thermokon®

HOME OF SENSOR TECHNOLOGY



thanos.EVO | P. 112

PRODUCTS

VALID FROM 1ST APRIL 2021 – WORLD EDITION

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

» 2021

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

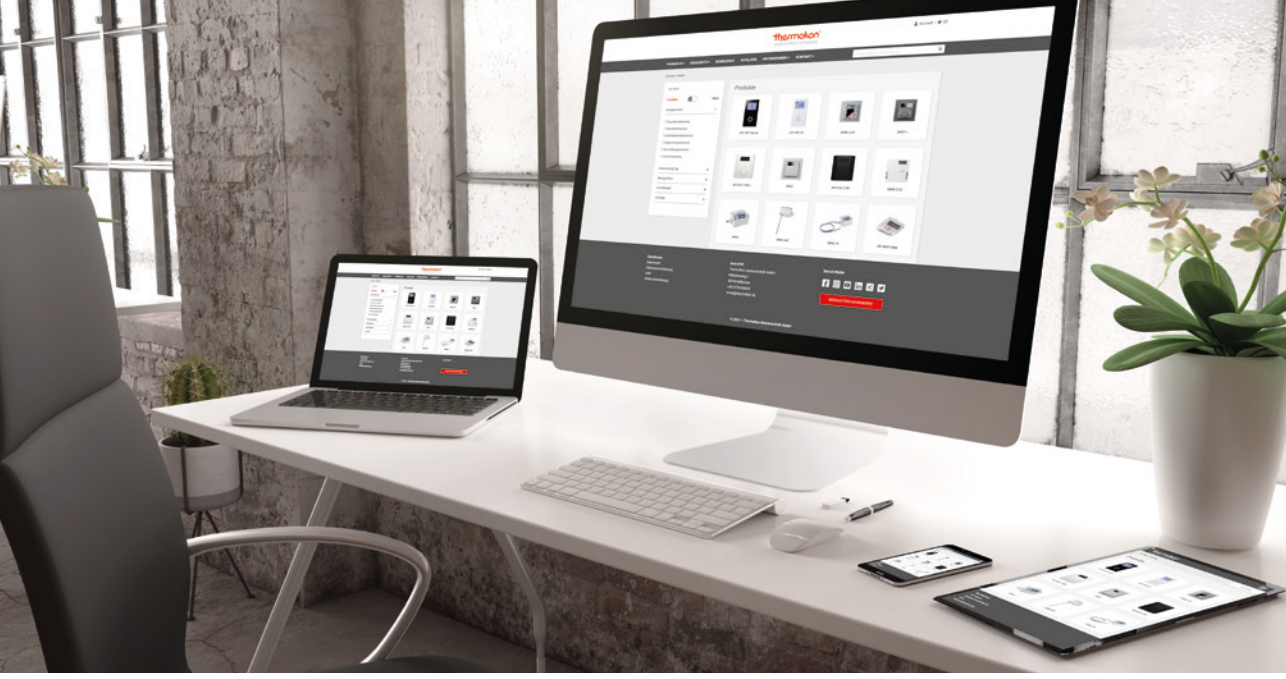
2009 **Extension** of the product portfolio to sensors with BACnet interface
2007 **Further extension** of the company building by 600 m²
2005 **Launch** of the design room operating unit WRF08
2005 **Extension** of the product portfolio to sensors with Modbus interface
2004 **Launch** of the innovative 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

BECOMING ONE – **THERMOKON.DE** AND **DIRECT.THERMOKON.DE**

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
EasySens® 14
airConfig 16
airScan 18
References 20
Warranty / SI Protection 22

EasySens®

Room Operating Units

JOY SR Fancoil	Temperature, rel. humidity	24
JOY SR HC	Temperature, rel. humidity	26
SR06 LCD	Temperature, rel. humidity	28
SR07 x	Temperature, rel. humidity	32
NOVOS 3 SR x	Temperature, rel. humidity	35

Room Sensors

SR07	Temperature, rel. humidity	37
NOVOS 3 SR	Temperature, rel. humidity	39
SR04 CO2	CO2, temperature, rel. humidity	42

Sensors

SR65	Outdoor sensor temperature	43
SR65 AKF	Duct sensor temperature	44
SR65 TF	Cable sensor temperature	46
SR65 VFG	Contact sensor temperature	48

Light / Motion

SR-MDS	Light, motion, temperature	50
SR-MDS Solar	Light, motion	51
SR-MOC Solar	Motion	52
SR-MOW Solar	Motion	53
SR65 Li	Light	54

Input Modules

SR-MI	Smart meter (S0 signals)	55
SR65-3AI	Radio module with 3 inputs (0..10 V)	56
SR65 DI	Binary radio module	57

Window Contacts / Door Contacts

SRG02	Window handle (battery-free)	58
SRG-Basic	Window handle (battery-free)	59
SRW03	Window / door contact (battery-free)	60

Switches

Mini	Radio switch (battery-free)	62
55x55	Radio switch (battery-free)	64
BJ 63x63	Radio switch (battery-free)	66
Jung LS990	Radio switch (battery-free)	68
Hand-held	Radio hand-held switch (battery-free)	70
SR-KCS02	Radio key-card switch (battery-free)	71

Gateways

STC65+ RS485 Modbus	72
STC65+ RS485 EVC	73
STC65-FTT LON	74
STC-BACnet IP	75
SR65-BACnet MS/TP	76






STC-IoT 77
STC-KNX 78
STC-KNX UP 79
STC-dS / STC-dS HS 80 / 81

Actuators

STC-DO 82
STC-DO Light 83
STC-DO Blind 84
SRC-AO Climate 85
SRC-AO Dim 86
SRC-AO Multi 87
STC-DO8 88
SRC-ADO 90
STC-MSG Server 92
STC-MSG Server UP 93
SAB+ 94
SAB05 96

Repeater

SRE-Repeater 98
SRE-Repeater UP 99

IntoMesh (BLE)

BLE Switches (Bluetooth® Low Energy)

Mini	BLE switch (battery-free)	102
55x55	BLE switch (battery-free)	104
Busch-Jaeger	BLE switch (battery-free)	106
SR-KCS02 BLE	BLE key-card switch (battery-free)	108

Room Climate Control

Room Operating Units

JOY HC	Temperature, rel. humidity	110
thanos EVO	Temperature, humidity, CO2, VOC	112
NOVOS Touch	Temperature, humidity, CO2, VOC	116
NOVOS 7	Temperature, humidity, CO2, VOC	120
NOVOS 5 x	Temperature, humidity, CO2, VOC	124
NOVOS 3 x	Temperature, humidity, CO2, VOC	129
NOVOS 3 INC	Temperature, humidity	134
WRF07 x	Temperature, rel. humidity, CO2, VOC	137
WRF06 LCD	Temperature, rel. humidity	142
WRF06 x	Temperature	146
WRF06 INC	Temperature, rel. humidity	148
WRF04 x	Temperature	150
LCR Touch	Temperature, humidity, VOC	153
LCA	Temperature	154

Fan Coil Controller

JOY Fancoil	Temperature, rel. humidity	155
LCF02 Touch	Temperature	158
LCF02	Temperature	160
LCF Touch	Temperature	161
LCF	Temperature	163

Room Sensors Climate / Air Quality

NOVOS 5	Temperature, humidity, CO2, VOC	164
NOVOS 3	Temperature, humidity, CO2, VOC	170
NOVOS 7 move	Temperature, rel. humidity, CO2	178
NOVOS 5 move	Temperature, CO2	179
NOVOS 3 move	CO2	180

Table of Contents

WRF06	Temperature, rel. humidity, CO2, VOC	181
WRF04 IR	Radiation temperature	188
FTB+	Temperature, humidity	189
RDF18	Temperature	191
FT-RDF18+	Temperature, humidity	192
RDF-IR	Radiation temperature	194
RPF40	Temperature, radiation temperature	196
RPF40+	Temperature, radiation temperature	197
RPF100	Temperature	199
RPF100+	Temperature	200
FTP+	Temperature, humidity	202

Room Sensors Light / Motion

MDS	Light, motion, temperature	204
RDI	Motion	205
LDF+	Light	206
WRF06I	Motion	209
WRF04I	Motion	211

Room Hygrostats

FSR01	Rel. humidity	212

Outdoor Sensors

Outdoor Sensors Climate / Air Quality

AGS54+	Temperature	214
AGS55+	Temperature	216
FTA54+	Temperature, humidity	220
WSA	Temperature, humidity	222
LA+	Temperature, humidity, CO2, VOC	224

Outdoor Sensors Climate / Light

Li65+	Light, air pressure, temp., humidity	228

Duct Sensors

Duct Sensors Climate / Air Quality

AKF10+	Temperature	232
SFK02+	Temperature	240
SFK02+ FR	Temperature	247
MWF+	Temperature	251
MWF400+	Temperature	254
KFK01	Temperature	257
SFK01	Temperature	260
KFK03	Temperature	262
SFK03	Temperature	267
RG03	Temperature	271
RGS03	Temperature	272
FTK+	Temperature, humidity	273
LK+	CO2, VOC, temperature, humidity	277

Duct Hygrostats

FSK01	Humidity	285





Contact Sensors / Cable Sensors

Contact Sensors

VFG54+	Temperature	288
AF25	Temperature	291
AF25+	Temperature	293

Cable Sensors

TF25	Temperature	295
TF25+	Temperature	299
TF14	Temperature	303
TF14+	Temperature	306

Surface Sensors

PR25	Temperature	308
PR25+	Temperature	310
OF14	Temperature	312
OF14+	Temperature	313

Frost Protection / Condensation / Leakage

Condensation Monitors

WK02+	Condensation, temperature, humidity	316
WK01+	Condensation	318

Leakage Detectors

LS02+	Leakage	320

Frost Protection Thermostats

TFR	Temperature	322
TFRe	Temperature	323

Pressure and Velocity

Air Pressure Sensors

DPA+	Differential pressure, volume flow	326
PS	Differential pressure	332
AVT	Air flow, temperature	333

Air Pressure / Liquid Sensors

DLF	Pressure	334

Liquid Sensors

DPL	Differential pressure	337

Manometer

MM	Differential pressure	338
DPG	Differential pressure	339
DPGe	Differential pressure	340

Table of Contents

Power Thyristors

Single-Phase

TS1 1-phase Power thyristor 342
TS3 1-phase Power thyristor 344

Three-Phase

TS1 3-phase Power thyristor 346
TS3 3-phase Power thyristor 348
TS2 3-phase Power thyristor 350

Accessories / Information

Mounting Accessories

Mounting general 352
Fastening and screwing 353
Thermowell pockets 354
Bonded pockets 355
Mounting flanges 356
Connections 357
Wires / Cables 357
Frames and enclosures 358
Valve adapters 359

Safety and Protection

Enclosure protection / Anti-theft protection 360
Filters 360

Power Supply

Power supplies 361
Batteries 361

Configuration

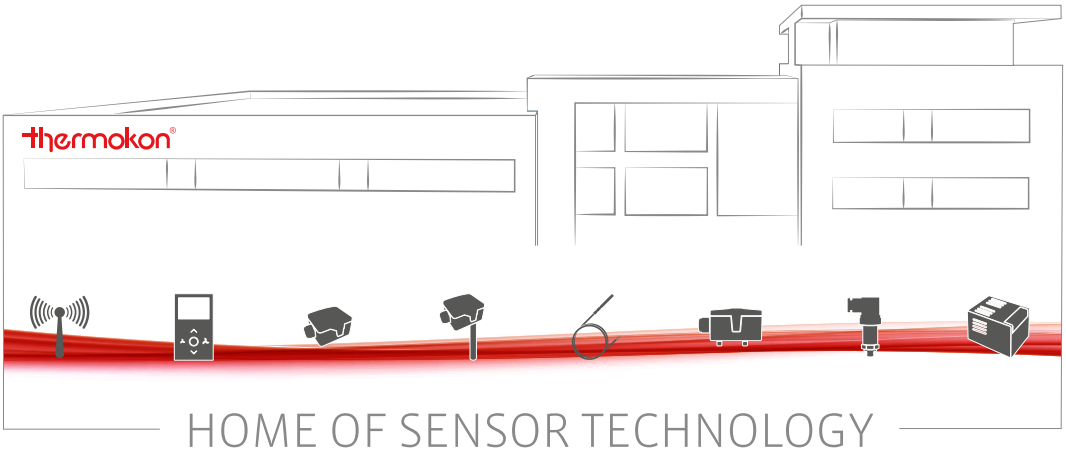
Hardware 362
Storage media 362

Miscellaneous

Displays 363
Material test report 363
Special printing 364
Special painting 364
Special engraving/Special lasering 364

General Information

Sensor characteristics 366
Glossary 368



HOME OF SENSOR TECHNOLOGY

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 · KNX · digitalSTROM · enocean



OUR EXPERTISE – YOUR SUCCESS

For more than 30 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, customized 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 200 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

Wir kennen und verstehen Ihre Anwendungen, beraten und handeln deshalb zielgenau.

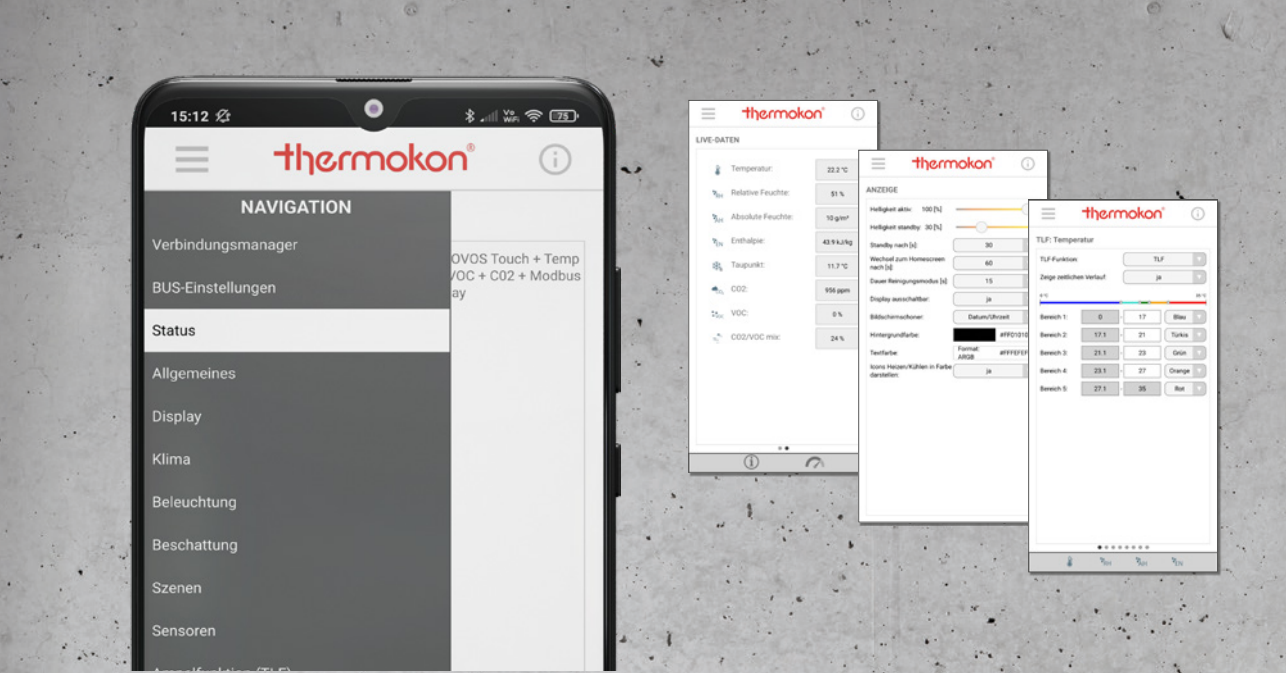
PROCESS KNOW-HOW

Dank unserer umfangreichen Kenntnisse verstehen wir Ihre Prozesse und entwickeln hierfür optimale Lösungen.

TECHNOLOGY KNOW-HOW

Wir besitzen das nötige Technologie-Know-How, um Ihnen auf Ihre Bedürfnisse abgestimmte Produkte und Leistungen anzubieten.

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



Download on the App Store

*USE*app

GET IT ON Google Play

Download on the App Store

*NOVOS*app

GET IT ON Google Play

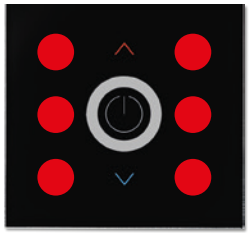


JOY CUSTOM – FUNCTIONAL INDIVIDUALISM

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*



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









TRANSMITTER

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 MECH. VENTILATION
2-2x10
3-2x10
CONT.
8"DIA.STEEL TIES @ 24" OC
+355.20
PROVIDE 4 FEET LONG 1.5" THICK SQUASH BLOCK TYP.
WP:
PL. 8"X8"X1/2"+
thermokon



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



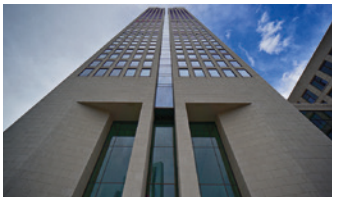
Shell Global Headquarters
The Hague, Netherlands



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 Vier Jahreszeiten
Hamburg, Germany



Universität Oslo
Oslo, Norway



Generali Versicherung, Zentrale
Trieste, Italy



Staatsoper
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/product-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®.



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STC65+ RS485 Modbus	72
STC65+ RS485 EVC	73
STC65-FTT LON	74
STC-BACnet IP	75
SR65-BACnet MS/TP	76
STC-IoT	77
STC-KNX	78
STC-KNX UP	79
STC-dS / STC-dS HS	80 / 81

Actuators

STC-DO	82
STC-DO Light	83
STC-DO Blind	84
SRC-AO Climate	85
SRC-AO Dim	86
SRC-AO Multi	87
STC-DO8	88
SRC-ADO	90
STC-MSG Server	92
STC-MSG Server UP	93
SAB+	94
SAB05	96

Repeater

SRE-Repeater	98
SRE-Repeater UP	99

JOY SR Fancoil

The design-oriented JOY SR Fan coil with its EasySens® radio interface is used for individual temperature control and activation of fan coil units in hotels, offices and living rooms. The JOY is designed for 2- or 4-pipe systems and offers changeover functionality. Two configurable inputs can be used to account for room occupancy and energy locks. In addition to controlling hard-wired proportional valve actuators (also 6-way valves) and a 0..10 V EC fan, EasySens® radio sensors (e.g.motion, temperature, window contacts) can be integrated. An overwrite through radio is possible by using a superior controller profile or in hard-wired fashion via Modbus RS485. This ensures individual and energy-efficient room air conditioning. The device (glass front in white or black) uses a monochrome display with backlight and touch-sensitive operating keys. An integrated scheduler with three time channels, each with four different time periods, allows for optimized energy control. The JOY is fitted to be installed in a flush-mounted standard EU box. For hotel applications, the device offers the possibility to integrate an additional zone (e.g. bathroom heating) in combination with a room temperature sensor and an SAB+/SAB05 radio valve actuator.





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

Outputs	EC 3AO (24 V)
Fan (Relay)	–
EC Fan (0..10 V)	1
Heating/Cooling (Relay)	–
Heating/Cooling (0..10 V)	2
6-Way-Valve (0..10 V)	1*
Inputs	**EC 3AO (24 V)**
Universal (configurable)	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, 1x input for potential contact (230 V ~)
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	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)

Fan coil thermostat with radio interface temperature RS485 Modbus 24 V

Item description	Contr.	Item No.	Group
JOY SR Fancoil EC 3AO temp RS485 Modbus white 24 V	✓	701020	ES1
JOY SR Fancoil EC 3AO temp RS485 Modbus black 24 V	✓	701037	ES1

Options

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

Accessories

Item description	Item No.	Group
microSD card 2 GB (JOY)	500098	AS1
Decorative frame JOY pure white	681452	AS1
Decorative frame JOY black	740951	AS1
Frame for surface mounting JOY pure white	760201	AS1
Frame for surface mounting JOY black	760195	AS1

JOY SR HC

The design-oriented JOY SR HC 3AO provides three 0..10 V outputs for the control of heating/cooling valves or a 6-way valve. The 230 V powered type AO2DO offers relay outputs for controlling heating and cooling valves through PWM. In addition, EasySens® radio sensors (e.g.motion, temperature, window contacts) can be integrated wirelessly. An overwrite through radio is possible by using a superior controller profile or in hard-wired fashion via Modbus RS485. This ensures individual and energy-efficient room air conditioning. The device (glass front in white or black) uses a monochrome display and touch-sensitive operating keys. An integrated scheduler with three time channels, each with four different time periods allows for optimized energy control. The JOY is fitted to be installed in a flush-mounted standard EU box. For hotel applications, the device offers the possibility to integrate an additional zone (e.g. bathroom heating) in combination with a room temperature sensor and an SAB+/SAB05 radio valve actuator.





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 1x input for potential contact (230 V ~)
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	24 V = (±10%) SELV, 85..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
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
JOY SR HC AO2DO temp RS485 Modbus black MVolt	✓	756938	ES1

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
JOY SR HC 3AO temp RS485 Modbus black 24 V	✓	701006	ES1

Accessories

Item description	Item No.	Group
microSD card 2 GB (JOY)	500098	AS1
Decorative frame JOY pure white	681452	AS1
Decorative frame JOY black	740951	AS1
Frame for surface mounting JOY pure white	760201	AS1
Frame for surface mounting JOY black	760195	AS1

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.



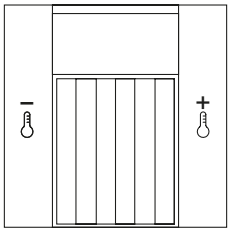
SR06 LCD 4T pure white brilliant, switch range Gira E2 pure white



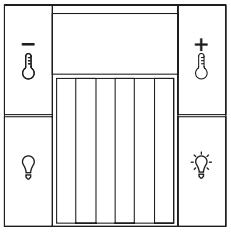
SR06 LCD 2T+Light aluminium, switch range Gira E2 aluminium



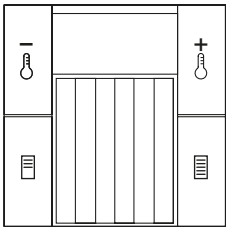
SR06 LCD 2T+Blind anthracite, switch range Gira E2 anthracite



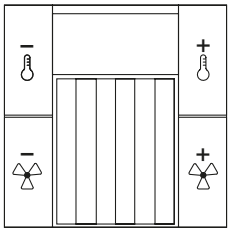
2T



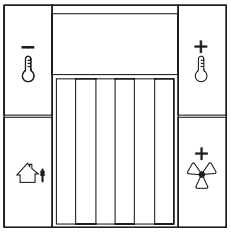
2T+Light



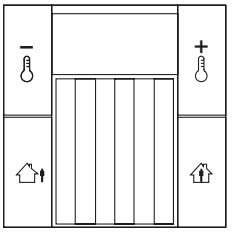
2T+Blind



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
SR06 LCD 2T temp aluminium	728881	ES2
SR06 LCD 2T temp Jung aluminium	728966	ES2
SR06 LCD 2T temp anthracite	728928	ES2

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

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

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

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

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

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

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

Options
Description
Labelling type 2 (ltype2)
Labelling type 3 (ltype3)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

Accessories		
Item description	**Item No.**	**Group**
Coin cell CR1632	597814	AS1
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET
USB extension 3 m	574044	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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.



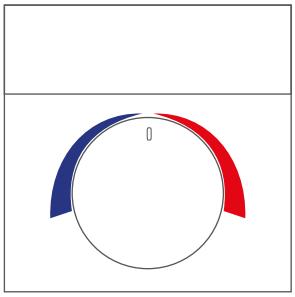
SR07 P aluminium,
switch range Gira E2



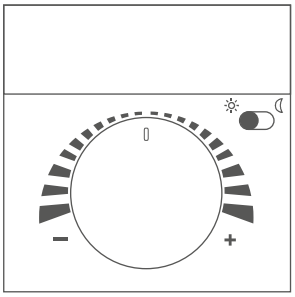
SR07 PT pure white brilliant,
switch range Gira E2



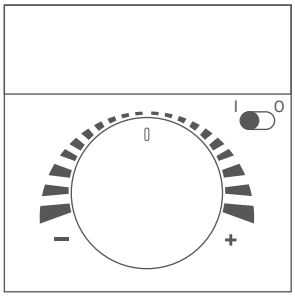
SR07 PMS (day/night) anthracite,
switch range Gira E2



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
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Output signal temperature	scaling according EEP, 0..+40 °C

Technical Data	
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
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 operating unit temperature P

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

Wireless room operating unit temperature PT

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

Wireless room operating unit temperature PMS

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

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

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

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

Options
Description
Default labelling P colour red+blue (ItypeSF)
Default labelling I/0 for slide switch (MS)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

Accessories		
Item description	**Item No.**	**Group**
Coin cell CR1632	597814	AS1

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
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 operating unit temperature			
Item description	**Item No.**	**On stock**	**Group**
NOVOS 3 SR P white temp	754064	⛀	ES2
NOVOS 3 SR T white temp	754071		ES2
NOVOS 3 SR PT white temp	754095		ES2
NOVOS 3 SR P white design temp	777964		ES2
NOVOS 3 SR PT white design temp	777988		ES2

Wireless room operating unit humidity + temperature			
Item description	**Item No.**	**On stock**	**Group**
NOVOS 3 SR P white temp_rH	754101	⛀	ES2
NOVOS 3 SR T white temp_rH	754118		ES2
NOVOS 3 SR PT white temp_rH	754125		ES2
NOVOS 3 SR P white design temp_rH	777971		ES2
NOVOS 3 SR PT white design temp_rH	777995		ES2

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black

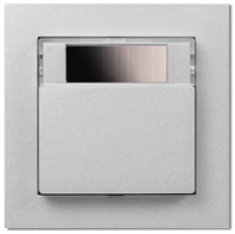
Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
Battery ER14505 (lithium 3.6 V AA)	759182	AS1
Adhesive foil for NOVOS 3 SR with inner cut-outs	773386	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET

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

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

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

Accessories		
Item description	**Item No.**	**Group**
Coin cell CR1632	597814	AS1

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 Temp
enclosure colour pure white



NOVOS 3 SR Temp
enclosure colour black



NOVOS 3 SR Temp
enclosure colour aluminium

Technical Data	
Measured values	temperature, relative humidity
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, 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
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 temperature			
Item description	**Item No.**	**On stock**	**Group**
NOVOS 3 SR temp white	754040	●	ES2
NOVOS 3 SR temp white design	778008		ES2

Wireless room sensor humidity + temperature			
Item description	**Item No.**	**On stock**	**Group**
NOVOS 3 SR temp_rH white	754057	●	ES2
NOVOS 3 SR temp_rH white design	778015		ES2

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
Battery ER14505 (lithium 3.6 V AA)	759182	AS1
Adhesive foil for NOVOS 3 SR with inner cut-outs	773386	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET

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
SR04 CO2 temp LCD	467131	ES2
SR04 CO2 temp TLF	436557	ES2
SR04 CO2 temp LCD TLF	630634	ES2

Wireless room sensor CO2 + temperature + humidity		
Item description	**Item No.**	**Group**
SR04 CO2 temp_rH	434768	ES2
SR04 CO2 temp_rH LCD	462228	ES2
SR04 CO2 temp_rH TLF	516143	ES2
SR04 CO2 temp_rH LCD TLF	474757	ES2

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

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
SR65 temp_rH	540391	⛀	ES2

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

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

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

Thermowells brass for sensors with pocket Ø=6 mm					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛀	AS2
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	⛀	AS2

Thermowells stainless steel for sensors with pocket Ø=6 mm					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛀	AS2
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	⛀	AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2

