

## RESISTANCE THERMOMETER FOR EX AREAS

Certificate: ATEX II 1 GD EEx ia IIC

These devices consist of a resistance thermometer with stainless steel protective tube (M-THR3...) and, for the M-THR6..., an additional protective sleeve made of borosilicate glass 3.3. The glass protective tube is filled with heat conducting paste for better heat exchange.

The resistance thermometers can be installed with GL threaded fittings.

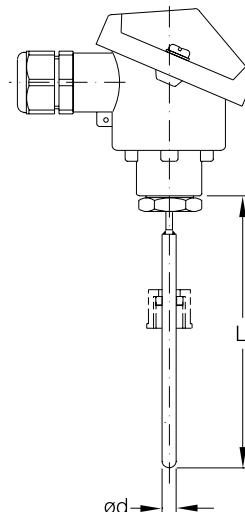
### Technical data

|                                   |                               |  |
|-----------------------------------|-------------------------------|--|
| Measuring insert                  | Measurement resistance        | - 1x Pt 100 as per IEC 751, Class A, 4-conductor |
|                                   | Permitted product temperature | - 50 to +200 °C                                  |
| Connecting head                   | Design                        | - TA20A Alu                                      |
|                                   | Cable socket                  | - M20 x 1.5 blue                                 |
| Measuring transducer type: THRXT) | Measuring range               | - 50 up to +200 °C(only for                      |
|                                   | Ex protection                 | - II 1G EEx ia IIC                               |
| Output signal                     |                               | - 4 to 20 mA, 2-conductor                        |
| Ex protection                     | Measuring insert              | - II 1G EEx ia IIC                               |

| d | L   | Type | Reference    |
|---|-----|------|--------------|
| 3 | 120 | A    | M-THR3/120   |
| 3 | 120 | B    | M-THRXT3/120 |
| 6 | 120 | A    | M-THR6/120   |
| 6 | 120 | B    | M-THRXT6/120 |

Type A: without measuring transducer

Type B: with measuring transducer

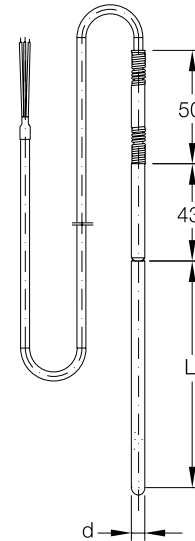


## RESISTANCE THERMOMETER

These devices consist of a resistance thermometer with stainless steel protective tube (M-THR3/100) and, for the M-THR6/100, an additional protective sleeve made of borosilicate glass. The probe tip is used with heat conducting paste for better heat exchange.

### Technical data

|                  |                               |  |
|------------------|-------------------------------|--|
| Measuring insert | Measurement resistance        | 1x Pt 100 as per IEC 751, Class A, 4-conductor |
|                  | Permitted product temperature | - -50 to +200 °C                               |
| Connecting cable | Design                        | - 8 m silicon with free ends                   |



| d | L   | Reference  |
|---|-----|------------|
| 3 | 100 | M-THR3/100 |
| 6 | 100 | M-THR6/100 |

## LEVEL SWITCH

This is an opto-electronic sensor that sends timed infrared light into the glass rod. The contact is actuated when the glass rod is dipped into a liquid.

### Technical data

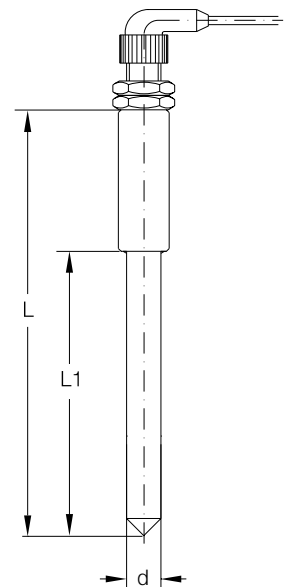
|        |                          |                  |
|--------|--------------------------|------------------|
| Sensor | Supply voltage           | - 20 - 28 V DC   |
|        | No-load current input    | - < 60 mA        |
|        | Output type              | - Transistor     |
|        | Max. switching current   |                  |
|        | PNP                      | - 100 mA         |
|        | Protection type          | - IP 67          |
|        | Temperature range sensor | - -20 to +200 °C |

These sensors are not suitable for safety applications.

M-LLSC12... When the glass rod is dipped in, the contact is closed (min.).

