP1*
Item description	**Item No.**	**€**	
SFK01 NTC10k 050.08	45421	49,20	
SFK01 NTC10k 100.08	45438	50,40	
SFK01 NTC10k 150.08	45445	52,00	
SFK01 NTC10k 200.08	45452	54,00	
SFK01 NTC10k 250.08	45469	54,50	
SFK01 NTC10k 450.08	45476	57,70	

Immersion sensor -50..+160 °C – PT100 DIN cl. B			*TP1*
Item description	**Item No.**	**€**	
SFK01 PT100 050.08	37662	50,60	
SFK01 PT100 100.08	27717	51,80	
SFK01 PT100 150.08	27724	53,40	
SFK01 PT100 200.08	27731	55,40	
SFK01 PT100 250.08	27748	55,90	
SFK01 PT100 450.08	27755	59,10	

Immersion sensor -50..+160 °C – PT100 1/3 DIN			*TP1*
Item description	**Item No.**	**€**	
SFK01 PT100 1/3 DIN 050.08	27762	54,90	
SFK01 PT100 1/3 DIN 100.08	27779	56,10	
SFK01 PT100 1/3 DIN 150.08	27786	57,70	
SFK01 PT100 1/3 DIN 200.08	27793	59,70	
SFK01 PT100 1/3 DIN 250.08	27809	60,20	
SFK01 PT100 1/3 DIN 450.08	27816	63,40	

Immersion sensor -50..+160 °C – PT1000 DIN cl. B			*TP1*
Item description	**Item No.**	**€**	
SFK01 PT1000 050.08	27823	53,00	
SFK01 PT1000 100.08	27830	54,20	
SFK01 PT1000 150.08	27847	55,80	
SFK01 PT1000 200.08	27854	57,80	
SFK01 PT1000 250.08	27861	58,30	
SFK01 PT1000 450.08	27878	61,50	

Immersion sensor -50..+160 °C – PT1000 1/3 DIN		*TP1*
Item description	**Item No.**	**€**
SFK01 PT1000 1/3 DIN 050.08	27885	56,60
SFK01 PT1000 1/3 DIN 100.08	27892	57,80
SFK01 PT1000 1/3 DIN 150.08	36740	59,40
SFK01 PT1000 1/3 DIN 200.08	36757	61,40
SFK01 PT1000 1/3 DIN 250.08	36764	61,90
SFK01 PT1000 1/3 DIN 450.08	36771	65,10

Immersion sensor -50..+160 °C – Ni1000 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
SFK01 Ni1000 050.08	36788	52,70
SFK01 Ni1000 100.08	36795	53,90
SFK01 Ni1000 150.08	36801	55,50
SFK01 Ni1000 200.08	36818	57,50
SFK01 Ni1000 250.08	36825	58,00
SFK01 Ni1000 450.08	45292	61,20

Immersion sensor -50..+160 °C – Ni1000TK5000		*TP1*
Item description	**Item No.**	**€**
SFK01 Ni1000TK5000 050.08	45308	56,60
SFK01 Ni1000TK5000 100.08	45315	57,80
SFK01 Ni1000TK5000 150.08	45322	59,40
SFK01 Ni1000TK5000 200.08	45339	61,40
SFK01 Ni1000TK5000 250.08	45346	61,90
SFK01 Ni1000TK5000 450.08	45353	65,10

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Temperature -80..+260 °C (T260)	12,10
Neck pipe 70.12 (for applications with insulation materials)	22,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor DS18B20 1-wire	1,40
Add to price of NTC10k for sensor FeT/Staefa	25,50

Bonded pockets						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	61,70
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛀	AS1	49,60
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛀	AS1	56,80
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛀	AS1	63,90
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛀	AS1	70,30

KFK03

Passive duct sensor for measuring air temperature and other gaseous media of HVAC applications (e.g. in supply and exhaust ducts). Designed for connection to superior controls systems. The sensor can be mounted by means of a mounting flange. Combined with a thermowell, it can be used as an immersion temperature sensor as well.

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	scaling analogue output: **TRV1/TRA1:** -50..+50 °C **TRV2/TRA2:** -10..+120 °C **TRV3/TRA3:** 0..+50 °C **TRV4/TRA4:** 0..+160 °C **TRV5/TRA5:** 0..+250 °C
Power supply	**TRV:** 15..35 V = SELV, 15..26 V ~ SELV **TRA:** 15..24 V = (±10%) SELV
Power consumption	**TRV:** max. 1 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =)
Material in touch with media	Sensor probe, Ø=8 mm, stainless steel V4A (1.4571)
Installation length	100 mm, 150 mm, 200 mm, 250 mm
Enclosure	shape B, aluminium
Operating range temperature	-80..+260 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=7 mm, terminal block, max. 1,5 mm²
Connection cable	2-wire
Mounting	when used as duct sensors: please use mounting flange MF8 stainless steel for use as immersion sensors please use immersion pocket THVA

KFK03 – passive

Duct/immersion sensor -50..+150 °C – NTC10k		TP1
Item description	**Item No.**	**€**
KFK03 NTC10k 100.08	39918	57,40
KFK03 NTC10k 150.08	39925	59,60
KFK03 NTC10k 200.08	39932	61,60
KFK03 NTC10k 250.08	39949	64,00

Duct/immersion sensor -50..+160 °C – PT100 DIN cl. B		TP1
Item description	**Item No.**	**€**
KFK03 PT100 100.08	37877	58,80
KFK03 PT100 150.08	37884	61,00
KFK03 PT100 200.08	37891	63,00
KFK03 PT100 250.08	37907	65,40

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN		TP1
Item description	**Item No.**	**€**
KFK03 PT100 1/3 DIN 100.08	37914	63,10
KFK03 PT100 1/3 DIN 150.08	37921	65,30
KFK03 PT100 1/3 DIN 200.08	37938	67,30
KFK03 PT100 1/3 DIN 250.08	37945	69,70

Duct/immersion sensor -50..+160 °C – PT1000 DIN cl. B		TP1
Item description	**Item No.**	**€**
KFK03 PT1000 100.08	37952	61,20
KFK03 PT1000 150.08	37969	63,40
KFK03 PT1000 200.08	37976	65,40
KFK03 PT1000 250.08	37983	67,80

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN		TP1
Item description	**Item No.**	**€**
KFK03 PT1000 1/3 DIN 100.08	37990	64,80
KFK03 PT1000 1/3 DIN 150.08	39765	67,00
KFK03 PT1000 1/3 DIN 200.08	39772	69,00
KFK03 PT1000 1/3 DIN 250.08	39789	71,40

Duct/immersion sensor -50..+160 °C – Ni1000 DIN cl. B		TP1
Item description	**Item No.**	**€**
KFK03 Ni1000 100.08	39796	60,90
KFK03 Ni1000 150.08	39802	63,10
KFK03 Ni1000 200.08	39819	65,10
KFK03 Ni1000 250.08	39826	67,50

Duct/immersion sensor -50..+160 °C – Ni1000TK5000		TP1
Item description	**Item No.**	**€**
KFK03 Ni1000TK5000 100.08	39833	64,80
KFK03 Ni1000TK5000 150.08	39840	67,00
KFK03 Ni1000TK5000 200.08	39857	69,00
KFK03 Ni1000TK5000 250.08	39864	71,40

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50

KFK03 – active

Duct/immersion sensor -50..+50 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRV1 100.08	350983	TP1	142,50
KFK03 TRV1 150.08	351010	TP1	143,90
KFK03 TRV1 200.08	277860	TP1	145,40
KFK03 TRV1 250.08	286879	TP1	147,00

Duct/immersion sensor -10..+120 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRV2 100.08	332453	TP1	142,50
KFK03 TRV2 150.08	326711	TP1	143,90
KFK03 TRV2 200.08	351096	TP1	145,40
KFK03 TRV2 250.08	347242	TP1	147,00

Duct/immersion sensor 0..+50 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRV3 100.08	272315	TP1	142,50
KFK03 TRV3 150.08	351027	TP1	143,90
KFK03 TRV3 200.08	284905	TP1	145,40
KFK03 TRV3 250.08	285094	TP1	147,00

Duct/immersion sensor 0..+160 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRV4 100.08	351003	TP1	142,50
KFK03 TRV4 150.08	261418	TP1	143,90
KFK03 TRV4 200.08	351102	TP1	145,40
KFK03 TRV4 250.08	347969	TP1	147,00

Duct/immersion sensor 0..+250 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRV5 100.08	350990	TP1	150,90
KFK03 TRV5 150.08	309127	TP1	152,40
KFK03 TRV5 200.08	351119	TP1	153,80
KFK03 TRV5 250.08	335607	TP1	155,40

Duct/immersion sensor -50..+50 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRA1 100.08	152464	TP1	142,50
KFK03 TRA1 150.08	165334	TP1	143,90
KFK03 TRA1 200.08	232166	TP1	145,40
KFK03 TRA1 250.08	204668	TP1	147,00

Duct/immersion sensor -10..+120 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRA2 100.08	242639	TP1	142,50
KFK03 TRA2 150.08	351034	TP1	143,90
KFK03 TRA2 200.08	351041	TP1	145,40
KFK03 TRA2 250.08	351133	TP1	147,00

Duct/immersion sensor 0..+50 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRA3 100.08	338585	TP1	142,50
KFK03 TRA3 150.08	170239	TP1	143,90
KFK03 TRA3 200.08	161909	TP1	145,40
KFK03 TRA3 250.08	134804	TP1	147,00

Duct/immersion sensor 0..+160 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRA4 100.08	315920	TP1	142,50
KFK03 TRA4 150.08	338981	TP1	143,90
KFK03 TRA4 200.08	337380	TP1	145,40
KFK03 TRA4 250.08	303057	TP1	147,00

Duct/immersion sensor 0..+250 °C active			
Item description	**Item No.**	**Group**	**€**
KFK03 TRA5 100.08	239080	TP1	150,90
KFK03 TRA5 150.08	320948	TP1	152,40
KFK03 TRA5 200.08	404792	TP1	153,80
KFK03 TRA5 250.08	281577	TP1	155,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF8 stainless steel (suitable for Ø=8 mm)	103305	AS1	20,80

Thermowells						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 100 mm type THVA100 (KFK03)	258 mm	250 mm	584180	●	AS2	29,90
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	●	AS2	31,40
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	●	AS2	33,00
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	●	AS2	34,80

SFK03

Immersion sensor in the enclosure form B with an integrated thermowell for temperature measurement of liquids in HVAC applications (e.g. water lines or water tanks). Designed for connection to superior control systems. The type SFKH03 with a 70 mm neck pipe is designed for applications using insulation materials.

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	scaling analogue output: **TRV1/TRA1:** -50..+50 °C **TRV2/TRA2:** -10..+120 °C **TRV3/TRA3:** 0..+50 °C **TRV4/TRA4:** 0..+160 °C **TRV5/TRA5:** 0..+300 °C
Power supply	**TRV:** 15..24 V = (±10%) SELV, 15..26 V ~ SELV **TRA:** 15..35 V = SELV
Power consumption	**TRV:** typ. 1 W (24 V =), 1,4 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =)
Material in touch with media	Sensor probe: Ø=8 mm, stainless steel V4A (1.4571), SW24, G1/2“ Neck pipe (optionally): stainless steel V2A (1.4305), Ø=15 mm, length 70 mm
Installation length	100 mm, 150 mm, 200 mm, 250 mm
Enclosure	shape B, aluminium
Operating range temperature	-80..+260 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=7 mm terminal block, max. 1,5 mm²

Immersion sensor -50..+150 °C – NTC10k		*TP1*
Item description	**Item No.**	**€**
SFK03 NTC10k 100.08	71345	58,60
SFK03 NTC10k 150.08	71352	60,80
SFK03 NTC10k 200.08	71369	63,00
SFK03 NTC10k 250.08	71376	66,20

Immersion sensor -50..+160 °C – PT100 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
SFK03 PT100 100.08	64309	60,00
SFK03 PT100 150.08	71079	62,20
SFK03 PT100 200.08	71086	64,40
SFK03 PT100 250.08	71093	67,60

Immersion sensor -50..+160 °C – PT100 1/3 DIN		*TP1*
Item description	**Item No.**	**€**
SFK03 PT100 1/3 DIN 100.08	71109	64,30
SFK03 PT100 1/3 DIN 150.08	71116	66,50
SFK03 PT100 1/3 DIN 200.08	71123	68,70
SFK03 PT100 1/3 DIN 250.08	71130	71,90

Immersion sensor -50..+160 °C – PT1000 DIN cl. B		*TP1*
Item description	**Item No.**	**€**
SFK03 PT1000 100.08	71147	62,40
SFK03 PT1000 150.08	71154	64,60
SFK03 PT1000 200.08	71161	66,80
SFK03 PT1000 250.08	71178	70,00

Immersion sensor -50..+160 °C – PT1000 1/3 DIN		TP1
Item description	**Item No.**	**€**
SFK03 PT1000 1/3 DIN 100.08	71185	66,00
SFK03 PT1000 1/3 DIN 150.08	71192	68,20
SFK03 PT1000 1/3 DIN 200.08	71208	70,40
SFK03 PT1000 1/3 DIN 250.08	71215	73,60

Immersion sensor -50..+160 °C – Ni1000 DIN cl. B		TP1
Item description	**Item No.**	**€**
SFK03 Ni1000 100.08	71222	62,10
SFK03 Ni1000 150.08	71239	64,30
SFK03 Ni1000 200.08	71246	66,50
SFK03 Ni1000 250.08	71253	69,70

Immersion sensor -50..+160 °C – Ni1000TK5000		TP1
Item description	**Item No.**	**€**
SFK03 Ni1000TK5000 100.08	71260	66,00
SFK03 Ni1000TK5000 150.08	71277	68,20
SFK03 Ni1000TK5000 200.08	71284	70,40
SFK03 Ni1000TK5000 250.08	71291	73,60

Options	
Description	**€**
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Temperature -80..+260 °C (T260)	12,10
Neck pipe 70.15 (for applications with insulation materials)	22,70
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor DS18B20 1-wire	1,40
Add to price of NTC10k for sensor FeT/Staefa	25,50

Bonded pockets						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	61,70
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1	49,60
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1	56,80
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1	63,90
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1	70,30

Immersion sensor -50..+50 °C		TP1
Item description	Item No.	€
SFK03 TRV1 100.08	318853	153,50
SFK03 TRV1 150.08	352024	155,00
SFK03 TRV1 200.08	352062	156,40
SFK03 TRV1 250.08	352109	158,60

Immersion sensor -10..+120 °C		TP1
Item description	Item No.	€
SFK03 TRV2 100.08	335744	153,50
SFK03 TRV2 150.08	352031	155,00
SFK03 TRV2 200.08	246958	156,40
SFK03 TRV2 250.08	352253	158,60

Immersion sensor 0..+50 °C		TP1
Item description	Item No.	€
SFK03 TRV3 100.08	281775	153,50
SFK03 TRV3 150.08	352048	155,00
SFK03 TRV3 200.08	352079	156,40
SFK03 TRV3 250.08	352260	158,60

Immersion sensor 0..+160 °C		TP1
Item description	Item No.	€
SFK03 TRV4 100.08	298414	153,50
SFK03 TRV4 150.08	292115	155,00
SFK03 TRV4 200.08	324403	156,40
SFK03 TRV4 250.08	352277	158,60

Immersion sensor 0..+300 °C		TP1
Item description	Item No.	€
SFK03 TRV5 100.08	243933	161,90
SFK03 TRV5 150.08	295314	163,30
SFK03 TRV5 200.08	297509	164,80
SFK03 TRV5 250.08	306607	167,10

Immersion sensor -50..+50 °C		TP1
Item description	Item No.	€
SFK03 TRA1 100.08	194440	153,50
SFK03 TRA1 150.08	200899	155,00
SFK03 TRA1 200.08	352055	156,40
SFK03 TRA1 250.08	254908	158,60

Immersion sensor -10..+120 °C		TP1
Item description	Item No.	€
SFK03 TRA2 100.08	189316	153,50
SFK03 TRA2 150.08	344166	155,00
SFK03 TRA2 200.08	315746	156,40
SFK03 TRA2 250.08	352086	158,60

Immersion sensor 0..+50 °C		TP1
Item description	Item No.	€
SFK03 TRA3 100.08	132220	153,50
SFK03 TRA3 150.08	165044	155,00
SFK03 TRA3 200.08	165280	156,40
SFK03 TRA3 250.08	303835	158,60

Immersion sensor 0..+160 °C		TP1
Item description	Item No.	€
SFK03 TRA4 100.08	293051	153,50
SFK03 TRA4 150.08	295024	155,00
SFK03 TRA4 200.08	239226	156,40
SFK03 TRA4 250.08	352093	158,60

Immersion sensor 0..+300 °C		TP1
Item description	Item No.	€
SFK03 TRA5 100.08	131674	161,90
SFK03 TRA5 150.08	146821	163,30
SFK03 TRA5 200.08	152884	164,80
SFK03 TRA5 250.08	157421	167,10

Options	
Description	**€**
Neck pipe 70.15 (for applications with insulation materials)	22,70

Bonded pockets						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	61,70
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1	49,60
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1	56,80
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1	63,90
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1	70,30

RG03

Duct/Immersion sensor for high temperature measurement in gaseous and liquid media. Designed for connecting to control and display systems. Especially designed for measuring higher temperatures (e.g. in supply and exhaust ducts).

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	**TRV6/TRA6:** 0..+400 °C **TRV7/TRA7:** 0..+600 °C
Power supply	**TRV:** 15..35 V = SELV, 15..26 V ~ SELV **TRA:** 15..24 V = (±10%) SELV
Power consumption	**TRV:** typ. 1 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =)
Material in touch with media	Sensor probe, Ø=11 mm, stainless steel V4A (1.4571)
Installation length	236 mm, 486 mm
Enclosure	shape B, aluminium
Operating range temperature	0..+600 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm, terminal block, max. 1,5 mm²
Delivery content	incl. mounting flange

Duct/immersion sensor 0..+600 °C passive

Item description	Item No.	Group	€
RG03 PT100 250.11	64361	TP1	117,80
RG03 PT100 500.11	64378	TP1	120,60
RG03 PT1000 250.11	64385	TP1	117,80
RG03 PT1000 500.11	64392	TP1	120,60

Options

Description	€
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10

Duct/immersion sensor 0..+600 °C *TP1*

Item description	Item No.	€
RG03 TRV7 250.11	64408	219,00
RG03 TRV7 500.11	242127	221,70
RG03 TRA7 250.11	64422	219,00
RG03 TRA7 500.11	78283	221,70

Duct/immersion sensor 0..+400 °C *TP1*

Item description	Item No.	€
RG03 TRV6 250.11	261982	219,00
RG03 TRV6 500.11	240789	221,70
RG03 TRA6 250.11	177405	219,00
RG03 TRA6 500.11	143936	221,70

RGS03

Immersion sensor (high temperature) with an integrated thermowell for temperature measurement of liquids in HVAC applications. Also suitable for exhaust systems. Designed for connection to superior control systems.

