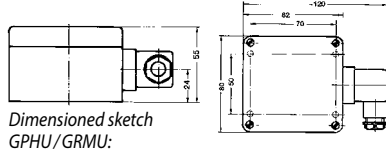


## REDOX-MEASURING TRANSDUCER



WITH ELECTRICALLY  
ISOLATION



Dimensioned sketch  
GPHU/GRMU:

## GRMU 2000 MP-BNC

Art. no. 602019

Redox-measuring transducer without electrode, BNC-connection

## GRMU 2000 MP-Cinch

Art. no. 602021

Redox-measuring transducer without electrode, Cinch-connection

## Specifications:

|                                             |                                                                                                                                                  |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Measuring range:</b>                     | ±2000 mV or special limited measuring ranges acc. to customer specification!                                                                     |
| <b>Accuracy:</b>                            | 0.2 % FS (at nominal temperature = 25 °C)                                                                                                        |
| <b>Output signal:</b>                       | 4 ... 20 mA (2-wire), standard<br>0 ... 10 V (3-wire), upon upcharge                                                                             |
| <b>Electric isolation:</b>                  | input electrically isolated                                                                                                                      |
| <b>Auxiliary energy:</b>                    | 12 ... 30 V DC (for option 0 ... 10 V: 18 ... 30 V DC)                                                                                           |
| <b>Perm. impedance (at 4 ... 20 mA):</b>    | $R_A [Ω] ≤ (U_v [V] - 12 V) / 0.02 A$                                                                                                            |
| <b>Permissible load (at 0 ... 10 Volt):</b> | $R_L > 3000 Ω$                                                                                                                                   |
| <b>Input resistance:</b>                    | $10^{12} Ω$                                                                                                                                      |
| <b>Electrode socket:</b>                    | BNC-socket or Cinch-socket                                                                                                                       |
| <b>Option: on site display</b>              | approx. 10 mm high, 4-digit LCD-display                                                                                                          |
| <b>Working temperature:</b>                 | 0 ... +50 °C (electronic)                                                                                                                        |
| <b>Storage temperature:</b>                 | -20 ... +70 °C                                                                                                                                   |
| <b>Electric connection:</b>                 | elbow-type plug acc. to EN 175301-803/A (IP65)                                                                                                   |
| <b>Housing:</b>                             | ABS (IP65) with the exception of electrode connection sockets. (cpl. IP65 upon request)                                                          |
| <b>Dimensions:</b>                          | 82 x 80 x 55 mm (H x W x D)                                                                                                                      |
| <b>Mounting:</b>                            | with fixing holes for wall mounting (accessible after removal of cover), Mounting distance: 70 x 50 mm (W x H), Fixing screws: max. shaft-Ø 4 mm |

## Option:

- VO:** On site display  
**V2:** Output signal 0 ... 10 V  
**MB...:** Limited measuring range (please state the desired range)

## Ordering example:

## GRMU 2000 MP-BNC-VO:

Redox-measuring transducer with BNC electrode socket and on site display

## Accessories and spare parts:

## GR 105-Cinch

Art. no. 607797

Redox electrode with cinch-plug

## GR 105-BNC

Art. no. 607798

Redox electrode with BNC-plug

## GR 175-BNC

Art. no. 607801

Redox electrode with BNC-plug

## PG 13,5

Art. no. 603205

Thread Adapter, pluggable, Pg 13,5 for sensors with shaft Ø 12 mm  
For pressureless insert

## GRP 100

Art. no. 601424

Redox test solution 220 mV, 100 ml

For additional electrodes and accessories see product catalogue

## LEVEL TRANSMITTER



## LC-S45HM...

Level transmitter (brass)

## LC-S44HM...

Level transmitter (brass)

## LC-K52HK...

Level transmitter (stainless steel)

## General:

A magnet equipped float activates a reed chain inside a tube which is connected to resistors comparable to a potentiometer. The gapless positioning of the sensors provides a continuous signal with good resolution (up to 10 ... 20 mm) and repeatability.

- top assembly
- selectable material combinations
- optional: with user-specific characteristic (for adjustment to tank design)

## Application:

Sensor suitable for: Water, oil, aggressive substances (only LC-K52K...)