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

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

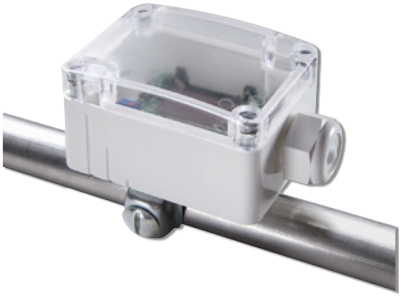
Accessories		
Item description	**Item No.**	**Group**
Battery LS14250	315098	AS1
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1
EnOcean USB transceiver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

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
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	⛃	AS2

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
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	⛃	AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2

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

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



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	appropriate for constant light control

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

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



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
Enclosure	PC
Colour	pure white
Protection (IP)	IP50, 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

Accessories

Item description	Item No.	Group
Battery LS14250	315098	AS1
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET



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 foil or screws

Wireless ceiling sensor motion			
Item description	**Item No.**	**On stock**	**Group**
SR-MOC Solar	566070	●	ES2

Accessories		
Item description	**Item No.**	**Group**
Coin cell CR2032	347013	AS1
Fixing kit rawlplugs and screws (2x each)	660945	AS1



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 foil or screws

Wireless wall sensor motion

Item description	Item No.	Group
SR-MOW Solar	566094	ES2

Accessories

Item description	Item No.	Group
Coin cell CR2032	347013	AS1
Fixing kit rawlplugs and screws (2x each)	660945	AS1



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

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



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

Accessories

Item description	Item No.	Group
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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



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

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

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
SRG02 aluminium steel grey	730730	●	ES1
SRG02 stainless steel	730723	●	ES1
SRG02 lockable aluminium pure white	730716	●	ES1
SRG02 lockable aluminium steel grey	730709	●	ES1

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 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 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
SRG-Basic aluminium silver	768283	●	ES1
SRG-Basic aluminium steel grey	768290		ES1

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

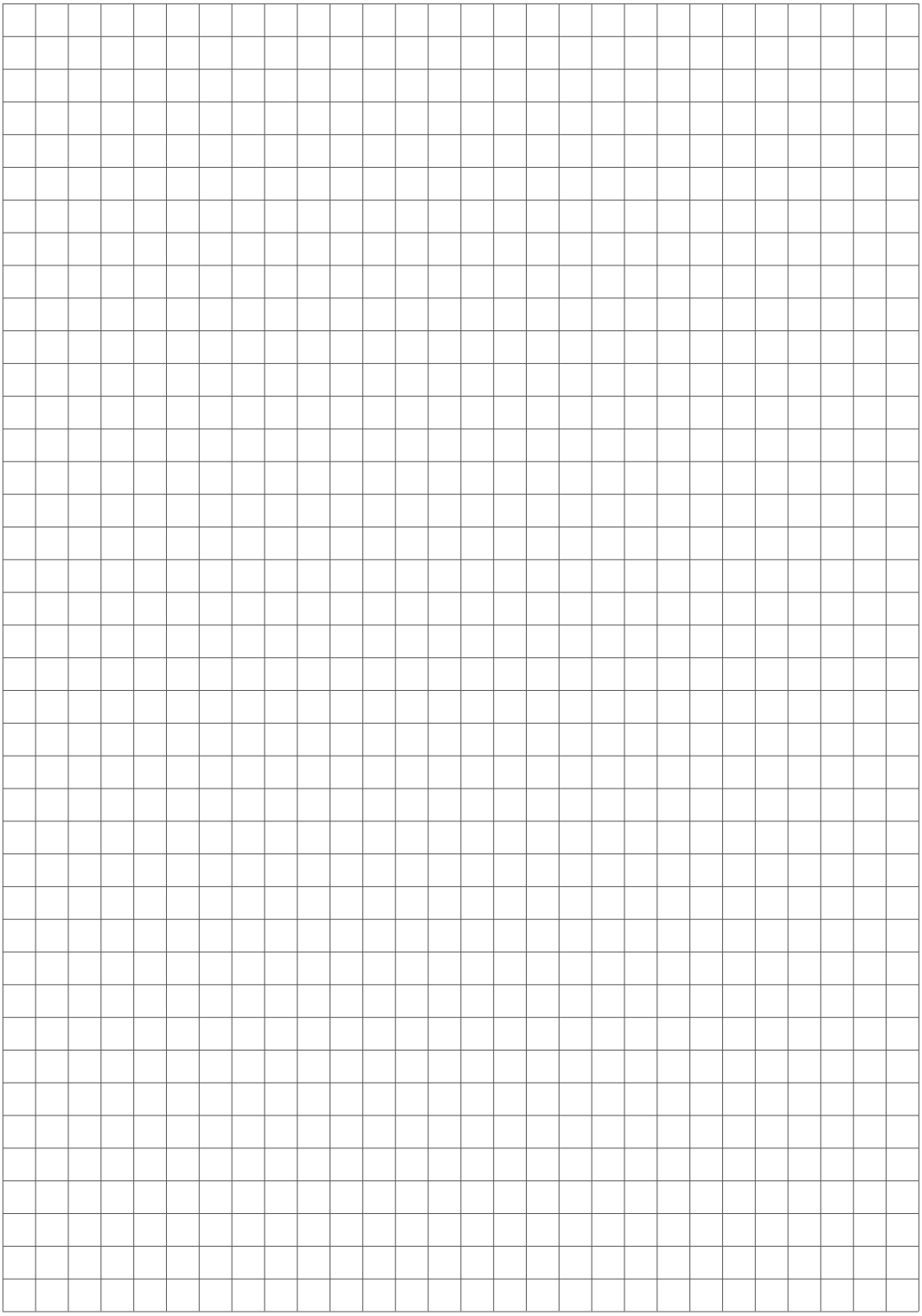


SRW03 Dual BAT

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 **SRW03 Dual:** 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 foil or screws
Delivery content	incl. adhesive foil for mounting
Notes	**SRW03 Dual:** for 1 or 2-leaf windows

Wireless window/door contact		
Item description	**Item No.**	**Group**
SRW03 white	778534	ES1
SRW03 anthracite	778541	ES1
SRW03 Dual BAT white	778558	ES1
SRW03 Dual BAT anthracite	778565	ES1

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



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
Switch Mini 2-channel light aluminium painted	430661	ES2
Switch Mini 2-channel light anthracite	430623	ES2

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

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

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

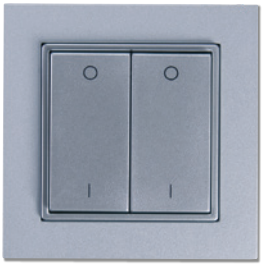
Options
Description
Special printing on request
Without printing on request

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
Switch 2-channel light 55x55 pure white brilliant	730372	ES1
Switch 2-channel light 55x55 aluminium	730419	ES1
Switch 2-channel light 55x55 Jung aluminium	730457	ES1
Switch 2-channel light 55x55 anthracite	730495	ES1

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

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

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

Options
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)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

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
Switch 2-channel light BJ63x63 ivory white	730570	ES1
Switch 2-channel light BJ63x63 alu silver	730631	ES1
Switch 2-channel light BJ63x63 anthracite	730754	ES1

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

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

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

Options
Description
Special printing on request
Without printing on request
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®

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
Switch 2-channel light Jung LS 990 alpin white	435376	ES1
Switch 2-channel light Jung LS 990 light grey	435413	ES1

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

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

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

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

SR-KCS02

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
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

Wireless switch		
Item description	**Item No.**	**Group**
SR-KCS02	691413	ES2



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
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

Accessories

Item description	Item No.	Group
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1



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
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

Accessories

Item description	Item No.	Group
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1



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
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
STC65-FTT LON SmartACK	616638	ES2

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET
Fixing kit rawlplugs and screws (2x each)	660945	AS1



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
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

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET



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
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

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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
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

Accessories

Item description	Item No.	Group
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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
Network technology	KNX (TP)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
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	terminal KNX bus
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



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	Software/Plug-In for configuration, BUS
Network technology	KNX (TP)
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	supply via BUS
Power consumption	max. 12 mA
Enclosure	ABS
Colour	blue
Operating range temperature	-5..+45 °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)
Notes	product database (freeware via download)

Gateway EnOcean <-> BUS		
Item description	**Item No.**	**Group**
STC-KNX UP	725132	ES1



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

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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

Accessories

Item description	Item No.	Group
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET

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
STC-DO airConfig 100..240 V	✓	593748	ES2

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

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

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

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
SRC-AO Climate 6WV	✓	530255	ES2
SRC-AO Climate VV	✓	508285	ES2

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
SRC-AO Dim VV	502931	ES2

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.

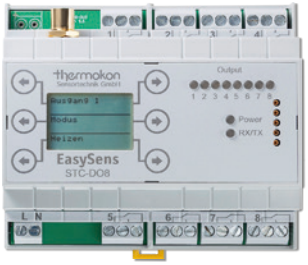


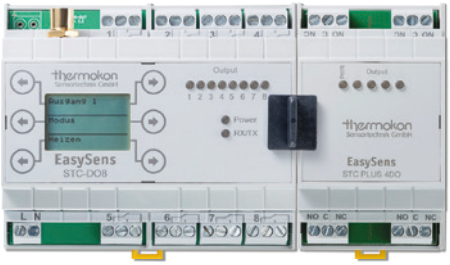
Technical Data	
Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according 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
SRC-AO Multi VV	508322	ES2

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 230 V		
Item description	**Item No.**	**Group**
STC-DO8 100..240 V type1 heating/cooling	490030	ES2
STC-DO8 100..240 V type2 fancoil, heating/cooling	490047	ES2
STC-DO8 100..240 V type3 switch actuator	490054	ES2

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

Extension module		
Item description	**Item No.**	**Group**
STC-PLUS 4DO	517690	ES2

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET
Connector STC-DO8 to STC-PLUS 4DO	517577	AS1

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.

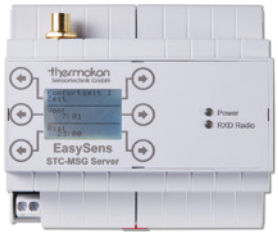


Technical Data	
Configuration	Software/Plug-In for configuration
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
Power consumption	typ. 3,5 W (24 V =), 6,5 VA (24 V ~), max. 5 VA (230 V ~)
Display	4 LEDs showing status of 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
SRC-ADO 4AA/2DO 100..240 V type fancoil, change-over	✓	423236	ES2
SRC-ADO 4AA/4DO 100..240 V type dimming/heating/cooling	✓	273275	ES2
SRC-ADO 4AA/4DO 100..240 V type fancoil, change-over	✓	423243	ES2

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

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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
STC-MSG Server 16-channel	✓	507080	ES2

Accessories		
Item description	**Item No.**	**Group**
Antenna extension 10 m	257206	AS1
Antenna extension 20 m	257213	AS1
L-shaped magnetic antenna holder, 180x180 mm	255097	NET



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. SR04 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	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 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
STC-MSG Server UP 100..240 V	✓	550048	ES2

Accessories

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

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

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

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

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

Accessories		
Item description	**Item No.**	**Group**
Safety lock dismounting protection SAB	706148	AS1
Battery protection SAB05	595612	AS1

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



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
SRE-Repeater MultiLevel external antenna	593830	ES2

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



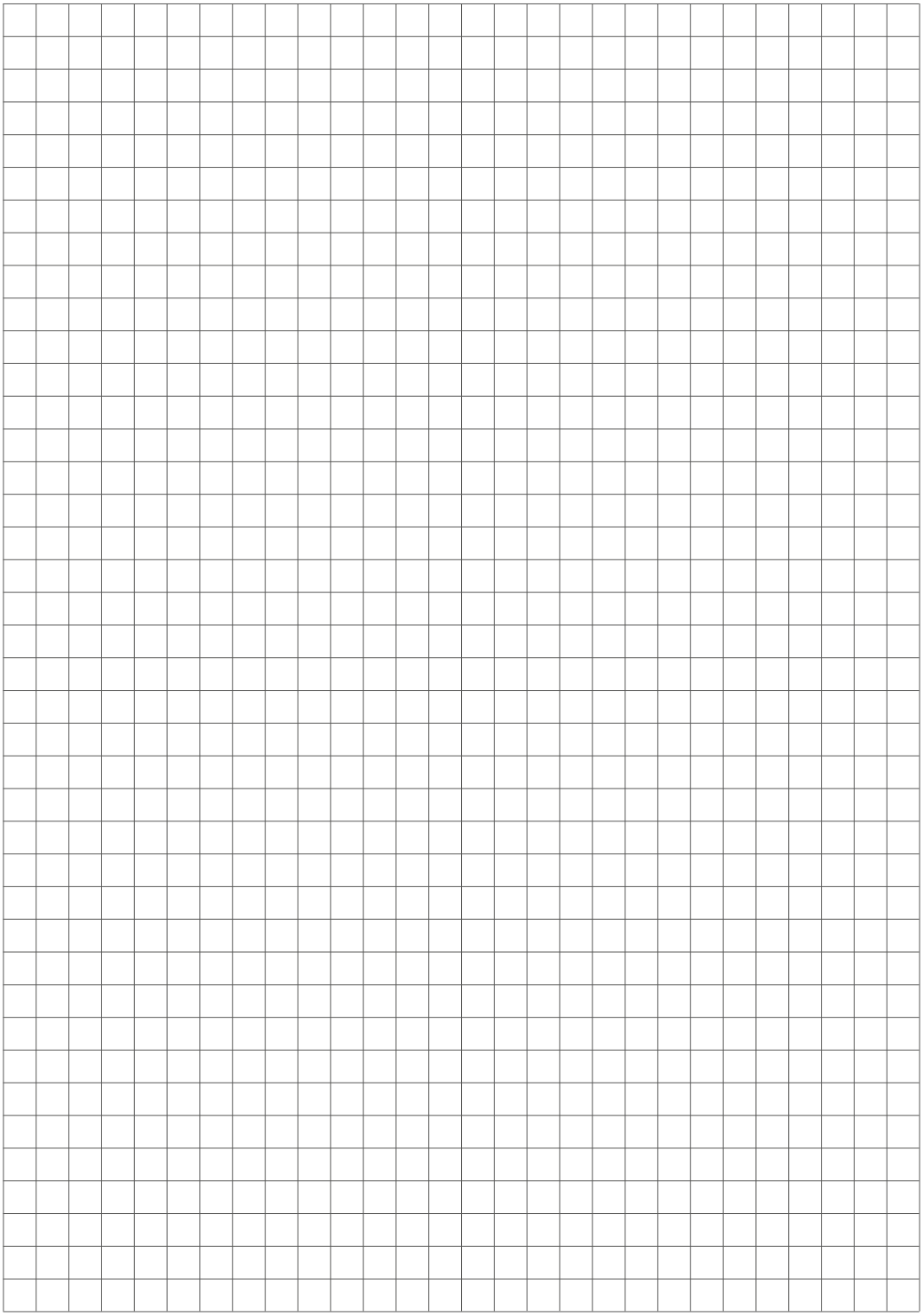
SRE-Repeater UP

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

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



IntoMesh (BLE)

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.





BLE Switches (Bluetooth® Low Energy)

Mini	BLE switch (battery-free)	**102**
55x55	BLE switch (battery-free)	**104**
Busch-Jaeger	BLE switch (battery-free)	**106**
SR-KCS02 BLE	BLE key-card switch (battery-free)	**108**

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
Switch Mini 2-channel BLE light aluminium painted	733946	ES2
Switch Mini 2-channel BLE light anthracite	733953	ES2

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
Switch Mini 4-channel BLE light aluminium painted	733960	ES2
Switch Mini 4-channel BLE light anthracite	733977	ES2

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
Switch Mini 2-channel BLE blind aluminium painted	733991	ES2
Switch Mini 2-channel BLE blind anthracite	734004	ES2

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
Switch Mini 4-channel BLE blind aluminium painted	734028	ES2
Switch Mini 4-channel BLE blind anthracite	734035	ES2

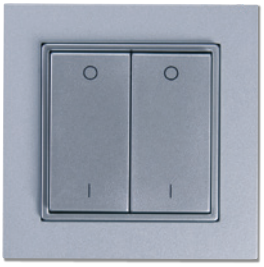
Options
Description
Special printing on request
Without printing on request

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
Switch 2-channel BLE light 55x55 pure white brilliant	734288	ES1
Switch 2-channel BLE light 55x55 aluminium	734318	ES1
Switch 2-channel BLE light 55x55 Jung aluminium	734325	ES1
Switch 2-channel BLE light 55x55 anthracite	734332	ES1

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
Switch 4-channel BLE light 55x55 pure white brilliant	734349	ES1
Switch 4-channel BLE light 55x55 aluminium	734356	ES1
Switch 4-channel BLE light 55x55 Jung aluminium	734363	ES1
Switch 4-channel BLE light 55x55 anthracite	734370	ES1

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
Switch 2-channel BLE blind 55x55 pure white brilliant	734387	ES1
Switch 2-channel BLE blind 55x55 aluminium	734394	ES1
Switch 2-channel BLE blind 55x55 Jung aluminium	734400	ES1
Switch 2-channel BLE blind 55x55 anthracite	734417	ES1

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
Switch 4-channel BLE blind 55x55 pure white brilliant	734424	ES1
Switch 4-channel BLE blind 55x55 aluminium	734479	ES1
Switch 4-channel BLE blind 55x55 Jung aluminium	734486	ES1
Switch 4-channel BLE blind 55x55 anthracite	734493	ES1

Options
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)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

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
Switch 2-channel BLE light BJ63x63 ivory white	734547	ES1
Switch 2-channel BLE light BJ63x63 alu silver	734554	ES1
Switch 2-channel BLE light BJ63x63 anthracite	734561	ES1

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
Switch 4-channel BLE light BJ63x63 ivory white	734578	ES1
Switch 4-channel BLE light BJ63x63 alu silver	734585	ES1
Switch 4-channel BLE light BJ63x63 anthracite	734592	ES1

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
Switch 2-channel BLE blind BJ63x63 ivory white	734622	ES1
Switch 2-channel BLE blind BJ63x63 alu silver	735049	ES1
Switch 2-channel BLE blind BJ63x63 anthracite	735056	ES1

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
Switch 4-channel BLE blind BJ63x63 ivory white	735070	ES1
Switch 4-channel BLE blind BJ63x63 alu silver	735087	ES1
Switch 4-channel BLE blind BJ63x63 anthracite	735100	ES1

Options
Description
Special printing on request
Without printing on request
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®

SR-KCS02 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.





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

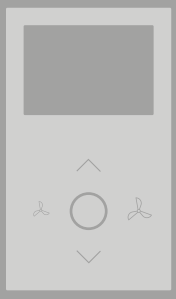
SR-KCS02 BLE – Wireless switch		
Item description	**Item No.**	**Group**
SR-KCS02 BLE	728126	ES2

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	110
thanos EVO	Temperature, humidity, CO2, VOC	112
NOVOS Touch	Temperature, humidity, CO2, VOC	116
NOVOS 7	Temperature, humidity, CO2, VOC	120
NOVOS 5 x	Temperature, humidity, CO2, VOC	124
NOVOS 3 x	Temperature, humidity, CO2, VOC	129
NOVOS 3 INC	Temperature, humidity	134
WRF07 x	Temperature, rel. humidity, CO2, VOC	137
WRF06 LCD	Temperature, rel. humidity	142
WRF06 x	Temperature	146
WRF06 INC	Temperature, rel. humidity	148
WRF04 x	Temperature	150
LCR Touch	Temperature, humidity, VOC	153
LCA	Temperature	154

Fan Coil Controller

JOY Fancoil	Temperature, rel. humidity	155
LCF02 Touch	Temperature	158
LCF02	Temperature	160
LCF Touch	Temperature	161
LCF	Temperature	163

Room Sensors Climate / Air Quality

NOVOS 5	Temperature, humidity, CO2, VOC	164
NOVOS 3	Temperature, humidity, CO2, VOC	170
NOVOS 7 move	Temperature, rel. humidity, CO2	178
NOVOS 5 move	Temperature, CO2	179
NOVOS 3 move	CO2	180
WRF06	Temperature, rel. humidity, CO2, VOC	181
WRF04 IR	Radiation temperature	188
FTB+	Temperature, humidity	189
RDF18	Temperature	191
FT-RDF18+	Temperature, humidity	192
RDF-IR	Radiation temperature	194
RPF40	Temperature, radiation temperature	196
RPF40+	Temperature, radiation temperature	197
RPF100	Temperature	199
RPF100+	Temperature	200
FTP+	Temperature, humidity	202

Room Sensors Light / Motion

MDS	Light, motion, temperature	204
RDI	Motion	205
LDF+	Light	206
WRF06I	Motion	209
WRF04I	Motion	211

Room Hygrostats

FSR01	Rel. humidity	212



JOY HC

The JOY room thermostat with its high-grade materials, such as a real glass surface, is designed for individual temperature control in living spaces, hotel rooms and offices. The heating/cooling valves are controlled either by relay contacts or 0..10 V signals. 6-way valves can also be controlled with the JOY HC. This ensures individual and energy-efficient room air conditioning. The JOY (available in black or white) has an intgerated display and touch-sensitive buttons. Furthermore, the integrated scheduler can handle 3 time channels and 4 periods each. The device is designed for mounting in a 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	24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 85..260 V ~
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
JOY HC AO2DO temp black	✓	752039	RU1
JOY HC 3AO temp white	✓	725002	RU1
JOY HC 3AO temp black	✓	725019	RU1

Room thermostat heating/cooling RS485 Modbus

Item description	Contr.	Item No.	Group
JOY HC AO2DO temp RS485 Modbus white	✓	752046	RU1
JOY HC AO2DO temp RS485 Modbus black	✓	752053	RU1
JOY HC 3AO temp RS485 Modbus white	✓	723732	RU1
JOY HC 3AO temp RS485 Modbus black	✓	725026	RU1

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
JOY HC AO2DO temp RS485 BACnet (MS/TP) black	✓	778695	RU1
JOY HC 3AO temp RS485 BACnet (MS/TP) white	✓	778770	RU1
JOY HC 3AO temp RS485 BACnet (MS/TP) black	✓	778756	RU1

Options

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

Accessories

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

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.



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
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 (TP)
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
Power consumption	typ. 2,5 W (24 V =), 5 VA (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:** terminal KNX bus **LON:** removable plug-in terminal, max. 8 mm²
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
thanos EVO white temp_rH RS485 Modbus	✓	753944	RU1
thanos EVO white CO2 temp_rH RS485 Modbus	✓	753968	RU1
thanos EVO white VOC temp_rH RS485 Modbus	✓	753982	RU1
thanos EVO white CO2+VOC temp_rH RS485 Modbus	✓	754002	RU1
thanos EVO black temp RS485 Modbus	✓	753920	RU1
thanos EVO black temp_rH RS485 Modbus	✓	753951	RU1
thanos EVO black CO2 temp_rH RS485 Modbus	✓	753975	RU1
thanos EVO black VOC temp_rH RS485 Modbus	✓	753999	RU1
thanos EVO black CO2+VOC temp_rH RS485 Modbus	✓	754019	RU1

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
thanos EVO white temp_rH RS485 BACnet (MS/TP)	✓	780339	RU1
thanos EVO white CO2 temp_rH RS485 BACnet (MS/TP)	✓	775434	RU1
thanos EVO white VOC temp_rH RS485 BACnet (MS/TP)	✓	780353	RU1
thanos EVO white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771368	RU1
thanos EVO black temp RS485 BACnet (MS/TP)	✓	774352	RU1
thanos EVO black temp_rH RS485 BACnet (MS/TP)	✓	780360	RU1
thanos EVO black CO2 temp_rH RS485 BACnet (MS/TP)	✓	780377	RU1
thanos EVO black VOC temp_rH RS485 BACnet (MS/TP)	✓	780384	RU1
thanos EVO black CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771351	RU1

Touchscreen room operating unit with up to 4 measured values – KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
thanos EVO white Temp KNX	✓	✓	780506	RU1
thanos EVO white Temp_rH KNX	✓	✓	780513	RU1
thanos EVO white CO2 Temp_rH KNX	✓	✓	780520	RU1
thanos EVO white VOC Temp_rH KNX	✓	✓	780605	RU1
thanos EVO white CO2+VOC Temp_rH KNX	✓	✓	780551	RU1
thanos EVO black Temp KNX	✓	✓	780568	RU1
thanos EVO black Temp_rH KNX	✓	✓	780575	RU1
thanos EVO black CO2 Temp_rH KNX	✓	✓	780599	RU1
thanos EVO black VOC Temp_rH KNX	✓	✓	780537	RU1
thanos EVO black CO2+VOC Temp_rH KNX	✓	✓	780612	RU1

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
thanos EVO white Temp_rH LON	✓	780407	RU1
thanos EVO white CO2 Temp_rH LON	✓	780414	RU1
thanos EVO white VOC Temp_rH LON	✓	780421	RU1
thanos EVO white CO2+VOC Temp_rH LON	✓	780438	RU1
thanos EVO black Temp LON	✓	780445	RU1
thanos EVO black Temp_rH LON	✓	780452	RU1
thanos EVO black CO2 Temp_rH LON	✓	780476	RU1
thanos EVO black VOC Temp_rH LON	✓	780483	RU1
thanos EVO black CO2+VOC Temp_rH LON	✓	780490	RU1

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



Options
Description
Design frame anodised aluminium

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
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 (TP)
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
Power consumption	typ. 2,5 W (24 V =), 5 VA (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:** terminal KNX bus **LON:** removable plug-in terminal, max. 8 mm²
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
NOVOS Touch white temp_rH RS485 Modbus	✓	761819	RU1
NOVOS Touch white CO2 temp_rH RS485 Modbus	✓	761826	RU1
NOVOS Touch white VOC temp_rH RS485 Modbus	✓	761833	RU1
NOVOS Touch white CO2+VOC temp_rH RS485 Modbus	✓	761840	RU1

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
NOVOS Touch white temp_rH RS485 BACnet (MS/TP)	✓	780704	RU1
NOVOS Touch white CO2 temp_rH RS485 BACnet (MS/TP)	✓	780735	RU1
NOVOS Touch white VOC temp_rH RS485 BACnet (MS/TP)	✓	780766	RU1
NOVOS Touch white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780797	RU1

Touchscreen room operating unit with up to 4 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS Touch white temp KNX	✓	✓	780681	RU1
NOVOS Touch white temp_rH KNX	✓	✓	780711	RU1
NOVOS Touch white CO2 temp_rH KNX	✓	✓	780742	RU1
NOVOS Touch white VOC temp_rH KNX	✓	✓	780773	RU1
NOVOS Touch white CO2+VOC temp_rH KNX	✓	✓	780803	RU1

Touchscreen room operating unit with up to 4 measured values LON			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS Touch white temp LON	✓	780698	RU1
NOVOS Touch white temp_rH LON	✓	780728	RU1
NOVOS Touch white CO2 temp_rH LON	✓	780759	RU1
NOVOS Touch white VOC temp_rH LON	✓	780780	RU1
NOVOS Touch white CO2+VOC temp_rH LON	✓	780810	RU1

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS Touch glass black

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

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
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 (TP)
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
Power consumption	typ. 2 W (24 V =), 4 VA (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:** terminal KNX bus **LON:** removable plug-in terminal, max. 8 mm²
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
NOVOS 7 white temp_rH RS485 Modbus	✓	735025	RU1
NOVOS 7 white CO2 temp_rH RS485 Modbus	✓	735032	RU1
NOVOS 7 white VOC temp_rH RS485 Modbus	✓	735063	RU1
NOVOS 7 white CO2+VOC temp_rH RS485 Modbus	✓	735094	RU1
NOVOS 7 white design temp RS485 Modbus	✓	761901	RU1
NOVOS 7 white design temp_rH RS485 Modbus	✓	761987	RU1
NOVOS 7 white design CO2 temp_rH RS485 Modbus	✓	762007	RU1
NOVOS 7 white design VOC temp_rH RS485 Modbus	✓	762014	RU1
NOVOS 7 white design CO2+VOC temp_rH RS485 Modbus	✓	762038	RU1