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	**TRV6/TRA6:** 0..+400 °C **TRV7/TRA7:** 0..+600 °C
Power supply	**TRV6/TRV7:** 15..35 V = SELV, 15..26 V ~ SELV **TRA6/TRA7:** 15..24 V = (±10%) SELV
Power consumption	**TRV6/TRV7:** typ. 1 W (24 V =), 0,8 VA (24 V ~) **TRA6/TRA7:** typ. 0,5 W (24 V =)
Material in touch with media	Sensor probe: Ø=9 mm, stainless steel V4A (1.4571), SW24, G1/2“ Neck pipe: stainless steel V2A (1.4305), Ø=9 mm, length 100 mm
Installation length	250 mm, 500 mm
Enclosure	shape B, aluminium
Operating range temperature	0..+600 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm terminal block, max. 1,5 mm²

Immersion sensor 0..+600 °C			*TP1*
Item description	**Item No.**	**€**	
RGS03 PT100 250.09 3-wire	79297	159,50	
RGS03 PT100 500.09 3-wire	385190	162,10	
RGS03 PT1000 250.09 3-wire	79310	159,50	
RGS03 PT1000 500.09 3-wire	79327	162,10	

Immersion sensor 0..+400 °C			*TP1*
Item description	**Item No.**	**€**	
RGS03 TRV6 250.09	223942	260,70	
RGS03 TRV6 500.09	351959	263,40	
RGS03 TRA6 250.09	164115	260,70	
RGS03 TRA6 500.09	155281	263,40	

Immersion sensor 0..+600 °C			*TP1*
Item description	**Item No.**	**€**	
RGS03 TRV7 250.09	351935	260,70	
RGS03 TRV7 500.09	244824	263,40	
RGS03 TRA7 250.09	79334	260,70	
RGS03 TRA7 500.09	79341	263,40	

FTK+

Duct sensor for measuring relative and absolute humidity, enthalpy, dew point and temperature in gaseous media of heating, ventilation and air-conditioning systems as well as clean rooms. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers and color-changing LCD allow for a wide range of applications. The accuracy of the humidity sensor is 2%. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

FTK+

FTK+ relay / BUS

FTK+ LCD

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer **Relay/LCD/BUS:** optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Power supply	**VV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **AA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**VV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **AA:** max. 1 W (24 V =) **Basic:** max. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Pipe: PA6 with filter stainless steel wire mesh, black, Ø=19,5 mm
Installation length	140 mm, 270 mm, 400 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**VV/AA/Basic:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC

Technical Data	
Colour	pure white, transparent cover
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **VV/AA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting flange incl. mounting set (screws and accessories)
Notes	air speed max. 12 m/s

FTK+ VV / AA

Duct sensor humidity + temperature active 0..10 (0..5) V					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
FTK+ 140 VV		626347	⛁	HU2	176,00
FTK+ 270 VV		626354	⛁	HU2	183,90
FTK+ 400 VV		626361		HU2	191,70

Duct sensor humidity + temperature active 4..20 mA					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
FTK+ 140 AA		626378	⛁	HU2	193,50
FTK+ 270 AA		626385	⛁	HU2	201,40
FTK+ 400 AA		626392		HU2	209,20

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

FTK+ Relay / LCD

Duct sensor humidity + temperature active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 VV Relais	✓	663151	HU1	223,20
FTK+ 270 VV Relais	✓	663168	HU1	231,10
FTK+ 400 VV Relais	✓	663175	HU1	238,90

Duct sensor humidity + temperature active 0..10 (0..5) V LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 LCD VV	✓	663083	HU1	253,60
FTK+ 270 LCD VV	✓	663090	HU1	261,50
FTK+ 400 LCD VV	✓	663113	HU1	269,30

Duct sensor humidity + temperature active 4..20 mA LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 LCD AA	✓	663120	HU1	271,10
FTK+ 270 LCD AA	✓	663137	HU1	279,00
FTK+ 400 LCD AA	✓	663144	HU1	286,80

Duct sensor humidity + temperature active 0..10 (0..5) V + relay LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 LCD VV Relais	✓	663205	HU1	268,30
FTK+ 270 LCD VV Relais	✓	663229	HU1	276,20
FTK+ 400 LCD VV Relais	✓	663236	HU1	284,00

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

FTK+ BUS

Duct sensor humidity + temperature RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 RS485 Modbus	✓	659093	HU1	223,20
FTK+ 270 RS485 Modbus	✓	659109	HU1	231,10
FTK+ 400 RS485 Modbus	✓	659116	HU1	238,90
FTK+ 140 LCD RS485 Modbus	✓	663243	HU1	268,30
FTK+ 270 LCD RS485 Modbus	✓	663250	HU1	276,20
FTK+ 400 LCD RS485 Modbus	✓	663267	HU1	284,00

Duct sensor humidity + temperature RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 RS485 BACnet (MS/TP)	✓	700122	HU1	223,20
FTK+ 270 RS485 BACnet (MS/TP)	✓	700139	HU1	231,10
FTK+ 400 RS485 BACnet (MS/TP)	✓	700146	HU1	238,90
FTK+ 140 LCD RS485 BACnet (MS/TP)	✓	700153	HU1	268,30
FTK+ 270 LCD RS485 BACnet (MS/TP)	✓	692878	HU1	276,20
FTK+ 400 LCD RS485 BACnet (MS/TP)	✓	700177	HU1	284,00

Duct sensor humidity + temperature Basic RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
FTK+ 140 Basic RS485 Modbus		747738	HU1	176,00
FTK+ 270 Basic RS485 Modbus		747745	HU1	183,90
FTK+ 400 Basic RS485 Modbus		756037	HU1	191,70

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories – Relay / LCD / BUS

Accessories			
Item description	**Item No.**	**Group**	**€**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Accessories

Accessories			
Item description	**Item No.**	**Group**	**€**
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75
Mounting flange MF20	612562	AS1	13,10
Weather protection for FTK+, WSA (replacement)	625241	AS1	75,30

LK+

The maintenance-free and multi-functional duct air quality sensor measures CO2, mixed gas (VOC), temperature and humidity (relative, absolute, enthalpy, dew point). Optional features, such as a relay output for a 2-point controller or a 2-stage 2-point controller, LCD and traffic light function allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.

LK+

LK+ LCD

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type) **CO2+VOC:** each output can be set to get a variable mix of CO2 and VOC by configuration via app or uConfig
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Measuring range CO2	0..2000 ppm, 0..5000 ppm, optionally configurable
Measuring VOC (mixed gas)	heated metal oxide semiconductor
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	with filter stainless steel wire mesh **types V:** without filter Pipe: Ø=19,5 mm, black
Installation length	180 mm **models without temperature:** 150 mm **types 100:** 100 mm **models 100 without temperature:** 70 mm

Technical Data	
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **VV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting flange incl. mounting set (screws and accessories)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...) air speed 0,3..12 m/s

LK+ CO2 – active / Relay / LCD

Duct sensor CO2 active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
LK+ CO2 V		662253	⛀	AQ2	233,50

Duct sensor CO2 + temperature active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
LK+ CO2 temp VV		662260	⛀	AQ2	279,70
LK+ CO2 temp AA	✓	662277		AQ2	297,20
LK+ CO2 temp VV relay	✓	662307		AQ1	326,90
LK+ CO2 LCD temp VV	✓	662284		AQ1	324,80
LK+ CO2 LCD temp AA	✓	662291		AQ1	342,30
LK+ CO2 LCD temp VV relay	✓	662314		AQ1	372,00

Duct sensor CO2 + temperature + humidity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 temp_rH 3xV	✓	662321	AQ2	321,60
LK+ CO2 LCD temp_rH 3xV	✓	662338	AQ1	366,70

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

LK+ CO2 – BUS

Duct sensor CO2 + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 temp RS485 Modbus	✓	662345	AQ1	326,90
LK+ CO2 LCD temp RS485 Modbus	✓	662352	AQ1	372,00
LK+ CO2 temp RS485 BACnet (MS/TP)	✓	700405	AQ1	326,90
LK+ CO2 LCD temp RS485 BACnet (MS/TP)	✓	700436	AQ1	372,00

Duct sensor CO2 + temperature + humidity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 temp_rH RS485 Modbus	✓	662376	AQ1	368,80
LK+ CO2 LCD temp_rH RS485 Modbus	✓	662383	AQ1	413,90
LK+ CO2 temp_rH RS485 BACnet (MS/TP)	✓	700467	AQ1	368,80
LK+ CO2 LCD temp_rH RS485 BACnet (MS/TP)	✓	700504	AQ1	413,90

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF20	612562	AS1	13,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

LK+ CO2 100 – active / Relay / LCD

Duct sensor CO2 active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 100 V		670418	AQ2	233,50

Duct sensor CO2 + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 100 temp VV		670432	AQ2	279,70
LK+ CO2 100 temp AA	✓	670449	AQ2	297,20
LK+ CO2 100 temp VV relay	✓	670456	AQ1	326,90
LK+ CO2 100 LCD temp VV	✓	670463	AQ1	324,80
LK+ CO2 100 LCD temp AA	✓	670470	AQ1	342,30
LK+ CO2 100 LCD temp VV relay	✓	670487	AQ1	372,00

Duct sensor CO2 + temperature + humidity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 100 temp_rH 3xV	✓	670494	AQ2	321,60
LK+ CO2 100 LCD temp_rH 3xV	✓	670500	AQ1	366,70

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

LK+ CO2 100 – BUS

Duct sensor CO2 + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 100 temp RS485 Modbus	✓	670555	AQ1	326,90
LK+ CO2 100 LCD temp RS485 Modbus	✓	670562	AQ1	372,00
LK+ CO2 100 temp RS485 BACnet (MS/TP)	✓	704120	AQ1	326,90
LK+ CO2 100 LCD temp RS485 BACnet (MS/TP)	✓	704137	AQ1	372,00

Duct sensor CO2 + temperature + humidity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2 100 temp_rH RS485 Modbus	✓	670579	AQ1	368,80
LK+ CO2 100 LCD temp_rH RS485 Modbus	✓	670586	AQ1	413,90
LK+ CO2 100 temp_rH RS485 BACnet (MS/TP)	✓	704144	AQ1	368,80
LK+ CO2 100 LCD temp_rH RS485 BACnet (MS/TP)	✓	704151	AQ1	413,90

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF20	612562	AS1	13,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

LK+ VOC – active / Relay / LCD

Duct sensor VOC active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
LK+ VOC V		662413	⛀	AQ2	213,10

Duct sensor VOC + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ VOC temp VV		662437	AQ2	259,30
LK+ VOC temp AA	✓	662444	AQ2	276,80
LK+ VOC temp VV relay	✓	662475	AQ1	306,50
LK+ VOC LCD temp VV	✓	662468	AQ1	304,40
LK+ VOC LCD temp AA	✓	662482	AQ1	321,90
LK+ VOC LCD temp VV relay	✓	662499	AQ1	351,60

Duct sensor VOC + temperature + humidity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ VOC temp_rH 3xV	✓	662505	AQ2	301,20
LK+ VOC LCD temp_rH 3xV	✓	662529	AQ1	346,30

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

LK+ VOC – BUS

Duct sensor VOC + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ VOC temp RS485 Modbus	✓	662536	AQ1	306,50
LK+ VOC LCD temp RS485 Modbus	✓	662550	AQ1	351,60
LK+ VOC temp RS485 BACnet (MS/TP)	✓	700412	AQ1	306,50
LK+ VOC LCD temp RS485 BACnet (MS/TP)	✓	700443	AQ1	351,60

Duct sensor VOC + temperature + humidity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ VOC temp_rH RS485 Modbus	✓	662574	AQ1	348,40
LK+ VOC LCD temp_rH RS485 Modbus	✓	662581	AQ1	393,50
LK+ VOC temp_rH RS485 BACnet (MS/TP)	✓	700481	AQ1	348,40
LK+ VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700511	AQ1	393,50

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF20	612562	AS1	13,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

LK+ CO2+VOC – active / Relay / LCD

Duct sensor CO2 + VOC or mix active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
LK+ CO2+VOC VV		662024	⛃	AQ2	353,50
LK+ CO2+VOC AA	✓	662031		AQ2	371,00
LK+ CO2+VOC VV relay	✓	662062		AQ1	400,70
LK+ CO2+VOC LCD VV	✓	662079		AQ1	398,60
LK+ CO2+VOC LCD AA	✓	662086		AQ1	416,10
LK+ CO2+VOC LCD VV relay	✓	662093		AQ1	445,80

Options	
Description	**€**
Add for additional passive temperature sensor	15,90

Duct sensor CO2 + VOC or mix + temperature active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2+VOC temp 3xV	✓	662130	AQ2	399,70
LK+ CO2+VOC LCD temp 3xV	✓	662147	AQ1	444,80

Duct sensor CO2 + VOC or mix + temperature + humidity active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2+VOC temp_rH 4xV	✓	662154	AQ2	441,60
LK+ CO2+VOC LCD temp_rH 4xV	✓	662161	AQ1	486,70

LK+ CO2+VOC – BUS

Duct sensor CO2 + VOC or mix BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2+VOC RS485 Modbus	✓	662109	AQ1	400,70
LK+ CO2+VOC LCD RS485 Modbus	✓	662116	AQ1	445,80
LK+ CO2+VOC RS485 BACnet (MS/TP)	✓	700368	AQ1	400,70
LK+ CO2+VOC LCD RS485 BACnet (MS/TP)	✓	700382	AQ1	445,80

Duct sensor CO2 + VOC or mix + temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2+VOC temp RS485 Modbus	✓	662178	AQ1	446,90
LK+ CO2+VOC LCD temp RS485 Modbus	✓	662185	AQ1	492,00
LK+ CO2+VOC temp RS485 BACnet (MS/TP)	✓	700429	AQ1	446,90
LK+ CO2+VOC LCD temp RS485 BACnet (MS/TP)	✓	700450	AQ1	492,00

Duct sensor CO2 + VOC or mix + temperature + humidity BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
LK+ CO2+VOC temp_rH RS485 Modbus	✓	662192	AQ1	488,80
LK+ CO2+VOC LCD temp_rH RS485 Modbus	✓	662208	AQ1	533,90
LK+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	682862	AQ1	488,80
LK+ CO2+VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700528	AQ1	533,90

Options	
Description	**€**
Add to price of RS485 Modbus for LON FT	79,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF20	612562	AS1	13,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

FSK01

Hygrostat for ON/OFF control of ventilation and air conditioning, humidification and dehumidification equipment. Designed for applications, where humidity has to be closely controlled or monitored, e.g. in office spaces, data centers, food stores, cooling rooms for fruits and vegetables, greenhouses, the textile industry, paper and printing industries, the film industry, hospitals and similar applications.

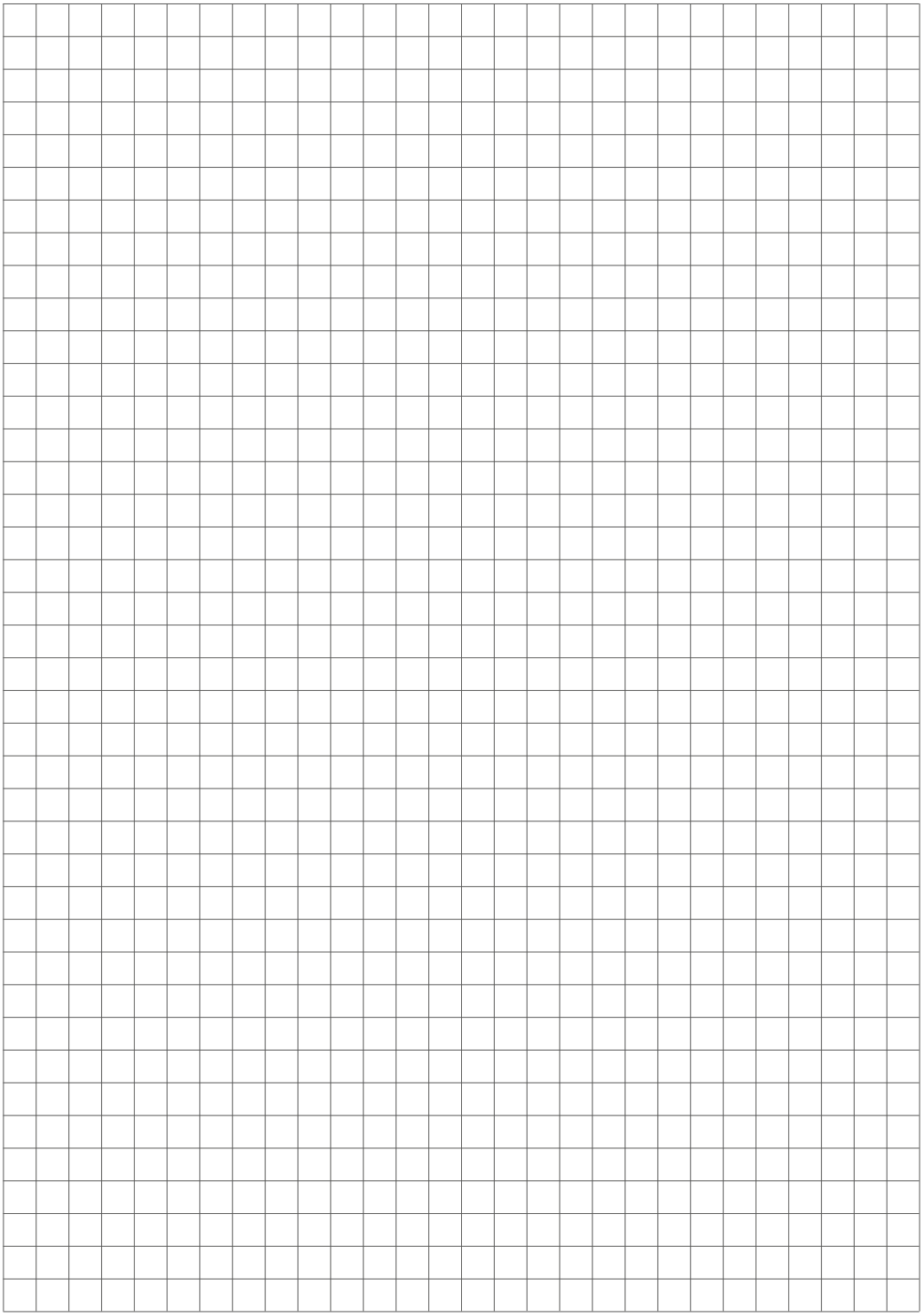
Technical Data	
Measured values	relative humidity
Operating functions	threshold adjustment
Operating elements	rotary button
Measuring range humidity	30..100% rH non-condensing
Material in touch with media	Pipe: Ø=16 mm, stainless steel, length 220 mm
Installation length	220 mm
Enclosure	ABS
Operating range temperature	0..+60 °C
Protection (IP)	IP54, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm, terminal block, max. 1,5 mm²
Notes	air speed max. 8 m/s with stainless steel filter, wire mesh (see accessories) max. 15 m/s with filter PTFE (see accessories) >15 m/s

Duct hygrostat

Item description	Item No.	On stock	Group	€
FSK01	427593	⛃	HU1	242,50
FSK01 internal adjuster	708517		HU1	242,50

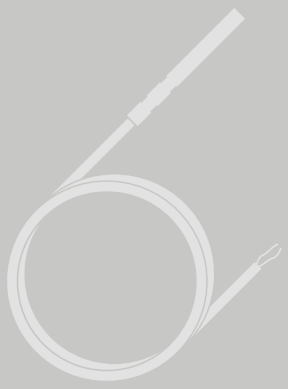
Accessories

Item description	Item No.	Group	€
Mounting flange MF19	527705	AS1	13,10
Wall mounting for duct hygrostat	429030	AS1	41,90
Filter stainless steel, wire mesh FSK01 (spare part)	429047	AS1	24,90



Cable Sensors
Contact Sensors

Durable materials and state-of-the-art pressing and rolling processes guarantee the quality and durability of our cable and contact sensors. This makes them the first choice in building, heating, ventilation and air conditioning technology.



