

thermokon®

HOME OF SENSOR TECHNOLOGY



HOME OF SENSOR TECHNOLOGY

# PRODUCTS

VALID FROM 1<sup>st</sup> APRIL 2016 – WORLD EDITION

THE EFFECTIVE SENSOR MANUFACTURER FROM GERMANY



# THERMOKON AT A GLANCE



USE



SR06 LCD



JOY



thanos

**EasySens®**

airScan airConfig

Extension of the intelligent  
Wireless System EasySens®



New Company Headquarters  
since January 1, 2014



SMD Assembly Line



Former Company Headquarters  
in Mittenaar-Bicken

## » 2020

- 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 Americas LP, USA
- 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 m<sup>2</sup>
- 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 m<sup>2</sup>

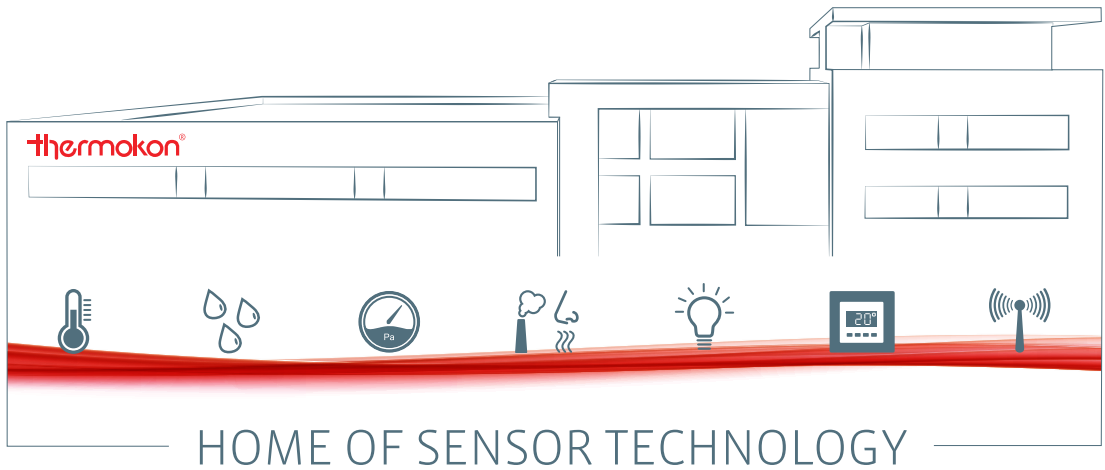
## » 2000

- 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





## 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 the 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.

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**EasySens® – Transmitter**

**EasySens®**  
**airConfig**  
**airScan**  
**climaView**  
**SmartACK**

## Sample applications

### Room operating units

thanos SR	High-end touch room operating unit
SR06 LCD	Surface mount room operating unit
SR07 x	Surface mount room operating unit
SR04 x	Surface mount room operating unit

### Temperature

SR07	Surface mount temperature sensor
SR04	Surface mount temperature sensor
LC-SR04	Surface mount temperature sensor
SR65	Outdoor temperature sensor
SR65 AKF	Duct temperature sensor
SR65 TF	Duct temperature sensor
SR65 VFG	Pipe temperature sensor

## Humidity

SR07 rH	Room sensor temp. + humidity	56
SR04 rH	Room sensor temp. + humidity	58
LC-SR04 RH	Room sensor temp. + humidity	59
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SR-MI	Smart meter evaluations S0	67
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SR65 DI	Binary wireless module	69

## Window-/door contacts

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## Room operating units

### Sample applications

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# COMPATIBILITY IS THE ASSET

Intelligent building technology requires a communication between all components. When developing new solutions we take care that our products are compatible with all common BUS systems so to enable an easy interoperable system integration.



## **BACnet**

The communication protocol BACnet, which is independent of manufacturers, is especially designed for applications in the building automation. The objective of BACnet is the allocation of uniform, non-committed standards for data communication. In Europe BACnet is represented by the BACnet Interest Group Europe (BIG-EU), the industrial association for the use of global BACnet standards according to ISO 16484-5. BACnet distinguishes itself by high transfer rates.



## **KNX**

The KNX technology has established well as a worldwide standard for all applications in the field of home and building system technology – from energy management, HVAC applications or security systems via lighting and shutter control up to the operation of household appliances and audio/video solutions. KNX is based on the installation tool ETS which is independent of manufacturers and products. ETS is equipped with a full set of transmission media as well as a configuration mode enabling an overall use.



## **LON**

The idea of LON technology (Local Operating Network), a worldwide standardized communication and automation protocol, is the interoperability, a high application width and a comprehensive possibility of field applications enabling the realization of global building automation solutions. Data transmission is made directly from device to device. A central control system is not needed.



## **MODBUS**

Since its development in the year 1979 the Modbus protocol had become a standard in the industrial communication and plays an important role as an application protocol for data transmission. As the Modbus TCP type, it had significantly advanced the Ethernet communication in the automation. The combination of manufacturer independent data visualization via Modbus and the universal network standard TCP/IP and the Ethernet enable the open exchange of process data.

» *The Effective Sensor Manufacturer  
for an Efficient Partnership*



## 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.

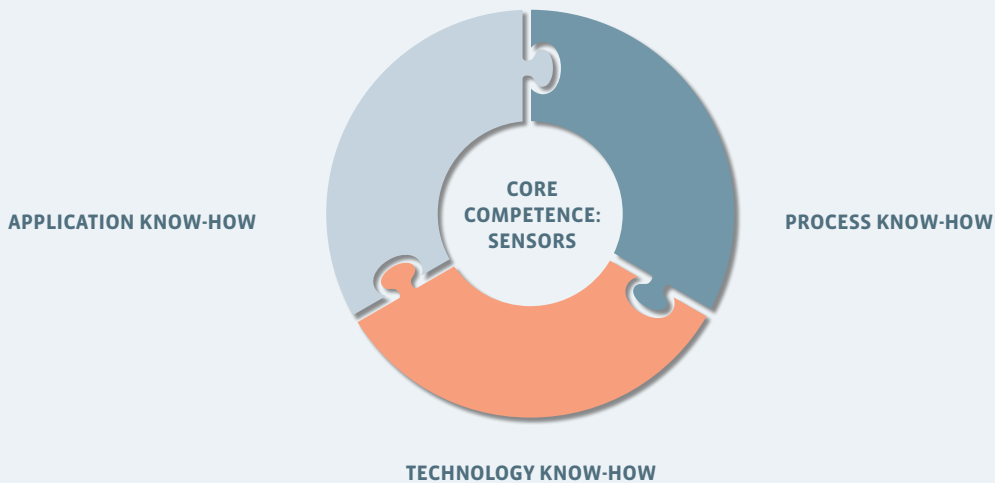
As a leader for innovation with a broad scope of applications we are continuously developing our portfolio further and offer decisive benefits with regards to product-related values, customized solutions and engineering. Our complete range of products is designed to energy-efficient buildings striving for an A classification according to DIN EN 15232.

### » LEADING FOR GOOD REASONS

Made in Germany – Home in the world.  
With these goals in mind our highly motivated employees are working for your needs every day. Thanks to our success we are first choice for our partners:

- » Clear focus on the best possible benefit for customers
- » Solution-oriented thinking and action
- » Highest standards for technology and quality





## QUALIFIED, RELIABLE, EFFICIENT

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.

### » APPLICATION KNOW-HOW

We know and understand your applications – thus we consult and act goal-oriented.

### » TECHNOLOGY KNOW-HOW

We have the necessary technology know-how to offer customized products and service.

### » PROCESS KNOW-HOW

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





Worldwide Subsidiaries and Distributors

## FROM MITTENAAR ACROSS THE GLOBE

### » GLOBAL PLAYER WITH REGIONAL ROOTS

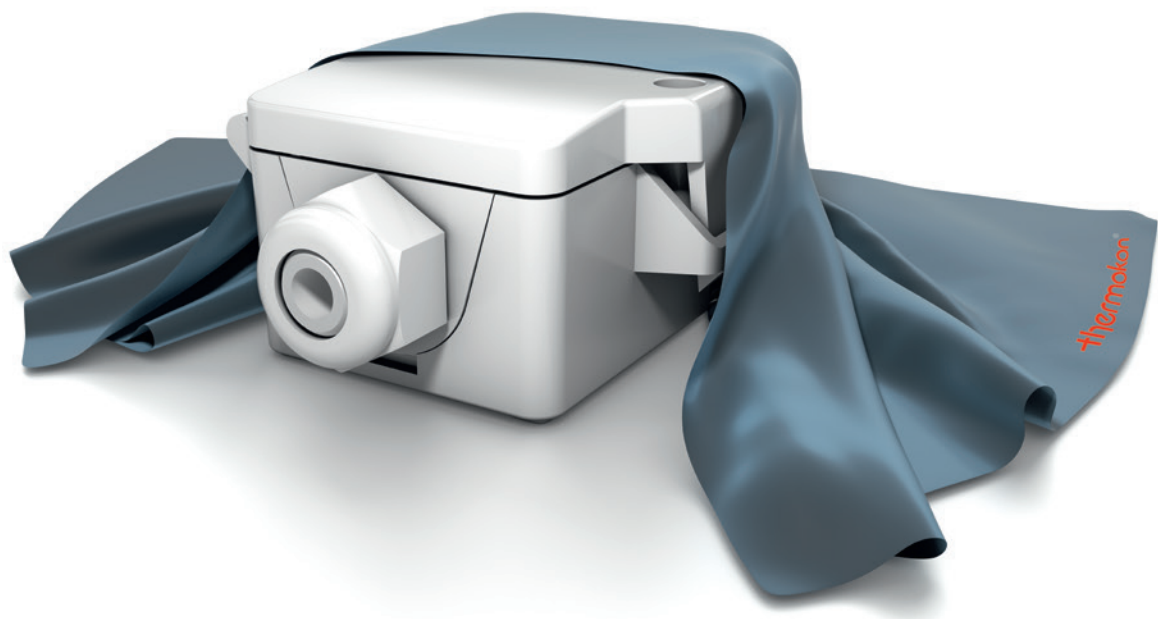
Trend-setting sensors and sensor systems are developed and produced at our headquarters in Mittenaar-Offenbach with currently 165 employees. Besides our core values – safety, openness to new technologies and sustainability as well as our daily motivation striving for excellence in sensors, we established 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 for BigPoint products 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 own branches in Austria, Sweden, China, North America, Norway, 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.



## NOVELTIES / HIGHLIGHTS / TECHNOLOGY

### NEW ENCLOSURE USE

#### » THE ENCLOSURE FOR PURE MOUNTING EFFICIENCY

The innovative enclosure of Thermokon sets new standards. Thanks to USE the mounting of sensors becomes easier, faster and more comfortable as ever before. USE makes the decisive difference with regards to mounting efficiency.

**U** universally mountable

**S** saving time

**E** easy to install

#### » UNIQUE: THE ADVANTAGES OF USE

- » Very user-friendly because of intelligent product design
- » Saving of time thanks to the unsurpassed mounting features
- » Tools for installation, opening and closing the enclosure are not required
- » Removable cable entry

#### » UNIVERSALLY MOUNTABLE

USE is an intelligent and multi-purpose mounting solution designed for duct, pipe contact, average and outdoor sensors. USE enables the most different mounting methods – with clip, base plate or flange.

For use in liquid media the combination with an immersion pocket is feasible. The removable cable gland with M16 or optionally M20 diameter and corresponding seal inserts offers best possible flexibility.

- » Hinged cover (captive), protection IP65
- » Exchangeable inserts for different cable entries (M16 + M20)
- » Our products are delivered with clip for duct mounting or socket for wall mounting. Thus, the enclosure can be easily mounted and the thermal separation is guaranteed



Bikini House  
Berlin, Germany



Monkey-Bar  
Berlin, Germany



Tower 185  
Frankfurt, Germany



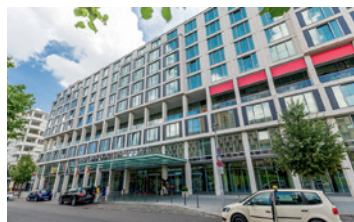
Waldorf Astoria  
Berlin, Germany



European Central Bank, New Building  
Frankfurt, Germany



European Patent Office  
Munich, Germany



Scandic  
Berlin, Germany



Airport Franz Josef Strauß  
Munich, Germany



Museum Folkwang  
Essen, Germany



Alte Oper  
Frankfurt, Germany



Semperoper  
Dresden, Germany



Liebfrauenkirche (World Cultural Heritage)  
Trier, Germany





4 Towers Business Area  
Madrid, Spain



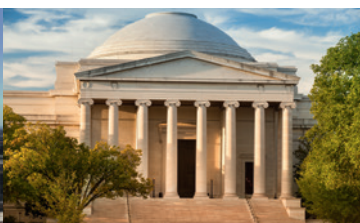
The White House  
Washington D.C., USA



Airport Roissy Charles de Gaulle  
Paris, France



Prime Tower  
Zürich, Switzerland



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



Uniqa Tower  
Vienna, Austria



Hotel Savoyen  
Vienna, Austria



Ascot Racecourse  
Ascot, England



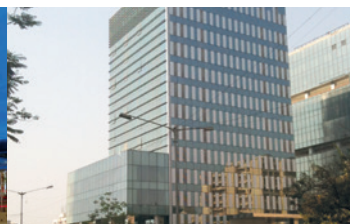
University of Canterbury  
Christchurch, New Zealand



Jebel Ali Hotel  
Dubai, UAE



Changi City Point Shopping Mall  
Singapore



First Rand Bank  
Mumbai, India



## 5-YEAR 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 the details? Learn more under  
[www.thermokon.de/en/product-highlights/5-years-warranty.html](http://www.thermokon.de/en/product-highlights/5-years-warranty.html)



## 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.

# EasySens® Transmitter

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®.



**EasySens® | airConfig | airScan  
climaView  
SmartACK**

## Sample applications

### Room operating units

thanos SR	Touch room operating unit	18
SR06 LCD	Surface mount room operating unit	24
SR07 x	Surface mount room operating unit	26
SR04 x	Surface mount room operating unit	26

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» *Realization of flexible and individual building automation for new buildings and retrofit projects*

## EasySens® – 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.

### » THE BENEFITS

- » Cost saving thanks to Energy Harvesting
- » Flexibility with sensor location – quick and easy mounting and commissioning
- » Easy, wireless integration in existing buildings as well as retrofit adaptations to changed room layouts
- » Reduction of fire load
- » Direct mounting to representative measuring points
- » Compatibility and interoperability with different manufacturers by using international standards (IEC 14543-3-10)

### » SELF-POWERED

Thanks to EasySens® wired power supplies and the change of batteries are things of the past. The Energy Harvesting technology enables a self-powered operation of products.

- » Energy is extracted by using integrated solar cells and kinetic energy of the sensor environment.

### » INTELLIGENT

Using the frequency band 868.3 MHz EasySens® based transmitters and receivers communicate autonomously in the building automation.

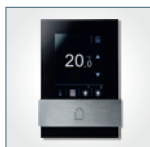
- » Status synchronization and triggering of different control commands based on defined parameters
- » Bidirectional communication of self-powered devices by means of SmartACKNOWLEDGE

### » WIRELESS

Thanks to EasySens® variable room layouts, reconstructions during running hotel operation or renovations in heritage-protected buildings are pretty simple.

- » No time-consuming works – no wiring
- » Low costs of material enabling cost-effective system solutions

## SYSTEM OVERVIEW



## TRANSMITTERS

RECEIVERS  
(TRANSCIVER)

## TOOLBOX

INTEROPERABLE  
SYSTEM INTEGRATION

## » Parameterization without direct interaction of the corresponding EasySens® device (Remote Commissioning)



## 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.

### » COMFORT INCLUSIVE: INSTALLATION + CONFIGURATION

- » Individual designation of sensors
- » Configuration of measured values (EEP) and sensor parameters
- » Learning-in of sensors by means of Drag & Drop via RF (Remote Management)
- » Saving of time (configuration via Copy&Paste)
- » Remote access to product and project information

### » THE BENEFITS

- » 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
- » Saving of configuration parameters
- » Transparent and central availability system information
- » Uncomplicated handling of maintenance and support works

### » FLEXIBILITY AND SAFETY

- » 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







» *Field strength measuring instrument for easy planning and realization of EasySens® projects*

## 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.



### » THE BENEFITS

- » Find the best location for your device
- » Monitoring function for easy evaluation of RF telegrams
- » Logging, repeater function and possibility of remote maintenance
- » Data export for further process/analysis 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

### » GENERATION OF TELEGRAMS – EASY, FLEXIBLE, UNCOMPLICATED

- » 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

### » CLEAR VISUAL STRUCTURE


- » Translation of various available measuring values
- » Reliable information on signal quality or RSSI value of telegrams by colour indicator (traffic light system) or graphs

### » PROFESSIONAL MULTI-PURPOSE EVALUATION

- » 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







## » Smart solution for detection, monitoring and documentation of room climate and energy data in buildings

# climaView – SIMPLY SMART



Comprehensive, smart, efficient – climaView by Thermokon is the webbased solution for the detection and documentation of energy and climate data in your building.

At any time, climaView enables the perfect overview of all relevant measuring values and certainly offers the possibility to call, analyze and spread those data, no matter where you are.

### » THE BENEFITS

- » Only one system for the most different measuring values
- » Unlimited number of sensors
- » Optimal process and data safety
- » Minimal interventions into existing systems and buildings
- » Reliable, low-maintenance solution for highest quality demands
- » Support of a systematic energy management according to DIN EN ISO 50001 and ISO 7730 (thermic comfort).

Used as a planning aid for process optimization or more profitability – climaView always is the right tool.

### » FOR ENERGY CONSULTANTS

- » Quick availability of relevant data
- » Valuable planning aid
- » Short setting-up times, even for uninstalling or networking of sensors and systems
- » Easy retrofitting in existing buildings

### » FOR PROPERTY OWNERS AND FACILITY MANAGER

- » Complete documentation and high flexibility for data processing
- » High efficiency and optimization of processes
- » Best possible comfort thanks to a well-thought-out monitoring process

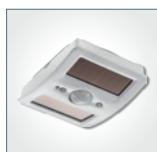
### » FOR BUILDING OPERATORS AND PLANNERS

- » Efficient solution for more cost-effectiveness
- » High flexibility for calling, analyzing and sharing of data
- » Project safety thanks to a reliable interaction of individual components
- » Compatibility to other manufacturers: International Standard IEC 14543-3-10





» Data logging  
via EnOcean  
EasySens®



Brightness / Motion



Temperature / Humidity



Temperature / Humidity  
VOC / CO2



Current / Pressure



Energy Meter



» Communication  
via Ethernet-  
Gateway to  
Data Storage



» Visualization  
via Online-Tool








## SmartACKNOWLEDGE – BIDIRECTIONALITY IS SMART

By means of SmartACKNOWLEDGE EnOcean based self-powered devices can communicate bidirectionally. They are transmitting the measuring values detected to the building control technology in regularly intervals. In addition to the important status information, the display indicates a centrally controlled reset to default set points. There is no smarter way.

For example our bidirectional room operating units SR06 LCD: In regular intervals the device wakes-up from its sleeping mode and transmits its data and measuring values to a bidirectional receiver or a gateway within some milliseconds. Milliseconds later, SR06 LCD is waking-up again and sends a so-called reclaim telegram to signalize its readiness for receiving. Now, the gateway can transmit the ready data and information to the operating unit.

### » THE BENEFITS

- » Comfort solution for the bidirectional communication of room operating units and building control technology
- » Comfort on-site control of room parameters by means of the keyboard
- » User guidance by means of clear display hints (e.g. information about opened windows)
- » Increase of energy efficiency enabled by the possibility to restore the defined basic set points
- » Self-powered operation via solar cell

Please note:

- » The use of repeaters is not feasible with SmartACKNOWLEDGE as the signal running time is delayed indefinitely.
- » Most of Thermokon gateways are capable of SmartACKNOWLEDGE. Latest information can be obtained by your personal contact.





## ENERGY HARVESTING – RESOURCE FRIENDLY AND MOST FLEXIBLE

Thanks to Energy Harvesting your sensors are not powered by socket outlet but is gained directly from the sensors themselves, either by an integrated solar cell or by the use of movement as a natural energy source – e.g. upon actuation of operating elements.

Thus, your sensors are self-powered and can be freely placed in a room. No batteries are needed at all. The resources gained are used skillfully and economically so that a long lifetime of the sensors is guaranteed.

At present, the products of the following fields are available as battery- and wireless sensors:

- » Temperatur sensors
- » Humidity sensors
- » Light and motion sensors
- » Window contacts and handles
- » Switches for light and blind

## EnOcean ALLIANCE

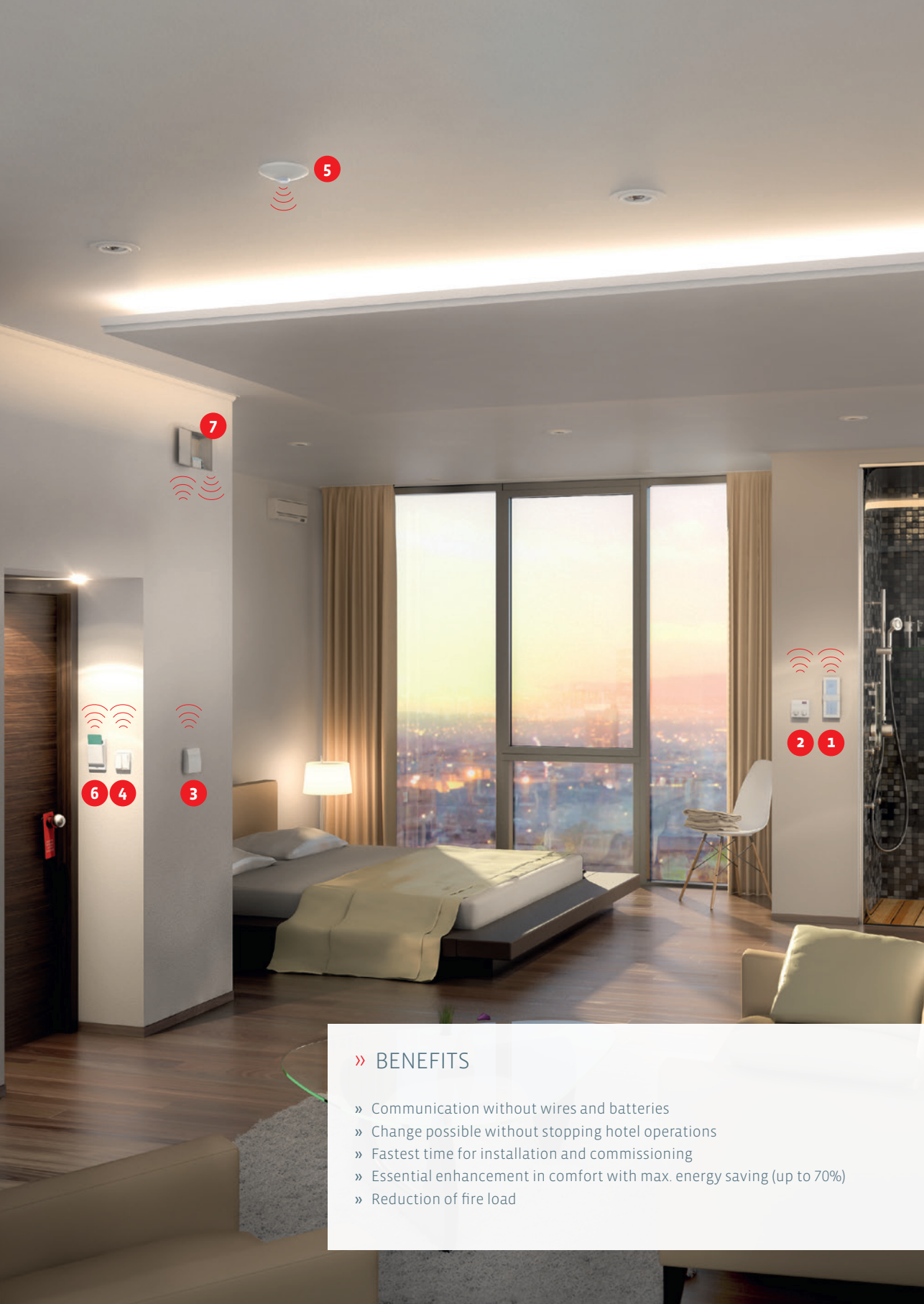
Almost 40% of the total energy requirements is needed by houses and buildings. This fact can be changed by means of the EnOcean based technology.

More than 300 worldwide leading companies of the building control technology formed the EnOcean Alliance in 2008 with the target to establish the battery- and wireless technology for flexible and maintenance-free sensor solutions in residential, commercial and industrial properties to get sustainable buildings. New standards shall be set by the creation of interoperable system solutions.



As a founder member and promoter we support the further development of a wide range of fully compatible and wireless products enabling the monitoring and control of home and building technology so to ensure the future of this innovative sensor technology.

Worldwide, EnOcean is the first and major ISO/IEC RF standard which optimizes solutions with a significant low energy consumption and energy harvesting.



## » BENEFITS

- » Communication without wires and batteries
- » Change possible without stopping hotel operations
- » Fastest time for installation and commissioning
- » Essential enhancement in comfort with max. energy saving (up to 70%)
- » Reduction of fire load



1

## Thanos L

High-end touch screen room operating unit, types available for wireless or BUS systems or wireless+BUS system



2

## SR04

Surface-mounted wireless room sensor for temperature & rel. humidity  
Available with various control elements and features



3

## SR04 CO2

Room sensor CO2/temperature/rel. humidity  
Available with display and traffic light function



4

## Mini

Wireless switch 2-/4-channel lighting/blinds  
Available in various colours



5

## SR-MDS

Ceiling multi sensor for light and motion detection for room/space applications



6

## SR-KCS

Wireless switch for key card activation to regulate lighting and air-conditioning e.g. in hotel rooms



7

## STC65-BUS

Gateway for evaluation of EasySens transmitters/switches and connection to the defined BUS system

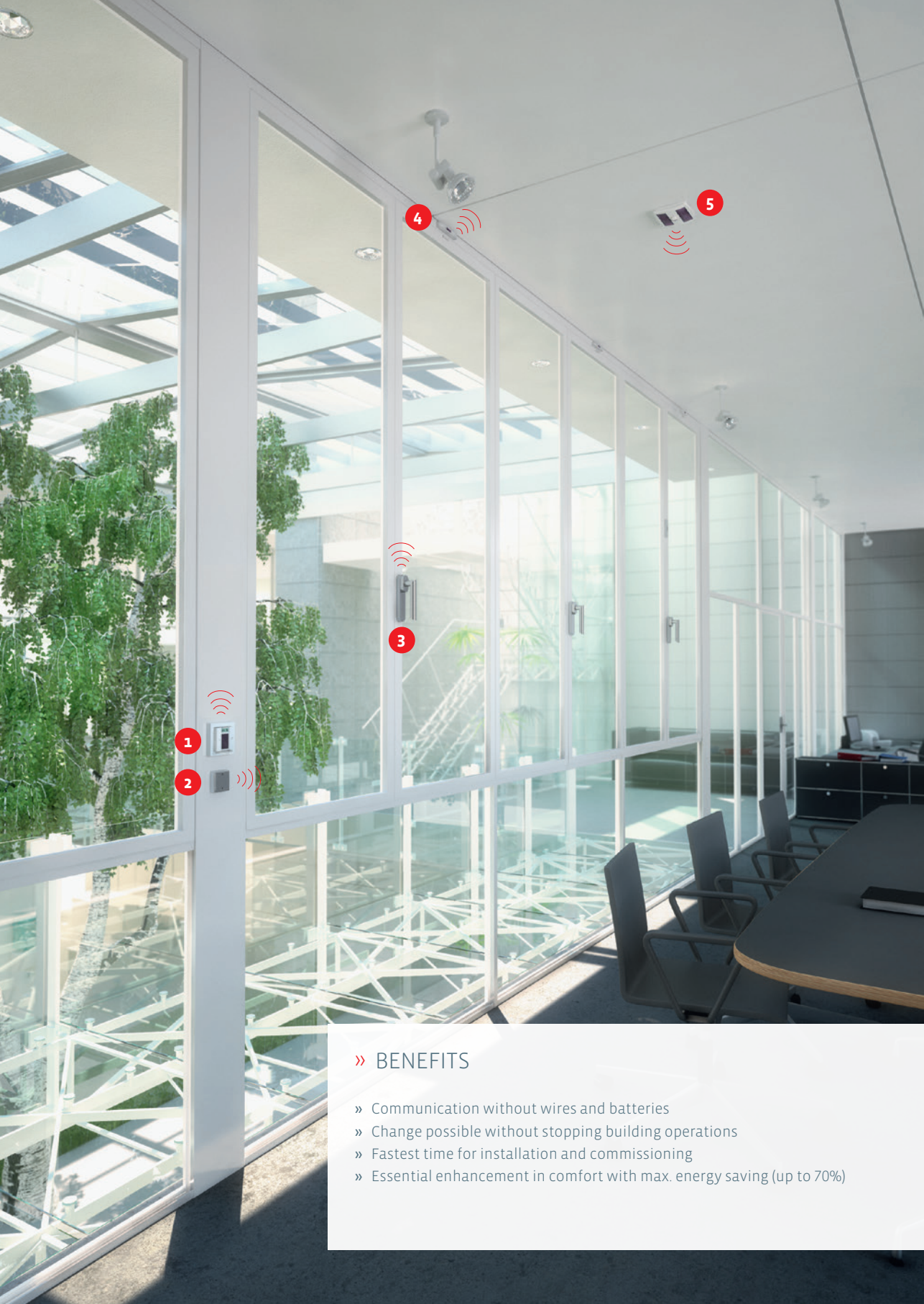


## PLACE TO FEEL COMFORTABLE – YOUR HOTEL

All EasySens® devices wirelessly communicate via EnOcean radio. Temperature, set point, air quality, occupancy and switching signals are received and transmitted to superior communication protocols such as KNX, BACnet, LON or RS485 Modbus.

This system ensures the possibility to reset all used automation elements to standard values.





## » BENEFITS

- » Communication without wires and batteries
- » Change possible without stopping building operations
- » Fastest time for installation and commissioning
- » Essential enhancement in comfort with max. energy saving (up to 70%)



1

## SR06 LCD 2T/4T

Self powered room operation unit, for setpoint and fan stage adjustment, switch 55x55 mm of various manufacturers possible



2

## Mini

Wireless switch 2-/4-channel lighting/blinds, available in various colours



3

## SRG01

Wireless window handle for status monitoring, available in various colours



4

## SRW01

Wireless window contact for status monitoring of windows and doors



5

## SR-MDS Solar

Ceiling multi sensor detecting light and motion in space/office applications

BACnet

KNX

LONMARK

Modbus

## COMFORT AT WORK

All EasySens® devices wirelessly communicate via EnOcean radio. Temperature, set point, air quality, occupancy and switching signals are received and transmitted to superior communication protocols such as KNX, BACnet, LON or RS485 Modbus. This system ensures the possibility to reset all used automation elements to standard values.





thanos SR S white



thanos SR L black



thanos SR LQ white

## thanos SR



The touch screen room operating unit thanos is designed for detection of temperature and humidity as well as integrated operation of HVAC, lighting and blinds for room control. High-graded optics ideal for design-oriented applications. Programmable operating functions can be flexibly adapted to suit various room applications.

### TECHNICAL DATA

Measuring values	temperature, humidity, (optional)
Network technology	LON FT (free topology), RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Data transmission	airConfig ready
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) 240 V: 100..240 V ~
Power consumption	typ. 2,0 W (24 V =)   4,0 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	$\pm 0,5$ K (typ. at 21 °C)
Accuracy humidity	$\pm 3\%$ between 20..80% rH (typ. at 21 °C)
Inputs	digital, 4x, individual configuration for window contact, dew point guard, key card switch, room frequency, alarm, event
Control functions	occupancy signalling, light ON/OFF/DIM, setup scenarios, blinds UP/DOWN/SET, fan stages, setpoint
Clip	anodized aluminium
No. of buttons	type L/LQ 8 capacitive touch sensor buttons
Labelling	type L/LQ flexible insert (for up to 8 touch buttons below/beside clip)
Display	TFT 3,5", 320x640 px, capacitive touch technology showing room temperature, setpoint, operation mode, fan stage, occupancy, alarm, date and time, ... ECO note (several steps, red to green; not available for LON and KNX) graphic and photo: Instead of date and time individual colour graphics (175x50 or 320x240 pixel) can be shown (e.g. company logo or hotel name; not available for LON and KNX)
Colour	white or black
Enclosure	PC and glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box ( $\varnothing=55$ mm)
Delivery contents	software for configuration (freeware via download)
Notes	you'll find the software description at <a href="http://www.thermokon.com">www.thermokon.com</a> to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)



for thanos without radio please refer to 'Room Operating Units'

## Highlights / Innovations

### Versions

The device can communicate independently with a receiver, as a stand-alone solution, or it can be integrated into a BUS system along with a gateway.

### New functions / button configuration

Scene buttons / scene channels (0..9), operating mode (heating, cooling, dehumidifying, off), along with the previous universal on/off, there is now a new universal +/-.

### Graphics / images

Customer specific graphics can be illustrated in the upper display area (e.g. company logo or hotel name).

### ECO display

Several stages from red to green.

thanos



#### Radio touch screen room operating unit temperature – 15..24 V

Item description	Item no.
thanos SR L black	471596
thanos SR L white	471589
thanos SR LQ black	471619
thanos SR LQ white	471602
thanos SR S black	471633
thanos SR S white	471626

#### Radio touch screen room operating unit temperature – 80..240 V

Item description	Item no.
thanos SR L black MVolt	493024
thanos SR L white MVolt	493017
thanos SR LQ black MVolt	493048
thanos SR LQ white MVolt	493031
thanos SR S black MVolt	493062
thanos SR S white MVolt	493055



#### Radio touch screen room operating unit temperature – LON

Item description	Item no.
thanos SR L black LON	471879
thanos SR L white LON	471862
thanos SR LQ black LON	471893
thanos SR LQ white LON	471886
thanos SR S black LON	471923
thanos SR S white LON	471916



#### Radio touch screen room operating unit temperature – RS485 Modbus

Item description	Item no.
thanos SR L black RS485 Modbus	472425
thanos SR L white RS485 Modbus	472418
thanos SR LQ black RS485 Modbus	472449
thanos SR LQ white RS485 Modbus	472432
thanos SR S black RS485 Modbus	472463
thanos SR S white RS485 Modbus	472456

## thanos SR



### Radio touch screen room operating unit temperature + humidity – 15..24 V

Item description	Item no.
thanos SR rH L black	471664
thanos SR rH L white	471640
thanos SR rH LQ black	471688
thanos SR rH LQ white	471671
thanos SR rH S black	471718
thanos SR rH S white	471695



### Radio touch screen room operating unit temperature + humidity – 80..240 V

Item description	Item no.
thanos SR rH L black MVolt	523103
thanos SR rH L white MVolt	523110
thanos SR rH LQ black MVolt	523127
thanos SR rH LQ white MVolt	523134
thanos SR rH S black MVolt	523141
thanos SR rH S white MVolt	523158



### Radio touch screen room operating unit temperature + humidity – LON

Item description	Item no.
thanos SR rH L black LON	471985
thanos SR rH L white LON	471978
thanos SR rH LQ black LON	472012
thanos SR rH LQ white LON	472005
thanos SR rH S black LON	472043
thanos SR rH S white LON	472036



### Radio touch screen room operating unit temperature + humidity – RS485 Modbus

Item description	Item no.
thanos SR rH L black RS485 Modbus	472487
thanos SR rH L white RS485 Modbus	472470
thanos SR rH LQ black RS485 Modbus	472500
thanos SR rH LQ white RS485 Modbus	472494
thanos SR rH S black RS485 Modbus	472524
thanos SR rH S white RS485 Modbus	472517

### Accessories

Item description	Item no.	On stock
Software/Plug-In for configuration (free)		
SD card (one SD card inclusive)	500098	📦
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	📦

## thanos SR



thanos SR L black



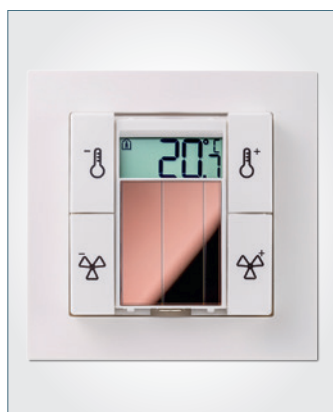
thanos SR L white



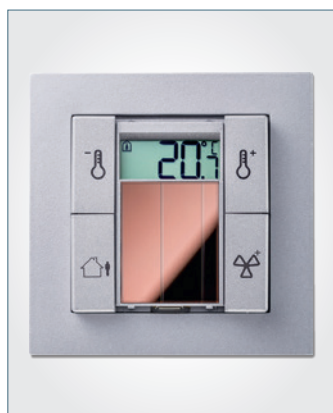
thanos SR L white RS485 Modbus



thanos SR S black



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



SR06 LCD 4T aluminium,  
switch range Gira E2 aluminium



SR06 LCD 2T anthracite,  
switch range Gira E2 anthracite

## SR06 LCD



Bidirectional and energy self-sufficient room operating unit with sensors for detection of temperature and relative humidity (rh type). Depending on the different types available, parameters such as temperature set point, fan stage or room occupancy can be set via the function buttons at the device. SR06 LCD transmits the measuring values to a receiver that directly processes the information received. According to the SR06 LCD type and application used, the values can be forwarded to a central control unit. By means of SmartACK set points and status can be overwritten externally and indicated via the integrated display. Parameterization is done via radio using airConfig or by the optional configuration software (see accessories).

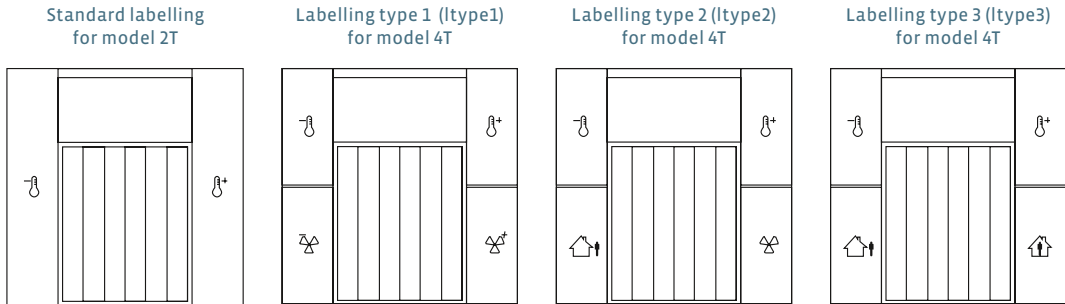
### TECHNICAL DATA

Measuring values	temperature, humidity (optional)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE), airConfig ready
Power supply	solar cell, LiPo-battery, maintenance-free
Measuring range temp.	0...+40 °C
Measuring range humidity	0...100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30...70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig or SR06ConfigSW
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Arc, M-Plan, M-Pure
Control functions	occupancy signalling fan stages setpoint
No. of buttons	2T: 2 buttons, 4T: 4 buttons
Display	LCD 29x12 mm, monochrome
Set point range	+15...+30 °C ± 10 °C
Enclosure	PC-V0, pure white, aluminium, anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25...+65 °C
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	the devices are supplied with an integrated battery backup for configuration an optional programming interface is necessary (refer to accessories) energy storage can be reloaded with a separate USB-cable to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)



## SR06 LCD

### Labelling types



Item description: product | number of buttons | labelling type | switch range



Radio room operating unit temperature	
Item description	Item no.
SR06 LCD 2T Gira E2 pure white brilliant	572002
SR06 LCD 2T Gira E2 aluminium	593236
SR06 LCD 2T Gira E2 anthracite	593243
SR06 LCD 4T ltype1 Gira E2 pure white brilliant	572019
SR06 LCD 4T ltype1 Gira E2 aluminium	593250
SR06 LCD 4T ltype1 Gira E2 anthracite	593267

Options
Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**SR06 LCD | 4T | ltype2 | Jung A500 pure white**

**SR06 LCD** = product

**4T** = number of buttons

**ltype2** = labelling type 2

**Jung A500 pure white** = switch range Jung A500 pure white



Item description: product | humidity (rH) | number of buttons | labelling type | switch range

## SR06 LCD



Radio room operating unit temperature + humidity	
Item description	Item no.
SR06 LCD rH 2T Gira E2 pure white brilliant	572026
SR06 LCD rH 2T Gira E2 aluminium	593274
SR06 LCD rH 2T Gira E2 anthracite	593281
SR06 LCD rH 4T Itype1 Gira E2 pure white brilliant	572033
SR06 LCD rH 4T Itype1 Gira E2 aluminium	593298
SR06 LCD rH 4T Itype1 Gira E2 anthracite	593304

Options
Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

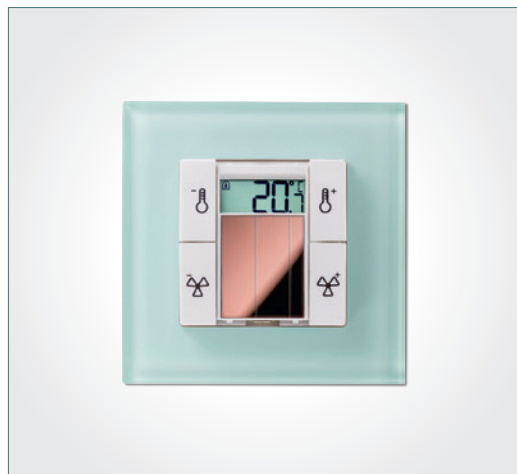
Order example for different items:  
**SR06 LCD | rH | 4T | Itype2 | Gira Esprit**

**SR06 LCD** = product  
**rH** = humidity  
**4T** = number of buttons  
**Itype2** = labelling type 2  
**Gira Esprit** = switch range Gira Esprit

Accessories		
Item description	Item no.	On stock
Coin cell CR1632	597814	●
Programming interface for configuration and charging	597838	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●

## SR06 LCD

### Example designs



SR06 LCD 4T pure white brilliant,  
switch range Gira Esprit glass mint



SR06 LCD 2T anthracite,  
switch range Gira Esprit glass mint



SR06 LCD 4T pure white brilliant,  
switch range Gira Esprit aluminium



SR06 LCD 2T anthracite,  
switch range Gira Esprit aluminium

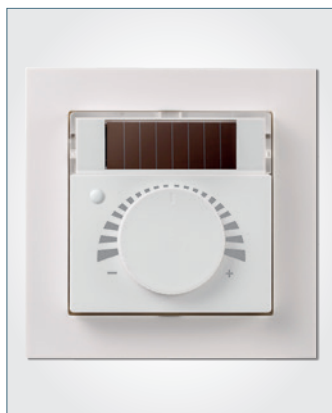


## SR07 x

Room temperature sensor with set point adjustment and humidity sensor (optional) for room/space applications. Also available with slide switch ("day/night"). Compatible with various design frames (55x55 mm) of different manufacturers.



SR07 P pure white brilliant,  
switch range Gira E2



SR07 PT pure white brilliant,  
switch range Gira E2



SR07 PMS pure white brilliant,  
switch range Gira E2

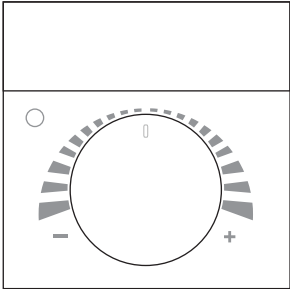
### TECHNICAL DATA

Measuring values	temperature, humidity (optional)
Radio technology	EnOcean (IEC 14543-3-10), STM
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH otherwise every 1000 sec.
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Arc, M-Plan, M-Pure
Set point (P)	potentiometer
Slide switch (MS)	0/I day/night
Button (T)	for presence detection
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	the devices are supplied with an integrated battery backup

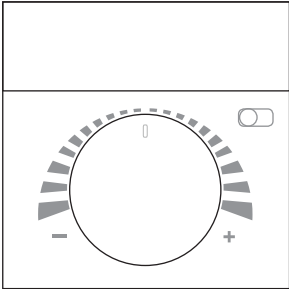
SR07 x

Labelling types

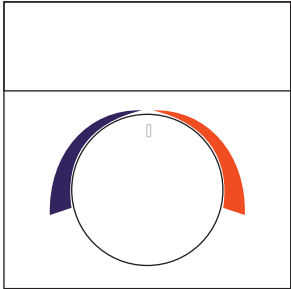
SR07 P



SR07 PMS



SR07 P  
standard labelling colour  
(refer to options)



Item description: product | operating elements | switch range



Radio room operating unit temperature	
Item description	Item no.
SR07 Gira E2 pure white brilliant	593847
SR07 P Gira E2 pure white brilliant	572040
SR07 PT Gira E2 pure white brilliant	572057
SR07 PMS Gira E2 pure white brilliant	572064
SR07 Gira E2 aluminium	630481
SR07 P Gira E2 aluminium	593311
SR07 PT Gira E2 aluminium	593335
SR07 PMS Gira E2 aluminium	593359
SR07 Gira E2 anthracite	630498
SR07 P Gira E2 anthracite	593328
SR07 PT Gira E2 anthracite	593342
SR07 PMS Gira E2 anthracite	593366

Options	
Item description	
Default labelling colour red+blue	
Switch ranges Busch-Jaeger Busch-balance® SI	
Switch ranges Berker S.1   Jung A 500   Merten M-Smart	
Switch range Gira Esprit	
Switch ranges stainless steel   glass   aluminum (different manufacturers)	
Other switch ranges	

Order example for different items:

**SR07 | PMS | Busch-balance® SI alpin white**

**SR07** = product  
**PMS** = potentiometer, slide switch  
**Busch-balance® SI alpin white** = switch range Busch-Jaeger Busch-balance® SI alpin white



Item description: product | operating elements | humidity (rH) | switch range

## SR07 x



### Radio room operating unit temperature + humidity

Item description	Item no.
SR07 rH Gira E2 pure white brilliant	593182
SR07 P rH Gira E2 pure white brilliant	597722
SR07 PT rH Gira E2 pure white brilliant	597739
SR07 PMS rH Gira E2 pure white brilliant	597746
SR07 rH Gira E2 aluminium	593205
SR07 P rH Gira E2 aluminium	597753
SR07 PT rH Gira E2 aluminium	597760
SR07 PMS rH Gira E2 aluminium	597777
SR07 rH Gira E2 anthracite	593199
SR07 P rH Gira E2 anthracite	597784
SR07 PT rH Gira E2 anthracite	597791
SR07 PMS rH Gira E2 anthracite	597807

### Options

Item description
Default labelling colour red+blue
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**SR07 | PMS | rH | Gira Esprit**

**SR07** = product  
**PMS** = potentiometer, slide switch  
**rH** = humidity  
**Gira Esprit** = switch range Gira Esprit

### Accessories

Item description	Item no.	On stock
Coin cell CR1632	597814	●



## SR04 x

Room temperature sensor with optional, set point and fan stage adjustment as well as manual over ride for room/space applications.



