

Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection or W-Modbus (wireless)

S+S REGELTECHNIK

Patented quality product (Immersion sensor patent no. DE 10 2012 017 500.0)

Calibratable temperature measuring transducer with sensor tube **THERMASGARD® TM 65-Modbus-T3**, with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, stainless steel-protective tube (50 - 400 mm), optionally with /without display, measures temperature (-50...+150 °C). International system of units **SI** (default) can be changed to **imperial** (via Modbus). With **wModbus** device version, the W-Modbus (Wireless) replaces the RTU cable; the BMS connection is radio-based using a W-Modbus gateway.

The duct sensor is used to detect the temperature in liquid or gaseous media. Use the stainless steel immersion sleeves for aggressive media. It is used in heating engineering, ventilation and air conditioning ducts, pipes, storage systems, compact district heating stations, warm and cold water systems, oil and lubrication cycle systems, machine and systems engineering and the entire industry sector.

Innovative Modbus sensor with galvanically isolated RS485 Modbus interface, switchable bus terminating resistor, DIP switch for setting in current-free state, internal LEDs for telegram status display, push-in terminals and large three-line display (illuminated, individually programmable). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.



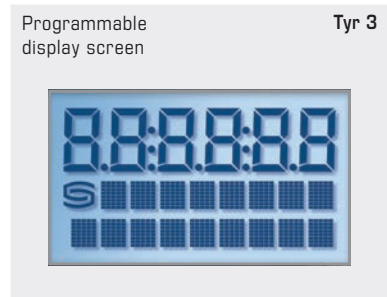
TM 65-Modbus-T3
 without display
 (RTU cable)



TM 65-wModbus
 without display
 (wireless)

TECHNICAL DATA

| | |
|---------------------------|---|
| Power supply: | 24 V AC (± 20%); 15...36 V DC |
| Power consumption: | < 1.2 W / 24 V DC; < 1.8 VA / 24 V AC |
| System of units: | SI (default) or Imperial (switchable via Modbus) |
| Data points: | Temperature [°C] [°F] |
| Sensor: | Pt1000, DIN EN 60751, class B (Perfect Sensor Protection) |
| Measuring range: | -50...+150 °C |
| Accuracy, temperature: | typically ± 0.2 K at +25 °C |
| Zero point offset: | ± 10 °C |
| Ambient temperature: | measuring transducer -30...+70 °C |
| Medium: | depending on selected immersion sleeve |
| Communication: | Modbus (RTU cable), Bus interface RS 485, galvanically isolated , Baud rate 9600, 19200, 38400 baud or W-Modbus (Wireless Modbus, AES-128 encrypted) Frequency 2.4 GHz ISM, Transmission power 100 mW , Range max. 500 m (open field) / approx. 50 - 70 m (inside buildings) |
| Bus protocol: | Modbus (RTU mode), address range 0... 247 adjustable |
| Signal filtering: | 0.3 s / 1 s / 10 s |
| Protective tube: | stainless steel, V4A (1.4571), Ø = 6 mm, inserted length (EL) = 50 - 400 mm (see table) |
| Housing: | plastic, UV-resistant, material polyamide, 30% glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent! |
| Housing dimensions: | 108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45,8 mm (Tyr 3 with display) |
| Cable connection: | cable gland , plastic (M20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request) |
| Electrical connection: | 0.2 - 1.5 mm², using push-in terminals |
| Permissible air humidity: | < 95% RH, non-precipitating air |
| Protection class: | III (according to EN 60 730) |
| Protection type: | IP 65 (according to EN 60 529) |
| Standards (Modbus): | CE conformity according to EMC Directive 2014 / 30 / EU |
| Standards (W-Modbus): | CE conformity according to Radio Directive 2014 / 53 / EU |
| Features: | display with illumination , three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value |
| Internal diagnostics: | Error 1 at sensor breakage Error 2 at sensor short circuit |