M-LLSO12... When the glass rod is dipped in, the contact is opened (max.).

| L   | L1  | d  | Type    | Reference    |
|-----|-----|----|---------|--------------|
| 150 | 100 | 12 | opener  | M-LLSO12/100 |
| 200 | 150 | 12 | opener  | M-LLSO12/150 |
| 250 | 200 | 12 | opener  | M-LLSO12/200 |
| 350 | 300 | 12 | opener  | M-LLSO12/300 |
| 450 | 400 | 12 | opener  | M-LLSO12/400 |
| 150 | 100 | 12 | shutter | M-LLSC12/100 |
| 200 | 150 | 12 | shutter | M-LLSC12/150 |
| 250 | 200 | 12 | shutter | M-LLSC12/200 |
| 350 | 300 | 12 | shutter | M-LLSC12/300 |
| 450 | 400 | 12 | shutter | M-LLSC12/400 |



## LEVEL SWITCH FOR THE CATEGORY 2G EX AREA

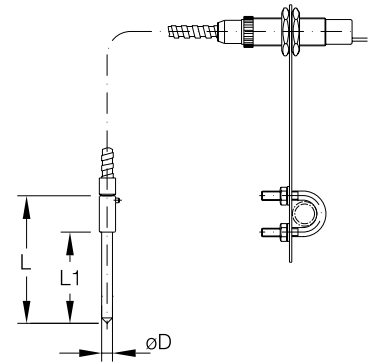
### IRD-10P EEx d IIC T6 ATEX

The opto-electronic sensor sends timed infrared light into the glass rod through an optical fiber. The contact is opened when the glass rod is dipped into a liquid.

#### Technical data

|               |                          |                        |
|---------------|--------------------------|------------------------|
| Sensor        | Supply voltage           | - 20 - 28 V DC         |
|               | No-load current input    | - < 60 mA              |
|               | Output type              | - Transistor           |
|               | Max. switching current   |                        |
|               | PNP                      | - 100 mA               |
|               | Protection type          | - IP 67                |
|               | Temperature range sensor | - -20 to +200 °C       |
| Accessories   | Length of optical fiber  | - 500 mm               |
| Ex protection | Protection type          | - EEx d IIC T6         |
|               | ATEX identification code | - DMT 99 ATEX E 056/N1 |

| L   | L1  | øD | Reference    |
|-----|-----|----|--------------|
| 140 | 100 | 12 | M-LLSX12/100 |
| 190 | 150 | 12 | M-LLSX12/150 |
| 240 | 200 | 12 | M-LLSX12/200 |
| 340 | 300 | 12 | M-LLSX12/300 |
| 440 | 400 | 12 | M-LLSX12/400 |



## PH/REDOX MEASUREMENT

For wall set-up or cabinet installation, including sensor connecting cable

### Technical data

|                          |  |
|--------------------------|--|
| Measurement ranges       | - pH -1 ... 14; -1999 ... 1999mV;<br>-50 ... 250 °C                |
| Measurement resolution   | - 0,01 pH; 1 mV; 0,1 °C  |
| Temperature compensation | - automatic or manual  |
| Control outputs          | - voltage-free relay outputs;<br>max. 3 A, 250 V AC; 1 binary exit |
| Analogue outputs         | - 0 (4) ... 20 mA or 0 (2) ... 10 V                                |
| Display                  | - 2 x 4 position LED display, 13 / 8 mm                            |
| Power supply             | - 53 V AC/DC, approx. 8 VA   |
| Ambient temperature      | - -10 ... 55 °C  |

|                     |  |
|---------------------|--|
| Wall set-up housing | - Plastic housing for wall set-up<br>with connecting space; protection rating IP65 |
| Dimensions          | - 151 x 138 x 170 mm (WxHxD)   |

|  |   |
|--|---|
| Housing for control cabinet installation | - Switchboard installation housing<br>front protection rating IP 65 |
| Dimensions                               | - 96 x 48 x 106 (WxHxD)   |
| EMC                                      | - EN 61326  |

|            |  |
|------------|--|
| Electrodes | - Single-rod measuring cells, separated measuring cells; temperature probe Pt 100 or Pt 1000 |
|------------|--|

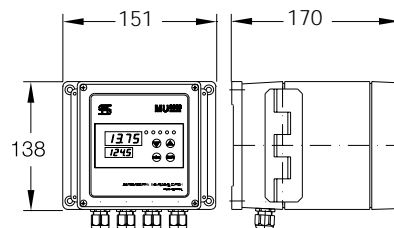
|       |  |
|-------|--|
| Cable | - SMEK plug-in head connector, length 8 m. |
|-------|--|

| Measurement | Type | Reference  |
|-------------|------|------------|
| PH/Redox    | A    | M-MU2000-W |
| PH/Redox    | B    | M-MU2000-P |