SR04 P



SR04 PMS



SR04 PST

### TECHNICAL DATA

Measuring values	temperature, humidity (optional)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing (optional)
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring interval	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K otherwise every 1000 sec.
Set point (P)	potentiometer default value 10 kΩ (1 kΩ   5 kΩ optional, for other values please request)
Slide switch (MS)	0/I, day/night
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III)
Button (T)	for presence detection
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dark rooms

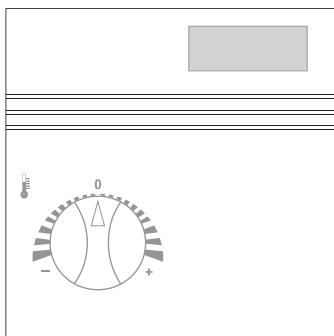


## SR04 x

### Types with standard labelling

special labelling refer to p. 325

#### SR04 P



#### Legend:

P = potentiometer

S = rotary switch

T = button

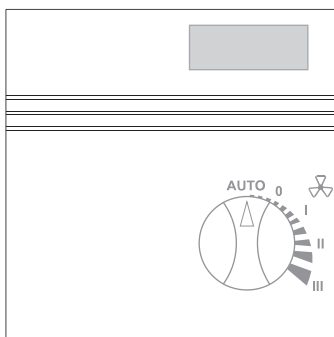
D = LED

FSx = number of fan stages

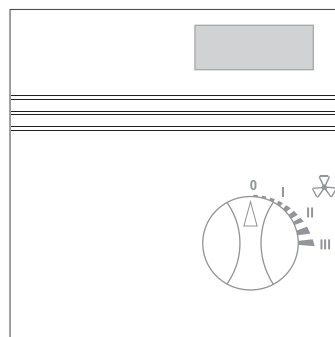
for sensor types refer to items,

SR04 without operating elements refer to p. 49

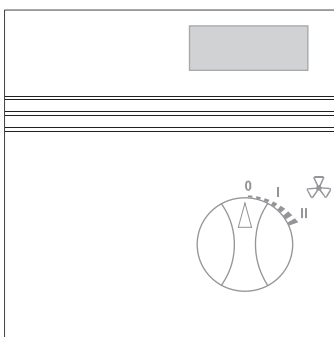
#### SR04 S with 5 fan stages (FS5, standard)



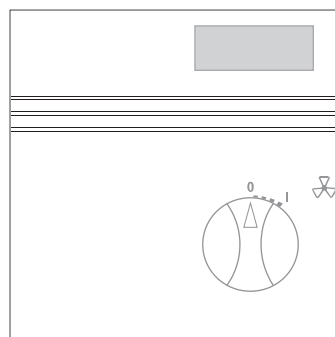
#### SR04 S with 4 fan stages (FS4, refer to options)



#### SR04 S with 3 fan stages (FS3, refer to options)

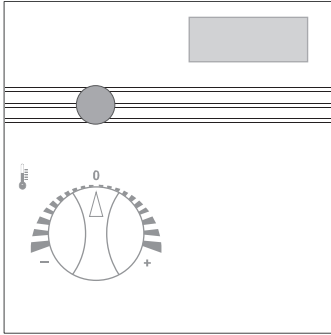


#### SR04 S with 2 fan stages (FS2, refer to options)



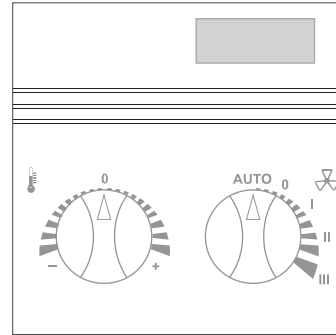
## SR04 x

SR04 PT

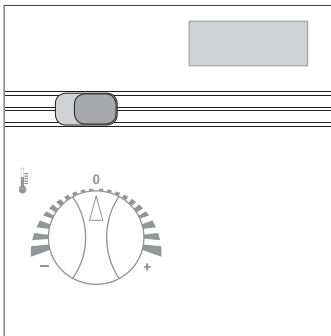


SR04 PS with 5 fan stages

FS5, also available with FS4, FS3 and FS2

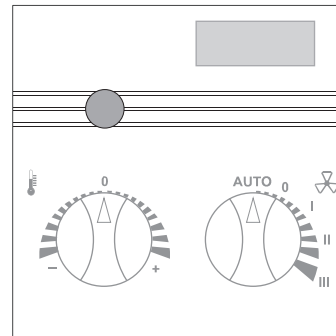


SR04 PMS

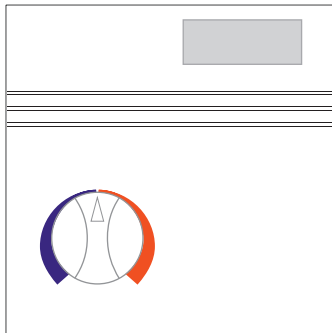


SR04 PST with 5 fan stages

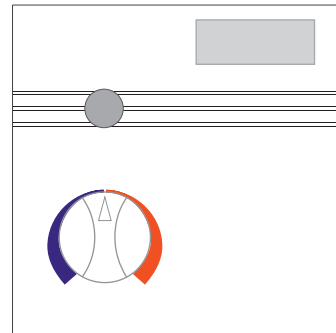
FS5, also available with FS4, FS3 and FS2



SR04 P standard labelling colour  
(refer to options)



SR04 PT standard labelling colour  
(refer to options)





## SR04 x

Item description: product | operating elements | fan stages

Radio room operating unit temperature		
Item description	Item no.	On stock
SR04	228848	⊕
SR04 P	226172	
SR04 T	229968	
SR04 PT	227353	⊕
SR04 PS, FS5	250900	
SR04 PMS	312219	
SR04 PST, FS5	226851	

Item description: product | operating elements | humidity (rH) | fan stages

Radio room operating unit temperature + humidity		
Item description	Item no.	On stock
SR04 rH	252317	⊕
SR04 P rH	252331	⊕
SR04 PT rH	261593	
SR04 PMS rH, FS5	361644	

Options	
Item description	
Rotary switch (S) with 4 fan stages (FS4)	
Rotary switch (S) with 3 fan stages (FS3)	
Rotary switch (S) with 2 fan stages (FS2)	
Default labelling colour red+blue	

Order example for different items:

**SR04 | PST | FS4 | standard labelling colour red-blue**

**SR04** = product  
**PST** = potentiometer, rotary switch, button  
**FS4** = rotary switch (S) with 4 fan stages  
**Labelling** = standard labelling colour red-blue

Accessories		
Item description	Item no.	On stock
Battery LS14250	315098	⊕



SR07 pure white,  
Gira E2 aluminium brilliant



## SR07



Room temperature sensor radio for room/space applications. Compatible with various design frames (55x55 mm) of different manufacturers.

### TECHNICAL DATA

Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,4 K (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K otherwise every 1000 sec.
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Arc, M-Plan, M-Pure
Enclosure	PC, pure white aluminium anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	the devices are supplied with an integrated battery backup

## SR07

Item description: product | switch range

Radio room sensor temperature	
Item description	Item no.
SR07 Gira E2 pure white brilliant	593847
SR07 Gira E2 aluminium	630481
SR07 Gira E2 anthracite	630498

Options
Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**SR07 | Gira Esprit**

**SR07** = product  
**Gira Esprit** = switch range

Accessories		
Item description	Item no.	On stock
Coin cell CR1632	597814	



SR04



## SR04

Room sensor for temperature detection in room/space applications.

### TECHNICAL DATA

Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,4 K (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K otherwise every 1000 sec.
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dark rooms for devices with operating elements please refer to product SR04 x

### Radio room sensor temperature

Item description	Item no.	On stock
SR04	228848	●

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●





LC-SR04



## LC-SR04



Radio room temperature sensor for illuminated rooms. For device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04.

### TECHNICAL DATA

Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,5 K (typ. at range +17..+27 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K otherwise every 1000 sec.
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	for device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04 SR04 rH

### Radio room sensor temperature

Item description	Item no.
LC-SR04	566698



SR65



## SR65



For temperature detection in outdoor areas, cold stores, greenhouses, production plants and warehouses. Self-powered EnOcean wireless technology. Configured via airConfig.

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20...+60 °C, configured via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=40 mm
Ambient condition	-25...+65 °C, max. 93% rH non-condensing
Notes	integrated battery backup possibility for usage in dark rooms to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio outdoor sensor temperature

Item description	Item no.	On stock
SR65	230001	●

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●



SR65 AKF



## SR65 AKF



Self powered wireless EnOcean duct sensor to measure the temperature in gaseous media of heating, ventilation and air-conditioning systems. Configured via airConfig.

### TECHNICAL DATA

Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	+10..+90 °C, configured via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=100 mm
Ambient condition	-25..+65 °C, max. 93% rH non-condensing
Notes	integrated battery backup possibility for usage in dark rooms other probe lengths on request to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

Item description: product | pocket (length.Ø)

### Radio duct/immersion sensor temperature

Item description	Item no.
SR65 AKF 100.06	630566

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	⊕
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	⊕
Mounting flange MF6 (brass)	3407	⊕
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	⊕

### Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm

Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	⊕

### Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm

Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	⊕



SR65 TF



## SR65 TF

Self-powered wireless EnOcean sensor to measure the temperature in gaseous media of heating, ventilation and air-conditioning systems. Configured via airConfig.

### TECHNICAL DATA

Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20...+60 °C, configured via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=50 mm
Ambient condition	-25...+65 °C, max. 93% rH non-condensing
Notes	integrated battery backup possibility for usage in dark rooms other probe lengths on request to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

Item description: product | pocket (length.Ø) | cable length (L)

### Radio cable sensor temperature

Item description	Item no.
SR65 TF 050.06 L1000	245647

### Options

#### Item description

Add per meter of connection cable silicone

Order example for different items:

**SR65 TF | 050.06 | L2000**

**SR65 TF** = product  
**050.06** = pocket (length.Ø)  
**L2000** = cable length (mm)



SR65 TF

Accessories		
Item description	Item no.	On stock
Battery LS14250	315098	☺
Mounting flange MF6 (brass)	3407	☺
KL6VA - Compression fittings G 1/4" for Ø=6 mm with cutting ring VA, stainless steel	103213	☺
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	☺

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	42 mm	611152	☺
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	☺
VA-thermowell pocket 150 mm type THVADS150	150 mm	142 mm	611824	☺
VA-thermowell pocket 200 mm type THVADS200	200 mm	192 mm	611848	☺

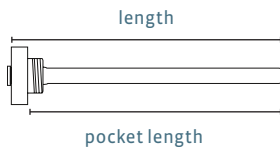
Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	42 mm	610995	☺
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	☺
MS-thermowell pocket 150 mm type THMSDS150	150 mm	142 mm	611015	☺
MS-thermowell pocket 200 mm type THMSDS200	200 mm	192 mm	611022	☺



thermowell pocket – THVADS



thermowell pocket – THMSDS





SR65 VFG



## SR65 VFG



Self-powered wireless EnOcean clamp on pipe temperature sensor. Configured via airConfig.

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	+10..+90 °C, configured via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Pocket	brass, spring loaded sensor
Ambient condition	-25..+65 °C, max. 93% rH non-condensing
Notes	integrated battery backup possibility for usage in dark rooms to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio contact sensors temperature

Item description	Item no.
SR65 VFG	239615

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	⊕
Tightening strap 2" with contact fluid	102254	⊕
Tightening strap 900 mm with contact fluid	102315	⊕
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	⊕



SR07 rH pure white,  
Gira E2 aluminium



## SR07 rH

Room sensor for humidity and temperature detection in room/space applications.  
Compatible with various frame designs 55x55 mm or 63x63 mm.

### TECHNICAL DATA

Measuring values	temperature, humidity
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH otherwise every 1000 sec.
Switch range Berker	S.1, B.3 aluminium, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Arc, M-Plan, M-Pure
Enclosure	PC, pure white aluminium anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	the devices are supplied with an integrated battery backup

## SR07 rH

Item description: product | switch range

## Radio room sensor temperature + humidity

Item description	Item no.
SR07 rH Gira E2 pure white brilliant	593182
SR07 rH Gira E2 anthracite	593199
SR07 rH Gira E2 aluminium	593205

## Options

Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**SR07 rH | Gira Esprit**

**SR07 rH** = product  
**Gira Esprit** = switch range Gira Esprit

## Accessories

Item description	Item no.	On stock
Coin cell CR1632	597814	●



SR04 rH



## SR04 rH

Room sensor for humidity and temperature detection in room/space applications.

### TECHNICAL DATA

Measuring values	temperature, humidity
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH otherwise every 1000 sec.
Set point (P)	potentiometer default value 10 kΩ (1 kΩ   5 kΩ optional, for other values please request) optional
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dark rooms for devices with operating elements please refer to product SR04 x

### Room sensor temperature + humidity

Item description	Item no.	On stock
SR04 rH	252317	●

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●





LC-SR04 rH



## LC-SR04 rH

Room sensor for humidity and temperature detection in illuminated room/space applications. For device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04 rH.

### TECHNICAL DATA

Measuring values	temperature, humidity
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at range +17..+27 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH otherwise every 1000 sec.
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	for device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04 SR04 rH

### Radio room sensor temperature + humidity

Item description	Item no.
LC-SR04 rH	555975



SR65 rH



## SR65 rH



Wireless sensor for detection of temperature and rel. humidity in outdoor areas, cold stores, greenhouses, production plants and warehouses. Self powered EnOcean wireless technology. Configured via airConfig.

### TECHNICAL DATA

Measuring values	temperature, humidity
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20...+60 °C, configured via airConfig
Measuring range humidity	0...100% rH non-condensing
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±5% between 30...70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Ambient condition	-20...+70 °C, max. 93% rH non-condensing
Notes	integrated battery backup possibility for usage in dark rooms to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio outdoor sensor temperature + humidity

Item description	Item no.
SR65 rH	540391

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	☺
Rawlplugs and screws (2 pcs. each)	102209	☺
Filter stainless steel, wire mesh (spare part)	231169	☺
Rain protection PA6, white	587709	☺
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	☺



## SR04 CO2

For detection of CO2 and temperature and humidity (optional) integrated in one unit.



SR04 CO2 rH LCD TLF



SR04 CO2 rH LCD / SR04 CO2 rH TLF



TECHNICAL DATA	
Measuring values	temperature, CO2, humidity (optional)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 1,5 W (24 V =)   3,6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Accuracy CO2	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Display	LCD 29x12 mm, monochrome (optional) 3 LEDs indicating air quality (traffic light function 'TLF') (optional)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm) screw mounted onto flat surface

Item description: product | LCD | TLF (traffic light function)

### Room sensor temperature + CO2

Item description	Item no.
SR04 CO2	442510
SR04 CO2 LCD	467131
SR04 CO2 TLF	436557
SR04 CO2 LCD TLF	630634

### Room sensor temperature + humidity + CO2

Item description	Item no.
SR04 CO2 rH	434768
SR04 CO2 rH LCD	462228
SR04 CO2 rH TLF	516143
SR04 CO2 rH LCD TLF	474757



SR-MDS



## SR-MDS

Ceiling multi sensor for light and motion detection using EnOcean radio technology.

### TECHNICAL DATA

Measuring values	light, motion
Radio technology	EnOcean (IEC 14543-3-10), STM
Frequency	868 MHz
Power supply	flex. 15..240 V =/~ BAT: 3x battery LS14250, 3,6 V
Power consumption	typ. 0,8 W (24 V =)   1,2 VA (24 V ~)
Measuring range light	0..510 Lux
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change of brightness >10 lux in case of detected motion every 1000 sec. at change of brightness <10 lux in case of no motion detected every 100 sec. at change of brightness <10 lux in case of detected motion every 10 sec. at change of brightness >10 lux in case of detected motion immediately at status change from no motion to motion or reverse
Detection range	Ø=5 m at a sensor height of approx. 2,5 m
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Notes	appropriate for constant light control

Item description: product | BAT (battery)

### Radio ceiling sensor light + motion

Item description	Item no.	On stock
SR-MDS	396486	●
SR-MDS BAT	396462	

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●
Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	



SR-MDS Solar



## SR-MDS Solar



The EnOcean self powered multi sensor detects light and motion. No battery or wiring necessary.

TECHNICAL DATA	
Measuring values	light, motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range light	0..510 Lux (standard) 0..1000 Lux (10 Bit) 0..1020 Lux configured via airConfig
Measuring intervall	occupancy (30, 60 sec., 10, 15 min.) light (10, 20, 30, 60 sec.) configured via airConfig
Transmission interval	occupancy (30, 60 sec., 10, 15 min.) light (10, 20, 30, 60 sec. when value changes) configured via airConfig
Detection range	Ø=5 m at a sensor height of approx. 2,8 m, 102° x 92°
Sensor	PIR (passive infrared)
Enclosure	PC, pure white
Protection	IP50 according to EN 60529
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	screw mounted onto flat surface
Notes	integrated battery backup possibility for usage in dark rooms to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio ceiling sensor light + motion

Item description	Item no.
SR-MDS Solar	591577

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●





SR-MOC Solar



## SR-MOC Solar

Solar ceiling sensor with battery backup (optional) for motion detection using EnOcean radio technology.

### TECHNICAL DATA

Measuring values	motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free Battery: Coin cell CR2032 (optional) terminal block for external power supply 3..5 V =
Measuring interval	heartbeat: 1 h
Transmission interval	Immediately at status change from no motion to motion or reverse. during occupancy: every 2 min. no occupancy: after 10 and 30 min.
Detection range	Ø=5 m at a sensor height of approx. 2,5 m
Sensor	PIR (passive infrared)
Enclosure	PC, white
Protection	IP50 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	surface mounting to be mounted flat onto the surface using adhesive foil (included) or screws

### Radio ceiling sensor motion

Item description	Item no.
SR-MOC Solar	566070

### Accessories

Item description	Item no.	On stock
Coin cell CR2032	347013	●
Rawlplugs and screws (2 pcs. each)	102209	●



SR-MOW Solar



## SR-MOW Solar

Wireless solar wall sensor with battery backup (optional) for motion detection using EnOcean radio technology.

TECHNICAL DATA	
Measuring values	motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free Battery: Coin cell CR2032 (optional) terminal block for external power supply 3..5 V =
Measuring interval	heartbeat: 1 h
Transmission interval	Immediately at status change from no motion to motion or reverse. during occupancy: every 2 min. no occupancy: after 10 and 30 min.
Detection range	Wide angle lens up to 15 m, field lens up to 30 m when mounted at height 2,10 m
Sensor	PIR (passive infrared)
Enclosure	PC, white
Protection	IP20 according to EN 60529
Ambient condition	-10..+40 °C
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws

### Radio wall sensor motion

Item description	Item no.
SR-MOW Solar	566094

### Accessories

Item description	Item no.	On stock
Coin cell CR2032	347013	⊕
Rawlplugs and screws (2 pcs. each)	102209	⊕



SR65 Li



## SR65 Li



Wireless light sensor for blind systems. Can also be used to control light at sunset. Configured via airConfig.

### TECHNICAL DATA

Measuring values	light
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range light	0..510 Lux 0..1000 Lux (10 Bit) 0..1020 Lux 0..30.000 Lux 0..60.000 Lux configured via airConfig
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Ambient condition	-20..+70 °C, max. 93% rH non-condensing
Notes	resolution: 8 bit or 10 bit to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio outdoor sensor light

Item description	Item no.
SR65 Li	598354

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	🟢
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	🟢



SR-MI



## SR-MI

Wireless module for evaluation of pulse signals for gas, water, electric and BTU meters with S0 interfaces.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external transmitting antenna with magnetic holding
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,2 W (24 V =)   0,4 VA (24 V ~)
Inputs	3x S0-interface
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting antenna 2,5 m with magnetic holding

### Wireless module

Item description	Item no.
SR-MI	471428

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



SR65-3AI



### SR65-3AI

The module has 3x 0..10 V inputs. The input values are transmitted wirelessly to an EasySens receiver. This allows standard analogue signals to simply integrate into a wireless EnOcean network.

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,2 W (24 V =)   0,4 VA (24 V ~)
Measuring interval	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup
Inputs	3x analog input, 0..10 V
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-25..+65 °C, max. 93% rH non-condensing

Wireless module	
Item description	Item no.
SR65-3AI	527071





SR65 DI



## SR65 DI



Wireless relay module for transmission of binary switching status.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap battery LS14250 (3,6 V)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Inputs	input for floating contact contact resistance max. 1000 Ω
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-25...+65 °C, max. 93% rH non-condensing
Delivery contents	1x battery LS14250
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Radio module

Item description	Item no.
SR65 DI	267731

### Accessories

Item description	Item no.	On stock
Battery LS14250	315098	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●



**SRG01**

Window handle for status monitoring of windows.



SRG01 aluminium pure white



SRG01 aluminium steel grey



SRG01 stainless steel

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting antenna
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	turning the window handle
Enclosure	aluminium pure white painted aluminium steel grey stainless steel
Ambient condition	0..+30 °C, max. 85% rH non-condensing
Notes	lockable (option) also available as sliding door handle (on request) sideways with position precision.

Item description: product | material | colour

Radio window handle	
Item description	Item no.
SRG01 aluminium pure white	362931
SRG01 aluminium steel grey	362948
SRG01 stainless steel	362955





SRW01



## SRW01

Window contact for status monitoring of windows and doors.



### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	solar cell, internal super cap, maintenance-free BAT: coin cell CR1220 (optional)
Transmission interval	at status change otherwise every 1000 sec.
Sensor	Reed contact
Enclosure	ABS, pure white
Protection	IP40 according to EN 60529
Ambient condition	-25...+65 °C, max. 70% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	special painting available on request

Item description: product | BAT (battery)

### Radio window contact

Item description	Item no.
SRW01	248051
SRW01 BAT	347044

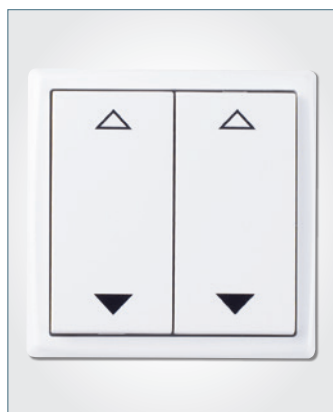
### Accessories

Item description	Item no.	On stock
Coin cell CR1220 (replacement for SRW01 BAT - net price)	347006	●



## Mini

Lighting and blind control. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel shutters, pure white



2-channel light, aluminium



2-channel shutters, anthracite

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Enclosure	dimensions: 61x61x15 mm incl. frame pure white brilliant aluminium anthracite
Ambient condition	-25...+65 °C, max. 95% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	prices including frame



## Mini

Item description: product | number of buttons | model light | colour

**Radio control 2-channel light**

Item description	Item no.
Mini 2-channel light pure white brilliant	430647
Mini 2-channel light aluminium varnished	430661
Mini 2-channel light anthracite	430623

**Radio control 4-channel light**

Item description	Item no.
Mini 4-channel light pure white brilliant	430838
Mini 4-channel light aluminium varnished	430852
Mini 4-channel light anthracite	430814

Item description: product | number of buttons | model shutters | colour

**Radio control 2-channel blind**

Item description	Item no.
Mini 2-channel blind pure white brilliant	430630
Mini 2-channel blind aluminium varnished	430654
Mini 2-channel blind anthracite	430302

**Radio control 4-channel blind**

Item description	Item no.
Mini 4-channel blind pure white brilliant	430821
Mini 4-channel blind aluminium varnished	430845
Mini 4-channel blind anthracite	430807





## 55x55

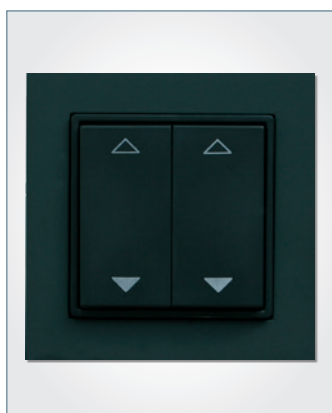
Light and blind control. The wireless technology enables a flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



2-channel shutters, Gira E2 pure white



4-channel light, Gira E2 aluminium



4-channel shutters, Gira E2 anthracite

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Ambient condition	-25...+65 °C, max. 95% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	when ordering other switch programmes, please specify colour prices incl. frame Gira E2



## 55x55

Item description: number of buttons | model light | switch range



## Radio control 2-channel light

Item description	Item no.
2-channel light Gira E2 pure white	302852
2-channel light Gira E2 pure white glossy	363051
2-channel light Gira E2 aluminium	302807
2-channel light Gira E2 anthracite	302814

## Radio control 4-channel light

Item description	Item no.
4-channel light Gira E2 pure white	302883
4-channel light Gira E2 pure white glossy	363068
4-channel light Gira E2 aluminium	302869
4-channel light Gira E2 anthracite	302876

Item description: number of buttons | model shutters | switch range



## Radio control 2-channel blind

Item description	Item no.
2-channel blind Gira E2 pure white	302845
2-channel blind Gira E2 pure white glossy	364577
2-channel blind Gira E2 aluminium	302821
2-channel blind Gira E2 anthracite	302838

## Radio control 4-channel blind

Item description	Item no.
4-channel blind Gira E2 pure white	302913
4-channel blind Gira E2 pure white glossy	364591
4-channel blind Gira E2 aluminium	302890
4-channel blind Gira E2 anthracite	302906

## Options

Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**4-channel | shutters | Peha Aura Glas****4-channel** = number of buttons**shutters** = model**Peha Aura Glas** = switch range Glas



## Busch-Jaeger

Lighting and blind control. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel shutters,  
future® linear studio white



4-channel light,  
future® linear aluminium silver



2-channel shutters,  
future® linear anthracite

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Enclosure	studio white ivory white aluminium silver
Ambient condition	-25...+65 °C, max. 95% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	prices including frame frame designs Solo, Future and Axcent at the same price, ask for Carat white (studio) and matt black available on request



Item description: number of buttons | model light | switch range | colour

## Busch-Jaeger



### Radio control 2-channel light

Item description	Item no.
2-channel light Busch-Jaeger future® linear studio white	342971
2-channel light Busch-Jaeger future® linear ivory white	342858
2-channel light Busch-Jaeger future® linear aluminium silver	338783
2-channel light Busch-Jaeger future® linear anthracite	324571

### Radio control 4-channel light

Item description	Item no.
4-channel light Busch-Jaeger future® linear studio white	342988
4-channel light Busch-Jaeger future® linear ivory white	365529
4-channel light Busch-Jaeger future® linear aluminium silver	327404
4-channel light Busch-Jaeger future® linear anthracite	324595

Item description: number of buttons | model shutters | switch range | colour



### Radio control 2-channel blind

Item description	Item no.
2-channel blind Busch-Jaeger future® linear studio white	469630
2-channel blind Busch-Jaeger future® linear ivory white	469661
2-channel blind Busch-Jaeger future® linear aluminium silver	469548
2-channel blind Busch-Jaeger future® linear anthracite	469593

### Radio control 4-channel blind

Item description	Item no.
4-channel blind Busch-Jaeger future® linear studio white	469647
4-channel blind Busch-Jaeger future® linear ivory white	469685
4-channel blind Busch-Jaeger future® linear aluminium silver	469586
4-channel blind Busch-Jaeger future® linear anthracite	469609

### Options

Item description
Switch ranges Busch-Jaeger solo®   Busch-axcent®

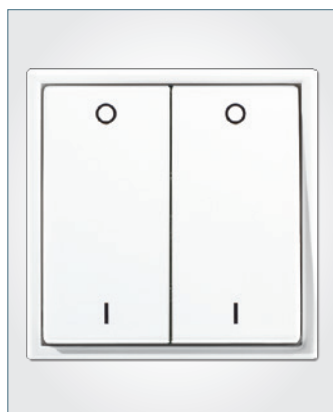
Order example for different items:

**4-channel | shutters | Busch-Jaeger solo®****4-channel** = number of buttons**shutters** = model**Busch-Jaeger solo®** = switch range Glas



## Jung

Lighting and blind control. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel light, LS990 alpin white



2-channel light, LS990 light grey



2-channel light, LS990 black

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Jung	LS 990
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds)
Enclosure	white alpin white light grey black
Ambient condition	-25...+65 °C, max. 95% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	prices incl. frame LS990 LS990 aluminium varnished and stainless steel varnished on request. Switch programme LS-design on request



## Jung

Item description: number of buttons | model light | switch range | colour

**Radio control 2-channel light**

Item description	Item no.
2-channel light Jung LS 990 white	435390
2-channel light Jung LS 990 alpin white	435376
2-channel light Jung LS 990 light grey	435413
2-channel light Jung LS 990 black	435437

**Radio control 4-channel light**

Item description	Item no.
4-channel light Jung LS 990 white	435475
4-channel light Jung LS 990 alpin white	435451
4-channel light Jung LS 990 light grey	435499
4-channel light Jung LS 990 black	435512

Item description: number of buttons | model shutters | switch range | colour

**Radio control 2-channel blind**

Item description	Item no.
2-channel blind Jung LS 990 white	435406
2-channel blind Jung LS 990 alpin white	435383
2-channel blind Jung LS 990 light grey	435420
2-channel blind Jung LS 990 black	435444

**Radio control 4-channel blind**

Item description	Item no.
4-channel blind Jung LS 990 white	435482
4-channel blind Jung LS 990 alpin white	435468
4-channel blind Jung LS 990 light grey	435505
4-channel blind Jung LS 990 black	435529





Hand-held



## Hand-held

The EasySens hand-held switch provides remote function for switch signals based on the self powered EnOcean technology.

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pushing the buttons
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	4-channel (4 buttons)
Labelling	A, B, C, D
Enclosure	black
Ambient condition	-25..+65 °C, max. 95% rH non-condensing,

### Hand-held switch

Item description	Item no.
Hand-held transmitter 4 channel	314602



SR-KCS



## SR-KCS

Wireless switch for key card activation for regulation of lighting and air-conditioning applications in room control. The self powered wireless technology enables a flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	at status change
Control functions	operating cycle quantity > 50.000
Enclosure	PC, pure white
Ambient condition	-25..+65 °C, max. 95% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws

### Wireless switch

Item description	Item no.
SR-KCS	573573

# EasySens® Receiver

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 is available using our wireless sensor system EasySens®.



## Sample applications

### Gateways

STC65-Modbus	Gateway RS485 Modbus	83
STC65-RS485 EVC	Gateway RS485	84
STC65-FTT LON	Gateway LON FTX	85
STC04-FTT LON	Gateway LON FTX	86
STC-BACnet IP	Gateway BACnet IP	87
SRC65-BACnet	Gateway BACnet MS/TP	88
STC-Ethernet	Gateway Ethernet	89
STC-KNX	Gateway EIB/KNX	90
STC-dS	Gateway digitalSTROM	91

### Actuator

STC-DO	Wireless receiver with digital outputs	92
SRC-DO Light	Wireless receiver light actuator	94
SRC-DO Blind	Wireless receiver blind actuator	95
SRC-AO Climate	Wireless receiver temperature actuator	96
SRC-AO Dim	Wireless receiver Dim actuator EVC	97
SRC-AO Multi	Multi functional actuator	98
STC-DO8	Wireless receiver, 8 digital outputs	99
STC-ADO	Analogue universal receiver, 4 relays	100
STC-MSG Server	Heating/cooling controller 16 SAB0x	101
STC-MSG Serv. UP	Flush mount heating controller 5 SAB0x	102
SAB05	Wireless valve actuator	103

## Repeater

SRE-Repeater	Repeater radio signals (Level 1/2)	107
SRE-Repeater UP	Flush mount repeater (Level 1/2)	108

## Tools

airScan	Software field strength measuring	109
airConfig	Remote commissioning software	110



## » BENEFITS

- » Communication without batteries or cables
- » Interoperable
- » Energy-efficient control of heating and lighting
- » High working and learning comfort through air conditioning and blind-control as required



1

## SR04 CO2

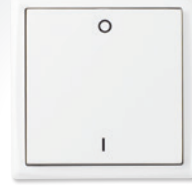
Room sensor CO2/temperature/  
rel. humidity  
Available with display and traffic  
light function



2

## SR04

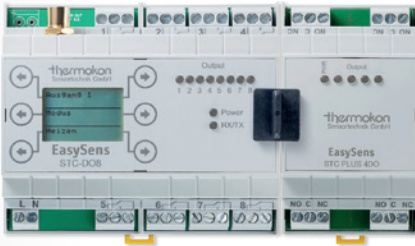
Surface-mounted wireless room  
sensor for temperature & rel. humidity  
Available with various control  
elements and features



3

## Mini

Wireless switch 2-/4-channel  
lighting/blinds  
Available in various colours



4

## STC-DO8 / STC-PLUS 4DO

Universal receiver with 8 digital outputs, with  
expansion module STC-PLUS 4DO for control of  
heating/cooling/ fan coils, for switching lights/  
blinds, signal contact and more.



5

## STC-DO / SRC-AO

Flush-mounted receiver (24 V or 230 V) with digital  
or analogue outputs for control of thermostats,  
humidistats, fans or temperature, for switching of  
lights or blinds, and more



## CONCENTRATION

All devices used communicate wirelessly via EnOcean technology. Temperature, set point, air quality, occupancy and switch signals for lighting and blinds, are transmitted via bidirectional receivers, STC-DO8/ STC-PLUS 4DO resp. STC-DO/ SRC-AO as standalone with local digital or analogue outputs or to superior communication protocols such as KNX, BACnet, LON or Modbus. This system allows a substantial increase in comfort along with optimum energy savings.





STC65-RS485 Modbus

## STC65-RS485 Modbus

SmartACK



Bidirectional gateway with interface RS485, Modbus protocol, IP42-enclosure. For evaluation of up to 32 EasySens® sensors or wireless switches. Transmission of field-programmed telegrams to 32 addresses. Incl. ext. transmitting/receiving antenna (2.5 m).

### TECHNICAL DATA

Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 928 MHz, 315 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	32 (Rx)
Transmit channels	32 (SAB) 32 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	typ. 0,6 W (24 V =)   1,5 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 70% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding software for configuration (freeware via download)
Notes	up to 15 SmartACKNOWLEDGE devices (SmartACK) magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean ↔ RS485 Modbus

Item description	Item no.	On stock
STC65-RS485 Modbus	385695	●

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



STC65-RS485 EVC

## STC65-RS485 EVC



Bidirectional gateway with serial interface RS485, bi-directional interface „Multiple Access“, IP42-enclosure. For connection of up to 32 EasySens® sensors or wireless switches to different controllers with RS485 interface. Transmission of field-programmed telegrams to 127 addresses. Incl. ext. transmitting/receiving antenna (2,5 m).

TECHNICAL DATA	
Network technology	RS485 EVC
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	filter mode: 64 (Rx) Gateway mode: ∞ (Rx)
Transmit channels	filter mode: 128 (Tx) Gateway mode: 128 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	typ. 0,8 W (24 V =)   2 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 70% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding software for configuration (freeware via download)
Notes	up to 15 SmartACKNOWLEDGE devices (SmartACK) magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean ↔ RS485 EVC

Item description	Item no.	On stock
STC65-RS485 EVC	393898	●

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●





STC65-FTT LON



## STC65-FTT LON

SmartACK



Bidirectional gateway for EnOcean-based Sensors and actuators as well as controllers and control systems with LON interface. The STC65-FTT enables the receipt and transmission of radio telegrams corresponding to the EnOcean communication protocol. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON system.

### TECHNICAL DATA

Network technology	LON FT (free topology)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	11 (Rx)
Transmit channels	11 (Tx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,5 W (24 V =)   0,82 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. $\varnothing=8$ mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 70% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding incl. plug-in for turbo LONmaker
Notes	up to 15 SmartACKNOWLEDGE devices (SmartACK) magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean ↔ FTT LON

Item description	Item no.	On stock
STC65-FTT LON SmartACK	616638	●
STC65-FTT LON	393904	●

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



STC04-FTT LON



## STC04-FTT LON



Bidirectional gateway for EnOcean-based sensors and actuators as well as controllers and control systems with LON interface. The STC04-FTT enables the receipt and transmission of radio telegrams corresponding to the EnOcean communication protocol. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON system.

### TECHNICAL DATA

Network technology	LON FT (free topology)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	external
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	11 (Rx)
Transmit channels	11 (Tx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,5 W (24 V =)   0,82 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)
Delivery contents	incl. plug-in for turbo LONmaker

### Gateway – EnOcean ↔ FTT LON

Item description	Item no.
STC04-FTT LON SmartACK	616645
STC04-FTT LON	415118



STC-BACnet IP



## STC-BACnet IP



Bidirectional gateway for EnOcean-based sensors and actuators as well as controllers and control systems with BACnet IP interface inclusive external receiving antenna (2,5 m), prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715. To be configured via EasySens airConfig software tool. Details of the communication protocol are available in the software documentation.

### TECHNICAL DATA

Network technology	BACnet IP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, airConfig ready
Receive channels	no limit
Transmit channels	128 (Tx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 3 W (24 V =)   5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding software for configuration (freeware via download)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz) magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean ↔ BACnet IP

Item description	Item no.
STC-BACnet IP	593632

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●



SRC65-BACnet MS/TP



## SRC65-BACnet MS/TP



EnOcean to BACnet MSTP gateway/receiver for radio sensors and switches communicating on EnOcean radio technology and controllers with BACnet MS/TP interface. Protocol details are available in the software documentation.

TECHNICAL DATA	
Network technology	BACnet MS/TP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external receiving antenna with magnetic holding
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 1 W (24 V =)   1,3 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. $\varnothing=8$ mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Delivery contents	incl. external receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean → BACnet MS/TP

Item description	Item no.
SRC65-BACnet MS/TP	396431

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	⊕
Antenna extension 20 m	257213	⊕
Magnetic antenna holder form L, 180x180 mm (net price)	255097	⊕



STC-Ethernet



## STC-Ethernet

Bidirectional gateway with IP/Ethernet interface. Bi-directional gateway for evaluation of up to 30 EasySens sensors or wireless switches. Incl. external transmitting/receiving antenna (2,5 m).

TECHNICAL DATA	
Network technology	Ethernet, data port: RJ45
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	filter mode: 30 (Rx) Gateway mode: ∞ (Rx)
Transmit channels	filter mode: 128 (Tx) Gateway mode: 128 (Tx)
Power supply	80..240 V ~ 15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 5 VA (..240 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external receiving antenna 2,5 m with magnetic holding software for configuration (freeware via download)
Notes	magnetic antenna plate recommended to improve radio coverage

### Gateway – EnOcean ↔ Ethernet

Item description	Item no.	On stock
STC-Ethernet 80..240 V	403191	●
STC-Ethernet 24 V	550109	●

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



STC-KNX



## STC-KNX



Bidirectional gateway for connection of up to 32 EasySens sensors or wireless switches to the EIB/KNX-Bus. The device offers additional control functions, which can be set to: switch and dim, blind UP/DOWN, presence button/switch, set point adjustment, stage switch, humidity sensor, window contact/handle, binary input, light sensor, motion sensor

TECHNICAL DATA	
Network technology	KNX (TP)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Data transmission	bidirectional
Receive channels	32 (Rx)
Transmit channels	32 (Tx)
Power supply	supply via BUS
Power consumption	max. 12 mA
Display	graphic display monochrome (internal)
Enclosure	PC, white
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-5..+45 °C, max. 95% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)
Delivery contents	software for configuration (freeware via download)

### Gateway – EnOcean ↔ KNX

Item description	Item no.
STC-KNX	535076





STC-dS

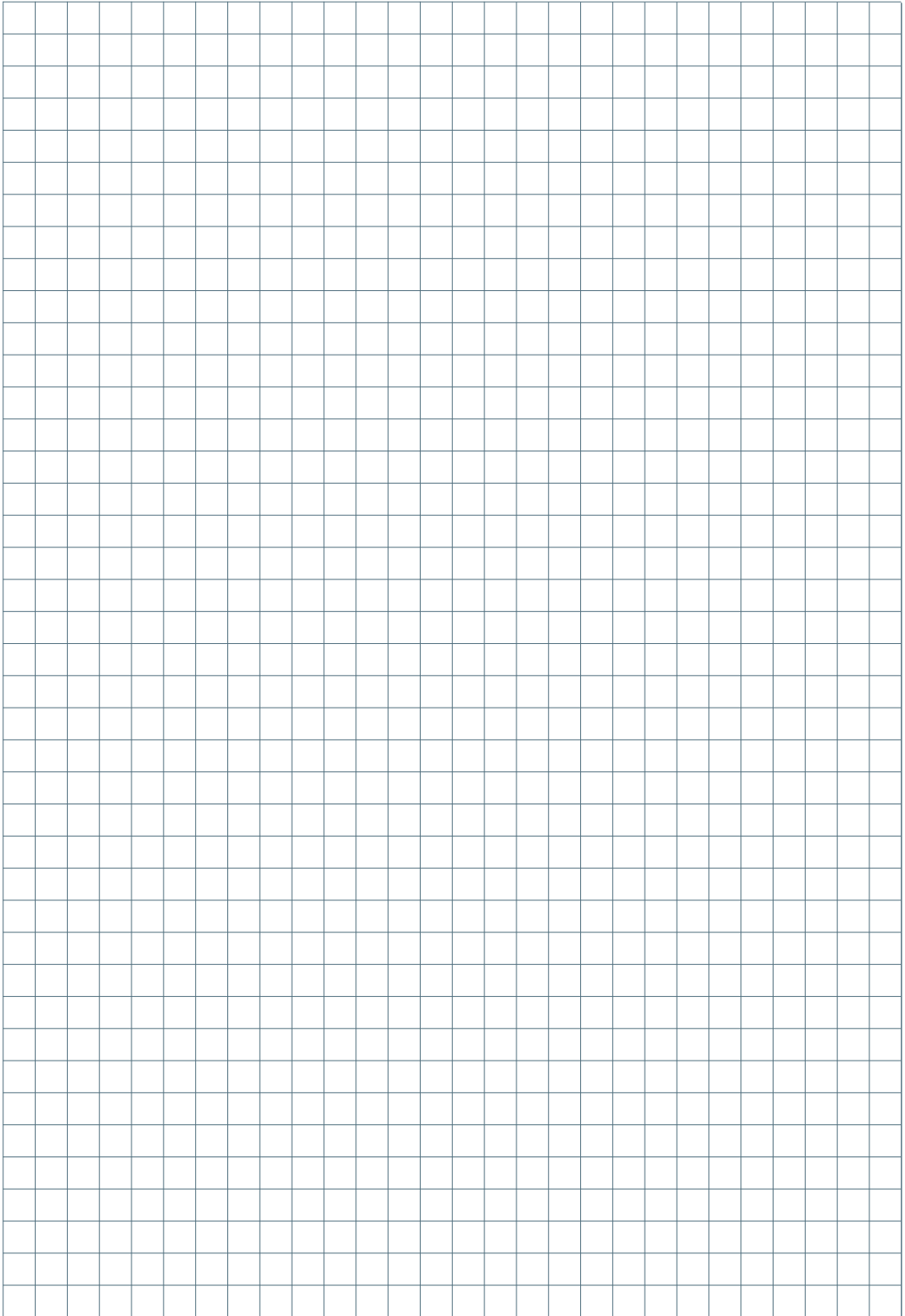


STC-dS

Bidirectional gateway to extend a digitalSTROM system with EasySens devices like sensors, units for controlling indoor climate, valve actuators, radio switches, wireless window contacts and window handles. The devices are integrated seamlessly and for the user they are used as easily as standard digitalSTROM components. The connection is made via ethernet network connection.

TECHNICAL DATA	
Network technology	digitalSTROM (dS)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Enclosure	PC, ABS, white
Protection	IP20 according to EN 60529
Ambient condition	0..+50 °C, max. 75% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean ↔ digitalSTROM	
Item description	Item no.
STC-dS	637442





STC-DO 24 V



### STC-DO



Receiver with digital outputs. Various types for Heating (PWM), Heating ON/OFF, signal contact, humidistat control, heating/cooling (PWM) or fan stage control. Flush mounted.

TECHNICAL DATA	
Output switch contact	changeover contact, non-floating 24 V: load max. 1 A 240 V: load max. 10 A
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	24 V: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) 240 V: 100..240 V ~
Power consumption	24 V: typ. 1,5 W (24 V =)   3,4 VA (24 V ~) 240 V: typ. 9,8 VA
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

#### Wireless receiver – multifunctional actor

Item description	Item no.
STC-DO airConfig 24 V	593731
STC-DO airConfig 80..240 V	593748

#### Accessories

Item description	Item no.	On stock
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	📦



STC-DO Light



## STC-DO Light

Flush mounted receiver module for EnOcean switch telegrams. For switch control of Lighting applications.

TECHNICAL DATA	
Output switch contact	max. 10 A (230 V)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional
Power supply	100..240 V ~
Power consumption	standby <0,5 W
Functions	lighting, fan control, switch actuator, staircase light
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

Wireless receiver – switch actuator light	
Item description	Item no.
STC-DO Light 230 V	568371



STC-DO Blind



### STC-DO Blind

Flush mounted receiver module for EnOcean switch telegrams. For switch control of blinds.

TECHNICAL DATA	
Output switch contact	max. 1 A (230 V)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional
Power supply	100..240 V ~
Power consumption	standby <0,5 W
Functions	slat changing, blinds/shutter, switch actuator
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

#### Wireless receiver – switch actuator blind

Item description	Item no.
STC-DO Blind 230 V	568364



SRC-AO Climate



## SRC-AO Climate

Unidirectional flush mounted thermostat temperature control for room applications.

### TECHNICAL DATA

Output voltage	V: 1x 0..10 V
	VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 1 W (24 V =)   1,5 VA (24 V ~)
Functions	V: heating or cooling
	VV: heating and cooling continuously 0..10 V
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

### Wireless receiver – climate actuator 0..10 V

Item description	Item no.
SRC-AO Climate V	508278
SRC-AO Climate VV	508285





SRC-AO Dim



### SRC-AO Dim

Unidirectional flush mounted device for control of one 0..10 V dim actuator / driver connection of up to 32 wireless switches.

TECHNICAL DATA	
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 1 W (24 V =)   1,5 VA (24 V ~)
Functions	V: 1-fold dim actuator lighting VV: 2-fold dim actuator lighting
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Mounting	flush mounted in standard EU box ( $\varnothing=55$ mm)

#### Wireless receiver – dimming 0..10 V

Item description	Item no.
SRC-AO Dim V	499606
SRC-AO Dim VV	502931



SRC-AO Multi



## SRC-AO Multi

Multi functional actuator with 0..10 V output of different values/enOcean sensors e.g. temperature, humidity, setpoint).

TECHNICAL DATA	
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 1 W (24 V =)   1,5 VA (24 V ~)
Functions	multi actuator: output of various values (e.g. temperature, set-point, humidity, actuating variable, dimming value)
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

Wireless receiver – multi 0..10 V	
Item description	Item no.
SRC-AO Multi V	508315
SRC-AO Multi VV	508322



STC-D08



STC-D08 with extension module  
STC-PLUS 4DO

## STC-D08

Bidirectional receiver with 8 digital outputs (or 12 with extension module STC-Plus 4DO). For heating/cooling control, fan coil control, control of lights and blinds etc. Incl. ext. antenna (2,5 m).

### TECHNICAL DATA

Output switch contact	8x relay with change-over contact (volt free contact), 230 V ~ / 6 A, 24 V ~ / 6 A 12x relay with additional module STC-PLUS 4DO
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Power supply	100..240 V ~ 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 2,0 W (24 V =)   3,5 VA (24 V ~)
Functions	lighting, blinds/shutter, heating/cooling (PI), fancoil controller, heating ON/OFF, heating with PWM output, heating/cooling with PWM output, signalling contact, hygrostat controller, fan release
Display	graphic display monochrome
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+60 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage



## STC-D08

## Wireless receiver – multi relay 100..240 V

Item description	Item no.
STC-D08 100..240 V type heating/cooling	490030
STC-D08 100..240 V type fancoil, heating/cooling	490047
STC-D08 100..240 V type switch actuator	490054

## Wireless receiver – multi relay 24 V

Item description	Item no.
STC-D08 24 V type heating/cooling	564458
STC-D08 24 V type fancoil, heating/cooling	631495
STC-D08 24 V type switch actuator	561273

## Extension module

Item description	Item no.
STC-PLUS 4DO	517690

## Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



SRC-ADO



## SRC-ADO

Universal receiver with 4 analogue outputs 0..10 V and up to 4 floating relay outputs. For connection of EasySens sensors, switches, window contacts or window handles. The device can be individually configured (according to type) to be used as fancoil controller with changeover function, PI controller for heating/cooling, electrical actuation 1..10 V for dimmer or standardised interface for EnOcean sensors and analogue or digital outputs.

### TECHNICAL DATA

Output voltage	4x 0..10 V
Output switch contact	2DA: 2x changeover contact, floating 4DA: 4x changeover contact, floating
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	unidirectional
Power supply	100..240 V ~ 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 3,5 W (24 V =)   6,5 VA (24 V ~) max. 5 VA (..240 V ~)
Functions	lighting, blinds/shutter, heating/cooling (PI), fancoil controller, heating ON/OFF, heating with PWM output, heating/cooling with PWM output, signalling contact, hygrostat controller, fan release
Switching values	8 A resistive load (24 V =/~   230 V ~), 2 A inductive load (230 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+60 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

## SRC-ADO

## Wireless receiver – multi 0..10 V | relay 2DA 80..240 V

Item description	Item no.
SRC-ADO 4AA/2DA 80..240 V type dimming/heating/cooling	267502
SRC-ADO 4AA/2DA 80..240 V type fancoil, change-over	423236

## Wireless receiver – multi 0..10 V | relay 4DA 80..240 V

Item description	Item no.
SRC-ADO 4AA/4DA 80..240 V type dim/heating/cooling	273275
SRC-ADO 4AA/4DA 80..240 V type fancoil, change-over	423243

## Wireless receiver – multi 0..10 V | relay 2DA 24 V

Item description	Item no.
SRC-ADO 4AA/2DA 24 V type dimming/heating/cooling	420105
SRC-ADO 4AA/2DA 24 V type fancoil, change-over	494816

## Wireless receiver – multi 0..10 V | relay 4DA 24 V

Item description	Item no.
SRC-ADO 4AA/4DA 24 V type dimming/heating/cooling	455428
SRC-ADO 4AA/4DA 24 V type fancoil, change-over	502955

## Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●



STC-MSG Server



## STC-MSG Server

The STC-MSG Server is a wireless controlled heating/cooling circuit controller and designed for evaluation of wireless room sensors with control of up to 8 / 16 SAB0x EnOcean actuators. For efficient energy saving a time switch is integrated. Furthermore, it is possible to make use of the function „energy stop“ by seamlessly connecting a wireless window contact SRW01 and wireless window handle SRG01, i.e. if the window is opened, the SAB0x closes the valves. Parameterisation of the individual functions is made via an easy to handle configuration menu.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	8/16 (Rx)
Transmit channels	8/16 (Tx)
Power supply	100..240 V ~
Power consumption	typ. 3,5 VA
Display	graphic display monochrome
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 75% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

### Heating/cooling circuit controller

Item description	Item no.
STC-MSG server 8 channel	501590
STC-MSG server 16 channel	507080

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●





STC-MSG Server UP



## STC-MSG Server UP



Wirelessly controlled heating regulator for control of up to 5 SAB0x valve actuators within one room in connection with wireless room sensors. Furthermore, it is feasible to make use of the function „energy stop“ by seamlessly connecting window contacts SRW01 and handles SRG01 to the SAB05, resulting in an automated closing of the valves, if a window is open. STC-MSG Server UP can learn in the following sensors: 5 EnOcean valve actuators (SAB05), 1 room operating sensor type SR04 x, SR06 x or SR07 x, 10 digital input modules SR65DI, EnOcean switches, motion sensors (e.g. SR-MDS, SR-MOW), 20 window contacts SRW01 or window handles SRG01.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	100..240 V ~
Power consumption	max. 2 VA (100..240 V ~)
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Heating/cooling circuit controller

Item description	Item no.
STC-MSG server UP	550048

### Accessories

Item description	Item no.	On stock
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	📦



SAB05



SAB05



## SAB05



Wireless valve actuator for bi directional EnOcean communication. The SAB05 combines with message server and enocean transmitter.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	3 batteries (type AA)
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,5 °C (typ. at 25 °C)
Measuring intervall	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Transmission interval	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Functions	radio interface, actuator operation, self-control mode, automatic closing point control, frost protection function
Display	status-LED, multi-colored
Enclosure	PC, pure white
Protection	IP40 according to EN 60529
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	screw mounted, M30 x 1,5 optional adapters available
Delivery contents	incl. 3 batteries (type AA)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz) with integrated, digital temperature transmitter Regulation distance: max. 3 mm (automatic adaption by initialisation) Regulation time: 10 s/mm, pulling load: 100 N nominal

### Valve actuator

Item description	Item no.	On stock
SAB05	513753	●

### Accessories

Item description	Item no.	On stock
Vandal protection for SAB05	595605	●
Battery protection for SAB05	595612	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●



SRE-Repeater



## SRE-Repeater



The repeater amplifies EnOcean radio signals between sensors and receivers. Typical usage is when sensors are installed out of range or for solving problems in already existing wireless networks. Level 1, Level 2 and Smart Repeating (role-based filters) can be configured via airConfig.