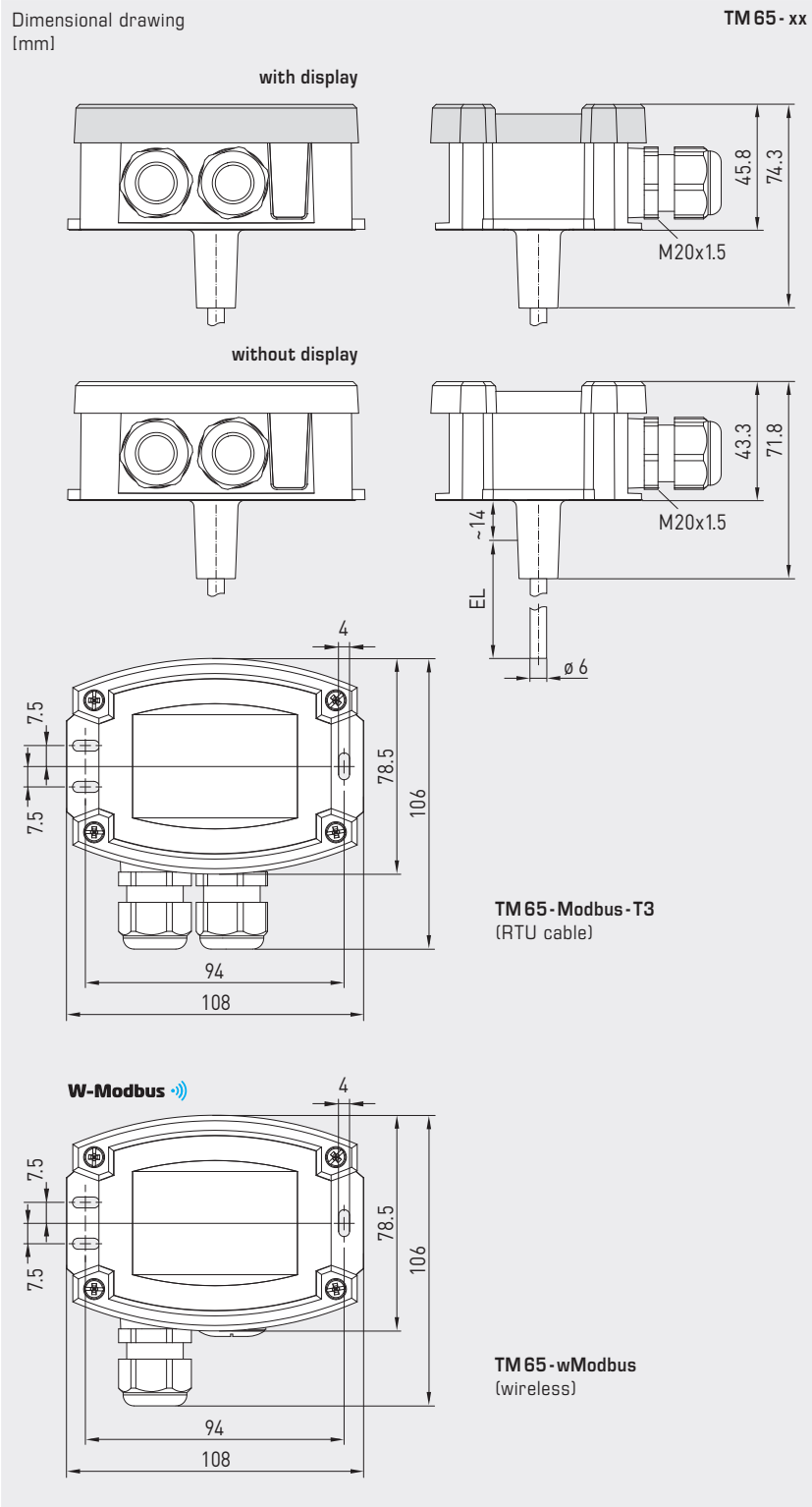


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THERMASGARD® TM 65 - Modbus - T3 THERMASGARD® TM 65 - wModbus

Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection or W-Modbus (wireless)



Device version with **M12 connector** (optional on request)