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
NOVOS 7 white temp_rH RS485 BACnet (MS/TP)	✓	780841	RU1
NOVOS 7 white CO2 temp_rH RS485 BACnet (MS/TP)	✓	769037	RU1
NOVOS 7 white VOC temp_rH RS485 BACnet (MS/TP)	✓	780896	RU1
NOVOS 7 white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780926	RU1
NOVOS 7 white design temp RS485 BACnet (MS/TP)	✓	780971	RU1
NOVOS 7 white design temp_rH RS485 BACnet (MS/TP)	✓	781008	RU1
NOVOS 7 white design CO2 temp_rH RS485 BACnet (MS/TP)	✓	781046	RU1
NOVOS 7 white design VOC temp_rH RS485 BACnet (MS/TP)	✓	781077	RU1
NOVOS 7 white design CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	775342	RU1

Room operating unit with up to 4 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 7 white temp KNX	✓	✓	780827	RU1
NOVOS 7 white temp_rH KNX	✓	✓	780858	RU1
NOVOS 7 white CO2 temp_rH KNX	✓	✓	780872	RU1
NOVOS 7 white VOC temp_rH KNX	✓	✓	780902	RU1
NOVOS 7 white CO2+VOC temp_rH KNX	✓	✓	780933	RU1
NOVOS 7 white design temp KNX	✓	✓	780988	RU1
NOVOS 7 white design temp_rH KNX	✓	✓	781015	RU1
NOVOS 7 white design CO2 temp_rH KNX	✓	✓	781053	RU1
NOVOS 7 white design VOC temp_rH KNX	✓	✓	781084	RU1
NOVOS 7 white design CO2+VOC temp_rH KNX	✓	✓	781114	RU1

Room operating unit with up to 4 measured values LON			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS 7 white temp LON	✓	780834	RU1
NOVOS 7 white temp_rH LON	✓	780865	RU1
NOVOS 7 white CO2 temp_rH LON	✓	780889	RU1
NOVOS 7 white VOC temp_rH LON	✓	780919	RU1
NOVOS 7 white CO2+VOC temp_rH LON	✓	780957	RU1
NOVOS 7 white design temp LON	✓	780995	RU1
NOVOS 7 white design temp_rH LON	✓	781039	RU1
NOVOS 7 white design CO2 temp_rH LON	✓	781060	RU1
NOVOS 7 white design VOC temp_rH LON	✓	781091	RU1
NOVOS 7 white design CO2+VOC temp_rH LON	✓	781107	RU1

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 7 glass alu
Design cover NOVOS 7 glass black

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

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 (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 (TP)
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
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (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:** terminal KNX bus
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	NOVOSapp	Item No.	Group
NOVOS 5 S white without sensor, FS5		730082	RU3
NOVOS 5 S white temp PT100, FS5		730129	RU3
NOVOS 5 S white temp PT1000, FS5		730150	RU3
NOVOS 5 S white temp PT1000 1/3 DIN, FS5		730204	RU3
NOVOS 5 S white temp Ni1000, FS5		730273	RU3
NOVOS 5 S white temp Ni1000TK5000, FS5		730303	RU3
NOVOS 5 S white temp NTC10k, FS5		730334	RU3

Room operating unit temperature passive S design

Item description	NOVOSapp	Item No.	Group
NOVOS 5 S white design without sensor, FS5		730105	RU3
NOVOS 5 S white design temp PT100, FS5		730136	RU3
NOVOS 5 S white design temp PT1000, FS5		730174	RU3
NOVOS 5 S white design temp PT1000 1/3 DIN, FS5		730211	RU3
NOVOS 5 S white design temp Ni1000, FS5		730280	RU3
NOVOS 5 S white design temp Ni1000TK5000, FS5		730310	RU3
NOVOS 5 S white design temp NTC10k, FS5		730341	RU3

Room operating unit temperature passive PSTD			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS 5 PSTD white without sensor, 10 kOhm, FS5		730112	RU3
NOVOS 5 PSTD white temp PT100, 10 kOhm, FS5		730143	RU3
NOVOS 5 PSTD white temp PT1000, 10 kOhm, FS5		730198	RU3
NOVOS 5 PSTD white temp PT1000 1/3 DIN, 10 kOhm, FS5		730228	RU3
NOVOS 5 PSTD white temp Ni1000, 10 kOhm, FS5		730297	RU3
NOVOS 5 PSTD white temp Ni1000TK5000, 10 kOhm, FS5		730327	RU3
NOVOS 5 PSTD white temp NTC10k, 10 kOhm, FS5		730358	RU3

Room operating unit temperature passive PSTD design			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS 5 PSTD white design without sensor, 10 kOhm, FS5		731683	RU3
NOVOS 5 PSTD white design temp PT100, 10 kOhm, FS5		731690	RU3
NOVOS 5 PSTD white design temp PT1000, 10 kOhm, FS5		731706	RU3
NOVOS 5 PSTD white design temp PT1000 1/3 DIN, 10 kOhm, FS5		731720	RU3
NOVOS 5 PSTD white design temp Ni1000, 10 kOhm, FS5		731737	RU3
NOVOS 5 PSTD white design temp Ni1000TK5000, 10 kOhm, FS5		731751	RU3
NOVOS 5 PSTD white design temp NTC10k, 10 kOhm, FS5		731775	RU3

Options
Description
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 5 alu
Design cover NOVOS 5 black
LCD 29x35 mm, RGB backlight

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

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
NOVOS 5 S white design temp TRV, FS5	✓	734950	RU3
NOVOS 5 PSTD white temp TRV, pot_active, FS5	✓	734943	RU3
NOVOS 5 PSTD white design temp TRV, pot_active, FS5	✓	734967	RU3

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
NOVOS 5 S white design temp RS485 Modbus, FS5	✓	734998	RU2
NOVOS 5 PSTD white temp RS485 Modbus, FS5	✓	734981	RU2
NOVOS 5 PSTD white design temp RS485 Modbus, FS5	✓	735001	RU2

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
NOVOS 5 S white design temp RS485 BACnet (MS/TP), FS5	✓	754415	RU2
NOVOS 5 PSTD white temp RS485 BACnet (MS/TP), FS5	✓	754255	RU2
NOVOS 5 PSTD white design temp RS485 BACnet (MS/TP), FS5	✓	754422	RU2

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

Options
Description
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 5 alu
Design cover NOVOS 5 black
LCD 29x35 mm, RGB backlight
Add for additional humidity sensor
Add for additional CO2+VOC sensor
Add for additional CO2 sensor
Add for additional VOC sensor

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

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 (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 (TP)
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
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (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)
Operating range temperature	-35..+70 °C

Technical Data	
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:** terminal KNX bus
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	NOVOSapp	Item No.	Group
NOVOS 3 P white without sensor, 10 kOhm		729574	RU3
NOVOS 3 P white design without sensor, 10 kOhm		729628	RU3
NOVOS 3 TD white without sensor		729604	RU3
NOVOS 3 TD white design temp without sensor		729635	RU3
NOVOS 3 PTD white without sensor, 10 kOhm		729611	RU3
NOVOS 3 PTD white design without sensor, 10 kOhm		729642	RU3

Room operating unit temperature passive PT100 DIN Kl. B

Item description	NOVOSapp	Item No.	Group
NOVOS 3 P white temp PT100, 10 kOhm		729659	RU3
NOVOS 3 P white design temp PT100, 10 kOhm		729680	RU3
NOVOS 3 TD white temp PT100		729666	RU3
NOVOS 3 TD white design temp PT100		729697	RU3
NOVOS 3 PTD white temp PT100, 10 kOhm		729673	RU3
NOVOS 3 PTD white design temp PT100, 10 kOhm		729703	RU3

Room operating unit temperature passive PT1000 DIN Kl. B

Item description	NOVOSapp	Item No.	Group
NOVOS 3 P white temp PT1000, 10 kOhm		729727	RU3
NOVOS 3 P white design temp PT1000, 10 kOhm		729758	RU3
NOVOS 3 TD white temp PT1000		729734	RU3
NOVOS 3 TD white design temp PT1000		729765	RU3
NOVOS 3 PTD white temp PT1000, 10 kOhm		729741	RU3
NOVOS 3 PTD white design temp PT1000, 10 kOhm		729772	RU3

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

Room operating unit temperature passive Ni1000 DIN Kl. B			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 P white temp Ni1000, 10 kOhm		729864	RU3
NOVOS 3 P white design temp Ni1000, 10 kOhm		729901	RU3
NOVOS 3 TD white temp Ni1000		729871	RU3
NOVOS 3 TD white design temp Ni1000		729918	RU3
NOVOS 3 PTD white temp Ni1000, 10 kOhm		729895	RU3
NOVOS 3 PTD white design temp Ni1000, 10 kOhm		729925	RU3

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

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

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

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1

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
NOVOS 3 P white design temp TRV, pot_active	✓	734806	RU3
NOVOS 3 TD white temp TRV	✓	734714	RU3
NOVOS 3 TD white design temp TRV	✓	734837	RU3
NOVOS 3 PTD white temp TRV, pot_active	✓	734776	RU3
NOVOS 3 PTD white design temp TRV, pot_active	✓	734844	RU3

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
NOVOS 3 P white design temp RS485 Modbus	✓	734905	RU2
NOVOS 3 TD white temp RS485 Modbus	✓	734882	RU2
NOVOS 3 TD white design temp RS485 Modbus	✓	734912	RU2
NOVOS 3 PTD white temp RS485 Modbus	✓	734899	RU2
NOVOS 3 PTD white design temp RS485 Modbus	✓	734929	RU2

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
NOVOS 3 P white design temp RS485 BACnet (MS/TP)	✓	754484	RU2
NOVOS 3 TD white temp RS485 BACnet (MS/TP)	✓	754460	RU2
NOVOS 3 TD white design temp RS485 BACnet (MS/TP)	✓	754491	RU2
NOVOS 3 PTD white temp RS485 BACnet (MS/TP)	✓	754477	RU2
NOVOS 3 PTD white design temp RS485 BACnet (MS/TP)	✓	754507	RU2

Room thermostat temperature KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 P white temp KNX	✓	✓	775243	RU2
NOVOS 3 P white design temp KNX	✓	✓	781596	RU2
NOVOS 3 TD white temp KNX	✓	✓	781565	RU2
NOVOS 3 TD white design temp KNX	✓	✓	781602	RU2
NOVOS 3 PTD white temp KNX	✓	✓	781589	RU2
NOVOS 3 PTD white design temp KNX	✓	✓	781619	RU2

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black
Add for additional humidity sensor
Add for additional CO2+VOC sensor
Add for additional CO2 sensor
Add for additional VOC sensor

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

NOVOS 3 INC

Room operating unit in the new 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
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 (TP)
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
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (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:** terminal KNX bus
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
NOVOS 3 INC TD ECO white temp RS485 Modbus	✓	781633	RU2
NOVOS 3 INC FS5 ECO white temp RS485 Modbus	✓	781640	RU2

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
NOVOS 3 INC TD ECO white temp RS485 BACnet (MS/TP)	✓	781664	RU2
NOVOS 3 INC FS5 ECO white temp RS485 BACnet (MS/TP)	✓	781671	RU2

Room thermostat temperature KNX (TP)

Item description	Contr.	NOVOSapp	Item No.	Group
NOVOS 3 INC ECO white temp KNX	✓	✓	781688	RU2
NOVOS 3 INC TD ECO white temp KNX	✓	✓	781695	RU2
NOVOS 3 INC FS5 ECO white temp KNX	✓	✓	781701	RU2

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black
Add for additional humidity sensor

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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.



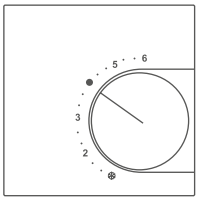
WRF07 P ltype1,
Gira E2 pure white matt



WRF07 PTD ltype1,
Gira E2 pure white matt



WRF07 PSD ltype1,
Gira E2 pure white matt



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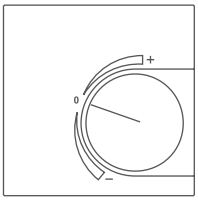
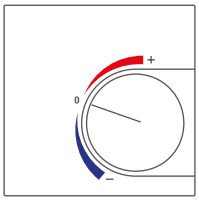


ltype2



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

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 ~) **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	**AO2V**	**DO2R**	**DO2T**	**OVR**	**OVT**
Universal (configurable)	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
WRF07 PTD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	542883	RU2
WRF07 PSD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627917	RU2

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

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

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
WRF07 PTD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628068	RU2
WRF07 PSD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627931	RU2

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

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
WRF07 PTD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628075	RU2
WRF07 PSD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627955	RU2

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

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

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

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
WRF07 PTD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	369602	RU2
WRF07 PSD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	332132	RU2

WRF07 x BUS

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
WRF07 PTD DI4 temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	628181	RU2

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

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
WRF07 PTD AO2V temp RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt, LED green	✓	628167	RU2

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
WRF07 PTD AO2V temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	✓	497800	RU2

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
WRF07 PTD AO2V temp LON ltype1 Gira E2 pure white matt, LED green	✓	628174	RU2

Options
Description
Additional button
Additional diode (LED)
Rotary switch for fan stage adjustment with up to 5 stages
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)
Add for additional humidity sensor
Add for additional CO2 sensor
Add for additional VOC sensor

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

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



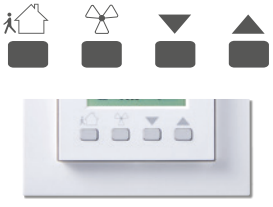
WRF06 LCD LON ltype2 aluminium,
frame Merten M-Plan aluminium



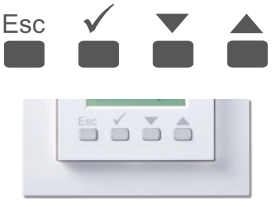
WRF06 LCD (DO2R/DO2T/OVR/OVT) ltype1 pure white,
frame two-fold with blind cover



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
WRF06 LCD temp VV ltype3 pure white brilliant	731102	RU2
WRF06 LCD temp VV ltype3 aluminium	731119	RU2
WRF06 LCD temp VV ltype3 Jung aluminium	731126	RU2
WRF06 LCD temp VV ltype3 anthracite	731133	RU2

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

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

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
WRF06 LCD AO2V temp RS485 Modbus ltype1 pure white brilliant	✓	731379	RU2
WRF06 LCD AO2V temp RS485 Modbus ltype1 aluminium	✓	731386	RU2
WRF06 LCD AO2V temp RS485 Modbus ltype1 Jung aluminium	✓	731393	RU2
WRF06 LCD AO2V temp RS485 Modbus ltype1 anthracite	✓	731409	RU2

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

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
WRF06 LCD DO2T temp RS485 Modbus ltype1 pure white matt	✓	731423	RU2
WRF06 LCD OVR temp RS485 Modbus ltype1 pure white matt	✓	731430	RU2
WRF06 LCD OVT temp RS485 Modbus ltype1 pure white matt	✓	731447	RU2

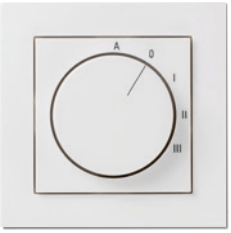
Room thermostat heating/cooling LON IO			
Item description	**Contr.**	**Item No.**	**Group**
WRF06 LCD DO2R temp LON ltype1 pure white matt	✓	731577	RU2
WRF06 LCD DO2T temp LON ltype1 pure white matt	✓	731584	RU2
WRF06 LCD OVR temp LON ltype1 pure white matt	✓	731607	RU2
WRF06 LCD OVT temp LON ltype1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

Options
Description
Labelling type 1 (ltype1)
Labelling type 2 (ltype2)
Labelling type 3 (ltype3)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)
Switch ranges plastic 55x55: frame 2x with blind cover alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm: frame 2x with blind cover (various manufacturers)
Switch ranges stainless steel | glass | aluminium: frame 2x with blind cover (various manufacturers)
Add for additional humidity sensor

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

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
WRF06 TD without sensor Gira E2 pure white matt, LED green	285964	RU2

Room operating unit temperature passive		
Item description	**Item No.**	**Group**
WRF06 TD PT100 Gira E2 pure white matt, LED green	564441	RU2
WRF06 TD PT100 1/3 DIN Gira E2 pure white matt, LED green	629409	RU2
WRF06 TD PT1000 Gira E2 pure white matt, LED green	629423	RU2
WRF06 TD PT1000 1/3 DIN Gira E2 pure white matt, LED green	629447	RU2
WRF06 TD Ni1000 Gira E2 pure white matt, LED green	195379	RU2
WRF06 TD Ni1000TK5000 Gira E2 pure white matt, LED green	629461	RU2
WRF06 TD NTC10k Gira E2 pure white matt, LED green	629324	RU2

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
WRF06 TD DI4 LON Gira E2 pure white matt, LED green		696555	RU2
WRF06 TD AO2V LON Gira E2 pure white matt, LED green	✓	696531	RU2

Options
Description
Additional button
Additional diode (LED)
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa

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, ECO function
Operating elements	rotary encoder/push button for setpoint adjustment/ECO function button for fan stage adjustment
Configuration	BUS, DIP switches
Input	**Modbus/KNX:** 1x input for NTC10k or floating contact **KNX:** 2x input for floating contact
Network technology	RS485 Modbus, KNX (TP)
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	typ. 0,3 W (24 V =), 0,9 VA (24 V ~)
Display	7 LEDs for displaying setpoint adjustment 3 LEDs showing fan stage LED for displaying the ECO mode function
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	terminal block, max. 1,5 mm², pluggable **KNX:** terminal KNX bus
Switch ranges	**KNX:** 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

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

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

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

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

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	TP2
WRF04 PTD AO2V temp RS485 Modbus, LED green	✓	415613	TP2
WRF04 PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419949	TP2
WRF04 PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	480505	TP2
WRF04 LCD P AO2V temp RS485 Modbus	✓	420020	TP2
WRF04 LCD PTD AO2V temp RS485 Modbus, LED green	✓	415620	TP2
WRF04 LCD PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419987	TP2
WRF04 LCD PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	538442	TP2

Room thermostat heating/cooling RS485 Modbus IO DO2R

Item description	Contr.	Item No.	Group
WRF04 P DO2R temp RS485 Modbus, IO	✓	420266	TP2
WRF04 PTD DO2R temp RS485 Modbus, LED green, IO	✓	420273	TP2
WRF04 PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	420280	TP2
WRF04 LCD P DO2R temp RS485 Modbus, IO	✓	420327	TP2
WRF04 LCD PTD DO2R temp RS485 Modbus, LED green, IO	✓	420334	TP2
WRF04 LCD PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	628822	TP2

Room thermostat heating/cooling RS485 Modbus IO DO2T

Item description	Contr.	Item No.	Group
WRF04 P DO2T temp RS485 Modbus, IO	✓	420617	TP2
WRF04 PTD DO2T temp RS485 Modbus, LED green, IO	✓	420624	TP2
WRF04 PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	420631	TP2
WRF04 LCD P DO2T temp RS485 Modbus, IO	✓	420815	TP2
WRF04 LCD PTD DO2T temp RS485 Modbus, LED green, IO	✓	628846	TP2
WRF04 LCD PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	628839	TP2

Room thermostat heating/cooling RS485 Modbus IO OVR			
Item description	**Contr.**	**Item No.**	**Group**
WRF04 P OVR temp RS485 Modbus, IO	✓	420679	TP2
WRF04 PTD OVR temp RS485 Modbus, LED green, IO	✓	420686	TP2
WRF04 PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420693	TP2
WRF04 LCD P OVR temp RS485 Modbus, IO	✓	420891	TP2
WRF04 LCD PTD OVR temp RS485 Modbus, LED green, IO	✓	420907	TP2
WRF04 LCD PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420914	TP2

Room thermostat heating/cooling RS485 Modbus IO OVT			
Item description	**Contr.**	**Item No.**	**Group**
WRF04 P OVT temp RS485 Modbus, IO	✓	420747	TP2
WRF04 PTD OVT temp RS485 Modbus, LED green, IO	✓	420754	TP2
WRF04 PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	420761	TP2
WRF04 LCD P OVT temp RS485 Modbus, IO	✓	420952	TP2
WRF04 LCD PTD OVT temp RS485 Modbus, LED green, IO	✓	630122	TP2
WRF04 LCD PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	628877	TP2

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

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
Special painting – prices on request		
Special painting setup costs (once per colour)	114998	NET
Special printing – order quantity 20..49 pcs. (each per colour)		
Special printing – order quantity 50..99 pcs. (each per colour)		
Special printing setup and tool costs (once for one-colour print)	115049	NET



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
LCR Touch white temp_rH RS485 Modbus	754347	RU1

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

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
LCA D	✓	660815	RU1

JOY Fancoil

The JOY fancoil controller with its high-grade materials, such as the real glass surface, is used for individual temperature control in hotel rooms, offices and living spaces. It is designed for fan coil units with 2- and 4-pipe systems. JOY is capable to control all common kinds of fan coil units (type 5DO for 3-stage fans and type EC for 0..10 V fans). With the EC 3AO model, proportional valve actuators (also 6-way valves) and a 0..10 V EC motor can be controlled. This ensures individual and energy-efficient room air conditioning. The device (available in black or white) offers an integrated LCD and touch-sensitive control buttons. A scheduler can be set with 3 time channels and 4 time periods each. The device is designed for mounting in a 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	**3AO:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV **5DO/AO2DO:** 85..260 V ~
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
JOY Fancoil 5DO temp black	✓	751957	RU1
JOY Fancoil EC AO2DO temp white	✓	751988	RU1
JOY Fancoil EC AO2DO temp black	✓	751995	RU1
JOY Fancoil EC 3AO temp white	✓	724975	RU1
JOY Fancoil EC 3AO temp black	✓	724982	RU1

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

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
JOY Fancoil 5DO temp RS485 BACnet (MS/TP) black	✓	778732	RU1
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) white	✓	778725	RU1
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) black	✓	778718	RU1
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) white	✓	778817	RU1
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) black	✓	778800	RU1

Options
Description
Add for additional humidity sensor
Change-over sensor NTC10k (model and price on request)

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

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 1..+50 °C, 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)	–	–	3
Heating/Cooling (Relay)	2	–	2
Heating/Cooling (0..10 V)	–	2	(3)
6-Way-Valve (0..10 V)	–	(2)	(3)
Inputs	**5DO**	**2AO3DO**	**3AO2DO**
Universal (configurable)	3	3	3

Fan coil thermostat temperature BUS

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

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



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 1..+50 °C, 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)	–	–	–	–	3
Heating/Cooling (Relay)	1	–	2	–	2
Heating/Cooling (0..10 V)	1	–	–	2	(3)
6-Way-Valve (0..10 V)	–	1	–	(2)	(3)
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
LCF02 6WV fan coil	✓	684613	RU1

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

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
Fixing kit rawlplugs and screws (2x each)	660945	AS1



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 1..+50 °C, 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

Fan coil thermostat temperature BUS

Item description	Contr.	Item No.	Group
LCF Touch RS485 Modbus	✓	575775	RU1

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 1..+50 °C, 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

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
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 (TP)
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
Power consumption	typ. 0,4 W (24 V =), 0,8 VA (24 V ~), max. 0,5 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:** terminal KNX bus

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
NOVOS 5 temp white LCD TRA	✓	733557	TP1
NOVOS 5 temp white design LCD TRV	✓	733533	TP1
NOVOS 5 temp white design LCD TRA	✓	733564	TP1

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

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
NOVOS 5 temp_rH white LCD AA	✓	733601	HU1
NOVOS 5 temp_rH white design LCD VV	✓	733618	HU1
NOVOS 5 temp_rH white design LCD AA	✓	733625	HU1

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

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
NOVOS 5 CO2 temp white LCD AA	✓	734240	AQ1
NOVOS 5 CO2 temp_rH white LCD 3xV	✓	734226	AQ1
NOVOS 5 CO2 temp_rH white LCD 3xA	✓	734264	AQ1
NOVOS 5 CO2 temp white design LCD VV	✓	734219	AQ1
NOVOS 5 CO2 temp white design LCD AA	✓	734257	AQ1
NOVOS 5 CO2 temp_rH white design LCD 3xV	✓	734233	AQ1
NOVOS 5 CO2 temp_rH white design LCD 3xA	✓	734271	AQ1

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
NOVOS 5 CO2 temp_rH white LCD RS485 BACnet (MS/TP)	✓	755696	AQ1
NOVOS 5 CO2 temp white design LCD RS485 BACnet (MS/TP)	✓	755689	AQ1
NOVOS 5 CO2 temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755702	AQ1

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
NOVOS 5 CO2 temp_rH white LCD RS485 Modbus	✓	734639	AQ1
NOVOS 5 CO2 temp white design LCD RS485 Modbus	✓	734301	AQ1
NOVOS 5 CO2 temp_rH white design LCD RS485 Modbus	✓	734646	AQ1

Room sensor CO2 with up to 3 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 5 CO2 temp white LCD KNX	✓	✓	782210	AQ1
NOVOS 5 CO2 temp_rH white LCD KNX	✓	✓	782234	AQ1
NOVOS 5 CO2 temp white design LCD KNX	✓	✓	782258	AQ1
NOVOS 5 CO2 temp_rH white design LCD KNX	✓	✓	782265	AQ1

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
NOVOS 5 VOC temp white LCD AA	✓	735247	AQ1
NOVOS 5 VOC temp_rH white LCD 3xV	✓	735223	AQ1
NOVOS 5 VOC temp_rH white LCD 3xA	✓	735261	AQ1
NOVOS 5 VOC temp white design LCD VV	✓	735216	AQ1
NOVOS 5 VOC temp white design LCD AA	✓	735254	AQ1
NOVOS 5 VOC temp_rH white design LCD 3xV	✓	735230	AQ1
NOVOS 5 VOC temp_rH white design LCD 3xA	✓	735278	AQ1

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
NOVOS 5 VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755733	AQ1
NOVOS 5 VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755726	AQ1
NOVOS 5 VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755757	AQ1

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
NOVOS 5 VOC temp_rH white LCD RS485 Modbus	✓	735322	AQ1
NOVOS 5 VOC temp white design LCD RS485 Modbus	✓	735315	AQ1
NOVOS 5 VOC temp_rH white design LCD RS485 Modbus	✓	735346	AQ1

Room sensor VOC with up to 3 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 5 VOC temp white LCD KNX	✓	✓	782272	AQ1
NOVOS 5 VOC temp_rH white LCD KNX	✓	✓	782289	AQ1
NOVOS 5 VOC temp white design LCD KNX	✓	✓	782296	AQ1
NOVOS 5 VOC temp_rH white design LCD KNX	✓	✓	782302	AQ1

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
NOVOS 5 CO2+VOC white LCD AA	✓	735667	AQ1
NOVOS 5 CO2+VOC temp white LCD 3xV	✓	735629	AQ1
NOVOS 5 CO2+VOC temp_rH white LCD 4xV	✓	735643	AQ1
NOVOS 5 CO2+VOC white design LCD VV	✓	735605	AQ1
NOVOS 5 CO2+VOC white design LCD AA	✓	735674	AQ1
NOVOS 5 CO2+VOC temp white design LCD 3xV	✓	735636	AQ1
NOVOS 5 CO2+VOC temp_rH white design LCD 4xV	✓	735650	AQ1

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
NOVOS 5 CO2+VOC temp white LCD RS485 BACnet (MS/TP)	✓	755597	AQ1
NOVOS 5 CO2+VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755658	AQ1
NOVOS 5 CO2+VOC white design LCD RS485 BACnet (MS/TP)	✓	755580	AQ1
NOVOS 5 CO2+VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755634	AQ1
NOVOS 5 CO2+VOC temp alu design LCD RS485 BACnet (MS/TP)	✓	771757	AQ1
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755665	AQ1