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz, 315 MHz
Antenna	internal transmitting/receiving antenna external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, airConfig ready
Power supply	flex. 15..240 V =/~
Power consumption	typ. 1 VA (15..240 V =/~)
Functions	level-1, level-2, smart-operation rule based, max. 10 rules configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 70% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding (only version with external antenna)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz) magnetic antenna plate recommended to improve radio coverage

### Wireless repeater

Item description	Item no.
SRE-Repeater MultiLevel internal ant.	593809
SRE-Repeater MultiLevel external ant.	593830

### Accessories

Item description	Item no.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Magnetic antenna holder form L, 180x180 mm (net price)	255097	●
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●



SRE-Repeater UP



## SRE-Repeater UP



The flush mounted repeater amplifies EnOcean radio signals between sensors and receivers. Typical usage is when sensors are placed out of range or for solving problems in already existing wireless networks. Level 1, Level 2 and Smart Repeating (role-based filters) can be configured via airConfig.

### TECHNICAL DATA

Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	100..240 V ~
Power consumption	max. 2 VA
Functions	level-1, level-2, smart-operation, rule based, max. 10 rules configured via airConfig
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 75% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

### Wireless repeater

Item description	Item no.
SRE-Repeater UP MultiLevel internal ant.	556736

### Accessories

Item description	Item no.	On stock
airConfig (freeware, via download)		
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	☺



airScan



## airScan

Thermokon airScan consists of an USB transmitter/receiver with windows software to turn a windows personal computer to a field strength measuring tool. Measuring frequency ranges the tool is used to define best routing places for EnOcean transmitter and receiver. airScan gives a quick overview of EnOcean telegrams, reading status, ID, field strength and manufacturer for EnOcean products.

An optional USB extension for optimal positioning of the transmitter/receiver, even at the ceiling is available.

### TECHNICAL DATA

System requirements	the software is available for all Windows- and Apple OS X based computers, min. Windows XP, Adobe Flash, min. USB 2.0
Radio technology	EnOcean (IEC 14543-3-10)
Delivery contents	1x USB-Stick software for configuration (freeware via download)
Notes	USB extension (3 m) for optimal positioning of the transmitter/receiver is available (refer to accessories)

### airScan (EnOcean usb transceiver + licence)

Item description	Item no.
airScan (net price)	566704

### Accessories

Item description	Item no.	On stock
USB extension 3 m (net price)	574044	●



airConfig



## airConfig

airConfig enables remote commissioning of EasySens® based products. Remote commissioning is defined as parameterization without direct interaction with the device. airConfig uses the EnOcean based radio technology to parameterize the devices by means of special remote commissioning commands. To use remote commissioning an EnOcean usb transceiver and the free airConfig software are necessary.

TECHNICAL DATA	
System requirements	the software is available for all Windows- and Apple OS X based computers. It also runs on the Microsoft surface tablet. An EnOcean based USB stick allows the communication to the devices and your network.
Radio technology	EnOcean (IEC 14543-3-10)
Notes	to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz)

airConfig	
Item description	Item no.
airConfig (free of charge)	

Accessories		
Item description	Item no.	On stock
EnOcean usb transceiver for airConfig/airScan (incl. licence - net price)	566704	●

# Room Operating Units

Our room operating units are used for temperature detection and integrated operation of HVAC, lighting and blinds for single room control. A variety of sophisticated and high-end designs and optional features are available.



## Sample applications 113

### Premium Design

thanos	High-end room operating unit	116
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### Thermostats / Fancoil

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LCT	Room thermostat heating	150





## » BENEFITS

- » Compatible with multiple BUS systems
- » Various control elements to cover a wide range of applications
- » Flexible design options with various colours and design frames
- » Custom labels/engravings


1



**Thanos L**

Touch screen room operating unit,  
available with wireless EnOcean,  
BUS and EnOcean + BUS only

2



**WRF06 LCD**

Flush-mounted room operating unit  
for flexible room control, compatible  
to various design frames of numerous  
manufacturers



## PERFECT WORKING CONDITIONS

The multifunctional room operating units combine high-end design along with sophisticated technology: Integrated sensors for temperature and humidity, switching signals for lighting and blinds, touch-sensitive surfaces in custom design variations. Communications through standard network technologies: Create the perfect working environment.





## » BENEFITS

- » Compatible with multiple BUS systems
- » Various control elements to cover a wide range of applications
- » Flexible design options with various colours and design frames
- » Custom labels/engravings



**WRF08**

Multifunctional room operating unit  
used for operation of HVAC,  
control of lighting and blinds,  
available in various colours and numerous design frames



1



**WRF07**

Flush-mounted room operating unit,  
compatible with various switch designs  
from many manufacturers,  
numerous control elements and  
custom labels are available.

2



## HIGH LEVEL COMMUNICATION

The multifunctional room operating units combine high grade design along with sophisticated technology: Integrated sensors for temperature and humidity, switching signals for lighting and blinds, touch-sensitive surfaces in custom design variations. Communications via standard network technology: Create the perfect working environment.



## thanos

Using exclusive materials, the thanos touch screen room operating unit has integrated temperature and optional humidity sensors for operation of HVAC, lighting and blind control. Integrated quality optics, the thanos is ideal for high end design applications. Configurable touch buttons allow for a flexibility in terms of individual room controls.



thanos S black



thanos L white



thanos LQ white

### TECHNICAL DATA

Measuring values	temperature, humidity (optional)
Network technology	KNX (TP) LON FT (free topology) RS485 Modbus digitalSTROM (dS)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) dS: 230 V ~ ( $\pm 10\%$ )
Power consumption	typ. 2,0 W (24 V =)   4,0 VA (24 V ~) dS: typ. 4,0 VA (230 V ~)
Measuring range temp.	0..+50 °C, dS: 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	$\pm 0,5$ K (typ. at 21 °C)
Accuracy humidity	$\pm 3\%$ (between 20..80% rH (typ. at 21 °C))
Inputs	digital, 4x individual configuration for window contact, dew point guard, key card switch, room frequency, alarm, event
Control functions	occupancy signalling, light ON/OFF/DIM setup scenarios, blinds UP/DOWN/SET fan stages, setpoint dS: light, shadow, climate, audio, video, come and go, app button
Clip	anodized aluminium
No. of buttons	type L/LQ 8 capacitive touch sensor buttons
Labelling	type L/LQ flexible insert (for up to 8 touch buttons below/beside clip)
Display	TFT 3,5", 320x640 px, capacitive touch technology showing room temperature, setpoint, operation mode, fan stage, occupancy, alarm, date and time, ... ECO note (several steps, red to green; not available for LON and KNX) graphic and photo: Instead of date and time individual colour graphics (175x50 or 320x240 pixel) can be shown (e.g. company logo or hotel name; not available for LON and KNX) dS: showing room temperature, setpoint, operation mode, fan stage, occupancy
Colour	white or black
Enclosure	PC and glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing dS: 0..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box ( $\varnothing=55$ mm)
Notes	you'll find the software description at <a href="http://www.thermokon.com">www.thermokon.com</a>



## Highlights

(for type RS485 Modbus)

### New functions / button configuration

Scene buttons / scene channels (o.g), operating mode (heating, cooling, dehumidifying, off), along with the previous universal on/off, there is now a new universal +/-.

### Graphics / images

Customer specific graphics can be illustrated in the upper display area (e.g. company logo or hotel name).

for thanos with radio please refer to 'EasySens – Transmitter'

### ECO display

Several stages from red to green

thanos

Item description: product | model | colour | BUS



Touch screen room operating unit temperature – KNX	
Item description	Item no.
thanos L black KNX	472067
thanos L white KNX	472050
thanos LQ black KNX	472081
thanos LQ white KNX	472074
thanos S black KNX	472104
thanos S white KNX	472098



Touch screen room operating unit temperature – LON	
Item description	Item no.
thanos L black LON	471749
thanos L white LON	471725
thanos LQ black LON	471763
thanos LQ white LON	471756
thanos S black LON	471787
thanos S white LON	471770



Touch screen room operating unit temperature – RS485 Modbus	
Item description	Item no.
thanos L black RS485 Modbus	472302
thanos L white RS485 Modbus	472296
thanos LQ black RS485 Modbus	472326
thanos LQ white RS485 Modbus	472319
thanos S black RS485 Modbus	472340
thanos S white RS485 Modbus	472333

## thanos

Item description: product | model | colour | BUS



### Touch screen room operating unit temperature + humidity – KNX

Item description	Item no.
thanos rH L black KNX	472111
thanos rH L white KNX	448550
thanos rH LQ black KNX	472135
thanos rH LQ white KNX	472128
thanos rH S black KNX	472159
thanos rH S white KNX	472142



### Touch screen room operating unit temperature + humidity – LON

Item description	Item no.
thanos rH L black LON	471800
thanos rH L white LON	471794
thanos rH LQ black LON	471824
thanos rH LQ white LON	471817
thanos rH S black LON	471848
thanos rH S white LON	471831



### Touch screen room operating unit temperature + humidity – RS485 Modbus

Item description	Item no.
thanos rH L black RS485 Modbus	472364
thanos rH L white RS485 Modbus	472357
thanos rH LQ black RS485 Modbus	472388
thanos rH LQ white RS485 Modbus	472371
thanos rH S black RS485 Modbus	472401
thanos rH S white RS485 Modbus	472395



### Touch screen room operating unit temperature + humidity – digitalSTROM

Item description	Item no.
thanos rH S black dS	613446
thanos rH S white dS	613439

### Accessories

Item description	Item no.	On stock
Software/Plug-In for configuration (free)		



## thanos

### Design examples



thanos L black



thanos L white



thanos L white RS485 Modbus



thanos rH S white dS



WRF08 12T pure white,  
without frame



WRF08 12T pure white,  
frame fluted glass



WRF08 8T aluminium,  
frame Midnight

## WRF08

WRF08 Room operating unit for temperature measurement and operation of HVAC, Lighting and blind control. High quality materials and design available with various glass, stone, or stainless steel designed frames for high end applications. Configurable buttons allow for flexibility in individual room control applications. The universal WRF08 is available in LON, Modbus and BACnet communications thus allowing programmable control.

### TECHNICAL DATA

Measuring values	temperature
Network technology	BACnet MS/TP LON FT (free topology) RS485 Modbus
Power supply	BACnet   LON: 15..24 V = ( $\pm 10\%$ ) oder 24 V ~ ( $\pm 10\%$ ) RS485 Modbus: 15..24 V = ( $\pm 10\%$ )
Power consumption	typ. 1,5 W (24 V =)   2,9 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	$\pm 0,5$ K (typ. at 21 °C)
Design	glass grooved. satin stainless steel Midnight (Corian) Dusk (Corian)
Control functions	various switching functions, e.g.: light ON/OFF/DIM blinds UP/DOWN/SET fan stages setpoint
No. of buttons	2, 4, 8, 12
Labelling	Button labelling: individually with printable inlay transparency
Display	LCD 39x51 mm, monochrome
Enclosure	ABS, pure white, aluminium, anthracite
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box ( $\varnothing=55$ mm)
Delivery contents	software for configuration (freeware via download)



WRF08

Item description: product | no. of buttons | BUS | enclosure colour



Room operating unit temperature – BACnet	
Item description	Item no.
WRF08 2T BACnet pure white	500029
WRF08 4T BACnet pure white	485289
WRF08 8T BACnet pure white	437837
WRF08 12T BACnet pure white	476539



Room operating unit temperature – LON	
Item description	Item no.
WRF08 2T LON pure white	270472
WRF08 4T LON pure white	265485
WRF08 8T LON pure white	266291
WRF08 12T LON pure white	266512



Room operating unit temperature – RS485 Modbus	
Item description	Item no.
WRF08 2T RS485 Modbus pure white	350457
WRF08 4T RS485 Modbus pure white	340465
WRF08 8T RS485 Modbus pure white	340106
WRF08 12T RS485 Modbus pure white	330947

Options	
Item description	
Software for configuration (freeware)	
Enclosure colour anthracite   aluminium	
Design frame - fluted glass	
Design frame - satin stainless steel	
Design frame - Midnight	
Design frame - dusk	

Design examples



WRF08 8T anthracite,  
frame Dusk



WRF08 12T anthracite,  
polished stainless steel



WRF08 2T pure white,  
without frame



WRF06 LCD I type1 pure white,  
frame Gira E2 pure white



WRF06 LCD I type1 anthracite,  
frame Peha Aura Glas



WRF06 LCD LON I type2 pure white,  
frame Gira Esprit Alu

## WRF06 LCD

Room and space temperature measurement with set point adjustment, fan speed, LCD display and manual override. Integrated heating/cooling controller and digital inputs for window contacts, dew point detection and analogue, relay or triac outputs for control valves. Available as a standalone or LON or Modbus communications. Fits into switch frames 55x55 mm.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	VV: 2x 0..10 V
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	VV   RS485 Modbus: typ. 0,8 W (24 V ~)   2,5 VA (24 V ~) LON: typ. 1,3 W (24 V ~)   1,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Functions	VV: 2 inputs, 2 outputs 0..10 V heating/cooling AO2V: 2 inputs, 2 outputs 0..10 V DI4: 4 inputs (digital) DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
No. of buttons	4
Display	LCD 34x21 mm, monochrome
Enclosure	PC, pure white, aluminium, anthracite
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm) DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=55 mm) and double frame (1 deep flush-mounting box Ø=55 mm may be used)
Delivery contents	software for configuration (freeware via download)
Notes	please specify frame design when ordering please indicate labelling type in order VV: only available with labelling type 1 and 3 BUS: only available with labelling type 1 and 2



LONMARK®



Modbus

WRF06 LCD

Labelling types

labelling type 1 (ltype1)  
standard



labelling type 2 (ltype2)  
only types with BUS (refer to options)



labelling type 3 (ltype3)  
only type VV (refer to options)



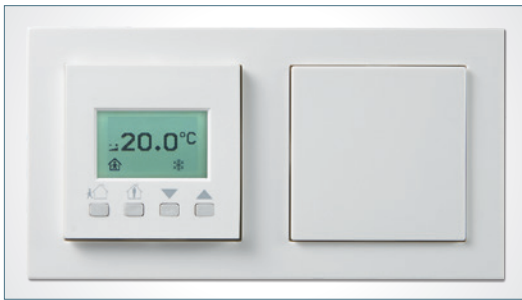
Item description: product | VV | labelling type | switch range

Room operating unit temperature – active 0..10 V					
Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF06 LCD VV ltype1 Gira E2 pure white	2	2	-	-	362979

Item description: product | inputs/outputs | BUS | labelling type | switch range



Room operating unit temperature – LON					
Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF06 LCD AO2V LON ltype1 Gira E2 pure white	2	2	-	-	363495
WRF06 LCD DI4 LON ltype1 Gira E2 pure white	4	-	-	-	363556
WRF06 LCD DO2R LON ltype1 Gira E2 pure white	2	-	2	-	364560
WRF06 LCD DO2T LON ltype1 Gira E2 pure white	2	-	-	2	406222
WRF06 LCD OVR LON ltype1 Gira E2 pure white	2	1	1	-	364355
WRF06 LCD OVT LON ltype1 Gira E2 pure white	2	1	-	1	627665



WRF06 LCD with IO-Extension (DO2T, DO2R, OVR, OVT)

Item description: product | inputs/outputs | BUS | labelling type | switch range

## WRF06 LCD



### Room operating unit temperature – RS485 Modbus

Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF06 LCD AO2V RS485 Modbus ltype1 Gira E2 pure white	2	2	-	-	382144
WRF06 LCD DI4 RS485 Modbus ltype1 Gira E2 pure white	4	-	-	-	439527
WRF06 LCD DO2R RS485 Modbus ltype1 Gira E2 pure white	2	-	2	-	406192
WRF06 LCD DO2T RS485 Modbus ltype1 Gira E2 pure white	2	-	-	2	449441
WRF06 LCD OVR RS485 Modbus ltype1 Gira E2 pure white	2	1	1	-	464352
WRF06 LCD OVT RS485 Modbus ltype1 Gira E2 pure white	2	1	-	1	424806

### Options

Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges
Labelling type 2 (ltype2) - only BUS models
Labelling type 3 (ltype3) - only type VV

Order example for different items:

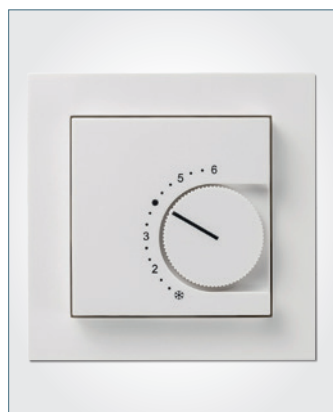
**WRF06 LCD | AO2V | LON | ltype2 | Peha Aura Glas**

**WRF06 LCD** = product  
**AO2V** = type and number of inputs/outputs  
**LON** = BUS  
**ltype2** = labelling type 2  
**Peha Aura Glas** = switch range glass



## WRF07

Room and space temperature measurement with set point adjustment, fan speed and manual override.



WRF07 P I type1,  
Gira E2 pure white



WRF07 P I type1,  
Busch-Jaeger alpha nea®



TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Network technology	BACnet MS/TP, LON FT (free topology), RS485 Modbus,
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	TRV: 12mA   24 V = BACnet: typ. 0,9 W (24 V =)   1 VA (24 V ~) LON: typ. 0,7 W (24 V =)   2,5 VA (24 V ~) RS485 Modbus: typ. 0,9 W (24 V =)   1 VA (24 V ~)
Measuring range temp.	0..+50 °C passive: depending on used sensor
Accuracy temperature	±0,5 K (typ. at 21 °C) TRV : ±1% of measuring range (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Inputs	floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.1, K.5 aluminum   stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIodue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (1 kΩ   5 kΩ optional, for other values please request) active output 0..10 V (optional)
Rotary switch (S)	mini rotary switch for fan stage adjustment with up to 5 stages available (please request)
Rocker switch (S)	for fan speed adjustment
Button (T)	for presence detection switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Functions	TRV: 1 output 0..10 V AO2V: 2 inputs, 2 outputs 0..10 V DI4: 4 inputs (digital)
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Delivery contents	software for configuration (freeware via download)
Notes	other sensors   operating elements   switch ranges on request

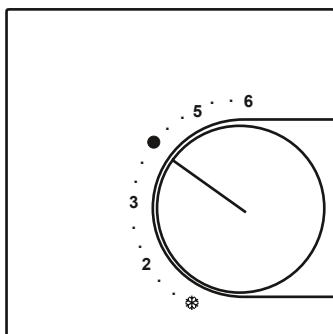


## WRF07

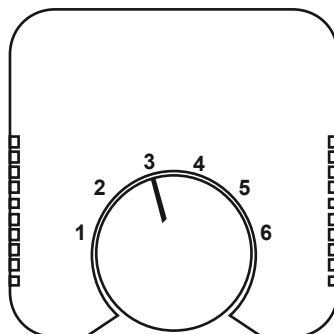
**Types with standard labelling** (only with standard switch ranges)

**Labelling type 1** (standard)

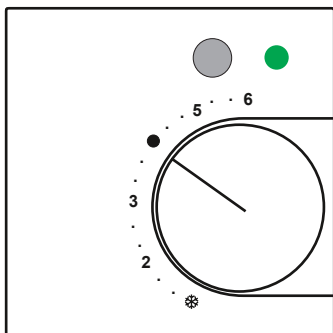
WRF07 P Itype1 Gira E2 pure white



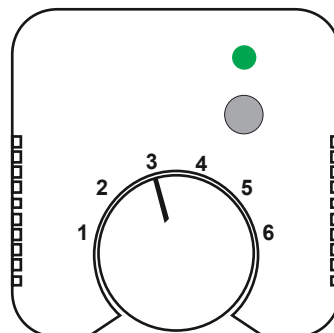
WRF07 P Itype1 Busch-Jaeger



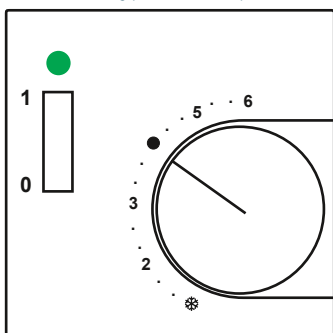
WRF07 PTD Itype1 Gira E2 pure white



WRF07 PTD Itype1 Busch-Jaeger



WRF07 PSD Itype1 Gira E2 pure white

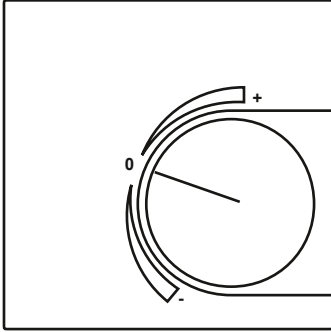


other switch ranges similar

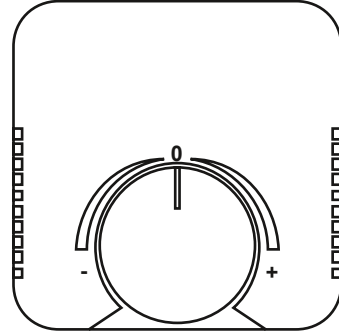
## WRF07

### Labelling type 2 (refer to options)

WRF07 P Itype2 Gira E2 pure white

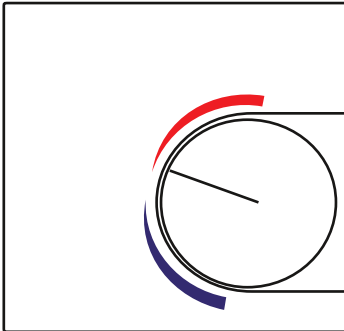


WRF07 P Itype2 Busch-Jaeger

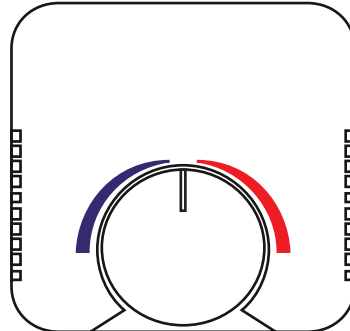


### Labelling type 6 – colour red/blue (refer to options)

WRF07 P Itype6 Gira E2 pure white



WRF07 P Itype6 Busch-Jaeger



labelling type 2 | type 6 also available with PSD | PTD version

P = potentiometer, PTD = potentiometer, button, LED, PSD = potentiometer, rocker switch, LED

**WRF07**

Item description: product | operating elements | sensor | labelling type | switch range | potentiometer

Room operating unit temperature – without sensor	
Item description	Item no.
WRF07 P without sensor ltype1 Gira E2 pure white, 10 kOhm	202664
WRF07 PTD without sensor ltype1 Gira E2 pure white, 10 kOhm, LED green	542883
WRF07 PSD without sensor ltype1 Gira E2 pure white, 10 kOhm, LED green	627917

Room operating unit temperature – PT100	
Item description	Item no.
WRF07 P PT100 ltype1 Gira E2 pure white, 10 kOhm	628020
WRF07 PTD PT100 ltype1 Gira E2 pure white, 10 kOhm, LED green	553278
WRF07 PSD PT100 ltype1 Gira E2 pure white, 10 kOhm, LED green	627924

Room operating unit temperature – PT100 1/3 DIN	
Item description	Item no.
WRF07 P PT100 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm	628037
WRF07 PTD PT100 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm, LED green	628068
WRF07 PSD PT100 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm, LED green	627931

Room operating unit temperature – PT1000	
Item description	Item no.
WRF07 P PT1000 ltype1 Gira E2 pure white, 10 kOhm	399012
WRF07 PTD PT1000 ltype1 Gira E2 pure white, 10 kOhm, LED green	291767
WRF07 PSD PT1000 ltype1 Gira E2 pure white, 10 kOhm, LED green	627948

Room operating unit temperature – PT1000 1/3 DIN	
Item description	Item no.
WRF07 P PT1000 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm	628044
WRF07 PTD PT1000 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm, LED green	628075
WRF07 PSD PT1000 1/3 DIN ltype1 Gira E2 pure white, 10 kOhm, LED green	627955

Room operating unit temperature – Ni1000	
Item description	Item no.
WRF07 P Ni1000 ltype1 Gira E2 pure white, 10 kOhm	400220
WRF07 PTD Ni1000 ltype1 Gira E2 pure white, 10 kOhm, LED green	529266
WRF07 PSD Ni1000 ltype1 Gira E2 pure white, 10 kOhm, LED green	627962

Room operating unit temperature – Ni1000TK5000	
Item description	Item no.
WRF07 P Ni1000TK5000 ltype1 Gira E2 pure white, 10 kOhm	193634
WRF07 PTD Ni1000TK5000 ltype1 Gira E2 pure white, 10 kOhm, LED green	628082
WRF07 PSD Ni1000TK5000 ltype1 Gira E2 pure white, 10 kOhm, LED green	627979

## WRF07

Item description: product | operating elements | sensor | labelling type | switch range | potentiometer

### Room operating unit temperature – NTC10k

Item description	Item no.
WRF07 P NTC10k ltype1 Gira E2 pure white, 10 kOhm	400237
WRF07 PTD NTC10k ltype1 Gira E2 pure white, 10 kOhm, LED green	628099
WRF07 PSD NTC10k ltype1 Gira E2 pure white, 10 kOhm, LED green	627986

### Room operating unit temperature – NTC10k Precon

Item description	Item no.
WRF07 P NTC10k Precon ltype1 Gira E2 pure white, 10 kOhm	628051
WRF07 PTD NTC10k Precon ltype1 Gira E2 pure white, 10 kOhm, LED green	628105
WRF07 PSD NTC10k Precon ltype1 Gira E2 pure white, 10 kOhm, LED green	627993

### Room operating unit temperature – NTC20k

Item description	Item no.
WRF07 P NTC20k ltype1 Gira E2 pure white, 10 kOhm	191234
WRF07 PTD NTC20k ltype1 Gira E2 pure white, 10 kOhm, LED green	611343
WRF07 PSD NTC20k ltype1 Gira E2 pure white, 10 kOhm, LED green	628006

### Room operating unit temperature – LM235Z

Item description	Item no.
WRF07 P LM235Z ltype1 Gira E2 pure white, 10 kOhm	199599
WRF07 PTD LM235Z ltype1 Gira E2 pure white, 10 kOhm, LED green	164863
WRF07 PSD LM235Z ltype1 Gira E2 pure white, 10 kOhm, LED green	628013

P = potentiometer, PTD = potentiometer, button, LED, PSD = potentiometer, rocker switch, LED

### Options

Item description
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request
Active potentiometer 0..10 V (poti_active)
Rocker switch (S) with 3 fan stages (FS3: 1-0-2)
Switch ranges Busch-Jaeger Busch-balance® SI   Reflex SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Additional button
Additional diode (LED)
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**WRF07 | PSD | FeT | ltype2 | Gira Esprit | Poti\_active**

**WRF07** = product  
**PSD** = potentiometer, rocker switch, LED  
**FeT** = sensor  
**ltype2** = labelling type 2  
**Gira Esprit** = switch range Gira Esprit  
**Poti\_active** = active potentiometer 0..10 V

**WRF07**

Item description: product | operating elements | TRV3 | labelling type | switch range | LED

Room operating unit temperature – TRV3 0..10 V 0..+50 °C			
Item description	Inputs	0..10 V	Item no.
WRF07 P TRV3 Itype1 Gira E2 pure white	-	1	243902
WRF07 PTD TRV3 Itype1 Gira E2 pure white, LED green	-	1	369602
WRF07 PSD TRV3 Itype1 Gira E2 pure white, LED green	-	1	332132

Item description: product | operating elements | inputs/outputs | BUS | labelling type | switch range | LED



Room operating unit temperature – AO2V BACnet			
Item description	Inputs	0..10 V	Item no.
WRF07 PTD AO2V BACnet Itype1 Gira E2 pure white, LED green	2	2	628167
WRF07 P AO2V BACnet Itype1 Gira E2 pure white	2	2	628150



Room operating unit temperature – LON			
Item description	Inputs	0..10 V	Item no.
WRF07 P DI4 LON Itype1 Gira E2 pure white	4	-	615600
WRF07 PTD DI4 LON Itype1 Gira E2 pure white, LED green	4	-	595230
WRF07 P AO2V LON Itype1 Gira E2 pure white	2	2	583374
WRF07 PTD AO2V LON Itype1 Gira E2 pure white, LED green	2	2	628174



Room operating unit temperature – RS485 Modbus			
Item description	Inputs	0..10 V	Item no.
WRF07 P DI4 RS485 Modbus Itype1 Gira E2 pure white	4	-	613910
WRF07 PTD DI4 RS485 Modbus Itype1 Gira E2 pure white, LED green	4	-	628181
WRF07 P AO2V RS485 Modbus Itype1 Gira E2 pure white	2	2	496094
WRF07 PTD AO2V RS485 Modbus Itype1 Gira E2 pure white, LED green	2	2	497800

P = potentiometer, PTD = potentiometer, button, LED, PSD = potentiometer, rocker switch, LED

Options
Item description
Rocker switch (S) with 3 fan stages (FS3: 1-0-2)
Switch ranges Busch-Jaeger Busch-balance® SI   Reflex SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges
Labelling type 2 (Itype2)
Labelling type 6 colour red+blue (Itype6)
Additional button
Additional diode (LED)

## WRF07

### Design examples



WRF07 PTD Gira Standard55  
special labelling



WRF07 PSD Merten Artec  
special model/special labelling



WRF07 PT Jung LS stainless steel I type6

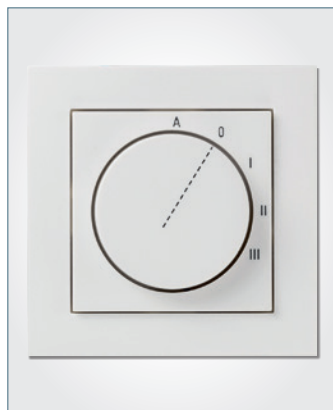


WRF07 P3T3D I type1 Busch-Jaeger alpha nea



## WRF06 x

Room operating unit for room/space temperature measurement with fan stage adjustment and manual override. Designed for control and monitoring systems.



WRF06 S, Gira E2 pure white  
standard labelling



WRF06 TD Gira E2 pure white



WRF06 4T4D Jung AS 500 alpine white  
special model/special labelling

### TECHNICAL DATA

Measuring values	temperature
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,9 W (24 V =)   1 VA (24 V ~)
Measuring range temp.	passive: depending on used sensor
Accuracy temperature	passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.1, K.5 aluminum   stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto, 0, I, II, III) 2-stages (0, I) 3-stages (0, I, II) 4-stages (0, I, II, III) double frame has to be used in combination with temperature sensor
Button (T)	for presence detection switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Delivery contents	software for configuration (freeware via download)
Notes	for other sensors please request for other operating elements please request

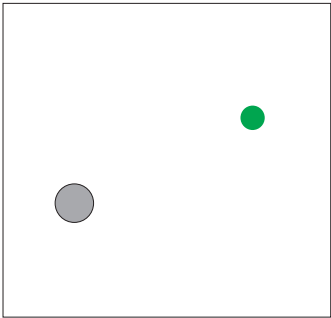


WRF06 x

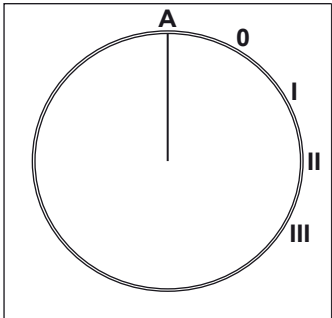
Types with standard labelling  
*(only with standard switch ranges)*

special labelling refer to p. 325

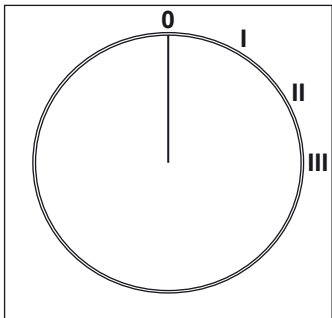
WRF06 TD without labelling  
*(standard)*



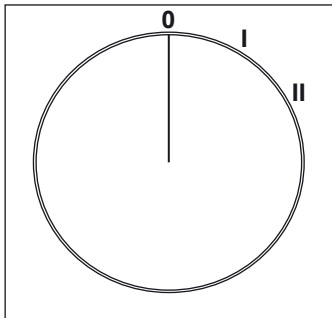
WRF06 S with 5 fan stages  
*(FS5, standard)*



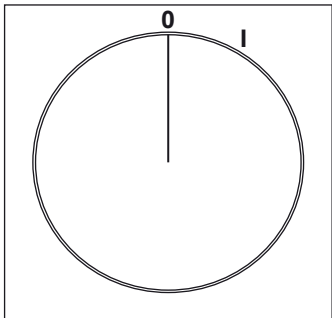
WRF06 S with 4 fan stages  
*(FS4, refer to options)*



WRF06 S with 3 fan stages  
*(FS3, refer to options)*



WRF06 S with 2 fan stages  
*(FS2, refer to options)*



## WRF06 x

Item description: product | operating elements | sensor | labelling type | switch range | LED

### Room operating unit temperature – without sensor

Item description	Item no.
WRF06 S without sensor Gira E2 pure white, FS5	629201
WRF06 TD without sensor Gira E2 pure white, LED green	285964

### Room operating unit temperature – passive

Item description	Item no.
WRF06 TD PT100 Gira E2 pure white, LED green	564441
WRF06 TD PT100 1/3 DIN Gira E2 pure white, LED green	629409
WRF06 TD PT1000 Gira E2 pure white, LED green	629423
WRF06 TD PT1000 1/3 DIN Gira E2 pure white, LED green	629447
WRF06 TD Ni1000 Gira E2 pure white, LED green	195379
WRF06 TD Ni1000TK5000 Gira E2 pure white, LED green	629461
WRF06 TD NTC10k Gira E2 pure white, LED green	629324
WRF06 TD NTC10k Precon Gira E2 pure white, LED green	629348
WRF06 TD NTC20k Gira E2 pure white, LED green	629362
WRF06 TD LM235Z Gira E2 pure white, LED green	563703

S rotary switch, TD button, LED

### Options

Item description
Switch ranges Busch-Jaeger Busch-balance® SI   Reflex SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges
Additional button
Additional diode (LED)
Rotary switch (S) with 4 fan stages (FS4)
Rotary switch (S) with 3 fan stages (FS3)
Rotary switch (S) with 2 fan stages (FS2)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

#### WRF06 | 2T2D | FeT | Gira Esprit

WRF06	= product
2T2D	= 2 buttons, 2 LED
FeT	= sensor
Gira Esprit	= switch range Gira Esprit



WRF04 PSTD F55



WRF04 P,  
standard labelling colour



## WRF04 x

Room and space temperature measurement with optional set point adjustment, fan speed and manual override.

### TECHNICAL DATA

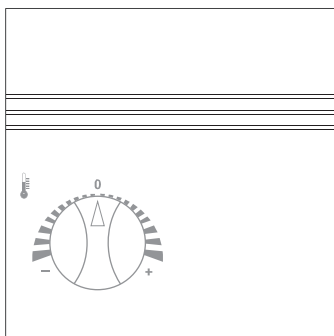
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Output switch contact	Relay: switch contact 24V   3 mA, floating Triac: 24 V ~   1 A, floating (for BACnet   RS485 Modbus)
Network technology	BACnet MS/TP LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	TRV: typ. 0,42 W (24 V =)   0,84 VA (24 V ~) BACnet: typ. 0,4 W (24 V =)   0,6 VA (24 V ~) LON: typ. 0,6 W (24 V =)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,4 W (24 V =)   0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C passive: depending on used sensor
Accuracy temperature	±1% of measuring range (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Inputs	2x entry for floating contacts (with LON/RS485 Modbus)
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (1 kΩ   5 kΩ optional, for other values please request) active output 0..10 V (optional)
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III) 2-stages (0,I) 3-stages (0,I,II) 4-stages (0,I,II,III)
Button (T)	for presence detection switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Functions	TRV: 1 output 0..10 V AO2V: 2 inputs, 2 outputs 0..10 V DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm) to be mounted flat onto the surface using adhesive foil or screws
Notes	special labelling available on request special painting available on request other sensors   operating elements on request RS485 Modbus: with built-in PI controller

## WRF04 x

### Types with standard labelling

special labelling refer to p. 325

#### WRF04 P



#### Legend:

P = potentiometer

S = rotary switch

T = button

D = LED

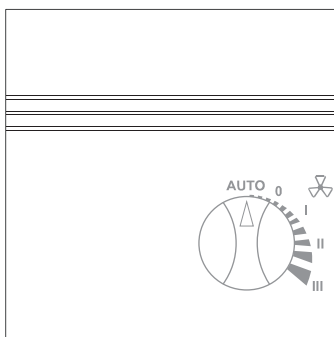
FSx = number of fan stages

for sensor types refer to items,

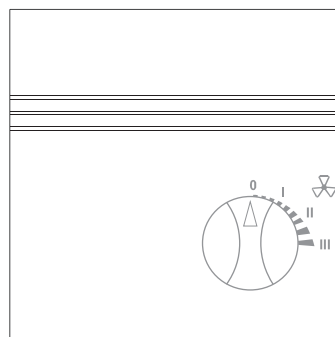
WRF04 with LCD refer to p. 144,

WRF04 without operating elements refer to p. 156

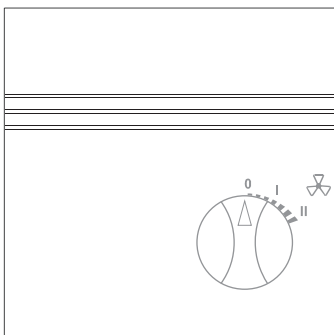
#### WRF04 S with 5 fan stages (FS5, standard)



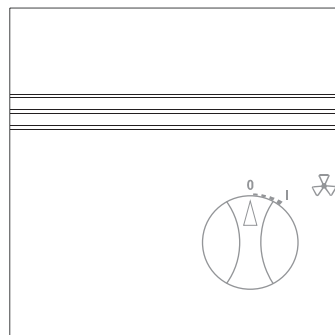
#### WRF04 S with 4 fan stages (FS4, refer to options)



#### WRF04 S with 3 fan stages (FS3, refer to options)

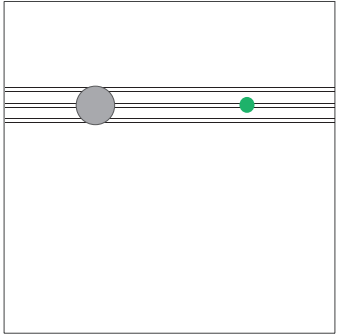


#### WRF04 S with 2 fan stages (FS2, refer to options)

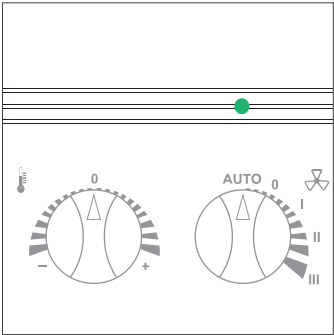


WRF04 x

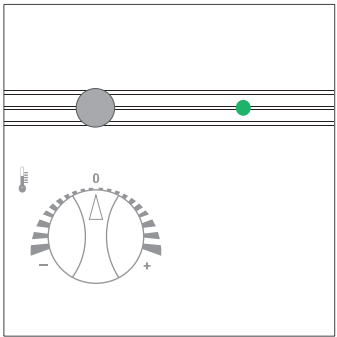
WRF04 TD



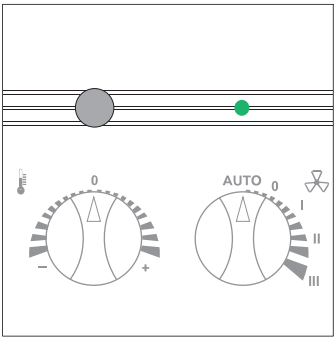
WRF04 PSD with 5 fan stages  
*FS5, also available with FS4, FS3 and FS2*



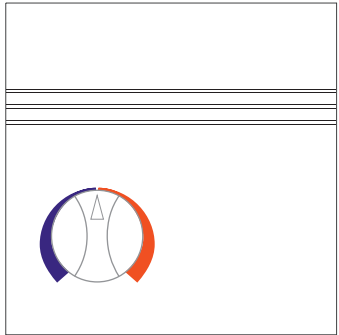
WRF04 PTD



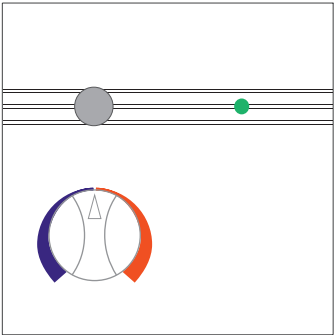
WRF04 PSTD with 5 fan stages  
*FS5, also available with FS4, FS3 and FS2*



WRF04 P standard labelling colour  
*(refer to options)*



WRF04 PTD standard labelling colour  
*(refer to options)*



## WRF04 x

Item description: product | operating elements | sensor | labelling type | potentiometer | LED

Room operating unit temperature – without sensor	
Item description	Item no.
WRF04 without sensor	212892
WRF04 P without sensor, 10 kOhm	197137
WRF04 S without sensor, FS5	206204
WRF04 TD without sensor, LED green	206228
WRF04 PSD without sensor, 10 kOhm, FS5, LED green	628358
WRF04 PTD without sensor, 10 kOhm, LED green	315029
WRF04 PSTD without sensor, 10 kOhm, FS5, LED green	628372

Room operating unit temperature – PT100		
Item description	Item no.	On stock
WRF04 PT100	193221	●
WRF04 P PT100, 10 kOhm	214100	
WRF04 S PT100, FS5	592451	
WRF04 TD PT100, LED green	205665	
WRF04 PSD PT100, 10 kOhm, FS5, LED green	257671	
WRF04 PTD PT100, 10 kOhm, LED green	409728	
WRF04 PSTD PT100, 10 kOhm, FS5, LED green	491280	

Room operating unit temperature – PT100 1/3 DIN	
Item description	Item no.
WRF04 PT100 1/3 DIN	197731
WRF04 P PT100 1/3 DIN, 10 kOhm	628402
WRF04 S PT100 1/3 DIN, FS5	490115
WRF04 TD PT100 1/3 DIN, LED green	372565
WRF04 PSD PT100 1/3 DIN, 10 kOhm, FS5, LED green	628419
WRF04 PTD PT100 1/3 DIN, 10 kOhm, LED green	628426
WRF04 PSTD PT100 1/3 DIN, 10 kOhm, FS5, LED green	628433

Room operating unit temperature – PT1000		
Item description	Item no.	On stock
WRF04 PT1000	191623	●
WRF04 P PT1000, 10 kOhm	628457	
WRF04 S PT1000, FS5	469081	
WRF04 TD PT1000, LED green	199773	
WRF04 PSD PT1000, 10 kOhm, FS5, LED green	628464	
WRF04 PTD PT1000, 10 kOhm, LED green	409735	
WRF04 PSTD PT1000, 10 kOhm, FS5, LED green	628471	

## WRF04 x

Item description: product | operating elements | sensor | labelling type | potentiometer | LED

### Room operating unit temperature – PT1000 1/3 DIN

Item description	Item no.
WRF04 PT1000 1/3 DIN	207980
WRF04 P PT1000 1/3 DIN, 10 kOhm	287777
WRF04 S PT1000 1/3 DIN, FS5	628501
WRF04 TD PT1000 1/3 DIN, LED green	319744
WRF04 PSD PT1000 1/3 DIN, 10 kOhm, FS5, LED green	628518
WRF04 PTD PT1000 1/3 DIN, 10 kOhm, LED green	628525
WRF04 PSTD PT1000 1/3 DIN, 10 kOhm, FS5, LED green	628549

### Room operating unit temperature – Ni1000

Item description	Item no.	On stock
WRF04 Ni1000	191616	●
WRF04 P Ni1000, 10 kOhm	246361	
WRF04 S Ni1000, FS5	266758	
WRF04 TD Ni1000, LED green	197595	
WRF04 PSD Ni1000, 10 kOhm, FS5, LED green	628587	
WRF04 PTD Ni1000, 10 kOhm, LED green	228923	
WRF04 PSTD Ni1000, 10 kOhm, FS5, LED green	486156	

### Room operating unit temperature – Ni1000TK5000

Item description	Item no.	On stock
WRF04 Ni1000TK5000	193214	●
WRF04 P Ni1000TK5000, 10 kOhm	218948	
WRF04 S Ni1000TK5000, FS5	542982	
WRF04 TD Ni1000TK5000, LED green	257480	
WRF04 PSD Ni1000TK5000, 10 kOhm, FS5, LED green	628631	
WRF04 PTD Ni1000TK5000, 10 kOhm, LED green	409742	
WRF04 PSTD Ni1000TK5000, 10 kOhm, FS5, LED green	628648	

### Room operating unit temperature – NTC10k

Item description	Item no.	On stock
WRF04 NTC10k	207584	●
WRF04 P NTC10k, 10 kOhm	208789	
WRF04 S NTC10k, FS5	348829	
WRF04 TD NTC10k, LED green	216692	
WRF04 PSD NTC10k, 10 kOhm, FS5, LED green	471114	
WRF04 PTD NTC10k, 10 kOhm, LED green	263573	
WRF04 PSTD NTC10k, 10 kOhm, FS5, LED green	491297	

P = potentiometer, S = rotary switch, T = button, D = LED



**WRF04 x**

Item description: product | operating elements | sensor | labelling type | potentiometer | LED

Room operating unit temperature – NTC10k Precon	
Item description	Item no.
WRF04 NTC10k Precon	197618
WRF04 P NTC10k Precon, 10 kOhm	218146
WRF04 S NTC10k Precon, FS5	546713
WRF04 TD NTC10k Precon, LED green	314176
WRF04 PSD NTC10k Precon, 10 kOhm, FS5, LED green	546720
WRF04 PTD NTC10k Precon, 10 kOhm, LED green	374415
WRF04 PSTD NTC10k Precon, 10 kOhm, FS5, LED green	546737

Room operating unit temperature – NTC20k	
Item description	Item no.
WRF04 NTC20k	193177
WRF04 P NTC20k, 10 kOhm	209762
WRF04 S NTC20k, FS5	628655
WRF04 TD NTC20k, LED green	267199
WRF04 PSD NTC20k, 10 kOhm, FS5, LED green	486323
WRF04 PTD NTC20k, 10 kOhm, LED green	409711
WRF04 PSTD NTC20k, 10 kOhm, FS5, LED green	628662

Room operating unit temperature – LM235Z		
Item description	Item no.	On stock
WRF04 LM235Z	193191	●
WRF04 P LM235Z, 10 kOhm	223546	
WRF04 S LM235Z, FS5	569897	
WRF04 TD LM235Z, LED green	263238	
WRF04 PSD LM235Z, 10 kOhm, FS5, LED green	571906	
WRF04 PTD LM235Z, 10 kOhm, LED green	223096	
WRF04 PSTD LM235Z, 10 kOhm, FS5, LED green	628679	

Options	
Item description	
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request	
Active potentiometer 0..10 V (poti_active)	
Rotary switch (S) with 4 fan stages (FS4)	
Rotary switch (S) with 3 fan stages (FS3)	
Rotary switch (S) with 2 fan stages (FS2)	
Default labelling colour red+blue	
Additional rotary switch	
Additional button	
Additional diode (LED)	
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel	
Add to price of PT100 for sensor FeT	

Order example for different items:

**WRF04 | PSTD | FeT | Poti\_active | FS4**

**WRF04** = product  
**PSTD** = potentiometer, rotary switch, button, LED  
**FeT** = sensor  
**FS4** = rotary switch (S) with 4 fan stages  
**Poti\_active** = active potentiometer 0..10 V

## WRF04 x

Item description: product | operating elements | TRV3 | labelling type | LED

### Room operating unit temperature – active 0..10 V

Item description	Inputs	0..10 V	Relay	Item no.	On stock
WRF04 TRV MultiRange	-	1	-	479202	⊕
WRF04 P TRV3, poti_active	-	1	-	208864	
WRF04 PSD TRV3, poti_active, FS5, LED green	-	1	-	637558	
WRF04 PTD TRV3, poti_active, LED green	-	1	-	192897	
WRF04 PSTD TRV3, poti_active, FS5, LED green	-	1	-	637565	

Item description: product | operating elements | inputs/outputs | BUS | labelling type



### Room operating unit temperature – AO2V BACnet

Item description	Inputs	0..10 V	Relay	Item no.
WRF04 AO2V BACnet	2	2	-	546065
WRF04 P AO2V BACnet	2	2	-	548885
WRF04 PSD AO2V BACnet, FS5, LED green	2	2	-	548908
WRF04 PTD AO2V BACnet, LED green	2	2	-	548892
WRF04 PSTD AO2V BACnet, FS5, LED green	2	2	-	547666