## Specifications:

|                               |                                                                                                                     |                |                |                |                |                |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Tube length:</b>           | 250 mm, 500 mm, 750 mm, 1000 mm, 1500 mm and 2000 mm                                                                |                |                |                |                |                |
| <b>Float travel:</b>          | <b>...0250</b>                                                                                                      | <b>...0500</b> | <b>...0750</b> | <b>...1000</b> | <b>...1500</b> | <b>...2000</b> |
| <b>LC-S45M... :</b>           | 190 mm                                                                                                              | 440 mm         | 690 mm         | 940 mm         |                |                |
| <b>LC-S44M... :</b>           |                                                                                                                     |                |                | 930 mm         | 1430 mm        | 1930 mm        |
| <b>LC-K52K... :</b>           | 160 mm                                                                                                              | 410 mm         | 660 mm         | 910 mm         | 1410 mm        | 1910 mm        |
| <b>Division (resolution):</b> | 10 mm (LC-S45..., LC-K52K0250) or 20 mm                                                                             |                |                |                |                |                |
| <b>Output signal:</b>         | 4 ... 20 mA (2-wire) (see option)                                                                                   |                |                |                |                |                |
| <b>Optional:</b>              | 0 ... 10 V (3-wire) (see option)                                                                                    |                |                |                |                |                |
| <b>Auxiliary energy:</b>      | 10 ... 30 V DC (at option Flex: 18 ... 30 V DC)                                                                     |                |                |                |                |                |
| <b>Electrical connection:</b> | elbow-type plug acc. to DIN 43650-A / ISO 4400<br>(at option Flex: 4-pole locked plug M12 x 1)                      |                |                |                |                |                |
| <b>Working temperature:</b>   | 0 ... 85 °C                                                                                                         |                |                |                |                |                |
| <b>Working pressure:</b>      | max. 20 bar (LC-S...), max. 40 bar (LC-K...)                                                                        |                |                |                |                |                |
| <b>Density medium:</b>        | >0.34 g/cm <sup>3</sup> (LC-S45...),<br>>0.44 g/cm <sup>3</sup> (LC-S44...),<br>>0.66 g/cm <sup>3</sup> (LC-K52...) |                |                |                |                |                |

**Mounting position:** vertical, float pointing downwards

**Protection rating:** IP 65

|                         |                          |                  |                  |
|-------------------------|--------------------------|------------------|------------------|
| <b>Dimensions:</b>      | <b>LC-S45...</b>         | <b>LC-S44...</b> | <b>LC-K52...</b> |
| <b>Sensor head:</b>     | ~50 x 50 x 78 mm         | ~60 x 58 x 78 mm | Ø 69 x 78 mm     |
| <b>Tube length:</b>     | according to design type |                  |                  |
| <b>Mounting SW:</b>     | SW 40                    | SW 46            | SW 46            |
| <b>Screw-in thread:</b> | G1 A                     | G1 1/2 A         | G2 A             |
| <b>Float:</b>           | Ø 30 x 45 mm             | Ø 44 x 50 mm     | Ø 52 x 70 mm     |

## Materials

|                        |         |         |                      |
|------------------------|---------|---------|----------------------|
| <b>Housing:</b>        | Ms58    | Ms58    | stainl. steel 1.4571 |
| <b>Switching tube:</b> | Ms58    | Ms58    | stainl. steel 1.4571 |
| <b>Float:</b>          | Spansil | Spansil | stainl. steel 1.4571 |

## Option:

Output signals 4 ... 20 mA (2- or 3-wire), 0 ... 10 V

## Design types:

|                     |               |               |               |               |               |               |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Tube length:</b> | <b>..0250</b> | <b>..0500</b> | <b>..0750</b> | <b>..1000</b> | <b>..1500</b> | <b>..2000</b> |
| <b>LC-S45HM...</b>  | •             | •             | •             | •             |               |               |
| <b>LC-S44HM...</b>  |               |               |               | •             | •             | •             |
| <b>LC-K52HK...</b>  | •             | •             | •             | •             | •             | •             |