Contact Sensors

VFG54+	Temperature	**328**
AF25	Temperature	**331**
AF25+	Temperature	**333**

Cable Sensors

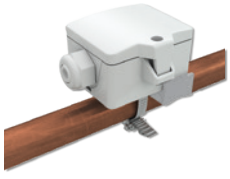
TF25	Temperature	**335**
TF25+	Temperature	**339**
TF14	Temperature	**343**
TF14+	Temperature	**346**

Surface Sensors

PR25	Temperature	**348**
PR25+	Temperature	**350**
OF14	Temperature	**352**
OF14+	Temperature	**353**

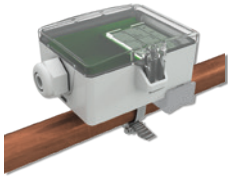
VFG54+

Contact sensor for temperature measurement (cold or hot water) on pipes and other curved surfaces. Spring-loaded brass contact sensor for a fast response. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



VFG54+

VFG54+ relay / BUS



VFG54+ LCD

passive / 0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: **TRV/TRA:** 0..+100 °C (default setting) **Relay/LCD/BUS:** -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV/Basic:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **Basic:** max. 0,7 W (24 V =), 1,8 VA (24 V ~) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, brass, spring loaded sensor
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA/Basic:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-35..+120 °C
Protection (IP)	IP65, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA/Basic:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Mounting	along the pipe or sideways

Contact Sensor -35..+120 °C passive

Item description	USEapp	Item No.	On stock	Group	€
VFG54+ PT100		620642	●	TP3	21,70
VFG54+ PT100 1/3 DIN		620659		TP3	26,00
VFG54+ PT1000		620666	●	TP3	24,10
VFG54+ PT1000 1/3 DIN		620598		TP3	27,70
VFG54+ Ni1000		620611	●	TP3	23,80
VFG54+ Ni1000TK5000		620628	●	TP3	27,70
VFG54+ NTC10k		620604	●	TP3	20,30
VFG54+ NTC10k Precon		620673		TP3	20,30
VFG54+ NTC5k		624244		TP3	20,30
VFG54+ NTC20k		620680	●	TP3	20,30
VFG54+ NTC1,8k		643832		TP3	20,30
VFG54+ LM235Z		620635	●	TP3	23,00
VFG54+ KTY81-110		620697		TP3	17,90
VFG54+ KTY81-121		620703		TP3	17,90
VFG54+ KTY81-122		620710		TP3	17,90
VFG54+ KTY81-210		620727		TP3	17,90

Options

Description	€
3-wire connection (3-wire)	2,20
4-wire connection (4-wire)	6,10
Add to price of NTC10k for sensor NTC10k Carel	0,00

Accessories

Item description	Item No.	Group	€
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00

VFG54+ active

Contact sensor temperature active					
Item description	**USEapp**	**Item No.**	**On stock**	**Group**	**€**
VFG54+ TRV MultiRange		620741	⛀	TP2	79,10
VFG54+ TRA MultiRange		620758	⛀	TP2	79,10
VFG54+ TRV MultiRange relay	✓	662994		TP2	126,30

Contact sensor temperature active LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
VFG54+ LCD TRV MultiRange	✓	663014	TP2	124,20
VFG54+ LCD TRA MultiRange	✓	663021	TP2	124,20
VFG54+ LCD TRV MultiRange relay	✓	663038	TP2	171,40

VFG54+ BUS

Contact sensor temperature BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
VFG54+ RS485 Modbus	✓	663045	TP2	126,30
VFG54+ LCD RS485 Modbus	✓	663052	TP2	171,40
VFG54+ RS485 BACnet (MS/TP)	✓	699709	TP2	126,30
VFG54+ LCD RS485 BACnet (MS/TP)	✓	699716	TP2	171,40
VFG54+ Basic RS485 Modbus		747806	TP2	79,10

Accessories

Accessories			
Item description	**Item No.**	**Group**	**€**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

AF25

Contact sensor with connection cable and brass strap for surface temperature measurement (cold or hot water) on pipes and other curved surfaces.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe: Ø=6 mm, brass, with contact tongue 16-point pressed (IP65)
Installation length	35 mm
Operating range temperature	-50..+135 °C
Protection (IP)	IP65, according to EN 60529
Connection cable	0,25 mm², **T100:** PVC, **T135:** silicone,
Length connection wire	1 m

Contact Sensor -35..+100 °C passive

Item description	Item No.	Group	€
AF25 PT100 T100 L1000	81610	TP3	14,30
AF25 PT100 1/3 DIN T100 L1000	46411	TP3	18,60
AF25 PT1000 T100 L1000	54263	TP3	16,70
AF25 PT1000 1/3 DIN T100 L1000	54300	TP3	20,30
AF25 Ni1000 T100 L1000	54348	TP3	16,40
AF25 Ni1000TK5000 T100 L1000	54386	TP3	20,30
AF25 NTC10k T100 L1000	92005	TP3	12,90
AF25 NTC10k Precon T100 L1000	92043	TP3	12,90
AF25 NTC5k T100 L1000	54461	TP3	12,90
AF25 NTC20k T100 L1000	141994	TP3	12,90
AF25 NTC1,8k T100 L1000	241687	TP3	12,90
AF25 LM235Z T100 L1000	715270	TP3	14,80

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
3-wire connection -35..+100 °C (3-wire)	2,00
Add per meter of connection cable 3-wire -35..+100 °C	1,40
4-wire connection -35..+100 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Temperature -50..+135 °C (T135)	4,20
Add per meter of connection cable 2-wire -50..+135 °C	2,00
3-wire connection -50..+135 °C (3-wire)	2,20
Add per meter of connection cable 3-wire -50..+135 °C	2,90
4-wire connection -50..+135 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -50..+135 °C	3,40
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Carel	0,00

Accessories			
Item description	**Item No.**	**Group**	**€**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

AF25+

Contact sensor in the USE enclosure with connection cable and brass lug for surface temperature measurement (cold or hot water) on pipes and other curved surfaces.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** typ. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=6 mm, brass, with contact tongue 16-point pressed (IP65)
Installation length	35 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+135 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,25 mm²
Length connection wire	1 m
Delivery content	incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories)

Contact sensor temperature active 0..10 (0..5) V, 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
AF25+ TRV MultiRange T135 L1000		658751	TP2	78,20
AF25+ TRA MultiRange T135 L1000		658768	TP2	78,20

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+135 °C	2,00
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

TF25

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell, the TF25 can also be used for temperature measurement in liquid media. Depending on the application requirements, different PVC, silicone, high-temperature silicone and fibreglass cables are available.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571) 16-point pressed (IP65)
Installation length	50 mm, 100 mm, 150 mm
Enclosure	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-50..+400 °C
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm²
Connection cable	0,25 mm², **T400:** 0,22 mm² **T100:** PVC, **T125/T150/T180:** silicone, **T250:** HT-silicone, **T400:** GI/GI-V2A cable ends with conductor sleeves as standard
Length connection wire	1 m
Notes	PE connection wire available (please request)

TF25 (-35..+100 °C)

Cable sensor -35..+100 °C – NTC10k		*TP3*
Item description	**Item No.**	**€**
TF25 NTC10k T100 050.06 L1000	41539	11,80
TF25 NTC10k T100 100.06 L1000	41812	13,30
TF25 NTC10k T100 150.06 L1000	40723	13,70

Cable sensor -35..+100 °C – PT100 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF25 PT100 T100 050.06 L1000	35019	13,20
TF25 PT100 T100 100.06 L1000	35026	14,70
TF25 PT100 T100 150.06 L1000	35033	15,10

Cable sensor -35..+100 °C – PT100 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF25 PT100 1/3 DIN T100 050.06 L1000	25799	17,50
TF25 PT100 1/3 DIN T100 100.06 L1000	35255	19,00
TF25 PT100 1/3 DIN T100 150.06 L1000	35262	19,40

Cable sensor -35..+100 °C – PT1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF25 PT1000 T100 050.06 L1000	35484	15,60
TF25 PT1000 T100 100.06 L1000	35491	17,10
TF25 PT1000 T100 150.06 L1000	35507	17,50

Cable sensor -35..+100 °C – PT1000 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF25 PT1000 1/3 DIN T100 050.06 L1000	35729	19,20
TF25 PT1000 1/3 DIN T100 100.06 L1000	35736	20,70
TF25 PT1000 1/3 DIN T100 150.06 L1000	35743	21,10

Cable sensor -35..+100 °C – Ni1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF25 Ni1000 T100 050.06 L1000	26116	15,30
TF25 Ni1000 T100 100.06 L1000	26154	16,80
TF25 Ni1000 T100 150.06 L1000	26192	17,20

Cable sensor -35..+100 °C – Ni1000TK5000		TP3
Item description	**Item No.**	**€**
TF25 Ni1000TK5000 T100 050.06 L1000	26352	19,20
TF25 Ni1000TK5000 T100 100.06 L1000	26390	20,70
TF25 Ni1000TK5000 T100 150.06 L1000	388238	21,10

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
3-wire connection -35..+100 °C (3-wire)	2,00
Add per meter of connection cable 3-wire -35..+100 °C	1,40
4-wire connection -35..+100 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Tension spring (tensp)	1,60
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210	-2,40

TF25 (-50..+150 °C / -50..+180 °C)

Cable sensor -50..+150 °C – NTC10k		TP3
Item description	**Item No.**	**€**
TF25 NTC10k T150 050.06 L1000	59466	15,80
TF25 NTC10k T150 100.06 L1000	59473	17,40
TF25 NTC10k T150 150.06 L1000	59480	17,70

Cable sensor -50..+180 °C – PT100 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 PT100 T180 050.06 L1000	52771	17,20
TF25 PT100 T180 100.06 L1000	52788	18,80
TF25 PT100 T180 150.06 L1000	52795	19,10

Cable sensor -50..+180 °C – PT100 1/3 DIN		TP3
Item description	**Item No.**	**€**
TF25 PT100 1/3 DIN T180 050.06 L1000	57493	21,50
TF25 PT100 1/3 DIN T180 100.06 L1000	57509	23,10
TF25 PT100 1/3 DIN T180 150.06 L1000	57516	23,40

Cable sensor -50..+180 °C – PT1000 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 PT1000 T180 050.06 L1000	58247	19,60
TF25 PT1000 T180 100.06 L1000	58254	21,20
TF25 PT1000 T180 150.06 L1000	58261	21,50

Cable sensor -50..+180 °C – PT1000 1/3 DIN		TP3
Item description	**Item No.**	**€**
TF25 PT1000 1/3 DIN T180 050.06 L1000	58483	23,20
TF25 PT1000 1/3 DIN T180 100.06 L1000	58490	24,80
TF25 PT1000 1/3 DIN T180 150.06 L1000	58506	25,10

Cable sensor -50..+180 °C – Ni1000 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 Ni1000 T180 050.06 L1000	58728	19,30
TF25 Ni1000 T180 100.06 L1000	58735	20,90
TF25 Ni1000 T180 150.06 L1000	58742	21,20

Cable sensor -50..+180 °C – Ni1000TK5000		TP3
Item description	**Item No.**	**€**
TF25 Ni1000TK5000 T180 050.06 L1000	58964	23,20
TF25 Ni1000TK5000 T180 100.06 L1000	58971	24,80
TF25 Ni1000TK5000 T180 150.06 L1000	58988	25,10

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+180 °C	2,00
3-wire connection -50..+180 °C (3-wire)	2,20
Add per meter of connection cable 3-wire -50..+180 °C	2,90
4-wire connection -50..+180 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -50..+180 °C	3,40
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Tension spring (tensp)	1,60
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,90
Add to price of NTC10k for sensor FeT/Staefa	25,50
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210	-2,40

TF25 (-50..+250 °C)

Cable sensor -50..+250 °C – PT100 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 PT100 T250 050.06 L1000	167406	21,70
TF25 PT100 T250 100.06 L1000	209731	22,50
TF25 PT100 T250 150.06 L1000	205658	22,80

Cable sensor -50..+250 °C – PT100 1/3 DIN		TP3
Item description	**Item No.**	**€**
TF25 PT100 1/3 DIN T250 050.06 L1000	195478	26,00
TF25 PT100 1/3 DIN T250 100.06 L1000	345835	26,80
TF25 PT100 1/3 DIN T250 150.06 L1000	388276	27,10

Cable sensor -50..+250 °C – PT1000 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 PT1000 T250 050.06 L1000	168717	24,10
TF25 PT1000 T250 100.06 L1000	209724	24,90
TF25 PT1000 T250 150.06 L1000	388283	25,20

Cable sensor -50..+250 °C – PT1000 1/3 DIN		TP3
Item description	**Item No.**	**€**
TF25 PT1000 1/3 DIN T250 050.06 L1000	356749	27,70
TF25 PT1000 1/3 DIN T250 100.06 L1000	356756	28,50
TF25 PT1000 1/3 DIN T250 150.06 L1000	388290	28,80

Cable sensor -50..+250 °C – Ni1000 DIN cl. B		TP3
Item description	**Item No.**	**€**
TF25 Ni1000 T250 050.06 L1000	151863	23,80
TF25 Ni1000 T250 100.06 L1000	182430	24,60
TF25 Ni1000 T250 150.06 L1000	388306	24,90

Cable sensor -50..+250 °C – Ni1000TK5000		TP3
Item description	**Item No.**	**€**
TF25 Ni1000TK5000 T250 050.06 L1000	150781	27,70
TF25 Ni1000TK5000 T250 100.06 L1000	157018	28,50
TF25 Ni1000TK5000 T250 150.06 L1000	388313	28,80

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+250 °C	3,30
3-wire connection -50..+250 °C (3-wire)	3,20
Add per meter of connection cable 3-wire -50..+250 °C	6,90
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Tension spring (tensp)	1,60

TF25 (-50..+400°C)

Cable sensor -50..+400 °C		*TP3*
Item description	**Item No.**	**€**
TF25 PT100 T400 050.06 L2000	799645	37,30
TF25 PT1000 T400 050.06 L2000	166201	39,70

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+400 °C	5,50
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Tension spring (tensp)	1,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	14,20
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00

TF25+

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell, the TF25 can also be used for temperature measurement in liquid media. Depending on the application requirements, different PVC, silicone, high-temperature silicone and fibreglass cables are available.