### Room operating unit temperature – LON

Item description	Item no.
WRF04 LON	193689
WRF04 P LON	330626
WRF04 PSD LON, FS5, LED green	389907
WRF04 PTD LON, LED green	312967
WRF04 PSTD LON, FS5, LED green	297769



### Room operating unit temperature – AO2V RS485 Modbus

Item description	Inputs	0..10 V	Relay	Item no.
WRF04 AO2V RS485 Modbus	2	2	-	419970
WRF04 P AO2V RS485 Modbus	2	2	-	419956
WRF04 PSD AO2V RS485 Modbus, FS5, LED green	2	2	-	419949
WRF04 PTD AO2V RS485 Modbus, LED green	2	2	-	415613
WRF04 PSTD AO2V RS485 Modbus, FS5, LED green	2	2	-	480505

### Room operating unit temperature – DO2R RS485 Modbus

Item description	Inputs	0..10 V	Relay	Item no.
WRF04 P DO2R RS485 Modbus	2	-	2	420266
WRF04 PSD DO2R RS485 Modbus, FS5, LED green	2	-	2	420280
WRF04 PTD DO2R RS485 Modbus, LED green	2	-	2	420273

P = potentiometer, S = rotary switch, T = button, D = LED

Item description: product | operating elements | inputs/outputs | BUS | labelling type | LED

## WRF04 x



Room operating unit temperature – DO2T RS485 Modbus					
Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF04 P DO2T RS485 Modbus	2	-	-	2	420617
WRF04 PSD DO2T RS485 Modbus, FS5, LED green	2	-	-	2	420631
WRF04 PTD DO2T RS485 Modbus, LED green	2	-	-	2	420624

Room operating unit temperature – OVR RS485 Modbus					
Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF04 P OVR RS485 Modbus	2	1	1	-	420679
WRF04 PSD OVR RS485 Modbus, FS5, LED green	2	1	1	-	420693
WRF04 PTD OVR RS485 Modbus, LED green	2	1	1	-	420686

Room operating unit temperature – OVT RS485 Modbus					
Item description	Inputs	0..10 V	Relay	Triac	Item no.
WRF04 P OVT RS485 Modbus	2	1	-	1	420747
WRF04 PSD OVT RS485 Modbus, FS5, LED green	2	1	-	1	420761
WRF04 PTD OVT RS485 Modbus, LED green	2	1	-	1	420754

Options	
Item description	
Rotary switch (S) with 4 fan stages (FS4)	
Rotary switch (S) with 3 fan stages (FS3)	
Rotary switch (S) with 2 fan stages (FS2)	
Default labelling colour red+blue	
Additional rotary switch	
Additional button	
Additional diode (LED)	

Order example for different items:

**WRF04 | PST3D | TRV3 | special labelling**

**WRF04** = product  
**PST3D** = potentiometer, rotary switch, button, 3x LED  
**TRV3** = 1x 0..10 V output  
**special labelling** = with special labelling

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	☺
Frame for surface mounting WRF04	111584	☺

## WRF04 x

### Design examples



WRF04 PST3D,  
special model/special labelling



WRF04 P4T4D,  
special model/special labelling



WRF04 P,  
special painting



WRF04,  
special painting



WRF04 LCD PSD FS4



## WRF04 LCD x



Room and space temperature measurement with optional set point adjustment, fan speed, LCD display and manual override.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Output switch contact	Relay: switch contact 24V   3 mA, floating Triac: 24 V ~   1 A, floating
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	TRV: max. 0,6 W (24 V ~)   1 VA (24 V ~) LON: typ. 0,8 W (24 V ~)   2 VA (24 V ~) RS485 Modbus: typ. 0,4 W (24 V ~)   0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C)
Inputs	2x entry for floating contacts (with LON/RS485 Modbus)
Set point (P)	potentiometer, default value 10 k $\Omega$ (1 k $\Omega$   5 k $\Omega$ optional, for other values please request) active output 0..10 V (optional)
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto, 0, I, II, III) 2-stages (0, I) 3-stages (0, I, II) 4-stages (0, I, II, III) active output 0..10 V (optional)
Button (T)	for presence detection switching capacity max. 600 mW
LED (D)	for status feedback several LEDs possible (e.g. green, yellow, red)
Functions	TRV: 1 output 0..10 V AO2V: 2 inputs, 2 outputs 0..10 V DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
Display	LCD 29x12 mm, monochrome status-LED, multi-colored
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box ( $\varnothing=55$ mm) to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	special labelling available on request special painting available on request for other sensors please request for other operating elements please request

## WRF04 LCD x

Item description: product | operating elements | TRV3 | fan stages | LED

### Room operating unit with display temperature – TRV3 0..10 V, 0..50 °C

Item description	Inputs	0..10 V	Item no.
WRF04 LCD P TRV3, poti_active	-	1	637572
WRF04 LCD PSD TRV3, poti_active, FS5, LED green	-	1	637589
WRF04 LCD PTD TRV3, poti_active, LED green	-	1	412483
WRF04 LCD PSTD TRV3, poti_active, FS5, LED green	-	1	418874

Item description: product | operating elements | inputs/outputs | BUS | fan stages | LED



### Room operating unit with display temperature – LON

Item description	Item no.
WRF04 LCD P LON	413442
WRF04 LCD PSD LON, FS5, LED green	446235
WRF04 LCD PTD LON, LED green	397568
WRF04 LCD PSTD LON, FS5, LED green	574839



### Room operating unit with display temperature – AO2V RS485 Modbus

Item description	Inputs	0..10 V	Relay	Item no.
WRF04 LCD P AO2V RS485 Modbus	2	2	-	420020
WRF04 LCD PSD AO2V RS485 Modbus, FS5, LED green	2	2	-	419987
WRF04 LCD PTD AO2V RS485 Modbus, LED green	2	2	-	415620
WRF04 LCD PSTD AO2V RS485 Modbus, FS5, LED green	2	2	-	538442



### Room operating unit with display temperature – DO2R RS485 Modbus

Item description	Inputs	0..10 V	Relay	Item no.
WRF04 LCD P DO2R RS485 Modbus	2	-	2	420327
WRF04 LCD PSD DO2R RS485 Modbus, FS5, LED green	2	-	2	628822
WRF04 LCD PTD DO2R RS485 Modbus, LED green	2	-	2	420334



### Room operating unit with display temperature – DO2T RS485 Modbus

Item description	Inputs	0..10 V	Triac	Item no.
WRF04 LCD P DO2T RS485 Modbus	2	-	2	420815
WRF04 LCD PSD DO2T RS485 Modbus, FS5, LED green	2	-	2	628839
WRF04 LCD PTD DO2T RS485 Modbus, LED green	2	-	2	628846

standard labelling refer to p. 136  
special labelling refer to p. 325

Item description: product | operating elements | inputs/outputs | BUS | fan stages | LED

## WRF04 LCD x



Room operating unit with display temperature – OVR RS485 Modbus				
Item description	Inputs	0..10 V	Relay	Item no.
WRF04 LCD P OVR RS485 Modbus	2	1	1	420891
WRF04 LCD PSD OVR RS485 Modbus, FS5, LED green	2	1	1	420914
WRF04 LCD PTD OVR RS485 Modbus, LED green	2	1	1	420907



Room operating unit with display temperature – OVT RS485 Modbus				
Item description	Inputs	0..10 V	Triac	Item no.
WRF04 LCD P OVT RS485 Modbus	2	1	1	420952
WRF04 LCD PSD OVT RS485 Modbus, FS5, LED green	2	1	1	628877
WRF04 LCD PTD OVT RS485 Modbus, LED green	2	1	1	630122

Options
Item description
Rotary switch (S) with 4 fan stages (FS4)
Rotary switch (S) with 3 fan stages (FS3)
Rotary switch (S) with 2 fan stages (FS2)
Default labelling colour red+blue
Additional rotary switch
Additional button
Additional diode (LED)

Order example for different items:

**WRF04 LCD | PST3D | OVT | RS485 Modbus | FS4 | Poti\_5kΩ**

**WRF04 LCD** = product  
**PST3D** = potentiometer, rotary switch, button, 3x LED  
**OVT** = 2x inputs, 1x 0..10 V output, 1x Triac output  
**RS485 Modbus** = BUS  
**FS4** = rotary switch (S) with 4 fan stages  
**Poti\_5kΩ** = passive potentiometer 5kΩ

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	☺
Frame for surface mounting WRF04	111584	☺



JOY Fancoil pure white



## JOY



Fan coil room thermostat in an appealing design. Used for individual control of temperature in commercial, industrial and residential buildings. The device combines a modern design with a 2,5" touch surface, which enables the single room controller to be used intuitively. 3 time channels with 4 periods of time can be configured via the menu. This device is suitable for a flush mount box.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	5x contact NO (2x heating & cooling, 3x fan stages) 240 V: load max. 3 A
Network technology	RS485 Modbus
Power supply	85..260 V ~
Power consumption	max. 2 VA (260 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	input for NTC10k or floating contact input digital for floating contact (not type BUS) input change-over (230 V ~)
Control functions	setpoint 0..+50 °C
Display	LCD 2,5", 240x160 px, backlight blue
Enclosure	PC, pure white, scratch resistant acrylic glas
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> inputs: terminal block, max. 1,0 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 95% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

### Room thermostat

Item description	Item no.
JOY Fancoil 3DI pure white	614757



### Room thermostat – RS485 Modbus

Item description	Item no.
JOY Fancoil RS485 Modbus pure white	614771

### Options

Item description
Change-over sensor NTC10k (price on request)





LCF Touch



## LCF Touch



Modern design flush mounting fan coil room thermostat, used for individual control of temperature in commercial, industrial and residential buildings. It is tailored for two-pipe and four-pipe fan coil units with two-wire electric valves. The device combines digital technology with a large LCD touch screen display, which enables the single room controller to be used intuitively. Integrated 7 day time clock with 4 time programs.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	5x contact NO (2x heating & cooling, 3x fan stages) 240 V: load max. 3 A
Network technology	RS485 Modbus
Power supply	90..265 V ~
Power consumption	max. 0,9 VA (265 V ~)
Measuring range temp.	+1...+50 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Inputs	input for change-over sensor NTC10k (optional)
Control functions	setpoint +1...+50 °C factory setting (+16...+30°C)
Display	LCD 64x64 mm, touchscreen white background lighting
Enclosure	ABS, black, scratch resistant acrylic glas
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-10...+50 °C, max. 95% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

### Room thermostat

Item description	Item no.
LCF Touch	575768



### Room thermostat – RS485 Modbus

Item description	Item no.
LCF Touch RS485 Modbus	575775

### Options

Item description
Change-over sensor NTC10k (price on request)



LCF

LCF



The fan coil room thermostat has been designed for individual control of temperature in commercial, industrial and residential buildings. It is tailored for two-pipe and four-pipe fan coil with two-wire electric valves. With its flush mounted modern design the device combines digital technology with a large LCD display and additional buttons, which enables the single room controller to be used intuitively.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	5x contact NO (2x heating & cooling, 3x fan stages) 240 V: load max. 3 A
Power supply	90..265 V ~
Power consumption	max. 0,9 W
Measuring range temp.	+1..+50 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Inputs	input for change-over sensor NTC10k (optional)
Display	LCD 355x485 mm white background lighting
Enclosure	ABS, pure white, scratch resistant acrylic glas
Protection	IP20 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-10..+50 °C, max. 95% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

Room thermostat	
Item description	Item no.
LCF	575751

Options	
Item description	
Change-over sensor NTC10k (price on request)	



LCT

LCT

The electronic room thermostat is designed for controlling temperature in commercial, industrial and residential buildings and also underfloor heating applications. LCD temperature display, dial set point and relay on/off output. Additional input is available for an external temperature sensor if required.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	heating: 250 V ~, max. 16 A   30 V =, max. 10 A
Power supply	100..240 V ~
Power consumption	max. 0,5 W
Measuring range temp.	0..+40 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Display	LCD for temperature and set point
Enclosure	PC, pure white
Protection	IP20 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)
Notes	set point adjustment for room temperature: +5..+30 °C set point adjustment for floor temperature: +5..+40 °C

Room thermostat	
Item description	Item no.
LCT	573382

Options	
Item description	
Additional sensor NTC100k (price on request)	

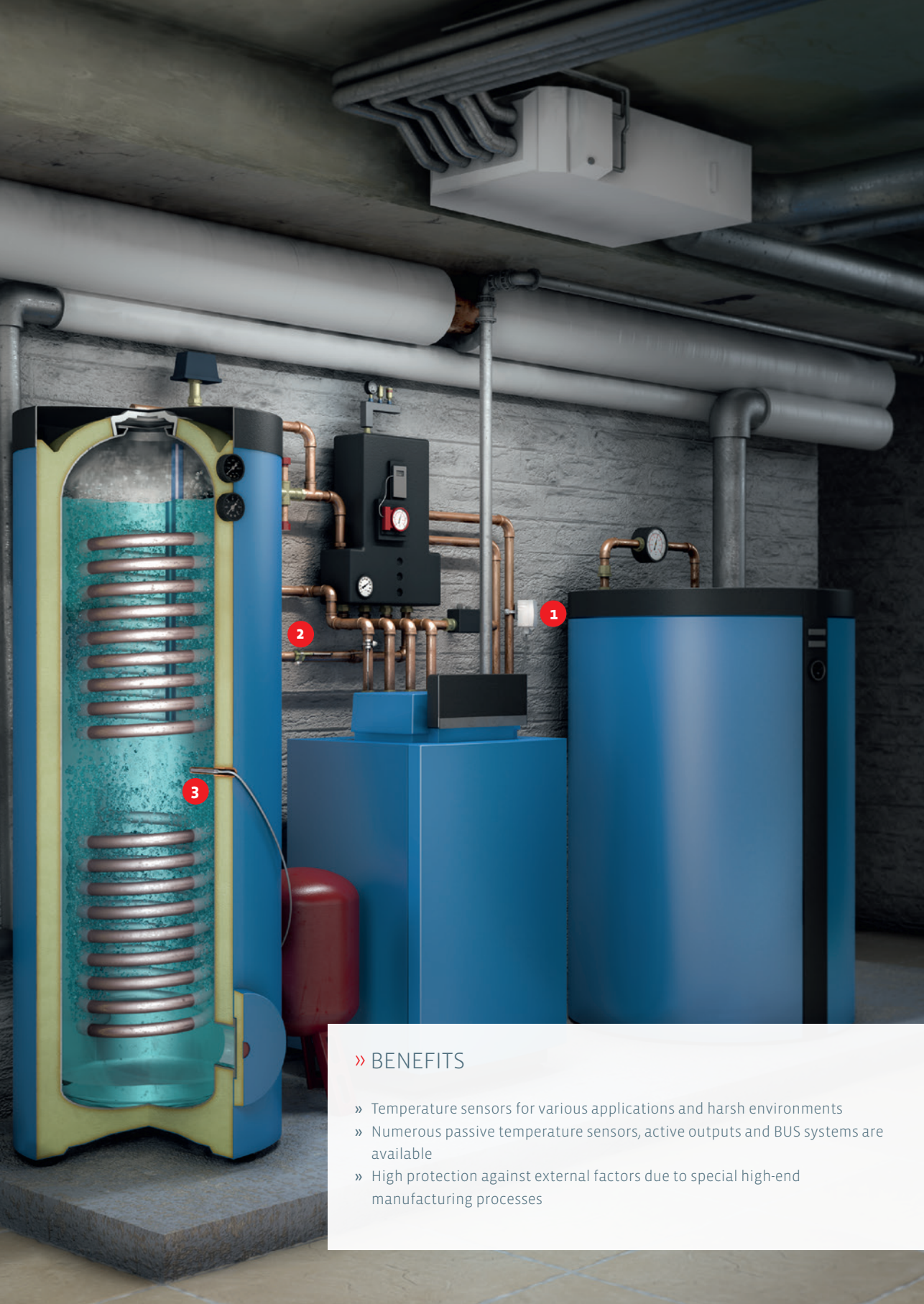
# Temperature

High-quality materials, modern production processes, and many years of experience: We produce temperature sensors for various applications in buildings for heating, refrigeration and air conditioning systems.



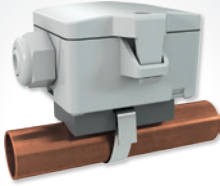
Temperature

<b>Sample applications</b>		<b>153</b>	SFKH01	Temperature sensor liquid temp.	<b>196</b>
			SFK03	Temperature sensor liquid temp.	<b>198</b>
			SFKH03	Temperature sensor liquid temp.	<b>202</b>
			RGS03	High temperature sensor	<b>206</b>
<b>Room sensors</b>			<b>Outdoor sensors</b>		
WRF04	Surface mount temperature sensor	<b>156</b>	AGS54+	Outdoor temp. sensor	<b>208</b>
WRF06	Flush mount temperature sensor	<b>159</b>	AGS55+	Outdoor temp. sensor	<b>210</b>
RDF18	Temperature sensor ceiling	<b>161</b>	AGS54 ext.	Outdoor temp. sensor	<b>212</b>
RPF40	Pendulum temp. sensor large rooms	<b>162</b>	AGS43	Outdoor temp. sensor	<b>214</b>
RPF100	Pendulum temp. sensor large rooms	<b>164</b>			
<b>Duct sensors</b>			<b>Contact sensors</b>		
AKF10+	Duct temperature sensor	<b>166</b>	VFG54+	Temperature sensor pipe	<b>216</b>
KFK01	Duct temperature sensor	<b>171</b>	VFG54	Temperature sensor pipe	<b>218</b>
KFK03	Duct temperature sensor	<b>174</b>	AF25	Temperature sensor pipe	<b>220</b>
RG03	High temperature sensor	<b>178</b>	PR25	Temperature sensor pipe	<b>222</b>
MWF+	Averaging temperature sensor	<b>180</b>	OF14	Temperature sensor glass surface	<b>224</b>
<b>Frost protection thermostats</b>			<b>Cable sensors</b>		
TFR	Thermostat frost protection	<b>182</b>	TF14	Cable temperature sensor	<b>226</b>
<b>Immersion sensors</b>			TF25	Cable temperature sensor	<b>231</b>
SFK02+	Temperature sensor liquid temp.	<b>184</b>	<b>Accessories</b>		
SFK02	Temperature sensor liquid temp.	<b>187</b>	<b>237</b>		
SFKH02+	Temperature sensor liquid temp.	<b>189</b>			
SFKH02	Temperature sensor liquid temp.	<b>192</b>			
SFK01	Temperature sensor liquid temp.	<b>194</b>			



## » BENEFITS

- » Temperature sensors for various applications and harsh environments
- » Numerous passive temperature sensors, active outputs and BUS systems are available
- » High protection against external factors due to special high-end manufacturing processes



1

**VFG54+**

Contact temperature sensor, available with LON or RS485-Modbus interfaces



2

**AF25**

Cable/Contact temperature sensor, various cable lengths are available



3

**TF25**

Cable temperature sensor, available with LON interface



## OPTIMUM TEMPERATURE FOR YOUR APPLICATION




Our sensors are available in various designs and with numerous temperature sensor options, active outputs and BUS systems. Special manufacturing processes guarantee reliable operation even in demanding applications.





## » BENEFITS

- » Temperature sensors for various applications and harsh environments
- » Numerous passive temperature sensors, active outputs and BUS systems are available
- » High protection against external factors due to special high-end manufacturing processes

<p><b>1</b></p>  <p><b>AGS55+</b></p> <p>Outdoor/industrial temperature sensor, available with LON or Modbus interfaces as well as LCD</p>	<p><b>2</b></p>  <p><b>AKF10+</b></p> <p>Duct-/ immersion temperature sensor, available with LON or Modbus interfaces as well as LCD</p>	<p><b>3</b></p>  <p><b>RPF40</b></p> <p>Room pendulum temperature sensor, various cable lengths are available</p>
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## IDEAL TEMPERATURE FOR YOUR APPLICATION

Our sensors are available in various designs and with numerous temperature sensor options, active outputs and BUS systems. Special manufacturing processes guarantee reliable operation even in demanding applications.





WRF04



WRF04 LCD



WRF04  
custom paint alusilver

## WRF04

Surface mounted room sensor for temperature measuring, with set point and fan stage adjustment, manual override for room and office applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 700 Ω
Network technology	BACnet MS/TP KNX (TP) LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) TRA: 15..24 V = (±10%) KNX: supply via BUS
Power consumption	TRV: typ. 0,4 W (24 V ~)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V ~) BACnet: typ. 0,4 W (24 V ~)   0,6 VA (24 V ~) KNX: 0,6 W (24 V ~)   1,2 VA (24 V ~) LON: typ. 0,5 W (24 V ~)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,4 W (24 V ~)   0,6 VA (24 V ~) LCD TRV: typ. 0,6 W (24 V ~)   1,0 VA (24 V ~) LCD LON: typ. 0,85 W (24 V ~)   2,0 VA (24 V ~) LCD RS485 Modbus: typ. 0,4 W (24 V ~)   0,6 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV3   TRA3: 0..+50 °C TRV8   TRA8: -15..+35 °C BUS: 0..+50 °C passive: depending on used sensor
Accuracy temperature	±1% of measuring range (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Display	LCD 29x12 mm, monochrome, (optional)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)
Notes	special painting available on request for other sensors please request multi-conductor connection on request enclosure stainless steel available (see options)



WRF04

Item description: product | sensor

Room sensor temperature – passive		
Item description	Item no.	On stock
WRF04 without sensor	212892	
WRF04 PT100	193221	⊕
WRF04 PT100 1/3 DIN	197731	
WRF04 PT1000	191623	⊕
WRF04 PT1000 1/3 DIN	207980	
WRF04 Ni1000	191616	⊕
WRF04 Ni1000TK5000	193214	⊕
WRF04 NTC10k	207584	⊕
WRF04 NTC10k Precon	197618	
WRF04 NTC20k	193177	
WRF04 LM235Z	193191	⊕
WRF04 DS18B20 1-wire	349901	

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Stainless steel enclosure (VAG)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

WRF04 | FeT | 3-wire | VAG

- WRF04 = product
- FeT = sensor
- 3-wire = number of wires
- VAG = stainless steel enclosure



stainless steel enclosure (VAG)

## WRF04

Item description: product | TRV/TRA MultiRange

Room sensor temperature – active TRV 0..10 V   TRA 4..20 mA					
Item description	Inputs	0..10 V	4..20 mA	Item no.	On stock
WRF04 TRV MultiRange	-	1	-	479202	⊕
WRF04 TRA MultiRange	-	-	1	479196	⊕

Item description: product | AO2V | BUS



Room sensor temperature – active BUS					
Item description	Inputs	0..10 V	4..20 mA	Item no.	
WRF04 AO2V BACnet	2	2	-	546065	
WRF04 KNX	-	-	-	585989	
WRF04 LON				193689	
WRF04 AO2V RS485 Modbus	2	2	-	419970	

### Options

Item description
Stainless steel enclosure (VAG)

Order example for different items:

**WRF04 | AO2V | RS485 Modbus | VAG**

**WRF04** = product  
**AO2V** = Type and number of inputs/outputs  
**RS485 Modbus** = BUS  
**VAG** = stainless steel enclosure

Item description: product | TRV/TRA MultiRange

Room sensor with LCD temperature – active TRV 0..10 V					
Item description	Inputs	0..10 V	4..20 mA	Item no.	
WRF04 LCD TRV MultiRange	-	1	-	593878	

Item description: product | AO2V | BUS



Room sensor with LCD temperature – active BUS					
Item description	Inputs	0..10 V	4..20 mA	Item no.	
WRF04 LCD LON	-	-	-	398084	
WRF04 LCD AO2V RS485 Modbus	2	2	-	420044	

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⊕
Frame for surface mounting WRF04	111584	⊕
Ball stroke protection BS100 (for WRF04)	103312	⊕



WRF06 Busch-Jaeger future® linear



## WRF06

Flush mounted sensor for measuring temperature in room and office applications. Designed for control and monitoring systems.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Network technology	BACnet MS/TP LON FT (free topology) RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) BACnet: typ. 0,9 W (24 V =)   1 VA (24 V ~) LON: typ. 0,7 W (24 V =)   2,5 VA (24 V ~) RS485 Modbus: typ. 0,4 W (24 V =)   0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C passive: depending on used sensor
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.1, K.5 aluminum   stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, I-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)
Notes	for other frame designs please request

## WRF06

Item description: product | sensor | switch range | colour

Room sensor temperature – passive	
Item description	Item no.
WRF06 without sensor Gira E2 pure white	626194
WRF06 PT100 Gira E2 pure white	128933
WRF06 PT100 1/3 DIN Gira E2 pure white	137768
WRF06 PT1000 Gira E2 pure white	158299
WRF06 PT1000 1/3 DIN Gira E2 pure white	160773
WRF06 Ni1000 Gira E2 pure white	138314
WRF06 Ni1000TK5000 Gira E2 pure white	121866
WRF06 NTC10k Gira E2 pure white	191050
WRF06 NTC10k Precon Gira E2 pure white	265136
WRF06 NTC20k Gira E2 pure white	199797
WRF06 LM235Z Gira E2 pure white	121798

Options
Item description
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Item description: product | TRV | switch range | colour

Room sensor temperature – active TRV 0..10 V	
Item description	Item no.
WRF06 TRV3 Gira E2 pure white	627160

Item description: product | BUS | switch range | colour



Room sensor temperature – active BUS	
Item description	Item no.
WRF06 BACnet Gira E2 pure white	624206
WRF06 LON Gira E2 pure white	627177
WRF06 RS485 Modbus Gira E2 pure white	624190

Options
Item description
Switch ranges Busch-Jaeger Busch-balance® SI   Reflex SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**WRF06 | FeT | Busch-Jaeger Reflex SI | alpine white**

**WRF06**

**FeT**

**Busch-Jaeger Reflex SI**

**alpine white**

= product

= sensor

= switch range

= colour



RDF18

## RDF18

Ceiling flush mounted sensor for temperature measurement in room and office spaces. Designed for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature
Output voltage	passive sensor
Measuring range temp.	passive: depending on used sensor
Accuracy temperature	passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	2-wire (standard)
Protection	IP30 according to EN 60529
Connection electrical	connection wire PVC, $\varnothing=25$ mm, grey 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Sensor head	ABS, white, $\varnothing=35$ mm
Ambient condition	-35...+70 °C, max. 85% rH non-condensing
Mounting	facet mounting
Notes	active types for temperature and humidity available (see humidity - FT-RDF18)

Item description: product | sensor | cable length (L)

Ceiling flush mount sensor temperature – passive	
Item description	Item no.
RDF18 PT100 L1000	471237
RDF18 PT100 1/3 DIN L1000	471244
RDF18 PT1000 L1000	459235
RDF18 PT1000 1/3 DIN L1000	458276
RDF18 Ni1000 L1000	463669
RDF18 Ni1000TK5000 L1000	471251
RDF18 NTC10k L1000	457828
RDF18 NTC10k Precon L1000	471282
RDF18 NTC20k L1000	459143
RDF18 LM235Z L1000	456296

Options	
Item description	
Add per meter of connection cable PVC	
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel	
Add to price of PT100 for sensor FeT	

Order example for different items:

**RDF18 | FeT | L2000**

**RDF18** = product

**FeT** = sensor

**L2000** = cable length (mm)



RPF40 passive



RPF40 radiation sensor



RPF40 active

## RPF40

Temperature measurement for large rooms/spaces (e.g. open-plan offices, galleries, production plants). Available with black bulb for radiator or similar applications. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV3   TRA3: 0..+50 °C passive: depending on used sensor
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	PA6, pure white, with quick lock screws (only active)
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm (only active)
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> (only active) sensor wire PVC soft, $\varnothing = 25$ mm, white (grey with radiation sensor) 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Sensor head	white, black (only radiation sensor), $\varnothing = 40$ mm
Notes	other sensors and cable lengths on request multi-conductor connection on request

## RPF40

Item description: product | sensor | colour | cable length(L)

Room pendulum sensor temperature – passive	
Item description	Item no.
RPF40 PT100 white L1000	350006
RPF40 PT100 1/3 DIN white L1000	265621
RPF40 PT1000 white L1000	321068
RPF40 PT1000 1/3 DIN white L1000	329569
RPF40 Ni1000 white L1000	329279
RPF40 Ni1000TK5000 white L1000	144193
RPF40 NTC10k white L1000	351980
RPF40 NTC10k Precon white L1000	164573
RPF40 NTC20k white L1000	334792
RPF40 LM235Z white L1000	339476

Options
Item description
Add per meter of connection cable PVC
Sensor head black (radiation sensor) with grey sensor wire
Connection box AGS54
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Item description: product | TRV/TRA MultiRange | colour | cable length(L)

Room pendulum sensor temperature – active TRV 0..10 V   TRA 4..20 mA	
Item description	Item no.
RPF40 TRV MultiRange white L1000	591065
RPF40 TRA MultiRange white L1000	591058

Options
Item description
Add per meter of connection cable

Order example for different items:

**RPF40 | FeT | black | L2000 | AGS54**

**RPF40** = product  
**FeT** = sensor  
**black** = colour (radiation sensor)  
**L2000** = cable length (mm)  
**AGS54** = connection box AGS54





RPF100 passive



RPF100 active

## RPF100

Pendulum temperature sensor for temperature measurement in large/high rooms/spaces (e.g. open-plan offices, galleries, production plants).

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV3   TRA3: 0..+50 °C passive: depending on used sensor
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	active: terminal block, max. 1,5 mm <sup>2</sup> passive: 2-wire (default), 3-wire or 4-wire sensor wire white 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	stainless steel V2A $\varnothing = 15$ mm, mounting length 100 mm hex pressed
Ambient condition	-35..+70 °C, max. 95% rH non-condensing
Notes	other sensors and cable lengths on request multi-conductor connection on request



## RPF100

Item description: product | sensor | cable length (L)

## Room pendulum sensor temperature – passive

Item description	Item no.
RPF100 PT100 L1000	81566
RPF100 PT100 1/3 DIN L1000	90780
RPF100 PT1000 L1000	90827
RPF100 PT1000 1/3 DIN L1000	90865
RPF100 Ni1000 L1000	90902
RPF100 Ni1000TK5000 L1000	160612
RPF100 NTC10k L1000	91060
RPF100 NTC10k Precon L1000	91107
RPF100 NTC20k L1000	219952
RPF100 LM235Z L1000	91145

## Options

Item description
Connection box USE 63x51x40 mm
Add per meter of sensor wire
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**RPF100 | FeT | L2000 | USE****RPF100** = product**FeT** = sensor**L2000** = cable length (mm)**USE** = connection box USE

Item description: product | TRV/TRA MultiRange | cable length (L)

## Room pendulum sensor temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.
RPF100 TRV MultiRange L1000	591041
RPF100 TRA MultiRange L1000	591034

Item description: product | BUS | cable length (L)



## Room pendulum sensor temperature – active LON

Item description	Item no.
RPF100 LON L1000	96720

## Options

Item description
Add per meter of sensor wire



AKF10+



## AKF10+



Duct/Immersion sensor for measurement of air temperature and other gaseous mediums for HVAC applications (e.g. supply and exhaust ducts).

Can be used as an immersion temperature sensor combined with a thermowell pocket.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) TRA: 15..24 V = (±10%)
Power consumption	TRV: typ. 0,35 W (24 V =)   0,82 VA (24 V ~) TRA: typ. 0,5 W (24 V =) LON: typ. 0,5 W (24 V =)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C, default setting: 0..+160 °C, LON: -45..+130 °C, RS485 Modbus: -50..+160 °C, passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	measuring current typ. <1 mA ±1% of measuring range (typ. at 21 °C) LON: ±0,5 K (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Display	LCD 34x21 mm, black/white with backlight white (optional) with enclosure PA6 with quick lock screws
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white BUS/LCD: PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. Ø=8 mm LON/LCD: M20 for wire max. Ø=8 mm LON: seal insert for double cable entry for wire max Ø=6 mm removable (only enclosure USE)
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS/LCD: terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=6 mm mounting length: 50   100   150   200   250   300   450 mm
Ambient condition	enclosure: -35..+70 °C max. 85% rH non-condensing enclosure passive: -35..+90 °C, max. 85% rH non- condensing
Delivery contents	incl. mounting clip enclosure USE pure white
Notes	for mounting with ..260 °C Mounting flange MF6 (brass) is recommended

## Highlights / Innovations

### Hinged lid enclosure USE

The AKF10+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Thought out in all details

The decisive detail is the removable cable entry of USE: in combination with the removable plug-in terminal it allows the quick and easy wiring through the opening – comfortable pre-assembly included.

The practical hinged cover with its quick-release feature cannot be lost and thus is always there where it belongs.

The additional lock with (only) one screw is also possible for special applications.

### Mounting

The mounting clip, included in delivery, replaces the additionally required mounting flange which was previously used.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 160 °C – PT100	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000	
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 160 °C – PT1000 1/3 DIN	
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 160 °C – Ni1000	
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 160 °C – Ni1000TK5000	
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

## AKF10+

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 150 °C – NTC10k	
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 150 °C – NTC10k Precon	
Item description	Item no.
AKF10+ NTC10k Precon 050.06	621380
AKF10+ NTC10k Precon 100.06	621397
AKF10+ NTC10k Precon 150.06	621403
AKF10+ NTC10k Precon 200.06	621410
AKF10+ NTC10k Precon 250.06	621427
AKF10+ NTC10k Precon 300.06	621434
AKF10+ NTC10k Precon 450.06	621441

Duct/Immersion sensor 150 °C – NTC20k	
Item description	Item no.
AKF10+ NTC20k 050.06	621458
AKF10+ NTC20k 100.06	621465
AKF10+ NTC20k 150.06	621472
AKF10+ NTC20k 200.06	621489
AKF10+ NTC20k 250.06	621496
AKF10+ NTC20k 300.06	621502
AKF10+ NTC20k 450.06	621519

Duct/Immersion sensor 120 °C – LM235Z	
Item description	Item no.
AKF10+ LM235Z 050.06	621106
AKF10+ LM235Z 100.06	621113
AKF10+ LM235Z 150.06	621120
AKF10+ LM235Z 200.06	621137
AKF10+ LM235Z 250.06	621144
AKF10+ LM235Z 300.06	621151
AKF10+ LM235Z 450.06	621168

Duct/Immersion sensor 120 °C – DS18B20 1-wire	
Item description	Item no.
AKF10+ DS18B20 1-wire 050.06	621526
AKF10+ DS18B20 1-wire 100.06	621533
AKF10+ DS18B20 1-wire 150.06	621540
AKF10+ DS18B20 1-wire 200.06	621557
AKF10+ DS18B20 1-wire 250.06	621564
AKF10+ DS18B20 1-wire 300.06	621571
AKF10+ DS18B20 1-wire 450.06	621588

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**AKF10+ | FeT | 450.06 | 3-wire | T260**

**AKF10+** = product  
**FeT** = sensor  
**450.06** = pocket (length.Ø)  
**3-wire** = number of wires  
**T260** = temperature

AKF10+

Item description: product | TRV/TRA | pocket (length.Ø)

Duct/Immersion sensor temp. – active TRV 0..10 V	
Item description	Item no.
AKF10+ TRV MultiRange 050.06	621595
AKF10+ TRV MultiRange 100.06	621601
AKF10+ TRV MultiRange 150.06	621618
AKF10+ TRV MultiRange 200.06	621625
AKF10+ TRV MultiRange 250.06	621632
AKF10+ TRV MultiRange 300.06	621649
AKF10+ TRV MultiRange 450.06	621656

Duct/Immersion sensor temp. – active TRA 4..20 mA	
Item description	Item no.
AKF10+ TRA MultiRange 050.06	621663
AKF10+ TRA MultiRange 100.06	621670
AKF10+ TRA MultiRange 150.06	621687
AKF10+ TRA MultiRange 200.06	621694
AKF10+ TRA MultiRange 250.06	621700
AKF10+ TRA MultiRange 300.06	621717
AKF10+ TRA MultiRange 450.06	621724

Options
Item description
LCD (enclosure: PA6, pure white, with quick lock screws)
Temperature -80..+260 °C (T260)

Item description: product | BUS | pocket (length.Ø)



Duct/Immersion sensor temperature – active LON	
Item description	Item no.
AKF10+ LON 050.06	621748
AKF10+ LON 100.06	621755
AKF10+ LON 150.06	621762
AKF10+ LON 200.06	621779
AKF10+ LON 250.06	621786
AKF10+ LON 300.06	621793
AKF10+ LON 450.06	621816



Duct/Immersion sensor temp. – active RS485 Modbus	
Item description	Item no.
AKF10+ RS485 Modbus 050.06	621823
AKF10+ RS485 Modbus 100.06	621830
AKF10+ RS485 Modbus 150.06	621847
AKF10+ RS485 Modbus 200.06	621854
AKF10+ RS485 Modbus 250.06	621861
AKF10+ RS485 Modbus 300.06	621878
AKF10+ RS485 Modbus 450.06	621885

Options
Item description
LCD (possible for RS485 Modbus)
Temperature -80..+260 °C (T260 - possible for RS485 Modbus)

Order example for different items:

**AKF10+ | TRV MultiRange | 450.06 | LCD**

**AKF10+** = product  
**TRV MultiRange** = output  
**450.06** = pocket (length.Ø)  
**LCD** = display

**AKF10+**

Accessories			
Item description	Item no.	On stock	
Mounting clip enclosure USE pure white	616423	●	
Mounting base enclosure USE pure white	616430	●	
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	●	
Mounting flange MF6 (brass)	3407	●	
Syringe thermal contact fluid (net price)	102308	●	1,10

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	42 mm	611152	●
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	●
VA-thermowell pocket 150 mm type THVADS150	150 mm	142 mm	611824	●
VA-thermowell pocket 200 mm type THVADS200	200 mm	192 mm	611848	●
VA-thermowell pocket 250 mm type THVADS250	250 mm	242 mm	611862	●
VA-thermowell pocket 300 mm type THVADS300	300 mm	292 mm	611879	●
VA-thermowell pocket 450 mm type THVADS450	450 mm	442 mm	611893	●

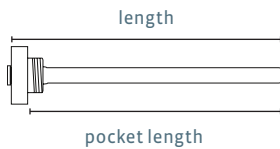
Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	42 mm	610995	●
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	●
MS-thermowell pocket 150 mm type THMSDS150	150 mm	142 mm	611015	●
MS-thermowell pocket 200 mm type THMSDS200	200 mm	192 mm	611022	●
MS-thermowell pocket 250 mm type THMSDS250	250 mm	242 mm	611985	●
MS-thermowell pocket 300 mm type THMSDS300	300 mm	292 mm	611039	●
MS-thermowell pocket 450 mm type THMSDS450	450 mm	442 mm	611046	●



thermowell pocket – THVADS



thermowell pocket – THMSDS





KFK01

## KFK01



Passive duct sensor for measurement of air temperature and other gaseous mediums for HVAC applications (e.g. supply and exhaust ducts).

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive sensor
Measuring range temp.	passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	shape J, aluminium
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, Ø=6 mm mounting length: 50   100   150   200   250   300   450 mm
Ambient condition	-25..+90 °C
Notes	for mounting with ..260 °C Mounting flange MF6 (brass) is recommended



Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 160 °C – PT100	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000	
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 160 °C – PT1000 1/3 DIN	
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



## KFK01

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 160 °C – Ni1000	
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 160 °C – Ni1000TK5000	
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

Duct/Immersion sensor 150 °C – NTC10k	
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 150 °C – NTC10k Precon	
Item description	Item no.
KFK01 NTC10k Precon 050.06	626958
KFK01 NTC10k Precon 100.06	626965
KFK01 NTC10k Precon 150.06	626972
KFK01 NTC10k Precon 200.06	626989
KFK01 NTC10k Precon 250.06	626996
KFK01 NTC10k Precon 300.06	627009
KFK01 NTC10k Precon 450.06	627016

Duct/Immersion sensor 150 °C – NTC20k	
Item description	Item no.
KFK01 NTC20k 050.06	627023
KFK01 NTC20k 100.06	627030
KFK01 NTC20k 150.06	627047
KFK01 NTC20k 200.06	627054
KFK01 NTC20k 250.06	627061
KFK01 NTC20k 300.06	627078
KFK01 NTC20k 400.06	627085

Duct/Immersion sensor 120 °C – LM235Z	
Item description	Item no.
KFK01 LM235Z 050.06	627092
KFK01 LM235Z 100.06	627108
KFK01 LM235Z 150.06	627115
KFK01 LM235Z 200.06	627122
KFK01 LM235Z 250.06	627139
KFK01 LM235Z 300.06	627146
KFK01 LM235Z 450.06	627153

Options	
Item description	
3-wire connection (3-wire)	
4-wire connection (4-wire)	
Temperature -80...+260 °C (T260)	
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel	
Add to price of PT100 for sensor FeT	

Order example for different items:

**KFK01 | FeT | 250.06 | 3-wire | T260**

**KFK01** = product  
**FeT** = sensor  
**250.06** = pocket (length.Ø)  
**3-wire** = number of wires  
**T260** = temperature

KFK01

Accessories		
Item description	Item no.	On stock
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	⊕
Mounting flange MF6 (brass)	3407	⊕

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	42 mm	611152	⊕
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	⊕
VA-thermowell pocket 150 mm type THVADS150	150 mm	142 mm	611824	⊕
VA-thermowell pocket 200 mm type THVADS200	200 mm	192 mm	611848	⊕
VA-thermowell pocket 250 mm type THVADS250	250 mm	242 mm	611862	⊕
VA-thermowell pocket 300 mm type THVADS300	300 mm	292 mm	611879	⊕
VA-thermowell pocket 450 mm type THVADS450	450 mm	442 mm	611893	⊕

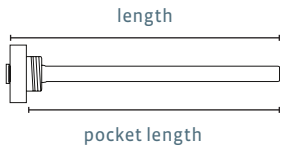
Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				
Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	42 mm	610995	⊕
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	⊕
MS-thermowell pocket 150 mm type THMSDS150	150 mm	142 mm	611015	⊕
MS-thermowell pocket 200 mm type THMSDS200	200 mm	192 mm	611022	⊕
MS-thermowell pocket 250 mm type THMSDS250	250 mm	242 mm	611985	⊕
MS-thermowell pocket 300 mm type THMSDS300	300 mm	292 mm	611039	⊕
MS-thermowell pocket 450 mm type THMSDS450	450 mm	442 mm	611046	⊕



thermowell pocket – THVADS



thermowell pocket – THMSDS





KFK03



## KFK03

Duct sensor for measurement of air temperature and other gaseous mediums for HVAC applications (e.g. supply and exhaust ducts).



### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 3 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%)
Power consumption	TRV: max. 1 W (24 V =) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer 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 passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	TRV   TRA: ±0,2 °C   ±0,1% of measured value (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, Ø=8 mm mounting length: 100   150   200   250 mm
Ambient condition	enclosure passive: -35..+90 °C, max. 85% rH non-condensing enclosure TRV/TRA: -35..+70 °C, max. 85% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Stable aluminium-pressure-casting enclosure

Extremely resistant aluminium-pressure-casting enclosure offers reliable air tightness for negative pressure and overpressure conditions.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

### Acid resistant stainless steel sensor pocket

The acid resistant stainless steel sensor pocket guarantees full functionality – even in aggressive media.