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
NOVOS 5 CO2+VOC temp white LCD RS485 Modbus	✓	735728	AQ1
NOVOS 5 CO2+VOC temp_rH white LCD RS485 Modbus	✓	735742	AQ1
NOVOS 5 CO2+VOC white design LCD RS485 Modbus	✓	735520	AQ1
NOVOS 5 CO2+VOC temp white design LCD RS485 Modbus	✓	735735	AQ1
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 Modbus	✓	735759	AQ1

Room sensor CO2 + VOC with up to 4 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 5 CO2+VOC white LCD KNX	✓	✓	782098	AQ1
NOVOS 5 CO2+VOC temp white LCD KNX	✓	✓	782128	AQ1
NOVOS 5 CO2+VOC temp_rH white LCD KNX	✓	✓	782142	AQ1
NOVOS 5 CO2+VOC white design LCD KNX	✓	✓	782166	AQ1
NOVOS 5 CO2+VOC temp white design LCD KNX	✓	✓	782173	AQ1
NOVOS 5 CO2+VOC temp_rH white design LCD KNX	✓	✓	782197	AQ1

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 5 alu
Design cover NOVOS 5 black

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



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 (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 (TP)
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
Power consumption	typ. 0,4 W (24 V =), max. 0,5 W (24 V =), 0,8 VA (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:** terminal KNX bus

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	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 temp white PT100		728256	TP3
NOVOS 3 temp white PT100 1/3 DIN		755283	TP3
NOVOS 3 temp white PT1000		728386	TP3
NOVOS 3 temp white Ni1000		728409	TP3
NOVOS 3 temp white Ni1000TK5000		728416	TP3
NOVOS 3 temp white NTC10k		728423	TP3
NOVOS 3 temp white design PT100		728430	TP3
NOVOS 3 temp white design PT1000		728447	TP3
NOVOS 3 temp white design PT1000 1/3 DIN		728454	TP3
NOVOS 3 temp white design Ni1000		728461	TP3
NOVOS 3 temp white design Ni1000TK5000		728478	TP3
NOVOS 3 temp white design NTC10k		728485	TP3

Options
Description
4-wire connection (4-wire)
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z

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

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

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

NOVOS 3 – temperature + relative humidity

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

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

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
NOVOS 3 CO2 white A	✓	733724	AQ2
NOVOS 3 CO2 white temp VV	✓	733670	AQ2
NOVOS 3 CO2 white temp AA	✓	733731	AQ2
NOVOS 3 CO2 white temp_rH 3xV	✓	733687	AQ2
NOVOS 3 CO2 white design V	✓	733694	AQ2
NOVOS 3 CO2 white design A	✓	733755	AQ2
NOVOS 3 CO2 white temp design VV	✓	733700	AQ2
NOVOS 3 CO2 white temp design AA	✓	733762	AQ2
NOVOS 3 CO2 white temp_rH design 3xV	✓	733717	AQ2

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

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

Room sensor CO2 with up to 3 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 CO2 white temp KNX	✓	✓	782050	AQ2
NOVOS 3 CO2 white temp_rH KNX	✓	✓	782036	AQ2
NOVOS 3 CO2 white temp design KNX	✓	✓	782012	AQ2
NOVOS 3 CO2 white temp_rH design KNX	✓	✓	781985	AQ2

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
NOVOS 3 VOC white A	✓	734738	AQ2
NOVOS 3 VOC white temp VV	✓	734660	AQ2
NOVOS 3 VOC white temp AA	✓	734745	AQ2
NOVOS 3 VOC white temp_rH 3xV	✓	734677	AQ2
NOVOS 3 VOC white design V	✓	734684	AQ2
NOVOS 3 VOC white design A	✓	734769	AQ2
NOVOS 3 VOC white temp design VV	✓	734707	AQ2
NOVOS 3 VOC white temp design AA	✓	734783	AQ2
NOVOS 3 VOC white temp_rH design 3xV	✓	734721	AQ2

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

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

Room sensor VOC with up to 3 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 VOC white temp KNX	✓	✓	781978	AQ2
NOVOS 3 VOC white temp_rH KNX	✓	✓	781961	AQ2
NOVOS 3 VOC white temp design KNX	✓	✓	781954	AQ2
NOVOS 3 VOC white temp_rH design KNX	✓	✓	781947	AQ2

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
NOVOS 3 CO2+VOC white AA	✓	735421	AQ2
NOVOS 3 CO2+VOC white temp 3xV	✓	735360	AQ2
NOVOS 3 CO2+VOC white temp_rH 4xV	✓	735377	AQ2
NOVOS 3 CO2+VOC white design VV	✓	735391	AQ2
NOVOS 3 CO2+VOC white design AA	✓	735452	AQ2
NOVOS 3 CO2+VOC white temp design 3xV	✓	735407	AQ2
NOVOS 3 CO2+VOC white temp_rH design 4xV	✓	735414	AQ2

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
NOVOS 3 CO2+VOC white temp RS485 BACnet (MS/TP)	✓	755795	AQ2
NOVOS 3 CO2+VOC white temp_rH RS485 BACnet (MS/TP)	✓	755818	AQ2
NOVOS 3 CO2+VOC white design RS485 BACnet (MS/TP)	✓	755788	AQ2
NOVOS 3 CO2+VOC white temp design RS485 BACnet (MS/TP)	✓	755801	AQ2
NOVOS 3 CO2+VOC white temp_rH design RS485 BACnet (MS/TP)	✓	755825	AQ2

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
NOVOS 3 CO2+VOC white temp RS485 Modbus	✓	735544	AQ2
NOVOS 3 CO2+VOC white temp_rH RS485 Modbus	✓	735568	AQ2
NOVOS 3 CO2+VOC white design RS485 Modbus	✓	735490	AQ2
NOVOS 3 CO2+VOC white temp design RS485 Modbus	✓	735575	AQ2
NOVOS 3 CO2+VOC white temp_rH design RS485 Modbus	✓	735582	AQ2

Room sensor CO2 + VOC with up to 4 measured values KNX (TP)				
Item description	**Contr.**	**NOVOSapp**	**Item No.**	**Group**
NOVOS 3 CO2+VOC white KNX	✓	✓	782159	AQ2
NOVOS 3 CO2+VOC white temp KNX	✓	✓	782135	AQ2
NOVOS 3 CO2+VOC white temp_rH KNX	✓	✓	782111	AQ2
NOVOS 3 CO2+VOC white design KNX	✓	✓	782104	AQ2
NOVOS 3 CO2+VOC white temp design KNX	✓	✓	782081	AQ2
NOVOS 3 CO2+VOC white temp_rH design KNX	✓	✓	782074	AQ2

Options
Description
Enclosure in aluminium
Enclosure in black
Design cover NOVOS 3 alu
Design cover NOVOS 3 black

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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

Duct sensor CO2 + temperature + humidity			
Item description	**NOVOSapp**	**Item No.**	**Group**
NOVOS 7 move CO2 temp_rH white	✓	779876	AQ1
NOVOS 7 move AP CO2 temp_rH white	✓	780117	AQ1
NOVOS 7 move UP CO2 temp_rH white	✓	780087	AQ1

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

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
NOVOS 5 move AP CO2 temp white LCD	✓	780100	AQ1
NOVOS 5 move UP CO2 temp white LCD	✓	780070	AQ1

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

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
NOVOS 3 move AP CO2 white TLF	✓	780094	AQ2
NOVOS 3 move UP CO2 white TLF	✓	780063	AQ2

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

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 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, 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
WRF06 PT100 Gira E2 pure white matt	128933	TP1
WRF06 PT100 1/3 DIN Gira E2 pure white matt	137768	TP1
WRF06 PT1000 Gira E2 pure white matt	158299	TP1
WRF06 PT1000 1/3 DIN Gira E2 pure white matt	160773	TP1
WRF06 Ni1000 Gira E2 pure white matt	138314	TP1
WRF06 Ni1000TK5000 Gira E2 pure white matt	121866	TP1
WRF06 NTC10k Gira E2 pure white matt	191050	TP1

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa

WRF06 temperature active 0..10 V

Room sensor temperature active		
Item description	**Item No.**	**Group**
WRF06 TRV3 Gira E2 pure white matt	627160	TP1
WRF06 TRV3 Berker S.1 polar white brilliant	582865	TP1
WRF06 TRV3 Busch-Jaeger Busch-balance® SI alpin white	703925	TP1
WRF06 TRV3 Busch-Jaeger Reflex SI alpin white	703932	TP1
WRF06 TRV3 Jung A 500 alpin white	703949	TP1
WRF06 TRV3 Merten M-Smart polar white brilliant	703956	TP1

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

WRF06 temperature BUS

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

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

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
WRF06 AO2V temp RS485 Modbus pure white brilliant	✓	746359	TP1
WRF06 AO2V temp RS485 Modbus aluminium	✓	762625	TP1
WRF06 AO2V temp RS485 Modbus Jung aluminium	✓	762632	TP1
WRF06 AO2V temp RS485 Modbus anthracite	✓	762656	TP1

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

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

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
FTW06 temp_rH VV pure white brilliant	732161	HU1
FTW06 temp_rH VV aluminium	732178	HU1
FTW06 temp_rH VV Jung aluminium	732185	HU1
FTW06 temp_rH VV anthracite	732192	HU1

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
FTW06 temp_rH RS485 Modbus pure white brilliant	732215	HU1
FTW06 temp_rH RS485 Modbus aluminium	732222	HU1
FTW06 temp_rH RS485 Modbus Jung aluminium	732239	HU1
FTW06 temp_rH RS485 Modbus anthracite	732246	HU1

WRF06 CO2 active 0..10 V

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

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
WRF06 CO2 temp VV pure white brilliant	724555	AQ1
WRF06 CO2 temp VV aluminium	732550	AQ1
WRF06 CO2 temp VV Jung aluminium	732567	AQ1
WRF06 CO2 temp VV anthracite	732123	AQ1

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
WRF06 CO2 temp_rH 3xV pure white brilliant	726641	AQ1
WRF06 CO2 temp_rH 3xV aluminium	732611	AQ1
WRF06 CO2 temp_rH 3xV Jung aluminium	726634	AQ1
WRF06 CO2 temp_rH 3xV anthracite	732628	AQ1

WRF06 CO2 BUS

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

WRF06 CO2 + temperature BUS

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

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
WRF06 CO2 temp_rH RS485 Modbus pure white brilliant	732895	AQ1
WRF06 CO2 temp_rH RS485 Modbus aluminium	732901	AQ1
WRF06 CO2 temp_rH RS485 Modbus Jung aluminium	732918	AQ1
WRF06 CO2 temp_rH RS485 Modbus anthracite	728676	AQ1

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
WRF06 VOC temp VV pure white brilliant	731522	AQ1
WRF06 VOC temp VV aluminium	727358	AQ1
WRF06 VOC temp VV Jung aluminium	732659	AQ1
WRF06 VOC temp VV anthracite	732666	AQ1

WRF06 VOC + temperature BUS

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

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
WRF06 CO2+VOC VV pure white brilliant	732437	AQ1
WRF06 CO2+VOC VV aluminium	732444	AQ1
WRF06 CO2+VOC VV Jung aluminium	732451	AQ1
WRF06 CO2+VOC VV anthracite	732468	AQ1

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
WRF06 CO2+VOC temp_rH 4xV pure white brilliant	732482	AQ1
WRF06 CO2+VOC temp_rH 4xV aluminium	732499	AQ1
WRF06 CO2+VOC temp_rH 4xV Jung aluminium	732505	AQ1
WRF06 CO2+VOC temp_rH 4xV anthracite	732512	AQ1

WRF06 CO2 + VOC BUS

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

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
WRF06 CO2+VOC temp_rH RS485 Modbus pure white brilliant	732741	AQ1
WRF06 CO2+VOC temp_rH RS485 Modbus aluminium	732758	AQ1
WRF06 CO2+VOC temp_rH RS485 Modbus Jung aluminium	732765	AQ1
WRF06 CO2+VOC temp_rH RS485 Modbus anthracite	732772	AQ1

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)
TLF – traffic light function, 3 LEDs indicating air quality

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



WRF04 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
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)
Connection cable	2-wire
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

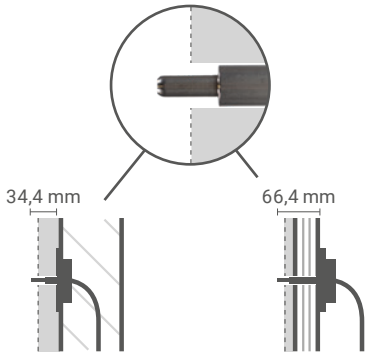
Room sensor radiation temperature passive		
Item description	**Item No.**	**Group**
WRF04 IR PT1000	652094	TP2
WRF04 IR Ni1000	652063	TP2
WRF04 IR NTC10k	652100	TP2

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
Special painting – prices on request		
Special painting setup costs (once per colour)	114998	NET

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
FTB+ VV 66.06 L15m	✓	689083	HU1
FTB+ AA 34.06 L15m	✓	700108	HU1
FTB+ AA 66.06 L15m	✓	700115	HU1

Options

Description
RS485 Modbus
RS485 BACnet (MS/TP)
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories

Item description	Item No.	Group
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
RDF18 PT100 1/3 DIN L1000	471244	TP2
RDF18 PT1000 L1000	459235	TP2
RDF18 PT1000 1/3 DIN L1000	458276	TP2
RDF18 Ni1000 L1000	463669	TP2
RDF18 Ni1000TK5000 L1000	471251	TP2
RDF18 NTC10k L1000	457828	TP2

Options

Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa



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
FT-RDF18+ temp_rH AA	✓	659055	HU1

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

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-S pure white	667722	AS1
Mounting kit universal for enclosure USE	698511	AS1

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
RDF-IR Dual VV 2xL1500	✓	699167	TP1

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

Options
Description
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Sensor wire 1,5 m with RJ45 connector	628785	AS1
Sensor wire 3 m with RJ45 connector	708852	AS1
Sensor wire 7,5 m with RJ45 connector	708869	AS1



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
RPF40 PT100 1/3 DIN white L1000	265621	TP2
RPF40 PT1000 white L1000	321068	TP2
RPF40 PT1000 1/3 DIN white L1000	329569	TP2
RPF40 Ni1000 white L1000	329279	TP2
RPF40 Ni1000TK5000 white L1000	144193	TP2
RPF40 NTC10k white L1000	351980	TP2

Options

Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa
Sensor head black (radiation sensor)

Accessories

Item description	Item No.	Group
Mounting base enclosure USE-S pure white	667722	AS1

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	jumper
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)	IP30, 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
RPF40+ TRA MultiRange white L1000	658416	TP2

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

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-S pure white	667722	AS1
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
RPF100 PT100 1/3 DIN L1000	90780	TP2
RPF100 PT1000 L1000	90827	TP2
RPF100 PT1000 1/3 DIN L1000	90865	TP2
RPF100 Ni1000 L1000	90902	TP2
RPF100 Ni1000TK5000 L1000	160612	TP2
RPF100 NTC10k L1000	91060	TP2

Options

Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa

Accessories

Item description	Item No.	Group
Mounting base enclosure USE-S pure white	667722	AS1

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	jumper
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
RPF100+ TRA MultiRange L1000	658430	TP2

Options

Description
Add per meter of connection cable 2-wire -35..+100 °C
RS485 Modbus in enclosure USE-M with option board
RS485 BACnet (MS/TP) in enclosure USE-M with option board
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board

Accessories

Item description	Item No.	Group
Mounting base enclosure USE-S pure white	667722	AS1
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
FTP+ VV L4000	✓	699983	HU1
FTP+ AA L2000	✓	699976	HU1
FTP+ AA L4000	✓	700016	HU1

Options

Description
RS485 Modbus
RS485 BACnet (MS/TP)
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories

Item description	Item No.	Group
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
MDS Standard temp VV	280433	LM2

Accessories		
Item description	**Item No.**	**Group**
Enclosure for surface mounting MDS pure white	448512	AS1

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
RDI Small Range	426503	LM2
RDI Spot	436670	LM2

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).





Dual





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
LDF+ V L1500 diagonal prism	✓	662628	LM2
LDF+ A L1500 staight prism	✓	662635	LM2
LDF+ A L1500 diagonal prism	✓	662642	LM2
LDF+ V L1500 staight prism relay	✓	707336	LM2
LDF+ V L1500 diagonal prism relay	✓	707350	LM2

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
LDF+ Dual VV 2xL1500 diagonal prism	✓	700856	LM1
LDF+ Dual AA 2xL1500 staight prism	✓	700863	LM1
LDF+ Dual AA 2xL1500 diagonal prism	✓	700870	LM1
LDF+ Dual VV 2xL1500 staight prism relay	✓	707374	LM1
LDF+ Dual VV 2xL1500 diagonal prism relay	✓	707381	LM1

LDF+ BUS

Ceiling flush mount sensor luminosity BUS			
Item description	**USEapp**	**Item No.**	**Group**
LDF+ RS485 Modbus L1500 staight prism	✓	700887	LM1
LDF+ RS485 Modbus L1500 diagonal prism	✓	700894	LM1
LDF+ RS485 BACnet (MS/TP) L1500 staight prism	✓	700900	LM1
LDF+ RS485 BACnet (MS/TP) L1500 diagonal prism	✓	700917	LM1

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
LDF+ Dual RS485 Modbus 2xL1500 diagonal prism	✓	700931	LM1
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 staight prism	✓	700948	LM1
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 diagonal prism	✓	700955	LM1

Options
Description
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Sensor wire 1,5 m with RJ45 connector	628785	AS1
Sensor wire 3 m with RJ45 connector	708852	AS1
Sensor wire 7,5 m with RJ45 connector	708869	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
WRF06I Berker S.1 polar white	223997	LM2
WRF06I Busch-Jaeger Busch-balance® SI alpin white	630405	LM2
WRF06I Busch-Jaeger Reflex SI alpin white	413350	LM2
WRF06I Jung A 500 alpin white	630412	LM2
WRF06I Merten M-Smart polar white brilliant	630429	LM2

Options
Description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in other colours or dimensions (various manufacturers)
Switch ranges stainless steel | glass | aluminium (various manufacturers)

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



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

Accessories

Item description	Item No.	Group
Fixing kit rawlplugs and screws (2x each)	660945	AS1
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1



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
FSR01 internal adjuster	450607	HU1

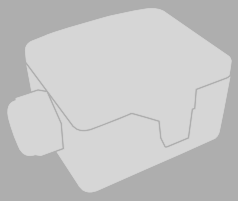
Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1

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	**214**
AGS55+	Temperature	**216**
FTA54+	Temperature, humidity	**220**
WSA	Temperature, humidity	**222**
LA+	Temperature, humidity, CO2, VOC	**224**

Outdoor Sensors Climate / Light

Li65+	Light, air pressure, temp., humidity	**228**

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
AGS54+ PT100 1/3 DIN	622844		TP2
AGS54+ PT1000	622851	●	TP2
AGS54+ PT1000 1/3 DIN	622783		TP2
AGS54+ Ni1000	622806	●	TP2
AGS54+ Ni1000TK5000	622813	●	TP2
AGS54+ NTC10k	622790	●	TP2
AGS54+ NTC10k Precon	622868		TP2
AGS54+ NTC5k	624275		TP2
AGS54+ NTC20k	622875	●	TP2
AGS54+ NTC1,8k	643825		TP2
AGS54+ LM235Z	622820	●	TP2
AGS54+ KTY81-110	622899		TP2
AGS54+ KTY81-121	622905		TP2
AGS54+ KTY81-122	622912		TP2
AGS54+ KTY81-210	622929		TP2

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of NTC10k for sensor FeT/Staefa

Accessories		
Item description	**Item No.**	**Group**
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Sun/rain protection RS150	103329	AS1

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
AGS55+ PT100 1/3 DIN		623001		TP2
AGS55+ PT1000		623018	⛃	TP2
AGS55+ PT1000 1/3 DIN		622943		TP2
AGS55+ Ni1000		622967		TP2
AGS55+ Ni1000TK5000		622974		TP2
AGS55+ NTC10k		622950		TP2
AGS55+ NTC10k Precon		623025		TP2
AGS55+ NTC5k		624268		TP2
AGS55+ NTC20k		623032		TP2
AGS55+ NTC1,8k		645812		TP2
AGS55+ LM235Z		622981		TP2
AGS55+ KTY81-110		623049		TP2
AGS55+ KTY81-121		623056		TP2
AGS55+ KTY81-122		623063		TP2
AGS55+ KTY81-210		623070		TP2

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of NTC10k for sensor FeT/Staefa

AGS55+ active

Outdoor sensor temperature active				
Item description	**USEapp**	**Item No.**	**On stock**	**Group**
AGS55+ TRV MultiRange		623087	⛀	TP2
AGS55+ TRA MultiRange		623094	⛀	TP2

Accessories		
Item description	**Item No.**	**Group**
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1

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

Outdoor sensor temperature LCD			
Item description	**USEapp**	**Item No.**	**Group**
AGS55+ LCD TRV MultiRange	✓	658614	TP2
AGS55+ LCD TRA MultiRange	✓	658621	TP2
AGS55+ LCD TRV MultiRange Relais	✓	663076	TP2

AGS55+ BUS

Outdoor sensor temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
AGS55+ RS485 Modbus	✓	658584	TP2
AGS55+ LCD RS485 Modbus	✓	658607	TP2
AGS55+ RS485 BACnet (MS/TP)	✓	699686	TP2
AGS55+ LCD RS485 BACnet (MS/TP)	✓	699693	TP2
AGS55+ LON	✓	658577	TP2
AGS55+ Basic RS485 Modbus	✓	747844	TP2

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

Accessories		
Item description	**Item No.**	**Group**
Fixing kit rawlplugs and screws (2x each)	660945	AS1
Sun/rain protection RS150	103329	AS1

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
FTA54+ AA		659154	⛀	HU1
FTA54+ VV relay	✓	661003		HU1
FTA54+ LCD VV	✓	660983		HU1
FTA54+ LCD AA	✓	660990		HU1
FTA54+ LCD VV relay	✓	661010		HU1

FTA54+ BUS

Outdoor sensor humidity + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
FTA54+ RS485 Modbus	✓	659178	HU1
FTA54+ LCD RS485 Modbus	✓	661034	HU1
FTA54+ RS485 BACnet (MS/TP)	✓	700191	HU1
FTA54+ LCD RS485 BACnet (MS/TP)	✓	700214	HU1
FTA54+ Basic RS485 Modbus	✓	747752	HU1

Options
Description
Add for additional passive temperature sensor
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
Sun/rain protection RS150	103329	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
WSA AA	✓	626415	HU2

Options
Description
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board
Add for additional passive temperature sensor

WSA BUS

Weather protected outdoor sensor humidity + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
WSA temp_rH RS485 Modbus	✓	626439	HU1
WSA temp_rH RS485 BACnet (MS/TP)	✓	700184	HU1

Options
Description
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories		
Item description	**Item No.**	**Group**
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
Weather protection for FTK+, WSA (replacement)	625241	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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+ CO2 Temp_rH



LA+ CO2 Temp_rH 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
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
LA+ CO2 A	✓	693424	AQ1
LA+ CO2 temp VV	✓	700542	AQ1
LA+ CO2 temp AA	✓	700559	AQ1
LA+ CO2 temp VV relay	✓	700566	AQ1
LA+ CO2 temp_rH 3xV	✓	700573	AQ1

Options
Description
LCD 29x35 mm, RGB backlight

Outdoor sensor CO2 BUS			
Item description	**USEapp**	**Item No.**	**Group**
LA+ CO2 RS485 Modbus	✓	698719	AQ1
LA+ CO2 RS485 BACnet (MS/TP)	✓	700580	AQ1
LA+ CO2 temp RS485 Modbus	✓	700634	AQ1
LA+ CO2 temp RS485 BACnet (MS/TP)	✓	700641	AQ1

Options
Description
Add for additional outdoor humidity sensor
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

LA+ VOC

Outdoor sensor VOC active			
Item description	**USEapp**	**Item No.**	**Group**
LA+ VOC V	✓	698405	AQ1
LA+ VOC A	✓	698412	AQ1
LA+ VOC temp VV	✓	698399	AQ1
LA+ VOC temp AA	✓	698429	AQ1
LA+ VOC temp VV relay	✓	703086	AQ1
LA+ VOC temp_rH 3xV	✓	703093	AQ1

Options
Description
LCD 29x35 mm, RGB backlight

Outdoor sensor VOC BUS			
Item description	**USEapp**	**Item No.**	**Group**
LA+ VOC RS485 Modbus	✓	700597	AQ1
LA+ VOC RS485 BACnet (MS/TP)	✓	700603	AQ1
LA+ VOC temp RS485 Modbus	✓	703154	AQ1
LA+ VOC temp RS485 BACnet (MS/TP)	✓	703161	AQ1

Options
Description
Add for additional outdoor humidity sensor
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

LA+ CO2+VOC

Outdoor sensor CO2 + VOC or mix active			
Item description	**USEapp**	**Item No.**	**Group**
LA+ CO2+VOC VV	✓	698993	AQ1
LA+ CO2+VOC AA	✓	699006	AQ1
LA+ CO2+VOC VV relay	✓	700535	AQ1

Options
Description
Add for additional passive temperature sensor
Add for additional outdoor humidity sensor
LCD 29x35 mm, RGB backlight

Outdoor sensor CO2 + VOC or mix BUS			
Item description	**USEapp**	**Item No.**	**Group**
LA+ CO2+VOC RS485 Modbus	✓	700610	AQ1
LA+ CO2+VOC RS485 BACnet (MS/TP)	✓	700627	AQ1
LA+ CO2+VOC temp_rH RS485 Modbus	✓	700658	AQ1
LA+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	700665	AQ1

Options
Description
Add for additional passive temperature sensor
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
Li65+ A	✓	662697	⛀	LM2

Outdoor sensor light + temperature active			
Item description	**USEapp**	**Item No.**	**Group**
Li65+ temp VV	✓	700672	LM1
Li65+ temp AA	✓	700689	LM1
Li65+ temp VV relay	✓	707305	LM1

Outdoor sensor light + temperature + humidity + atmospheric pressure active			
Item description	**USEapp**	**Item No.**	**Group**
Li65+ temp_rH 3xV	✓	700696	LM1
Li65+ temp_rH_hPa 4xV	✓	700702	LM1

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

Li65+ BUS

Outdoor sensor light + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
Li65+ temp RS485 Modbus	✓	700733	LM1
Li65+ temp RS485 BACnet (MS/TP)	✓	700740	LM1

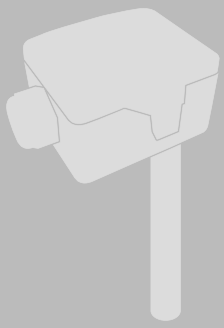
Outdoor sensor light + temperature + humidity + atmospheric pressure BUS			
Item description	**USEapp**	**Item No.**	**Group**
Li65+ temp_rH RS485 Modbus	✓	700757	LM1
Li65+ temp_rH RS485 BACnet (MS/TP)	✓	700764	LM1
Li65+ temp_rH_hPa RS485 Modbus	✓	700771	LM1
Li65+ temp_rH_hPa RS485 BACnet (MS/TP)	✓	700788	LM1

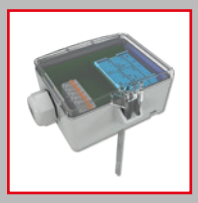
Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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	**232**
SFK02+	Temperature	**240**
SFK02+ FR	Temperature	**247**
MWF+	Temperature	**251**
MWF400+	Temperature	**254**
KFK01	Temperature	**257**
SFK01	Temperature	**260**
KFK03	Temperature	**262**
SFK03	Temperature	**267**
RG03	Temperature	**271**
RGS03	Temperature	**272**
FTK+	Temperature, humidity	**273**
LK+	CO2, VOC, temperature, humidity	**277**

Duct Hygrostats

FSK01	Humidity	**285**

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.