TF25+

TF25+ BUS

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~), **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571) 16-point pressed (IP65), rolled (IP67)
Installation length	50 mm, 100 mm, 150 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+250 °C
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	silicone, 0,25 mm²
Length connection wire	1 m

Technical Data	
Delivery content	incl. mounting set (screws and accessories) **TRV/TRA:** incl. mounting base enclosure USE-S pure white **Relay/LCD/BUS:** incl. mounting base enclosure USE-M pure white
Notes	PE connection wire available (please request)

TF25+ 0..10 V (TRV) / 4..20 mA (TRA)

Cable sensor -50..+180 °C active 0..10 (0..5) V				
Item description	**USEapp**	**Item No.**	**Group**	**€**
TF25+ TRV MultiRange T180 050.06 L1000		658959	TP2	77,10
TF25+ TRV MultiRange T180 100.06 L1000		658966	TP2	78,70
TF25+ TRV MultiRange T180 150.06 L1000		658973	TP2	79,10

Cable sensor -50..+180 °C active 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
TF25+ TRA MultiRange T180 050.06 L1000		658980	TP2	77,10
TF25+ TRA MultiRange T180 100.06 L1000		658997	TP2	78,70
TF25+ TRA MultiRange T180 150.06 L1000		659000	TP2	79,10

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+180 °C	2,00
Temperature -50..+250 °C (T250)	12,10
Add per meter of connection cable 2-wire -50..+250 °C	3,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	14,20
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

TF25+ LCD / BUS

Cable sensor -50..+160 °C active LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
TF25+ LCD TRV MultiRange T160 050.06 L1000	✓	707039	TP2	154,70
TF25+ LCD TRV MultiRange T160 100.06 L1000	✓	693806	TP2	156,30

Cable sensor -50..+160 °C RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
TF25+ RS485 Modbus T160 050.06 L1000	✓	659024	TP2	114,80
TF25+ RS485 Modbus T160 100.06 L1000	✓	668255	TP2	116,30

Cable sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
TF25+ RS485 BACnet (MS/TP) T160 050.06 L1000	✓	699723	TP2	114,80
TF25+ RS485 BACnet (MS/TP) T160 100.06 L1000	✓	699730	TP2	116,30

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+180 °C	2,00
Temperature -50..+250 °C (T250)	12,10
Add per meter of connection cable 2-wire -50..+250 °C	3,30
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	7,05
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	7,05
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	14,20
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting base enclosure USE-M pure white	668354	AS1	8,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	●	AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,90
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	10,50
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2	10,90
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2	12,50
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2	12,90
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2	13,20

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	●	AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	20,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	22,60
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2	23,70
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2	29,40
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2	30,80
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2	31,80
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	20,20

TF14

Cable sensor for temperature measurement in HVAC applications. Depending on the application requirements, different PVC, silicone and PTFE cables are available. The TF14 with its 4 mm diameter pocket is well suited for fast response applications.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe: Ø=4 mm, stainless steel V4A (1.4571) 16-point pressed (IP65)
Installation length	50 mm, 100 mm, 150 mm
Connection cable	0,14 mm² **T100:** PVC, **T150/T180:** silicone, **T250:** PTFE
Length connection wire	1 m

TF14 (-35..+100 °C)

Cable sensor -35..+100 °C – NTC10k		*TP3*
Item description	**Item No.**	**€**
TF14 NTC10k T100 050.04 L1000	73844	12,30
TF14 NTC10k T100 100.04 L1000	73851	13,40
TF14 NTC10k T100 150.04 L1000	73868	13,80

Cable sensor -35..+100 °C – PT100 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 T100 050.04 L1000	64347	13,70
TF14 PT100 T100 100.04 L1000	57554	14,80
TF14 PT100 T100 150.04 L1000	57561	15,20

Cable sensor -35..+100 °C – PT100 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 1/3 DIN T100 050.04 L1000	69106	18,00
TF14 PT100 1/3 DIN T100 100.04 L1000	69113	19,10
TF14 PT100 1/3 DIN T100 150.04 L1000	69120	19,50

Cable sensor -35..+100 °C – PT1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 T100 050.04 L1000	69267	16,10
TF14 PT1000 T100 100.04 L1000	69274	17,20
TF14 PT1000 T100 150.04 L1000	69281	17,60

Cable sensor -35..+100 °C – PT1000 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 1/3 DIN T100 050.04 L1000	69427	19,70
TF14 PT1000 1/3 DIN T100 100.04 L1000	69434	20,80
TF14 PT1000 1/3 DIN T100 150.04 L1000	69441	21,20

Cable sensor -35..+100 °C – Ni1000TK5000		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000TK5000 T100 050.04 L1000	73240	19,70
TF14 Ni1000TK5000 T100 100.04 L1000	73257	20,80
TF14 Ni1000TK5000 T100 150.04 L1000	73264	21,20

Cable sensor -35..+100 °C – Ni1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000 T100 050.04 L1000	73080	15,80
TF14 Ni1000 T100 100.04 L2000	73134	18,10
TF14 Ni1000 T100 150.04 L1000	73103	17,30

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor FeT/Staefa	25,50

TF14 (-50..+150 °C / -50..+180 °C)

Cable sensor -50..+150 °C – NTC10k		*TP3*
Item description	**Item No.**	**€**
TF14 NTC10k T150 050.04 L1000	80408	17,40
TF14 NTC10k T150 100.04 L1000	81443	18,60
TF14 NTC10k T150 150.04 L1000	80484	18,90

Cable sensor -50..+180 °C – PT100 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 T180 050.04 L1000	64354	18,80
TF14 PT100 T180 100.04 L1000	78009	20,00
TF14 PT100 T180 150.04 L1000	78016	20,30

Cable sensor -50..+180 °C – PT100 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 1/3 DIN T180 050.04 L1000	78207	23,10
TF14 PT100 1/3 DIN T180 100.04 L1000	78214	24,30
TF14 PT100 1/3 DIN T180 150.04 L1000	78221	24,60

Cable sensor -50..+180 °C – PT1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 T180 050.04 L1000	78405	21,20
TF14 PT1000 T180 100.04 L1000	78443	22,40
TF14 PT1000 T180 150.04 L1000	78481	22,70

Cable sensor -50..+180 °C – PT1000 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 1/3 DIN T180 050.04 L1000	78603	24,80
TF14 PT1000 1/3 DIN T180 100.04 L1000	78641	26,00
TF14 PT1000 1/3 DIN T180 150.04 L1000	78689	26,30

Cable sensor -50..+180 °C – Ni1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000 T180 050.04 L1000	78795	20,90
TF14 Ni1000 T180 100.04 L1000	78832	22,10
TF14 Ni1000 T180 150.04 L1000	78870	22,40

Cable sensor -50..+180 °C – Ni1000TK5000		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000TK5000 T180 050.04 L1000	78993	24,80
TF14 Ni1000TK5000 T180 100.04 L1000	79037	26,00
TF14 Ni1000TK5000 T180 150.04 L1000	79075	26,30

Options	
Description	**€**
Add per meter of connection cable 2-wire -50..+180 °C	2,00
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k	0,00
Add to price of NTC10k for sensor FeT/Staefa	25,50

TF14 (-80..+250 °C)

Cable sensor -80..+250 °C – PT100 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 T250 050.04 L1000	95563	21,70
TF14 PT100 T250 100.04 L1000	96126	22,50
TF14 PT100 T250 150.04 L1000	96195	22,80

Cable sensor -80..+250 °C – PT100 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT100 1/3 DIN T250 050.04 L1000	96775	26,00
TF14 PT100 1/3 DIN T250 100.04 L1000	96805	26,80
TF14 PT100 1/3 DIN T250 150.04 L1000	96843	27,10

Cable sensor -80..+250 °C – PT1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 T250 050.04 L1000	97185	24,10
TF14 PT1000 T250 100.04 L1000	97239	24,90
TF14 PT1000 T250 150.04 L1000	91510	25,20

Cable sensor -80..+250 °C – PT1000 1/3 DIN		*TP3*
Item description	**Item No.**	**€**
TF14 PT1000 1/3 DIN T250 050.04 L1000	91633	27,70
TF14 PT1000 1/3 DIN T250 100.04 L1000	91671	28,50
TF14 PT1000 1/3 DIN T250 150.04 L1000	91718	28,80

Cable sensor -80..+250 °C – Ni1000 DIN cl. B		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000 T250 050.04 L1000	91831	23,80
TF14 Ni1000 T250 100.04 L1000	91879	24,60
TF14 Ni1000 T250 150.04 L1000	91916	24,90

Cable sensor -80..+250 °C – Ni1000TK5000		*TP3*
Item description	**Item No.**	**€**
TF14 Ni1000TK5000 T250 050.04 L1000	97338	27,70
TF14 Ni1000TK5000 T250 100.04 L1000	97376	28,50
TF14 Ni1000TK5000 T250 150.04 L1000	97413	28,80

Options	
Description	**€**
Add per meter of connection cable 2-wire -80..+250 °C	6,10
3-wire connection -80..+250 °C (3-wire)	3,20
Add per meter of connection cable 3-wire -80..+250 °C	6,90
4-wire connection -80..+250 °C (4-wire)	7,10
Add per meter of connection cable 4-wire -80..+250 °C	7,80
Connection enclosure USE-S incl. mounting base pure white	15,70
Protection class IP67 (rolled)	2,40

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2	7,05
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1	5,70
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	14,20
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00

TF14+

Cable sensor for temperature measurement in HVAC applications. Depending on the application requirements, different PVC, silicone and PTFE cables are available. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. The TF14 with its 4 mm diameter pocket is well suited for fast response applications.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=4 mm, stainless steel V4A (1.4571) 16-point pressed (IP65), rolled (IP67)
Installation length	50 mm, 100 mm, 150 mm
Length connection wire	1 m
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+250 °C
Protection (IP)	IP65, according to EN 60529

Technical Data	
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	0,14 mm² **T180:** silicone, **T250:** PTFE
Delivery content	incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories)

Cable sensor -50..+180 °C active

Item description	USEapp	Item No.	Group	€
TF14+ TRV MultiRange T180 050.04 L1000		658850	TP2	75,80
TF14+ TRV MultiRange T180 100.04 L1000		658867	TP2	77,40
TF14+ TRV MultiRange T180 150.04 L1000		658874	TP2	77,90
TF14+ TRA MultiRange T180 050.04 L1000		658881	TP2	75,80
TF14+ TRA MultiRange T180 100.04 L1000		658898	TP2	77,40
TF14+ TRA MultiRange T180 150.04 L1000		658904	TP2	77,90

Options

Description	€
Add per meter of connection cable 2-wire -50..+180 °C	2,00
Temperature -50..+250 °C (T250)	12,10
Add per meter of connection cable 2-wire -50..+250 °C	3,30
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60
Protection class IP67 (rolled)	2,40

Accessories

Item description	Item No.	Group	€
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2	7,05
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1	5,70
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	14,20
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

PR25

Contact sensor with connection cable and aluminum prism for temperature measurement (cold or hot water) on pipes and other suitable surfaces.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe: Ø=11/15 mm, aluminium, hex pressed (IP65)
Installation length	28 mm
Protection (IP)	IP65, according to EN 60529
Connection cable	0,25 mm² , **T100:** PVC, **T180:** silicone
Length connection wire	1 m

Contact Sensor -35..+100 °C passive

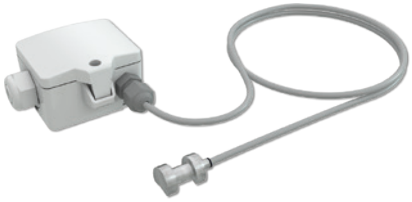
Item description	Item No.	Group	€
PR25 PT100 T100 L1000	81696	TP2	20,20
PR25 PT100 1/3 DIN T100 L1000	94771	TP2	24,50
PR25 PT1000 T100 L1000	94894	TP2	22,60
PR25 PT1000 1/3 DIN T100 L1000	94931	TP2	26,20
PR25 Ni1000 T100 L1000	94979	TP2	22,30
PR25 Ni1000TK5000 T100 L1000	95686	TP2	26,20
PR25 NTC10k T100 L1000	95808	TP2	18,80
PR25 NTC10k Precon T100 L1000	95846	TP2	18,80
PR25 NTC5k T100 L1000	95761	TP2	18,80
PR25 NTC20k T100 L1000	362641	TP2	18,80
PR25 NTC1,8k T100 L1000	287128	TP2	18,80
PR25 KTY81-110 T100 L1000	95884	TP2	16,40
PR25 KTY81-121 T100 L1000	95921	TP2	16,40
PR25 KTY81-210 T100 L1000	96003	TP2	16,40
PR25 LM235Z T100 L1000	96089	TP2	20,70

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
3-wire connection -35..+100 °C (3-wire)	2,00
Add per meter of connection cable 3-wire -35..+100 °C	1,40
4-wire connection -35..+100 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -35..+100 °C	1,60
Temperature -50..+180 °C (T180)	4,20
Add per meter of connection cable 2-wire -50..+180 °C	2,00
3-wire connection -50..+180 °C (3-wire)	2,20
Add per meter of connection cable 3-wire -50..+180 °C	2,90
4-wire connection -50..+180 °C (4-wire)	6,10
Add per meter of connection cable 4-wire -50..+180 °C	3,40
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Carel	0,00

Accessories			
Item description	**Item No.**	**Group**	**€**
Syringe thermal contact fluid	102308	AS1	1,60
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00

PR25+

Contact sensor with connection cable and aluminum prism for temperature measurement (cold or hot water) on pipes and other suitable surfaces.



0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=11/15 mm, aluminium, hex pressed (IP65)
Installation length	28 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+180 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	silicone, 0,25 mm²
Length connection wire	1 m

Technical Data	
Delivery content	incl. fixing kit rawlplugs and screws (2x each) **TRV/TRA:** incl. mounting base enclosure USE-S pure white **Relay/LCD/BUS:** incl. mounting base enclosure USE-M pure white

Contact Sensor -50..+180 °C active

Item description	USEapp	Item No.	Group	€
PR25+ TRV MultiRange T180 L1000		658782	TP2	82,00
PR25+ TRA MultiRange T180 L1000		658799	TP2	82,00

Options

Description	€
Add per meter of connection cable 2-wire -50..+180 °C	2,00
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories

Item description	Item No.	Group	€
Syringe thermal contact fluid	102308	AS1	1,60
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	3,00
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,65
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	3,00
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10

OF14

Surface-mounted sensor for temperature measurement on glass or similar surfaces. Designed for connecting to controls and display systems.

Technical Data	
Measured values	temperature
Material in touch with media	Sensor probe, aluminium, 35x10x6 mm
Installation length	35 mm
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection cable	PVC, 0,25 mm², 2-wire, white
Length connection wire	1 m
Mounting	surface mounting due to self-adhesive sensor surface

Contact Sensor -35..+70 °C passive

Item description	USEapp	Item No.	Group	€
OF14 PT100 L1000		132596	TP2	34,70
OF14 PT100 1/3 DIN L1000		167307	TP2	39,00
OF14 PT1000 L1000		114851	TP2	37,10
OF14 PT1000 1/3 DIN L1000		219303	TP2	40,70
OF14 Ni1000 L1000		113922	TP2	36,80
OF14 Ni1000TK5000 L1000		141864	TP2	40,70
OF14 NTC10k L1000		190367	TP2	33,30
OF14 NTC10k Precon L1000		165006	TP2	33,30
OF14 NTC5k L1000		351263	TP2	33,30
OF14 NTC20k L1000		147736	TP2	33,30
OF14 NTC1,8k L1000		356541	TP2	33,30
OF14 LM235Z L1000		216760	TP2	35,20

Options

Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,20
Connection enclosure USE-S incl. mounting base pure white	15,70
Add to price of NTC10k for sensor NTC10k Carel	0,00

OF14+

Surface-mounted sensor for temperature measurement on glass or similar surfaces. Designed for connecting to controls and display systems.

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable
Power supply	**TRV:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 15..24 V = (±10%) SELV **Relay/LCD/BUS:** 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	**TRV:** typ. 0,4 W (24 V =), 0,8 VA (24 V ~) **TRA:** max. 0,5 W (24 V =) **Relay/LCD/BUS:** typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, aluminium, 35x10x6 mm
Installation length	35 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	**TRV/TRA:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **Relay/LCD/BUS:** USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² **TRV/TRA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,25 mm², 2-wire, white
Length connection wire	1 m
Mounting	surface mounting due to self-adhesive sensor surface
Delivery content	incl. mounting set (screws and accessories) **TRV/TRA:** incl. mounting base enclosure USE-S pure white **Relay/LCD/BUS:** incl. mounting base enclosure USE-M pure white

Contact Sensor -35..+70 °C active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
OF14+ TRV3 L1000		658812	TP2	97,20
OF14+ TRA3 L1000		658836	TP2	97,20

Options	
Description	**€**
Add per meter of connection cable 2-wire -35..+100 °C	1,20
RS485 Modbus in enclosure USE-M with option board	79,70
RS485 BACnet (MS/TP) in enclosure USE-M with option board	79,70
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	77,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting clip enclosure USE-S pure white	667739	AS1	5,15
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75

Frost Protection Condensation Leakage

Our frost protection thermostats, condensation monitors and leakage sensors protect sensitive electronics from leakage damages, which often result in expensive system failures or even dropouts.

Condensation Monitors

WK02+	Condensation, temperature, humidity	**356**
WK01+	Condensation	**358**

Leakage Detectors

LS02+ (ext./flex)	Leakage	**360**

Frost Protection Thermostats

TFR	Temperature	**362**
TFRe	Temperature	**363**

WK02+

Condensation sensor with an LED signal and a relay output to prevent condensation on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water flow upon condensation. The ‚ext.' model uses a 2m remote sensor for a more flexible installation.

BACnet Modbus LON

Technical Data	
Measured values	temperature, relative humidity, absolute humidity, enthalpy, dew point, condensation
Configuration	USEapp, BUS, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable
Measuring range humidity	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50 | 0..80 g/m³ absolute humidity, 0..+50 | -20..+80 °C dew point, optionally configurable
Power supply	**24 V:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **230 V:** 230 V ~ (±10%)
Power consumption	**24 V:** typ. 0,8 W (24 V =), 1,6 VA (24 V ~) **230 V:** typ. 3,5 W (230 V ~)
Display	LCD 29x35 mm, RGB backlight LED green – power supply OK, LED red – condensation
Enclosure	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm², BUS max. 1,5 mm² removable cable entry flextherm M20 for wire Ø=4,5..9 mm **BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

Technical Data	
Connection cable	PVC, 0,25 mm², white
Length connection wire	2 m
Delivery content	incl. mounting base enclosure USE-L pure white incl. mounting set (screws and accessories) incl. cable tie 140x3,6 mm incl. syringe thermal contact fluid 2 ml

Condensation sensor 24 V

Item description	USEapp	Item No.	Group	€
WK02+ ext. 24 V L2000	✓	737180	HU2	157,60

Condensation sensor 230 V

Item description	USEapp	Item No.	Group	€
WK02+ ext. 230 V L2000	✓	737197	HU2	171,60

Options

Description	€
Add per meter of connection cable PVC	1,20
RS485 Modbus	47,20
RS485 BACnet (MS/TP)	47,20
Add to price of RS485 Modbus for LON FT	79,60
LCD 29x35 mm, RGB backlight	45,10

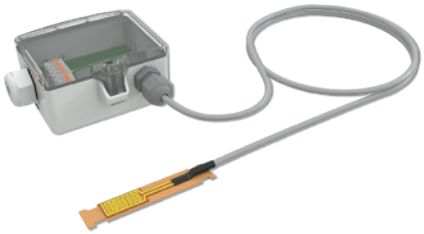
Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30

WK01+

Condensation sensor with an LED signal and a relay output for condensation detection on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water upon condensation detection. The ‚ext.' model uses a 2 m remote sensor for a more flexible installation.