### Technical features

- exchangeable measuring insert
- optional 3 and 4-wire model available
- optional heat-resistant model (up to 260 °C) available

## KFK03

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 160 °C – PT100	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000	
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 160 °C – PT1000 1/3 DIN	
Item description	Item no.
KFK03 PT1000 1/3 DIN 100.08	37990
KFK03 PT1000 1/3 DIN 150.08	37965
KFK03 PT1000 1/3 DIN 200.08	37972
KFK03 PT1000 1/3 DIN 250.08	37989

Duct/Immersion sensor 160 °C – Ni1000	
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 160 °C – Ni1000TK5000	
Item description	Item no.
KFK03 Ni1000TK5000 100.08	39833
KFK03 Ni1000TK5000 150.08	39840
KFK03 Ni1000TK5000 200.08	39857
KFK03 Ni1000TK5000 250.08	39864

Duct/Immersion sensor 150 °C – NTC10k	
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 150 °C – NTC10k Precon	
Item description	Item no.
KFK03 NTC10k Precon 100.08	39994
KFK03 NTC10k Precon 150.08	40006
KFK03 NTC10k Precon 200.08	40013
KFK03 NTC10k Precon 250.08	40020

Duct/Immersion sensor 150 °C – NTC20k	
Item description	Item no.
KFK03 NTC20k 100.08	39956
KFK03 NTC20k 150.08	39963
KFK03 NTC20k 200.08	39970
KFK03 NTC20k 250.08	39987

Duct/Immersion sensor 120 °C – LM235Z	
Item description	Item no.
KFK03 LM235Z 100.08	40037
KFK03 LM235Z 150.08	40044
KFK03 LM235Z 200.08	40051
KFK03 LM235Z 250.08	40068

## KFK03

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80...+260 °C (T260)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**KFK03 | FeT | 250.08 | 3-wire | T260**

**KFK03** = product  
**FeT** = sensor  
**250.08** = pocket (length.Ø)  
**3-wire** = number of wires  
**T260** = temperature

Item description: product | TRVx/TRAx | pocket (length.Ø)

Duct/Immersion sensor -50...+50 °C – active TRV1 0...10 V	
Item description	Item no.
KFK03 TRV1 100.08	350983
KFK03 TRV1 150.08	351010
KFK03 TRV1 200.08	277860
KFK03 TRV1 250.08	286879

Duct/Immersion sensor -10...+120 °C – active TRV2 0...10 V	
Item description	Item no.
KFK03 TRV2 100.08	332453
KFK03 TRV2 150.08	326711
KFK03 TRV2 200.08	351096
KFK03 TRV2 250.08	347242

Duct/Immersion sensor 0...+50 °C – active TRV3 0...10 V	
Item description	Item no.
KFK03 TRV3 100.08	272315
KFK03 TRV3 150.08	351027
KFK03 TRV3 200.08	284905
KFK03 TRV3 250.08	285094

Duct/Immersion sensor 0...+160 °C – active TRV4 0...10 V	
Item description	Item no.
KFK03 TRV4 100.08	351003
KFK03 TRV4 150.08	261418
KFK03 TRV4 200.08	351102
KFK03 TRV4 250.08	347969

Duct/Immersion sensor 0...+250 °C – active TRV5 0...10 V	
Item description	Item no.
KFK03 TRV5 100.08	350990
KFK03 TRV5 150.08	309127
KFK03 TRV5 200.08	351119
KFK03 TRV5 250.08	276214

Duct/Immersion sensor -50...+50 °C – active TRA1 4...20 mA	
Item description	Item no.
KFK03 TRA1 100.08	152464
KFK03 TRA1 150.08	165334
KFK03 TRA1 200.08	232166
KFK03 TRA1 250.08	204668

Duct/Immersion sensor -10...+120 °C – active TRA2 4...20 mA	
Item description	Item no.
KFK03 TRA2 100.08	242639
KFK03 TRA2 150.08	351034
KFK03 TRA2 200.08	351041
KFK03 TRA2 250.08	351133

KFK03

Item description: product | TRVx/TRAx | pocket (length.Ø)

Duct/Immersion sensor 0...+50 °C – active TRA3 4...20 mA	
Item description	Item no.
KFK03 TRA3 100.08	338585
KFK03 TRA3 150.08	170239
KFK03 TRA3 200.08	161909
KFK03 TRA3 250.08	134804

Duct/Immersion sensor 0...+160 °C – active TRA4 4...20 mA	
Item description	Item no.
KFK03 TRA4 100.08	315920
KFK03 TRA4 150.08	338981
KFK03 TRA4 200.08	337380
KFK03 TRA4 250.08	303057

Duct/Immersion sensor 0...+250 °C – active TRA5 4...20 mA	
Item description	Item no.
KFK03 TRA5 100.08	239080
KFK03 TRA5 150.08	320948
KFK03 TRA5 200.08	240116
KFK03 TRA5 250.08	281577

Accessories		
Item description	Item no.	On stock
Mounting flange MF8 (VA)	103305	⊕

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=8 mm			
Item description	Length	Item no.	On stock
VA thermowell pocket 100 mm type THVA100 (KFK03)	100 mm	584180	⊕
VA thermowell pocket 150 mm type THVA150 (KFK03)	150 mm	584197	⊕
VA thermowell pocket 200 mm type THVA200 (KFK03)	200 mm	584203	⊕
VA thermowell pocket 250 mm type THVA250 (KFK03)	250 mm	594738	⊕



mounting flange MF8 (VA)



thermowell pocket – THVA



RG03

## RG03



Duct sensor (high temperature) for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 3 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%)
Power consumption	TRV: max. 1 W (24 V =) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV6   TRA6: 0..+400 °C TRV7   TRA7: 0..+600 °C passive: depending on used sensor
Working range temp.	0..+500 °C temporarily up to +600 °C
Accuracy temperature	TRV   TRA: ±0,2 °C   ±0,1% of measured value (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	PT100: 3-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, Ø=11 mm mounting length: 250   500 mm
Ambient condition	enclosure passive: -25..+90 °C, max. 80% rH non-condensing enclosure TRV/TRA: -25..+70 °C, max. 80% rH non-condensing
Delivery contents	incl. mounting flange

## RG03

Item description: product | sensor | pocket (length.Ø)

### Duct/Immersion sensor temperature 600 °C – PT100

Item description	Item no.
RG03 PT100 250.11	64361
RG03 PT100 500.11	64378

Item description: product | TRV/TRA | pocket (length.Ø)

### Duct/Immersion sensor temperature 0..400 °C – active TRV6 0..10 V | TRA6 4..20 mA

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

### Duct/Immersion sensor temperature 0..600 °C – active TRV7 0..10 V | TRA7 4..20 mA

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





MWF+

## MWF+



Duct averaging temperature sensor with hinged lid enclosure USE for measuring the average temperature in air ducts.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) TRA: 15..24 V = (±10%)
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	passive: -50..+80 °C TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C default setting: -50..+50 °C
Accuracy temperature	TRV   TRA: ±3% of measuring range (typ. at 21 °C) PT1000: class B Ni1000/Ni1000TK5000: ±0,4 K
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Sensor rod	PT1000/Ni1000/TRA/TRV: 3000 mm, 6000 mm Ni1000TK5000: 2500 mm, 5000 mm
Ambient condition	enclosure passive: -35..+90 °C, max. 85% rH non-condensing enclosure TRV/TRA: -35..+70 °C, max. 85% rH non-condensing
Delivery contents	incl. installation set

## MWF+

Item description: product | sensor | cable length (L)

### Duct averaging sensor temperature – passive

Item description	Item no.	On stock
MWF+ PT1000 L3000 incl. installation kit	620413	
MWF+ PT1000 L6000 incl. installation kit	620420	
MWF+ Ni1000 L3000 incl. installation kit	620437	●
MWF+ Ni1000 L6000 incl. installation kit	620444	●
MWF+ Ni1000TK5000 L2500 incl. installation kit	620451	
MWF+ Ni1000TK5000 L5000 incl. installation kit	620468	

Item description: product | TRV/TRA MultiRange | cable length (L)

### Duct averaging sensor temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.	On stock
MWF+ TRV MultiRange L3000 incl. installation kit	620475	●
MWF+ TRV MultiRange L6000 incl. installation kit	620482	●
MWF+ TRA MultiRange L3000 incl. installation kit	620499	●
MWF+ TRA MultiRange L6000 incl. installation kit	620505	●

### Accessories

Item description	Item no.	On stock
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	●
Mounting flange MF7 (brass)	102360	●
Installation set TFR/MWF	458399	●



TFR-R

## TFR

The frost protection thermostat TFR is used for downstream temperature monitoring of water air heaters in ventilation and air-conditioning systems to prevent frost damages. It has a small differential gap and a high reproducibility. The reset can be done automatically or manually in case of type 'R'. The frost protection thermostat can be used to initiate the following frost protection functions: Stop fan, Close outside air dampers, Open heating coil valve 100%, Star heating coil pump, Switch-off chiller (condenser) and humidifier, Trigger visual and/or audible frost alarm

### TECHNICAL DATA

Measuring values	temperature
Medium	air
Output switch contact	single pole change over switching load max. 10 A (250 V ~)
Accuracy temperature	repeatability $\pm 0,5^{\circ}\text{C}$
Set point range	$-10..+12^{\circ}\text{C}$ (default $+5^{\circ}\text{C}$ )
Switching values	switching differential: $2^{\circ}\text{C} \pm 1^{\circ}\text{C}$
Enclosure	PA6 GK30, light grey cover ABS, transparent
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8\text{ mm}$
Connection electrical	terminal block, max. $2,5\text{ mm}^2$
Capillary pipe	copper with tube filling R507 length 1,8   3   6   12 m sensor operating length approx. 600 mm contact material Ag/Ni (90%/10%) gold plated ( $3\text{ }\mu\text{m}$ )
Ambient condition	$-35..+70^{\circ}\text{C}$ , max. 85% rH non-condensing
Delivery contents	Installation set TFR/MWF with PA6 GF30 (6 pcs)

## TFR

Item description: product | length capillary pipe

### Frost protection thermostat – automatical reset

Item description	Item no.	On stock
TFR 1800 incl. mounting angle	426435	
TFR 3000 incl. mounting angle	430371	●
TFR 6000 incl. mounting angle	430395	●
TFR 12000 incl. mounting angle	541916	

### Frost protection thermostat – manual reset

Item description	Item no.	On stock
TFR-R 1800 incl. mounting angle	430364	
TFR-R 3000 incl. mounting angle	430388	●
TFR-R 6000 incl. mounting angle	430401	●

### Accessories

Item description	Item no.	On stock
Mounting flange MF2/TPO	435642	●
Installation set TFR/MWF	458399	●



SFK02+



## SFK02+

Immersion sensor with hinged lid enclosure USE complete and integrated thermowell pocket for temperature measurement of gases and liquids in pipework applications.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C, default setting: 0..+160 °C, passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. $\varnothing=8$ mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Pocket	stainless steel V4A, $\varnothing=8$ mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure: -35..+70 °C enclosure passive: -35..+90 °C max. 85% rH non-condensing
Notes	type with display available for active models, see SFK02 for other sensors please request

## Highlights / Innovations

### Hinged lid enclosure USE

The SFK02+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

## SFK02+

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – PT100	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000	
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 160 °C – PT1000 1/3 DIN	
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 160 °C – Ni1000	
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 160 °C – Ni1000TK5000	
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

Immersion sensor 150 °C – NTC10k	
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 150 °C – NTC10k Precon	
Item description	Item no.
SFK02+ NTC10k Precon 050.08	622479
SFK02+ NTC10k Precon 100.08	622486
SFK02+ NTC10k Precon 150.08	622493
SFK02+ NTC10k Precon 200.08	622509
SFK02+ NTC10k Precon 250.08	622516
SFK02+ NTC10k Precon 450.08	622523

Immersion sensor 150 °C – NTC20k	
Item description	Item no.
SFK02+ NTC20k 050.08	622530
SFK02+ NTC20k 100.08	622547
SFK02+ NTC20k 150.08	622554
SFK02+ NTC20k 200.08	622561
SFK02+ NTC20k 250.08	622578
SFK02+ NTC20k 450.08	622585

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFK02+ LM235Z 050.08	622226
SFK02+ LM235Z 100.08	622233
SFK02+ LM235Z 150.08	622240
SFK02+ LM235Z 200.08	622257
SFK02+ LM235Z 250.08	622264
SFK02+ LM235Z 450.08	622288

## SFK02+

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80...+260 °C (T260)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**SFK02+ | FeT | 450.08 | 3-wire | T260**

**SFK02+** = product  
**FeT** = sensor  
**450.08** = pocket (length.Ø)  
**3-wire** = number of wires  
**T260** = temperature

Immersion sensor temperature – active TRV 0..10 V	
Item description	Item no.
SFK02+ TRV MultiRange 050.08	622592
SFK02+ TRV MultiRange 100.08	622608
SFK02+ TRV MultiRange 150.08	622615
SFK02+ TRV MultiRange 200.08	622622
SFK02+ TRV MultiRange 250.08	622639
SFK02+ TRV MultiRange 450.08	622646

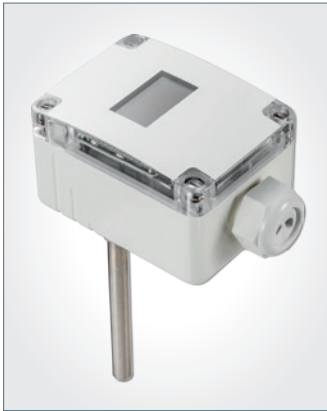
Immersion sensor temperature – active TRA 4..20 mA	
Item description	Item no.
SFK02+ TRA MultiRange 050.08	622653
SFK02+ TRA MultiRange 100.08	622660
SFK02+ TRA MultiRange 150.08	622677
SFK02+ TRA MultiRange 200.08	622684
SFK02+ TRA MultiRange 250.08	622691
SFK02+ TRA MultiRange 450.08	622707

Options
Item description
TRV/TRA: Temperature -80...+260 °C (T260)

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	☺
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	☺
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	☺
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	☺



SFK02 BUS



SFK02 LCD

## SFK02

Immersion sensor complete with integrated thermowell pocket for temperature measurement of gases and liquids in pipework applications.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	LCD TRV: 0..10 V
Output Amp	LCD TRA: 1x 4..20 mA
Network technology	LON FT (free topology)
Power supply	TRV   LON: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =) LON: typ. 0,5 W (24 V =)   1,7 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer 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 LON: -45..+130 °C
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) LON: $\pm 0,5$ K (typ. at 21 °C)
Display	LCD 34x21 mm, black/white with backlight white (optional)
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. $\varnothing = 8$ mm LON: M20 for wire max. $\varnothing = 8$ mm seal insert for double cable entry for wire max $\varnothing = 6$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, $\varnothing = 8$ mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure: -35..+70 °C max. 85% rH non-condensing





Item description: product | BUS | pocket (length.Ø)

## SFK02



Immersion sensor temperature – active LON	
Item description	Item no.
SFK02 LON 050.08	95181
SFK02 LON 100.08	95198
SFK02 LON 150.08	95204
SFK02 LON 200.08	95211
SFK02 LON 250.08	95228
SFK02 LON 450.08	95235

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

Immersion sensor LCD temperature – active TRV 0..10 V	
Item description	Item no.
SFK02 LCD TRV MultiRange 050.08	623100
SFK02 LCD TRV MultiRange 100.08	623117
SFK02 LCD TRV MultiRange 150.08	623124
SFK02 LCD TRV MultiRange 200.08	623131
SFK02 LCD TRV MultiRange 250.08	623148
SFK02 LCD TRV MultiRange 450.08	623155

Immersion sensor LCD temperature – active TRA 4..20 mA	
Item description	Item no.
SFK02 LCD TRA MultiRange 050.08	623162
SFK02 LCD TRA MultiRange 100.08	623179
SFK02 LCD TRA MultiRange 150.08	623186
SFK02 LCD TRA MultiRange 200.08	623193
SFK02 LCD TRA MultiRange 250.08	623209
SFK02 LCD TRA MultiRange 450.08	623216

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

Order example for different items:

**SFK02 LCD | TRV MultiRange | 450.08 | T260**

**SFK02 LCD** = product  
**TRV MultiRange** = output  
**450.08** = pocket (length.Ø)  
**T260** = temperature

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



SFKH02+



## SFKH02+

Immersion sensor with neck pipe in hinged lid enclosure USE complete and integrated thermowell pocket for temperature measurement of gases and liquids in pipework applications.

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C, default setting: 0..+160 °C, passive: -50..+120 +150 +160 +260 °C, depending on used sensor,
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. $\varnothing=8$ mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Neck pipe	stainless steel V2A, $\varnothing=12$ mm, L=70 mm
Pocket	stainless steel V4A, $\varnothing=8$ mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure: -35..+70 °C enclosure passive: -35..+90 °C max. 85% rH non-condensing
Notes	type with display available for active models, see SFKH02 for other sensors please request

## Highlights / Innovations

### Hinged lid enclosure USE

The SFKH02+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

## SFKH02+

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – PT100	
Item description	Item no.
SFKH02+ PT100 050.08	623537
SFKH02+ PT100 100.08	623544
SFKH02+ PT100 150.08	623551
SFKH02+ PT100 200.08	623568
SFKH02+ PT100 250.08	623575
SFKH02+ PT100 450.08	623582

Immersion sensor 160 °C – PT100 1/3 DIN	
Item description	Item no.
SFKH02+ PT100 1/3 DIN 050.08	623599
SFKH02+ PT100 1/3 DIN 100.08	623605
SFKH02+ PT100 1/3 DIN 150.08	623612
SFKH02+ PT100 1/3 DIN 200.08	623629
SFKH02+ PT100 1/3 DIN 250.08	623636
SFKH02+ PT100 1/3 DIN 450.08	623643

Immersion sensor 160 °C – PT1000	
Item description	Item no.
SFKH02+ PT1000 050.08	623650
SFKH02+ PT1000 100.08	623667
SFKH02+ PT1000 150.08	623674
SFKH02+ PT1000 200.08	623681
SFKH02+ PT1000 250.08	623698
SFKH02+ PT1000 450.08	623704

Immersion sensor 160 °C – PT1000 1/3 DIN	
Item description	Item no.
SFKH02+ PT1000 1/3 DIN 050.08	623223
SFKH02+ PT1000 1/3 DIN 100.08	623230
SFKH02+ PT1000 1/3 DIN 150.08	623247
SFKH02+ PT1000 1/3 DIN 200.08	623254
SFKH02+ PT1000 1/3 DIN 250.08	623261
SFKH02+ PT1000 1/3 DIN 450.08	623278

Immersion sensor 160 °C – Ni1000	
Item description	Item no.
SFKH02+ Ni1000 050.08	623353
SFKH02+ Ni1000 100.08	623360
SFKH02+ Ni1000 150.08	623377
SFKH02+ Ni1000 200.08	623384
SFKH02+ Ni1000 250.08	623391
SFKH02+ Ni1000 450.08	623407

Immersion sensor 160 °C – Ni1000TK5000	
Item description	Item no.
SFKH02+ Ni1000TK5000 050.08	623414
SFKH02+ Ni1000TK5000 100.08	623421
SFKH02+ Ni1000TK5000 150.08	623438
SFKH02+ Ni1000TK5000 200.08	623445
SFKH02+ Ni1000TK5000 250.08	623452
SFKH02+ Ni1000TK5000 450.08	623469

Immersion sensor 150 °C – NTC10k	
Item description	Item no.
SFKH02+ NTC10k 050.08	623285
SFKH02+ NTC10k 100.08	623292
SFKH02+ NTC10k 150.08	623308
SFKH02+ NTC10k 200.08	623315
SFKH02+ NTC10k 250.08	623322
SFKH02+ NTC10k 450.08	623339

Immersion sensor 150 °C – NTC10k Precon	
Item description	Item no.
SFKH02+ NTC10k Precon 050.08	623711
SFKH02+ NTC10k Precon 100.08	623728
SFKH02+ NTC10k Precon 150.08	623735
SFKH02+ NTC10k Precon 200.08	623742
SFKH02+ NTC10k Precon 250.08	623759
SFKH02+ NTC10k Precon 450.08	623766

Immersion sensor 150 °C – NTC20k	
Item description	Item no.
SFKH02+ NTC20k 050.08	623773
SFKH02+ NTC20k 100.08	623780
SFKH02+ NTC20k 150.08	623797
SFKH02+ NTC20k 200.08	623803
SFKH02+ NTC20k 250.08	623810
SFKH02+ NTC20k 450.08	623827

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFKH02+ LM235Z 050.08	623476
SFKH02+ LM235Z 100.08	623483
SFKH02+ LM235Z 150.08	623490
SFKH02+ LM235Z 200.08	623506
SFKH02+ LM235Z 250.08	623513
SFKH02+ LM235Z 450.08	623520

## SFKH02+

### Options

#### Item description

3-wire connection (3-wire)

4-wire connection (4-wire)

Temperature -80...+260 °C (T260)

Add to price of NTC10k for sensor NTC1,8k | NTC5k | NTC10k Carel

Add to price of PT100 for sensor FeT

Order example for different items:  
SFKH02+ | FeT | 450.08 | 3-wire | T260

SFKH02+  
FeT  
450.08  
3-wire  
T260

= product  
= output  
= pocket (length.Ø)  
= number of wires  
= temperature

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

### Immersion sensor temperature – active TRV 0..10 V

Item description	Item no.
SFKH02+ TRV MultiRange 050.08	623858
SFKH02+ TRV MultiRange 100.08	623865
SFKH02+ TRV MultiRange 150.08	623872
SFKH02+ TRV MultiRange 200.08	623889
SFKH02+ TRV MultiRange 250.08	623896
SFKH02+ TRV MultiRange 450.08	623902

### Immersion sensor temperature – active TRA 4..20 mA

Item description	Item no.
SFKH02+ TRA MultiRange 050.08	623919
SFKH02+ TRA MultiRange 100.08	623926
SFKH02+ TRA MultiRange 150.08	623933
SFKH02+ TRA MultiRange 200.08	623940
SFKH02+ TRA MultiRange 250.08	623957
SFKH02+ TRA MultiRange 450.08	623964

### Options

#### Item description

Temperature -80...+260 °C (T260)

### Accessories – bonded pockets

Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



SFKH02 BUS



SFKH02 LCD

## SFKH02

Immersion sensor with neck pipe and integrated thermowell pocket for high temperature measurement of liquids in duct applications.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	LCD TRV: 0..10 V
Output Amp	LCD TRA: 1x 4..20 mA
Network technology	LON FT (free topology)
Power supply	TRV   LON: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =) LON: typ. 0,5 W (24 V =)   1,7 VA (24 V ~)
Measuring range temp.	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 LON: -45..+130 °C
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) LON: $\pm 0,5$ K (typ. at 21 °C)
Display	LCD 34x21 mm, black/white with backlight white (optional)
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. $\varnothing=8$ mm LON: M20 for wire max. $\varnothing=8$ mm seal insert for double cable entry for wire max $\varnothing=6$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Neck pipe	stainless steel V2A, $\varnothing=12$ mm, L=70 mm
Pocket	stainless steel V4A, $\varnothing=8$ mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure: -35..+70 °C max. 85% rH non-condensing



Item description: product | BUS | pocket (length.Ø)

## SFKH02



### Immersion sensor temperature – active LON

Item description	Item no.
SFKH02 LON 050.08	95365
SFKH02 LON 100.08	95372
SFKH02 LON 150.08	95389
SFKH02 LON 200.08	95396
SFKH02 LON 250.08	95402
SFKH02 LON 450.08	95419

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

### Immersion sensor LCD temperature – active TRV 0..10 V

Item description	Item no.
SFKH02 LCD TRV MultiRange 050.08	623988
SFKH02 LCD TRV MultiRange 100.08	623995
SFKH02 LCD TRV MultiRange 150.08	624008
SFKH02 LCD TRV MultiRange 200.08	624015
SFKH02 LCD TRV MultiRange 250.08	624022
SFKH02 LCD TRV MultiRange 450.08	624039

### Immersion sensor LCD temperature – active TRA 4..20 mA

Item description	Item no.
SFKH02 LCD TRA MultiRange 050.08	624046
SFKH02 LCD TRA MultiRange 100.08	624053
SFKH02 LCD TRA MultiRange 150.08	624060
SFKH02 LCD TRA MultiRange 200.08	624077
SFKH02 LCD TRA MultiRange 250.08	624084
SFKH02 LCD TRA MultiRange 450.08	624091

### Options

Item description
Temperature -80..+260 °C (T260)

Order example for different items:

**SFKH02 LCD | TRV MultiRange | 450.08 | T260**

**SFKH02 LCD** = product  
**TRV MultiRange** = output  
**450.08** = pocket (length.Ø)  
**T260** = temperature

### Accessories – bonded pockets

Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



SFK01



## SFK01

Passive immersion sensor with neck pipe and integrated thermowell pocket for high temperature measurement of liquids in duct applications.



### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive sensor
Measuring range temp.	passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	2-wire (standard), 3-wire, 4-wire
Enclosure	shape J, aluminium
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure passive: -25..+90 °C, max. 80% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – PT100	
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 160 °C – PT1000	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000 1/3 DIN	
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

## SFK01

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – Ni1000	
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 150 °C – NTC10k	
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 150 °C – NTC20k	
Item description	Item no.
SFK01 NTC20k 050.08	45483
SFK01 NTC20k 100.08	45490
SFK01 NTC20k 150.08	45506
SFK01 NTC20k 200.08	45513
SFK01 NTC20k 250.08	45520
SFK01 NTC20k 450.08	45537

Immersion sensor 160 °C – Ni1000TK5000	
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

Immersion sensor 150 °C – NTC10k Precon	
Item description	Item no.
SFK01 NTC10k Precon 050.08	45544
SFK01 NTC10k Precon 100.08	45551
SFK01 NTC10k Precon 150.08	45568
SFK01 NTC10k Precon 200.08	45575
SFK01 NTC10k Precon 250.08	45582
SFK01 NTC10k Precon 450.08	45599

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFK01 LM235Z 050.08	45605
SFK01 LM235Z 100.08	45612
SFK01 LM235Z 150.08	45629
SFK01 LM235Z 200.08	45636
SFK01 LM235Z 250.08	45643
SFK01 LM235Z 450.08	45650

Options	
Item description	
3-wire connection (3-wire)	
4-wire connection (4-wire)	
Temperature -80..+260 °C (T260)	
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel	
Add to price of PT100 for sensor FeT	

Order example for different items:

**SFK01 | FeT | 450.08 | 3-wire | T260**

**SFK01** = product  
**FeT** = sensor  
**450.08** = pocket (length.Ø)  
**3-wire** = number of wires  
**T260** = temperature

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●





SFKH01



## SFKH01

Passive immersion sensor with neck pipe and integrated thermowell pocket for high temperature measurement of liquids in duct applications.



### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive sensor
Measuring range temp.	passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Sensor	2-wire (standard), 3-wire, 4-wire
Enclosure	shape J, aluminium
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Neck pipe	stainless steel V2A, Ø=12 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 50   100   150   200   250   450 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure passive: -25..+90 °C, max. 80% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

Immersion sensor 160 °C – PT100	
Item description	Item no.
SFKH01 PT100 050.08	54652
SFKH01 PT100 100.08	55567
SFKH01 PT100 150.08	55574
SFKH01 PT100 200.08	55581
SFKH01 PT100 250.08	55598
SFKH01 PT100 450.08	55604

Immersion sensor 160 °C – PT100 1/3 DIN	
Item description	Item no.
SFKH01 PT100 1/3 DIN 050.08	55611
SFKH01 PT100 1/3 DIN 100.08	55628
SFKH01 PT100 1/3 DIN 150.08	55635
SFKH01 PT100 1/3 DIN 200.08	55642
SFKH01 PT100 1/3 DIN 250.08	55659
SFKH01 PT100 1/3 DIN 450.08	55666

Immersion sensor 160 °C – PT1000	
Item description	Item no.
SFKH01 PT1000 050.08	55673
SFKH01 PT1000 100.08	55680
SFKH01 PT1000 150.08	55697
SFKH01 PT1000 200.08	55703
SFKH01 PT1000 250.08	55710
SFKH01 PT1000 450.08	55727

Immersion sensor 160 °C – PT1000 1/3 DIN	
Item description	Item no.
SFKH01 PT1000 1/3 DIN 050.08	55734
SFKH01 PT1000 1/3 DIN 100.08	55741
SFKH01 PT1000 1/3 DIN 150.08	55758
SFKH01 PT1000 1/3 DIN 200.08	55765
SFKH01 PT1000 1/3 DIN 250.08	55772
SFKH01 PT1000 1/3 DIN 450.08	55789

## SFKH01

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – Ni1000	
Item description	Item no.
SFKH01 Ni1000 050.08	55796
SFKH01 Ni1000 100.08	55802
SFKH01 Ni1000 150.08	55819
SFKH01 Ni1000 200.08	55826
SFKH01 Ni1000 250.08	55833
SFKH01 Ni1000 450.08	55840

Immersion sensor 150 °C – NTC10k	
Item description	Item no.
SFKH01 NTC10k 050.08	55970
SFKH01 NTC10k 100.08	55987
SFKH01 NTC10k 150.08	55994
SFKH01 NTC10k 200.08	56007
SFKH01 NTC10k 250.08	56014
SFKH01 NTC10k 450.08	56021

Immersion sensor 150 °C – NTC20k	
Item description	Item no.
SFKH01 NTC20k 050.08	56038
SFKH01 NTC20k 100.08	56045
SFKH01 NTC20k 150.08	56052
SFKH01 NTC20k 200.08	56069
SFKH01 NTC20k 250.08	56076
SFKH01 NTC20k 450.08	56083

Immersion sensor 160 °C – Ni1000TK5000	
Item description	Item no.
SFKH01 Ni1000TK5000 050.08	55857
SFKH01 Ni1000TK5000 100.08	55864
SFKH01 Ni1000TK5000 150.08	55871
SFKH01 Ni1000TK5000 200.08	55888
SFKH01 Ni1000TK5000 250.08	55895
SFKH01 Ni1000TK5000 450.08	55901

Immersion sensor 150 °C – NTC10k Precon	
Item description	Item no.
SFKH01 NTC10k Precon 050.08	56090
SFKH01 NTC10k Precon 100.08	56106
SFKH01 NTC10k Precon 150.08	56113
SFKH01 NTC10k Precon 200.08	56120
SFKH01 NTC10k Precon 250.08	56137
SFKH01 NTC10k Precon 450.08	56144

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFKH01 LM235Z 050.08	56151
SFKH01 LM235Z 100.08	56168
SFKH01 LM235Z 150.08	56175
SFKH01 LM235Z 200.08	56182
SFKH01 LM235Z 250.08	56199
SFKH01 LM235Z 450.08	56205

Options	
Item description	
3-wire connection (3-wire)	
4-wire connection (4-wire)	
Temperature -80..+260 °C (T260)	
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel	
Add to price of PT100 for sensor FeT	

Order example for different items:

**SFKH01 | FeT | 450.08 | 3-wire | T260**

**SFKH01** = product

**FeT** = sensor

**450.08** = pocket (length.Ø)

**3-wire** = 3-wire connection

**T260** = temperature

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



SFK03



## SFK03



Immersion sensor with neck pipe and integrated thermowell pocket for high temperature measurement of liquids in duct applications.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 1 W (24 V =)   1,4 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	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 passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	TRV   TRA: $\pm 0,2$ °C   $\pm 0,1\%$ of measured value (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, $\varnothing = 8$ mm, thread G 1/2" mounting length: 100   150   200   250 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure passive: -25..+90 °C, max. 80% rH non-condensing enclosure TRV/TRA: -25..+70 °C, max. 80% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

## SFK03

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – PT100	
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 160 °C – PT100 1/3 DIN	
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 160 °C – PT1000	
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 160 °C – PT1000 1/3 DIN	
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 160 °C – Ni1000	
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 160 °C – Ni1000TK5000	
Item description	Item no.
SFK03 Ni1000TK5000 100.08	71260
SFK03 Ni1000TK5000 150.08	71277
SFK03 Ni1000TK5000 200.08	71284
SFK03 Ni1000TK5000 250.08	71291

Immersion sensor 150 °C – NTC10k	
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 150 °C – NTC10k Precon	
Item description	Item no.
SFK03 NTC10k Precon 100.08	71420
SFK03 NTC10k Precon 150.08	71437
SFK03 NTC10k Precon 200.08	71444
SFK03 NTC10k Precon 250.08	71451

Immersion sensor 150 °C – NTC20k	
Item description	Item no.
SFK03 NTC20k 100.08	71383
SFK03 NTC20k 150.08	71390
SFK03 NTC20k 200.08	71406
SFK03 NTC20k 250.08	71413

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFK03 LM235Z 100.08	71468
SFK03 LM235Z 150.08	71475
SFK03 LM235Z 200.08	71482
SFK03 LM235Z 250.08	71499

## SFK03

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**SFK03 | FeT | 250.08 | T260**

**SFK03** = product  
**FeT** = sensor  
**250.08** = pocket (length.Ø)  
**T260** = temperature

Item description: product | TRVx | pocket (length.Ø)

Immersion sensor -50..+50 °C – active TRV1 0..10 V	
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 – active TRV2 0..10 VTRV2	
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 – active TRV3 0..10 V	
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 – active TRV4 0..10 V	
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..+250 °C – active TRV5 0..10 V	
Item description	Item no.
SFK03 TRV5 100.08	243933
SFK03 TRV5 150.08	295314
SFK03 TRV5 200.08	297509
SFK03 TRV5 250.08	306607

## SFK03

Item description: product | TRAx | pocket (length.Ø)

Immersion sensor -50..+50 °C – active TRA1 4..20 mA	
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 – active TRA2 4..20 mA	
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 – active TRA3 4..20 mA	
Item description	Item no.
SFK03 TRA3 100.08	165280
SFK03 TRA3 150.08	165044
SFK03 TRA3 200.08	132220
SFK03 TRA3 250.08	303835

Immersion sensor 0..+160 °C – active TRA4 4..20 mA	
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..+250 °C – active TRA5 4..20 mA	
Item description	Item no.
SFK03 TRA5 100.08	131674
SFK03 TRA5 150.08	146821
SFK03 TRA5 200.08	152884
SFK03 TRA5 250.08	157421

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



bonded pocket – St52-3



SFKH03



## SFKH03



Immersion sensor with neck pipe and integrated thermowell pocket for high temperature measurement of liquids in duct applications.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 1 W (24 V =)   1,4 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	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 passive: -50..+120 +150 +160 +260 °C, depending on used sensor
Accuracy temperature	TRV   TRA: $\pm 0,2$ °C   $\pm 0,1\%$ of measured value (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Neck pipe	stainless steel V2A, $\varnothing = 15$ mm, L=70 mm
Pocket	stainless steel V4A, $\varnothing = 8$ mm, thread G 1/2" mounting length: 100   150   200   250 mm
Ambient condition	-50..+160 °C (only end of sensor) optional -80..+260 °C (only end of sensor) enclosure passive: -25..+90 °C, max. 80% rH non-condensing enclosure TRV/TRA: -25..+70 °C, max. 80% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Removable measuring insert

The measuring insert can be exchanged without having to empty the medium.

### SI-Protection

The SI-Protection reliably protects our sensors from humidity and vibrations.

## SFKH03

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 160 °C – PT100	
Item description	Item no.
SFKH03 PT100 100.08	64323
SFKH03 PT100 150.08	75053
SFKH03 PT100 200.08	75077
SFKH03 PT100 250.08	75084

Immersion sensor 160 °C – PT100 1/3 DIN	
Item description	Item no.
SFKH03 PT100 1/3 DIN 100.08	75091
SFKH03 PT100 1/3 DIN 150.08	75107
SFKH03 PT100 1/3 DIN 200.08	75114
SFKH03 PT100 1/3 DIN 250.08	75121

Immersion sensor 160 °C – PT1000	
Item description	Item no.
SFKH03 PT1000 100.08	75138
SFKH03 PT1000 150.08	75145
SFKH03 PT1000 200.08	75152
SFKH03 PT1000 250.08	75169

Immersion sensor 160 °C – PT1000 1/3 DIN	
Item description	Item no.
SFKH03 PT1000 1/3 DIN 100.08	75176
SFKH03 PT1000 1/3 DIN 150.08	75183
SFKH03 PT1000 1/3 DIN 200.08	75190
SFKH03 PT1000 1/3 DIN 250.08	75206

Immersion sensor 160 °C – Ni1000	
Item description	Item no.
SFKH03 Ni1000 100.08	75213
SFKH03 Ni1000 150.08	75220
SFKH03 Ni1000 200.08	75237
SFKH03 Ni1000 250.08	75244

Immersion sensor 160 °C – Ni1000TK5000	
Item description	Item no.
SFKH03 Ni1000TK5000 100.08	75251
SFKH03 Ni1000TK5000 150.08	75268
SFKH03 Ni1000TK5000 200.08	75275
SFKH03 Ni1000TK5000 250.08	75282

Immersion sensor 150 °C – NTC10k	
Item description	Item no.
SFKH03 NTC10k 100.08	74568
SFKH03 NTC10k 150.08	75343
SFKH03 NTC10k 200.08	75350
SFKH03 NTC10k 250.08	75367

Immersion sensor 150 °C – NTC10k Precon	
Item description	Item no.
SFKH03 NTC10k Precon 100.08	75411
SFKH03 NTC10k Precon 150.08	75428
SFKH03 NTC10k Precon 200.08	75435
SFKH03 NTC10k Precon 250.08	75442

Immersion sensor 150 °C – NTC20k	
Item description	Item no.
SFKH03 NTC20k 100.08	75374
SFKH03 NTC20k 150.08	75381
SFKH03 NTC20k 200.08	75398
SFKH03 NTC20k 250.08	75404

Immersion sensor 120 °C – LM235Z	
Item description	Item no.
SFKH03 LM235Z 100.08	75459
SFKH03 LM235Z 150.08	75466
SFKH03 LM235Z 200.08	75473
SFKH03 LM235Z 250.08	75480



## SFKH03

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)

Order example for different items:

**SFKH03 | NTC20k | 250.08 | T260 | 3-wire**

**SFKH03** = product

**NTC20k** = sensor

**250.08** = pocket (length.Ø)

**T260** = temperature

**3-wire** = 3-wire connection

Item description: product | TRVx | pocket (length.Ø)

Immersion sensor -50..+50 °C – active TRV1 0..10 V	
Item description	Item no.
SFKH03 TRV1 100.08	320986
SFKH03 TRV1 150.08	351782
SFKH03 TRV1 200.08	351812
SFKH03 TRV1 250.08	351904

Immersion sensor -10..+120 °C – active TRV2 0..10 VTRV2	
Item description	Item no.
SFKH03 TRV2 100.08	351737
SFKH03 TRV2 150.08	351799
SFKH03 TRV2 200.08	351829
SFKH03 TRV2 250.08	351911

Immersion sensor 0..+50 °C – active TRV3 0..10 V	
Item description	Item no.
SFKH03 TRV3 100.08	351744
SFKH03 TRV3 150.08	288071
SFKH03 TRV3 200.08	351836
SFKH03 TRV3 250.08	351928

Immersion sensor 0..+160 °C – active TRV4 0..10 V	
Item description	Item no.
SFKH03 TRV4 100.08	344784
SFKH03 TRV4 150.08	351805
SFKH03 TRV4 200.08	258548
SFKH03 TRV4 250.08	256711

Immersion sensor 0..+250 °C – active TRV5 0..10 V	
Item description	Item no.
SFKH03 TRV5 100.08	115001
SFKH03 TRV5 150.08	261944
SFKH03 TRV5 200.08	258555
SFKH03 TRV5 250.08	152716

## SFKH03

Item description: product | TRAx | pocket (length.Ø)

Immersion sensor -50..+50 °C – active TRA1 4..20 mA	
Item description	Item no.
SFKH03 TRA1 100.08	180832
SFKH03 TRA1 150.08	256193
SFKH03 TRA1 200.08	215350
SFKH03 TRA1 250.08	351843

Immersion sensor -10..+120 °C – active TRA2 4..20 mA	
Item description	Item no.
SFKH03 TRA2 100.08	307888
SFKH03 TRA2 150.08	227940
SFKH03 TRA2 200.08	338011
SFKH03 TRA2 250.08	274265

Immersion sensor 0..+50 °C – active TRA3 4..20 mA	
Item description	Item no.
SFKH03 TRA3 100.08	200622
SFKH03 TRA3 150.08	217828
SFKH03 TRA3 200.08	200110
SFKH03 TRA3 250.08	202909

Immersion sensor 0..+160 °C – active TRA4 4..20 mA	
Item description	Item no.
SFKH03 TRA4 100.08	284479
SFKH03 TRA4 150.08	351768
SFKH03 TRA4 200.08	276788
SFKH03 TRA4 250.08	336857

Immersion sensor 0..+250 °C – active TRA5 4..20 mA	
Item description	Item no.
SFKH03 TRA5 100.08	147071
SFKH03 TRA5 150.08	291873
SFKH03 TRA5 200.08	328425
SFKH03 TRA5 250.08	145312

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



bonded pocket – St52-3



RGS03

## RGS03



Immersion sensor (high temperature) with integrated thermowell pocket for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.

### TECHNICAL DATA

Measuring values	temperature
Medium	gases, fluids
Output voltage	passive sensor PT100 TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 1 W (24 V ~)   1,4 VA (24 V ~) TRA: typ. 0,5 W (24 V ~)
Measuring range temp.	TRV6   TRA6: 0..+400 °C TRV7   TRA7: 0..+600 °C
Working range temp.	0..+500 °C temporarily up to +600 °C
Accuracy temperature	TRV   TRA: $\pm 0,2$ °C   $\pm 0,1\%$ of measured value (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	3-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Neck pipe	stainless steel V2A
Pocket	stainless steel V4A, $\varnothing = 9$ mm, thread G 1/2" mounting length: 250   500 mm
Ambient condition	enclosure passive: -25..+90 °C, max. 80% rH non-condensing enclosure TRV/TRA: -25..+70 °C, max. 80% rH non-condensing

## RGS03

Item description: product | sensor | pocket (length.Ø)

### Immersion sensor 600 °C – PT100

Item description	Item no.
RGS03 PT100 250.09	79297
RGS03 PT100 500.09	385190

Item description: product | TRVx/TRAx | pocket (length.Ø)

### Immersion sensor temperature 0..+400 °C – active TRV6 0..10 V | TRA6 4..20 mA

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 temperature 0..+600 °C – active TRV7 0..10 V | TRA7 4..20 mA

Item description	Item no.
RGS03 TRV7 250.09	351935
RGS03 TRV7 500.09	244824
RGS03 TRA7 250.09	79334
RGS03 TRA7 500.09	79341



AGS54+

## AGS54+

Sensor with hinged lid enclosure USE for outdoor temperature measurement: cold rooms, greenhouses, production plants and warehouses.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive sensor
Measuring range temp.	passive: depending on used sensor
Accuracy temperature	passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Ambient condition	enclosure passive: -35...+90 °C max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE pure white
Notes	for other sensors please request

## Highlights / Innovations

### Hinged lid enclosure USE

The AGS54+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Mounting

The mounting base, which is included in delivery, permits the simple clipping on of the enclosure and guarantees the thermal separation of the mounting location and the sensor.

### Thought out in all details

The decisive detail is the removable cable entry of USE: in combination with the removable plug-in terminal it allows the quick and easy wiring through the opening – comfortable pre-assembly included. The practical hinged cover with its quick-release feature cannot be lost and thus is always there where it belongs.

The additional lock with (only) one screw is also possible for special applications.



## AGS54+

Item description: product | sensor

### Outdoor sensor temperature – passive

Item description	Item no.	On stock
AGS54+ without sensor	622776	
AGS54+ PT100	622837	⊕
AGS54+ PT100 1/3 DIN	622844	
AGS54+ PT1000	622851	⊕
AGS54+ PT1000 1/3 DIN	622783	
AGS54+ Ni1000	622806	⊕
AGS54+ Ni1000TK5000	622813	⊕
AGS54+ NTC10k	622790	⊕
AGS54+ NTC10k Precon	622868	
AGS54+ NTC5k	624275	
AGS54+ NTC20k	622875	
AGS54+ LM235Z	622820	⊕
AGS54+ KTY81-110	622899	
AGS54+ KTY81-121	622905	
AGS54+ KTY81-122	622912	
AGS54+ KTY81-210	622929	
AGS54+ DS18B20 1-wire	622882	

### Options

Item description
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

AGS54+ | FeT

AGS54+ = product

FeT = sensor

### Accessories

Item description	Item no.	On stock
Mounting clip enclosure USE pure white	616423	⊕
Mounting base enclosure USE pure white	616430	⊕
Rawlplugs and screws (2 pcs. each)	102209	⊕
Sun/rain protection RS150	103329	⊕



AGS55+



## AGS55+

Sensor with hinged lid enclosure USE for outdoor temperature measurement: cold rooms, greenhouses, production plants and warehouses. Stainless Steel external probe for faster response.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V
Output Amp	TRA: 1x 4..20 mA
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C default setting: -50..+50 °C passive: depending on used sensor
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. $\varnothing = 8$ mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Pocket	stainless steel V2A, $\varnothing = 6$ mm, L=25 mm
Ambient condition	enclosure: -35..+70 °C max. 85% rH non-condensing enclosure passive: -35..+90 °C, max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE pure white
Notes	for other sensors please request

## Highlights / Innovations

### Hinged lid enclosure USE

The AGS55+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Mounting

The mounting base, which is included in delivery, permits the simple clipping on of the enclosure and guarantees the thermal separation of the mounting location and the sensor.

### Thought out in all details

The decisive detail is the removable cable entry of USE: in combination with the removable plug-in terminal it allows the quick and easy wiring through the opening – comfortable pre-assembly included. The practical hinged cover with its quick-release feature cannot be lost and thus is always there where it belongs.

The additional lock with (only) one screw is also possible for special applications.

## AGS55+

Item description: product | sensor

Outdoor sensor temperature – passive		
Item description	Item no.	On stock
AGS55+ PT100	622998	●
AGS55+ PT100 1/3 DIN	623001	
AGS55+ PT1000	623018	●
AGS55+ PT1000 1/3 DIN	622943	
AGS55+ Ni1000	622967	●
AGS55+ Ni1000TK5000	622974	●
AGS55+ NTC10k	622950	●
AGS55+ NTC10k Precon	623025	
AGS55+ NTC5k	624268	
AGS55+ NTC20k	623032	
AGS55+ LM235Z	622981	●
AGS55+ KTY81-110	623049	
AGS55+ KTY81-121	623056	
AGS55+ KTY81-122	623063	
AGS55+ KTY81-210	623070	

Options
Item description
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel
Add to price of PT100 for sensor FeT

Item description: product | TRV/TRA MultiRange

Outdoor sensor temperature – active TRV 0..10 V   TRA 4..20 mA		
Item description	Item no.	On stock
AGS55+ TRV MultiRange	623087	●
AGS55+ TRA MultiRange	623094	●

Order example for different items:

**AGS55+ | FeT**
**AGS55+** = product

**FeT** = sensor

Accessories		
Item description	Item no.	On stock
Mounting clip enclosure USE pure white	616423	●
Mounting base enclosure USE pure white	616430	●
Rawlplugs and screws (2 pcs. each)	102209	●
Sun/rain protection RS150	103329	●





AGS54 ext. BUS



AGS54 ext. LCD

## AGS54 ext.

Sensor for outdoor temperature measurement: cold rooms, greenhouses, production plants and warehouses. Stainless Steel external probe for faster response.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	LCD TRV: 0..10 V
Output Amp	LCD TRA: 1x 4..20 mA
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =) LON: typ. 0,5 W (24 V =)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV3   TRA3: 0..+50 °C TRV8   TRA8: -15..+35 °C LON: -45..+130 °C RS485 Modbus: -20..+120 °C
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) LON: $\pm 0,5$ K (typ. at 21 °C)
Display	LCD 34x21 mm, black/white with backlight white (optional)
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm BUS: M20 for wire max. $\varnothing=8$ mm LON: seal insert for double cable entry for wire max $\varnothing=6$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V2A, $\varnothing=6$ mm, L=25 mm
Ambient condition	enclosure: -35..+70 °C max. 85% rH non-condensing



## AGS54 ext.



### Outdoor sensor temperature – active BUS

Item description	Item no.
AGS54 ext. LON	25775
AGS54 ext. RS485 Modbus	578066

Item description: product | TRV/TRA MultiRange

### Outdoor sensor with LCD temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.
AGS54 ext. LCD TRV MultiRange	601542
AGS54 ext. LCD TRA MultiRange	611794

### Accessories

Item description	Item no.	On stock
Rawplugs and screws (2 pcs. each)	102209	●
Sun/rain protection RS150	103329	●



AGS43

## AGS43

Sensor for outdoor temperature measurement: cold rooms, greenhouses, production plants and warehouses.



TECHNICAL DATA	
Measuring values	temperature
Output voltage	passive sensor
Measuring range temp.	passive: depending on used sensor
Accuracy temperature	passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Enclosure	PA6, pure white
Protection	IP43 according to EN 60529
Cable entry	PG9
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-35...+90 °C, max. 85% rH non-condensing
Notes	for other sensors please request

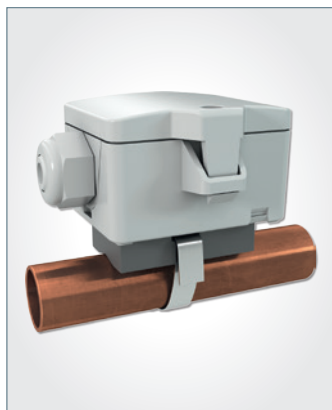
Item description: product | sensor

Outdoor sensor temperature – passive	
Item description	Item no.
AGS43 without sensor	133128
AGS43 PT100	116749
AGS43 PT100 1/3 DIN	25027
AGS43 PT1000	25034
AGS43 PT1000 1/3 DIN	25041
AGS43 Ni1000	25058
AGS43 Ni1000TK5000	25065
AGS43 NTC10k	25126
AGS43 NTC10k Precon	25164
AGS43 NTC5k	25119
AGS43 NTC20k	25133
AGS43 LM23SZ	25232
AGS43 KTY81-110	25188
AGS43 KTY81-121	25195
AGS43 KTY81-122	25201
AGS43 KTY81-210	25218

## AGS43

Options
Item description
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	
Sun/rain protection RS150	103329	



VFG54+



## VFG54+

Sensor with hinged lid enclosure USE for temperature measurement of pipes and round surfaces. Spring loaded brass contact sensor.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) TRA: 15..24 V = (±10%)
Power consumption	TRV: typ. 0,42 W (24 V =)   0,84 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..250 °C default setting: 0..+160 °C passive: depending on used sensor
Accuracy temperature	measuring current typ. <1 mA ±1% of measuring range (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup> passive: 2-wire (default), 3-wire or 4-wire TRV: 3-wire TRA: 2-wire
Pocket	brass, spring loaded sensor
Ambient condition	enclosure: -35..+70 °C max. 85% rH non-condensing enclosure passive: -35..+90 °C, max. 85% rH non-condensing
Notes	for other sensors please request

## Highlights / Innovations

### Hinged lid enclosure USE

The VFG54+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Mounting

The mounting base, which is included in delivery, permits the simple clipping on of the enclosure and guarantees the thermal separation of the mounting location and the sensor.

### Thought out in all details

The decisive detail is the removable cable entry of USE: in combination with the removable plug-in terminal it allows the quick and easy wiring through the opening – comfortable pre-assembly included. The practical hinged cover with its quick-release feature cannot be lost and thus is always there where it belongs. The additional lock with (only) one screw is also possible for special applications.