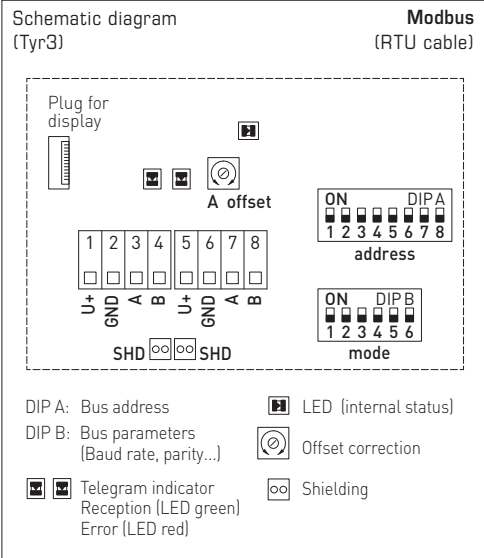


High-performance encapsulation against vibration, mechanical stress and humidity

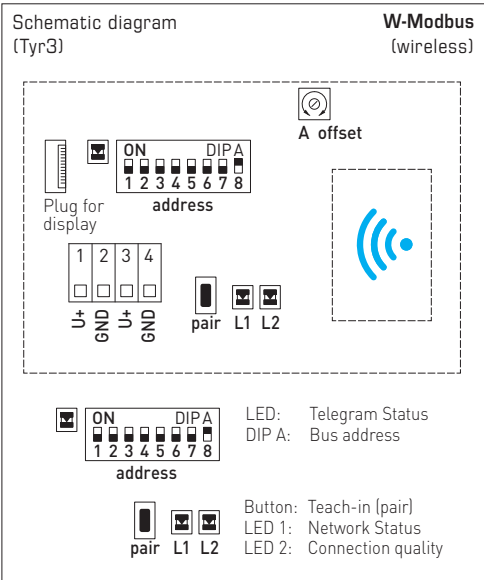
PS-PROTECTION
PERFECT SENSOR PROTECTION

Immersion / screw-in / duct temperature measuring transducer,
 calibratable, with Modbus connection or W-Modbus (wireless)

TM 65 -Modbus-T3
 (RTU cable)



TM 65 -wModbus
 (wireless)






NEW


THERMASGARD® TM 65 - Modbus - T3

THERMASGARD® TM 65 - wModbus

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Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection or W-Modbus (wireless)

| THERMASGARD® TM 65 - Modbus - T3 | | Temperature transmitter (basic device) with Modbus connection (RTU cable) | | |  | |
|-------------------------------------|---|--|---------|--------------------|---|--|
| Type / WG01 | Output | Installation length (EL) | Display | Item no. | Price | |
| TM65 - Modbus - T3 | | | | | | |
| TM65-Modbus-T3 50mm | Modbus (RTU cable) | 50 mm | | 1101-7236-0010-000 | 178,93 € | |
| TM65-Modbus-T3 50mm LCD | Modbus (RTU cable) | 50 mm | ■ | 1101-7236-4010-000 | 237,00 € | |
| TM65-Modbus-T3 100mm | Modbus (RTU cable) | 100 mm | | 1101-7236-0020-000 | 179,24 € | |
| TM65-Modbus-T3 100mm LCD | Modbus (RTU cable) | 100 mm | ■ | 1101-7236-4020-000 | 237,30 € | |
| TM65-Modbus-T3 150mm | Modbus (RTU cable) | 150 mm | | 1101-7236-0030-000 | 179,48 € | |
| TM65-Modbus-T3 150mm LCD | Modbus (RTU cable) | 150 mm | ■ | 1101-7236-4030-000 | 237,57 € | |
| TM65-Modbus-T3 200mm | Modbus (RTU cable) | 200 mm | | 1101-7236-0040-000 | 179,72 € | |
| TM65-Modbus-T3 200mm LCD | Modbus (RTU cable) | 200 mm | ■ | 1101-7236-4040-000 | 237,79 € | |
| TM65-Modbus-T3 250mm | Modbus (RTU cable) | 250 mm | | 1101-7236-0050-000 | 180,06 € | |
| TM65-Modbus-T3 250mm LCD | Modbus (RTU cable) | 250 mm | ■ | 1101-7236-4050-000 | 238,15 € | |
| TM65-Modbus-T3 300mm | Modbus (RTU cable) | 300 mm | | 1101-7236-0060-000 | 180,92 € | |
| TM65-Modbus-T3 300mm LCD | Modbus (RTU cable) | 300 mm | ■ | 1101-7236-4060-000 | 238,96 € | |
| TM65-Modbus-T3 350mm | Modbus (RTU cable) | 350 mm | | 1101-7236-0070-000 | 182,03 € | |
| TM65-Modbus-T3 350mm LCD | Modbus (RTU cable) | 350 mm | ■ | 1101-7236-4070-000 | 240,13 € | |
| TM65-Modbus-T3 400mm | Modbus (RTU cable) | 400 mm | | 1101-7236-0080-000 | 183,16 € | |
| TM65-Modbus-T3 400mm LCD | Modbus (RTU cable) | 400 mm | ■ | 1101-7236-4080-000 | 241,28 € | |
| Optional: | Cable connection with M12 connector according to DIN EN 61076-2-101 | | | on request | | |
| Note: | System of units SI (default) or imperial (can be changed via Modbus). | | | | | |
| ACCESSORIES | | | | | | |
| KA2-Modbus | Communication adapter (USB/RS485) for system connection | | | 1906-1200-0000-100 | 229,23 € | |
| LA-Modbus | Line termination device (with terminating resistor) as an active bus termination | | | 1906-1300-0000-100 | 85,49 € | |