WK01+ 24 V



WK01+ ext. 230 V

Technical Data	
Measured values	condensation
Power supply	**24 V:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **230 V:** 230 V ~ (±10%)
Power consumption	**24 V:** typ. 0,8 W (24 V =), 1,6 VA (24 V ~) **230 V:** typ. 3,5 W (230 V ~)
Display	LED green – power supply OK, LED red – condensation
Enclosure	**24 V:** USE-S, impact- and shock-resistant enclosure with quick-release cover, PC **230 V:** USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating ranges temperature	**24 V:** 0..+50 **230 V:** -20..+60
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm removable plug-in terminal, max. 2,5 mm²
Connection cable (WK01+ ext.)	PVC, 0,25 mm², grey
Length connection wire (WK01+ ext.)	2 m
Delivery content	incl. mounting set (screws and accessories) incl. cable tie 140x3,6 mm incl. syringe thermal contact fluid 2 ml **24 V:** incl. mounting base enclosure USE-S pure white **230 V:** incl. mounting base enclosure USE-L pure white

Condensation sensor 24 V			
Item description	**Item No.**	**Group**	**€**
WK01+ 24 V	659215	HU2	104,10
WK01+ ext. 24 V L2000	659222	HU2	120,00

Condensation sensor 230 V			
Item description	**Item No.**	**Group**	**€**
WK01+ ext. 230 V L2000	659246	HU2	165,30

Accessories			
Item description	**Item No.**	**Group**	**€**
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
Syringe thermal contact fluid	102308	AS1	1,60

LS02+

Leakage detector with relay output and two signalling LEDs designed for alarm, control and monitoring applications of containers, false floors, suspended ceilings or rooms for preventing unintended ingress of water. The sensor can be adjusted to different heights so that the response time of the sensor can be adapted to the water level that is to be detected. The type flex detects water or liquid intrusion over the entire length of the sensor rod. A potential-free switching contact is used for communication with the higher-level control system. Thanks to the compact design of the sensor rod, the sensor can be mounted in a variety of places (floors, ceilings, etc.) to save space. The sophisticated and highly flexible insulation braiding also allows direct mounting on water-bearing pipe systems. The sensor rod can easily be shortened on site.

LS02+

LS02+ ext.

LS02+ flex

Technical Data	
Measured values	leakage
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**LS02+:** typ. 0,6 W (24 V =), 1,2 VA (24 V ~) **LS02+ ext.:** typ. 0,8 W (24 V =), 1,2 VA (24 V ~) **LS02+ flex:** typ. 0,6 W (24 V =), 1,6 VA (24 V ~)
Material in touch with media	**LS02+:** stainless steel V2A (1.4305) **LS02+ ext.:** stainless steel V4A (1.4401) **LS02+ flex:** Sensor rod: PVC sheathed with PBT braiding
Installation length	**LS02+ flex:** 2000 mm, 5000 mm, 20000 mm, 30000 mm
Display	LED green – power supply OK, LED red – alarm, leakage detected
Enclosure	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm²
Connection cable	PVC, 0,25 mm²
Length connection wire	**LS02+ ext.:** 5 m
Mounting	**LS02+:** level compensation through adjustable contacts **LS02+ ext.:** level compensation through spring contacts **LS02+ flex:** additional fixation of the sensor rod possible with adhesive pads (see accessories)

Technical Data	
Delivery content	**LS02+ ext. / LS02+ flex:** incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories) incl. fixing kit rawlplugs and screws (2x each)

Water leak detector detector electrodes

Item description	Item No.	Group	€
LS02+	659253	HU2	96,90
LS02+ ext. L5000	765725	HU2	113,00

Water leak detector flexible rod

Item description	Item No.	Group	€
LS02+ flex L2000	778848	HU2	148,50
LS02+ flex L5000	778572	HU2	196,20
LS02+ flex L20m	795944	HU2	434,70
LS02+ flex L30m	795951	HU2	593,70

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	6,10
Mounting kit universal for enclosure USE	698511	AS1	9,75
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,95
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1	9,35
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20

TFR

Frost protection thermostat for downstream temperature monitoring of e.g. heat exchangers in ventilation and air-conditioning systems. The product offers a small differential gap and a high reproducibility. Resetting can be done automatically or manually (type ‚-R'). The frost protection thermostat can be used to perform the following functions: stop fan, close outside air dampers, open heating valve 100%, start heating pump, switch-off chiller (condenser) and de-/humidifier, trigger visual and/or audible frost alarm.

Technical Data	
Measured values	temperature
Operating elements	rotary knob, reset button
Material in touch with media	Capillary pipe, copper with tube filling R507 sensor operating length approx. 600 mm contact material Ag/Ni (90%/10%), gold plated (3 µm)
Installation length	1800 mm, 3000 mm, 6000 mm, 12000 mm
Enclosure	PA6 GK30
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm, terminal block, max. 2,5 mm²
Delivery content	incl. installation set
Notes	mounting flange MF2 useable from installation length 3000 mm

Frost protection thermostat automatic reset

Item description	Item No.	Group	€
TFR 1800	426435	TP1	84,00
TFR 3000	430371	TP1	79,30
TFR 6000	430395	TP1	82,30
TFR 12000	541916	TP1	95,90

Frost protection thermostat manual reset

Item description	Item No.	Group	€
TFR-R 1800	430364	TP1	100,50
TFR-R 3000	430388	TP1	98,60
TFR-R 6000	430401	TP1	99,20
TFR-R 12000	656061	TP1	123,60

Accessories

Item description	Item No.	Group	€
Mounting flange MF2 (suitable for TFR)	435642	AS1	7,05
Installation set TFR / MWF+	679466	AS1	9,35

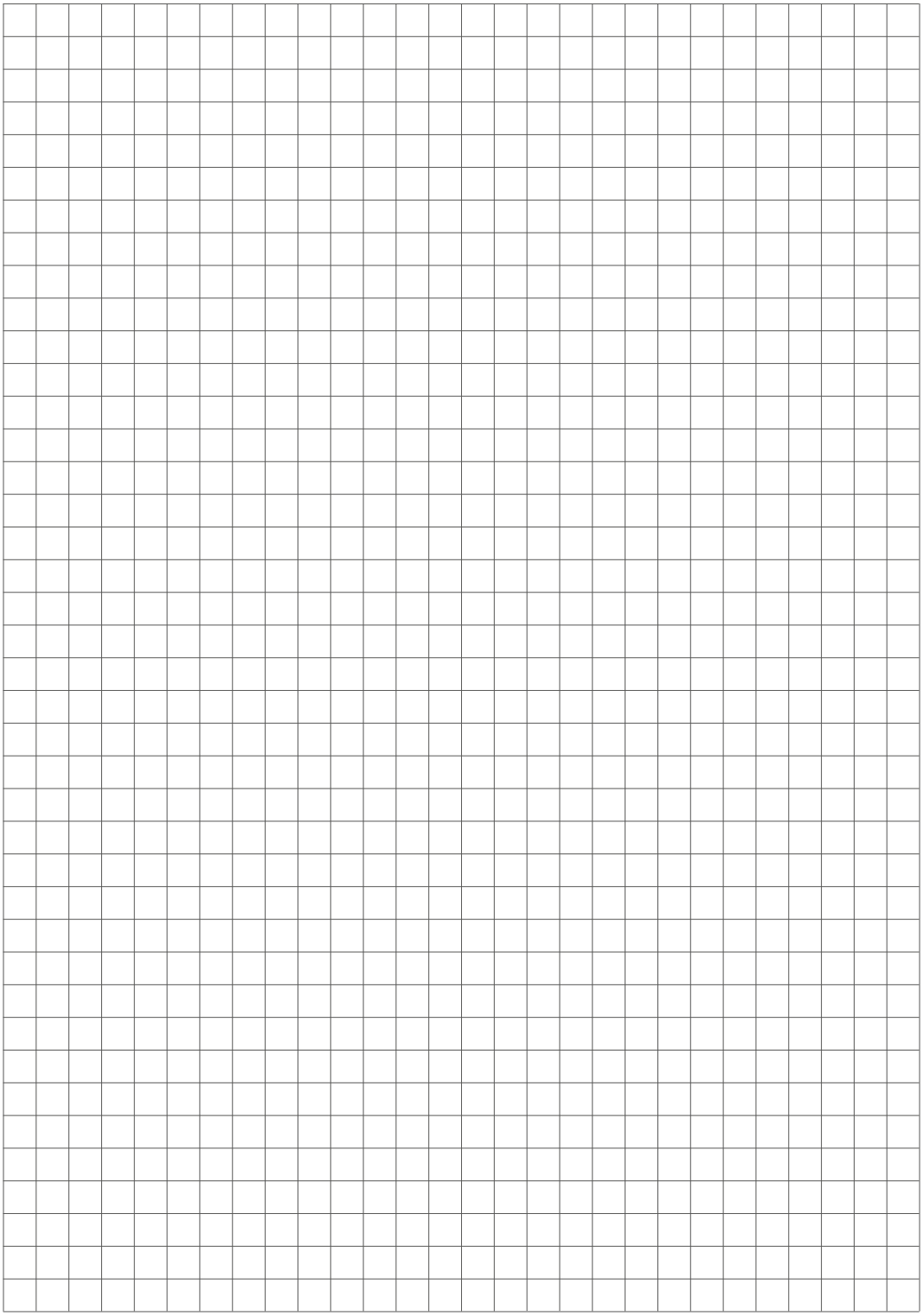
TFRe

Electronic frost protection thermostat for downstream temperature monitoring of e.g. heat exchangers in ventilation and air-conditioning systems. Integrated P-controller for constant control of a heat exchanger valve within its intended operating range. Safety shutdown of the fan and - if necessary - closing the air inlet flaps to protect the heat exchanger in case set thresholds are exceeded. Temperature measurement optionally with a contact sensor, immersion sensor or cable sensor with up to four selectable sensor characteristic curves. For a quick temperature measurement in the return water pipe of the heat exchanger, a fast-response sensor (e.g. TF14 with KL4VA) should be used.

Technical Data	
Measured values	temperature
Operating elements	2 rotary knobs (Talarm and Xp)
Configuration	DIP switches
Input	1x input sensor PT1000 (default), NTC10K, Ni1000, Ni1000TK5000 1x input for external controller for defining set point 1x input for floating contact
Output signal temperature	0..+100 °C
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	max. 2 VA (24 V ~)
Display	LED green – indicator valve OUT, LED red – alarm, LED yellow – fan
Enclosure	ABS
Colour	white
Operating range temperature	-40..+70 °C
Protection (IP)	IP20, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

Electronic frost protection thermostat

Item description	Item No.	Group	€
TFRe	667203	TP1	137,50



Pressure and Velocity

Pressure and air flow sensors for cooling and air conditioning must resist extreme conditions. Therefore our products are customized to withstand even the harshest environments.

Air Pressure Sensors

DPA+	Differential pressure, volume flow	**366**
PS	Differential pressure	**372**
AVT	Air flow, temperature	**373**

Air Pressure / Liquid Sensors

DLF	Pressure	**374**

Liquid Sensors

DPL	Differential pressure	**377**

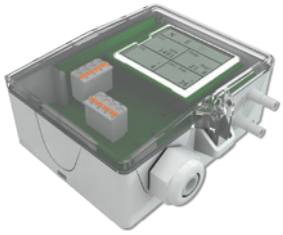
Manometer

MM	Differential pressure	**378**
DPG	Differential pressure	**379**
DPGe	Differential pressure	**380**

DPA+

Differential pressure transmitter for measuring and monitoring overpressure, underpressure, differential pressure and flow volume of air and other non-aggressive gases in fan and filter systems in duct applications. 8 adjustable pressure and flow volume ranges permit use in HVAC applications of clean rooms, process measurement and controls systems. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers, an LCD with traffic light indication allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. ‚Dual' versions with 2 independent sensors for up to 2x differential pressures or 2x flow volume in a single enclosure are available. The mounting base (included in the delivery content) can be used to mount the DPA+ on a flat surface or on DIN rail TS35 (35x7,5 mm) in accordance with EN 60715.

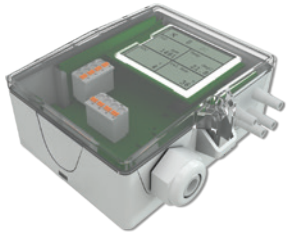
DPA+



DPA+ LCD

DPA+
with additional cable entry
(refer to mounting accessories USE)

DPA+ Dual



DPA+ Dual LCD

0..10 V / 4..20 mA BACnet Modbus LON

Technical Data	
Measured values	differential pressure, volume flow, pressure in Pa or inchWC, optionally configurable via app or uConfig
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Measuring range pressure	**DPA250+:** 0..+25 | 0..+50 | 0..+100 | 0..+250 | -25..+25 | -50..+50 | -100..+100 | -150..+150 Pa, 0..+250 Pa (default setting) **DPA2500+:** -100..+100 | 0..+100 | 0..+250 | 0..+500 | 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 Pa, 0..+2500 Pa (default setting) **DPA7000+:** 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 | 0..+3000 | 0..+4000 | 0..+5000 | 0..+7000 Pa, 0..+7000 Pa (default setting) selectable at the device
Measuring range velocity	0..750.000 m³/h, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV **AA:** 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-10..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm², BUS max. 1,5 mm², relay max. 1,5 mm² inputs max. 1,0 mm² pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft **VV/4xV/AA:** removable cable entry flextherm M20 for wire Ø=4,5..9 mm **Relay/BUS:** removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Mounting	surface-mounted flat on base using screws prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. mounting base enclosure USE-L pure white incl. mounting set (screws and accessories) incl. pressure connection set and 2 m PVC connection hose
Notes	output protection circuit (reverse polarity protected)

DPA+ VV / AA

Differential pressure and volume flow transducer active 0..10 (0..5) V				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ VV MultiRange	✓	659321	PR2	141,70
DPA2500+ VV MultiRange	✓	659369	PR2	141,70
DPA7000+ VV MultiRange	✓	659376	PR2	141,70
DPA250+ VV AZ MultiRange	✓	692397	PR2	201,40
DPA2500+ VV AZ MultiRange	✓	675970	PR2	201,40
DPA7000+ VV AZ MultiRange	✓	675994	PR2	201,40

Differential pressure and volume flow transducer active 4..20 mA				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ AA MultiRange	✓	666978	PR2	159,20
DPA2500+ AA MultiRange	✓	666985	PR2	159,20
DPA7000+ AA MultiRange	✓	666992	PR2	159,20
DPA250+ AA AZ MultiRange	✓	691598	PR2	218,90
DPA2500+ AA AZ MultiRange	✓	693981	PR2	218,90
DPA7000+ AA AZ MultiRange	✓	705325	PR2	218,90

Differential pressure and volume flow transducer active 0..10 (0..5) V + relay				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ VV MultiRange relay	✓	663687	PR1	188,90
DPA2500+ VV MultiRange relay	✓	663694	PR1	188,90
DPA7000+ VV MultiRange relay	✓	663700	PR1	188,90

Options	
Description	**€**
Automatic zero-point calibration (AZ)	59,70

DPA+ VV LCD / AA LCD

Differential pressure and volume flow transducer active 0..10 (0..5) V LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LCD VV MultiRange	✓	659383	PR1	186,80
DPA2500+ LCD VV MultiRange	✓	659390	PR1	186,80
DPA7000+ LCD VV MultiRange	✓	659406	PR1	186,80
DPA250+ LCD VV AZ MultiRange	✓	688420	PR1	246,50
DPA2500+ LCD VV AZ MultiRange	✓	676007	PR1	246,50
DPA7000+ LCD VV AZ MultiRange	✓	676021	PR1	246,50

Differential pressure and volume flow transducer active 4..20 mA LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LCD AA MultiRange	✓	667104	PR1	204,30
DPA2500+ LCD AA MultiRange	✓	667111	PR1	204,30
DPA7000+ LCD AA MultiRange	✓	667128	PR1	204,30
DPA250+ LCD AA AZ MultiRange	✓	700962	PR1	264,00
DPA2500+ LCD AA AZ MultiRange	✓	679725	PR1	264,00
DPA7000+ LCD AA AZ MultiRange	✓	703147	PR1	264,00

Differential pressure and volume flow transducer active 0..10 (0..5) V + relay LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LCD VV MultiRange relay	✓	663724	PR1	234,00
DPA2500+ LCD VV MultiRange relay	✓	663748	PR1	234,00
DPA7000+ LCD VV MultiRange relay	✓	663755	PR1	234,00

Options	
Description	**€**
Automatic zero-point calibration (AZ)	59,70

DPA+ BUS

Differential pressure and volume flow transducer RS485 Modbus				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ RS485 Modbus MultiRange	✓	659413	PR1	146,40
DPA2500+ RS485 Modbus MultiRange	✓	659420	PR1	146,40
DPA7000+ RS485 Modbus MultiRange	✓	659437	PR1	146,40
DPA250+ RS485 Modbus AZ MultiRange	✓	693745	PR1	206,10
DPA2500+ RS485 Modbus AZ MultiRange	✓	676083	PR1	206,10
DPA7000+ RS485 Modbus AZ MultiRange	✓	676090	PR1	206,10

Differential pressure and volume flow transducer RS485 BACnet (MS/TP)				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ RS485 BACnet (MS/TP) MultiRange	✓	700221	PR1	146,40
DPA2500+ RS485 BACnet (MS/TP) MultiRange	✓	700238	PR1	146,40
DPA7000+ RS485 BACnet (MS/TP) MultiRange	✓	700252	PR1	146,40
DPA250+ RS485 BACnet (MS/TP) AZ MultiRange	✓	705387	PR1	206,10
DPA2500+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700306	PR1	206,10
DPA7000+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700313	PR1	206,10