## VFG54+

Item description: product | sensor

### Contact sensor temperature – passive

Item description	Item no.	On stock
VFG54+ PT100	620642	⊕
VFG54+ PT100 1/3 DIN	620659	
VFG54+ PT1000	620666	⊕
VFG54+ PT1000 1/3 DIN	620598	
VFG54+ Ni1000	620611	⊕
VFG54+ Ni1000TK5000	620628	⊕
VFG54+ NTC10k	620604	⊕
VFG54+ NTC10k Precon	620673	
VFG54+ NTC5k	624244	
VFG54+ NTC20k	620680	
VFG54+ LM235Z	620635	⊕
VFG54+ KTY81-110	620697	
VFG54+ KTY81-121	620703	
VFG54+ KTY81-122	620710	
VFG54+ KTY81-210	620727	
VFG54+ DS18B20 1-wire	620734	

### Options

Item description
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**VFG54+ | FeT**
**VFG54+** = product

**FeT** = sensor

Item description: product | TRV/TRA MultiRange

### Contact sensors temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.	On stock
VFG54+ TRV MultiRange	620741	⊕
VFG54+ TRA MultiRange	620758	⊕

### Accessories

Item description	Item no.	On stock
Tightening strap 2" with contact fluid	102254	⊕
Tightening strap 900 mm with contact fluid	102315	⊕



VFG54 BUS



VFG54 LCD

## VFG54

Sensor for temperature measurement of pipes and round surfaces. Spring loaded brass contact sensor. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	LCD TRV: 0..10 V, min. load 5 k $\Omega$
Output Amp	LCD TRA: 1x 4..20 mA, max. load 500 $\Omega$
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,42 W (24 V =)   0,84 VA (24 V ~) TRA: typ. 0,5 W (24 V =) LON: typ. 0,5 W (24 V =)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV2   TRA2: -10..+120 °C TRV3   TRA3: 0..+50 °C TRV4   TRA4: 0..+160 °C TRV8   TRA8: -15..+35 °C LON: -45..+130 °C RS485 Modbus: -20..+120 °C
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) LON: $\pm 0,5$ K (typ. at 21 °C)
Display	LCD 34x21 mm, black/white with backlight white (optional)
Enclosure	PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	BUS: M20 for wire max. $\varnothing$ =8 mm LON: seal insert for double cable entry for wire max $\varnothing$ =6 mm LCD: M20 for wire max. $\varnothing$ =8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> TRV: 3-wire TRA: 2-wire LON/RS485 Modbus: 4-wire
Pocket	brass, spring loaded sensor
Ambient condition	enclosure: -35..+70 °C max. 85% rH non-condensing



## VFG54



### Sensor for pipes and round surfaces temperature – active BUS

Item description	Item no.
VFG54 RS485 Modbus	578080
VFG54 LON	98144

Item description: product | TRV/TRA MultiRange

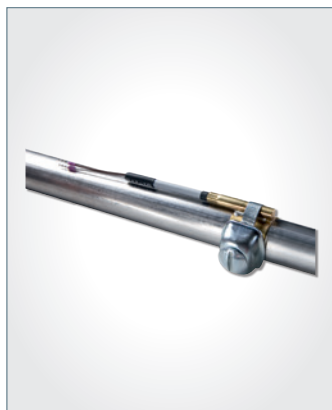
### Sensor for pipes and round surfaces with LCD temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.
VFG54 LCD TRV MultiRange	620765
VFG54 LCD TRA MultiRange	620772

### Accessories

Item description	Item no.	On stock
Tightening strap 2" with contact fluid	102254	●
Tightening strap 900 mm with contact fluid	102315	●





AF25 passive



AF25 active (TRV/TRA)



## AF25

Sensor for temperature measurement of pipes and round surfaces. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0...10 V, min. load 5 k $\Omega$
Output Amp	TRA: 1x 4...20 mA, max. load 500 $\Omega$
Power supply	TRV: 15...24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15...24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50...+50 °C TRV2   TRA2: -10...+120 °C TRV3   TRA3: 0...+50 °C TRV4   TRA4: 0...+160 °C TRV8   TRA8: -15...+35 °C passive: depending on used sensor
Accuracy temperature	depending on length of connection wire TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	PA6, pure white, with quick lock screws (only active)
Protection	IP65 according to EN 60529; SI-Protection
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> (only active) connection wire PVC, $\varnothing = 25$ mm, grey sensor wire active silicone, $\varnothing = 25$ mm 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	brass, $\varnothing = 6$ mm, mounting length 35 mm
Ambient condition	-35...+100 °C; max. 85% rH non-condensing enclosure TRV/TRA: -35...+70 °C, max. 85% rH non-condensing
Notes	other sensors and cable lengths on request

## AF25

Item description: product | sensor | cable length (L)

### Contact sensor temperature – passive

Item description	Item no.
AF25 PT100 L1000	81610
AF25 PT100 1/3 DIN L1000	46411
AF25 PT1000 L1000	54263
AF25 PT1000 1/3 DIN L1000	54300
AF25 Ni1000 L1000	54348
AF25 Ni1000TK5000 L1000	54386
AF25 NTC10k L1000	92005
AF25 NTC10k Precon L1000	92043
AF25 NTC5k L1000	54461
AF25 NTC20k L1000	141994

### Options

Item description
Add per meter of connection cable PVC
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel

Order example for different items:

**AF25 | PT1000 1/3 DIN | L2000**

**AF25** = product  
**PT1000 1/3 DIN** = sensor  
**L2000** = cable length (mm)

Item description: product | TRV/TRA MultiRange | cable length (L)

### Contact sensors temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.
AF25 TRV MultiRange L1000	593854
AF25 TRA MultiRange L1000	592468

### Options

Item description
Add per meter of connection cable silicone

### Accessories

Item description	Item no.	On stock
Tightening strap 2" with contact fluid	102254	●
Tightening strap 900 mm with contact fluid	102315	●



PR25 passive



PR25 active (TRV/TRA)

## PR25

Sensor for temperature measurement of pipes and round surfaces. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C TRV2   TRA2: -10..+120 °C TRV3   TRA3: 0..+50 °C TRV4   TRA4: 0..+160 °C TRV8   TRA8: -15..+35 °C passive: depending on used sensor
Accuracy temperature	depending on length of connection wire TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) with sensor wire max. 2 m passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	PA6, pure white, with quick lock screws (only active)
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> , (only active) connection wire PVC, $\varnothing = 25$ mm, grey sensor wire active silicone, $\varnothing = 25$ mm 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	aluminium, $\varnothing = 11$ mm, mounting length 28 mm
Ambient condition	-35..+100 °C enclosure: -35..+70 °C max. 85% rH non-condensing
Notes	other sensors and cable lengths on request

## PR25

Item description: product | sensor | cable length (L)

Sensor for pipes and round surfaces temperature 100 °C – passive	
Item description	Item no.
PR25 PT100 L1000	81696
PR25 PT100 1/3 DIN L1000	94771
PR25 PT1000 L1000	94894
PR25 PT1000 1/3 DIN L1000	94931
PR25 Ni1000 L1000	94979
PR25 Ni1000TK5000 L1000	95686
PR25 NTC10k L1000	95808
PR25 NTC10k Precon L1000	95846
PR25 NTC5k L1000	95761
PR25 NTC20k L1000	362641
PR25 LM235Z L1000	96089
PR25 KTY81-110 L1000	95884
PR25 KTY81-121 L1000	95921
PR25 KTY81-210 L1000	96003

Options
Item description
Temperature up to 180 °C
Add per meter of connection cable 100 °C
Add per meter of connection cable 180 °C
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel

Order example for different items:

**PR25 | PT1000 1/3 DIN | L2000 | T180**

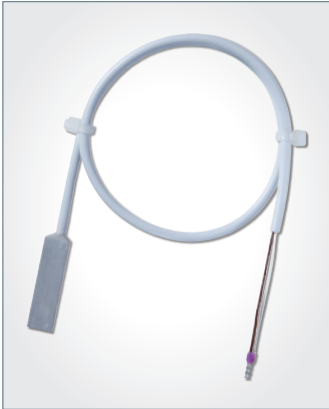
**PR25** = product  
**PT1000 1/3 DIN** = sensor  
**L2000** = cable length (mm)  
**T180** = temperature

Item description: product | TRV/TRA | cable length (L)

Contact sensors temperature – active TRV 0..10 V   TRA 4..20 mA	
Item description	Item no.
PR25 TRV MultiRange L1000	591027
PR25 TRA MultiRange L1000	591010

Options
Item description
Add per meter of connection cable silicone

Accessories		
Item description	Item no.	On stock
Tightening strap 2" with contact fluid	102254	●
Tightening strap 900 mm with contact fluid	102315	●



OF14 passive



OF14 active (TRV/TRA)

## OF14

Sensor for temperature measurement on glass surfaces or similar. Designed for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 k $\Omega$
Output Amp	TRA: 1x 4..20 mA, max. load 500 $\Omega$
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	TRV3   TRA3: 0..+50 °C passive: depending on used sensor
Accuracy temperature	TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C) passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	PA6, pure white, with quick lock screws (only active)
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing=8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> , (only active) connection wire PVC, $\varnothing=25$ mm, grey sensor wire active silicone, $\varnothing=25$ mm 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	aluminium, dimensions: 35x10x6 mm
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounting with adhesive strip (included)
Notes	other sensors and cable lengths on request

## OF14

Item description: product | sensor | cable length (L)

### Contact sensor temperature – passive

Item description	Item no.
OF14 PT100 L1000	132596
OF14 PT100 1/3 DIN L1000	167307
OF14 PT1000 L1000	114851
OF14 PT1000 1/3 DIN L1000	219303
OF14 Ni1000 L1000	113922
OF14 Ni1000TK5000 L1000	141864
OF14 NTC10k L1000	190367
OF14 NTC10k Precon L1000	165006
OF14 NTC5k L1000	351263
OF14 NTC20k L1000	147736
OF14 LM235Z L1000	216760

### Options

Item description
Add per meter of connection cable 100 °C
Add per meter of connection cable 180 °C
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel

Order example for different items:

**OF14 | NTC1,8k | L2000****OF14** = product**NTC1,8k** = sensor**L2000** = cable length (mm)

Item description: product | TRV3/TRA3 | cable length (L)

### Contact sensors temperature – active TRV 0..10 V | TRA 4..20 mA

Item description	Item no.
OF14 TRV3 L1000	192767
OF14 TRA3 L1000	204965

### Options

Item description
Add per meter of connection cable PVC

Order example for different items:

**OF14 | TRV3 | L2000****OF14** = product**TRV3** = output**L2000** = cable length (mm)



TF14 passive



TF14 active (TRV/TRA)



## TF14

Cable sensor for temperature measurement for HVAC applications. In conjunction with a Thermowell pocket suitable temperature measurement in immersion temperature applications. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: typ. 0,4 W (24 V =)   0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	passive: depending on used sensor TRV   TRA: adjustable at the transducer 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 TRV8   TRA8: -15..+35 °C
Accuracy temperature	passive: typ. $\pm 0,3$ K (typ. at 21 °C), depending on used sensor TRV   TRA: $\pm 1\%$ of measuring range (typ. at 21 °C)
Enclosure	PA6, pure white, with quick lock screws (only active)
Protection	IP54 according to EN 60529, SI-Protection hex pressed rolled with SI-Protection: IP67 according to EN 60529 enclosure (active): IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	active: terminal block, max. 1,5 mm <sup>2</sup> connection wire PVC, $\varnothing = 25$ mm (default)   150/180 °C silicone   260 °C PTFE 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	stainless steel V4A, $\varnothing = 4$ mm mounting length: 50   100   150   200   400 mm
Ambient condition	enclosure TRV/TRA: -35..+70 °C, max. 85% rH non-condensing with connection wire PVC -35..+100 °C silicone -50..+180 °C PTFE -80..+260 °C
Notes	for other sensors please request other probe lengths on request

## TF14

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

### Cable sensors 100 °C – PT100

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 sensors 100 °C PT100 1/3 DIN

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 sensors 100 °C – PT1000

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 sensors 100 °C – PT1000 1/3 DIN

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 sensors 100 °C – Ni1000

Item description	Item no.
TF14 Ni1000 T100 050.04 L1000	73080
TF14 Ni1000 T100 100.04 L1000	73097
TF14 Ni1000 T100 150.04 L1000	73103

### Cable sensors 100 °C – Ni1000TK5000

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 sensors 100 °C – NTC10k

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 sensors 100 °C – NTC10k Precon

Item description	Item no.
TF14 NTC10k Precon T100 050.04 L1000	77002
TF14 NTC10k Precon T100 100.04 L1000	77019
TF14 NTC10k Precon T100 150.04 L1000	77026

### Cable sensors 100 °C – NTC5k

Item description	Item no.
TF14 NTC5k T100 050.04 L1000	73806
TF14 NTC5k T100 100.04 L1000	73813
TF14 NTC5k T100 150.04 L1000	73820

### Cable sensors 100 °C – NTC20k

Item description	Item no.
TF14 NTC20k T100 050.04 L1000	73899
TF14 NTC20k T100 100.04 L1000	73905
TF14 NTC20k T100 150.04 L1000	73912

### Options

Item description
3-wire connection 260 °C (3-wire)
4-wire connection 260 °C (4-wire)
Add per meter of connection cable 2-wire 100 °C
Add per meter of connection cable 3-wire 260 °C
Add per meter of connection cable 4-wire 260 °C
Protection class IP67
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel



## TF14

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

Cable sensors 180 °C – PT100	
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 sensors 180 °C – PT100 1/3 DIN	
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 sensors 180 °C – PT1000	
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 sensors 180 °C – PT1000 1/3 DIN	
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 sensors 180 °C – Ni1000	
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 sensors 180 °C – Ni1000TK5000	
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

Cable sensors 150 °C – NTC10k	
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 sensors 150 °C – NTC10k Precon	
Item description	Item no.
TF14 NTC10k Precon T150 050.04 L1000	76807
TF14 NTC10k Precon T150 100.04 L1000	76845
TF14 NTC10k Precon T150 150.04 L1000	76883

Cable sensors 150 °C – NTC5k	
Item description	Item no.
TF14 NTC5k T150 050.04 L1000	80200
TF14 NTC5k T150 100.04 L1000	80248
TF14 NTC5k T150 150.04 L1000	76975

Cable sensors 150 °C – NTC20k	
Item description	Item no.
TF14 NTC20k T150 050.04 L1000	80606
TF14 NTC20k T150 100.04 L1000	80644
TF14 NTC20k T150 150.04 L1000	80682

Options	
Item description	
3-wire connection 260 °C (3-wire)	
4-wire connection 260 °C (4-wire)	
Add per meter of connection cable 2-wire 260 °C	
Add per meter of connection cable 3-wire 260 °C	
Add per meter of connection cable 4-wire 260 °C	
Protection class IP67	
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel	

## TF14

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

### Cable sensors 260 °C – PT100

Item description	Item no.
TF14 PT100 T260 050.04 L1000	95563
TF14 PT100 T260 100.04 L1000	96126
TF14 PT100 T260 150.04 L1000	96195

### Cable sensors 260 °C – PT100 1/3 DIN

Item description	Item no.
TF14 PT100 1/3 DIN T260 050.04 L1000	96775
TF14 PT100 1/3 DIN T260 100.04 L1000	96805
TF14 PT100 1/3 DIN T260 150.04 L1000	96843

### Cable sensors 260 °C – PT1000

Item description	Item no.
TF14 PT1000 T260 050.04 L1000	97185
TF14 PT1000 T260 100.04 L1000	97239
TF14 PT1000 T260 150.04 L1000	91510

### Cable sensors 260 °C – PT1000 1/3 DIN

Item description	Item no.
TF14 PT1000 1/3 DIN T260 050.04 L1000	91633
TF14 PT1000 1/3 DIN T260 100.04 L1000	91671
TF14 PT1000 1/3 DIN T260 150.04 L1000	91718

### Cable sensors 260 °C – Ni1000

Item description	Item no.
TF14 Ni1000 T260 050.04 L1000	91831
TF14 Ni1000 T260 100.04 L1000	91879
TF14 Ni1000 T260 150.04 L1000	91916

### Cable sensors 260 °C – Ni1000TK5000

Item description	Item no.
TF14 Ni1000TK5000 T260 050.04 L1000	97338
TF14 Ni1000TK5000 T260 100.04 L1000	97376
TF14 Ni1000TK5000 T260 150.04 L1000	97413

### Options

Item description
3-wire connection 260 °C (3-wire)
4-wire connection 260 °C (4-wire)
Add per meter of connection cable 2-wire 260 °C
Add per meter of connection cable 3-wire 260 °C
Add per meter of connection cable 4-wire 260 °C

Order example for different items:

**TF14 | NTC1,8k | T180 | 150.04 | L3000 | 3-wire | IP67**

**TF14** = product

**NTC1,8k** = sensor

**T180** = temperature

**150.04** = pocket (length.Ø)

**L3000** = cable length (mm)

**3-wire** = number of wires

**IP67** = protection IP67

## TF14

Item description: product | TRV/TRA MultiRange | temperature | pocket (length.Ø) | cable length (L)

### Cable sensors 160 °C – active TRV 0..10 V

Item description	Item no.
TF14 TRV MultiRange T160 050.04 L1000	590648
TF14 TRV MultiRange T160 100.04 L1000	590655
TF14 TRV MultiRange T160 150.04 L1000	590662

### Cable sensors 160 °C – active TRA 4..20 mA

Item description	Item no.
TF14 TRA MultiRange T160 050.04 L1000	590617
TF14 TRA MultiRange T160 100.04 L1000	590624
TF14 TRA MultiRange T160 150.04 L1000	590631

### Options

Item description
TRV/TRA: Temperature -80..+260 °C (T260)
TRV/TRA: Add per meter of connection for measuring range up to 160 °C
TRV/TRA: Add per meter of connection for measuring range up to 260 °C

Order example for different items:

**TF14 | TRV MultiRange | T260 | 150.04 | L3000**

**TF14** = product  
**TRV MultiRange** = output  
**T260** = temperature  
**150.04** = pocket (length.Ø)  
**L3000** = cable length (mm)

### Accessories

Item description	Item no.	On stock
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	●
Mounting flange MF4 (brass)	102438	●
KL4VA - Compression fittings G 1/4" for Ø=4 mm with cutting ring VA, stainless steel	103206	●



TF25 passive



TF25 active



## TF25

Cable sensor for temperature measurement in HVAC applications. In conjunction with a Thermowell pocket suitable for temperature measurement in duct applications. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature
Output voltage	passive: depending on used sensor TRV: 1x 0..10 V, min. load 5 kΩ
Output Amp	TRA: 1x 4..20 mA, max. load 500 Ω
Network technology	LON FT (free topology), RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) TRA: 15..24 V = ( $\pm 10\%$ )
Power consumption	TRV: max. 0,45 W (24 V ~)   0,8 VA (24 V ~) TRA: max. 0,5 W (24 V ~) LON: typ. 0,5 W (24 V ~)   1,7 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V ~)   1,8 VA (24 V ~)
Measuring range temp.	TRV   TRA: adjustable at the transducer TRV1   TRA1: -50..+50 °C, TRV2   TRA2: -10..+120 °C, TRV3   TRA3: 0..+50 °C, TRV4   TRA4: 0..+160 °C, TRV8   TRA8: -15..+35 °C LON: -45..+130 °C RS485 Modbus: -20..+120 °C passive: depending on used sensor
Working range temp.	passive: depending on used sensor 400 °C (optional) active: -50..160 °C
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C) LON: $\pm 0,5$ K (typ. at 21 °C) RS485 Modbus: $\pm 1$ °C (typ. at 25 °C)
Sensor	passive: 2-wire (standard), 3-wire or 4-wire sensor cable: 1   2   4   6 m
Display	LCD 34x21 mm, black/white with backlight white (optional) warning when measuring range is exceeded ('OL') or sensor is defective/disconnected ('check sensor')
Enclosure	PA6.6, pure white, with quick lock screws (only active)
Protection	IP54 according to EN 60529, SI-Protection hex pressed rolled with SI-Protection: IP67 according to EN 60529 enclosure (active): IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm seal insert for double cable entry for wire max $\varnothing = 6$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V4A, $\varnothing = 6$ mm mounting length: 50   100   150   200   250 mm tension spring (optional)
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Notes	type with display available for active models cable ends with conductor sleeves as standard other sensors and cable lengths on request PE connection wire available (please request)

**TF25**

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

Cable sensors 100 °C – PT100	
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 sensors 100 °C – PT1000	
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 sensors 100 °C – Ni1000	
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 sensors 100 °C – NTC10k	
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 sensors 100 °C – NTC5k	
Item description	Item no.
TF25 NTC5k T100 050.06 L1000	41522
TF25 NTC5k T100 100.06 L1000	41805
TF25 NTC5k T100 150.06 L1000	40716

Cable sensors 100 °C – LM235Z	
Item description	Item no.
TF25 LM235Z T100 050.06 L1000	43786
TF25 LM235Z T100 100.06 L1000	43823
TF25 LM235Z T100 150.06 L1000	43861

Cable sensors 100 °C – KTY81-121	
Item description	Item no.
TF25 KTY81-121 T100 050.06 L1000	42826
TF25 KTY81-121 T100 100.06 L1000	42864
TF25 KTY81-121 T100 150.06 L1000	42901

Cable sensors 100 °C – KTY81-210	
Item description	Item no.
TF25 KTY81-210 T100 050.06 L1000	42840
TF25 KTY81-210 T100 100.06 L1000	42888
TF25 KTY81-210 T100 150.06 L1000	42925

Cable sensors 100 °C PT100 1/3 DIN	
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 sensors 100 °C – PT1000 1/3 DIN	
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 sensors 100 °C – Ni1000TK5000	
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

Cable sensors 100 °C – NTC10k Precon	
Item description	Item no.
TF25 NTC10k Precon T100 050.06 L1000	41300
TF25 NTC10k Precon T100 100.06 L1000	41348
TF25 NTC10k Precon T100 150.06 L1000	41386

Cable sensors 100 °C – NTC20k	
Item description	Item no.
TF25 NTC20k T100 050.06 L1000	41546
TF25 NTC20k T100 100.06 L1000	41829
TF25 NTC20k T100 150.06 L1000	40730

Cable sensors 100 °C – KTY81-110	
Item description	Item no.
TF25 KTY81-110 T100 050.06 L1000	42819
TF25 KTY81-110 T100 100.06 L1000	42857
TF25 KTY81-110 T100 150.06 L1000	42895

Cable sensors 100 °C – KTY81-122	
Item description	Item no.
TF25 KTY81-122 T100 050.06 L1000	42833
TF25 KTY81-122 T100 100.06 L1000	42871
TF25 KTY81-122 T100 150.06 L1000	42918

Cable sensors 100 °C – DS18B20 1-wire	
Item description	Item no.
TF25 DS18B20 1-wire T100 050.06 L1000	496735
TF25 DS18B20 1-wire T100 100.06 L1000	592901
TF25 DS18B20 1-wire T100 150.06 L1000	592918

## TF25

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

Options
Item description
3-wire connection 100 °C (3-wire)
4-wire connection 100 °C (4-wire)
Add per meter of connection cable 2-wire 100 °C
Add per meter of connection cable 3-wire 100 °C
Add per meter of connection cable 4-wire 100 °C
Protection class IP67
Tension spring (tensp)
Connection box with 2 cable entries (connbox)
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel

Cable sensors 180 °C – PT100	
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 sensors 180 °C – PT100 1/3 DIN	
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 sensors 180 °C – PT1000	
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 sensors 180 °C – PT1000 1/3 DIN	
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 sensors 180 °C – Ni1000	
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 sensors 180 °C – Ni1000TK5000	
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

Cable sensors 150 °C – NTC10k	
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 sensors 150 °C – NTC10k Precon	
Item description	Item no.
TF25 NTC10k Precon T150 050.06 L1000	59718
TF25 NTC10k Precon T150 100.06 L1000	59725
TF25 NTC10k Precon T150 150.06 L1000	59732

Cable sensors 150 °C – NTC5k	
Item description	Item no.
TF25 NTC5k T150 050.06 L1000	59404
TF25 NTC5k T150 100.06 L1000	59411
TF25 NTC5k T150 150.06 L1000	59428

Cable sensors 150 °C – NTC20k	
Item description	Item no.
TF25 NTC20k T150 050.06 L1000	59527
TF25 NTC20k T150 100.06 L1000	59534
TF25 NTC20k T150 150.06 L1000	59541

Cable sensors 125 °C – LM235Z	
Item description	Item no.
TF25 LM235Z T125 050.06 L1000	143042
TF25 LM235Z T125 100.06 L1000	141024
TF25 LM235Z T125 150.06 L1000	387521

Cable sensors 150 °C – KTY81-110	
Item description	Item no.
TF25 KTY81-110 T150 050.06 L1000	68031
TF25 KTY81-110 T150 100.06 L1000	68048
TF25 KTY81-110 T150 150.06 L1000	68055

## TF25

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

Cable sensors 150 °C – KTY81-121	
Item description	Item no.
TF25 KTY81-121 T150 050.06 L1000	68093
TF25 KTY81-121 T150 100.06 L1000	68109
TF25 KTY81-121 T150 150.06 L1000	68116

Cable sensors 150 °C – KTY81-210	
Item description	Item no.
TF25 KTY81-210 T150 050.06 L1000	68215
TF25 KTY81-210 T150 100.06 L1000	68222
TF25 KTY81-210 T150 150.06 L1000	68239

Cable sensors 150 °C – KTY81-122	
Item description	Item no.
TF25 KTY81-122 T150 050.06 L1000	68154
TF25 KTY81-122 T150 100.06 L1000	68161
TF25 KTY81-122 T150 150.06 L1000	68178

Options
Item description
3-wire connection 180 °C (3-wire)
4-wire connection 180 °C (4-wire)
Add per meter of connection cable 2-wire 180 °C
Add per meter of connection cable 3-wire 180 °C
Add per meter of connection cable 4-wire 180 °C
Protection class IP67
Tension spring (tensp)
Connection box with 2 cable entries (connbox)
Add to price of NTC10k for sensor NTC1,8k   NTC10k Carel

Order example for different items:

**TF25 | NTC1,8k | T150 | 150.06 | L3000**

**TF25** = product  
**NTC1,8k** = sensor  
**T150** = temperature  
**150.06** = pocket (length.Ø)  
**L3000** = cable length (mm)

Cable sensors 250 °C – PT100	
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 sensors 250 °C – PT1000	
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 sensors 250 °C – Ni1000	
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 sensors 250 °C – PT100 1/3 DIN	
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 sensors 250 °C – PT1000 1/3 DIN	
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 sensors 250 °C – Ni1000TK5000	
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

## TF25

### Options

#### Item description

Add per meter of connection cable 2-wire 250 °C

Protection class IP67

Tension spring (tensp)

Connection box with 2 cable entries (connbox)

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

### Cable sensors 400 °C – PT100/PT1000

#### Item description

#### Item no.

TF25 PT100 T400 050.06 L2000

166195

TF25 PT1000 T400 050.06 L2000

166201

### Options

#### Item description

Add per meter of connection cable 2-wire 400 °C

Item description: product | TRV/TRA MultiRange | temperature | pocket (length.Ø) | cable length (L)

### Cable sensors 180 °C – active TRV 0..10 V

#### Item description

#### Item no.

TF25 TRV MultiRange T180 050.06 L1000

590709

TF25 TRV MultiRange T180 100.06 L1000

590716

TF25 TRV MultiRange T180 150.06 L1000

590723

### Cable sensors 180 °C – active TRA 4..20 mA

#### Item description

#### Item no.

TF25 TRA MultiRange T180 050.06 L1000

590679

TF25 TRA MultiRange T180 100.06 L1000

590686

TF25 TRA MultiRange T180 150.06 L1000

590693

### Options

#### Item description

TRA/TRV: LCD

Protection class IP67 (rolled)

TRV/TRA: Temperature -80..+260 °C (T260)

TRV/TRA: Add per meter of connection for measuring range up to 160 °C

TRV/TRA: Add per meter of connection for measuring range up to 260 °C

Tension spring (tensp)



Item description: product | BUS | temperature | pocket (length.Ø) | cable length (L)

# TF25



## Cable sensors -45...+130 °C – active LON

Item description	Item no.
TF25 LON T130 050.06 L1000	95440



## Cable sensors -20...+120 °C – active RS485 Modbus

Item description	Item no.
TF25 RS485 Modbus T150 050.06 L1000	597531

## Accessories

Item description	Item no.	On stock
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	☺
Mounting flange MF6 (brass)	3407	☺
KL4VA - Compression fittings G 1/4" for Ø=4 mm with cutting ring VA, stainless steel	103206	☺
KL6VA - Compression fittings G 1/4" for Ø=6 mm with cutting ring VA, stainless steel	103213	☺

## Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm

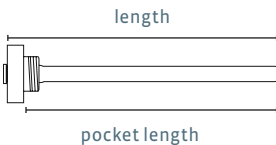
Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	42 mm	611152	☺
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	☺
VA-thermowell pocket 150 mm type THVADS150	150 mm	142 mm	611824	☺
VA-thermowell pocket 200 mm type THVADS200	200 mm	192 mm	611848	☺
VA-thermowell pocket 250 mm type THVADS250	250 mm	242 mm	611862	☺
VA-thermowell pocket 300 mm type THVADS300	300 mm	292 mm	611879	☺
VA-thermowell pocket 450 mm type THVADS450	450 mm	442 mm	611893	☺
VA-thermowell pocket 600 mm type THVADS600	600 mm	592 mm	611923	☺

## Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm

Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	42 mm	610995	☺
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	☺
MS-thermowell pocket 150 mm type THMSDS150	150 mm	142 mm	611015	☺
MS-thermowell pocket 200 mm type THMSDS200	200 mm	192 mm	611022	☺
MS-thermowell pocket 250 mm type THMSDS250	250 mm	242 mm	611985	☺
MS-thermowell pocket 300 mm type THMSDS300	300 mm	292 mm	611039	☺
MS-thermowell pocket 450 mm type THMSDS450	450 mm	442 mm	611046	☺



thermowell pocket – THVADS



thermowell pocket – THMSDS

## ACCESSORIES – MOUNTING

Accessories – mounting flanges		
Item description	Item no.	On stock
Mounting clip enclosure USE pure white	616423	⊕
Mounting base enclosure USE pure white	616430	⊕
Mounting flange MF2/TPO	435642	⊕
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	⊕
Mounting flange MF4 (brass)	102438	⊕
Mounting flange MF6 (brass)	3407	⊕
Mounting flange MF7 (brass)	102360	⊕
Mounting flange MF8 (VA)	103305	⊕
Installation set TFR/MWF	458399	⊕



Mounting base  
(for USE enclosure, pure white)



Mounting clip  
(for USE enclosure, pure white)



MF6 flexible



MF4 (brass)



MF6 (brass)



MF8 (VA)

## ACCESSORIES – MISCELLANEOUS

Accessories – others		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⊕
KL4VA - Compression fittings G 1/4" for Ø=4 mm with cutting ring VA, stainless steel	103206	⊕
KL6VA - Compression fittings G 1/4" for Ø=6 mm with cutting ring VA, stainless steel	103213	⊕
Tightening strap 2" with contact fluid	102254	⊕
Tightening strap 900 mm with contact fluid	102315	⊕
Frame for surface mounting WRF04	111584	⊕
Ball stroke protection BS100 (for WRF04)	103312	⊕
Sun/rain protection RS150	103329	⊕



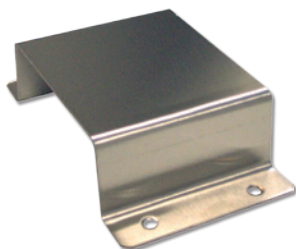
rawlplugs and screws



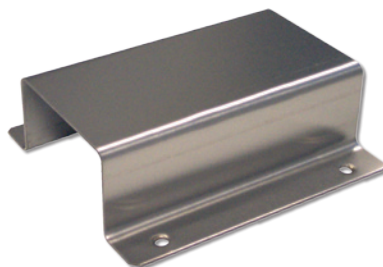
compression fitting – KL4VA



tightening strap with  
contact fluid



ball stroke protection BS100



sun/rain protection RS150

## THERMOWELL POCKETS STAINLESS STEEL

### Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm

Item description	Length	Pocket length	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	42 mm	611152	●
VA-thermowell pocket 100 mm type THVADS100	100 mm	92 mm	611817	●
VA-thermowell pocket 150 mm type THVADS150	150 mm	142 mm	611824	●
VA-thermowell pocket 200 mm type THVADS200	200 mm	192 mm	611848	●
VA-thermowell pocket 250 mm type THVADS250	250 mm	242 mm	611862	●
VA-thermowell pocket 300 mm type THVADS300	300 mm	292 mm	611879	●
VA-thermowell pocket 450 mm type THVADS450	450 mm	442 mm	611893	●
VA-thermowell pocket 600 mm type THVADS600	600 mm	592 mm	611923	●

### Accessories – thermowell pockets stainless steel for sensors with pocket Ø=8 mm

Item description	Length	Item no.	On stock
VA thermowell pocket 100 mm type THVA100 (KFK03)	100 mm	584180	●
VA thermowell pocket 150 mm type THVA150 (KFK03)	150 mm	584197	●
VA thermowell pocket 200 mm type THVA200 (KFK03)	200 mm	584203	●
VA thermowell pocket 250 mm type THVA250 (KFK03)	250 mm	594738	●

## THERMOWELL POCKETS BRASS

### Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm

Item description	Length	Pocket length	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	42 mm	610995	●
MS-thermowell pocket 100 mm type THMSDS100	100 mm	92 mm	611008	●
MS-thermowell pocket 150 mm type THMSDS150	150 mm	142 mm	611015	●
MS-thermowell pocket 200 mm type THMSDS200	200 mm	192 mm	611022	●
MS-thermowell pocket 250 mm type THMSDS250	250 mm	242 mm	611985	●
MS-thermowell pocket 300 mm type THMSDS300	300 mm	292 mm	611039	●
MS-thermowell pocket 450 mm type THMSDS450	450 mm	442 mm	611046	●



thermowell pocket – THVADS



thermowell pocket – THVA



thermowell pocket – THMSDS

**BONDED POCKETS**

Accessories – bonded pockets				
Item description	Length	Pocket length	Item no.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	⊕
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	⊕
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	⊕
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	⊕



bonded pocket – St52-3

# Humidity

Humidity sensor for reliable detection of relative humidity and temperature in residential and commercial buildings, outdoor resp. in gaseous media of heating, ventilation and air conditioning systems.



Humidity

## Sample applications 243

### Room sensors

FTW04	Surface mount sensor Temp. + rH	244
FTW06	Flush mount sensor Temp. + rH	247
FP/FTP	Room pendulum Temp. + rH	249
FT-RDF18	Ceiling sensor Temp. + rH	251

### Duct sensors

FTK+	Duct sensor Temp. + rH	252
FTK	Duct sensor Temp. + rH (BUS)	254

### Outdoor sensors

WSA	Outdoor sensor Temp. + rH	256
FTA54	Outdoor sensor Temp. + rH	257

### Hygrostats

FSR01	Room humidistats air conditioning, ...	259
FSK01	Duct humidistats air	260

### Condensation / Leakage

WK01	Condensation sensor	261
LS02	Water leak detection	262





## » BENEFITS

- » Reliable measurement of relative humidity
- » High Accuracy
- » Optional temperature sensor



1

### FTK+

Duct humidity/temperature sensor,  
available outputs: 0..10 V or 4..20 mA



2

### FTW04

Room humidity/temperature sensor,  
available with set point  
adjustment and LON interface



## ALREADY WET HANDS?

Whether room or duct: Highest precision in relative humidity is of paramount importance. Not only for creating comfortable working conditions, a consistent and accurate monitoring of humidity is necessary. In increasingly insulated buildings, hazardous mold formations get observance to the sustainable protection of humans and the building. In order to act precautionary and to control this risk, humidity sensors are additionally equipped with temperature sensors and designed for communication in BUS systems, for wireless EnOcean communication and for direct hook-up.





FTW04



FTW04 P LCD



## FTW04



Surface mount room humidity and temperature sensor for room and space monitoring and control applications.

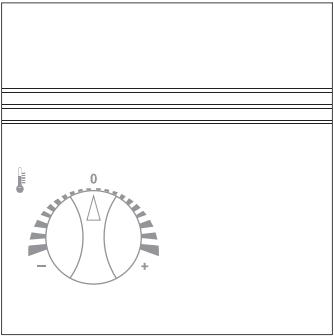
### TECHNICAL DATA

Measuring values	temperature, humidity
Output voltage	VV   VVS: 2x 0..10 V   2x 0..10 V + passive sensor (min. load 10 kΩ)
Output Amp	AA   AAS: 2x 4..20 V   2x 4..20 mA (max. load 500 Ω) + passive sensor
Network technology	BACnet MS/TP KNX (TP) LON FT (free topology) RS485 Modbus digitalSTROM (dS)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) AA   AAS: 15..24 V = (±10%) KNX: supply via BUS dS: 230 V ~ (±10%)
Power consumption	VV   VVS: max. 0,3 W (24 V =)   0,5 VA (24 V ~) AA   AAS: max. 1 W (24 V =) BACnet: typ. 0,4 W (24 V =)   0,6 VA (24 V ~) RS485 Modbus: typ. 0,4 W (24 V =)   0,6 VA (24 V ~) dS: typ. 0,5 VA (230 V ~)
Measuring range temp.	0..+50 °C dS: -20..+60 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 °C (typ. at 25 °C) LON: ±0,5 K (typ. at 21 °C) RS485 Modbus: ±1% of measuring range (typ. at 21 °C) dS: ±0,5 K (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C) dS: ±3% between 20..80% rH (typ. at 21 °C)
Inputs	BACnet/RS485 Modbus: 2 digital entries, floating max. wire length 10 m
Display	LCD 29x12 mm, monochrome (optional)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> KNX: KNX terminal block
Ambient condition	-35..+70 °C dS: -20..+70 °C KNX: -20..+60 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)

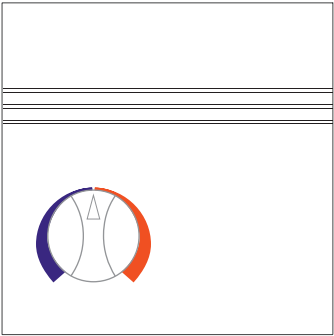
FTW04

Standard labelling (only with option potentiometer)

FTW04 P standard labelling



FTW04 P standard labelling colour  
(refer to options)



Item description: product | VV / AA

Room sensor temperature + humidity – active VV 2x 0..10 V   AA 2x 4..20 mA	
Item description	Item no.
FTW04 VV	196352
FTW04 AA	609555

Options
Item description
LCD
Potentiometer (passive)
Default labelling colour red+blue
Additional passive temperature sensor

Order example for different items:

**FTW04 | P | VV | PT1000 | LCD**

**FTW04** = product  
**P** = potentiometer (10 kOhm)  
**VV** = 2x 0..10 V output  
**PT1000** = additional passive temperature sensor  
**LCD** = display

Item description: product | BUS

**FTW04**



**Room sensor temperature + humidity – active BUS/digitalSTROM**

Item description	Item no.
FTW04 BACnet	548298
FTW04 KNX	585606
FTW04 LON	297776
FTW04 RS485 Modbus	601153
FTW04 dS	619219

**Options**

Item description
LCD (available for LON and RS485 Modbus)
Potentiometer (passive; available for LON and RS485 Modbus)
Default labelling colour red+blue

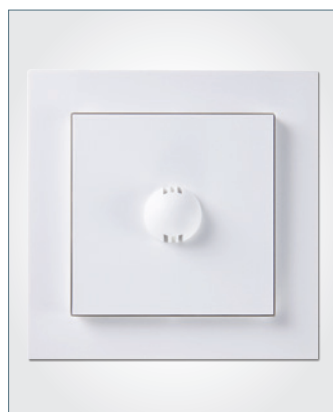
Order example for different items:

**FTW04 | P | LON | LCD | standard labelling colour**

<b>FTW04</b>	= product
<b>P</b>	= potentiometer (10 kOhm)
<b>LON</b>	= BUS
<b>LCD</b>	= display
<b>Labelling</b>	= standard red-blue

**Accessories**

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting WRF04	111584	●
Ball stroke protection BS100 (for WRF04)	103312	●



FTW06  
Gira E2 pure white



## FTW06



Room humidity and temperature sensor for room and space monitoring and control applications. compatible with switch frames 55x55 mm.

TECHNICAL DATA	
Measuring values	temperature, humidity
Output voltage	VV   VVS: 2x 0..10 V   2x 0..10 V + passive sensor (min. load 10 kΩ)
Network technology	digitalSTROM (dS)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) dS: 230 V ~ (±10%)
Power consumption	VV   VVS: max. 0,3 W (24 V =)   0,5 VA (24 V ~) dS: typ. 0,5 VA (230 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±1% of measuring range (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Mounting	flush mounted in standard EU box (Ø=55 mm)
Notes	please specify frame design when ordering additional passive sensor available (please specify in order) e.g.: PT100, PT1000, NI1000, NI1000TK5000, NTCxx, LM235Z, other sensors on request

## FTW06

Item description: product | VV/dS | switch range

Room sensor temperature + humidity – active VV 2x 0..10 V	
Item description	Item no.
FTW06 VV Gira E2 pure white	459167
FTW06 VV Berker S.1 polar white	501798
FTW06 VV Busch-Jaeger Balance Si alpine white	615341
FTW06 VV Jung A 500 alpine white	630177
FTW06 VV Merten M-Smart polar white brilliant	571746



Room sensor temperature + humidity – active digitalSTROM	
Item description	Item no.
FTW06 dS Gira E2 pure white	624787

Room operating unit temperature + humidity– digitalSTROM	
Item description	Item no.
FTW06 LCD dS Gira E2 pure white	624800

Options
Item description
Additional passive temperature sensor
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**FTW06 | VVS | PT1000 | Gira Esprit**

**FTW06** = product  
**VV** = 2x 0..10 V output  
**PT1000** = additional passive temperature sensor  
**Gira Esprit** = switch range Gira Esprit



FP/FTP

## FP/FTP

Room pendulum sensor for sectional measuring of relative humidity (type FP) or humidity and temperature (type FTP) in large and high rooms applications.

TECHNICAL DATA	
Measuring values	V   A: humidity VV   AA: temperature + humidity VS   AS: temperature (passive) + humidity
Output voltage	V: 1x 0..10 V VS: 1x 0..10 V + passive sensor VV: 2x 0..10 V
Output Amp	A: 1x 4..20 mA AA: 2x 4..20 mA AS: 1x 4..20 mA (max. load 500 Ω) + passive sensor
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) A   AA   AS: 15..24 V = (±10%)
Power consumption	max. 0,4 W (24 V =)   0,7 VA (24 V ~)
Measuring range temp.	-20..+80 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Accuracy humidity	±2% between 35..75% rH (typ. at 21 °C)
Protection	IP20 according to EN 60529
Connection electrical	sensor wire PVC, Ø=14 mm, white 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pipe	PVC, with stainless steel weight, black, Ø=19 mm length 180 mm
Filter	PVDF
Ambient condition	-20..+70 °C, max. 75% rH non-condensing
Notes	for other sensors please request

Item description: product | output (V/A) | cable length (L)

### Room pendulum sensor humidity – active V 0..10 V | A 4..20 mA

Item description	Item no.
FP V L1000	144544
FP A L1000	173407

Item description: product | output (VV/AA) | cable length (L)

### Room pendulum sensor temperature + humidity – active VV 2x 0..10 V | AA 2x 4..20 mA

Item description	Item no.
FTP VV L1000	152273
FTP AA L1000	185653

## FP/FTP

Item description: product | output (VS) | sensor | cable length (L)

Room pendulum sensor humidity (active) + temperature (passive) – VS 0..10 V + Sensor	
Item description	Item no.
FTP VS PT100 L1000	356480
FTP VS PT100 1/3 DIN L1000	356497
FTP VS PT1000 L1000	153140
FTP VS PT1000 1/3 DIN L1000	281416
FTP VS Ni1000 L1000	253109
FTP VS Ni1000TK5000 L1000	332200
FTP VS NTC10k L1000	356527
FTP VS NTC10k Precon L1000	356459
FTP VS NTC20k L1000	356534
FTP VS LM235Z L1000	204798

Item description: product | output (AS) | sensor | cable length (L)

Room pendulum sensor humidity (active) + temperature (passive) – AS 4..20 mA + Sensor	
Item description	Item no.
FTP AS PT100 L1000	356350
FTP AS PT100 1/3 DIN L1000	356367
FTP AS PT1000 L1000	356374
FTP AS PT1000 1/3 DIN L1000	356381
FTP AS Ni1000TK5000 L1000	356398
FTP AS Ni1000 L1000	297493
FTP AS NTC10k L1000	356442
FTP AS NTC10k Precon L1000	215466
FTP AS NTC20k L1000	356466
FTP AS LM235Z L1000	356473

Options
Item description
Add per meter of connection cable (FP)
Add per meter of connection cable (FTP)
Add to price of NTC10k for sensor NTC1,8k   NTC5k   NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

**FTP | AS | NTC1,8k | L2000**

**FTP** = product  
**AS** = 4..20 mA output + sensor  
**NTC1,8k** = sensor  
**L2000** = cable length (mm)

Accessories		
Item description	Item no.	On stock
Filter PVDF (spare part)	118583	



FT-RDF18

## FT-RDF18

Ceiling sensor for unobtrusive humidity and temperature measurement in the ceiling area of room and office spaces. Designed for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature, humidity
Output voltage	VV: 2x 0..10 V, min. load 5 kΩ
Output Amp	AA: 2x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) AA: 15..24 V = (±10%)
Power consumption	VV: max. 0,45 W (24 V =)   0,8 VA (24 V ~) AA: max. 1 W (24 V =)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 °C (typ. at 25 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529 sensor head: IP30 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> connection wire sensor head to plug RJ12: PVC 0,15 m connection wire bush RJ12 to enclosure: PVC 3 m
Sensor head	ABS, white, Ø=30 mm
Ambient condition	-35..+70 °C, max. 85% rH non-condensing

Item description: product | output (VV/AA)

Ceiling sensor temperature + humidity – active VV 2x 0..10 V   AA 2x 4..20 mA	
Item description	Item no.
FT-RDF18 VV	472227
FT-RDF18 AA	472845





FTK+

## FTK+



Duct humidity and temperature sensor in new hinged lid enclosure USE for all HVAC duct applications. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature, humidity
Output voltage	VV   VVS: 2x 0..10 V   2x 0..10 V + passive sensor (min. load 10 kΩ)
Output Amp	AA   AAS: 2x 4..20 V   2x 4..20 mA (max. load 500 Ω) + passive sensor
Power supply	VV   VVS: 15..24 V= (±10%) or 24 V~ (±10%) AA   AAS: 15..24 V= (±10%)
Power consumption	VV   VVS: max. 0,4 W (24 V =)   0,8 VA (24 V ~) AA   AAS: max. 1 W (24 V =)
Measuring range temp.	-20..+80 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 °C (typ. at 25 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Air speed	max. 12 m/s
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm length 140   270   400 mm
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C
Delivery contents	incl. mounting flange
Notes	additional passive sensor available (type VVS/AAS)

## Highlights / Innovations

### Hinged lid enclosure USE

The FTK+ will be delivered with our newest innovation from our enclosure range. The hinged lid enclosure makes simple wiring possible without any additionally required assembly tools. For more flexibility the modular design of the enclosure offers the possibility of exchanging individual components (e.g. cable entry).

### Mounting

The mounting base, which is included in delivery, permits the simple clipping on of the enclosure and guarantees the thermal separation of the mounting location and the sensor.

### Thought out in all details

The decisive detail is the removable cable entry of USE: in combination with the removable plug-in terminal it allows the quick and easy wiring through the opening – comfortable pre-assembly included. The practical hinged cover with its quick-release feature cannot be lost and thus is always there where it belongs.

The additional lock with (only) one screw is also possible for special applications.

## FTK+

Item description: product | pipe (length) | output (VV/AA)

### Duct humidity sensor temperature + humidity – active 2x 0..10 V

Item description	Item no.	On stock
FTK+ 140 VV incl. MF20 (TPO)	626347	●
FTK+ 270 VV incl. MF20 (TPO)	626354	●
FTK+ 400 VV incl. MF20 (TPO)	626361	●

### Duct humidity sensor temperature + humidity – active 2x 4..20 mA

Item description	Item no.	On stock
FTK+ 140 AA incl. MF20 (TPO)	626378	●
FTK+ 270 AA incl. MF20 (TPO)	626385	●
FTK+ 400 AA incl. MF20 (TPO)	626392	●

### Options

Item description
Additional passive temperature sensor

Order example for different items:

**FTK+ | AA | PT1000 | incl. MF20 (TPO)**

**FTK+** = product  
**AA** = 4..20 mA output  
**PT1000** = additional passive temperature sensor  
**incl. MF20 (TPO)** = inclusive mounting flange MF20 (TPO)

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Filter stainless steel, wire mesh (spare part)	231169	●
Mounting flange MF20 (TPO)	612562	●
Weather protection for FTK, FTK+, WSA (replacement)	625241	



weather protection



FTK



## FTK

Duct humidity and temperature sensor for all HVAC duct applications. Designed for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature, humidity
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	LON: max. 0,7 W (24 V =)   1,9 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	-20..+80 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	$\pm 0,5$ °C (typ. at 25 °C)
Accuracy humidity	$\pm 2\%$ between 10..90% rH (typ. at 21 °C)
Air speed	max. 12 m/s
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm seal insert for double cable entry for wire max $\varnothing = 6$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, $\varnothing = 19,5$ mm length 140   270   400 mm LON: $\varnothing = 19$ mm length 130   260   390 mm
Filter	stainless steel wire mesh LON: PVDF
Ambient condition	-20..+70 °C
Delivery contents	incl. mounting flange

## FTK

Item description: product | pipe (length) | BUS



### Duct humidity sensor temperature + humidity - LON

Item description	Item no.
FTK 130 LON incl. MF19 (TPO)	120609
FTK 260 LON incl. MF19 (TPO)	120296
FTK 390 LON incl. MF19 (TPO)	174855



### Duct humidity sensor temperature + humidity - RS485 Modbus

Item description	Item no.
FTK 140 RS485 Modbus incl. MF20 (TPO)	463560
FTK 270 RS485 Modbus incl. MF20 (TPO)	463645
FTK 400 RS485 Modbus incl. MF20 (TPO)	463652

### Accessories

Item description	Item no.	On stock
Rawplugs and screws (2 pcs. each)	102209	●
Filter stainless steel, wire mesh (spare part)	231169	●
Filter PVDF (spare part)	118583	
Mounting flange MF19 (TPO)	527705	●
Mounting flange MF20 (TPO)	612562	●
Weather protection for FTK, FTK+, WSA (replacement)	625241	



weather protection



WSA

## WSA



Protected humidity and temperature sensor for outside applications. The radiation shield protects the outside sensors from rain and radiated heat. With the curved shape and color of the plates air flow is able to move across the sensors to keep radiated temperatures from rooftops and surrounding surfaces from affecting humidity readings.

### TECHNICAL DATA

Measuring values	temperature, humidity
Output voltage	VV: 2x 0..10 V, min. load 10 kΩ
Output Amp	AA: 2x 4..20 mA, max. load 500 Ω
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) AA: 15..24 V = (±10%)
Power consumption	VV: max. 0,4 W (24 V =)   0,8 VA (24 V ~) AA: max. 1 W (24 V =) LON: max. 0,7 W (24 V =)   1,9 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	-20..+80 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 °C (typ. at 25 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE 63x51x40 mm, PA6, pure white BUS/LCD: PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm BUS: M20 for wire max. Ø=8 mm seal insert for double cable entry for wire max Ø=6 mm
Connection electrical	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS/LCD: terminal block, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm, LON: Ø=19 mm
Filter	stainless steel wire mesh, LON: PVDF
Ambient condition	-20..+70 °C, max. 95% rH non-condensing
Mounting	mounting at the wall or at a mast

Item description: product | VV / AA / BUS

### Weather protection - outdoor humidity sensor temperature + humidity - active

Item description	Item no.
WSA VV	626408
WSA AA	626415
WSA LON	626422
WSA RS485 Modbus	626439

### Accessories

Item description	Item no.	On stock
Filter stainless steel, wire mesh (spare part)	231169	☺
Filter PVDF (spare part)	118583	
Weather protection for FTK, FTK+, WSA (replacement)	625241	



FTAS4



FTAS4

with rain protection (accessory)



## FTAS4

Outdoor humidity sensor for measuring relative humidity and temperature in outdoor areas. Designed for control and monitoring applications.

### TECHNICAL DATA

Measuring values	temperature humidity
Output voltage	VV   VVS: 2x 0..10 V   2x 0..10 V + passive sensor (min. load 10 kΩ)
Output Amp	AA   AAS: 2x 4..20 V   2x 4..20 mA (max. load 500 Ω) + passive sensor
Network technology	LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) AA   AAS: 15..24 V = (±10%)
Power consumption	VV   VVS: max. 0,3 W (24 V =)   0,5 VA (24 V ~) AA   AAS: max. 40 mA (24 V =) LON: typ. 0,6 W (24 V =)   1,2 VA (24 V ~) RS485 Modbus: typ. 0,7 W (24 V =)   1,8 VA (24 V ~)
Measuring range temp.	-20..+80 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 °C (typ. at 25 °C) passive: typ. ±0,3 K (typ. at 21 °C), depending on used sensor
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	PA6, pure white, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm LON: M20 for wire max. Ø=8 mm seal insert for double cable entry for wire max Ø=6 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pipe	PA6, pure white
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C
Notes	for other sensors please request

## FTA54

Item description: product | VV / AA / BUS

Outdoor humidity sensor temperature + humidity – active	
Item description	Item no.
FTA54 VV	98939
FTA54 AA	520058
FTA54 LON	139564
FTA54 RS485 Modbus	558617

Options
Item description
Additional passive temperature sensor (for AA VV)

Order example for different items:

### FTA54 | AAS

FTA54 = product  
AAS = 4..20 mA output + additional passive temperature sensor (e.g. PT1000)

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Filter stainless steel, wire mesh (spare part)	231169	●
Rain protection PA6, white	587709	●



FSK01  
standard labelling  
for outside adjustment

## FSR01

FSR humidistats are designed for the on/off control of ventilation and air conditioning, humidification and dehumidification equipment in room applications.