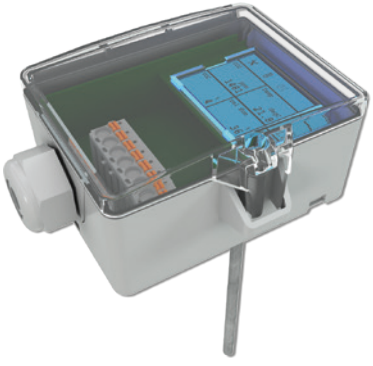
AKF10+



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
AKF10+ NTC10k 100.06	620871
AKF10+ NTC10k 150.06	620888
AKF10+ NTC10k 200.06	620895
AKF10+ NTC10k 250.06	620901
AKF10+ NTC10k 300.06	620918
AKF10+ NTC10k 450.06	620925

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B	TP3
Item description	**Item No.**
AKF10+ PT100 050.06	621175
AKF10+ PT100 100.06	621182
AKF10+ PT100 150.06	621199
AKF10+ PT100 200.06	621205
AKF10+ PT100 250.06	621212
AKF10+ PT100 300.06	621229
AKF10+ PT100 450.06	621236

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN	TP3
Item description	**Item No.**
AKF10+ PT100 1/3 DIN 050.06	621243
AKF10+ PT100 1/3 DIN 100.06	621250
AKF10+ PT100 1/3 DIN 150.06	621267
AKF10+ PT100 1/3 DIN 200.06	621274
AKF10+ PT100 1/3 DIN 250.06	621281
AKF10+ PT100 1/3 DIN 300.06	621298
AKF10+ PT100 1/3 DIN 450.06	621304

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B	TP3
Item description	**Item No.**
AKF10+ PT1000 050.06	621311
AKF10+ PT1000 100.06	621328
AKF10+ PT1000 150.06	621335
AKF10+ PT1000 200.06	621342
AKF10+ PT1000 250.06	621359
AKF10+ PT1000 300.06	621366
AKF10+ PT1000 450.06	621373

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN	TP3
Item description	**Item No.**
AKF10+ PT1000 1/3 DIN 050.06	620796
AKF10+ PT1000 1/3 DIN 100.06	620802
AKF10+ PT1000 1/3 DIN 150.06	620819
AKF10+ PT1000 1/3 DIN 200.06	620826
AKF10+ PT1000 1/3 DIN 250.06	620833
AKF10+ PT1000 1/3 DIN 300.06	620840
AKF10+ PT1000 1/3 DIN 450.06	620857

Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	TP3
Item description	**Item No.**
AKF10+ Ni1000 050.06	620932
AKF10+ Ni1000 100.06	620949
AKF10+ Ni1000 150.06	620956
AKF10+ Ni1000 200.06	620963
AKF10+ Ni1000 250.06	620970
AKF10+ Ni1000 300.06	620987
AKF10+ Ni1000 450.06	620994

Duct/immersion sensor -50..+160 °C – Ni1000TK5000	TP3
Item description	**Item No.**
AKF10+ Ni1000TK5000 050.06	621007
AKF10+ Ni1000TK5000 100.06	621014
AKF10+ Ni1000TK5000 150.06	621021
AKF10+ Ni1000TK5000 200.06	621038
AKF10+ Ni1000TK5000 250.06	621045
AKF10+ Ni1000TK5000 300.06	621052
AKF10+ Ni1000TK5000 450.06	621069

Options
Description
3-wire connection -50..+160 °C (3-wire)
4-wire connection -50..+160 °C (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor DS18B20 1-wire
Add to price of NTC10k for sensor FeT/Staefa

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
AKF10+ TRV MultiRange 100.06		621601	⛃	TP3
AKF10+ TRV MultiRange 150.06		621618	⛃	TP3
AKF10+ TRV MultiRange 200.06		621625	⛃	TP3
AKF10+ TRV MultiRange 250.06		621632		TP3
AKF10+ TRV MultiRange 300.06		621649		TP3
AKF10+ TRV MultiRange 450.06		621656		TP3

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
AKF10+ TRA MultiRange 100.06		621670	⛃	TP3
AKF10+ TRA MultiRange 150.06		621687	⛃	TP3
AKF10+ TRA MultiRange 200.06		621694	⛃	TP3
AKF10+ TRA MultiRange 250.06		621700		TP3
AKF10+ TRA MultiRange 300.06		621717		TP3
AKF10+ TRA MultiRange 450.06		621724		TP3

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
AKF10+ TRV MultiRange 100.06 relay	✓	663311	TP2
AKF10+ TRV MultiRange 150.06 relay	✓	663328	TP2
AKF10+ TRV MultiRange 200.06 relay	✓	663335	TP2
AKF10+ TRV MultiRange 250.06 relay	✓	663342	TP2
AKF10+ TRV MultiRange 300.06 relay	✓	663359	TP2
AKF10+ TRV MultiRange 450.06 relay	✓	663366	TP2

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
AKF10+ LCD TRV MultiRange 100.06	✓	663397	TP2
AKF10+ LCD TRV MultiRange 150.06	✓	663403	TP2
AKF10+ LCD TRV MultiRange 200.06	✓	663410	TP2
AKF10+ LCD TRV MultiRange 250.06	✓	663427	TP2
AKF10+ LCD TRV MultiRange 300.06	✓	663434	TP2
AKF10+ LCD TRV MultiRange 450.06	✓	663441	TP2

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
AKF10+ LCD TRA MultiRange 100.06	✓	663533	TP2
AKF10+ LCD TRA MultiRange 150.06	✓	663540	TP2
AKF10+ LCD TRA MultiRange 200.06	✓	663557	TP2
AKF10+ LCD TRA MultiRange 250.06	✓	663564	TP2
AKF10+ LCD TRA MultiRange 300.06	✓	663571	TP2
AKF10+ LCD TRA MultiRange 450.06	✓	663588	TP2

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
AKF10+ LCD TRV MultiRange 100.06 relay	✓	663465	TP2
AKF10+ LCD TRV MultiRange 150.06 relay	✓	663472	TP2
AKF10+ LCD TRV MultiRange 200.06 relay	✓	663489	TP2
AKF10+ LCD TRV MultiRange 250.06 relay	✓	663496	TP2
AKF10+ LCD TRV MultiRange 300.06 relay	✓	663502	TP2
AKF10+ LCD TRV MultiRange 450.06 relay	✓	663519	TP2

Options
Description
Temperature -80..+260 °C (T260)

AKF10+ BUS

Duct/immersion sensor -50..+160 °C RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
AKF10+ RS485 Modbus 050.06	✓	621823	TP2
AKF10+ RS485 Modbus 100.06	✓	621830	TP2
AKF10+ RS485 Modbus 150.06	✓	621847	TP2
AKF10+ RS485 Modbus 200.06	✓	621854	TP2
AKF10+ RS485 Modbus 250.06	✓	621861	TP2
AKF10+ RS485 Modbus 300.06	✓	621878	TP2
AKF10+ RS485 Modbus 450.06	✓	621885	TP2

Duct/immersion sensor -50..+160 °C RS485 Modbus LCD			
Item description	**USEapp**	**Item No.**	**Group**
AKF10+ LCD RS485 Modbus 050.06	✓	663618	TP2
AKF10+ LCD RS485 Modbus 100.06	✓	663625	TP2
AKF10+ LCD RS485 Modbus 150.06	✓	663632	TP2
AKF10+ LCD RS485 Modbus 200.06	✓	663649	TP2
AKF10+ LCD RS485 Modbus 250.06	✓	663656	TP2
AKF10+ LCD RS485 Modbus 300.06	✓	663663	TP2
AKF10+ LCD RS485 Modbus 450.06	✓	663670	TP2

Duct/immersion sensor -50..+160 °C RS485 BACnet (MS/TP)			
Item description	**USEapp**	**Item No.**	**Group**
AKF10+ RS485 BACnet 050.06	✓	699174	TP2
AKF10+ RS485 BACnet 100.06	✓	699181	TP2
AKF10+ RS485 BACnet 150.06	✓	683838	TP2
AKF10+ RS485 BACnet 200.06	✓	699198	TP2
AKF10+ RS485 BACnet 250.06	✓	699204	TP2
AKF10+ RS485 BACnet 300.06	✓	699211	TP2
AKF10+ RS485 BACnet 450.06	✓	699228	TP2

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
AKF10+ LCD RS485 BACnet 100.06	✓	699242	TP2
AKF10+ LCD RS485 BACnet 150.06	✓	682848	TP2
AKF10+ LCD RS485 BACnet 200.06	✓	699259	TP2
AKF10+ LCD RS485 BACnet 250.06	✓	699266	TP2
AKF10+ LCD RS485 BACnet 300.06	✓	699273	TP2
AKF10+ LCD RS485 BACnet 450.06	✓	699280	TP2

Duct/immersion sensor -50..+160 °C Basic RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
AKF10+ Basic RS485 Modbus 050.06		747783	TP2
AKF10+ Basic RS485 Modbus 100.06		748032	TP2
AKF10+ Basic RS485 Modbus 150.06		747769	TP2
AKF10+ Basic RS485 Modbus 200.06		747790	TP2
AKF10+ Basic RS485 Modbus 250.06		748049	TP2
AKF10+ Basic RS485 Modbus 300.06		747776	TP2
AKF10+ Basic RS485 Modbus 450.06		748056	TP2

Options
Description
Temperature -80..+260 °C (T260)

Accessories – passive / TRV / TRA

Accessories		
Item description	**Item No.**	**Group**
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1
Mounting kit AKF10+ for enclosure USE-S	748551	AS1

Accessories – Relay / LCD / BUS

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

Accessories

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1
Syringe thermal contact fluid	102308	AS1
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1

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
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008		AS2
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015		AS2
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022		AS2
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985		AS2
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039		AS2
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046		AS2

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
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817		AS2
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824		AS2
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848		AS2
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862		AS2
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879		AS2
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893		AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2

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
SFK02+ NTC10k 100.08	622011
SFK02+ NTC10k 150.08	622028
SFK02+ NTC10k 200.08	622035
SFK02+ NTC10k 250.08	622042
SFK02+ NTC10k 450.08	622059

Immersion sensor -50..+160 °C – PT100 DIN Kl. B	TP2
Item description	**Item No.**
SFK02+ PT100 050.08	622295
SFK02+ PT100 100.08	622301
SFK02+ PT100 150.08	622318
SFK02+ PT100 200.08	622325
SFK02+ PT100 250.08	622332
SFK02+ PT100 450.08	622349

Immersion sensor -50..+160 °C – PT100 1/3 DIN	TP2
Item description	**Item No.**
SFK02+ PT100 1/3 DIN 050.08	622356
SFK02+ PT100 1/3 DIN 100.08	622363
SFK02+ PT100 1/3 DIN 150.08	622370
SFK02+ PT100 1/3 DIN 200.08	622387
SFK02+ PT100 1/3 DIN 250.08	622394
SFK02+ PT100 1/3 DIN 450.08	622400

Immersion sensor -50..+160 °C – PT1000 DIN Kl. B	TP2
Item description	**Item No.**
SFK02+ PT1000 050.08	622417
SFK02+ PT1000 100.08	622424
SFK02+ PT1000 150.08	622431
SFK02+ PT1000 200.08	622448
SFK02+ PT1000 250.08	622455
SFK02+ PT1000 450.08	622462

Immersion sensor -50..+160 °C – PT1000 1/3 DIN	TP2
Item description	**Item No.**
SFK02+ PT1000 1/3 DIN 050.08	621946
SFK02+ PT1000 1/3 DIN 100.08	621953
SFK02+ PT1000 1/3 DIN 150.08	621960
SFK02+ PT1000 1/3 DIN 200.08	621977
SFK02+ PT1000 1/3 DIN 250.08	621984
SFK02+ PT1000 1/3 DIN 450.08	621991

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	TP2
Item description	**Item No.**
SFK02+ Ni1000 050.08	622080
SFK02+ Ni1000 100.08	622097
SFK02+ Ni1000 150.08	622103
SFK02+ Ni1000 200.08	622110
SFK02+ Ni1000 250.08	622127
SFK02+ Ni1000 450.08	622141

Immersion sensor -50..+160 °C – Ni1000TK5000	TP2
Item description	**Item No.**
SFK02+ Ni1000TK5000 050.08	622158
SFK02+ Ni1000TK5000 100.08	622165
SFK02+ Ni1000TK5000 150.08	622189
SFK02+ Ni1000TK5000 200.08	622196
SFK02+ Ni1000TK5000 250.08	622202
SFK02+ Ni1000TK5000 450.08	622219

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Neck pipe 70.12 (for applications with insulation materials)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210

Immersion sensor -50..+160 °C active 0..10 (0..5) V			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ TRV MultiRange 050.08		622592	TP2
SFK02+ TRV MultiRange 100.08		622608	TP2
SFK02+ TRV MultiRange 150.08		622615	TP2
SFK02+ TRV MultiRange 200.08		622622	TP2
SFK02+ TRV MultiRange 250.08		622639	TP2
SFK02+ TRV MultiRange 450.08		622646	TP2

Immersion sensor -50..+160 °C active 4..20 mA			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ TRA MultiRange 050.08		622653	TP2
SFK02+ TRA MultiRange 100.08		622660	TP2
SFK02+ TRA MultiRange 150.08		622677	TP2
SFK02+ TRA MultiRange 200.08		622684	TP2
SFK02+ TRA MultiRange 250.08		622691	TP2
SFK02+ TRA MultiRange 450.08		622707	TP2

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
SFK02+ TRV MultiRange 100.08 relay	✓	665575	TP2
SFK02+ TRV MultiRange 150.08 relay	✓	665582	TP2
SFK02+ TRV MultiRange 200.08 relay	✓	665599	TP2
SFK02+ TRV MultiRange 250.08 relay	✓	665605	TP2
SFK02+ TRV MultiRange 450.08 relay	✓	665612	TP2

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
SFK02+ LCD TRV MultiRange 100.08	✓	665483	TP2
SFK02+ LCD TRV MultiRange 150.08	✓	665490	TP2
SFK02+ LCD TRV MultiRange 200.08	✓	665506	TP2
SFK02+ LCD TRV MultiRange 250.08	✓	665513	TP2
SFK02+ LCD TRV MultiRange 450.08	✓	665520	TP2

Immersion sensor -50..+160 °C active 4..20 mA LCD			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ LCD TRA MultiRange 050.08	✓	665681	TP2
SFK02+ LCD TRA MultiRange 100.08	✓	665698	TP2
SFK02+ LCD TRA MultiRange 150.08	✓	665704	TP2
SFK02+ LCD TRA MultiRange 200.08	✓	665711	TP2
SFK02+ LCD TRA MultiRange 250.08	✓	665728	TP2
SFK02+ LCD TRA MultiRange 450.08	✓	665735	TP2

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
SFK02+ LCD TRV MultiRange 100.08 relay	✓	665636	TP2
SFK02+ LCD TRV MultiRange 150.08 relay	✓	665643	TP2
SFK02+ LCD TRV MultiRange 200.08 relay	✓	665650	TP2
SFK02+ LCD TRV MultiRange 250.08 relay	✓	665667	TP2
SFK02+ LCD TRV MultiRange 450.08 relay	✓	665674	TP2

Options
Description
Temperature -80..+260 °C (T260)
Neck pipe 70.12 (for applications with insulation materials)

Immersion sensor -50..+160 °C RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ RS485 Modbus 050.08	✓	665742	TP2
SFK02+ RS485 Modbus 100.08	✓	665759	TP2
SFK02+ RS485 Modbus 150.08	✓	665766	TP2
SFK02+ RS485 Modbus 200.08	✓	665773	TP2
SFK02+ RS485 Modbus 250.08	✓	665780	TP2
SFK02+ RS485 Modbus 450.08	✓	665797	TP2

Immersion sensor -50..+160 °C RS485 Modbus LCD			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ LCD RS485 Modbus 050.08	✓	665803	TP2
SFK02+ LCD RS485 Modbus 100.08	✓	665810	TP2
SFK02+ LCD RS485 Modbus 150.08	✓	665827	TP2
SFK02+ LCD RS485 Modbus 200.08	✓	665834	TP2
SFK02+ LCD RS485 Modbus 250.08	✓	665841	TP2
SFK02+ LCD RS485 Modbus 450.08	✓	665858	TP2

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP)			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ RS485 BACnet (MS/TP) 050.08	✓	699389	TP2
SFK02+ RS485 BACnet (MS/TP) 100.08	✓	699396	TP2
SFK02+ RS485 BACnet (MS/TP) 150.08	✓	699402	TP2
SFK02+ RS485 BACnet (MS/TP) 200.08	✓	699419	TP2
SFK02+ RS485 BACnet (MS/TP) 250.08	✓	699426	TP2
SFK02+ RS485 BACnet (MS/TP) 450.08	✓	699433	TP2

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
SFK02+ LCD RS485 BACnet (MS/TP) 100.08	✓	699457	TP2
SFK02+ LCD RS485 BACnet (MS/TP) 150.08	✓	699464	TP2
SFK02+ LCD RS485 BACnet (MS/TP) 200.08	✓	699471	TP2
SFK02+ LCD RS485 BACnet (MS/TP) 250.08	✓	699488	TP2
SFK02+ LCD RS485 BACnet (MS/TP) 450.08	✓	699495	TP2

Immersion sensor -50..+160 °C Basic RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ Basic RS485 Modbus 050.08	✓	755986	TP2
SFK02+ Basic RS485 Modbus 100.08	✓	747837	TP2
SFK02+ Basic RS485 Modbus 150.08	✓	755993	TP2
SFK02+ Basic RS485 Modbus 200.08	✓	756006	TP2
SFK02+ Basic RS485 Modbus 250.08	✓	756013	TP2
SFK02+ Basic RS485 Modbus 450.08	✓	756020	TP2

Options
Description
Temperature -80..+260 °C (T260)
Neck pipe 70.12 (for applications with insulation materials)

Accessories		
Item description	**Item No.**	**Group**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

Bonded pockets					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛀	AS1
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛀	AS1
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛀	AS1
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛀	AS1

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
SFK02+ FR NTC10k 100.06/04	640725
SFK02+ FR NTC10k 200.06/04	640763

Immersion sensor -50..+160 °C – PT100 DIN Kl. B	*TP2*
Item description	**Item No.**
SFK02+ FR PT100 050.04	665926
SFK02+ FR PT100 100.06/04	665933
SFK02+ FR PT100 200.06/04	665940

Immersion sensor -50..+160 °C – PT100 1/3 DIN	*TP2*
Item description	**Item No.**
SFK02+ FR PT100 1/3 DIN 050.04	665957
SFK02+ FR PT100 1/3 DIN 100.06/04	665964
SFK02+ FR PT100 1/3 DIN 200.06/04	665971

Immersion sensor -50..+160 °C – PT1000 DIN Kl. B	*TP2*
Item description	**Item No.**
SFK02+ FR PT1000 050.04	655583
SFK02+ FR PT1000 100.06/04	638807
SFK02+ FR PT1000 200.06/04	640749

Immersion sensor -50..+160 °C – PT1000 1/3 DIN	*TP2*
Item description	**Item No.**
SFK02+ FR PT1000 1/3 DIN 050.04	665988
SFK02+ FR PT1000 1/3 DIN 100.06/04	665995
SFK02+ FR PT1000 1/3 DIN 200.06/04	666008

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	*TP2*
Item description	**Item No.**
SFK02+ FR Ni1000 050.04	666015
SFK02+ FR Ni1000 100.06/04	657280
SFK02+ FR Ni1000 200.06/04	666022

Immersion sensor -50..+160 °C – Ni1000TK5000	*TP2*
Item description	**Item No.**
SFK02+ FR Ni1000TK5000 050.04	655590
SFK02+ FR Ni1000TK5000 100.06/04	640732
SFK02+ FR Ni1000TK5000 200.06/04	640770

Options
Description
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa

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
SFK02+ FR TRV MultiRange 100.06/04		645881	TP2
SFK02+ FR TRV MultiRange 200.06/04		655637	TP2

Immersion sensor -50..+160 °C active 4..20 mA			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ FR TRA MultiRange 050.04		655606	TP2
SFK02+ FR TRA MultiRange 100.06/04		645867	TP2
SFK02+ FR TRA MultiRange 200.06/04		655613	TP2

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
SFK02+ FR TRV MultiRange 100.06/04 relay	✓	666176	TP2
SFK02+ FR TRV MultiRange 200.06/04 relay	✓	666183	TP2

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
SFK02+ FR LCD TRV MultiRange 100.06/04	✓	666107	TP2
SFK02+ FR LCD TRV MultiRange 200.06/04	✓	666114	TP2

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
SFK02+ FR LCD TRA MultiRange 100.06/04	✓	666138	TP2
SFK02+ FR LCD TRA MultiRange 200.06/04	✓	666145	TP2

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
SFK02+ FR LCD TRV MultiRange 100.06/04 relay	✓	666206	TP2
SFK02+ FR LCD TRV MultiRange 200.06/04 relay	✓	666213	TP2

Immersion sensor -50..+160 °C RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ FR RS485 Modbus 050.04	✓	666220	TP2
SFK02+ FR RS485 Modbus 100.06/04	✓	666237	TP2
SFK02+ FR RS485 Modbus 200.06/04	✓	666244	TP2

Immersion sensor -50..+160 °C RS485 Modbus LCD			
Item description	**USEapp**	**Item No.**	**Group**
SFK02+ FR LCD RS485 Modbus 050.04	✓	666251	TP2
SFK02+ FR LCD RS485 Modbus 100.06/04	✓	666268	TP2
SFK02+ FR LCD RS485 Modbus 200.06/04	✓	666275	TP2

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
SFK02+ FR RS485 BACnet (MS/TP) 100.06/04	✓	699518	TP2
SFK02+ FR RS485 BACnet (MS/TP) 200.06/04	✓	699525	TP2

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
SFK02+ FR LCD RS485 BACnet (MS/TP) 100.06/04	✓	699549	TP2
SFK02+ FR LCD RS485 BACnet (MS/TP) 200.06/04	✓	699556	TP2

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
MWF+ PT1000 L6000	620420
MWF+ Ni1000 L3000	620437
MWF+ Ni1000 L6000	620444
MWF+ Ni1000TK5000 L3000	675888
MWF+ Ni1000TK5000 L6000	674324
MWF+ Ni891 L3000	699297
MWF+ Ni891 L6000	699303

Duct averaging sensor 0..+50 °C	*TP1*
Item description	**Item No.**
MWF+ NTC10k L3000	670128
MWF+ NTC10k L6000	670135
MWF+ NTC10k Precon L3000	670142
MWF+ NTC10k Precon L6000	670159
MWF+ NTC20k L3000	670166
MWF+ NTC20k L6000	670173

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
MWF+ TRV MultiRange L6000		620482	TP1
MWF+ TRA MultiRange L3000		620499	TP1
MWF+ TRA MultiRange L6000		620505	TP1

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-S pure white	667722	AS1
Mounting kit universal for enclosure USE	698511	AS1
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1
Installation set TFR / MWF+	679466	AS1

Duct averaging sensor temperature active 0..10 (0..5) V + relay			
Item description	**USEapp**	**Item No.**	**Group**
MWF+ TRV MultiRange relay L3000	✓	662758	TP1
MWF+ TRV MultiRange relay L6000	✓	662765	TP1

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
MWF+ LCD TRV MultiRange L6000	✓	662789	TP1
MWF+ LCD TRA MultiRange L3000	✓	662796	TP1
MWF+ LCD TRA MultiRange L6000	✓	662802	TP1

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
MWF+ LCD TRV MultiRange relay L6000	✓	662826	TP1

Duct averaging sensor temperature RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
MWF+ RS485 Modbus L3000	✓	662833	TP1
MWF+ RS485 Modbus L6000	✓	662840	TP1
MWF+ LCD RS485 Modbus L3000	✓	662857	TP1
MWF+ LCD RS485 Modbus L6000	✓	662864	TP1

Duct averaging sensor temperature RS485 BACnet (MS/TP)			
Item description	**USEapp**	**Item No.**	**Group**
MWF+ RS485 BACnet (MS/TP) L3000	✓	699310	TP1
MWF+ RS485 BACnet (MS/TP) L6000	✓	699327	TP1
MWF+ LCD RS485 BACnet (MS/TP) L3000	✓	699334	TP1
MWF+ LCD RS485 BACnet (MS/TP) L6000	✓	699341	TP1

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1
Installation set TFR / MWF+	679466	AS1

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
MWF400+ PT1000		660518	TP1
MWF400+ Ni1000		641395	TP1
MWF400+ Ni1000TK5000		641425	TP1
MWF400+ Ni891		699358	TP1
MWF400+ NTC10k		641449	TP1
MWF400+ NTC20k		670319	TP1
MWF400+ NTC1,8k		670333	TP1

Duct averaging sensor -30..+80 °C active

Item description	USEapp	Item No.	Group
MWF400+ TRV MultiRange		642088	TP1
MWF400+ TRA MultiRange		642095	TP1

Accessories

Item description	Item No.	Group
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1
Mounting kit universal for enclosure USE	698511	AS1

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

Duct averaging sensor -30..+80 °C active LCD			
Item description	**USEapp**	**Item No.**	**Group**
MWF400+ LCD TRV MultiRange	✓	662925	TP1
MWF400+ LCD TRA MultiRange	✓	662956	TP1

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

Duct averaging sensor -30..+80 °C BUS			
Item description	**USEapp**	**Item No.**	**Group**
MWF400+ RS485 Modbus	✓	662970	TP1
MWF400+ LCD RS485 Modbus	✓	662987	TP1
MWF400+ RS485 BACnet (MS/TP)	✓	699365	TP1
MWF400+ LCD RS485 BACnet (MS/TP)	✓	699372	TP1

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
KFK01 NTC10k 100.06	626897
KFK01 NTC10k 150.06	626903
KFK01 NTC10k 200.06	626910
KFK01 NTC10k 250.06	626927
KFK01 NTC10k 300.06	626934
KFK01 NTC10k 450.06	626941

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B	*TP1*
Item description	**Item No.**
KFK01 PT100 050.06	626446
KFK01 PT100 100.06	626453
KFK01 PT100 150.06	626477
KFK01 PT100 200.06	626484
KFK01 PT100 250.06	626491
KFK01 PT100 300.06	626507
KFK01 PT100 450.06	626514

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN	*TP1*
Item description	**Item No.**
KFK01 PT100 1/3 DIN 050.06	626521
KFK01 PT100 1/3 DIN 100.06	626538
KFK01 PT100 1/3 DIN 150.06	626545
KFK01 PT100 1/3 DIN 200.06	626552
KFK01 PT100 1/3 DIN 250.06	626569
KFK01 PT100 1/3 DIN 300.06	626576
KFK01 PT100 1/3 DIN 450.06	626583

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B	*TP1*
Item description	**Item No.**
KFK01 PT1000 050.06	626590
KFK01 PT1000 100.06	626606
KFK01 PT1000 150.06	626613
KFK01 PT1000 200.06	626620
KFK01 PT1000 250.06	626637
KFK01 PT1000 300.06	626644
KFK01 PT1000 450.06	626651

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN *TP1*	
Item description	**Item No.**
KFK01 PT1000 1/3 DIN 050.06	626675
KFK01 PT1000 1/3 DIN 100.06	626682
KFK01 PT1000 1/3 DIN 150.06	626699
KFK01 PT1000 1/3 DIN 200.06	626705
KFK01 PT1000 1/3 DIN 250.06	626712
KFK01 PT1000 1/3 DIN 300.06	626729
KFK01 PT1000 1/3 DIN 450.06	626736

Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B *TP1*	
Item description	**Item No.**
KFK01 Ni1000 050.06	626743
KFK01 Ni1000 100.06	626750
KFK01 Ni1000 150.06	626767
KFK01 Ni1000 200.06	626774
KFK01 Ni1000 250.06	626781
KFK01 Ni1000 300.06	626798
KFK01 Ni1000 450.06	626804