| THERMASGARD® TM 65 - wModbus | | Temperature measuring transducer (basic device) with W-Modbus (wireless) | | | W-Modbus  | |
|--|---|---|---------|--------------------|---|--|
| Type / WG01 | Output | Installation length (EL) | Display | Item no. | Price | |
| TM65 - wModbus | | | | | | |
| TM65-wModbus 50MM | W-Modbus (wireless) | 50 mm | | 1101-723F-0010-000 | 220,53 € | |
| TM65-wModbus 50MM LCD | W-Modbus (wireless) | 50 mm | ■ | 1101-723F-4010-000 | 278,60 € | |
| TM65-wModbus 100MM | W-Modbus (wireless) | 100 mm | | 1101-723F-0020-000 | 220,84 € | |
| TM65-wModbus 100MM LCD | W-Modbus (wireless) | 100 mm | ■ | 1101-723F-4020-000 | 278,90 € | |
| TM65-wModbus 150MM | W-Modbus (wireless) | 150 mm | | 1101-723F-0030-000 | 221,08 € | |
| TM65-wModbus 150MM LCD | W-Modbus (wireless) | 150 mm | ■ | 1101-723F-4030-000 | 279,17 € | |
| TM65-wModbus 200MM | W-Modbus (wireless) | 200 mm | | 1101-723F-0040-000 | 221,32 € | |
| TM65-wModbus 200MM LCD | W-Modbus (wireless) | 200 mm | ■ | 1101-723F-4040-000 | 279,39 € | |
| TM65-wModbus 250MM | W-Modbus (wireless) | 250 mm | | 1101-723F-0050-000 | 221,66 € | |
| TM65-wModbus 250MM LCD | W-Modbus (wireless) | 250 mm | ■ | 1101-723F-4050-000 | 279,75 € | |
| TM65-wModbus 300MM | W-Modbus (wireless) | 300 mm | | 1101-723F-0060-000 | 222,52 € | |
| TM65-wModbus 300MM LCD | W-Modbus (wireless) | 300 mm | ■ | 1101-723F-4060-000 | 280,56 € | |
| TM65-wModbus 350MM | W-Modbus (wireless) | 350 mm | | 1101-723F-0070-000 | 223,63 € | |
| TM65-wModbus 350MM LCD | W-Modbus (wireless) | 350 mm | ■ | 1101-723F-4070-000 | 281,73 € | |
| TM65-wModbus 400MM | W-Modbus (wireless) | 400 mm | | 1101-723F-0080-000 | 224,76 € | |
| TM65-wModbus 400MM LCD | W-Modbus (wireless) | 400 mm | ■ | 1101-723F-4080-000 | 282,88 € | |
| Optional: | Cable connection with M12 connector according to DIN EN 61076-2-101 | | | on request | | |
| Note: | System of units SI (default) or imperial (can be changed via Modbus). | | | | | |
| ACCESSORIES | | | | | | |
| Gateway with W-Modbus (Wireless) for radio-based connection to Modbus networks, operating modes ' Gateway ' (basic function as a base station) and ' Node ' (adapter function for max. 1 wired sensor) | | | | | | |
| GW-wModbus | | | | 1801-1211-1101-000 | 238,16 € | |
| GW-wModbus Pro | and ' Node Pro ' (adapter function for max. 16 wired sensors) | | | 1801-1211-1101-100 | 322,40 € | |