TECHNICAL DATA	
Measuring values	humidity
Medium	air, non-pressurized, non-aggressive
Output switch contact	switching difference 4% rH (at 50% rH) max. 250 V ~
Measuring range humidity	30..100% rH non-condensing
Working range humidity	35..95% rH
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Air speed	max. 15 m/s
Sensor	Polyga® measuring element, water resistant, washable
Enclosure	ASA, pure white
Protection	IP20 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+60 °C
Notes	possible with inside adjustment on request

Hygrostat	
Item description	Item no.
FSR01	427623

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting WRF04	111584	●





FSK01

### FSK01



Hygrostat (ON-OFF controller) to control the relative air humidity. It is designed for applications, where air humidity has to be controlled or monitored as ventilation and air conditioning, humidification and dehumidification equipment, in offices and computer rooms, foodstuffs and luxury foods, cooling rooms for fruit and vegetables, greenhouses for gardening use, textile industry, paper and printing industry, film industry, hospitals and similar applications.

TECHNICAL DATA	
Measuring values	humidity
Medium	air, non-pressurized, non-aggressive
Output switch contact	switching difference 4% rH (at 50% rH) max. 250 V ~
Measuring range humidity	30..100% rH non-condensing
Working range humidity	35..95% rH
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Air speed	max. 8 m/s with sensor protection max. 15 m/s
Sensor	Polyga® measuring element, water resistant, washable
Enclosure	ABS, pure white, light grey
Protection	IP54 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pipe	stainless steel, Ø=16 mm, length 220 mm
Filter	PTFE
Ambient condition	-20..+60 °C
Notes	possible with inside adjustment on request

#### Hygrostat

Item description	Item no.
FSK01	427593

#### Accessories

Item description	Item no.	On stock
PTFE filter	429054	
Mounting flange MF19 (TPO)	527705	☺
Sensor protection (wire mesh) for fan speeds 8..15 m/s	429047	☺
Wall mounting	429030	☺



WK01



WK01 ext.

## WK01

WK01 condensation sensor with LED signal has been designed to provide a switched output signal to prevent condensation on chilled surfaces such as chilled beams. WK01 ext has a 2 m remote sensor.

### TECHNICAL DATA

Measuring values	humidity
Output switch contact	changeover contact, non-floating 24 V: max. 24 V / 1,0 A (resistive) 230 V: max. 230 V / 0,5 A (resistive)
Power supply	24 V: 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) 230 V: 230 V ~ ( $\pm 10\%$ )
Power consumption	24 V: typ. 0,8 W (24 V =)   1,6 VA (24 V ~) 230 V: typ. 3,5 VA
Display	LED green - power supply OK LED red - condensation
Enclosure	PA6, pure white cover PC, transparent
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing=8$ mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	1x syringe with terminal contact fluid
Notes	WK01 UP: type flush mounting Gira E2 pure white, other switch programmes on request WK01 ext.: with external sensor (PVC, diameter 0,25 mm <sup>2</sup> , L=2 m)

Item description: product | volt

### Condensation sensor – 24 V

Item description	Item no.	On stock
WK01 24 V	212816	●
WK01 ext. 24 V	230537	●

Item description: product | volt

### Condensation sensor – 230 V

Item description	Item no.
WK01 230 V	363686
WK01 ext. 230 V	408950

Item description: product | switch range | volt

### Condensation sensor flush mount – 24 V

Item description	Item no.
WK01 UP Gira E2 pure white 24 V	446624



LS02

**LS02**

Water leak detection sensor with LED signal and relay output. Designed for alarm, control and monitoring applications.

TECHNICAL DATA	
Measuring values	humidity
Output switch contact	changeover contact 24 V: max. 24 V / 1,0 A (resistive) floating
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	typ. 0,6 W (24 V =)   1,5 VA (24 V ~)
Sensor	4 detector electrodes stainless steel V2A
Display	LED green - power supply OK LED red - alarm
Enclosure	PA6, pure white cover PC, transparent with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+60 °C
Mounting	adjustment in height is possible using adjustable contacts

Water leak detection sensor		
Item description	Item no.	On stock
LS02	427807	🟢

# Pressure & 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.



## Sample applications 265

### Gases

DPA	Differential pressure transmitter	266
PS	Differential pressure switch	269
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### Flow Meter / Air Velocity

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### Manometer

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DPG PS	Diff. pressure manometer/switch	276

### Fluids

DLM	Pressure transmitter	277
DPL	Differential pressure transmitter	280



## » BENEFITS

- » Reliable detection of pressure, differential pressure & velocity
- » High protection
- » Highest accuracies for a precise monitoring
- » Selectable measuring ranges for flexibility





1

## DPI

Electronic differential pressure switch with four adjustable measuring ranges and up to two relay outputs



2

## DLM

Pressure transducer for detecting pressure in liquid media



3

## DPL

Differential pressure transducer for detecting differential pressure in liquid media



4

## PS

Adjustable differential pressure switch for detecting differential air pressure



5

## DPG

Differential pressure manometer for monitoring differential pressure



6

## DPA

Differential pressure transducer with 8 selectable measuring ranges

## THE CORRECT PRESSURE

Our customized pressure and flow rate sensors are used for monitoring of pressure, differential pressure, flow rate of liquids and non-flammable gases in air filters, industrial air cooling cycles and ventilation ducts.



DPA



DPA LCD  
(with display)



## DPA

Differential pressure transmitter with 8 selectable ranges and adjustable outputs (0..10 V or 4..20 mA) or RS485 Modbus output. For monitoring differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring for air filters, fans, industrial cooling air cycles as well as overheating protection, control of air and fire dampers. RS485 Modbus types can calculate the flow rate additionally using differential pressure. Screw mounted onto flat surface, prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715.

### TECHNICAL DATA

Measuring values	differential pressure
Medium	air or other non-flammable/non-aggressive gases
Output voltage	0..10 V RS485 Modbus: 0..10 V max. 10 mA proportional to the measured value scale configurable
Output Amp	4..20 mA
Network technology	RS485 Modbus
Power supply	15..24 V $\pm$ (±10%) or 24 V $\sim$ (±10%)
Power consumption	typ. 1,1 W (24 V $\sim$ )   1,7 VA (24 V $\sim$ ) RS485 Modbus: typ. 1,4 W (24 V $\sim$ )   2 VA (24 V $\sim$ )
Measuring range pressure	DPA250: 0..+25   0..+50   0..+100   0..+250   -25..+25   -50..+50   -100..+100   -150..+150 Pa DPA2500: -100..+100   0..+100   0..+250   0..+500   0..+1000   0..+1500   0..+2000   0..+2500 Pa DPA7000: 0..+1000   0..+1500   0..+2000   0..+2500   0..+3000   0..+4000   0..+5000   0..+7000 Pa RS485 Modbus additionally: flow meter 0..100   500   1.000   5.000   10.000   50.000   100.000   200.000 m³/h selectable at the device for other ranges please request
Accuracy pressure	DPA250: $\pm$ 1 Pa at range <250 Pa DPA2500: $\pm$ 5 Pa at range <500 Pa, $\pm$ 10 Pa at range >500 Pa DPA7000: $\pm$ 10 Pa at range <2000 Pa, $\pm$ 25 Pa at range >2000 Pa deviation from calibration reference device (calibrator)
Max. working overpressure	400 kPa
Calibration	Automatic zero point calibration (optional)
Sensor	piezo measuring element
Inputs	RS485 Modbus: 2 inputs for temperature sensors type NTC10k or for potential free switching contacts
Display	LCD 37,5x31,6 mm (optional) measured values: Pa, inchWC, mmWC, kPa, mbar, psi (configurable) RS485 Modbus measured values: Pa, kPa, mbar, mmWC, inchWC, psi, m³/h, m³/s, cfm, l/s, scfh, f/min (configurable)
Enclosure	hinged lid enclosure, PA6, pure white
Protection	IP54 according to EN 60529 IP65 with bolted cover
Cable entry	M20 for wire max. $\varnothing$ =8 mm seal insert for double cable entry for wire max $\varnothing$ =6 mm

## DPA

Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> 3-wire RS485 Modbus: 4-wire
Connection mechanical	pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft
Ambient condition	-10...+50 °C, max. 95% rH non-condensing
Mounting	screw mounted onto flat surface prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	2 mounting screws, 2 plastic duct flanges, 2 m PVC connection tube
Notes	optional with display „LCD“

Item description: product | MultiRange

Differential pressure transmitter – 0..10 V + 4..20 mA		
Item description	Item no.	On stock
DPA250 MultiRange	588928	
DPA2500 MultiRange	566667	●
DPA7000 MultiRange	566681	●

Item description: product | BUS | MultiRange



Differential pressure transmitter – RS485 Modbus			
Item description	Inputs	0..10 V	Item no.
DPA250 RS485 Modbus MultiRange	2	1	591584
DPA2500 RS485 Modbus MultiRange	2	1	591607
DPA7000 RS485 Modbus MultiRange	2	1	591621

Options	
Item description	
Automatic zero-point calibration	

Order example for different items:

**DPA2500 | RS485 Modbus | MultiRange | AZ**

**DPA2500** = product

**RS485 Modbus** = BUS

**MultiRange** = different measuring ranges adjustable

**AZ** = automatic zero point calibration

Accessories			
Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	●
Metal duct connectors MKS100	100 mm	302531	●



## DPA

Item description: product | LCD | MultiRange

### Differential pressure transmitter with display – 0..10 V + 4..20 mA

Item description	Item no.	On stock
DPA250 LCD MultiRange	588935	
DPA2500 LCD MultiRange	588904	
DPA7000 LCD MultiRange	588911	⊕

Item description: product | LCD | BUS | MultiRange



### Differential pressure transmitter with display – RS485 Modbus

Item description	Inputs	0..10 V	Item no.
DPA250 LCD RS485 Modbus MultiRange	2	1	591591
DPA2500 LCD RS485 Modbus MultiRange	2	1	591614
DPA7000 LCD RS485 Modbus MultiRange	2	1	591645

### Options

Item description
Automatic zero-point calibration

Order example for different items:

**DPA2500 | LCD | RS485 Modbus | MultiRange | AZ**

**DPA2500** = product  
**LCD** = display  
**RS485 Modbus** = BUS  
**MultiRange** = different measuring ranges adjustable  
**AZ** = automatic zero point calibration

### Accessories

Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	⊕
Metal duct connectors MKS100	100 mm	302531	⊕



PS

## PS

Adjustable differential pressure switch PS for monitoring differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters, fans, industrial cooling air cycles as well as overheating protection, control of air and fire dampers.

### TECHNICAL DATA

Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Output switch contact	NO/NC circuit, switching difference PS200   PS300   PS500: 20 Pa PS1500: 80 Pa, PS4500: 180 Pa
Measuring range pressure	PS200: 20..200 Pa PS300: 30..300 Pa PS500: 30..500 Pa PS600: 40..600 Pa PS1500: 100..1500 Pa PS4500: 500..4500 Pa
Accuracy pressure	typ. $\pm 5$ Pa, PS1500 typ. $\pm 10$ Pa, PS4500 typ. $\pm 50$ Pa
Max. working overpressure	50 kPa
Switching values	switching load PS200: 0.1 A resistive load PS300   PS500   PS600   PS1500: 3 A resistive load, 2 A inductive load PS4500: 5 A resistive load, 2 A inductive load max. 250 V ~ miniature switches: silver contacts, PS200 gold contacts service life: >1.000.000 switching operations
Enclosure	ABS, cover PC, membrane silicone
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm
Connection electrical	terminal block, max. $1,5$ mm <sup>2</sup>
Connection mechanical	pressure connection: ABS, connection tube: PVC, soft
Ambient condition	-40..+85 °C, max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube soft, $\varnothing=4/7$ mm

### Differential pressure switch

Item description	Item no.	On stock
PS200	255196	29,40
PS300	269971	29,40
PS500	269995	29,40
PS1500	255202	29,40
PS4500	273138	29,40

### Accessories

Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	29,40
Metal duct connectors MKS100	100 mm	302531	29,40



DPI

### DPI

Electronic differential pressure switch with 4 adjustable ranges (0..10 V) and up to 2 relay outputs. For monitoring and indicating low pressures of air or non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters, fans, industrial cooling air cycles as well as overheating protection, duct airflow.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air or other non-flammable/non-aggressive gases
Output voltage	0..10 V (adjustable), min. load 1 k $\Omega$
Output switch contact	DPI2500 LCD: 1x relay (250 V ~   30 V =   6 A) DPI2500-2R LCD: 2x relay (250 V ~   30 V =   6 A)
Power supply	21..35 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) with auto zero: 24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	max. 2 W   24 V =
Working range temp.	-10..+50 °C
Measuring range pressure	0..100 Pa, 0..250 Pa, 0..1000 Pa, 0..2500 Pa selectable at the device
Accuracy pressure	$\pm 1,5\%$ of greatest measuring range
Max. working overpressure	30 kPa
Calibration	Automatic zero point calibration (optional)
Enclosure	ABS, cover PC
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm M20 for wire max. $\varnothing=8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Connection mechanical	pressure connection male $\varnothing=5,0$ mm / $\varnothing=6,3$ mm connection tube: PVC, soft
Ambient condition	-10..+50 °C, max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube

#### Differential pressure switch – 0..10 V | relay

Item description	Relay	Item no.
DPI2500 LCD	1	466844
DPI2500-2R LCD	2	466868

#### Options

Item description
Automatic zero-point calibration

#### Accessories

Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	●
Metal duct connectors MKS100	100 mm	302531	●



DPT Flow

## DPT FLOW

DPT Flow is a device for monitoring and controlling the differential pressure with 2 analogue outputs and for measuring volumetric flow of centrifugal fans. The flow rate measurement is based on differential pressure values measured directly from the fan. DPT Flow can be used to display the flow value on-site and to send the output value to a control system.

TECHNICAL DATA	
Measuring values	differential pressure, flow meter
Medium	air or other non-flammable/non-aggressive gases
Output voltage	2x 0..10 V (adjustable), min. load 1 k $\Omega$
Output Amp	2x 4..20 mA (adjustable), max. load 500 $\Omega$
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	max. 1,2 W
Working range temp.	-5..+50 $^{\circ}\text{C}$
Measuring range pressure	DPT Flow 1000 LCD: 0..1000 Pa DPT Flow 5000 LCD: 0..5000 Pa for other ranges please request
Accuracy pressure	<125 Pa = $\pm 2$ Pa >125 Pa = $\pm 1,5\%$ of measuring range
Max. working overpressure	25 kPa
Calibration	Automatic zero point calibration
Functions	0..10 V   4..20 mA selectable via jumper
Display	LCD for indication of measuring values and for setup
Enclosure	ABS, cover PC
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. $\varnothing=8$ mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Connection mechanical	pressure connection male $\varnothing=5,0$ mm / $\varnothing=6,3$ mm connection tube: PVC, soft
Ambient condition	-10..+50 $^{\circ}\text{C}$ , max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube

### Differential pressure transmitter

Item description	Item no.
DPT Flow 1000 LCD	370509
DPT Flow 5000 LCD	377546

### Accessories

Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	●
Metal duct connectors MKS100	100 mm	302531	●



AVT

## AVT



Air velocity and temperature transducer is engineered for building automation in the HVAC/R industry. The AVT measures air velocity and temperature, with field selectable range and output options in a single device.

### TECHNICAL DATA

Measuring values	temperature, air velocity
Medium	air or other non-flammable/non-aggressive gases
Output voltage	2x 0..10 V, min. load 1 kΩ
Output Amp	2x 4..20 mA, max. load 400 Ω
Output switch contact	AVT-R LCD: relay with change-over contact (volt free contact), 250 V ~ / 6 A, 30 V = / 6 A
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 2 W AVT-R LCD: max. 2,4 W
Measuring range temp.	0..+50 °C
Measuring range velocity	0..2 m/s 0..10 m/s 0..20 m/s selectable at the device
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy velocity	0..2 m/s: <0,1 m/s + 5% of measuring value 0..10 m/s: <0,5 m/s + 5% of measuring value 0..20 m/s: <1,0 m/s + 5% of measuring value
Sensor	temperature: NTC10k air velocity: PT1000
Display	LCD 3,5", 45.7 x 12.7 mm, (optional) for indication of measuring values
Enclosure	ABS, cover PC
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm AVT-R LCD: 2x M16
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pocket	stainless steel V2A, L=210 mm
Ambient condition	0..+50 °C, max. 95% rH non-condensing
Delivery contents	incl. mounting flange
Notes	optional with display „LCD“ optional with relay Adjustable Immersion length: 50..180 mm, using mounting flange adjustable switching threshold and hysteresis

### Differential required tube manometer – 0..10 V | 4..20 mA

Item description	Relay	Item no.	On stock
AVT	-	430005	⊕
AVT LCD	-	430036	⊕
AVT-R LCD	1	430067	



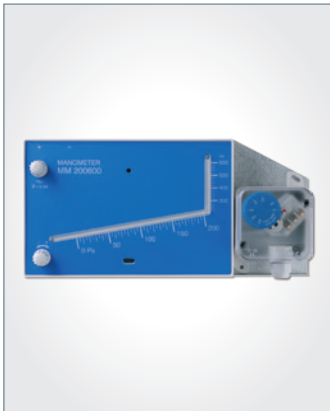
MM

MM

Differential pressure inclined tube manometers for monitoring differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters and fans, monitoring of industrial air cycles and duct airflow.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Working range temp.	-40..+60 °C
Measuring range pressure	MM50: -50..50 Pa MM100: -20..100 Pa MM500: -100..500 Pa MM600: 0..600 Pa
Accuracy pressure	MM±50   MM100: 1 Pa MM-100/500   MM200600: 5 Pa/ 25 Pa
Max. working overpressure	200 kPa
Enclosure	ABS, cover PMMA
Protection	IP54 according to EN 60529
Connection mechanical	connection tube: PVC, soft
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube soft, Ø=4/7 mm 30 ml gauge fluid 2 indication stickers (red/green)

Differential required tube manometer	
Item description	Item no.
MM50	268912
MM100	284516
MM500	384452
MM600	255240



MM PS

MM PS

Differential pressure inclined tube manometer incl. switching contact for monitoring the differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters and fans, monitoring of industrial air cycles and duct airflow.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Output switch contact	switching difference 30 Pa
Working range temp.	-20..+60 °C
Measuring range pressure	0..600 Pa
Max. working overpressure	50 kPa
Switching values	max. 3 A resistive load, 2 A inductive load max. 250 V ~ miniature switches with silver contacts range: 40..600 Pa service life: >1.000.000 switching operations
Enclosure	ABS, MM: cover PMMA, PS: cover PC membrane silicone
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Connection mechanical	pressure connection: ABS connection tube: PVC, soft
Ambient condition	-40..+85 °C, max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube soft, Ø=4/7 mm 30 ml gauge fluid 2 indication stickers (red/green)

Differential required tube manometer	
Item description	Item no.
MM600/PS600	255257



DPG

DPG

Differential pressure gauges for monitoring differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters and fans, monitoring of industrial air cycles and flows in air ducts.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Working range temp.	-5..+60 °C
Measuring range pressure	DPG60: 0..60 Pa DPG100: 0..100 Pa DPG250: 0..250 Pa DPG500: 0..500 Pa DPG1k: 0..1 kPa
Accuracy pressure	DPG60: <±4% of measuring range DPG100: <±3% of measuring range DPG250   DPG500   DPG1k: <±2% of measuring range
Display	display Ø=100 mm
Enclosure	ABS, cover PC
Connection mechanical	connection tube: PVC, soft
Ambient condition	-40..+85 °C, max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube 2 m PVC connection tube soft, Ø=4/7 mm
Notes	please contact us for other ranges.

Differential pressure gauges	
Item description	Item no.
DPG60	384438
DPG100	384445
DPG250	255264
DPG500	255271
DPG1k	285025

Accessories			
Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	⊕
Metal duct connectors MKS100	100 mm	302531	⊕





DPG PS

## DPG PS

Differential pressure gauges for monitoring differential pressure of air and other non-flammable and non-aggressive gases. Possible applications: Monitoring of air filters and fans, monitoring of industrial air cycles and flows in air ducts.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Output switch contact	switching difference PS200: 10 Pa PS600: 30 Pa PS1500: 80 Pa
Working range temp.	-5...+60 °C
Measuring range pressure	DPG200/PS200: 0..200 Pa DPG600/PS600: 0..600 Pa DPG1,5k/PS1500: 0..1500 Pa
Accuracy pressure	<±2% of measuring range
Max. working overpressure	50 kPa
Display	display Ø=100 mm
Switching values	PS200: 0,1 A resistive load PS600   PS1500: 3 A resistive load, 2 A inductive load max. 250 V ~ miniature switches: silver contacts, PS200 gold contacts
Enclosure	ABS, cover PC
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Connection mechanical	pressure connection: ABS connection tube: PVC, soft
Ambient condition	-40...+85 °C, max. 95% rH non-condensing
Delivery contents	2 mounting screws 2 plastic duct flanges 2 m PVC connection tube soft, Ø=4/7 mm

### Differential pressure gauges

Item description	Item no.
DPG200/PS200	255233
DPG600/PS600	267205
DPG1,5k/PS1500	338066

### Accessories

Item description	Length	Item no.	On stock
Metal duct connectors MKS40	40 mm	265138	●
Metal duct connectors MKS100	100 mm	302531	●



## DLM

Pressure transmitter for detection of static pressure suitable for usage with a large range of liquids and refrigerants. The usage in air and non-aggressive gases is also possible.



DLM G1/4"



DLM G7/16" Schrader

### TECHNICAL DATA

Measuring values	differential pressure
Medium	fluids
Output voltage	0..10 V, min. load 5 kΩ
Output Amp	4..20 mA, max. load 12 V   20 mA
Power supply	V: 15..24 V = (±10%) or 24 V ~ (±10%) A: 15..24 V = (±10%)
Power consumption	V: typ. 0,15 W   0,3 VA A: max. 0,5 W
Working range temp.	-40..+125 °C
Measuring range pressure	depending on device
Accuracy pressure	±0,5% (typ. at +25 °C)
Max. working overpressure	2 nominal pressure
Enclosure	stainless steel V2A P>1 bar: ceramic
Protection	IP65 according to EN 60529
Connection electrical	plug MVS according to DIN EN175301-803
Connection mechanical	G 1/2" G 1/4" 7/16" Schrader
Ambient condition	-40..+105 °C
Notes	please contact us for other ranges.

## DLM

Item description: product | V | thread

Pressure transmitter G1/4" – 0..10 V		
Item description	Item no.	On stock
DLM-1.0 V G1/4"	589789	
DLM1 V G1/4"	309066	⊕
DLM1,6 V G1/4"	590358	
DLM2 V G1/4"	590396	
DLM2,5 V G1/4"	310260	⊕
DLM4 V G1/4"	276993	⊕
DLM6 V G1/4"	265409	⊕
DLM10 V G1/4"	265461	⊕
DLM16 V G1/4"	277006	⊕
DLM25 V G1/4"	277013	⊕
DLM40 V G1/4"	507585	
DLM60 V G1/4"	464185	
DLM100 V G1/4"	464192	

Pressure transmitter G1/2" – 0..10 V		
Item description	Item no.	On stock
DLM-1.0 V G1/2"	528023	
DLM1 V G1/2"	370929	⊕
DLM1,6 V G1/2"	549943	
DLM2 V G1/2"	519373	
DLM2,5 V G1/2"	462730	⊕
DLM4 V G1/2"	277181	⊕
DLM6 V G1/2"	277174	⊕
DLM10 V G1/2"	277167	⊕
DLM16 V G1/2"	277150	⊕
DLM25 V G1/2"	277143	⊕
DLM40 V G1/2"	345378	
DLM60 V G1/2"	507608	
DLM100 V G1/2"	507622	

Accessories		
Item description	Item no.	On stock
Adapter G 1/4" to G 1/2"	277068	

## DLM

Item description: product | A | thread

### Pressure transmitter G1/4" – 4..20 mA

Item description	Item no.	On stock
DLM-1..0 A G1/4"	507561	
DLM1 A G1/4"	400794	☹
DLM1,6 A G1/4"	293198	
DLM2 A G1/4"	507578	
DLM2,5 A G1/4"	293204	☹
DLM4 A G1/4"	277020	☹
DLM6 A G1/4"	270960	☹
DLM10 A G1/4"	276627	☹
DLM16 A G1/4"	277037	☹
DLM25 A G1/4"	277044	☹
DLM40 A G1/4"	266574	
DLM60 A G1/4"	353328	
DLM100 A G1/4"	269261	

### Pressure transmitter G1/2" – 4..20 mA

Item description	Item no.	On stock
DLM-1..0 A G1/2"	350525	
DLM1 A G1/2"	306508	☹
DLM1,6 A G1/2"	449489	
DLM2 A G1/2"	287753	
DLM2,5 A G1/2"	449496	☹
DLM4 A G1/2"	277242	☹
DLM6 A G1/2"	277228	☹
DLM10 A G1/2"	277211	☹
DLM16 A G1/2"	277204	☹
DLM25 A G1/2"	277198	☹
DLM40 A G1/2"	460422	
DLM60 A G1/2"	327459	
DLM100 A G1/2"	494755	

### Pressure transmitter G7/16" – 4..20 mA

Item description	Item no.
DLM-0,5..9 A G7/16"	396059
DLM0..40 A G7/16"	396073

### Accessories

Item description	Item no.	On stock
Adapter G 1/4" to G 1/2"	277068	



DPL

DPL

Differential pressure transducer for liquids and refrigerants in HVAC applications.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	fluids
Output voltage	0..10 V, min. load 2 k $\Omega$
Output Amp	4..20 mA, max. load 2 $\Omega$   24 V =
Power supply	V: 15..24 V = ( $\pm$ 10%) or 24 V ~ ( $\pm$ 10%) A: 15..24 V = ( $\pm$ 10%)
Power consumption	V: typ. 0,37 W (24 V =)   0,9 VA (24 V ~) A: max. 0,5 W
Working range temp.	-10..+80 °C
Measuring range pressure	DPL1: 0..+1 bar DPL2,5: 0..+2,5 bar DPL4: 0..+4 bar DPL6: 0..+6 bar
Accuracy pressure	< $\pm$ 1% of measuring range (typ. at -5..+75 °C)
Enclosure	stainless steel V2A cover: aluminium pressure die casting
Protection	IP65 according to EN 60529
Connection electrical	angle plug according to DIN 43650
Connection mechanical	G 1/4"
Ambient condition	-10..+50 °C
Notes	please contact us for other ranges.

Item description: product | V/A

Differential pressure transmitter – 0..10 V		
Item description	Item no.	On stock
DPL1 V	346580	⊕
DPL2,5 V	346665	⊕
DPL4 V	346672	⊕
DPL6 V	346689	⊕

Differential pressure transmitter – 4..20 mA		
Item description	Item no.	On stock
DPL1 A	346597	⊕
DPL2,5 A	346696	⊕
DPL4 A	346702	⊕
DPL6 A	346719	⊕

Accessories			
Item description	Length	Item no.	On stock
Screw connection set 6 mm brass (2 pcs.)	6 mm	373401	⊕
Screw connection set 6 mm stainless steel (2 pcs.)	6mm	373388	⊕
Screw connection set 8 mm brass (2 pcs.)	8 mm	373418	⊕
Screw connection set 8 mm stainless steel (2 pcs.)	8 mm	373395	⊕

# Air Quality

Mixed gas and CO<sub>2</sub> sensors provide for an individual and demand-controlled fresh air supply. In modern buildings the use of these sensors is essential in order to increase energy savings and care for highest comfort levels in living and working spaces.



## Sample applications

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### Room sensors

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### Duct sensors

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LK-SX CO <sub>2</sub> +VOC	Duct air quality sensor CO <sub>2</sub> /VOC	294
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## » BENEFITS

- » Reliable detection of CO<sub>2</sub> and mixed gases (VOC)
- » Physical and emotional well-being through demand-controlled fresh air supply
- » Automatic self-calibration for CO<sub>2</sub> using intelligent "Dual Channel" technology
- » Optional temperature and humidity integrated



>> ALL CO<sub>2</sub> SENSORS WITH AUTOMATIC SELF CALIBRATION

## IDEAL ENVIRONMENTAL CONDITIONS

Our CO<sub>2</sub> and mixed gas sensors reliably detect the indoor air quality in ventilation ducts and control the external air supply. These intelligent air quality sensors create optimal environmental conditions - even in hospitals.





1

2

## » BENEFITS

- » Reliable detection of CO<sub>2</sub> and mixed gases (VOC)
- » Physical and emotional well-being through demand-controlled fresh air supply
- » Automatic self-calibration for CO<sub>2</sub> using intelligent "Dual Channel" technology
- » Optional temperature and humidity integrated



**LK-S CO<sub>2</sub>**

Duct sensor  
CO<sub>2</sub>/temperature/rH,  
outputs 0..10 V, LON, Modbus

**WRF06 CO<sub>2</sub>**

Flush-mounted room sensor  
CO<sub>2</sub>/ temperature/rH,  
available with traffic light indication



>> ALL CO<sub>2</sub> SENSORS WITH AUTOMATIC SELF CALIBRATION

## EXCELLENT WORKING ATMOSPHERE

Our CO<sub>2</sub> sensors provide for an individual and demand-controlled supply of fresh air in large open offices and improve the working atmosphere and conditions.



WRF04 CO2 LCD TLF



WRF04 CO2 TLF / WRF04 CO2 LCD



## WRF04 CO2

Surface mounted sensor for detection of CO<sub>2</sub>, temperature and optional relative humidity in room and office spaces. For direct connection to a DDC or a monitoring system, using 0..10 V outputs. Also available with traffic light LED and LCD.

### TECHNICAL DATA

Measuring values	temperature, humidity, CO <sub>2</sub>
Output voltage	VV: 2x 0..10 V 3xV: 3x 0..10 V max. load 10 kΩ
Output switch contact	optional with relay, floating max. 24 V / 2 A (ohmic)
Network technology	BACnet MS/TP LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 3 W (24 V =)   6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Display	LCD 29x12 mm, monochrome (optional, not with BACnet) 3 LEDs indicating air quality (traffic light function 'TLF')
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil or screws
Notes	optional with display „LCD“ optional with traffic light function „TLF“

## WRF04 CO2

Item description: product | VV | LCD | TLF (traffic light function)

### Room sensor temperature + CO2 – active VV 0..10 V

Item description	Item no.	On stock
WRF04 CO2 VV	423717	●
WRF04 CO2 VV LCD	423731	
WRF04 CO2 VV TLF	423724	
WRF04 CO2 VV LCD TLF	439114	

Item description: product | BUS | LCD | TLF (traffic light function)



### Room sensor temperature + CO2 – active BACnet MS/TP

Item description	Item no.
WRF04 CO2 BACnet MS/TP	548274
WRF04 CO2 BACnet MS/TP TLF	548847



### Room sensor temperature + CO2 – active LON

Item description	Item no.
WRF04 CO2 LON	470544
WRF04 CO2 LON LCD	470575
WRF04 CO2 LON TLF	470551
WRF04 CO2 LON LCD TLF	630337



### Room sensor temperature + CO2 – active RS485 Modbus

Item description	Item no.
WRF04 CO2 RS485 Modbus	470629
WRF04 CO2 RS485 Modbus LCD	470643
WRF04 CO2 RS485 Modbus TLF	470636
WRF04 CO2 RS485 Modbus LCD TLF	630344

### Options

Item description
Potential free relay output with adjustable CO2 threshold value (only with analogue output; relay 2 A / 24 V ~ or 24 V =)

Order example for different items:

**WRF04 CO2 | VV | LCD | TLF | relay**

**WRF04 CO2** = product  
**VV** = 2x 0..10 V output  
**LCD** = display  
**TLF** = traffic light function  
**relay** = potential free relay output (N0)

### Accessories

Item description	Item no.	On stock
Rawplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting WRF04	111584	●
Ball stroke protection BS100 (for WRF04)	103312	●

## WRF04 CO2

Item description: product | rH | VV | LCD | TLF (traffic light function)

Room sensor temperature + humidity + CO2 – active 3xV 0..10 V		
Item description	Item no.	On stock
WRF04 CO2 rH 3xV	423748	⊕
WRF04 CO2 rH 3xV LCD	423762	
WRF04 CO2 rH 3xV TLF	423755	
WRF04 CO2 rH 3xV LCD TLF	447164	

Item description: product | rH | BUS | LCD | TLF (traffic light function)



Room sensor temperature + humidity + CO2 – active 3xV BACnet MS/TP		
Item description	Item no.	
WRF04 CO2 rH BACnet MS/TP	548854	
WRF04 CO2 rH BACnet MS/TP TLF	597012	



Room sensor temperature + humidity + CO2 – active LON		
Item description	Item no.	
WRF04 CO2 rH LON	470582	
WRF04 CO2 rH LON LCD	470612	
WRF04 CO2 rH LON TLF	470599	
WRF04 CO2 rH LON LCD TLF	630368	



Room sensor temperature + humidity + CO2 – active RS485 Modbus		
Item description	Item no.	
WRF04 CO2 rH RS485 Modbus	470650	
WRF04 CO2 rH RS485 Modbus LCD	470674	
WRF04 CO2 rH RS485 Modbus TLF	470667	
WRF04 CO2 rH RS485 Modbus LCD TLF	630351	

### Options

Item description

Potential free relay output with adjustable CO2 threshold value  
(only with analogue output; relay 2 A / 24 V ~ or 24 V =)

Order example for different items:

**WRF04 CO2 | rH | 3xV | LCD | TLF | relay**

**WRF04 CO2** = product  
**rH** = humidity  
**3xV** = 3x 0..10 V output  
**LCD** = display  
**TLF** = traffic light function  
**relay** = potential free relay output (NO)

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⊕
Frame for surface mounting WRF04	111584	⊕
Ball stroke protection BS100 (for WRF04)	103312	⊕



LC-WRF04 CO2

## LC-WRF04 CO2



Surface mounted sensor for detection of CO<sub>2</sub> in room and office spaces. Also possible with operating elements. For direct connection to a DDC or a monitoring system, using 0..10 V output.

### TECHNICAL DATA

Measuring values	V: CO <sub>2</sub>
Output voltage	V: 1x 0..10 V max. load 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 3 W (24 V =)   6 VA (24 V ~)
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Enclosure	ASA, pure white
Protection	IP20 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Notes	for devices with temperature sensor, humidity sensor, display and traffic light function please refer to product WRF04 CO <sub>2</sub>

### Room sensor temperature + CO<sub>2</sub> – active V 0..10 V

Item description	Item no.	On stock
LC-WRF04 CO <sub>2</sub>	547994	⊕
LC-WRF04 CO <sub>2</sub> with operating unit(potentiometer/switch + LED) on request		

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⊕
Frame for surface mounting WRF04	111584	⊕
Ball stroke protection BS100 (for WRF04)	103312	⊕



WRF06 CO2 3xV,  
Gira E2 pure white



WRF06 CO2 3xV TLF,  
Gira E2 pure white

## WRF06 CO2

Flush mounting sensor for detection of CO<sub>2</sub>, temperature (optional) and relative humidity (optional) in room and office spaces. Fits into switch frames 55x55 mm. For direct connection to a DDC or a monitoring system, using 0..10 V outputs. Also available with traffic light LED.

### TECHNICAL DATA

Measuring values	V: CO <sub>2</sub> VV: CO <sub>2</sub> + temperature 3xV: CO <sub>2</sub> + temperature + humidity
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V max. load 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 1,6 W (24 V =)   3,9 VA (24 V ~)
Measuring range temp.	VV   3xV: 0..+50 °C
Measuring range humidity	3xV: 0..100% rH non-condensing
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy temperature	VV   3xV: ±1% of measuring range (typ. at 21 °C)
Accuracy humidity	3xV: ±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO <sub>2</sub>	±50 ppm +2% of measured value (typ. at 25 °C)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Display	3 LEDs indicating air quality (traffic light function 'TLF'), (optional)
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+70 °C, max. 85% rH non-condensing
Notes	optional with traffic light function „TLF“ please specify frame design when ordering

**WRF06 CO2**

Item description: product | output (V/VV/3xV) | TLF (traffic light function) | switch range

**Room sensor CO2 – active V 0..10 V**

Item description	Item no.
WRF06 CO2 V Gira E2 pure white	547840
WRF06 CO2 V TLF Gira E2 pure white	581585

**Room sensor CO2 + temperature – active VV 0..10 V**

Item description	Item no.
WRF06 CO2 VV Gira E2 pure white	547857
WRF06 CO2 VV TLF Gira E2 pure white	581592

**Room sensor CO2 + temperature + humidity – active 3xV 0..10 V**

Item description	Item no.
WRF06 CO2 3xV Gira E2 pure white	547864
WRF06 CO2 3xV TLF Gira E2 pure white	541725

**Options**

Item description
Switch ranges Busch-Jaeger Busch-balance® SI
Switch ranges Berker S.1   Jung A 500   Merten M-Smart
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges

Order example for different items:

**WRF06 CO2 | 3xV | TLF | Busch-Jaeger Balance SI**

**WRF06 CO2** = product  
**3xV** = 3x 0..10 V output  
**TLF** = traffic light function  
**Busch-Jaeger Balance SI** = switch range





LW04



## LW04



Surface mount sensor for detection of air quality in room and office spaces. The sensor consists of a transmitter with VOC sensor, based on a heated tin oxide semiconductor (VOC = volatile organic compound).

### TECHNICAL DATA

Measuring values	VOC
Output voltage	V: 1x 0..10 V, min. load 10 kΩ
Network technology	LON FT (free topology)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	V: typ. 1,2 W (24 V =)   2,2 VA (24 V ~) LON: typ. 1,5 W (24 V =)   3,5 VA (24 V ~)
Sensor	VOC sensor (heated tin oxide semiconductor)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	0..+50 °C, max. 85% rH non-condensing
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 ...)

Item description: product | V / BUS

### Room sensor VOC – active V 0..10 V

Item description	Item no.	On stock
LW04 V	191746	●



### Room sensor VOC – active LON

Item description	Item no.
LW04 LON	191753

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting WRF04	111584	●
Ball stroke protection BS100 (for WRF04)	103312	●



LK-S CO2



## LK-S CO2

Duct air quality sensor for combined detection of CO<sub>2</sub>, relative humidity and temperature. Designed for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature, humidity, CO <sub>2</sub>
Medium	air or other non-flammable/non-aggressive gases
Network technology	BACnet MS/TP LON FT (free topology) RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 3 W (24 V =)   6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Enclosure	PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M20 for cable with max. Ø=6 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm, length 180 mm
Filter	stainless steel wire mesh
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	MF20 flange included

Item description: product | BUS

Duct sensor temperature + humidity + CO <sub>2</sub> – active BUS	
Item description	Item no.
LK-S CO2 BACnet MS/TP	548830
LK-S CO2 LON	504966
LK-S CO2 RS485 Modbus	508797



LK-SX CO2+VOC

## LK-SX CO2+VOC



Duct air quality sensor for detection of CO<sub>2</sub>, VOC, optional temperature and Humidity. Designed for duct mounted applications with up to 4 0..10 V outputs.

### TECHNICAL DATA

Measuring values	VV: CO <sub>2</sub> + VOC 3xV: CO <sub>2</sub> + VOC + temperaturer 3xV: CO <sub>2</sub> + VOC + Mix CO <sub>2</sub> /VOC 4xV: CO <sub>2</sub> + VOC + Temperatur + humidity 4xV: CO <sub>2</sub> + VOC + temperature + Mix CO <sub>2</sub> /VOC
Output voltage	VV: 2x 0..10 V 3xV: 3x 0..10 V 4xV: 4x 0..10 V min. load 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 1,5 W (24 V =)   2,9 VA (24 V ~)
Measuring range temp.	3xV   4xV: 0..+50 °C
Measuring range humidity	4xV: 0..100% rH non-condensing
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy temperature	3xV   4xV: ±1% of measuring range (typ. at 21 °C)
Accuracy humidity	4xV: ±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Air speed	min. 0,3 m/s max. 12 m/s
Calibration	self-calibration CO <sub>2</sub> : Dual Channel
Sensor	VOC sensor (heated tin oxide semiconductor) NDIR (non-dispersive, infrared)
Enclosure	PA6, pure white
Protection	IP54 according to EN 60529 IP65 with bolted cover
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm, length 180 mm
Filter	stainless steel wire mesh
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	MF20 flange included
Notes	Mixed CO <sub>2</sub> /VOC output ratio of CO <sub>2</sub> /VOC can be chosen (values: 30/70%, 50/50%, 70/30%) mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

## LK-SX CO2+VOC

Item description: product | output (VV/3xV/4xV)

## Duct sensor CO2 + VOC – active VV 0..10 V

Item description	Item no.	On stock
LK-SX CO2+VOC VV	566568	☺

## Duct sensor CO2 + VOC + temperature – active 3xV 0..10 V

Item description	Item no.
LK-SX CO2+VOC 3xV	566605

## Duct sensor CO2 + VOC + Mix CO2/VOC – active 3xV 0..10 V

Item description	Item no.
LK-SX CO2+VOC Mix 3xV	566612

## Duct sensor CO2 + VOC + temperature + humidity – active 4xV 0..10 V

Item description	Item no.
LK-SX CO2+VOC rH 4xV	592543

## Duct sensor CO2 + VOC + temperature + Mix CO2/VOC – active 4xV 0..10 V

Item description	Item no.
LK-SX CO2+VOC Mix 4xV	566599



LK-SX CO2

## LK-SX CO2



Duct air quality sensor with hinged lid enclosure for detection of CO<sub>2</sub>, optional with temperature and humidity. 0..10 V outputs. Designed for duct mounted applications.

### TECHNICAL DATA

Measuring values	V: CO <sub>2</sub> VV: CO <sub>2</sub> + temperature 3xV: CO <sub>2</sub> + temperature + humidity
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V min. load 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 1,5 W (24 V =)   2,9 VA (24 V ~)
Measuring range temp.	VV   3xV: 0..+50 °C
Measuring range humidity	3xV: 0..100% rH non-condensing
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy temperature	VV   3xV: ±1% of measuring range (typ. at 21 °C)
Accuracy humidity	3xV: ±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Air speed	min. 0,3 m/s max. 12 m/s
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Enclosure	PA6, pure white
Protection	IP54 according to EN 60529 IP65 with bolted cover
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm, length 180 mm
Filter	stainless steel wire mesh
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	MF20 flange included

LK-SX CO2

Item description: product | output (V/VV/3xV)

Duct sensor CO2 – active 0..10 V		
Item description	Item no.	On stock
LK-SX CO2 V	566544	⊕

Duct sensor CO2 + temperature – active 2x 0..10 V		
Item description	Item no.	On stock
LK-SX CO2 VV	566551	⊕

Duct sensor CO2 + temperature + humidity – active 3x 0..10 V		
Item description	Item no.	
LK-SX CO2 3xV	566582	



LK-SX VOC

## LK-SX VOC



Duct air quality sensor with hinged lid enclosure for detection of VOC air quality (optional temperature and humidity combined in one unit) for duct applications. 0..10 V outputs. The sensor consists of a transmitter with VOC sensor, based on a heated tin oxide semiconductor (VOC = volatile organic compound).

### TECHNICAL DATA

Measuring values	V: VOC VV: VOC + temperature 3xV: VOC + temperature + humidity
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V min. load 10 kΩ
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	max. 1,5 W (24 V =)   2,9 VA (24 V ~)
Measuring range temp.	VV   3xV: 0..+50 °C
Measuring range humidity	3xV: 0..100% rH non-condensing
Accuracy temperature	VV   3xV: $\pm 1\%$ of measuring range (typ. at 21 °C)
Accuracy humidity	3xV: $\pm 2\%$ between 10..90% rH (typ. at 21 °C)
Air speed	min. 0,3 m/s max. 12 m/s
Calibration	self-calibration
Sensor	VOC sensor (heated tin oxide semiconductor)
Enclosure	PA6, pure white
Protection	IP54 according to EN 60529 IP65 with bolted cover
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Pipe	PA6, black, $\varnothing = 19,5$ mm, length 180 mm
Filter	stainless steel wire mesh
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	MF20 flange included
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 ...)

LK-SX VOC

Item description: product | output (V/VV/3xV)

Duct sensor VOC – active 0..10 V		
Item description	Item no.	On stock
LK-SX VOC V	566636	⊕

Duct sensor VOC + temperature – active 2x 0..10 V		
Item description	Item no.	On stock
LK-SX VOC VV	566643	⊕

Duct sensor VOC + temperature + humidity – active 3x 0..10 V		
Item description	Item no.	
LK-SX VOC 3xV	566650	





LK CO2

## LK CO2



CO<sub>2</sub> Detection for Duct mounted applications and optimization of low air velocities. 0..10 V linear output for direct connection to a DDC or monitoring system. Available with traffic light LED's and LCD display for CO<sub>2</sub> indication levels.

### TECHNICAL DATA

Measuring values	CO <sub>2</sub>
Output voltage	V: 1x 0..10 V, max. load 10 kΩ
Output switch contact	optional with relay, floating max. 24 V / 2 A (ohmic)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 3 W (24 V =)   6 VA (24 V ~)
Measuring range CO <sub>2</sub>	0..2000 ppm
Accuracy CO <sub>2</sub>	±75 ppm, >750 ppm: ±10% (typ. at 21 °C)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Display	LCD 29x12 mm, monochrome, (optional) 3 LEDs indicating air quality (traffic light function 'TLF'), (optional)
Enclosure	PA6 cover PC, transparent
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Pipe	Brass, nickel-plated, Ø=30 mm, length 310 mm
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	Enclosure incl. PE wire (L=1,5 m) incl. mounting flange
Notes	optional with display „LCD“ optional with relay (floating, max. 24 V / 2 A (ohmic)) optional with traffic light function „TLF“

Item description: product | output (V) | LCD | TLF (traffic light function)

### Duct sensor CO<sub>2</sub> – active V 0..10 V

Item description	Item no.
LK CO2 V	426084
LK CO2 V LCD	426091
LK CO2 V TLF	426107

### Options

#### Item description

Potential free relay output with adjustable CO<sub>2</sub> threshold value  
(only with analogue output; relay 2 A / 24 V ~ or 24 V =)

# Light & Motion

Our intelligent sensors provide for a physical and emotional well-being of people in rooms. Motion and brightness are detected reliably: For individual, comfortable and increased energy-saving.



## Sample applications

303

### Ceiling sensors

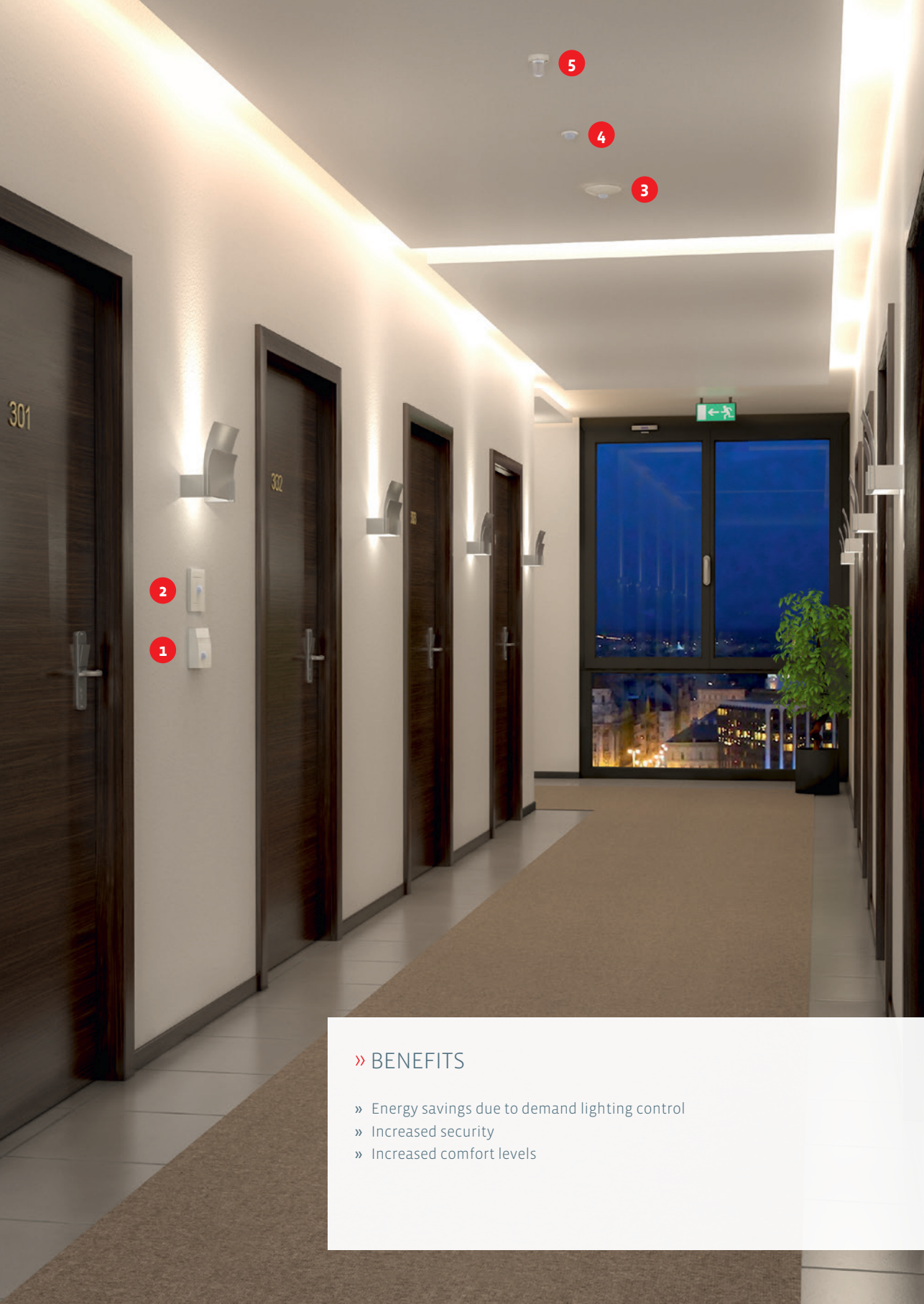
MDS	Ceiling sensor light + motion	304
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### Wall sensors

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### Outdoor sensors

Li65	Outdoor light sensor	311
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## » BENEFITS

- » Energy savings due to demand lighting control
- » Increased security
- » Increased comfort levels



1

## WRF04I

Surface-mounted motion sensor,  
available with LON interface



2

## WRF06I

Flush-mounted motion sensor,  
compatible with switch  
frames 55x55 mm



3

## MDS

Ceiling-mounted multi sensor light/  
motion, available with LON interface



4

## RDI

Ceiling-mounted motion sensor, available  
with various detection ranges



5

## LDF

Ceiling-mounted light sensor,  
available with LON interface



## HOTEL SECURITY AND ENERGY-EFFICIENCY

Intelligent light, motion and multi sensors reliably detect light and motion and define the lighting control conditions. The guest feels safe and comfortable, the hotel owner saves energy.