Duct/immersion sensor -50..+160 °C – Ni1000TK5000 *TP1*	
Item description	**Item No.**
KFK01 Ni1000TK5000 050.06	626811
KFK01 Ni1000TK5000 100.06	626828
KFK01 Ni1000TK5000 150.06	626835
KFK01 Ni1000TK5000 200.06	626842
KFK01 Ni1000TK5000 250.06	626859
KFK01 Ni1000TK5000 300.06	626866
KFK01 Ni1000TK5000 450.06	626873

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor DS18B20 1-wire
Add to price of NTC10k for sensor FeT/Staefa

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1

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
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008		AS2
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015		AS2
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022		AS2
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985		AS2
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039		AS2
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046		AS2

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
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817		AS2
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824		AS2
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848		AS2
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862		AS2
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879		AS2
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893		AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2



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
SFK01 NTC10k 100.08	45438
SFK01 NTC10k 150.08	45445
SFK01 NTC10k 200.08	45452
SFK01 NTC10k 250.08	45469
SFK01 NTC10k 450.08	45476

Immersion sensor -50..+160 °C – PT100 DIN Kl. B	*TP1*
Item description	**Item No.**
SFK01 PT100 050.08	37662
SFK01 PT100 100.08	27717
SFK01 PT100 150.08	27724
SFK01 PT100 200.08	27731
SFK01 PT100 250.08	27748
SFK01 PT100 450.08	27755

Immersion sensor -50..+160 °C – PT100 1/3 DIN	*TP1*
Item description	**Item No.**
SFK01 PT100 1/3 DIN 050.08	27762
SFK01 PT100 1/3 DIN 100.08	27779
SFK01 PT100 1/3 DIN 150.08	27786
SFK01 PT100 1/3 DIN 200.08	27793
SFK01 PT100 1/3 DIN 250.08	27809
SFK01 PT100 1/3 DIN 450.08	27816

Immersion sensor -50..+160 °C – PT1000 DIN Kl. B	*TP1*
Item description	**Item No.**
SFK01 PT1000 050.08	27823
SFK01 PT1000 100.08	27830
SFK01 PT1000 150.08	27847
SFK01 PT1000 200.08	27854
SFK01 PT1000 250.08	27861
SFK01 PT1000 450.08	27878

Immersion sensor -50..+160 °C – PT1000 1/3 DIN	TP1
Item description	**Item No.**
SFK01 PT1000 1/3 DIN 050.08	27885
SFK01 PT1000 1/3 DIN 100.08	27892
SFK01 PT1000 1/3 DIN 150.08	36740
SFK01 PT1000 1/3 DIN 200.08	36757
SFK01 PT1000 1/3 DIN 250.08	36764
SFK01 PT1000 1/3 DIN 450.08	36771

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	TP1
Item description	**Item No.**
SFK01 Ni1000 050.08	36788
SFK01 Ni1000 100.08	36795
SFK01 Ni1000 150.08	36801
SFK01 Ni1000 200.08	36818
SFK01 Ni1000 250.08	36825
SFK01 Ni1000 450.08	45292

Immersion sensor -50..+160 °C – Ni1000TK5000	TP1
Item description	**Item No.**
SFK01 Ni1000TK5000 050.08	45308
SFK01 Ni1000TK5000 100.08	45315
SFK01 Ni1000TK5000 150.08	45322
SFK01 Ni1000TK5000 200.08	45339
SFK01 Ni1000TK5000 250.08	45346
SFK01 Ni1000TK5000 450.08	45353

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Neck pipe 70.12 (for applications with insulation materials)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor DS18B20 1-wire
Add to price of NTC10k for sensor FeT/Staefa

Bonded pockets					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛃	AS1
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛃	AS1
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛃	AS1
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛃	AS1

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
KFK03 NTC10k 150.08	39925
KFK03 NTC10k 200.08	39932
KFK03 NTC10k 250.08	39949

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B	TP1
Item description	**Item No.**
KFK03 PT100 100.08	37877
KFK03 PT100 150.08	37884
KFK03 PT100 200.08	37891
KFK03 PT100 250.08	37907

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN	TP1
Item description	**Item No.**
KFK03 PT100 1/3 DIN 100.08	37914
KFK03 PT100 1/3 DIN 150.08	37921
KFK03 PT100 1/3 DIN 200.08	37938
KFK03 PT100 1/3 DIN 250.08	37945

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B	TP1
Item description	**Item No.**
KFK03 PT1000 100.08	37952
KFK03 PT1000 150.08	37969
KFK03 PT1000 200.08	37976
KFK03 PT1000 250.08	37983

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN	TP1
Item description	**Item No.**
KFK03 PT1000 1/3 DIN 100.08	37990
KFK03 PT1000 1/3 DIN 150.08	39765
KFK03 PT1000 1/3 DIN 200.08	39772
KFK03 PT1000 1/3 DIN 250.08	39789

Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	TP1
Item description	**Item No.**
KFK03 Ni1000 100.08	39796
KFK03 Ni1000 150.08	39802
KFK03 Ni1000 200.08	39819
KFK03 Ni1000 250.08	39826

Duct/immersion sensor -50..+160 °C – Ni1000TK5000	TP1
Item description	**Item No.**
KFK03 Ni1000TK5000 100.08	39833
KFK03 Ni1000TK5000 150.08	39840
KFK03 Ni1000TK5000 200.08	39857
KFK03 Ni1000TK5000 250.08	39864

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa

KFK03 – active

Duct/immersion sensor -50..+50 °C active		
Item description	**Item No.**	**Group**
KFK03 TRV1 100.08	350983	TP1
KFK03 TRV1 150.08	351010	TP1
KFK03 TRV1 200.08	277860	TP1
KFK03 TRV1 250.08	286879	TP1

Duct/immersion sensor -10..+120 °C active		
Item description	**Item No.**	**Group**
KFK03 TRV2 100.08	332453	TP1
KFK03 TRV2 150.08	326711	TP1
KFK03 TRV2 200.08	351096	TP1
KFK03 TRV2 250.08	347242	TP1

Duct/immersion sensor 0..+50 °C active		
Item description	**Item No.**	**Group**
KFK03 TRV3 100.08	272315	TP1
KFK03 TRV3 150.08	351027	TP1
KFK03 TRV3 200.08	284905	TP1
KFK03 TRV3 250.08	285094	TP1

Duct/immersion sensor 0..+160 °C active		
Item description	**Item No.**	**Group**
KFK03 TRV4 100.08	351003	TP1
KFK03 TRV4 150.08	261418	TP1
KFK03 TRV4 200.08	351102	TP1
KFK03 TRV4 250.08	347969	TP1

Duct/immersion sensor 0..+250 °C active		
Item description	**Item No.**	**Group**
KFK03 TRV5 100.08	350990	TP1
KFK03 TRV5 150.08	309127	TP1
KFK03 TRV5 200.08	351119	TP1
KFK03 TRV5 250.08	335607	TP1

Duct/immersion sensor -50..+50 °C active		
Item description	**Item No.**	**Group**
KFK03 TRA1 100.08	152464	TP1
KFK03 TRA1 150.08	165334	TP1
KFK03 TRA1 200.08	232166	TP1
KFK03 TRA1 250.08	204668	TP1

Duct/immersion sensor -10..+120 °C active		
Item description	**Item No.**	**Group**
KFK03 TRA2 100.08	242639	TP1
KFK03 TRA2 150.08	351034	TP1
KFK03 TRA2 200.08	351041	TP1
KFK03 TRA2 250.08	351133	TP1

Duct/immersion sensor 0..+50 °C active		
Item description	**Item No.**	**Group**
KFK03 TRA3 100.08	338585	TP1
KFK03 TRA3 150.08	170239	TP1
KFK03 TRA3 200.08	161909	TP1
KFK03 TRA3 250.08	134804	TP1

Duct/immersion sensor 0..+160 °C active		
Item description	**Item No.**	**Group**
KFK03 TRA4 100.08	315920	TP1
KFK03 TRA4 150.08	338981	TP1
KFK03 TRA4 200.08	337380	TP1
KFK03 TRA4 250.08	303057	TP1

Duct/immersion sensor 0..+250 °C active		
Item description	**Item No.**	**Group**
KFK03 TRA5 100.08	239080	TP1
KFK03 TRA5 150.08	320948	TP1
KFK03 TRA5 200.08	404792	TP1
KFK03 TRA5 250.08	281577	TP1

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF8 stainless steel (suitable for Ø=8 mm)	103305	AS1

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)	108 mm	100 mm	584180	●	AS2
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	●	AS2
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	●	AS2
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	●	AS2



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
SFK03 NTC10k 150.08	71352
SFK03 NTC10k 200.08	71369
SFK03 NTC10k 250.08	71376

Immersion sensor -50..+160 °C – PT100 DIN Kl. B	*TP1*
Item description	**Item No.**
SFK03 PT100 100.08	64309
SFK03 PT100 150.08	71079
SFK03 PT100 200.08	71086
SFK03 PT100 250.08	71093

Immersion sensor -50..+160 °C – PT100 1/3 DIN	*TP1*
Item description	**Item No.**
SFK03 PT100 1/3 DIN 100.08	71109
SFK03 PT100 1/3 DIN 150.08	71116
SFK03 PT100 1/3 DIN 200.08	71123
SFK03 PT100 1/3 DIN 250.08	71130

Immersion sensor -50..+160 °C – PT1000 DIN Kl. B	*TP1*
Item description	**Item No.**
SFK03 PT1000 100.08	71147
SFK03 PT1000 150.08	71154
SFK03 PT1000 200.08	71161
SFK03 PT1000 250.08	71178

Immersion sensor -50..+160 °C – PT1000 1/3 DIN	TP1
Item description	**Item No.**
SFK03 PT1000 1/3 DIN 100.08	71185
SFK03 PT1000 1/3 DIN 150.08	71192
SFK03 PT1000 1/3 DIN 200.08	71208
SFK03 PT1000 1/3 DIN 250.08	71215

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B	TP1
Item description	**Item No.**
SFK03 Ni1000 100.08	71222
SFK03 Ni1000 150.08	71239
SFK03 Ni1000 200.08	71246
SFK03 Ni1000 250.08	71253

Immersion sensor -50..+160 °C – Ni1000TK5000	TP1
Item description	**Item No.**
SFK03 Ni1000TK5000 100.08	71260
SFK03 Ni1000TK5000 150.08	71277
SFK03 Ni1000TK5000 200.08	71284
SFK03 Ni1000TK5000 250.08	71291

Options
Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Neck pipe 70.15 (for applications with insulation materials)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor DS18B20 1-wire
Add to price of NTC10k for sensor FeT/Staefa

Bonded pockets					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1

Immersion sensor -50..+50 °C	TP1
Item description	Item No.
SFK03 TRV1 100.08	318853
SFK03 TRV1 150.08	352024
SFK03 TRV1 200.08	352062
SFK03 TRV1 250.08	352109

Immersion sensor -10..+120 °C	TP1
Item description	Item No.
SFK03 TRV2 100.08	335744
SFK03 TRV2 150.08	352031
SFK03 TRV2 200.08	246958
SFK03 TRV2 250.08	352253

Immersion sensor 0..+50 °C	TP1
Item description	Item No.
SFK03 TRV3 100.08	281775
SFK03 TRV3 150.08	352048
SFK03 TRV3 200.08	352079
SFK03 TRV3 250.08	352260

Immersion sensor 0..+160 °C	TP1
Item description	Item No.
SFK03 TRV4 100.08	298414
SFK03 TRV4 150.08	292115
SFK03 TRV4 200.08	324403
SFK03 TRV4 250.08	352277

Immersion sensor 0..+300 °C	TP1
Item description	Item No.
SFK03 TRV5 100.08	243933
SFK03 TRV5 150.08	295314
SFK03 TRV5 200.08	297509
SFK03 TRV5 250.08	306607

Immersion sensor -50..+50 °C	TP1
Item description	Item No.
SFK03 TRA1 100.08	194440
SFK03 TRA1 150.08	200899
SFK03 TRA1 200.08	352055
SFK03 TRA1 250.08	254908

Immersion sensor -10..+120 °C	TP1
Item description	Item No.
SFK03 TRA2 100.08	189316
SFK03 TRA2 150.08	344166
SFK03 TRA2 200.08	315746
SFK03 TRA2 250.08	352086

Immersion sensor 0..+50 °C	TP1
Item description	Item No.
SFK03 TRA3 100.08	132220
SFK03 TRA3 150.08	165044
SFK03 TRA3 200.08	165280
SFK03 TRA3 250.08	303835

Immersion sensor 0..+160 °C	TP1
Item description	Item No.
SFK03 TRA4 100.08	293051
SFK03 TRA4 150.08	295024
SFK03 TRA4 200.08	239226
SFK03 TRA4 250.08	352093

Immersion sensor 0..+300 °C	TP1
Item description	Item No.
SFK03 TRA5 100.08	131674
SFK03 TRA5 150.08	146821
SFK03 TRA5 200.08	152884
SFK03 TRA5 250.08	157421

Options
Description
Neck pipe 70.15 (for applications with insulation materials)

Bonded pockets					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1



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
RG03 PT100 500.11	64378	TP1
RG03 PT1000 250.11	64385	TP1
RG03 PT1000 500.11	64392	TP1

Options

Description
3-wire connection (3-wire)
4-wire connection (4-wire)

Duct/immersion sensor 0..+600 °C *TP1*

Item description	Item No.
RG03 TRV7 250.11	64408
RG03 TRV7 500.11	242127
RG03 TRA7 250.11	64422
RG03 TRA7 500.11	78283

Duct/immersion sensor 0..+400 °C *TP1*

Item description	Item No.
RG03 TRV6 250.11	261982
RG03 TRV6 500.11	240789
RG03 TRA6 250.11	177405
RG03 TRA6 500.11	143936



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
RGS03 PT100 500.09 3-wire	385190
RGS03 PT1000 250.09 3-wire	79310
RGS03 PT1000 500.09 3-wire	79327

Immersion sensor 0..+400 °C	*TP1*
Item description	**Item No.**
RGS03 TRV6 250.09	223942
RGS03 TRV6 500.09	351959
RGS03 TRA6 250.09	164115
RGS03 TRA6 500.09	155281

Immersion sensor 0..+600 °C	*TP1*
Item description	**Item No.**
RGS03 TRV7 250.09	351935
RGS03 TRV7 500.09	244824
RGS03 TRA7 250.09	79334
RGS03 TRA7 500.09	79341

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
FTK+ 270 VV		626354	⛁	HU2
FTK+ 400 VV		626361		HU2

Duct sensor humidity + temperature active 4..20 mA				
Item description	**USEapp**	**Item No.**	**On stock**	**Group**
FTK+ 140 AA		626378	⛁	HU2
FTK+ 270 AA		626385	⛁	HU2
FTK+ 400 AA		626392		HU2

Options
Description
Add for additional passive temperature sensor

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
FTK+ 270 VV Relais	✓	663168	HU1
FTK+ 400 VV Relais	✓	663175	HU1

Duct sensor humidity + temperature active 0..10 (0..5) V LCD			
Item description	**USEapp**	**Item No.**	**Group**
FTK+ 140 LCD VV	✓	663083	HU1
FTK+ 270 LCD VV	✓	663090	HU1
FTK+ 400 LCD VV	✓	663113	HU1

Duct sensor humidity + temperature active 4..20 mA LCD			
Item description	**USEapp**	**Item No.**	**Group**
FTK+ 140 LCD AA	✓	663120	HU1
FTK+ 270 LCD AA	✓	663137	HU1
FTK+ 400 LCD AA	✓	663144	HU1

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
FTK+ 270 LCD VV Relais	✓	663229	HU1
FTK+ 400 LCD VV Relais	✓	663236	HU1

Options
Description
Add for additional passive temperature sensor

FTK+ BUS

Duct sensor humidity + temperature RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
FTK+ 140 RS485 Modbus	✓	659093	HU1
FTK+ 270 RS485 Modbus	✓	659109	HU1
FTK+ 400 RS485 Modbus	✓	659116	HU1
FTK+ 140 LCD RS485 Modbus	✓	663243	HU1
FTK+ 270 LCD RS485 Modbus	✓	663250	HU1
FTK+ 400 LCD RS485 Modbus	✓	663267	HU1

Duct sensor humidity + temperature RS485 BACnet (MS/TP)			
Item description	**USEapp**	**Item No.**	**Group**
FTK+ 140 RS485 BACnet (MS/TP)	✓	700122	HU1
FTK+ 270 RS485 BACnet (MS/TP)	✓	700139	HU1
FTK+ 400 RS485 BACnet (MS/TP)	✓	700146	HU1
FTK+ 140 LCD RS485 BACnet (MS/TP)	✓	700153	HU1
FTK+ 270 LCD RS485 BACnet (MS/TP)	✓	692878	HU1
FTK+ 400 LCD RS485 BACnet (MS/TP)	✓	700177	HU1

Duct sensor humidity + temperature Basic RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
FTK+ 140 Basic RS485 Modbus		747738	HU1
FTK+ 270 Basic RS485 Modbus		747745	HU1
FTK+ 400 Basic RS485 Modbus		756037	HU1

Options
Description
Add to price of RS485 Modbus for LON FT

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
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

Accessories

Accessories		
Item description	**Item No.**	**Group**
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
Mounting flange MF20	612562	AS1
Weather protection for FTK+, WSA (replacement)	625241	AS1

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 **types without temperature:** 150 mm **types 100:** 100 mm **types 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

Duct sensor CO2 + temperature active				
Item description	**USEapp**	**Item No.**	**On stock**	**Group**
LK+ CO2 temp VV		662260	⛀	AQ2
LK+ CO2 temp AA	✓	662277		AQ2
LK+ CO2 temp VV relay	✓	662307		AQ1
LK+ CO2 LCD temp VV	✓	662284		AQ1
LK+ CO2 LCD temp AA	✓	662291		AQ1
LK+ CO2 LCD temp VV relay	✓	662314		AQ1

Duct sensor CO2 + temperature + humidity active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 temp_rH 3xV	✓	662321	AQ2
LK+ CO2 LCD temp_rH 3xV	✓	662338	AQ1

Options
Description
Add for additional passive temperature sensor

LK+ CO2 – BUS

Duct sensor CO2 + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 temp RS485 Modbus	✓	662345	AQ1
LK+ CO2 LCD temp RS485 Modbus	✓	662352	AQ1
LK+ CO2 temp RS485 BACnet (MS/TP)	✓	700405	AQ1
LK+ CO2 LCD temp RS485 BACnet (MS/TP)	✓	700436	AQ1

Duct sensor CO2 + temperature + humidity BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 temp_rH RS485 Modbus	✓	662376	AQ1
LK+ CO2 LCD temp_rH RS485 Modbus	✓	662383	AQ1
LK+ CO2 temp_rH RS485 BACnet (MS/TP)	✓	700467	AQ1
LK+ CO2 LCD temp_rH RS485 BACnet (MS/TP)	✓	700504	AQ1

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF20	612562	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

LK+ CO2 100 – active / Relay / LCD

Duct sensor CO2 active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 100 V		670418	AQ2

Duct sensor CO2 + temperature active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 100 temp VV		670432	AQ2
LK+ CO2 100 temp AA	✓	670449	AQ2
LK+ CO2 100 temp VV relay	✓	670456	AQ1
LK+ CO2 100 LCD temp VV	✓	670463	AQ1
LK+ CO2 100 LCD temp AA	✓	670470	AQ1
LK+ CO2 100 LCD temp VV relay	✓	670487	AQ1

Duct sensor CO2 + temperature + humidity active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 100 temp_rH 3xV	✓	670494	AQ2
LK+ CO2 100 LCD temp_rH 3xV	✓	670500	AQ1

Options
Description
Add for additional passive temperature sensor

LK+ CO2 100 – BUS

Duct sensor CO2 + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 100 temp RS485 Modbus	✓	670555	AQ1
LK+ CO2 100 LCD temp RS485 Modbus	✓	670562	AQ1
LK+ CO2 100 temp RS485 BACnet (MS/TP)	✓	704120	AQ1
LK+ CO2 100 LCD temp RS485 BACnet (MS/TP)	✓	704137	AQ1

Duct sensor CO2 + temperature + humidity BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2 100 temp_rH RS485 Modbus	✓	670579	AQ1
LK+ CO2 100 LCD temp_rH RS485 Modbus	✓	670586	AQ1
LK+ CO2 100 temp_rH RS485 BACnet (MS/TP)	✓	704144	AQ1
LK+ CO2 100 LCD temp_rH RS485 BACnet (MS/TP)	✓	704151	AQ1

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF20	612562	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

LK+ VOC – active / Relay / LCD

Duct sensor VOC active				
Item description	**USEapp**	**Item No.**	**On stock**	**Group**
LK+ VOC V		662413	⛀	AQ2

Duct sensor VOC + temperature active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ VOC temp VV		662437	AQ2
LK+ VOC temp AA	✓	662444	AQ2
LK+ VOC temp VV relay	✓	662475	AQ1
LK+ VOC LCD temp VV	✓	662468	AQ1
LK+ VOC LCD temp AA	✓	662482	AQ1
LK+ VOC LCD temp VV relay	✓	662499	AQ1

Duct sensor VOC + temperature + humidity active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ VOC temp_rH 3xV	✓	662505	AQ2
LK+ VOC LCD temp_rH 3xV	✓	662529	AQ1

Options
Description
Add for additional passive temperature sensor

LK+ VOC – BUS

Duct sensor VOC + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ VOC temp RS485 Modbus	✓	662536	AQ1
LK+ VOC LCD temp RS485 Modbus	✓	662550	AQ1
LK+ VOC temp RS485 BACnet (MS/TP)	✓	700412	AQ1
LK+ VOC LCD temp RS485 BACnet (MS/TP)	✓	700443	AQ1

Duct sensor VOC + temperature + humidity BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ VOC temp_rH RS485 Modbus	✓	662574	AQ1
LK+ VOC LCD temp_rH RS485 Modbus	✓	662581	AQ1
LK+ VOC temp_rH RS485 BACnet (MS/TP)	✓	700481	AQ1
LK+ VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700511	AQ1

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF20	612562	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
LK+ CO2+VOC AA	✓	662031		AQ2
LK+ CO2+VOC VV relay	✓	662062		AQ1
LK+ CO2+VOC LCD VV	✓	662079		AQ1
LK+ CO2+VOC LCD AA	✓	662086		AQ1
LK+ CO2+VOC LCD VV relay	✓	662093		AQ1

Options
Description
Add for additional passive temperature sensor

Duct sensor CO2 + VOC or mix + temperature active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2+VOC temp 3xV	✓	662130	AQ2
LK+ CO2+VOC LCD temp 3xV	✓	662147	AQ1

Duct sensor CO2 + VOC or mix + temperature + humidity active			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2+VOC temp_rH 4xV	✓	662154	AQ2
LK+ CO2+VOC LCD temp_rH 4xV	✓	662161	AQ1

LK+ CO2+VOC – BUS

Duct sensor CO2 + VOC or mix BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2+VOC RS485 Modbus	✓	662109	AQ1
LK+ CO2+VOC LCD RS485 Modbus	✓	662116	AQ1
LK+ CO2+VOC RS485 BACnet (MS/TP)	✓	700368	AQ1
LK+ CO2+VOC LCD RS485 BACnet (MS/TP)	✓	700382	AQ1

Duct sensor CO2 + VOC or mix + temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2+VOC temp RS485 Modbus	✓	662178	AQ1
LK+ CO2+VOC LCD temp RS485 Modbus	✓	662185	AQ1
LK+ CO2+VOC temp RS485 BACnet (MS/TP)	✓	700429	AQ1
LK+ CO2+VOC LCD temp RS485 BACnet (MS/TP)	✓	700450	AQ1

Duct sensor CO2 + VOC or mix + temperature + humidity BUS			
Item description	**USEapp**	**Item No.**	**Group**
LK+ CO2+VOC temp_rH RS485 Modbus	✓	662192	AQ1
LK+ CO2+VOC LCD temp_rH RS485 Modbus	✓	662208	AQ1
LK+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	682862	AQ1
LK+ CO2+VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700528	AQ1

Options
Description
Add to price of RS485 Modbus for LON FT

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF20	612562	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
FSK01 internal adjuster	708517		HU1

Accessories

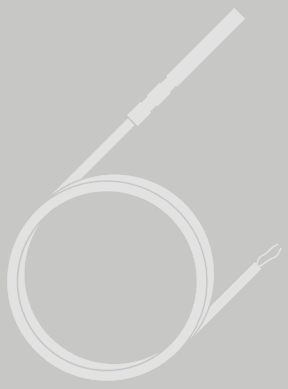
Item description	Item No.	Group
Mounting flange MF19	527705	AS1
Wall mounting for duct hygrostat	429030	AS1
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
Filter PTFE (for air velocities >15 m/s)	429054	AS1

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	**288**
AF25	Temperature	**291**
AF25+	Temperature	**293**

Cable Sensors

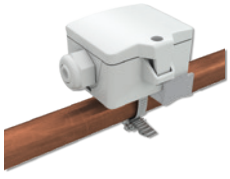
TF25	Temperature	**295**
TF25+	Temperature	**299**
TF14	Temperature	**303**
TF14+	Temperature	**306**

Surface Sensors

PR25	Temperature	**308**
PR25+	Temperature	**310**
OF14	Temperature	**312**
OF14+	Temperature	**313**

VFG54+

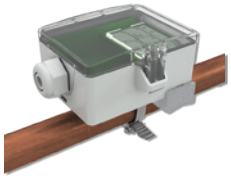
Contact sensor for temperature measurement (cold or hot water) on pipes and other curved surfaces. Spring-loaded brass contact sensor for a fast response. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. 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
VFG54+ PT100 1/3 DIN		620659		TP3
VFG54+ PT1000		620666	⛁	TP3
VFG54+ PT1000 1/3 DIN		620598		TP3
VFG54+ Ni1000		620611	⛁	TP3
VFG54+ Ni1000TK5000		620628	⛁	TP3
VFG54+ NTC10k		620604	⛁	TP3
VFG54+ NTC10k Precon		620673		TP3
VFG54+ NTC5k		624244		TP3
VFG54+ NTC20k		620680	⛁	TP3
VFG54+ NTC1,8k		643832		TP3
VFG54+ LM235Z		620635	⛁	TP3
VFG54+ KTY81-110		620697		TP3
VFG54+ KTY81-121		620703		TP3
VFG54+ KTY81-122		620710		TP3
VFG54+ KTY81-210		620727		TP3

Options

Description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel

Accessories

Item description	Item No.	Group
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1

VFG54+ active

Contact Sensor temperature active				
Item description	**USEapp**	**Item No.**	**On stock**	**Group**
VFG54+ TRV MultiRange		620741	⛀	TP2
VFG54+ TRA MultiRange		620758	⛀	TP2
VFG54+ TRV MultiRange relay	✓	662994		TP2

Contact Sensor temperature active LCD			
Item description	**USEapp**	**Item No.**	**Group**
VFG54+ LCD TRV MultiRange	✓	663014	TP2
VFG54+ LCD TRA MultiRange	✓	663021	TP2
VFG54+ LCD TRV MultiRange relay	✓	663038	TP2

VFG54+ BUS

Contact Sensor temperature BUS			
Item description	**USEapp**	**Item No.**	**Group**
VFG54+ RS485 Modbus	✓	663045	TP2
VFG54+ LCD RS485 Modbus	✓	663052	TP2
VFG54+ RS485 BACnet (MS/TP)	✓	699709	TP2
VFG54+ LCD RS485 BACnet (MS/TP)	✓	699716	TP2
VFG54+ Basic RS485 Modbus		747806	TP2

Accessories

Accessories		
Item description	**Item No.**	**Group**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
AF25 PT100 1/3 DIN T100 L1000	46411	TP3
AF25 PT1000 T100 L1000	54263	TP3
AF25 PT1000 1/3 DIN T100 L1000	54300	TP3
AF25 Ni1000 T100 L1000	54348	TP3
AF25 Ni1000TK5000 T100 L1000	54386	TP3
AF25 NTC10k T100 L1000	92005	TP3
AF25 NTC10k Precon T100 L1000	92043	TP3
AF25 NTC5k T100 L1000	54461	TP3
AF25 NTC20k T100 L1000	141994	TP3
AF25 NTC1,8k T100 L1000	241687	TP3
AF25 LM235Z T100 L1000	715270	TP3