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One basic device in four variants ...



PATENTED

TM 65 - Modbus -T3 + TH 08 - MS / xx

Immersion / screw-in temperature sensor with immersion sleeve, nickel-plated / galvanised

TM 65 - Modbus -T3 + TH 08 - VA / xx

Immersion / screw-in temperature sensor with immersion sleeve, stainless steel, V4A

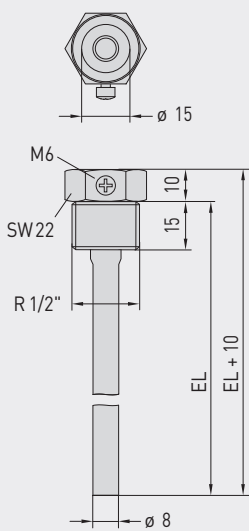
TM 65 - Modbus -T3 + TH 08 - VA / xx / 90

Immersion / screw-in temperature sensor with immersion sleeve with neck tube, stainless steel, V4A

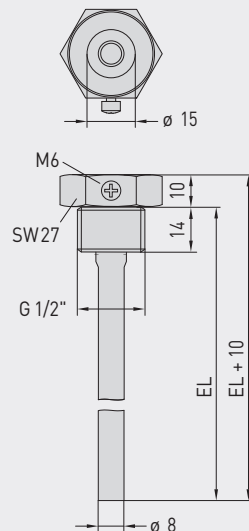
TM 65 - Modbus -T3 + MF - 15 - K

Duct temperature sensor with mounting flange, plastic

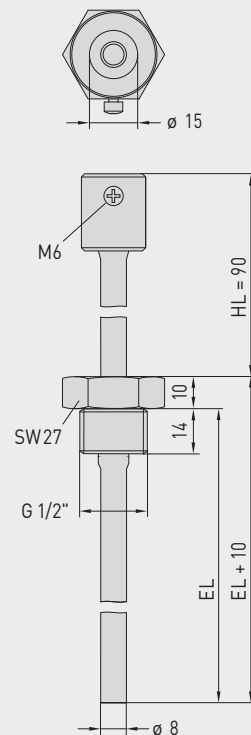
Dimensional drawing [mm]
TH 08 - MS / xx



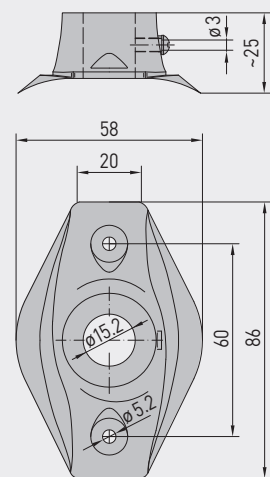
Dimensional drawing [mm]
TH 08 - VA / xx



Dimensional drawing [mm]
TH 08 - VA / xx / 90



Dimensional drawing [mm]
MF - 15 - K





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THERMASGARD® TM 65 - Modbus -T3
THERMASGARD® TM 65 -wModbus

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Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection or W-Modbus (wireless)

... through combination with accessories:



TH08-MS/xx

Immersion sleeve, brass, nickel-plated / galvanised, thread-sealing, conical, according to DIN 10226



TH08-VA/xx

Immersion sleeve, stainless steel, V4A, flat-sealing, cylindrical, according to DIN 228