DPA+ BUS LCD

Differential pressure and volume flow transducer RS485 Modbus LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LCD RS485 Modbus MultiRange	✓	659444	PR1	191,50
DPA2500+ LCD RS485 Modbus MultiRange	✓	659451	PR1	191,50
DPA7000+ LCD RS485 Modbus MultiRange	✓	659468	PR1	191,50
DPA250+ LCD RS485 Modbus AZ MultiRange	✓	697767	PR1	251,20
DPA2500+ LCD RS485 Modbus AZ MultiRange	✓	676106	PR1	251,20
DPA7000+ LCD RS485 Modbus AZ MultiRange	✓	676113	PR1	251,20

Differential pressure and volume flow transducer RS485 BACnet (MS/TP) LCD				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA250+ LCD RS485 BACnet (MS/TP) MultiRange	✓	700269	PR1	191,50
DPA2500+ LCD RS485 BACnet (MS/TP) MultiRange	✓	682855	PR1	191,50
DPA7000+ LCD RS485 BACnet (MS/TP) MultiRange	✓	683463	PR1	191,50
DPA250+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	705370	PR1	251,20
DPA2500+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700320	PR1	251,20
DPA7000+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700337	PR1	251,20

Options	
Description	**€**
2x input for NTC10k or floating contact (2IN)	32,30
Add to price of RS485 Modbus for LON FT	79,60
Automatic zero-point calibration (AZ)	59,70

DPA+ Dual VV / 4xV / AA (LCD)

Dual differential pressure transducer active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA2500+ Dual VV MultiRange	✓	700344	PR1	211,60
DPA2500+ Dual AA MultiRange	✓	702898	PR1	229,10
DPA2500+ LCD Dual VV MultiRange	✓	705417	PR1	256,70
DPA2500+ LCD Dual AA MultiRange	✓	705431	PR1	274,20

Dual differential pressure and volume flow transducer active				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA2500+ Dual 4xV MultiRange	✓	705448	PR1	225,30
DPA2500+ LCD Dual 4xV MultiRange	✓	700351	PR1	270,40

Options	
Description	**€**
Automatic zero-point calibration dual (2x AZ)	119,30

DPA+ Dual BUS (LCD)

Dual differential pressure and volume flow transducer BUS				
Item description	**USEapp**	**Item No.**	**Group**	**€**
DPA2500+ Dual RS485 Modbus	✓	703000	PR1	235,80
DPA2500+ LCD Dual RS485 Modbus	✓	705455	PR1	280,90
DPA2500+ Dual RS485 BACnet (MS/TP)	✓	703017	PR1	235,80
DPA2500+ LCD Dual RS485 BACnet (MS/TP)	✓	705462	PR1	280,90

Options	
Description	**€**
2x input for NTC10k or floating contact (2IN)	32,30
Add to price of RS485 Modbus for LON FT	79,60
Automatic zero-point calibration dual (2x AZ)	119,30

Accessories

Accessories			
Item description	**Item No.**	**Group**	**€**
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35
Mounting base enclosure USE-L pure white	668361	AS1	12,20
Mounting kit universal for enclosure USE	698511	AS1	9,75
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	38,50

PS

Adjustable differential pressure switch for air and other non-flammable and non-aggressive gases. Designed for monitoring air filters, fans, damper actuators and other industrial processes. Mounting accessories are included in the delivery content.

Technical Data	
Measured values	differential pressure
Measuring range pressure	**PS300:** 30..300 Pa **PS500:** 30..500 Pa **PS1500:** 100..1500 Pa **PS4500:** 500..4500 Pa
Enclosure	ABS, membrane silicone
Colour	pure white, translucent cover PC
Operating range temperature	-20..+60 °C
Protection (IP)	IP54, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm² pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft
Delivery content	incl. fixing screws (2x) incl. pressure connection set and 2 m PVC connection hose

Differential pressure switch

Item description	Item No.	Group	€
PS300	269971	PR2	32,50
PS500	269995	PR2	32,50
PS1500	255202	PR2	32,50
PS4500	273138	PR2	32,50

Accessories

Item description	Item No.	Group	€
Mounting bracket kit for differential pressure switch 135x74x60 mm	669009	AS1	9,25
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35

AVT

Air velocity transmitter with 3 field-selectable measuring ranges for measuring and monitoring air velocities in ventilation systems in order to control regulation flaps or damper actuators. An integrated LCD and relay contacts for limiting the air volume are available as options.

Technical Data	
Measured values	temperature, Air velocity
Configuration	jumper
Output signal temperature	0..+50 °C
Measuring range velocity	0..2, 0..10, 0..20 m/s, optionally configurable
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	**AVT/AVT LCD:** max. 2 W | **AVT LCD Relay:** max. 2,4 W
Material in touch with media	Sensor probe: stainless steel V2A (1.4305), length 210 mm
Installation length	195 mm
Display	LCD 3.5“, 45.7x12.7 mm to show measured value
Enclosure	ABS, cover PC
Colour	light grey
Operating range temperature	0..+50 °C
Protection (IP)	IP54, according to EN 60529
Connection	terminal block, max. 1,5 mm² cable entry M16 for wire Ø=8 mm **Relay:** 2x cable entry M16 for wire Ø=8 mm
Delivery content	incl. mounting flange
Notes	adjustable immersion length using mounting flange 50..180 mm adjustable switching threshold and hysteresis

Air velocity and temperature transmitter

Item description	Item No.	Group	€
AVT	430005	PR1	161,90
AVT LCD	430036	PR1	207,70
AVT LCD relay	430067	PR1	229,50

DLF

Pressure transmitter for measuring absolute pressure of liquids, air or non-aggressive gases. Designed for use in refrigeration, hydraulics, production plants and processes. The dense stainless steel membrane makes the sensor suitable for use with refrigerants as well. For a quick & easy connection, a 5 m cable with a pre-installed connector is available (see ‚Accessories'). The DLF can be optionally equipped with a 4-digit LED display.

DLF

DLF UD-V / DLF UD-A

0..10 V / 4..20 mA

Technical Data	
Measured values	pressure
Measuring range pressure	**DLF-1..0:** -1..0 bar **DLF1:** 0..1 bar **DLF2,5:** 0..2,5 bar **DLF4:** 0..4 bar **DLF6:** 0..6 bar **DLF10:** 0..10 bar **DLF16:** 0..16 bar **DLF25:** 0..25 bar
Power supply	**V:** 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV **A:** 15..24 V = (±10%) SELV,
Power consumption	**V:** typ. 0,15 W (24 V =), 0,3 VA (24 V ~) **A:** typ. 0,5 W (24 V =),
Material in touch with media	stainless steel V2A (1.4305), G1/2", G1/4"
Operating range temperature	-40..+125 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable gland for wires with Ø=8 mm max. plug MVS according to DIN 175301-803

Pressure transducer 0..10 V G1/4“				
Item description	**Item No.**	**On stock**	**Group**	**€**
DLF-1..0 V G1/4“	665070		PR1	116,20
DLF1 V G1/4“	665087	●	PR1	116,20
DLF2,5 V G1/4“	665117	●	PR1	116,20
DLF4 V G1/4“	665124	●	PR1	116,20
DLF6 V G1/4“	665131	●	PR1	116,20
DLF10 V G1/4“	665148	●	PR1	116,20
DLF16 V G1/4“	665155	●	PR1	116,20
DLF25 V G1/4“	665162	●	PR1	116,20

Pressure transducer 0..10 V G1/2“				
Item description	**Item No.**	**On stock**	**Group**	**€**
DLF-1..0 V G1/2“	682541		PR1	123,50
DLF1 V G1/2“	681193	●	PR1	123,50
DLF2,5 V G1/2“	681209	●	PR1	123,50
DLF4 V G1/2“	681216	●	PR1	123,50
DLF6 V G1/2“	681223	●	PR1	123,50
DLF10 V G1/2“	681230	●	PR1	123,50
DLF16 V G1/2“	681247	●	PR1	123,50
DLF25 V G1/2“	681254	●	PR1	123,50

Accessories			
Item description	**Item No.**	**Group**	**€**
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	14,00
UD-V – universal display for 0..10 V	775113	AS1	93,30

Pressure transducer 4..20 mA G1/4“				
Item description	**Item No.**	**On stock**	**Group**	**€**
DLF-1..0 A G1/4“	665209		PR1	110,30
DLF1 A G1/4“	665216		PR1	110,30
DLF2,5 A G1/4“	665247		PR1	110,30
DLF4 A G1/4“	665254		PR1	110,30
DLF6 A G1/4“	665261		PR1	110,30
DLF10 A G1/4“	665278		PR1	110,30
DLF16 A G1/4“	665285		PR1	110,30
DLF25 A G1/4“	665292		PR1	110,30

Pressure transducer 4..20 mA G1/2“				
Item description	**Item No.**	**On stock**	**Group**	**€**
DLF-1..0 A G1/2“	682602		PR1	117,60
DLF1 A G1/2“	681261		PR1	117,60
DLF2,5 A G1/2“	681278		PR1	117,60
DLF4 A G1/2“	681285		PR1	117,60
DLF6 A G1/2“	681292		PR1	117,60
DLF10 A G1/2“	681308		PR1	117,60
DLF16 A G1/2“	681315		PR1	117,60
DLF25 A G1/2“	681322		PR1	117,60

Accessories			
Item description	**Item No.**	**Group**	**€**
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	14,00
UD-A – universal display for 4..20 mA	718189	AS1	93,30

DPL

Differential pressure transmitter for measuring differential pressure in liquids. Typical areas of application include supply and return liquid flows in HVAC systems and process engineering as well as the monitoring of filters and compressors. For a quick & easy connection, a 5 m cable with pre-installed connector is available (see ‚Accessories').

0..10 V / 4..20 mA

Technical Data	
Measured values	differential pressure
Measuring range pressure	0..1 bar, 0..2,5 bar, 0..4 bar, 0..6 bar
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 0,37 W (24 V =), max. 0,5 W (24 V =), 0,9 VA (24 V ~)
Material in touch with media	stainless steel, G1/4“
Enclosure	stainless steel V2A (1.4305), lid die-cast aluminium, measuring cell ceramic
Colour	black
Operating range temperature	-20..+80 °C
Protection (IP)	IP54, according to EN 60529
Connection	angle plug DIN 43650, type A

Differential pressure transducer

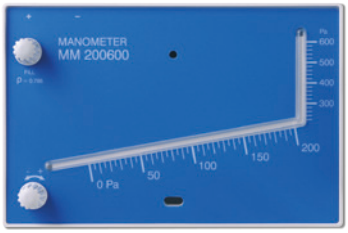
Item description	Item No.	Group	€
DPL1 V	346580	PR1	337,20
DPL2,5 V	346665	PR1	337,20
DPL4 V	346672	PR1	337,20
DPL6 V	346689	PR1	337,20
DPL1 A	346597	PR1	337,20
DPL2,5 A	346696	PR1	337,20
DPL4 A	346702	PR1	337,20
DPL6 A	346719	PR1	337,20

Accessories

Item description	Item No.	Group	€
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	14,00
UD-V – universal display for 0..10 V	775113	AS1	93,30
UD-A – universal display for 4..20 mA	718189	AS1	93,30
Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1	9,85
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	AS1	62,40
Screw connection set Ø=6 mm brass (2 pcs.)	373401	AS1	14,80
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	AS1	71,60
Screw connection set Ø=8 mm brass (2 pcs.)	373418	AS1	14,90

MM

Compact inclined tube manometer for displaying and monitoring differential air pressure in HVAC applications. Mounting accessories are included in the delivery content.



MM

Technical Data	
Measured values	differential pressure
Measuring range pressure	**MM500:** -100..+500 Pa **MM600:** 0..+600 Pa
Display	liquid indicator
Enclosure	ABS, cover PMMA
Operating range temperature	-40..+60 °C
Protection (IP)	IP54, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm² pressure connection ABS connection tube: PVC, soft
Delivery content	incl. fixing screws (2x) incl. pressure connection set and 2 m PVC connection hose incl. 30 ml gauge fluid incl. 2 indication stickers (red/green)

Differential pressure inclined tube manometer			
Item description	**Item No.**	**Group**	**€**
MM500 (-100..500 Pa)	384452	PR1	50,40
MM600 (0..600 Pa)	255240	PR1	50,40

DPG

Compact manometer for displaying and monitoring differential air pressure in HVAC applications. Mounting accessories are included in the delivery content.

Technical Data	
Measured values	differential pressure
Measuring range pressure	**DPG60:** 0..60 Pa, **DPG100:** 0..100 Pa, **DPG250:** 0..250 Pa, **DPG500:** 0..500 Pa, **DPG1500:** 0..1500 Pa, **DPG2500:** 0..2500 Pa
Display	display Ø=100 mm
Enclosure	aluminium alloy
Colour	aluminium, transparent cover PC
Operating range temperature	-20..+60 °C
Protection (IP)	IP65, according to EN 60529
Connection	connection tube: PVC, soft
Delivery content	incl. fixing screws (4x) incl. pressure connection set and 2 m PVC connection hose

Differential pressure gauge

Item description	Item No.	Group	€
DPG60	718493	PR1	106,60
DPG100	718509	PR1	106,60
DPG250	718516	PR1	106,60
DPG500	718523	PR1	106,60
DPG1500	718530	PR1	106,60
DPG2500	718547	PR1	106,60

Accessories

Item description	Item No.	Group	€
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35

DPGe

Compact electronic differential pressure manometer for displaying and monitoring differential air pressure in HVAC applications. Easy to retrofit in existing installations as the DPGe uses a AAA battery as a power supply.

Technical Data	
Measured values	differential pressure
Configuration	buttons
Measuring range pressure	0..2500 Pa
Power supply	battery type AAA
Power consumption	max. 60 mW (operating mode), max. 1 mW (standby)
Display	LCD 29x35 mm, RGB backlight
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC UV-resistant
Colour	pure white, transparent cover PC
Operating range temperature	-10..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	connection tube: PVC, soft
Delivery content	incl. mounting set (screws and accessories) incl. pressure connection set and 2 m PVC connection hose incl. battery type AAA

Differential pressure gauge

Item description	Item No.	Group	€
DPGe	736176	PR1	126,40

Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,75
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35

Power Thyristors

Power thyristors can more and more be found where ohmic and inductive loads must be controlled (e.g. in industrial furnaces ...) By means of the modular and compact construction and control with a continuous control signal power thyristors become the perfect actuators for industrial power control.

Power Thyristors

Single-Phase

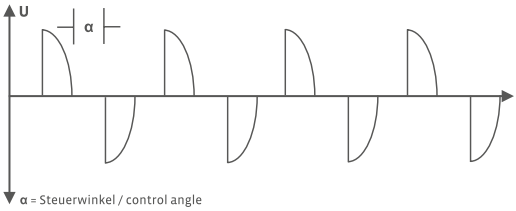
TS1 1-phase	Power thyristor	**382**
TS3 1-phase	Power thyristor	**384**

Three-Phase

TS1 3-phase	Power thyristor	**386**
TS3 3-phase	Power thyristor	**388**
TS2 3-phase	Power thyristor	**390**

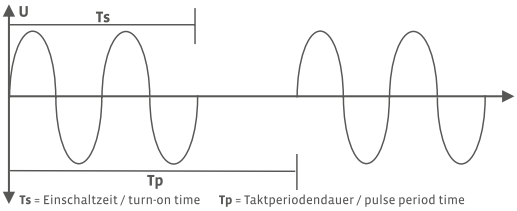
Phase angle control

The phase angle control can be used for almost any ohmic and inductive consumers and is the most common way to control the power consumption of a consumer. The consumer is connected to the supply network via the power thyristor. The thyristors are controlled in such a way, that the consumer is not supplied with the complete sinusoidal oscillation but only a part (depending on the steering angle), whereas the voltage average value can be adjusted continuously.



Oscillation control

The oscillation control is used with inert consumers such as heaters. Contrary to the phase angle control, complete sinusoidal waves are switched through to the consumer with the oscillation control. The control of the average voltage value is made by switching through a certain number of oscillations (depending on the switch-on time) within a certain time slot (clock cycle). Thus convertor feedback effects to the power supply network in form of harmonic components are avoided.