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
3-wire connection -35..+100 °C (3-wire)
Add per meter of connection cable 3-wire -35..+100 °C
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 4-wire -35..+100 °C
Temperature -50..+135 °C (T135)
Add per meter of connection cable 2-wire -50..+135 °C
3-wire connection -50..+135 °C (3-wire)
Add per meter of connection cable 3-wire -50..+135 °C
4-wire connection -50..+135 °C (4-wire)
Add per meter of connection cable 4-wire -50..+135 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Carel

Accessories		
Item description	**Item No.**	**Group**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1



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
AF25+ TRA MultiRange T135 L1000		658768	TP2

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
RS485 Modbus in enclosure USE-M with option board
RS485 BACnet (MS/TP) in enclosure USE-M with option board
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board

Accessories		
Item description	**Item No.**	**Group**
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1



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) rolled (IP67), hex pressed (IP65), with tension spring (tensp)
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
TF25 NTC10k T100 100.06 L1000	41812
TF25 NTC10k T100 150.06 L1000	40723

Cable sensor -35..+100 °C – PT100 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT100 T100 050.06 L1000	35019
TF25 PT100 T100 100.06 L1000	35026
TF25 PT100 T100 150.06 L1000	35033

Cable sensor -35..+100 °C – PT100 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT100 1/3 DIN T100 050.06 L1000	25799
TF25 PT100 1/3 DIN T100 100.06 L1000	35255
TF25 PT100 1/3 DIN T100 150.06 L1000	35262

Cable sensor -35..+100 °C – PT1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT1000 T100 050.06 L1000	35484
TF25 PT1000 T100 100.06 L1000	35491
TF25 PT1000 T100 150.06 L1000	35507

Cable sensor -35..+100 °C – PT1000 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT1000 1/3 DIN T100 050.06 L1000	35729
TF25 PT1000 1/3 DIN T100 100.06 L1000	35736
TF25 PT1000 1/3 DIN T100 150.06 L1000	35743

Cable sensor -35..+100 °C – Ni1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 Ni1000 T100 050.06 L1000	26116
TF25 Ni1000 T100 100.06 L1000	26154
TF25 Ni1000 T100 150.06 L1000	26192

Cable sensor -35..+100 °C – Ni1000TK5000	TP3
Item description	**Item No.**
TF25 Ni1000TK5000 T100 050.06 L1000	26352
TF25 Ni1000TK5000 T100 100.06 L1000	26390
TF25 Ni1000TK5000 T100 150.06 L1000	388238

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
3-wire connection -35..+100 °C (3-wire)
Add per meter of connection cable 3-wire -35..+100 °C
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 4-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Tension spring (tensp)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210

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
TF25 NTC10k T150 100.06 L1000	59473
TF25 NTC10k T150 150.06 L1000	59480

Cable sensor -50..+180 °C – PT100 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT100 T180 050.06 L1000	52771
TF25 PT100 T180 100.06 L1000	52788
TF25 PT100 T180 150.06 L1000	52795

Cable sensor -50..+180 °C – PT100 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT100 1/3 DIN T180 050.06 L1000	57493
TF25 PT100 1/3 DIN T180 100.06 L1000	57509
TF25 PT100 1/3 DIN T180 150.06 L1000	57516

Cable sensor -50..+180 °C – PT1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT1000 T180 050.06 L1000	58247
TF25 PT1000 T180 100.06 L1000	58254
TF25 PT1000 T180 150.06 L1000	58261

Cable sensor -50..+180 °C – PT1000 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT1000 1/3 DIN T180 050.06 L1000	58483
TF25 PT1000 1/3 DIN T180 100.06 L1000	58490
TF25 PT1000 1/3 DIN T180 150.06 L1000	58506

Cable sensor -50..+180 °C – Ni1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 Ni1000 T180 050.06 L1000	58728
TF25 Ni1000 T180 100.06 L1000	58735
TF25 Ni1000 T180 150.06 L1000	58742

Cable sensor -50..+180 °C – Ni1000TK5000	TP3
Item description	**Item No.**
TF25 Ni1000TK5000 T180 050.06 L1000	58964
TF25 Ni1000TK5000 T180 100.06 L1000	58971
TF25 Ni1000TK5000 T180 150.06 L1000	58988

Options
Description
Add per meter of connection cable 2-wire -50..+180 °C
3-wire connection -50..+180 °C (3-wire)
Add per meter of connection cable 3-wire -50..+180 °C
4-wire connection -50..+180 °C (4-wire)
Add per meter of connection cable 4-wire -50..+180 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Tension spring (tensp)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor LM235Z
Add to price of NTC10k for sensor FeT/Staefa
Price reduction to NTC10k for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210

TF25 (-50..+250 °C)

Cable sensor -50..+250 °C – PT100 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT100 T250 050.06 L1000	167406
TF25 PT100 T250 100.06 L1000	209731
TF25 PT100 T250 150.06 L1000	205658

Cable sensor -50..+250 °C – PT100 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT100 1/3 DIN T250 050.06 L1000	195478
TF25 PT100 1/3 DIN T250 100.06 L1000	345835
TF25 PT100 1/3 DIN T250 150.06 L1000	388276

Cable sensor -50..+250 °C – PT1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 PT1000 T250 050.06 L1000	168717
TF25 PT1000 T250 100.06 L1000	209724
TF25 PT1000 T250 150.06 L1000	388283

Cable sensor -50..+250 °C – PT1000 1/3 DIN	TP3
Item description	**Item No.**
TF25 PT1000 1/3 DIN T250 050.06 L1000	356749
TF25 PT1000 1/3 DIN T250 100.06 L1000	356756
TF25 PT1000 1/3 DIN T250 150.06 L1000	388290

Cable sensor -50..+250 °C – Ni1000 DIN Kl. B	TP3
Item description	**Item No.**
TF25 Ni1000 T250 050.06 L1000	151863
TF25 Ni1000 T250 100.06 L1000	182430
TF25 Ni1000 T250 150.06 L1000	388306

Cable sensor -50..+250 °C – Ni1000TK5000	TP3
Item description	**Item No.**
TF25 Ni1000TK5000 T250 050.06 L1000	150781
TF25 Ni1000TK5000 T250 100.06 L1000	157018
TF25 Ni1000TK5000 T250 150.06 L1000	388313

Options
Description
Add per meter of connection cable 2-wire -50..+250 °C
3-wire connection -50..+250 °C (3-wire)
Add per meter of connection cable 3-wire -50..+250 °C
4-wire connection -50..+250 °C (4-wire)
Add per meter of connection cable 4-wire -50..+250 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Tension spring (tensp)

TF25 (-50..+400°C)

Cable sensor -50..+400 °C	*TP3*
Item description	**Item No.**
TF25 PT100 T400 050.06 L2000	166195
TF25 PT1000 T400 050.06 L2000	166201

Options
Description
Add per meter of connection cable 2-wire -50..+400 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Tension spring (tensp)

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1

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:** 24 V = (±10%) SELV, 24 V ~ (±10%) SELV **TRA:** 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
TF25+ TRV MultiRange T180 100.06 L1000		658966	TP2
TF25+ TRV MultiRange T180 150.06 L1000		658973	TP2

Cable sensor -50..+180 °C active 4..20 mA			
Item description	**USEapp**	**Item No.**	**Group**
TF25+ TRA MultiRange T180 050.06 L1000		658980	TP2
TF25+ TRA MultiRange T180 100.06 L1000		658997	TP2
TF25+ TRA MultiRange T180 150.06 L1000		659000	TP2

Options
Description
Add per meter of connection cable 2-wire -50..+180 °C
Temperature -50..+250 °C (T250)
Add per meter of connection cable 2-wire -50..+250 °C

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1

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
TF25+ LCD TRV MultiRange T160 100.06 L1000	✓	693806	TP2

Cable sensor -50..+160 °C RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
TF25+ RS485 Modbus T160 050.06 L1000	✓	659024	TP2
TF25+ RS485 Modbus T160 100.06 L1000	✓	668255	TP2

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
TF25+ RS485 BACnet (MS/TP) T160 100.06 L1000	✓	699730	TP2

Options
Description
Add per meter of connection cable 2-wire -50..+180 °C
Temperature -50..+250 °C (T250)
Add per meter of connection cable 2-wire -50..+250 °C
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting base enclosure USE-M pure white	668354	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1

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
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2

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
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2



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), rolled (IP67)
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
TF14 NTC10k T100 100.04 L1000	73851
TF14 NTC10k T100 150.04 L1000	73868

Cable sensor -35..+100 °C – PT100 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 PT100 T100 050.04 L1000	64347
TF14 PT100 T100 100.04 L1000	57554
TF14 PT100 T100 150.04 L1000	57561

Cable sensor -35..+100 °C – PT100 1/3 DIN	*TP3*
Item description	**Item No.**
TF14 PT100 1/3 DIN T100 050.04 L1000	69106
TF14 PT100 1/3 DIN T100 100.04 L1000	69113
TF14 PT100 1/3 DIN T100 150.04 L1000	69120

Cable sensor -35..+100 °C – PT1000 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 PT1000 T100 050.04 L1000	69267
TF14 PT1000 T100 100.04 L1000	69274
TF14 PT1000 T100 150.04 L1000	69281

Cable sensor -35..+100 °C – PT1000 1/3 DIN	*TP3*
Item description	**Item No.**
TF14 PT1000 1/3 DIN T100 050.04 L1000	69427
TF14 PT1000 1/3 DIN T100 100.04 L1000	69434
TF14 PT1000 1/3 DIN T100 150.04 L1000	69441

Cable sensor -35..+100 °C – Ni1000TK5000	*TP3*
Item description	**Item No.**
TF14 Ni1000TK5000 T100 050.04 L1000	73240
TF14 Ni1000TK5000 T100 100.04 L1000	73257
TF14 Ni1000TK5000 T100 150.04 L1000	73264

Cable sensor -35..+100 °C – Ni1000 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 Ni1000 T100 050.04 L1000	73080
TF14 Ni1000 T100 100.04 L2000	73134
TF14 Ni1000 T100 150.04 L1000	73103

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
3-wire connection -35..+100 °C (3-wire)
Add per meter of connection cable 3-wire -35..+100 °C
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 4-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor FeT/Staefa

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
TF14 NTC10k T150 100.04 L1000	81443
TF14 NTC10k T150 150.04 L1000	80484

Cable sensor -50..+180 °C – PT100 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 PT100 T180 050.04 L1000	64354
TF14 PT100 T180 100.04 L1000	78009
TF14 PT100 T180 150.04 L1000	78016

Cable sensor -50..+180 °C – PT100 1/3 DIN	*TP3*
Item description	**Item No.**
TF14 PT100 1/3 DIN T180 050.04 L1000	78207
TF14 PT100 1/3 DIN T180 100.04 L1000	78214
TF14 PT100 1/3 DIN T180 150.04 L1000	78221

Cable sensor -50..+180 °C – PT1000 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 PT1000 T180 050.04 L1000	78405
TF14 PT1000 T180 100.04 L1000	78443
TF14 PT1000 T180 150.04 L1000	78481

Cable sensor -50..+180 °C – PT1000 1/3 DIN	*TP3*
Item description	**Item No.**
TF14 PT1000 1/3 DIN T180 050.04 L1000	78603
TF14 PT1000 1/3 DIN T180 100.04 L1000	78641
TF14 PT1000 1/3 DIN T180 150.04 L1000	78689

Cable sensor -50..+180 °C – Ni1000 DIN Kl. B	*TP3*
Item description	**Item No.**
TF14 Ni1000 T180 050.04 L1000	78795
TF14 Ni1000 T180 100.04 L1000	78832
TF14 Ni1000 T180 150.04 L1000	78870

Cable sensor -50..+180 °C – Ni1000TK5000	*TP3*
Item description	**Item No.**
TF14 Ni1000TK5000 T180 050.04 L1000	78993
TF14 Ni1000TK5000 T180 100.04 L1000	79037
TF14 Ni1000TK5000 T180 150.04 L1000	79075

Options
Description
Add per meter of connection cable 2-wire -50..+180 °C
3-wire connection -50..+180 °C (3-wire)
Add per meter of connection cable 3-wire -50..+180 °C
4-wire connection -50..+180 °C (4-wire)
Add per meter of connection cable 4-wire -50..+180 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)
Add to price of NTC10k for sensor NTC10k Precon | NTC10k Carel | NTC1,8k | NTC5k | NTC20k
Add to price of NTC10k for sensor FeT/Staefa

TF14 (-80..+250 °C)

Cable sensor -80..+250 °C – PT100 DIN Kl. B	*TP3*
Item description	Item No.
TF14 PT100 T250 050.04 L1000	95563
TF14 PT100 T250 100.04 L1000	96126
TF14 PT100 T250 150.04 L1000	96195

Cable sensor -80..+250 °C – PT100 1/3 DIN	*TP3*
Item description	Item No.
TF14 PT100 1/3 DIN T250 050.04 L1000	96775
TF14 PT100 1/3 DIN T250 100.04 L1000	96805
TF14 PT100 1/3 DIN T250 150.04 L1000	96843

Cable sensor -80..+250 °C – PT1000 DIN Kl. B	*TP3*
Item description	Item No.
TF14 PT1000 T250 050.04 L1000	97185
TF14 PT1000 T250 100.04 L1000	97239
TF14 PT1000 T250 150.04 L1000	91510

Cable sensor -80..+250 °C – PT1000 1/3 DIN	*TP3*
Item description	Item No.
TF14 PT1000 1/3 DIN T250 050.04 L1000	91633
TF14 PT1000 1/3 DIN T250 100.04 L1000	91671
TF14 PT1000 1/3 DIN T250 150.04 L1000	91718

Cable sensor -80..+250 °C – Ni1000 DIN Kl. B	*TP3*
Item description	Item No.
TF14 Ni1000 T250 050.04 L1000	91831
TF14 Ni1000 T250 100.04 L1000	91879
TF14 Ni1000 T250 150.04 L1000	91916

Cable sensor -80..+250 °C – Ni1000TK5000	*TP3*
Item description	Item No.
TF14 Ni1000TK5000 T250 050.04 L1000	97338
TF14 Ni1000TK5000 T250 100.04 L1000	97376
TF14 Ni1000TK5000 T250 150.04 L1000	97413

Options
Description
Add per meter of connection cable 2-wire -50..+250 °C
Add per meter of connection cable 2-wire -80..+250 °C
3-wire connection -80..+250 °C (3-wire)
Add per meter of connection cable 3-wire -80..+250 °C
Connection enclosure USE-S incl. mounting base pure white
Protection class IP67 (rolled)

Accessories		
Item description	**Item No.**	**Group**
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1



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 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
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
TF14+ TRV MultiRange T180 100.04 L1000		658867	TP2
TF14+ TRV MultiRange T180 150.04 L1000		658874	TP2
TF14+ TRA MultiRange T180 050.04 L1000		658881	TP2
TF14+ TRA MultiRange T180 100.04 L1000		658898	TP2
TF14+ TRA MultiRange T180 150.04 L1000		658904	TP2

Options

Description
Add per meter of connection cable 2-wire -50..+180 °C
Temperature -50..+250 °C (T250)
Add per meter of connection cable 2-wire -50..+250 °C
RS485 Modbus in enclosure USE-M with option board
RS485 BACnet (MS/TP) in enclosure USE-M with option board
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board
Protection class IP67 (rolled)

Accessories

Item description	Item No.	Group
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1

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

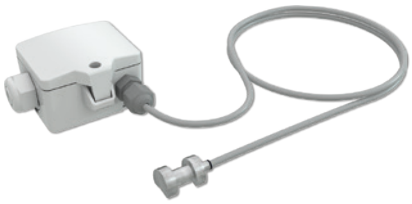
Contact Sensor -35..+100 °C passive		
Item description	**Item No.**	**Group**
PR25 PT100 T100 L1000	81696	TP2
PR25 PT100 1/3 DIN T100 L1000	94771	TP2
PR25 PT1000 T100 L1000	94894	TP2
PR25 PT1000 1/3 DIN T100 L1000	94931	TP2
PR25 Ni1000 T100 L1000	94979	TP2
PR25 Ni1000TK5000 T100 L1000	95686	TP2
PR25 NTC10k T100 L1000	95808	TP2
PR25 NTC10k Precon T100 L1000	95846	TP2
PR25 NTC5k T100 L1000	95761	TP2
PR25 NTC20k T100 L1000	362641	TP2
PR25 NTC1,8k T100 L1000	287128	TP2
PR25 KTY81-110 T100 L1000	95884	TP2
PR25 KTY81-121 T100 L1000	95921	TP2
PR25 KTY81-210 T100 L1000	96003	TP2
PR25 LM235Z T100 L1000	96089	TP2

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
3-wire connection -35..+100 °C (3-wire)
Add per meter of connection cable 3-wire -35..+100 °C
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 4-wire -35..+100 °C
Temperature -50..+180 °C (T180)
Add per meter of connection cable 2-wire -50..+180 °C
3-wire connection -50..+180 °C (3-wire)
Add per meter of connection cable 3-wire -50..+180 °C
4-wire connection -50..+180 °C (4-wire)
Add per meter of connection cable 4-wire -50..+180 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Carel

Accessories		
Item description	**Item No.**	**Group**
Syringe thermal contact fluid	102308	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1

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
PR25+ TRA MultiRange T180 L1000		658799	TP2

Options

Description
Add per meter of connection cable 2-wire -50..+180 °C
RS485 Modbus in enclosure USE-M with option board
RS485 BACnet (MS/TP) in enclosure USE-M with option board
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board

Accessories

Item description	Item No.	Group
Syringe thermal contact fluid	102308	AS1
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1



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
OF14 PT100 1/3 DIN L1000		167307	TP2
OF14 PT1000 L1000		114851	TP2
OF14 PT1000 1/3 DIN L1000		219303	TP2
OF14 Ni1000 L1000		113922	TP2
OF14 Ni1000TK5000 L1000		141864	TP2
OF14 NTC10k L1000		190367	TP2
OF14 NTC10k Precon L1000		165006	TP2
OF14 NTC5k L1000		351263	TP2
OF14 NTC20k L1000		147736	TP2
OF14 NTC1,8k L1000		356541	TP2
OF14 LM235Z L1000		216760	TP2

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
Connection enclosure USE-S incl. mounting base pure white
Add to price of NTC10k for sensor NTC10k Carel



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
OF14+ TRA3 L1000		658836	TP2

Options
Description
Add per meter of connection cable 2-wire -35..+100 °C
RS485 Modbus in enclosure USE-M with option board
RS485 BACnet (MS/TP) in enclosure USE-M with option board
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board

Accessories		
Item description	**Item No.**	**Group**
Mounting clip enclosure USE-S pure white	667739	AS1
Mounting base enclosure USE-S pure white	667722	AS1
Mounting kit universal for enclosure USE	698511	AS1

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	**316**
WK01+	Condensation	**318**

Leakage Detectors

LS02+	Leakage	**320**

Frost Protection Thermostats

TFR	Temperature	**322**
TFRe	Temperature	**323**

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	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV 230 V ~ (±10%)
Power consumption	typ. 0,8 W (24 V =), 1,6 VA (24 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 removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	PVC, 0,25 mm², white

Technical Data	
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

Condensation sensor 230 V

Item description	USEapp	Item No.	Group
WK02+ ext. 230 V L2000	✓	737197	HU2

Options

Description
Add per meter of connection cable PVC
RS485 Modbus
RS485 BACnet (MS/TP)
Add to price of RS485 Modbus for LON FT
LCD 29x35 mm, RGB backlight

Accessories

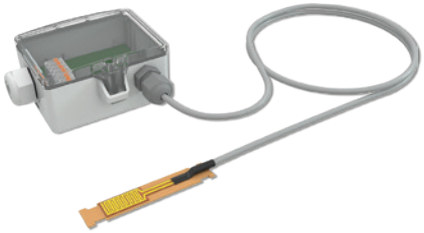
Item description	Item No.	Group
Mounting base enclosure USE-L pure white	668361	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET

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
WK01+ ext. 24 V L2000	659222	HU2

Condensation sensor 230 V		
Item description	**Item No.**	**Group**
WK01+ ext. 230 V L2000	659246	HU2

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-S pure white	667722	AS1
Mounting base enclosure USE-L pure white	668361	AS1
Mounting kit universal for enclosure USE	698511	AS1
Syringe thermal contact fluid	102308	AS1

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	typ. 0,6 W (24 V =), typ. 0,8 W (24 V =), 1,2 VA (24 V ~), 1,6 VA (24 V ~)
Material in touch with media	Sensor rod: PVC sheathed with PBT braiding stainless steel V4A (1.4401), stainless steel V2A (1.4305)
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	2 m, 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)
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
LS02+ ext. L5000	765725	HU2

Water leak detector flex		
Item description	**Item No.**	**Group**
LS02+ flex L2000	778848	HU2
LS02+ flex L5000	778572	HU2

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-S pure white	667722	AS1
Mounting kit universal for enclosure USE	698511	AS1
Fixing kit rawlplugs and screws (2x each)	660945	AS1
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1



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 automatical reset

Item description	Item No.	Group
TFR 1800	426435	TP1
TFR 3000	430371	TP1
TFR 6000	430395	TP1
TFR 12000	541916	TP1

Frost protection thermostat manual reset

Item description	Item No.	Group
TFR-R 1800	430364	TP1
TFR-R 3000	430388	TP1
TFR-R 6000	430401	TP1
TFR-R 12000	656061	TP1

Accessories

Item description	Item No.	Group
Mounting flange MF2 (suitable for TFR)	435642	AS1
Installation set TFR / MWF+	679466	AS1



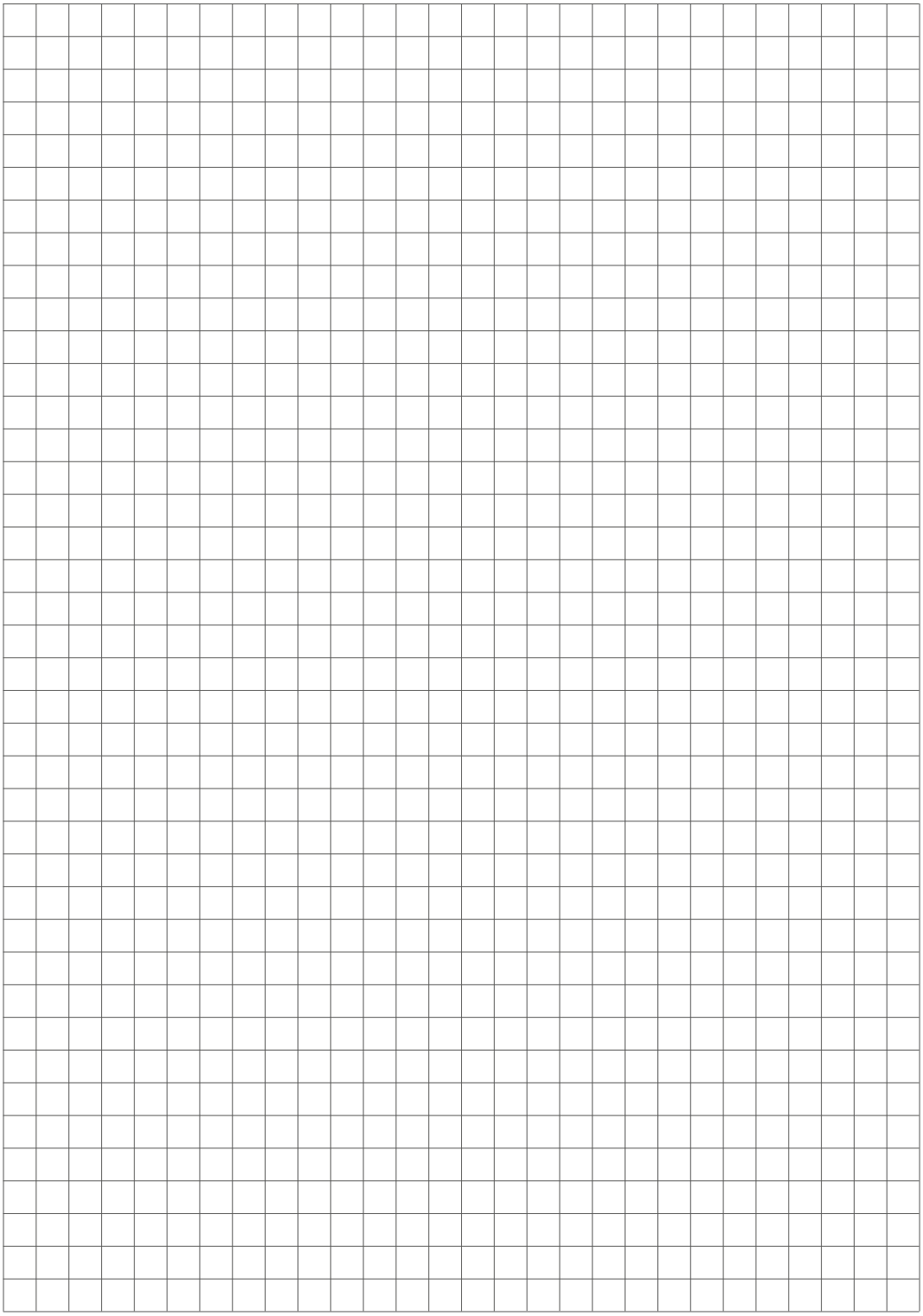
TFRe

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



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	**326**
PS	Differential pressure	**332**
AVT	Air flow, temperature	**333**

Air Pressure / Liquid Sensors

DLF	Pressure	**334**

Liquid Sensors

DPL	Differential pressure	**337**

Manometer

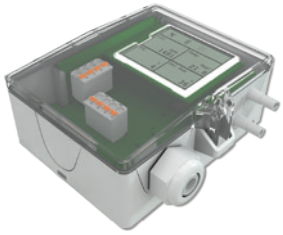
MM	Differential pressure	**338**
DPG	Differential pressure	**339**
DPGe	Differential pressure	**340**

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+



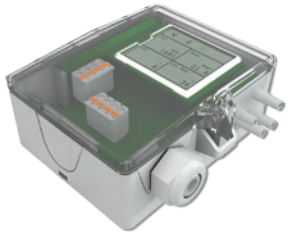
DPA+ LCD



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
DPA2500+ VV MultiRange	✓	659369	PR2
DPA7000+ VV MultiRange	✓	659376	PR2
DPA250+ VV AZ MultiRange	✓	692397	PR2
DPA2500+ VV AZ MultiRange	✓	675970	PR2
DPA7000+ VV AZ MultiRange	✓	675994	PR2

Differential pressure and volume flow transducer active 4..20 mA			
Item description	**USEapp**	**Item No.**	**Group**
DPA250+ AA MultiRange	✓	666978	PR2
DPA2500+ AA MultiRange	✓	666985	PR2
DPA7000+ AA MultiRange	✓	666992	PR2
DPA250+ AA AZ MultiRange	✓	691598	PR2
DPA2500+ AA AZ MultiRange	✓	693981	PR2
DPA7000+ AA AZ MultiRange	✓	705325	PR2

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
DPA2500+ VV MultiRange relay	✓	663694	PR1
DPA7000+ VV MultiRange relay	✓	663700	PR1

Options
Description
Automatic zero-point calibration (AZ)

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
DPA2500+ LCD VV MultiRange	✓	659390	PR1
DPA7000+ LCD VV MultiRange	✓	659406	PR1
DPA250+ LCD VV AZ MultiRange	✓	688420	PR1
DPA2500+ LCD VV AZ MultiRange	✓	676007	PR1
DPA7000+ LCD VV AZ MultiRange	✓	676021	PR1