TH08-VA/xx/90

Immersion sleeve with neck tube, stainless steel, V4A, flat-sealing, cylindrical, according to DIN 228



MF-15-K

Mounting flange, plastic

| THERMASGARD® TH08 Immersion sleeve Ø 8 mm (Accessories) | | | | | |
|---|---|------------------|----------------------|------------------------|----------------|
| Type / WG01B | p _{max} (static) | T _{max} | Inserted Length (EL) | Item No. | Price |
| TH08-MS/xx | Brass nickel-plated / galvanised | | | without neck tube | |
| TH08-MS 50MM | 10 bar | +150 °C | 50 mm | 7100-0011-0010-132 | 13,42 € |
| TH08-MS 100MM | 10 bar | +150 °C | 100 mm | 7100-0011-0020-132 | 14,04 € |
| TH08-MS 150MM | 10 bar | +150 °C | 150 mm | 7100-0011-0030-132 | 15,18 € |
| TH08-MS 200MM | 10 bar | +150 °C | 200 mm | 7100-0011-0040-132 | 16,24 € |
| TH08-MS 250MM | 10 bar | +150 °C | 250 mm | 7100-0011-0050-132 | 18,81 € |
| TH08-MS 300MM | 10 bar | +150 °C | 300 mm | 7100-0011-0060-132 | 19,66 € |
| TH08-MS 350MM | 10 bar | +150 °C | 350 mm | 7100-0011-0070-132 | 20,18 € |
| TH08-MS 400MM | 10 bar | +150 °C | 400 mm | 7100-0011-0080-132 | 20,70 € |
| TH08-VA/xx | Stainless steel V4A (1.4571) | | | without neck tube | |
| TH08-VA 50MM | 40 bar | +600 °C | 50 mm | 7100-0012-0010-132 | 23,13 € |
| TH08-VA 100MM | 40 bar | +600 °C | 100 mm | 7100-0012-0020-132 | 25,48 € |
| TH08-VA 150MM | 40 bar | +600 °C | 150 mm | 7100-0012-0030-132 | 27,56 € |
| TH08-VA 200MM | 40 bar | +600 °C | 200 mm | 7100-0012-0040-132 | 28,91 € |
| TH08-VA 250MM | 40 bar | +600 °C | 250 mm | 7100-0012-0050-132 | 35,98 € |
| TH08-VA 300MM | 40 bar | +600 °C | 300 mm | 7100-0012-0060-132 | 37,65 € |
| TH08-VA 350MM | 40 bar | +600 °C | 350 mm | 7100-0012-0070-132 | 38,38 € |
| TH08-VA 400MM | 40 bar | +600 °C | 400 mm | 7100-0012-0080-132 | 39,42 € |
| TH08-VA/xx/90 | Stainless steel V4A (1.4571) | | | with neck tube (90 mm) | |
| TH08-VA 50/90MM | 40 bar | +600 °C | 50 mm | 7100-0012-0012-132 | 31,11 € |
| TH08-VA 100/90MM | 40 bar | +600 °C | 100 mm | 7100-0012-0022-132 | 32,51 € |
| TH08-VA 150/90MM | 40 bar | +600 °C | 150 mm | 7100-0012-0032-132 | 34,11 € |
| TH08-VA 200/90MM | 40 bar | +600 °C | 200 mm | 7100-0012-0042-132 | 35,56 € |
| TH08-VA 250/90MM | 40 bar | +600 °C | 250 mm | 7100-0012-0052-132 | 37,26 € |
| TH08-VA 300/90MM | 40 bar | +600 °C | 300 mm | 7100-0012-0062-132 | 40,39 € |
| Note: | inner diameter of socket 15.0 mm For further information see last chapter! | | | | |
| Mounting flange (Accessories) | | | | | |
| Type / WG01B | | | | Item No. | Price |
| MF | | | | | |
| MF-15-K | Mounting flange, plastic, 56.8x84.3mm, Ø 15.2mm tube gland, T _{max} +100°C | | | 7100-0032-0000-000 | 6,55 € |
| Note: | For information see last chapter! | | | | |