TS1 single-phase

The TS1 single-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

Technical Data	
Configuration	DIP switches
Output switch contact	signal contact at 100% Ua 1x contact NO 3A for 250 V ~ or 24 V =, floating
output for ohmic and inductive loads	**2 A:** 0,46 kW (230 V ~ / 2 A) **4 A:** 0,92 kW (230 V ~ / 4 A) **6 A:** 1,38 kW (230 V ~ / 6 A) **8 A:** 1,84 kW (230 V ~ / 8 A) **10 A:** 2,3 kW (230 V ~ / 10 A) **12 A:** 2,76 kW (230 V ~ / 12 A)
Input	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
Power supply	L1, N: 230 V ~ 48..62 Hz, self-synchronizing
Power consumption	**2 A:** typ. 2,5 W **4 A:** typ. 4,5 W **6 A:** typ. 6,5 W **8 A:** typ. 9 W **10 A:** typ. 11 W **12 A:** typ. 13 W
Display	LED – power supply OK, LED – modulation amplitude 100%
Enclosure	PA
Operating range temperature	0..+45 °C
Protection (IP)	IP40, terminal blocks IP23, according to EN 60529
Connection	terminal block, max. 2,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	types up to 4 A with cooling plate types 6 A with heat sink types 8 A and higher with heat sink and fan

Power thyristors – Phase angle			
Item description	**Item No.**	**Group**	**€**
TS1 single-phase 1-ph 2 A 0,46 kW	229678	TR1	204,30
TS1 single-phase 1-ph 4 A 0,92 kW	226639	TR1	238,10
TS1 single-phase 1-ph 6 A 1,38 kW	224000	TR1	277,00
TS1 single-phase 1-ph 8 A 1,84 kW	236980	TR1	305,80
TS1 single-phase 1-ph 10 A 2,3 kW	223874	TR1	329,60
TS1 single-phase 1-ph 12 A 2,76 kW	230605	TR1	358,40

Power thyristors – Oscillation			
Item description	**Item No.**	**Group**	**€**
TS1 single-phase SP 1-ph 2 A 0,46 kW	283137	TR1	204,30
TS1 single-phase SP 1-ph 4 A 0,92 kW	226622	TR1	238,10
TS1 single-phase SP 1-ph 6 A 1,38 kW	238885	TR1	277,00
TS1 single-phase SP 1-ph 8 A 1,84 kW	255189	TR1	305,80
TS1 single-phase SP 1-ph 10 A 2,3 kW	266109	TR1	329,60
TS1 single-phase SP 1-ph 12 A 2,76 kW	233712	TR1	358,40

TS3 single-phase

The TS3 single-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

Technical Data	
Configuration	DIP switches
Output switch contact	signal contact in case of fault state 1x contact NO 2A for 230 V ~, floating
output for ohmic and inductive loads	**15 A:** 3,5 kW (230 V ~ / 15 A) **25 A:** 5,75 kW (230 V ~ / 25 A) **35 A:** 8,05 kW (230 V ~ / 35 A) **50 A:** 11,5 kW (230 V ~ / 50 A)
Input	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V =, 0..20 or 4..20 mA optionally configurable
Power supply	L1, N: 230 V ~ 45..65 Hz, self-synchronizing
Power consumption	**15 A:** typ. 13 W **25 A:** typ. 22 W **35 A:** typ. 31 W **50 A:** typ. 45 W
Display	4 LEDs showing status of the device
Enclosure	aluminium
Operating range temperature	0..+50 °C
Protection (IP)	IP40, according to EN 60529
Connection	terminal block
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

Power thyristors – Phase angle			
Item description	**Item No.**	**Group**	**€**
TS3 single-phase 1-ph 15 A 3,45 kW	237161	TR1	393,50
TS3 single-phase 1-ph 25 A 5,75 kW	241649	TR1	558,90
TS3 single-phase 1-ph 35 A 8,05 kW	238489	TR1	591,50
TS3 single-phase 1-ph 50 A 11,5 kW	361200	TR1	685,40

Power thyristors – Oscillation			
Item description	**Item No.**	**Group**	**€**
TS3 single-phase SP 1-ph 15 A 3,45 kW	245500	TR1	393,50
TS3 single-phase SP 1-ph 25 A 5,75 kW	231091	TR1	558,90
TS3 single-phase SP 1-ph 35 A 8,05 kW	270977	TR1	591,50
TS3 single-phase SP 1-ph 50 A 11,5 kW	344333	TR1	685,40

TS1 three-phase

The TS1 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

Technical Data	
Configuration	DIP switches
Output switch contact	signal contact at 100% Ua 1x contact NO 3A for 250 V ~ or 24 V =,floating
output for ohmic and inductive loads	**2 A:** 1,2 kW (400 V ~ / 2 A) **4 A:** 2,5 kW (400 V ~ / 4 A) **6 A:** 4 kW (400 V ~ / 6 A) **8 A:** 5 kW (400 V ~ / 8 A) **10 A:** 6,5 kW (400 V ~ / 10 A)
Input	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
Power supply	L1, L2, L3, N: 400 V ~ 48..62 Hz, self-synchronizing
Power consumption	**2 A:** typ. 7 W **4 A:** typ. 13 W **6 A:** typ. 19 W **8 A:** typ. 25 W **10 A:** typ. 31 W
Display	LED – power supply OK, LED – modulation amplitude 100%
Enclosure	PA
Operating range temperature	0..+45 °C
Protection (IP)	IP40, terminal blocks IP23, according to EN 60529
Connection	terminal block, max. 2,5 mm²
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	types up to 4 A with cooling plate types 6 A with heat sink types 8 A and higher with heat sink and fan

Power thyristors – Phase angle			
Item description	**Item No.**	**Group**	**€**
TS1 three-phase 3-ph 2 A 1,2 kW	230148	TR1	233,20
TS1 three-phase 3-ph 4 A 2,5 kW	246514	TR1	257,00
TS1 three-phase 3-ph 6 A 4,0 kW	224260	TR1	285,70
TS1 three-phase 3-ph 8 A 5,0 kW	233736	TR1	315,80
TS1 three-phase 3-ph 10 A 6,5 kW	224314	TR1	349,60

Power thyristors – Oscillation			
Item description	**Item No.**	**Group**	**€**
TS1 three-phase SP 3-ph 2 A 1,2 kW	273558	TR1	233,20
TS1 three-phase SP 3-ph 4 A 2,5 kW	268226	TR1	257,00
TS1 three-phase SP 3-ph 6 A 4,0 kW	275910	TR1	285,70
TS1 three-phase SP 3-ph 8 A 5,0 kW	275927	TR1	315,80
TS1 three-phase SP 3-ph 10 A 6,5 kW	241182	TR1	349,60

TS3 three-phase

The TS3 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

Technical Data	
Configuration	DIP switches
Output switch contact	signal contact at 100% Ua, signal contact in case of fault state changeover contacts 2A for 230 V ~
output for ohmic and inductive loads	**15 A:** 10 kW (400 V ~ / 15 A) **25 A:** 16 kW (400 V ~ / 25 A) **35 A:** 23 kW (400 V ~ / 35 A) **50 A:** 33 kW (400 V ~ / 50 A)
Input	input for potentiometer 2,5..10 kΩ PWM input 5 V / 5..10 kHz input for PTC according to DIN 44081 input for reset electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
Power supply	L1, L2, L3, N: 400 V ~ 45..65 Hz, self-synchronizing
Power consumption	**15 A:** typ. 40 W **25 A:** typ. 67 W **35 A:** typ. 94 W **50 A:** typ. 135 W
Display	4 LEDs showing status of the device
Enclosure	aluminium
Operating range temperature	0..+50 °C
Protection (IP)	IP40, according to EN 60529
Connection	terminal block
Mounting	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

Power thyristors – Phase angle			
Item description	**Item No.**	**Group**	**€**
TS3 three-phase 3-ph 15 A 10 kW	224796	TR1	765,50
TS3 three-phase 3-ph 25 A 16 kW	225649	TR1	874,60
TS3 three-phase 3-ph 35 A 23 kW	225656	TR1	1021,00
TS3 three-phase 3-ph 50 A 33 kW	256353	TR1	1138,80

Power thyristors – Oscillation			
Item description	**Item No.**	**Group**	**€**
TS3 three-phase SP 3-ph 15 A 10 kW	225236	TR1	765,50
TS3 three-phase SP 3-ph 25 A 16 kW	240970	TR1	874,60
TS3 three-phase SP 3-ph 35 A 23 kW	241014	TR1	1021,00
TS3 three-phase SP 3-ph 50 A 33 kW	223836	TR1	1138,80

TS2 three-phase

The TS2 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

Technical Data	
Configuration	jumper, DIP switches
Output switch contact	signal contact at 100% Ua, signal contact in case of fault state changeover contacts 2A for 230 V ~, floating
output for ohmic and inductive loads	**75 A:** 50 kW (400 V ~ / 75 A) **90 A:** 60 kW (400 V ~ / 90 A) **120 A:** 78 kW (400 V ~ / 120 A)
Input	input for potentiometer 2,5..10 kΩ input for PTC according to DIN 44081 electrical activation via setpoint signal 0..10 V =, 0..20 or 4..20 mA optionally configurable
Power supply	L1, L2, L3, N: 400 V ~ 48..62 Hz, self-synchronizing
Power consumption	**75 A:** typ. 202 W **90 A:** typ. 243 W **120 A:** typ. 324 W
Display	9 LEDs showing status of the device
Enclosure	aluminium, cover plexiglass
Operating range temperature	0..+55 °C
Protection (IP)	IP42, according to EN 60529
Connection	power connections, M8 connection screw for cable lug, connection control electronics, max. 1.5 mm²
Mounting	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

Power thyristors – Phase angle

Item description	Item No.	Group	€
TS2 three-phase 3-ph 75 A 50 kW	236522	TR1	1866,60
TS2 three-phase 3-ph 90 A 60 kW	260190	TR1	2197,30
TS2 three-phase 3-ph 120 A 78 kW	304719	TR1	2514,30

Power thyristors – Oscillation

Item description	Item No.	Group	€
TS2 three-phase SP 3-ph 75 A 50 kW	339094	TR1	1866,60
TS2 three-phase SP 3-ph 90 A 60 kW	326926	TR1	2197,30
TS2 three-phase SP 3-ph 120 A 78 kW	336482	TR1	2514,30

Accessories Information

Mounting Accessories

Mounting accessories general 392
Mounting accessories USE 393
Fastening and screwing 394
Thermowell pockets 395
Bonded pockets 396
Mounting flanges 397
Connections 398
Wires / Cables 398
Frames and enclosures 399
Valve adapters 400

Safety and Protection

Enclosure protection / Anti-theft protection 401
Filters 401

Power Supply

Power supplies 402
Batteries 402

Configuration

Hardware 403
Storage media 403

Miscellaneous

Displays (DLF / DPL) 404
Special printing 404
Special painting 404
Special engraving/Special lasering 404
Material test report 405

General Information

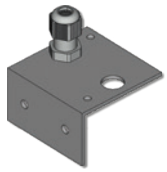
Sensor characteristics 406
Glossary 408

	Mounting accessories general			
	Item description	**Item No.**	**Group**	**€**
1	Mounting bracket kit for differential pressure switch 135x74x60 mm	669009	AS1	9,25
2	Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1	9,85
3	Installation set TFR / MWF+	679466	AS1	9,35
4	Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1	13,50
5	Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	AS1	7,25
6	Connector STC-DO8 to STC-PLUS 4DO	517577	AS1	8,30
7	Wall mounting for duct hygrostat	429030	AS1	41,90
8	L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,90

1

2

3



4

5

6

7

8

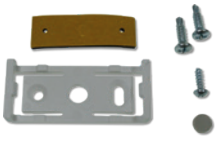
Mounting accessories USE				
Item description	**Item No.**	**Group**	**€**	
Mounting clip enclosure USE-S pure white	667739	AS1	5,15	1
Mounting base enclosure USE-S pure white	667722	AS1	6,10	2
Mounting base enclosure USE-M pure white	668354	AS1	8,75	3
Mounting base enclosure USE-L pure white	668361	AS1	12,20	4
Mounting kit AKF10+ for enclosure USE-S	748551	AS1	7,55	5
Mounting kit universal for enclosure USE	698511	AS1	9,75	6
Cable entry M20 USE white, sealing insert Flextherm Ø=4,5..9 mm (4 pcs)	752626	AS1	11,20	7
Sealing insert M20 USE white, Flextherm Ø=4,5..9 mm (10 pcs)	752206	AS1	11,20	8
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	AS1	11,20	9
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	AS1	11,20	10
Sealing insert M25 USE white, 2x Ø=9 mm (10 pcs)	797573	AS1	11,20	11

1

2

3

4



5

6

7

8

9

10

11

	Fastening and screwing				
	Item description	Item No.		Group	€
1	Fixing kit rawlplugs and screws (2x each)	660945		AS1	0,95
2	Syringe thermal contact fluid	102308		AS1	1,60
3	Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206		AS1	14,20
4	Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213		AS1	14,20
5	Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		AS1	3,00
6	Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		AS1	4,65
7	Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071		AS1	3,00
8	C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596		AS1	9,35
9	Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388		AS1	62,40
10	Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395		AS1	71,60
11	Screw connection set Ø=6 mm brass (2 pcs.)	373401		AS1	14,80
12	Screw connection set Ø=8 mm brass (2 pcs.)	373418		AS1	14,90

1

2

3

4

5 + 6

7

8

9 + 10

11 + 12

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	⛁	AS2	8,75
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛁	AS2	9,90
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	⛁	AS2	10,50
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	⛁	AS2	10,90
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	⛁	AS2	12,50
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	⛁	AS2	12,90
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	⛁	AS2	13,20

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	⛁	AS2	19,00
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛁	AS2	20,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	⛁	AS2	22,60
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	⛁	AS2	23,70
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	⛁	AS2	29,40
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	⛁	AS2	30,80
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	⛁	AS2	31,80
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	20,20

THMSDS

THVADS

Thermowells stainless steel for sensors with pocket Ø=8 mm						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
VA-thermowell 100 mm type THVA100 (KFK03)	258 mm	250 mm	584180	⛁	AS2	29,90
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	⛁	AS2	31,40
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	⛁	AS2	33,00
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	⛁	AS2	34,80

Bonded pockets						
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**	**€**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	61,70
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛁	AS1	49,60
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛁	AS1	56,80
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛁	AS1	63,90
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛁	AS1	70,30

Mounting flanges					
Item description	**Item No.**	**On stock**	**Group**	**€**	
Mounting flange MF2 (suitable for TFR)	435642		AS1	7,05	1
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	⛃	AS2	7,05	2
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	⛃	AS2	7,05	3
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438		AS1	5,70	4
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	⛃	AS1	7,05	5
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360		AS1	7,05	6
Mounting flange MF8 stainless steel (suitable for Ø=8 mm)	103305		AS1	20,80	7
Mounting flange MF19	527705		AS1	13,10	8
Mounting flange MF20	612562		AS1	13,10	9

1

2

3

4

5

6

7

8

9

	Connections			
	Item description	**Item No.**	**Group**	**€**
1	Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,55
2	Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,35
3	T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	33,00
4	Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,95

1

2

3

4

	Wires / Cables			
	Item description	**Item No.**	**Group**	**€**
1	Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	14,00
2	Sensor wire 1,5 m with RJ45 connector	628785	AS1	6,20
3	Sensor wire 3 m with RJ45 connector	708852	AS1	8,00
4	Sensor wire 5 m with RJ45 connector	794886	AS1	11,60
5	Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,90
6	Antenna extension 10 m	257206	AS1	62,00
7	Antenna extension 20 m	257213	AS1	75,40
8	USB extension 3 m	574044	NET	14,90

1

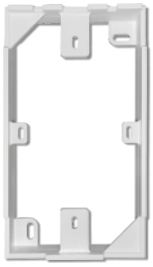
2 – 5

6

7

8

Frames and enclosures				
Item description	**Item No.**	**Group**	**€**	
Frame for surface mounting JOY pure white	760201	AS1	26,80	1
Frame for surface mounting JOY black	760195	AS1	26,80	2
Decorative frame JOY pure white	681452	AS1	13,50	3
Decorative frame JOY black	740951	AS1	13,50	4
Frame for surface mounting NOVOS 3 / WRF04 pure white	795050	AS1	13,90	5
Frame for surface mounting NOVOS 3 / WRF04 black	795074	AS1	50,60	6
Enclosure for surface mounting MDS pure white	448512	AS1	53,30	7
Enclosure for surface mounting SR-MDS pure white	514439	AS1	53,30	8



1

2

3

4

5

6

7 + 8

	Valve Adapters			
	Item description	**Item No.**	**Group**	**€**
1	Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	26,70
2	Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	26,70
3	Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	26,70
4	Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	26,70
5	Valve adapter SAB for Danfoss RAV Z803	589109	AS1	26,70
6	Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	26,70
7	Valve adapter SAB for Danfoss Z800	589079	AS1	26,70
8	Valve adapter SAB for Danfoss Z801	589086	AS1	26,70
9	Valve adapter SAB for Danfoss Z805	615181	AS1	26,70

1

2

3

4

5

6

7

8

9

Enclosure protection / Anti-theft protection					
Item description	**Item No.**	**On stock**	**Group**	**€**	
Sun/rain protection RS150	103329		AS1	25,10	1
Ball stroke protection BS150, transparent	647007	⛃	AS1	25,10	2
Ball stroke protection BS100, stainless steel	103312		AS1	25,10	3
Weather protection for FTK+, WSA (replacement)	625241		AS1	75,30	4
Battery protection SAB05	595612	⛃	AS1	20,50	5
Safety lock dismounting protection SAB	706148		AS1	11,60	6

1

2

3

4

5

6

Filters				
Item description	**Item No.**	**Group**	**€**	
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ (spare part)	231169	AS1	9,75	1
Filter stainless steel, wire mesh FSK01 (spare part)	429047	AS1	24,90	2
Filter PTFE (for air velocities >15 m/s)	429054	AS1	46,00	3

1

2

3

	Power supplies				
	Item description	**Item No.**	**On stock**	**Group**	**€**
1	PSU-UP24 – flush-mounted power supply 24 V	645737	⛁	AS1	46,30
2	PSU-HS24 - power supply unit 24 V for DIN rail mounting	764742	⛁	AS1	118,90

1

2

	Batteries			
	Item description	**Item No.**	**Group**	**€**
1	Battery LS14250	315098	AS1	4,55
2	Battery ER14505 (lithium 3.6 V AA)	759182	AS1	7,65
3	Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,55
4	Coin cell CR1225	727310	AS1	4,55
5	Coin cell CR1632	597814	AS1	4,55
6	Coin cell CR2032	347013	AS1	4,55

1

2

3

4

5

6

Hardware				
Item description	**Item No.**		**Group**	**€**
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704		NET	111,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262		NET	31,30
USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838		AS1	38,50
Converter RS485 Modbus – USB incl. driver CD	668293		NET	58,20

1

2

3

4

Storage Media			
Item description	**Item No.**	**Group**	**€**
microSD card 2 GB (JOY)	500098	AS1	12,50

Displays (DLF / DPL)			
Item description	**Item No.**	**Group**	**€**
UD-A – universal display for 4..20 mA	718189	AS1	93,30
UD-V – universal display for 0..10 V	775113	AS1	93,30

Special printing			
Item description	**Item No.**	**Group**	**€**
Special printing – order quantity 20..49 pcs. (each per colour)	–		17,20
Special printing – order quantity 50..99 pcs. (each per colour)	–		12,90
Special printing setup and tool costs (once for one-colour print)	115049	NET	176,40

Special painting			
Item description	**Item No.**	**Group**	**€**
Special painting – prices on request	–		
Special painting setup costs (once per colour)	114998	NET	176,40

Special engraving / special lasering
Item description
Engraving/lasering – prices on request

Inspection certificate 3.1 according to EN 10204

Depending on the application and the field of use, calibration certificates are becoming increasingly important in modern building automation as well as HVAC. Reasoned by physical characteristics, sensors are exposed to and wear off due to mechanical, chemical or thermal stress. Due to these external influences, the initial technical specifications can vary over the lifespan of a sensor.

Calibration as a measuring process serves to determine and document the deviation of a sensor at the time of its calibration test compared to a certified reference device. Each device is issued its individual certificate according to DIN EN 10204 with the measured deviations. This document certifies, that the sensor complies with the accuracies defined in the data sheet at the time of manufacture/delivery. An adjustment/offset of the detected deviation is not conducted.