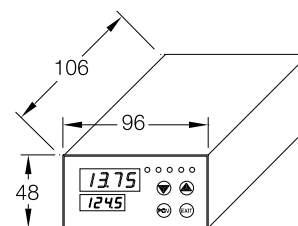
Type A: for field mounting

Type B: for integration into control cabinet

A wall assembling



B control rack



## LEITFÄHIGKEITS-MEASUREMENT

For wall set-up or cabinet installation, including sensor connecting cable

### Technical data

|                           |  |
|---------------------------|--|
| Measurement ranges        | - 0 ... 0.5 mS/cm up to 0 ... 200 mS/cm;<br>-50 ... 250 °C           |
| Measurement resolution    | - 0,01 pH; 1 mV; 0,1 °C  |
| Adjustable cell constants | - 0.01; 0.1; 1.0; 3.0; 10.0 cm                                       |
| Temperature probe         | - Pt 100 or Pt 1000  |
| Temperature compensation  | - automatic or manual  |
| Control outputs           | - 2 voltage-free relay outputs;<br>max. 3 A, 250 V AC; 1 binary exit |
| Analogue outputs          | - 0 (4) ... 20 mA or 0 (2) ... 10 V                                  |
| Display                   | - 2 x 4 position LED display, 13 / 8 mm                              |
| Power supply              | - 53 V AC/DC, approx. 8 VA   |
| Ambient temperature       | - -10 ... 55 °C  |

|                     |  |
|---------------------|--|
| Wall set-up housing | - Plastic housing for wall set-up<br>with connecting space; protection rating IP65 |
| Dimensions          | - 151 x 138 x 170 mm (WxHxD)   |

|  |   |
|--|---|
| Housing for control cabinet installation | - Switchboard installation housing<br>front protection rating IP 65 |
| Dimensions                               | - 96 x 48 x 106 (WxHxD)   |
| EMC                                      | - EN 61326  |

|            |  |
|------------|--|
| Electrodes | - Single-rod measuring cells, separated measuring cells; temperature probe Pt 100 or Pt 1000 |
|------------|--|

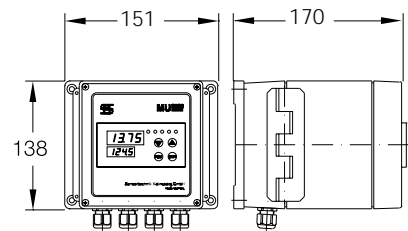
|       |  |
|-------|--|
| Cable | - SMEK plug-in head connector, length 8 m. |
|-------|--|

| Measurement   | Type | Reference  |
|---------------|------|------------|
| Leitfähigkeit | A    | M-MU2020-W |
| Leitfähigkeit | B    | M-MU2020-P |

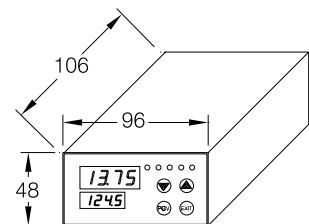
Type A: for field mounting

Type B: for integration into control cabinet

A wall assembling



B control rack



## IMPELLER FLOW SENSOR

The compact flow sensor works according to the paddlewheel principle and is especially suitable for use in solid-free and aggressive fluids.

The sensor is supplied with a G 1/4" male thread for the process connection and a 3-lead cable for the electrical connection.

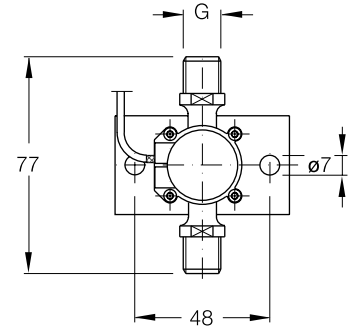
### Technical data

|                      |                        |                                 |
|----------------------|------------------------|---------------------------------|
| Measurement recorder | Operating pressure     | - 5 bar, 22 °C                  |
|                      | Protection type        | - IP 65                         |
|                      | Viscosity of the media | - 1 ... 10 cst                  |
|                      | Measuring range        | - 10 ... 150 l/h                |
|                      | Accuracy               | - 2 % (meas. range limit value) |
|                      | Operating voltage      | - 12 ... 24 V DC                |

|           |                  |                              |
|-----------|------------------|------------------------------|
| Materials | Housing          | - ECTFE (Halar)              |
|           | Vane wheel       | - ECTFE (Halar)              |
|           | Axle and bearing | - Sapphire                   |
|           | Magnets          | - ECTFE (Halar) encapsulated |
|           | O-ring           | - FFKM                       |

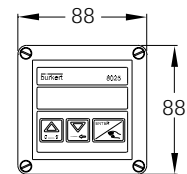
 The measuring transducer is included in the scope of supply.

| G    | Type            | Reference |
|------|-----------------|-----------|
| 1/4" | wall assembling | M-LFS15-W |
| 1/4" | control rack    | M-LFS15-P |



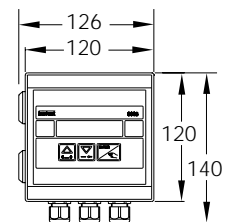
### Measuring transducer for control cabinet (M-LFS15-P)

The electrical connection is made through terminals. The output signal is an impressed standard signal 4...20mA. The measuring transducer requires a power supply of 13...30 VDC for operation.