Differential pressure and volume flow transducer active 4..20 mA LCD			
Item description	**USEapp**	**Item No.**	**Group**
DPA250+ LCD AA MultiRange	✓	667104	PR1
DPA2500+ LCD AA MultiRange	✓	667111	PR1
DPA7000+ LCD AA MultiRange	✓	667128	PR1
DPA250+ LCD AA AZ MultiRange	✓	700962	PR1
DPA2500+ LCD AA AZ MultiRange	✓	679725	PR1
DPA7000+ LCD AA AZ MultiRange	✓	703147	PR1

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
DPA2500+ LCD VV MultiRange relay	✓	663748	PR1
DPA7000+ LCD VV MultiRange relay	✓	663755	PR1

Options
Description
Automatic zero-point calibration (AZ)

DPA+ BUS

Differential pressure and volume flow transducer RS485 Modbus			
Item description	**USEapp**	**Item No.**	**Group**
DPA250+ RS485 Modbus MultiRange	✓	659413	PR1
DPA2500+ RS485 Modbus MultiRange	✓	659420	PR1
DPA7000+ RS485 Modbus MultiRange	✓	659437	PR1
DPA250+ RS485 Modbus AZ MultiRange	✓	693745	PR1
DPA2500+ RS485 Modbus AZ MultiRange	✓	676083	PR1
DPA7000+ RS485 Modbus AZ MultiRange	✓	676090	PR1

Differential pressure and volume flow transducer RS485 BACnet (MS/TP)			
Item description	**USEapp**	**Item No.**	**Group**
DPA250+ RS485 BACnet (MS/TP) MultiRange	✓	700221	PR1
DPA2500+ RS485 BACnet (MS/TP) MultiRange	✓	700238	PR1
DPA7000+ RS485 BACnet (MS/TP) MultiRange	✓	700252	PR1
DPA250+ RS485 BACnet (MS/TP) AZ MultiRange	✓	705387	PR1
DPA2500+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700306	PR1
DPA7000+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700313	PR1

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
DPA2500+ LCD RS485 Modbus MultiRange	✓	659451	PR1
DPA7000+ LCD RS485 Modbus MultiRange	✓	659468	PR1
DPA250+ LCD RS485 Modbus AZ MultiRange	✓	697767	PR1
DPA2500+ LCD RS485 Modbus AZ MultiRange	✓	676106	PR1
DPA7000+ LCD RS485 Modbus AZ MultiRange	✓	676113	PR1

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
DPA2500+ LCD RS485 BACnet (MS/TP) MultiRange	✓	682855	PR1
DPA7000+ LCD RS485 BACnet (MS/TP) MultiRange	✓	683463	PR1
DPA250+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	705370	PR1
DPA2500+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700320	PR1
DPA7000+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700337	PR1

Options
Description
2x input for NTC10k or floating contact (2IN)
Add to price of RS485 Modbus for LON FT
Automatic zero-point calibration (AZ)

DPA+ Dual VV / 4xV / AA (LCD)

Dual differential pressure transducer active			
Item description	**USEapp**	**Item No.**	**Group**
DPA2500+ Dual VV MultiRange	✓	700344	PR1
DPA2500+ Dual AA MultiRange	✓	702898	PR1
DPA2500+ LCD Dual VV MultiRange	✓	705417	PR1
DPA2500+ LCD Dual AA MultiRange	✓	705431	PR1

Dual differential pressure and volume flow transducer active			
Item description	**USEapp**	**Item No.**	**Group**
DPA2500+ Dual 4xV MultiRange	✓	705448	PR1
DPA2500+ LCD Dual 4xV MultiRange	✓	700351	PR1

Options
Description
Automatic zero-point calibration dual (2x AZ)

DPA+ Dual BUS (LCD)

Dual differential pressure and volume flow transducer BUS			
Item description	**USEapp**	**Item No.**	**Group**
DPA2500+ Dual RS485 Modbus	✓	703000	PR1
DPA2500+ LCD Dual RS485 Modbus	✓	705455	PR1
DPA2500+ Dual RS485 BACnet (MS/TP)	✓	703017	PR1
DPA2500+ LCD Dual RS485 BACnet (MS/TP)	✓	705462	PR1

Options
Description
2x input for NTC10k or floating contact (2IN)
Add to price of RS485 Modbus for LON FT
Automatic zero-point calibration dual (2x AZ)

Accessories

Accessories		
Item description	**Item No.**	**Group**
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1
Mounting base enclosure USE-L pure white	668361	AS1
Mounting kit universal for enclosure USE	698511	AS1
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1



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
PS500	269995	PR2
PS1500	255202	PR2
PS4500	273138	PR2

Accessories

Item description	Item No.	Group
Mounting bracket kit for differential pressure switch 110x80x20 mm	669009	AS1
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1



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	max. 2 W, max. 2,4 W
Material in touch with media	Sensor probe: stainless steel V2A (1.4305), length 210 mm
Installation length	195
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
AVT LCD	430036	PR1
AVT LCD relay	430067	PR1

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 **DLF1,6:** 0..1,6 bar **DLF2:** 0..2 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 **DLF40:** 0..40 bar **DLF60:** 0..60 bar **DLF100:** 0..100 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.**	**Group**
DLF-1..0 V G1/4“	665070	PR1
DLF1 V G1/4“	665087	PR1
DLF1,6 V G1/4“	665094	PR1
DLF2 V G1/4“	665100	PR1
DLF2,5 V G1/4“	665117	PR1
DLF4 V G1/4“	665124	PR1
DLF6 V G1/4“	665131	PR1
DLF10 V G1/4“	665148	PR1
DLF16 V G1/4“	665155	PR1
DLF25 V G1/4“	665162	PR1
DLF40 V G1/4“	665179	PR1
DLF60 V G1/4“	665186	PR1
DLF100 V G1/4“	665193	PR1

Pressure transducer 0..10 V G1/2“		
Item description	**Item No.**	**Group**
DLF-1..0 V G1/2“	682541	PR1
DLF1 V G1/2“	681193	PR1
DLF1,6 V G1/2“	682558	PR1
DLF2 V G1/2“	682565	PR1
DLF2,5 V G1/2“	681209	PR1
DLF4 V G1/2“	681216	PR1
DLF6 V G1/2“	681223	PR1
DLF10 V G1/2“	681230	PR1
DLF16 V G1/2“	681247	PR1
DLF25 V G1/2“	681254	PR1
DLF40 V G1/2“	682572	PR1
DLF60 V G1/2“	682589	PR1
DLF100 V G1/2“	682596	PR1

Accessories		
Item description	**Item No.**	**Group**
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1
UD-V – universal display for 0..10 V	775113	AS1

Pressure transducer 4..20 mA G1/4“		
Item description	**Item No.**	**Group**
DLF-1..0 A G1/4“	665209	PR1
DLF1 A G1/4“	665216	PR1
DLF1,6 A G1/4“	665223	PR1
DLF2 A G1/4“	665230	PR1
DLF2,5 A G1/4“	665247	PR1
DLF4 A G1/4“	665254	PR1
DLF6 A G1/4“	665261	PR1
DLF10 A G1/4“	665278	PR1
DLF16 A G1/4“	665285	PR1
DLF25 A G1/4“	665292	PR1
DLF40 A G1/4“	665308	PR1
DLF60 A G1/4“	665315	PR1
DLF100 A G1/4“	665322	PR1

Pressure transducer 4..20 mA G1/2“		
Item description	**Item No.**	**Group**
DLF-1..0 A G1/2“	682602	PR1
DLF1 A G1/2“	681261	PR1
DLF1,6 A G1/2“	682619	PR1
DLF2 A G1/2“	682626	PR1
DLF2,5 A G1/2“	681278	PR1
DLF4 A G1/2“	681285	PR1
DLF6 A G1/2“	681292	PR1
DLF10 A G1/2“	681308	PR1
DLF16 A G1/2“	681315	PR1
DLF25 A G1/2“	681322	PR1
DLF40 A G1/2“	682633	PR1
DLF60 A G1/2“	682640	PR1
DLF100 A G1/2“	682657	PR1

Accessories		
Item description	**Item No.**	**Group**
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1
UD-A – universal display for 4..20 mA	718189	AS1



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	-10..+80 °C
Protection (IP)	IP54, according to EN 60529
Connection	angle plug DIN 43650, type A

Differential pressure transducer

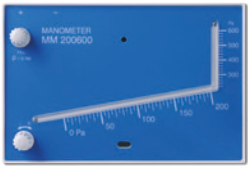
Item description	Item No.	Group
DPL1 V	346580	PR1
DPL2,5 V	346665	PR1
DPL4 V	346672	PR1
DPL6 V	346689	PR1
DPL1 A	346597	PR1
DPL2,5 A	346696	PR1
DPL4 A	346702	PR1
DPL6 A	346719	PR1

Accessories

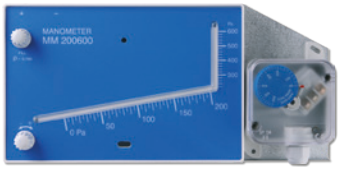
Item description	Item No.	Group
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1
UD-V – universal display for 0..10 V	775113	AS1
UD-A – universal display for 4..20 mA	718189	AS1
Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	AS1
Screw connection set Ø=6 mm brass (2 pcs.)	373401	AS1
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	AS1
Screw connection set Ø=8 mm brass (2 pcs.)	373418	AS1

MM

Compact inclined tube manometer for displaying and monitoring differential air pressure in HVAC applications. Mounting accessories are included in the delivery content.



MM



MM/PS

Technical Data	
Measured values	differential pressure
Measuring range pressure	**MM50:** -50..+50 Pa **MM100:** -20..+100 Pa **MM500:** -100..+500 Pa **MM600:** 0..+600 Pa
Display	liquid indicator
Enclosure	ABS, cover PMMA PS: cover PC, membrane silicone
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**
MM50 (-50..+50 Pa)	268912	PR1
MM100 (-20..100 Pa)	284516	PR1
MM500 (-100..500 Pa)	384452	PR1
MM600 (0..600 Pa)	255240	PR1

Differential pressure inclined tube manometer with switch contact		
Item description	**Item No.**	**Group**
MM600/PS600 (0..600 Pa)	255257	PR1

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
DPG100	718509	PR1
DPG250	718516	PR1
DPG500	718523	PR1
DPG1500	718530	PR1
DPG2500	718547	PR1

Accessories

Item description	Item No.	Group
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1



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

Accessories		
Item description	**Item No.**	**Group**
Mounting base enclosure USE-M pure white	668354	AS1
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1

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

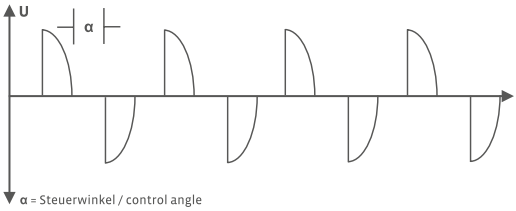
TS1 1-phase	Power thyristor	**342**
TS3 1-phase	Power thyristor	**344**

Three-Phase

TS1 3-phase	Power thyristor	**346**
TS3 3-phase	Power thyristor	**348**
TS2 3-phase	Power thyristor	**350**

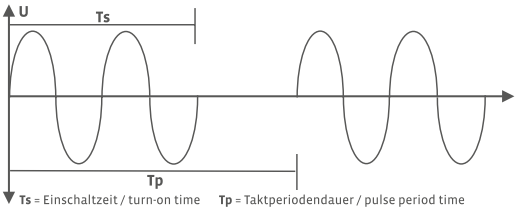
Phase angle control

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
TS1 single-phase 1-ph 4 A 0,92 kW	226639	TR1
TS1 single-phase 1-ph 6 A 1,38 kW	224000	TR1
TS1 single-phase 1-ph 8 A 1,84 kW	236980	TR1
TS1 single-phase 1-ph 10 A 2,3 kW	223874	TR1
TS1 single-phase 1-ph 12 A 2,76 kW	230605	TR1

Power thyristors – Oscillation		
Item description	**Item No.**	**Group**
TS1 single-phase SP 1-ph 2 A 0,46 kW	283137	TR1
TS1 single-phase SP 1-ph 4 A 0,92 kW	226622	TR1
TS1 single-phase SP 1-ph 6 A 1,38 kW	238885	TR1
TS1 single-phase SP 1-ph 8 A 1,84 kW	255189	TR1
TS1 single-phase SP 1-ph 10 A 2,3 kW	266109	TR1
TS1 single-phase SP 1-ph 12 A 2,76 kW	233712	TR1



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
TS3 single-phase 1-ph 25 A 5,75 kW	241649	TR1
TS3 single-phase 1-ph 35 A 8,05 kW	238489	TR1
TS3 single-phase 1-ph 50 A 11,5 kW	361200	TR1

Power thyristors – Oscillation		
Item description	**Item No.**	**Group**
TS3 single-phase SP 1-ph 15 A 3,45 kW	245500	TR1
TS3 single-phase SP 1-ph 25 A 5,75 kW	231091	TR1
TS3 single-phase SP 1-ph 35 A 8,05 kW	270977	TR1
TS3 single-phase SP 1-ph 50 A 11,5 kW	344333	TR1



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
TS1 three-phase 3-ph 4 A 2,5 kW	246514	TR1
TS1 three-phase 3-ph 6 A 4,0 kW	224260	TR1
TS1 three-phase 3-ph 8 A 5,0 kW	233736	TR1
TS1 three-phase 3-ph 10 A 6,5 kW	224314	TR1

Power thyristors – Oscillation		
Item description	**Item No.**	**Group**
TS1 three-phase SP 3-ph 2 A 1,2 kW	273558	TR1
TS1 three-phase SP 3-ph 4 A 2,5 kW	268226	TR1
TS1 three-phase SP 3-ph 6 A 4,0 kW	275910	TR1
TS1 three-phase SP 3-ph 8 A 5,0 kW	275927	TR1
TS1 three-phase SP 3-ph 10 A 6,5 kW	241182	TR1



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
TS3 three-phase 3-ph 25 A 16 kW	225649	TR1
TS3 three-phase 3-ph 35 A 23 kW	225656	TR1
TS3 three-phase 3-ph 50 A 33 kW	256353	TR1

Power thyristors – Oscillation		
Item description	**Item No.**	**Group**
TS3 three-phase SP 3-ph 15 A 10 kW	225236	TR1
TS3 three-phase SP 3-ph 25 A 16 kW	240970	TR1
TS3 three-phase SP 3-ph 35 A 23 kW	241014	TR1
TS3 three-phase SP 3-ph 50 A 33 kW	223836	TR1



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
TS2 three-phase 3-ph 90 A 60 kW	260190	TR1
TS2 three-phase 3-ph 120 A 78 kW	304719	TR1

Power thyristors – Oscillation

Item description	Item No.	Group
TS2 three-phase SP 3-ph 75 A 50 kW	339094	TR1
TS2 three-phase SP 3-ph 90 A 60 kW	326926	TR1
TS2 three-phase SP 3-ph 120 A 78 kW	336482	TR1

Accessories Information





Mounting Accessories

Mounting general 352
Fastening and screwing 353
Thermowell pockets 354
Bonded pockets 355
Mounting flanges 356
Connections 357
Wires / Cables 357
Frames and enclosures 358
Valve adapters 359

Safety and Protection

Enclosure protection / Anti-theft protection 360
Filters 360

Power Supply

Power supplies 361
Batteries 361

Configuration

Hardware 362
Storage media 362

Miscellaneous

Displays 363
Material test report 363
Special printing 364
Special painting 364
Special engraving/Special lasering 364

General Information

Sensor characteristics 366
Glossary 368

	Mounting		
	Item description	**Item No.**	**Group**
1	Mounting clip enclosure USE-S pure white	667739	AS1
2	Mounting base enclosure USE-S pure white	667722	AS1
3	Mounting base enclosure USE-M pure white	668354	AS1
4	Mounting base enclosure USE-L pure white	668361	AS1
5	Mounting kit AKF10+ for enclosure USE-S	748551	AS1
6	Mounting kit universal for enclosure USE	698511	AS1
7	Mounting bracket kit for differential pressure switch 110x80x20 mm	669009	AS1
8	Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1
9	Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	AS1
10	Connector STC-DO8 to STC-PLUS 4DO	517577	AS1
11	Wall mounting for duct hygrostat	429030	AS1
12	L-shaped magnetic antenna holder, 180x180 mm	255097	NET



1



2



3



4



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8



9



10



11



12

Fastening and screwing			
Item description	**Item No.**	**Group**	
Fixing kit rawlplugs and screws (2x each)	660945	AS1	1
Syringe thermal contact fluid	102308	AS1	2
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	3
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	4
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	5
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	6
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	7
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1	8
Installation set TFR / MWF+	679466	AS1	9
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1	10
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	AS1	11
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	AS1	12
Screw connection set Ø=6 mm brass (2 pcs.)	373401	AS1	13
Screw connection set Ø=8 mm brass (2 pcs.)	373418	AS1	14



1



2



3



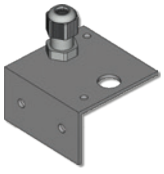
4



5 + 6



7



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9



10



11 + 12



13 + 14

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
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2

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
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2



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)	108 mm	100 mm	584180	⛁	AS2
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	⛁	AS2
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	⛁	AS2
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	⛁	AS2



Bonded pockets					
Item description	**Length**	**Inst. length**	**Item No.**	**On stock**	**Group**
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	⛁	AS1
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	⛁	AS1
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	⛁	AS1
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	⛁	AS1



	Mounting flanges			
	Item description	**Item No.**	**On stock**	**Group**
1	Mounting flange MF2 (suitable for TFR)	435642		AS1
2	Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	⛃	AS2
3	Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	⛃	AS2
4	Mounting flange MF4 brass (suitable for Ø=4 mm)	102438		AS1
5	Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	⛃	AS1
6	Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360		AS1
7	Mounting flange MF8 stainless steel (suitable for Ø=8 mm)	103305		AS1
8	Mounting flange MF19	527705		AS1
9	Mounting flange MF20	612562		AS1



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9

Connections			
Item description	**Item No.**	**Group**	
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	1
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	2
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	3
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	4



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Wires / Cables			
Item description	**Item No.**	**Group**	
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	1
Sensor wire 1,5 m with RJ45 connector	628785	AS1	2
Sensor wire 3 m with RJ45 connector	708852	AS1	3
Sensor wire 7,5 m with RJ45 connector	708869	AS1	4
Antenna extension 10 m	257206	AS1	5
Antenna extension 20 m	257213	AS1	6
USB extension 3 m	574044	NET	7



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2 – 4



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7

	Frames and enclosures		
	Item description	**Item No.**	**Group**
1	Frame for surface mounting JOY pure white	760201	AS1
2	Frame for surface mounting JOY black	760195	AS1
3	Decorative frame JOY pure white	681452	AS1
4	Decorative frame JOY black	740951	AS1
5	Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1
6	Enclosure for surface mounting MDS pure white	448512	AS1
7	Enclosure for surface mounting SR-MDS pure white	514439	AS1



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6 + 7

Valve adapter			
Item description	**Item No.**	**Group**	
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	1
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	2
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	3
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	4
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	5
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	6
Valve adapter SAB for Danfoss Z800	589079	AS1	7
Valve adapter SAB for Danfoss Z801	589086	AS1	8
Valve adapter SAB for Danfoss Z805	615181	AS1	9



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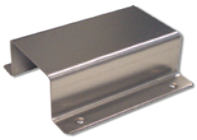
	Enclosure protection / Anti-theft protection			
	Item description	**Item No.**	**On stock**	**Group**
1	Sun/rain protection RS150	103329		AS1
2	Ball stroke protection BS150, transparent	647007	⛃	AS1
3	Ball stroke protection BS100, stainless steel	103312		AS1
4	Weather protection for FTK+, WSA (replacement)	625241		AS1
5	Safety lock dismounting protection SAB	706148	⛃	AS1
6	Battery protection SAB05	595612		AS1



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	Filters		
	Item description	**Item No.**	**Group**
1	Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1
2	Filter PTFE (for air velocities >15 m/s)	429054	AS1



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2

Power supplies				
Item description	**Item No.**	**On stock**	**Group**	
PSU-UP24 – flush-mounted power supply 24 V	645737	⛀	AS1	1
PSU-HS24 - power supply unit 24 V for DIN rail mounting	764742	⛀	AS1	2



1



2

Batteries			
Item description	**Item No.**	**Group**	
Battery LS14250	315098	AS1	1
Battery ER14505 (lithium 3.6 V AA)	759182	AS1	2
Battery VARTA 4003 (1,5 V AAA)	739351	AS1	3
Coin cell CR1225	727310	AS1	4
Coin cell CR1632	597814	AS1	5
Coin cell CR2032	347013	AS1	6



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	Hardware			
	Item description	**Item No.**		**Group**
1	EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704		NET
2	BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262		NET
3	Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838		AS1
4	Converter RS485 Modbus – USB incl. driver CD	668293		NET



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4

	Storage media		
	Item description	**Item No.**	**Group**
	microSD card 2 GB (JOY)	500098	AS1



Displays		
Item description	**Item No.**	**Group**
UD-A – universal display for 4..20 mA	718189	AS1
UD-V – universal display for 0..10 V	775113	AS1



Material test reports		
Item description	**Item No.**	**Group**
Inspection certificate 3.1 (EN 10204) temperature – 2 values within range -30..+150 °C	119030	NET
Inspection certificate 3.1 (EN 10204) humidity – 2 values within range 15..90%	665407	NET
Additional measuring point		NET

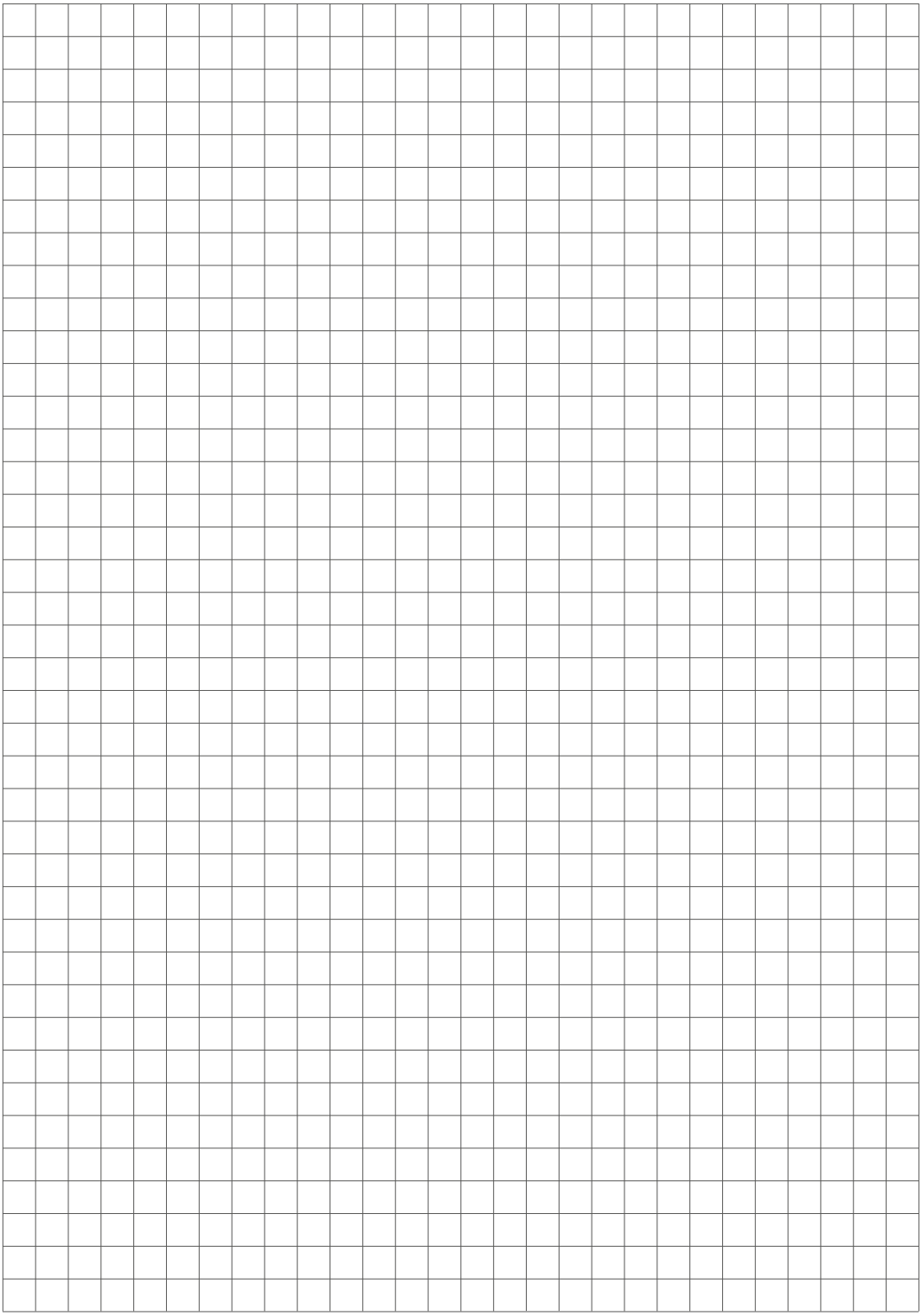

thermokon
HOME OF SENSOR TECHNOLOGY

Abnahme Prüfzeugnis nach DIN EN 10204.3.1

Special printing		
Item description	**Item No.**	**Group**
Special printing – order quantity 20..49 pcs. (each per colour)		
Special printing – order quantity 50..99 pcs. (each per colour)		
Special printing setup and tool costs (once for one-colour print)	115049	NET

Special painting		
Item description	**Item No.**	**Group**
Special painting – prices on request		
Special painting setup costs (once per colour)	114998	NET

Special engraving / special lasering	
Item description	**Group**
Engraving/lasering – prices 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 ONE-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	40,00	■
	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)	12,50	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	12,50	■
	Busch-axcent®	63x63	studio white (g)	12,50	■
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	40,00	■
	Event	55x55	pure white (g/m), alu, anthracite	0,00	■
	Flächenschalter	71x71	pure white (g)	12,50	■
Jung	LS 990 plastic	70x70	white, alpine white (g)	12,50	■
	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	12,50	■
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 (m), active white (m), 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 ONE-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)	4,50	■	■	▣
	Berker B.3	55x55	Aluminium, Aluminium black anodized	40,00	–	■	–
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	4,50	■	■	▣
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	4,50	■	■	▣
	solo®	63x63	studio white (m)	12,50	▣	▣	–
				4,50	–	–	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	12,50	▣	▣	–
				4,50	–	–	■
	Busch-axcent®	63x63	studio white (g)	12,50	▣	▣	–
				4,50	–	–	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	4,50	■	■	▣
	E3	55x55	pure white (g)	4,50	■	■	▣
	Standard 55	55x55	pure white (g/m), creme white (g)	4,50	■	■	▣
	Esprit	55x55	different colours and materials	40,00	■	■	▣
	Event	55x55	pure white (g/m), alu, anthracite	4,50	■	■	▣
	Flächenschalter	71x71	pure white (g)	12,50	▣	▣	▣
Jung	LS 990 plastic	70x70	white, alpine white (g)	12,50	▣	▣	■
	A 500	55x55	alpine white, aluminium	4,50	■	■	▣
	AS 500/AS 500 antib.	55x55	white, alpine white	4,50	■	■	▣
	A plus	55x55	alpine white, aluminium, anthracite	4,50	■	■	▣
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	4,50	■	■	▣
	CD 500	67x67	white, alpine white	12,50	–	▣	–
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	4,50	■	■	▣
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	4,50	■	■	▣
	1-M	55x55	white (g), polar white (g), active white (g)	4,50	▣	■	▣
	Atelier-M	55x55	white (g), polar white (g), active white (g)	4,50	–	■	▣
	M-Pure	55x55	polar white (m), active white (m), aluminium, anthracite	4,50	■	■	▣
	Antik	66x66	white (m), polar white (m)	4,50	–	▣	▣

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.

Delivery Conditions
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HOME OF SENSOR TECHNOLOGY

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