MDS



## MDS



Ceiling mounted multi sensor designed for measuring light and motion in room and offices spaces and typically used in lighting applications to optimize energy efficiency through lighting control. Low profile design with various output signals compatible to all BMS manufacturers.

### TECHNICAL DATA

Measuring values	light, motion
Output voltage	Standard: 1x 0..10 V
Output switch contact	Standard: floating contact NO with follow-up time 1 second..30 minutes selectable at the device
Network technology	LON FT (free topology)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	Standard: typ. 1,2 W (24 V =)   4 VA (24 V ~) LON: typ. 1,5 W (24 V =)   4,2 VA (24 V ~)
Measuring range light	0..1 kLux
Accuracy Light	$\pm 50$ Lux
Sensor	PIR (passive infrared)
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> pluggable
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Notes	Enclosure for surface mounting available

### Ceiling multi sensor light + motion – active 0..10 V (light), relay (motion)

Item description	0..10 V	Relay	Item no.	On stock
MDS Standard	1	1	271318	●



### Ceiling multi sensor light + motion – active LON

Item description	0..10 V	Relay	Item no.	On stock
MDS LON	-	-	279000	●

### Accessories

Item description	Item no.	On stock
Enclosure for surface mounting	448512	●



RDI

## RDI



Ceiling mounted occupancy sensor for room and office spaces. Low profile, discrete design.

### TECHNICAL DATA

Measuring values	motion
Output switch contact	floating contact NO for 24 V load max. 1 A (resistive) with follow-up time 8 seconds
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	typ. 0,5 W (24 V =)   1,1 VA (24 V ~)
Detection range	Standard: Cone-shaped detection range, angle 100°/82° (H/V), range 5 m, 64 detection zones. With an installation height of 2,8 m range detection will be 7x5 m. Small Range: Cone-shaped detection range, angle 91°, range 2 m, 104 detection zones. With an installation height of 2 m circular detection range will have a R= 5 m. Spot: Cone-shaped detection range, angle 38°/22° (H/V), range 5 m, 24 detection zones. With an installation height of 2,8 m range detection will be approx. 2x1,4 m.
Sensor	PIR (passive infrared)
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup> connection wire PVC diameter=0,25 mm <sup>2</sup> length=10 cm
Ambient condition	-20..+50 °C, max. 85% rH non-condensing

### Ceiling sensor motion – active relay

Item description	Relay	Item no.	On stock
RDI Standard	1	187060	●
RDI Small Range	1	426503	
RDI Spot	1	436670	



LDF straight prism



LDF diagonal prism

## LDF

Ceiling mounted light sensor with straight and diagonal prism options. Integrated colour (green) filter, which simulates the sensitivity of the human eye.

### TECHNICAL DATA

Measuring values	light
Output voltage	V: 1x 0..10 V
Output Amp	A: 1x 4..20 mA
Network technology	LON FT (free topology)
Power supply	V   LON: 15..24 V = ( $\pm 10\%$ ) oder 24 V ~ ( $\pm 10\%$ ) A: 15..24 V = ( $\pm 10\%$ )
Power consumption	V: typ. 0,15 W (24 V =)   0,5 VA (24 V ~) A: max. 20 mA (24 V =) LON: typ. 0,5 W (24 V =)   2 VA (24 V ~)
Measuring range light	0..2 kLux 0..20 kLux selectable at the device
Accuracy Light	$\pm 5\%$ of measuring range
Sensor	photodiode with green filter (BPW21)
Prism	acrylic glass clear straight diagonal
Enclosure	PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing = 8$ mm
Connection electrical	Connection wire PVC screened diameter=0,25 mm <sup>2</sup> length=1 m (standard) 2 m
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Notes	please contact us for other ranges.



LDF

Item description: product | output (V/A) | cable length (L) | prism shape

Ceiling sensor light – active V 0..10 V   A 4..20 mA	
Item description	Item no.
LDF V L1000 straight prism	185714
LDF V L1000 diagonal prism	201568
LDF A L1000 straight prism	185721
LDF A L1000 diagonal prism	201575

Item description: product | output BUS | cable length (L) | prism shape



Ceiling sensor light – active LON	
Item description	Item no.
LDF LON L1000 straight prism	185707
LDF LON L1000 diagonal prism	201582

OPTIONS
Item description
Add per meter of connection cable (LDF)

Order example for different items:

**LDF | V | L2000 | straight prism**

**LDF** = product  
**V** = 1x0..10 V output  
**L2000** = cable length (mm)  
**straight prism** = prism shape





WRF04I



## WRF04I



Room mounted occupancy sensor for room and office applications. Various outputs compatible to all BMS manufacturers.

TECHNICAL DATA	
Measuring values	motion
Output switch contact	floating contact NO for 24 V load max. 1 A (resistive) with follow-up time 8 seconds
Network technology	LON FT (free topology)
Power supply	15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ )
Power consumption	Relay: typ. 0,5 W (24 V =)   1,1 VA (24 V ~) LON: max. 0,9 W (24 V =)   2,5 VA (24 V ~)
Detection range	Cone-shaped detection range, angle 100°/82° (H/V), range 5 m, 64 detection zones. With an installation height of 2,8 m range detection will be 7x5 m.
Sensor	PIR (passive infrared)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-5..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm)

Item description: product | output (relay/BUS)

### Wall sensor motion – active relay | LON

Item description	Relay	Item no.
WRF04I Relay	1	195812
WRF04I LON	-	199476

### Accessories

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⊕
Frame for surface mounting WRF04	111584	⊕



## WRF06I

Flush mounted room occupancy sensor for room and office applications. Various outputs compatible to all BMS manufacturers.



WRF06I,  
Gira E2 pure white



WRF06I,  
Jung AS 500 alpine white

### TECHNICAL DATA

Measuring values	motion
Output switch contact	floating contact NO for 24 V load max. 1 A (resistive) with follow-up time 8 seconds
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 0,5 W (24 V =)   1,1 VA (24 V ~)
Detection range	range max. 10 m horizontal 110°, vertical 93°, 80 zones
Sensor	PIR (passive infrared)
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.1, K.5 aluminum   stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antique
Switch range Peha	Aura, Aura glass
Protection	IP30 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+60 °C, max. 95% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=55 mm)

Item description: product | switch range | colour

### Wall sensor motion – active relay

Item description	Relay	Item no.
WRF06I Gira E2 pure white	1	187183
WRF06I Berker S.1 polar white	1	223997
WRF06I Busch-Jaeger Balance SI alpine white	1	630405
WRF06I Busch-Jaeger Reflex SI alpine white	1	413350
WRF06I Jung A 500 alpine white	1	630412
WRF06I Merten M-Smart polar white brilliant	1	630429

### OPTIONS

Item description
Switch range Gira Esprit
Switch ranges stainless steel   glass   aluminum (different manufacturers)
Other switch ranges



LI04



## LI04



Surface mounted light sensor for room and office spaces, typically used in lighting applications to optimise energy efficiency through lighting control.

### TECHNICAL DATA

Measuring values	light
Output voltage	V: 1x 0..10 V, min. load 5 kΩ
Output Amp	A: 1x 4..20 mA, max. load 500 Ω
Network technology	LON FT (free topology)
Power supply	V   LON: 15..24 V = (±10%) oder 24 V ~ (±10%) A: 15..24 V = (±10%)
Power consumption	V: typ. 0,15 W (24 V ~)   0,5 VA (24 V ~) A: max. 20 mA (24 V ~) LON: typ. 0,5 W (24 V ~)   2 VA (24 V ~)
Measuring range light	0..2 kLux, 0..20 kLux, 0..100 kLux selectable at the device
Accuracy Light	±5% of measuring range
Sensor	photodiode with green filter (BPW21)
Enclosure	ASA, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom rear entry
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=55 mm) base part can be mounted and wired separately

Item description: product | output (V/A/BUS)

Wall sensor light – active V 0..10 V   A 4..20 mA			
Item description	0..10 V	4..20 mA	Item no.
Li04 V	1	-	207904
Li04 A	-	1	207911



Wall sensor light – active LON	
Item description	Item no.
Li04 LON	207898

Accessories		
Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting WRF04	111584	●



LI65



## LI65

Outdoor light sensor typically used in lighting applications to optimise energy efficiency through lighting control.

### TECHNICAL DATA

Measuring values	light
Output voltage	V: 1x 0..10 V, min. load 5 kΩ
Output Amp	A: 1x 4..20 mA, max. load 500 Ω
Network technology	LON FT (free topology)
Power supply	V   LON: 15..24 V = (±10%) oder 24 V ~ (±10%) A: 15..24 V = (±10%)
Power consumption	V: typ. 0,15 W (24 V ~)   0,5 VA (24 V ~) A: max. 20 mA (24 V ~) LON: typ. 0,5 W (24 V ~)   2 VA (24 V ~)
Measuring range light	0..2 kLux, 0..20 kLux, 0..100 kLux selectable at the device
Accuracy Light	±5% of measuring range
Sensor	photodiode with green filter (BPW21)
Enclosure	PA6, pure white cover PC, translucent with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm <sup>2</sup>
Ambient condition	-20..+70 °C, max. 85% rH non-condensing
Notes	please contact us for other ranges.

Item description: product | output (V/A/BUS)

### Outdoor sensor light – active V 0..10 V | A 4..20 mA

Item description	0..10 V	4..20 mA	Item no.	On stock
Li65 A	-	1	185783	⊕
Li65 V	1	-	185776	⊕

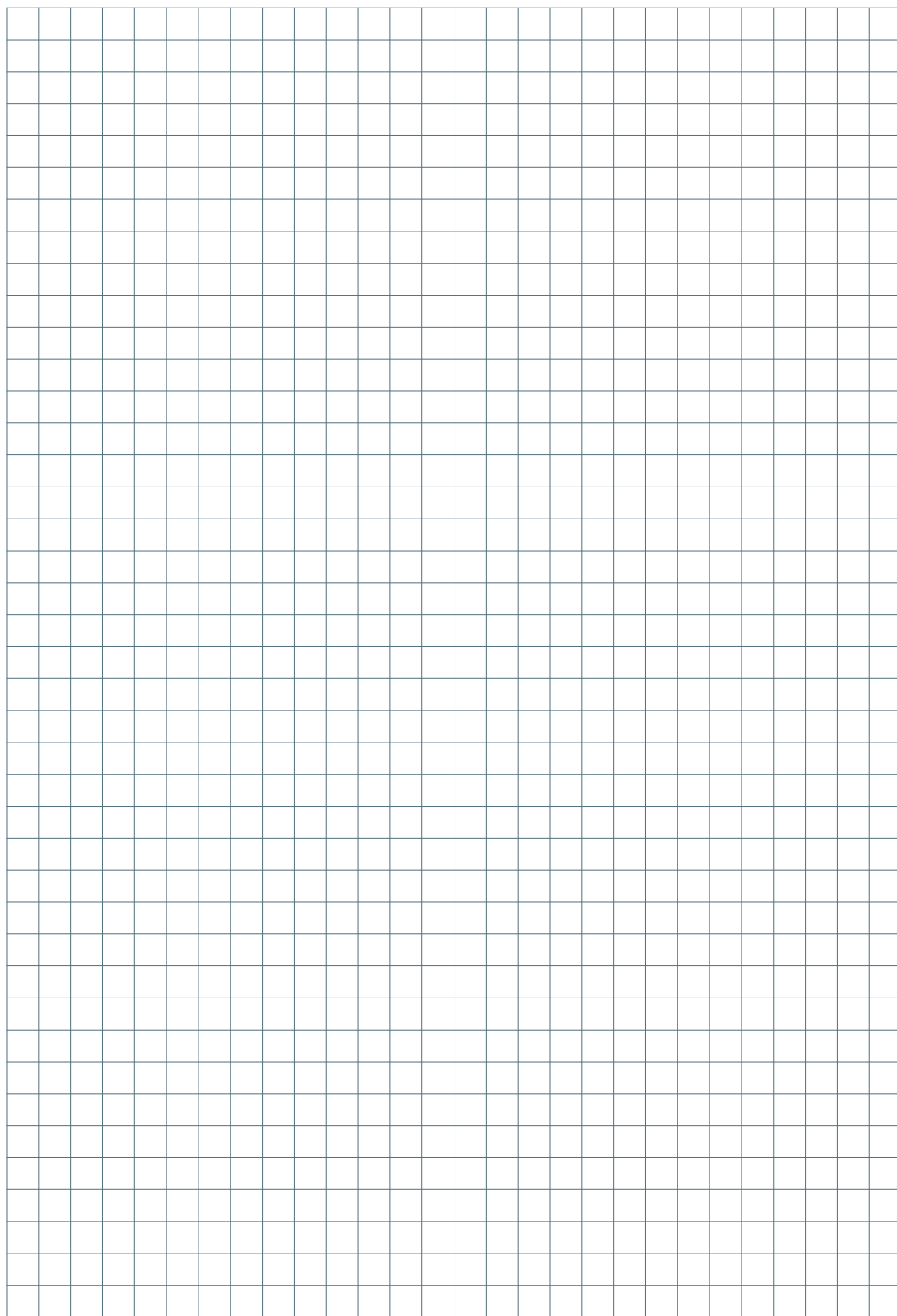


### Outdoor sensor light – active LON

Item description	Item no.
Li65 LON	185745

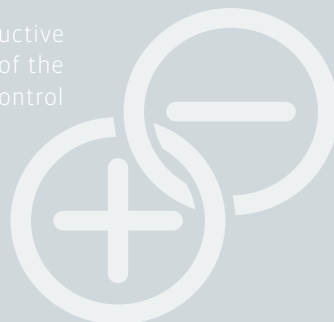
### Accessories

Item description	Item no.	On stock
Rawplugs and screws (2 pcs. each)	102209	⊕



# 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

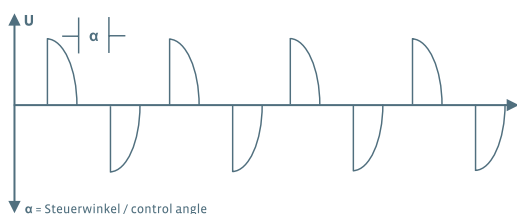
TS1 1-phase	Industrial power thyristor
TS3 1-phase	Industrial power thyristor
TS2 1-phase	Industrial power thyristor

## Triple-phase

314	TS1 3-phase	Industrial power thyristor	317
315	TS3 3-phase	Industrial power thyristor	318
316	TS2 3-phase	Industrial power thyristor	319

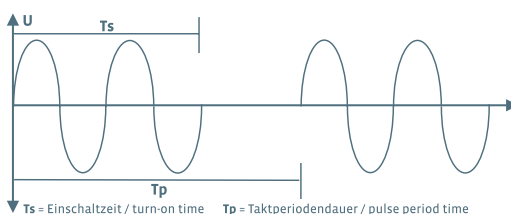
## Phase angle control

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 1-phase

## TS1 1-phase

Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and high efficiency.

TECHNICAL DATA	
Output switch contact	floating contact NO for 250 V ~ / 3 A or 24 V = / 3 A 2 A ..0,8 kW   4 A ..1,6 kW   6 A ..2,4 kW   8 A ..3,2 kW   10 A ..4,0 kW   12 A ..4,8 kW
Power consumption	2 A: typ. 2,5 W   4 A: typ. 4,5 W   6 A: typ. 6,5 W   8 A: typ. 9,0 W   10 A: typ. 11,0 W   12 A: typ 13,0 W (400 V ~)
Inputs	control voltage: 400 V ~ set point signal 0..10 V = or 0..20 mA (selectable at the device) input for potentiometer 2,5..10 kΩ
Functions	phase angel, optional oscillation
Display	LED green - power supply OK LED green - modulation amplitude 100%
Enclosure	PA
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	types with more than 6 A have a dissipator

### Power thyristor – phase angel

Item description	Item no.
TS1 1-phase 1-ph 2A 0,8 kW	229678
TS1 1-phase 1-ph 4A 0,92 kW	226639
TS1 1-phase 1-ph 6A 1,38 kW	224000
TS1 1-phase 1-ph 8A 1,84 kW	236980
TS1 1-phase 1-ph 10A 2,30 kW	223874

### Power thyristor – oscillation

Item description	Item no.
TS1 1-phase SP 1-ph 2A 0,46 kW	283137
TS1 1-phase SP 1-ph 4A 0,92 kW	226622
TS1 1-phase SP 1-ph 6A 1,38 kW	238885
TS1 1-phase SP 1-ph 8A 1,84 kW	255189
TS1 1-phase SP 1-ph 10A 2,30 kW	266109



TS3 1-phase

## TS3 1-phase



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

### TECHNICAL DATA

Output switch contact	15 A ..3,5 kW   25 A ..5,75 kW   35 A ..8,05 kW   50 A ..11,5 kW
Inputs	control voltage: 230 V ~ set point signal 0..10 V input for potentiometer 10 kΩ
Functions	phase angel, optional oscillation
Display	fault indicator: undervoltage, error thyristor, temperature dissipator, failure phase
Enclosure	aluminium
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

### Power thyristor – phase angel

Item description	Item no.
TS3 1-phase 1-ph 15A 3,45 kW	237161
TS3 1-phase 1-ph 25A 5,75 kW	241649
TS3 1-phase 1-ph 35A 8,05 kW	238489
TS3 1-phase 1-ph 50A 11,50 kW	361200

### Power thyristor – oscillation

Item description	Item no.
TS3 1-phase SP 1-ph 15A 3,45 kW	245500
TS3 1-phase SP 1-ph 25A 5,75 kW	231091
TS3 1-phase SP 1-ph 35A 8,05 kW	270977
TS3 1-phase SP 1-ph 50A 11,50 kW	344333





TS2 1-phase

## TS2 1-phase

Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Output switch contact	75 A ..17,25 kW   90 A ..20,7 kW   120 A ..27,6 kW
Inputs	control voltage: 230 V ~ set point signal 0..10 V input for potentiometer 10 kΩ
Functions	phase angel, optional oscillation
Display	fault indicator: undervoltage, error thyristor, temperature dissipator, failure phase
Enclosure	aluminium with plexiglas cover
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

Power thyristor – phase angel	
Item description	Item no.
TS2 1-phase 1-ph 75A 17,25 kW	223867
TS2 1-phase 1-ph 90A 20,70 kW	361484
TS2 1-phase 1-ph 120A 27,60 kW	361491

Power thyristor – oscillation	
Item description	Item no.
TS2 1-phase SP 1-ph 75A17,25 kW	361453
TS2 1-phase SP 1-ph 90A20,70 kW	361460
TS2 1-phase SP 1-ph 120A27,60 kW	361477



TS1 3-phase

## TS1 3-phase



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

### TECHNICAL DATA

Output switch contact	floating contact NO for 250 V ~ / 3 A or 24 V = / 3 A 2 A ..1,2 kW   4 A ..2,5 kW   6 A ..4,0 kW   8 A ..5,0 kW   10 A ..6,5 kW
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
Inputs	control voltage: 400 V ~ set point signal 0..10 V = or 0..20 mA (selectable at the device) input for potentiometer 2,5..10 kΩ
Functions	phase angel, optional oscillation
Display	LED green - power supply OK LED green - modulation amplitude 100%
Enclosure	PA
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	types with more than 6 A have a dissipator

### Power thyristor – phase angel

Item description	Item no.
TS1 3-phase 3-ph 2A 1,39 kW	230148
TS1 3-phase 3-ph 4A 2,77 kW	246514
TS1 3-phase 3-ph 6A 4,15 kW	224260
TS1 3-phase 3-ph 8A 5,54 kW	233736
TS1 3-phase 3-ph 10A 6,93 kW	224314

### Power thyristor – oscillation

Item description	Item no.
TS1 3-phase SP 3-ph 2A 1,39 kW	273558
TS1 3-phase SP 3-ph 4A 2,77 kW	268226
TS1 3-phase SP 3-ph 6A 4,15 kW	275910
TS1 3-phase SP 3-ph 8A 5,54 kW	275927
TS1 3-phase SP 3-ph 10A 6,93 kW	241182



TS3 3-phase

### TS3 3-phase



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Output switch contact	15 A ..10,38 kW   25 A ..17,3 kW   35 A ..24,22 kW   50 A ..34,6 kW
Inputs	control voltage: 400 V ~ set point signal 0..10 V input for potentiometer 10 kΩ
Functions	phase angel, optional oscillation
Display	fault indicator: undervoltage, error thyristor, temperature dissipator, failure phase
Enclosure	aluminium
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

#### Power thyristor – phase angel

Item description	Item no.
TS3 3-phase 3-ph 15A 10,38 kW	224796
TS3 3-phase 3-ph 50A 34,60 kW	256353
TS3 3-phase 3-ph 35A 24,22 kW	225656
TS3 3-phase 3-ph 25A 17,30 kW	225649

#### Power thyristor – oscillation

Item description	Item no.
TS3 3-phase SP 3-ph 25A 17,30 kW	240970
TS3 3-phase SP 3-ph 35A 24,22 kW	241014
TS3 3-phase SP 3-ph 50A 34,60 kW	223836
TS3 3-phase SP 3-ph 15A 10,38 kW	225236



TS2 3-phase

## TS2 3-phase



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

### TECHNICAL DATA

Output switch contact	75 A ..51,91 kW   90 A ..62,28 kW   120 A ..83,04 kW
Inputs	control voltage: 400 V ~ set point signal 0..10 V input for potentiometer 10 kΩ
Functions	phase angel, optional oscillation
Display	fault indicator: undervoltage, error thyristor, temperature dissipator, failure phase
Enclosure	aluminium with plexiglas cover
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 2,5 mm <sup>2</sup>
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

### Power thyristor – phase angel

Item description	Item no.
TS2 3-phase 3-ph 75A 51,91 kW	236522
TS2 3-phase 3-ph 90A 62,28 kW	260190
TS2 3-phase 3-ph 120A 83,04 kW	304719

### Power thyristor – oscillation

Item description	Item no.
TS2 3-phase SP 3-ph 75A 51,91 kW	339094
TS2 3-phase SP 3-ph 90A 62,28 kW	326926
TS2 3-phase SP 3-ph 120A 83,04 kW	336482

## » Switch ranges for flush mounted devices

Type	Dimensions (WxH)	Price class	Colours	SR06 LCD	SR07 / SR07 P	WRF06 CO2/LCD	FTW06	WRF06 / WRF06I	WRF07	Radio switches
<b>Berker</b>										
Berker S.1	55x55	1	polar white (b/m), white, anthracite, red	•	•	•	•	•	•	•
Berker B.3	55x55	3	polar white (b/m), anthracite	•	•	•	•	•	•	•
Berker B.7	55x55	3	polar white (b/m), anthracite, alu painted	•	•	•	•	•	•	•
Berker Q.1	60x60	2	polar white (b/m), anthracite, red, green, orange	–	–	–	–	•	•	–
Berker Q.3	60x60	2	polar white (b/m), anthracite, red, green, orange	–	–	–	–	•	•	–
Berker K.1	72x57	2	polar wh. (b/m), anthracite, red, green, orange, yellow	–	–	–	–	•	•	–
Berker K.5	72x57	3	-	–	–	–	–	•	•	–
<b>Busch-Jaeger</b>										
Busch-balance® SI	55x55	1	alpin white	•	•	•	•	•	•	•
Busch-Duro 2000® SI	54x54	2	white	–	–	–	–	•	•	–
Reflex SI	54x54	1	alpin white	–	–	–	–	•	•	–
solo®	63x63	2	studio white (m), ivory white, yellow, grey metallic	•	•	•	•	•	•	•
future® linear	63x63	2	studio wh. (b/m), ivory wh., anthracite, alu silver, black	•	•	•	•	•	•	•
Impuls	-	2	studio white (m), yellow, green, blue, red, black	–	–	–	–	•	•	–
Busch-axcent®	63x63	2	studio white (m), yellow, green, blue, red, black	•	•	•	•	•	•	•
alpha nea®	70x56	2	studio white (b&m), ivory white	–	–	–	–	•	•	–
<b>Gira</b>										
E2 (System55)	55x55	1	pure white (b/m), alu, anthracite	•	•	•	•	•	•	•
Standard 55 (Syst55)	55x55	2	pure white (b/m), creme white	•	•	•	•	•	•	•
Esprit (System55)	55x55	4	various colours	•	•	•	•	•	•	•
Event (System55)	55x55	2	various colours	•	•	•	•	•	•	•
F100	71x71	2	pure white (b), brilliant chrome, brass, platin	•	•	•	•	•	•	•
<b>Jung</b>										
LS 990 plastic	70x70	2	white, alpin white, black, light grey	–	–	•	•	•	•	•
A 500	55x55	1	alpin white, alu (painted), black	•	•	•	•	•	•	•
AS 500/AS 500 antib.	55x55	2	white, alpin white	•	•	•	•	•	•	•
A Plus	55x55	2	alpin white, alu (painted), anthracite, blue	•	•	•	•	•	•	•
ACreation	55x55	2	alpin white, alu, anthracite, black, champagner, mokka	•	•	•	•	•	•	•
CD 500	67x67	2	white, alpin white, black, grey, light grey, brown	–	–	•	•	•	•	–
<b>Merten</b>										
M-Smart	55,4x55,4	1	white (b/m), polar wh. (b/m), active wh. (b), anthracite	•	•	•	•	•	•	•
M-Arc	55,4x55,4	2	white (b/m), polar wh. (b/m), active wh. (b), anthracite	•	•	•	•	•	•	•
M-Plan	55,4x55,4	2	wh. (b/m), polar wh. (b/m), active wh. (b), alu, anthracite	•	•	•	•	•	•	•
1-M	55,4x55,4	2	white (b), polar white (b), active white (b)	–	–	•	•	•	•	•
Atelier-M	55,4x55,4	2	white (b), polar white (b), active white (b)	–	–	•	•	•	•	•
M-Pure	55,4x55,4	2	wh. (b/m), polar wh. (b/m), active wh. (b), alu, anthracite	•	•	•	•	•	•	•
Artec	66,3x66,3	2	white, polar wh. (m), light grey, dark brasil, grey black	–	–	•	•	•	•	•
Artec stainless steel	66,3x66,3	3	-	–	–	•	•	•	•	•
Antik	66,3x66,3	2	white (m), polar white (m), dark brasil, antique brass	–	–	•	•	•	•	•
<b>Peha</b>										
Aura	55x55	2	pure white alu (painted), anthracite	–	–	•	•	•	•	•
Aura glass frame	55x55	3	matt-pure white, clear-alu, matt-mintgreen...	–	–	•	•	•	•	•

Price classes: 1 - price equal to Gira E2  
2 - other switch ranges

3 - stainless steel | glass | aluminium  
4 - Gira Esprit

b = brilliant  
m = matt

# BigPoints Information



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AVAILABLE FROM STOCK!

Duct-/Immersion temperature sensor		
Item description	Item no.	On stock
AKF10+ PT100 050.06	621175	⊖
AKF10+ PT1000 050.06	621311	⊖
AKF10+ Ni1000 050.06	620932	⊖
AKF10+ Ni1000TK5000 050.06	621007	⊖
AKF10+ NTC10k 050.06	620864	⊖
AKF10+ LM235Z 050.06	621106	⊖
AKF10+ TRV MultiRange 050.06	621595	⊖
AKF10+ TRA MultiRange 050.06	621663	⊖
AKF10+ PT100 100.06	621182	⊖
AKF10+ PT1000 100.06	621328	⊖
AKF10+ Ni1000 100.06	620949	⊖
AKF10+ Ni1000TK5000 100.06	621014	⊖
AKF10+ NTC10k 100.06	620871	⊖
AKF10+ LM235Z 100.06	621113	⊖
AKF10+ TRV MultiRange 100.06	621601	⊖
AKF10+ TRA MultiRange 100.06	621670	⊖
AKF10+ PT100 150.06	621199	⊖
AKF10+ PT1000 150.06	621335	⊖
AKF10+ Ni1000 150.06	620956	⊖
AKF10+ Ni1000TK5000 150.06	621021	⊖
AKF10+ NTC10k 150.06	620888	⊖
AKF10+ LM235Z 150.06	621120	⊖
AKF10+ TRV MultiRange 150.06	621618	⊖
AKF10+ TRA MultiRange 150.06	621687	⊖
AKF10+ PT100 200.06	621205	⊖
AKF10+ PT1000 200.06	621342	⊖
AKF10+ Ni1000 200.06	620963	⊖
AKF10+ Ni1000TK5000 200.06	621038	⊖
AKF10+ NTC10k 200.06	620895	⊖
AKF10+ LM235Z 200.06	621137	⊖
AKF10+ TRV MultiRange 200.06	621625	⊖
AKF10+ TRA MultiRange 200.06	621694	⊖
AKF10+ PT100 250.06	621212	⊖
AKF10+ PT1000 250.06	621359	⊖
AKF10+ Ni1000 250.06	620970	⊖
AKF10+ Ni1000TK5000 250.06	621045	⊖
AKF10+ NTC10k 250.06	620901	⊖
AKF10+ LM235Z 250.06	621144	⊖
AKF10+ TRV MultiRange 250.06	621632	⊖
AKF10+ TRA MultiRange 250.06	621700	⊖

Mounting flange		
Item description	Item no.	On stock
Mounting flange MF6 flexible (suitable for Ø=4   6   7 mm)	399098	⊖





AVAILABLE FROM STOCK!

## Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm

Item description	Item no.	On stock
VA-thermowell pocket 50 mm type THVADS50	611152	☺
VA-thermowell pocket 100 mm type THVADS100	611817	☺
VA-thermowell pocket 150 mm type THVADS150	611824	☺
VA-thermowell pocket 200 mm type THVADS200	611848	☺
VA-thermowell pocket 250 mm type THVADS250	611862	☺



## Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm

Item description	Item no.	On stock
MS-thermowell pocket 50 mm type THMSDS50	610995	☺
MS-thermowell pocket 100 mm type THMSDS100	611008	☺
MS-thermowell pocket 150 mm type THMSDS150	611015	☺
MS-thermowell pocket 200 mm type THMSDS200	611022	☺
MS-thermowell pocket 250 mm type THMSDS250	611985	☺



## Outdoor temperature sensor

Item description	Item no.	On stock
AGS54+ PT100	622837	☺
AGS54+ PT1000	622851	☺
AGS54+ Ni1000	622806	☺
AGS54+ Ni1000TK5000	622813	☺
AGS54+ NTC10k	622790	☺
AGS54+ LM235Z	622820	☺
AGS55+ TRV MultiRange	623087	☺
AGS55+ TRA MultiRange	623094	☺



## Rawlplugs and screws

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	☺

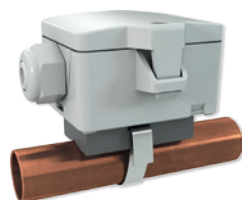




AVAILABLE FROM STOCK!

#### Contact temperature sensor

Item description	Item no.	On stock
VFG54+ PT100	620642	☐
VFG54+ PT1000	620666	☐
VFG54+ Ni1000	620611	☐
VFG54+ Ni1000TK5000	620628	☐
VFG54+ NTC10k	620604	☐
VFG54+ LM235Z	620635	☐
VFG54+ TRV MultiRange	620741	☐
VFG54+ TRA MultiRange	620758	☐



#### Tightening strap with contact fluid

Item description	Item no.	On stock
Tightening strap 2" with contact fluid	102254	☐
Tightening strap 900 mm with contact fluid	102315	☐

#### Cable temperature sensor

Item description	Item no.	On stock
TF25 PT100 T180 050.06 L2000 3-wire IP67	115636	☐
TF25 PT1000 T180 050.06 L2000 IP67	116756	☐
TF25 Ni1000 T180 050.06 L2000 IP67	115438	☐
TF25 Ni1000TK5000 T180 050.06 L2000 IP67	123549	☐
TF25 NTC10k T150 050.06 L2000 IP67	126700	☐
TF25 NTC20k T150 050.06 L2000 IP67	126762	☐
TF25 LM235Z T125 050.06 L2000 IP67	133913	☐
TF25 TRV MultiRange T180 050.06 L2000 IP67	479240	☐
TF25 TRA MultiRange T180 050.06 L2000 IP67	479233	☐



#### Room temperature sensor

Item description	Item no.	On stock
WRF04 PT100	193221	☐
WRF04 PT1000	191623	☐
WRF04 Ni1000	191616	☐
WRF04 Ni1000TK5000	193214	☐
WRF04 NTC10k	207584	☐
WRF04 LM235Z	193191	☐
WRF04 TRV MultiRange	479202	☐
WRF04 TRA MultiRange	479196	☐



#### Rawlplugs and screws

Item description	Item no.	On stock
Rawlplugs and screws (2 pcs. each)	102209	☐

## Special engraving / special lasering

### Item description

Special engraving/lasering – order quantity 1..5 pcs. (each)

Special engraving/lasering – order quantity 6..10 pcs. (each)

Special engraving/lasering – order quantity 11..20 pcs. (each)

## Special printing (minimum order amount 20 pcs.)

### Item description

Special printing – order quantity 20..49 pcs. (each per colour)

Special printing – order quantity 50..99 pcs. (each per colour)

Special printing – order quantity 100..249 pcs. (each per colour)

Special printing – order quantity 250..499 pcs. (each per colour)

Special printing – order quantity 500..1000 pcs. (each per colour)

Special printing setup and tool costs (once for one-colour print - net price)

Special printing setup and tool costs (once for two-colour print - net price)

## Special painting

### Item description

Special painting – order quantity 1..9 pcs. (each)

Special painting – order quantity 10..49 pcs. (each)

Special painting – order quantity 50..100 pcs. (each)

Special painting setup costs (once per colour - net price)

## Temperatur sensors – platinum resistors

### Item description

PT100 DIN class B

PT100 1/3 DIN class B

PT100 1/10 DIN class B

PT500 DIN class B

PT1000 DIN class B

PT1000 1/3 DIN class B

PT1000 1/10 DIN class B

## Temperatur sensors – nickel resistors

### Item description

NI1000 DIN class B

Ni1000 1/2 DIN

Ni1000TK5000

## Temperatur sensors – NTC resistors

### Item description

NTC10k | 10k Precon | 20k

NTC1k | 3k | 5k | 30k | 50k

NTC1,8k

NTC12k gas module

## Temperatur sensors – electronic resistors

### Item description

LM235Z \*

AD592 \*

SMT160 \*

DS18B20 1-wire \*

## Temperatur sensors – PTC resistors

### Item description

KTY81-110 | -121 | -122 | -210 \*

## Temperatur sensors – multisens resistors

### Item description

FeT \*

Balco500

\*not suitable for temperature sensors with Ø=4 mm

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		73.060
-30	1.247	1.934,70	2.432	418,0	28.173	24.500	38.550
-20	1.367	2.030,41	2.532	435,6	15.489	14.000	21.200
-10	1.495	2.127,68	2.632	453,3	8.840	8.400	12.110
0	1.630	2.226,53	2.732	471,0	5.222	5.200	7.162
10	1.772	2.327,01	2.832	488,7	3.184	3.330	4.372
20	1.922	2.429,15	2.932	497,3	1.999	2.200	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	1.480	1.773
40	2.245	2.638,60	3.132	541,3	851,9	1.040	1.173
50	2.417	2.745,99	3.232	558,5	576,1	740	793
60	2.597	2.855,23	3.332	576,2	397,9	540	548
70	2.785	2.966,36	3.432	593,4	280,2	402	386
80	2.980	3.079,42	3.532	610,6	200,9	306	276
90	3.182	3.194,47	3.632	627,8	146,5	240	201
100	3.392	3.311,56	3.732	645,1	108,5	187	149
110	3.607	3.430,75	3.832	662,3	81,5	149	112
120	3.817	3.552,09	3.932	679,1	62,1	118	85
130	4.008	3.675,65		696,3	47,9	95	66
140	4.166	3.801,48		713,1	37,4	77	51
150	4.280	3.929,65			29,5	64	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		309.400	1.667,57	1.219.109,9	2076963	2.193.000
-40	186.796	171.800	813,44	622.923,0	1054556	1.256.000
-30	110.881	98.930	415,48	331.870,2	558919	743.600
-20	67.683	58.880	221,30	183.695,8	308124	454.200
-10	42.431	36.130	122,47	105.305,0	176114	285.400
0	27.280	22.800	70,20	62.342,6	104056	184.200
10	17.961	14.770	41,56	38.018,9	63384	121.900
20	12.092	12.000	25,35	30.000,0	50000	100.000
25	10.000	9.804	20,00	23.828,5	39709	82.490
30	8.312	6.652	15,89	15.317,0	25529	57.020
40	5.826	4.607	10,21	10.079,0	16810	40.200
50	4.159	3.252	6,72	6.777,8	11316	28.860
60	3.020	2.337	4,52	4.650,6	7774	21.070
70	2.228	1.707	3,10	3.251,4	5443	15.620
80	1.668	1.266	2,12	2.313,2	3879	11.760
90	1.266	952	1,54	1.672,7	2809	8.968
100	974	726	1,12	1.228,1	2066	6.928
110	758	560	0,82	914,5	1541	5.416
120	597	438	0,61	690,2	1165	4.282
130	475	345	0,46	527,4	891,9	3.420
140	382	275	0,35	407,7	690,5	2.758
150	310	157,31	0,27	1.987	1.799,26	2.211

# Glossary



## OUTPUTS

<b>A, AA, 2A</b>	1 resp. 2 outputs 4..20 mA; output values depending on product
<b>V, VV, 3xV, 4xV or 2V, 3V, 4V</b>	1, 2, 3, 4 outputs 0..10 V; output values depending on product
<b>AS, AAS, VS, VVS</b>	1 resp. 2 active outputs + 1 passive output temperature (S)
<b>TRA</b>	output 4..20 mA, digit for measuring range temperature following
<b>TRV</b>	output 0..10 V, digit for measuring range temperature following
<b>TRA1/TRV1</b>	range -50..+50 °C
<b>TRA2/TRV2</b>	range -10..+120 °C
<b>TRA3/TRV3</b>	range 0..+50 °C
<b>TRA4/TRV4</b>	range 0..+160 °C
<b>TRA5/TRV5</b>	range 0..+250 °C
<b>TRA6/TRV6</b>	range 0..+400 °C
<b>TRA7/TRV7</b>	range 0..+600 °C
<b>TRA8/TRV8</b>	range -15..+35 °C
<b>MultiRange</b>	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.



## MEASURING VALUES

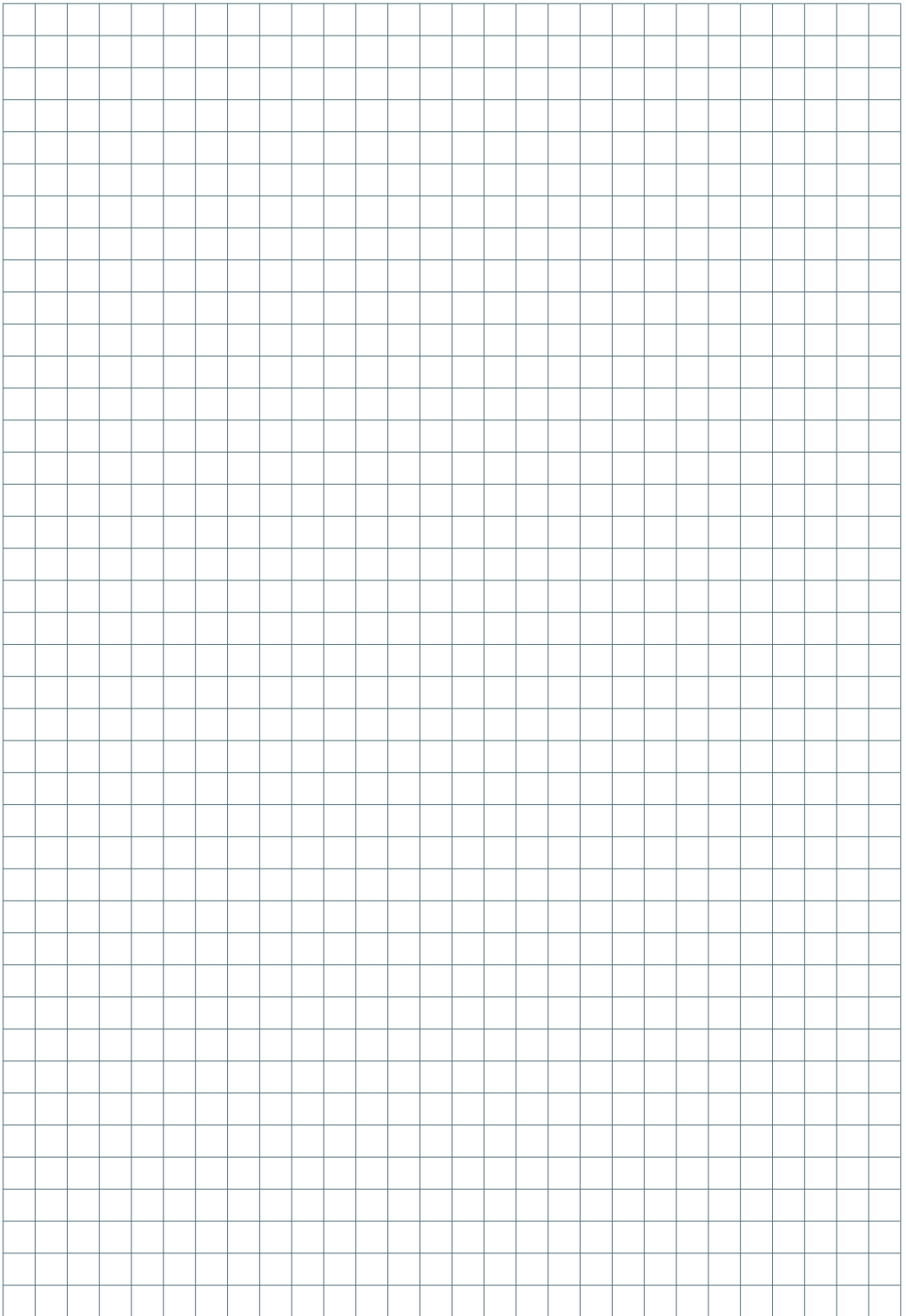
<b>rH</b>	relative humidity
<b>Temp.</b>	temperature
<b>CO2</b>	carbon dioxide measuring value for air quality
<b>VOC</b>	volatile organic compound; measuring value for air quality
<b>Dual Channel</b>	calibration method for CO2 sensors (automatic self-calibration)

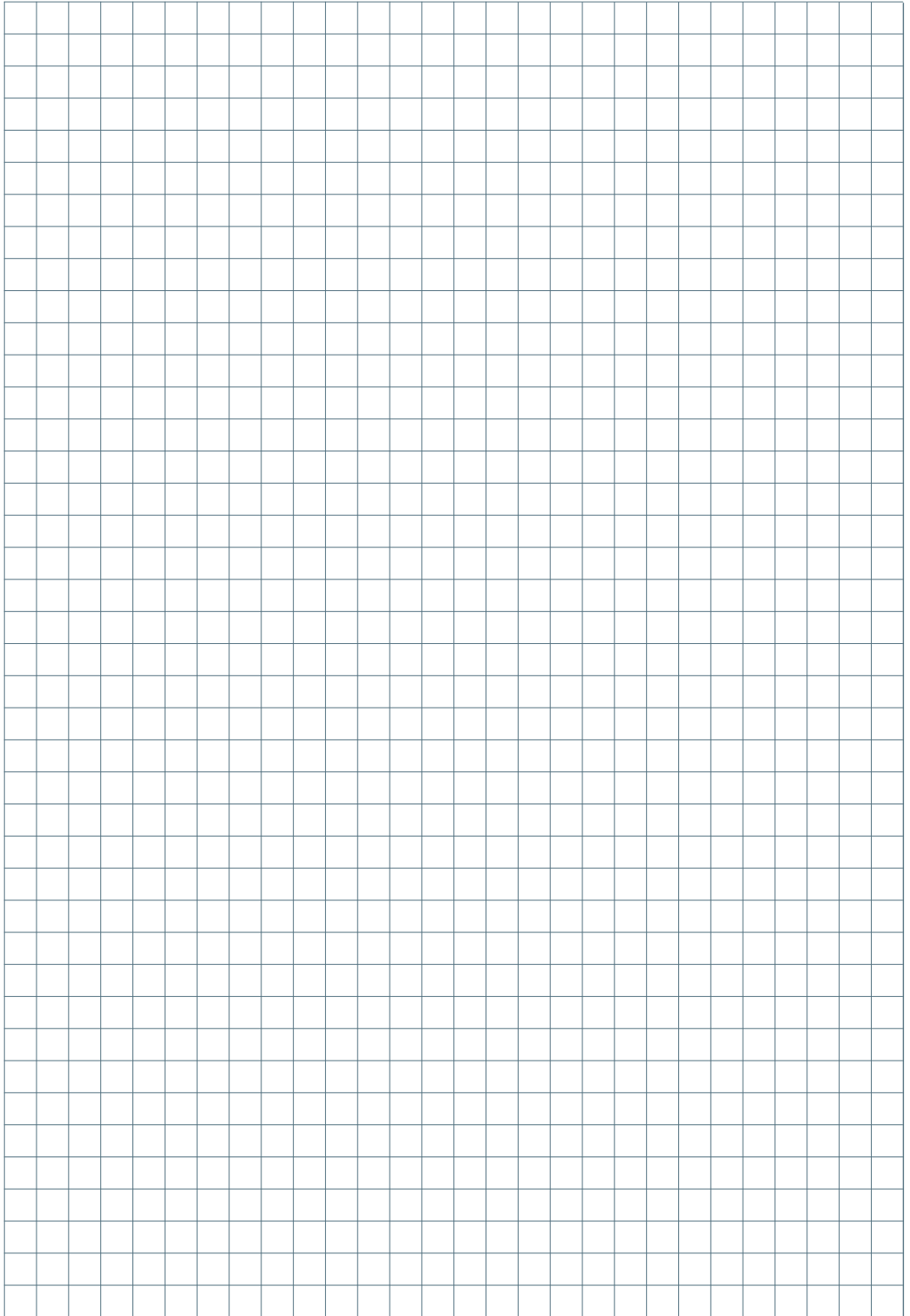
## COMMUNICATION

<b>EasySens</b>	Thermokon radio based on EnOcean IEC 14543-3-10
<b>BACnet</b>	BACnet MS/TP, communication protocol specifically designed for building automation; BACnet IP, if mentioned in catalogue
<b>KNX</b>	EIB-KNX interface
<b>LON</b>	LON FTX, communication protocol specifically designed for building automation; other standards, if mentioned in catalogue
<b>Modbus</b>	RS485 Modbus RTU
<b>dS</b>	digitalSTROM

## ROOM OPERATING UNITS OPERATING ELEMENTS

<b>P</b>	potentiometer (setpoint adjustment)
<b>MS</b>	slide switch
<b>S</b>	switch (e.g. for fan stages)
<b>T</b>	button (e.g. for occupancy status)
<b>D</b>	LED
<b>LCD</b>	inclusive display
<b>TLF</b>	traffic light showing air quality (3 LEDs)
<b>-R</b>	relay





# TERMS AND CONDITIONS

## Orders

We will happily take your order by phone, email or fax, stating the product name and 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 stock a variety of standard sensors in limited quantities, of which delivery is within 1 week, often immediately after receipt of order. Delivery times for larger quantities or custom designs available on request.

## Pricing

All prices are list prices in € and do not include value added tax. Prices are valid from 1st April 2016. All previous prices are invalid.

## Delivery Conditions

Delivery is done ex works by parcel or forwarding service, excluding cost for packing / insurance.

## Terms of Payment

Within 14 days net.

## Product return

Catalogue products can be returned within a period of 6 months after delivery for 2/3 credit of the initial purchase price. Only unused products in original packing will be accepted. Custom manufactured products such as room sensors with control elements, custom engraving, custom varnish or custom printing can not be returned.

**Our general business and warranty conditions are available on [www.thermokon.com](http://www.thermokon.com) or can be send to you on request. Subject to technical and price modifications; no responsibility is accepted for the accuracy of this information. Illustrations may vary.**

## 5 YEARS WARRANTY ON ALL PRODUCTS!



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