### Measuring transducer for field mounting (M-LFS15-W)

The flow transmitter is integrated into a splash-proof plastic housing, protection rating IP 65.



## FLOWMETER, SUSPENDED BODY

### with threaded connection

A suspended body is carried concentrically by a specially shaped conical tube, and the position of the suspended body is magnetically transmitted to a display.

The devices are used for measuring small flows of liquids and gases.

The flowmeters are to be mounted vertically in a pipeline so that the material to be measured can flow upward through the device.

### Technical data

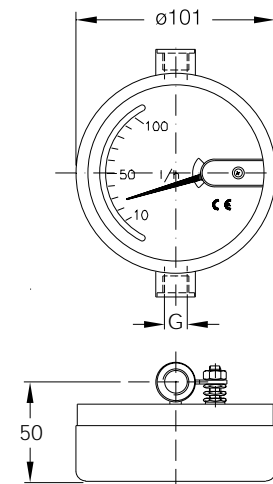
|                      |                       |                                   |
|----------------------|-----------------------|-----------------------------------|
| Measurement recorder | Measurable forms      | - Fluids or gases                 |
|                      | Measuring ranges      | - 10 - 100 l/h                    |
|                      | Measuring range ratio | - 10 : 1                          |
|                      | Accuracy              | - Cclass 4 as per VDI/VDE 3513    |
|                      | Display scale         | - Calibrated for water (standard) |

|                    |          |   |
|--------------------|----------|---|
| Process connection |          | - Inside thread G 1/4                                       |
|                    | Material | - All medium-contacting parts are stainless steel (1.4571). |

|                      |               |                  |
|----------------------|---------------|------------------|
| Measuring transducer | Power supply  | - 13.5 - 30 V DC |
|                      | Output signal | - 4 - 20 mA      |

|               |        |                             |
|---------------|--------|-----------------------------|
| Ex protection | Design | - II 2 G EEx ia IIC T5...T6 |
|---------------|--------|-----------------------------|

| G    | Measure L | Reference |
|------|-----------|-----------|
| 1/4" | 125       | M-FMT100  |



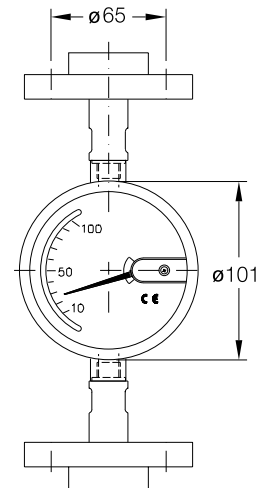
## FLOWMETER, SUSPENDED BODY

### with connecting flange

A suspended body is carried concentrically by a specially shaped conical tube. The position of the suspended body is magnetically transmitted to a display.

The devices are used for measuring small flows of liquids and gases.

The flowmeters are to be mounted vertically in a pipeline so that the material to be measured can flow upward through the device.



### Technical data

|                      |                       |   |
|----------------------|-----------------------|---|
| Measurement recorder | Measurable forms      | - Fluids or gases   |
|                      | Measuring ranges      | - 10 - 100 l/h  |
|                      | Measuring range ratio | - 10 : 1  |
|                      | Accuracy              | - Cclass 4 as per VDI/VDE 3513                              |
|                      | Display scale         | - Calibrated for water (standard)                           |
| Process connection   |                       | - Inside thread G 1/4                                       |
|                      | Material              | - All medium-contacting parts are stainless steel (1.4571). |
| Measuring transducer | Power supply          | - 13.5 - 30 V DC  |
|                      | Output signal         | - 4 - 20 mA   |
| Ex protection        | Design                | - II 2 G EEx ia IIC T5...T6                                 |

| Measure L | Reference |
|-----------|-----------|
| 250       | M-FMTF100 |

## DIFFERENTIAL PRESSURE TRANSDUCER

The differential pressure sensor is used to measure pressure differences in columns. The display is not included in the scope of supply.



Threaded connection fittings for 10 mm hose M-EVD10/NPT 1/4".

### Technical data

|                      |                       |  |
|----------------------|-----------------------|--|
| Measurement recorder | Measuring cell        | - Ceramic, max. 10 bar<br>Kalrez measuring cell seal |
|                      | Measuring range       | - 25 mbar  |
|                      | Output signal         | - 4 - 20 mA  |
|                      | Permitted temp. range | - -40 to 120°C                                       |

|         |                    |            |
|---------|--------------------|------------|
| Housing | Material           | - Aluminum |
|         | Process connection | - 1/4" NPT |

| NPT  | Reference |
|------|-----------|
| 1/4" | M-DPGT25  |