Measured value		Calibration range
Temperature		-20..+150 °C
Relative Humidity	Room sensors: Outdoor/Duct sensors:	20..80% rH 5..95 % rH
Differential Pressure (air)		-100..+7000 Pa

thermokon
HOME OF SENSOR TECHNOLOGY

Abnahme Prüfzeugnis nach DIN EN 10204,3.1
Inspection certificate according to DIN EN 10204,3.1

Gegenstand *Object*	Feuchtewohnraumtemperaturfühler *Surface mounting room sensor for relative humidity and temperature*
Typ *Type*	NOVOS 3 Temp,rH weiß VV *NOVOS 3 Temp,rH white VV*
Hersteller *Manufacturer*	Thermokon Sensortechnik GmbH *Thermokon Sensortechnik GmbH*
Fabrikat/Seriennummer *Serial number*	siehe Messergebnisse *see results*

Material test reports		
Item description	**Item No.**	**€**
Inspection certificate 3.1 (EN 10204) temperature – 2 values	119030	on request
Inspection certificate 3.1 (EN 10204) humidity – 2 values	665407	on request
Inspection certificate 3.1 (EN 10204) pressure – 2 values	696647	on request
Additional measuring point	–	on request

TEMP. °C	PT100 OHM	PT1000 OHM	NI1000 OHM	NI1000 TK5000 OHM	KTY81-110 OHM	KTY81-121 OHM	KTY81-122 OHM
-50	80,31	803,10	743,00	790,88	515	505	525
-40	84,27	842,70	791,00	830,83	567	557	577
-30	88,22	882,20	842,00	871,69	624	614	634
-20	92,16	921,60	893,00	913,48	684	674	694
-10	96,09	960,90	946,00	956,24	747	737	757
0	100,00	1.000,00	1.000,00	1.000,00	815	805	825
10	103,90	1.039,00	1.056,00	1.044,79	886	876	896
20	107,79	1.077,90	1.112,00	1.090,65	961	951	971
25	109,74	1.097,40	1.141,00	1.113,99	1.000	990	1.010
30	111,67	1.116,70	1.171,00	1.137,61	1.040	1.030	1.050
40	115,54	1.155,40	1.230,00	1.185,71	1.122	1.112	1.132
50	119,40	1.194,00	1.291,00	1.234,97	1.209	1.199	1.219
60	123,24	1.232,40	1.353,00	1.285,44	1.299	1.289	1.309
70	127,07	1.270,00	1.417,00	1.337,14	1.392	1.382	1.402
80	130,89	1.308,90	1.483,00	1.390,12	1.490	1.480	1.500
90	134,70	1.347,00	1.549,00	1.444,39	1.591	1.581	1.601
100	138,50	1.385,00	1.618,00	1.500,00	1.696	1.686	1.706
110	142,29	1.422,00	1.688,00	1.556,98	1.805	1.795	1.815
120	146,06	1.460,60	1.760,00	1.615,36	1.915	1.905	1.925
130	149,82	1.498,20	1.853,00	1.675,18	2.023	2.013	2.033
140	153,58	1.535,80	1.909,00	1.736,47	2.124	2.114	2.134
150	157,31	1.573,10	1.987,00	1.799,26	2.211	2.201	2.221

TEMP. °C	KTY81-210 OHM	FET OHM	LM235Z MVOLT	BALCO 500 OHM	NTC 1,6K OHM	NTC1,8K OHM	NTC2,2K OHM
-50	1.030	–		382,1	–	–	–
-40	1.135	–	2.332	399,8	53.370	40.375	73.060
-30	1.247	1.934,70	2.432	418,0	28.173	22.906	38.550
-20	1.367	2.030,41	2.532	435,6	15.489	13.477	21.200
-10	1.495	2.127,68	2.632	453,3	8.840	8.198	12.110
0	1.630	2.226,53	2.732	471,0	5.222	5.141	7.162
10	1.772	2.327,01	2.832	488,7	3.184	3.315	4.372
20	1.922	2.429,15	2.932	497,3	1.999	2.193	2.747
25	2.000	2.480,86	2.982	506,3	1.600	1.800	2.200
30	2.080	2.533,00	3.032	523,6	1.289	1.486	1.773
40	2.245	2.638,60	3.132	541,3	851,9	1.028	1.173
50	2.417	2.745,99	3.232	558,5	576,1	726	793
60	2.597	2.855,23	3.332	576,2	397,9	522	548
70	2.785	2.966,36	3.432	593,4	280,2	382	386
80	2.980	3.079,42	3.532	610,6	200,9	284	276
90	3.182	3.194,47	3.632	627,8	146,5	214	201
100	3.392	3.311,56	3.732	645,1	108,5	164	149
110	3.607	3.430,75	3.832	662,3	81,5	127	112
120	3.817	3.552,09	3.932	679,1	62,1	99	85
130	4.008	3.675,65	–	696,3	47,9	–	66
140	4.166	3.801,48	–	713,1	37,4	–	51
150	4.280	3.929,65	–	–	29,5	–	40

TEMP. °C	NTC3K OHM	NTC 3,3K OHM	NTC 5K OHM	NTC 5,369 OHM	NTC-SAT OHM	NTC 10K KOHM	NTC 10K PRE KOHM
-50	–	–	333.914,00	–	–	667,83	–
-40	102.690	109.600	167.835,50	116.300	9.709	335,67	239,80
-30	53.730	57.820	88.341,50	66.190	9.462	176,68	135,20
-20	29.346	31.800	48.487,00	39.100	9.063	96,97	78,91
-10	16.674	18.160	27.649,00	23.890	8.468	55,30	47,54
0	9.822	10.740	16.325,40	15.060	7.658	32,65	29,49
10	5.976	6.558	9.951,75	9.778	6.665	19,90	18,79
20	3.750	4.121	6.246,85	6.517	5.573	12,49	12,26
25	3.000	3.300	5.000,00	5.369	5.025	10,00	10,00
30	2.417	2.660	4.028,00	4.449	4.493	8,06	8,19
40	1.598	1.759	2.662,45	3.104	3.519	5,32	5,59
50	1.081	1.190	1.800,50	2.209	2.704	3,60	3,89
60	747,3	822	1.243,55	1.600	2.059	2,49	2,76
70	526,8	579	875,80	1.178	1.566	1,75	1,99
80	378,3	415	628,09	880,5	1.198	1,26	1,46
90	276,3	302	458,06	666,6	925	0,92	1,08
100	204,9	224	339,32	510,3	725	0,68	0,82
110	154,2	168	255,03	393,6	577	0,51	0,62
120	117,7	128	194,30	305,2	468	0,39	0,48
130	90,9	98	149,91	238,9	386	0,30	0,38
140	71,1	77	117,04	188,4	325	0,23	0,30
150	56,2	60	92,40	150,2	278	0,18	0,24

TEMP. °C	NTC10-CAREL OHM	NTC12K OHM	NTC20K KOHM	NTC30K OHM	NTC50K OHM	NTC100K OHM
-50	–	–	1.490,40	–	4.168.934	–
-40	186.796	396.422,72	803,20	1.219.114	2.033.606	3.216.000
-30	110.881	204.948,28	412,80	622.924	1.038.697	1.721.000
-20	67.683	111.626,16	220,60	331.871	553.243	955.400
-10	42.431	63.671,20	122,40	183.696	306.183	548.800
0	27.280	37.841,88	70,20	105.305	175.508	325.500
10	17.961	23.332,63	41,60	62.343	103.903	198.900
20	12.092	14.869,02	25,34	38.019	63.364	125.000
25	10.000	12.000	20,00	30.000	50.000	100.000
30	8.312	9.761,37	15,88	23.828	39.714	80.530
40	5.826	6.582,83	10,21	15.317	25.529	53.140
50	4.159	4.548,87	6,71	10.079	16.799	35.860
60	3.020	3.213,88	4,51	6.778	11.297	24.690
70	2.228	2.317,13	3,10	4.651	7.750,9	17.330
80	1.668	1.701,83	1,82	3.251	5.418,7	12.830
90	1.266	1.271,35	1,54	2.313	3.854,8	8.996
100	974	964,72	1,11	1.673	2.787,2	6.636
110	758	742,67	0,81	1.228	2.046,1	4.966
120	597	579,39	0,60	915	1.523,4	3.766
130	475	457,60	0,45	–	1.149,5	2.892
140	382	365,57	0,34	–	878,2	2.247
150	310	–	0,27	–	678,8	1.766

Glossary

OUTPUTS

A, AA, 2A	1 resp. 2 outputs 4..20 mA; output values depending on product
V, VV, 3xV, 4xV or 2V, 3V, 4V	1, 2, 3, 4 outputs 0..10 V; output values depending on product
AS, AAS, VS, VVS	1 resp. 2 active outputs + 1 passivee output temperature (S)
TRA	output 4..20 mA, digit for measuring range temperature following
TRV	output 0..10 V, digit for measuring range temperature following
TRA1/TRV1	range -50..+50 °C
TRA2/TRV2	range -10..+120 °C
TRA3/TRV3	range 0..+50 °C
TRA4/TRV4	range 0..+160 °C
TRA5/TRV5	range 0..+250 °C
TRA6/TRV6	range 0..+400 °C
TRA7/TRV7	range 0..+600 °C
TRA8/TRV8	range -15..+35 °C
MultiRange	range adjustable at the device

SI-PROTECTION

Changes in temperature are causing formation of humidity. Thus, there is a risk that the humidity can permeate in the contact point of the sensor. As a result, the sensor would corrode and oxygenate. Thus, the contact point would become unreliable.

The SI-Protection procedure provides the contact point with epoxy gum and a fluidized bed coating which unites with the insulation material of the wire. Thus, a complete unit is built protecting the sensor against vibrations and humidity.

PROTECTION AGAINST VIBRATION AND HUMIDITY
SI-Protection

DUAL CHANNEL – SELF CALIBRATION

Dual Channel self calibration utilizes an independent 2nd optical beam to compare and reference the measuring beam. Because the 2nd beam is used only once a day it will wear off much less resulting in a negligible error. Contrary to products using the commonly used ABC-Logic™, dual channel sensors can be used for all applications including hospitals, casinos, horticulture and livestock etc, which are in use 24/7.

COMMUNICATION

EasySens®	Thermokon radio based on EnOcean IEC 14543-3-10
BACnet	RS485 BACnet (MS/TP), communication protocol specifically designed for building automation; BACnet IP, if mentioned in catalogue
KNX	EIB-KNX interface
LON	LON FTX, communication protocol specifically designed for building automation; other standards, if mentioned in catalogue
Modbus	RS485 Modbus RTU
dS	digitalSTROM

ROOM OPERATING UNITS: OPERATING ELEMENTS

P	potentiometer (setpoint adjustment)
MS	slide switch
S	switch (e.g. for fan stages)
T	button (e.g. for occupancy status)
D	LED
LCD	inclusive display
TLF	traffic light function indicating air quality via LED(s)
AZ	Automatic zero-point calibration

PRICE OVERVIEW OF SINGLE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: depending on device

Manufact.	Switch range	Dim. (WxH)	Colour	Price (€)	WRF07 x WRF06 x WRF06 WRF06I
Berker	Berker S.1	55x55	polar white (g/m), white (g)	0,00	■
	Berker B.3	55x55	Aluminium, Aluminium black anodized	41,90	■
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	0,00	■
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	0,00	■
	solo®	63x63	studio white (m), chrome (g/m)	13,10	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	13,10	■
	Busch-axcent®	63x63	studio white (g)	13,10	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	0,00	■
	E3	55x55	pure white (g)	0,00	■
	Standard 55	55x55	pure white (g/m), creme white (g)	0,00	■
	Esprit	55x55	different colours and materials	41,90	■
	Event	55x55	pure white (g/m), alu, anthracite	0,00	■
	Flächenschalter	71x71	pure white (g)	13,10	■
Jung	LS 990 plastic	70x70	white, alpine white (g)	13,10	■
	A 500	55x55	alpine white, aluminium	0,00	■
	AS 500/AS 500 antib.	55x55	white, alpine white	0,00	■
	A plus	55x55	alpine white, aluminium, anthracite	0,00	■
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	0,00	■
	CD 500	67x67	white, alpine white	13,10	■
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	0,00	■
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	0,00	■
	1-M	55x55	white (g), polar white (g), active white (g)	0,00	■
	Atelier-M	55x55	white (g), polar white (g), active white (g)	0,00	■
	M-Pure	55x55	polar white (g), active white (g), aluminium, anthracite	0,00	■
	Antik	66x66	white (m), polar white (m)	0,00	■

Explanation: ■ without intermediate frame ▣ with intermediate frame – not available g = glossy m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST

PRICE OVERVIEW OF SINGLE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: AS1

Manufact.	Switch range	Dim. (WxH)	Colour	Price (€)	SR06 LCD SR07 x SR07	WRF06 LCD FTW06 WRF06	Radio switchtes
Berker	Berker S.1	55x55	polar white (g/m), white (g)	4,80	■	■	▣
	Berker B.3	55x55	Aluminium, Aluminium black anodized	41,90	–	■	–
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	4,80	■	■	▣
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	4,80	■	■	▣
	solo®	63x63	studio white (m)	13,10	▣	▣	–
				4,80	–	–	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	13,10	▣	▣	–
				4,80	–	–	■
	Busch-axcent®	63x63	studio white (g)	13,10	▣	▣	–
				4,80	–	–	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	4,80	■	■	▣
	E3	55x55	pure white (g)	4,80	■	■	▣
	Standard 55	55x55	pure white (g/m), creme white (g)	4,80	■	■	▣
	Esprit	55x55	different colours and materials	41,90	■	■	▣
	Event	55x55	pure white (g/m), alu, anthracite	4,80	■	■	▣
	Flächenschalter	71x71	pure white (g)	13,10	▣	▣	▣
Jung	LS 990 plastic	70x70	white, alpine white (g)	13,10	▣	▣	■
	A 500	55x55	alpine white, aluminium	4,80	■	■	▣
	AS 500/AS 500 antib.	55x55	white, alpine white	4,80	■	■	▣
	A plus	55x55	alpine white, aluminium, anthracite	4,80	■	■	▣
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	4,80	■	■	▣
	CD 500	67x67	white, alpine white	13,10	–	▣	–
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	4,80	■	■	▣
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	4,80	■	■	▣
	1-M	55x55	white (g), polar white (g), active white (g)	4,80	▣	■	▣
	Atelier-M	55x55	white (g), polar white (g), active white (g)	4,80	–	■	▣
	M-Pure	55x55	polar white (g), active white (g), aluminium, anthracite	4,80	■	■	▣
	Antik	66x66	white (m), polar white (m)	4,80	–	▣	▣

Explanation: ■ without intermediate frame ▣ with intermediate frame – not available g = glossy m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST

TERMS AND CONDITIONS

Orders
We will gladly take your order by phone, email or faxsimile, using either the product name or item number from the catalogue. Please do not hesitate to contact us for technical support or support with specific applications or sensor technology.

Delivery Time
We keep stock of a large number of standard sensors, so that we can provide an excellent and quick lead time. Products are often shipped immediately after receipt of order. Delivery times for larger quantities or custom designs are available on request.

Pricing
All prices are list prices in € and do not include value added tax. Prices are valid from 1st January 2022.
All previous prices become obsolete.

Delivery Conditions
Our standard delivery terms are ex-works (EXW) by parcel services or forwarders, excluding costs for insurance.

Product return
Thermokon stock products can be returned within a period of 6 months after delivery for 2/3 credit of the initial purchase price. Only unused products in original packing will be accepted. Custom manufactured products such as room sensors with control elements, custom engraving, custom varnish or custom printing can not be returned.

Our general terms & conditions as well as warranty conditions can be sent to you upon request. The entire catalogue is subject to technical and price changes; no responsibility is taken for the accuracy of these information. Illustrations may vary.

5 YEARS WARRANTY ON ALL PRODUCTS!

Publisher: Thermokon Sensortechnik GmbH, Platanenweg 1, 35756 Mittenaar, Managing Director: Harald Zygan
No part of this catalogue may be reproduced in any form or processed, duplicated or distributed using digital or analogue tools without the consent of Thermokon Sensortechnik GmbH.

thermokon®
HOME OF SENSOR TECHNOLOGY

CONTACT

Thermokon Sensortechnik GmbH
Platanenweg 1 | 35756 Mittenaar | GERMANY
Phone: +49 2778 6960-0 | Fax: +49 2778 6960-400
email@thermokon.de | www.thermokon.com

AUSTRIA
Thermokon Components GmbH
Ausstellungsstraße 6 | 2020 Hollabrunn
Phone: +43 2952 50407 0
info@thermokon.at | www.thermokon.at

FINLAND
Thermokon Sensor Technology Finland OY
Edelfeltinkatu 13 | 48200 Kotka
Phone: +358 45 230 7141
info@thermokon.fi | www.thermokon.fi

ITALY
Thermokon Sensor Technology S.r.l.
Via Giuseppe Mazzini 7 | 20030 Senago (MI)
Phone: +39 347 9679018
contatti@thermokon.de | www.thermokon.com

CHINA
Thermokon Automation Equipment Co. Ltd.
479 Chun Dong Road | Xin Zhuang Industry Park,
Building C-1, 2/Floor | 201108 Shanghai
Phone: +86 21 5176 0211 | Fax: +86 21 5176 213
info@thermokon.asia | www.thermokon.asia

SWITZERLAND
Thermokon Sensortechnik Schweiz AG
Zürichstraße 46 | 8303 Bassersdorf
Phone: +41 44 752 50 00 | Fax: +41 44 752 50 01
info@thermokon.ch | www.thermokon.ch

NETHERLANDS
Thermokon Sensor Technology Nederland B.V.
Rozenstraat 11 | 6361 HS Nuth
Phone: +31 65 05 5 61 99
email@thermokon.nl | www.thermokon.nl

SWEDEN
Thermokon-Danelko Elektronik AB
Girovägen 13 | 17562 Järfälla
Phone: +46 10 212 10 30
info@thermokon.se | www.thermokon.se

HONG KONG
Thermokon Sensor Technology Ltd.
Flat 6, 21/F., Lucida Industrial Building
43, Wang Lung Street | Tsuen Wan | Hong Kong
Phone: +852 3628 3760 | Fax: +852 3628 3762
info@thermokon.asia | www.thermokon.asia