

# Operating manual for digital pressure sensors

# GMSD...R, GMSD...A

## Specification (GMSD...R):

	<b>GMSD 2,5 MR</b>	<b>GMSD 25 MR</b>	<b>GMSD 350 MR</b>	<b>GMSD 2 BR</b>	<b>GMSD 10 BR</b>
<b>Measuring range:</b>	-1,999 ... 2,500 mbar (-199,9 ... 250,0 Pa)	-19,99 ... 25,00 mbar (-1999 ... 2500 Pa)	-199,9 ... 350,0 mbar	-1000 ... +2000 mbar	-1,00 ... +10,00 bar
<b>Overload:</b>	max. 200 mbar	max. 300 mbar	max. 1 bar	max. 4 bar	max. 13,5 bar
<b>Resolution:</b>	0,001 mbar (0,1 Pa)	0,01 mbar (1 Pa)	0,1 mbar	1 mbar	0,01 bar
<b>Accuracy:</b> (typ.values)	(0-2,5mbar)	(0-25mbar)	(0-350mbar)	(0-2bar)	(0-10bar)
(hysteresis and linearity)	±0,2%FS	±0,2%FS	±0,2%FS	±0,2%FS	±0,2%FS
(temperature influence from 0-50°C)	±1,0%FS	±0,5%FS	±0,4%FS	±0,4%FS	±0,4%FS
<b>OPTION:</b> higheraccuracy:			±0,1%/±0,2%FS	±0,1%/±0,2%FS	±0,1%/±0,2%FS
<b>Sensor:</b>	piezoresistive relative pressure sensor. Suit. for air and/or non-corrosive and non-ionising gas and liquids. If sensor is to be used in water, use air cushion.				

## Specification (GMSD...A):

	<b>GMSD 1,3 BA</b>	<b>GMSD 2 BA</b>	<b>GMSD 7 BA</b>
<b>Measuring range:</b>	0 ... 1300 mbar abs.	0 ... 2000 mbar abs.	0,00 ... 7,00 bar abs.
<b>Overload:</b>	max. 4 bar abs.	max. 4 bar abs.	max. 10 bar abs.
<b>Resolution:</b>	1 mbar	1 mbar	0,01 bar (10 mbar)
<b>Accuracy:</b> (typ.values)	±0,2%FS (hysteresis and linearity) ±0,4%FS (temperature influence from 0-50°C)		
<b>OPTION:</b> higheraccuracy:	±0.1%FS (hyst.,linearity); ±0.2%FS (temperature influence 0-50°C)		
<b>Sensor:</b>	piezoresistive absolute pressure sensor. For air pressure (barometer), vacuum, absolute pressure. Suitable for air and/or non-corrosive and non-ionising gas and liquids.		

## Specification (GMSD...R, GMSD...A):

<b>Pressure connection:</b>	2 nylon connecting pins for tubes 6 x 1 mm (6 mm outer Ø, 4mm internal Ø)
<b>Electronics:</b>	PC-board with amplifier and data memory for sensor data (measuring data, calibration etc.) integrated in sensor housing
<b>Nominal temperature:</b>	25°C
<b>Working temperature:</b>	0 to +50°C
<b>Relative humidity:</b>	0 to +95%r.h. (non-condensing)
<b>Storage temperature:</b>	-40 to +85°C
<b>Housing:</b>	68 x 32,5 x 15 mm (L x W X D) without connection pin; 68 x 32,5 x 27,5 mm incl. connection pin. ABS housing with integrated suspension eye.
<b>Unit connection:</b>	1m PVC conn. cable screened with integral 6-pinMini-DIN-plug, lockable
<b>Weight:</b>	approx. 75g
<b>EMV:</b>	The GMSD.... corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (89/336/EWG) additional fault: <1%

## How to operate and maintain unit:

- a.) Treat sensor carefully. Use only in accordance with above specification. (do not throw, hit against etc.).  
Protect plug from soiling.
- b.) To disconnect pressure sensor do not pull at the cable but at the plug (to open lock).  
When connecting the sensor make sure that arrows are pointing upwards and that plug is entered into device socket centrally.  
Do not twist plug when entering socket.  
If plug is entered correctly, it will slide in smoothly.  
If plug is twisted or entered incorrectly the connecting pins of the plug can be spoiled by bending or broken. => Plug can no longer be used and connecting cable needs to be replaced.
- c.) Connection diagram for sensor tube connection:

### **For measurements of over pressure (relative pressure sensor):**

- Connect plastic tube with internal dia of 4 mm to cable gland "B". Connection "A" will not be used!

### **For measurements of pressure differences (relative pressure sensor):**

- Connect both plastic tubes with an internal dia of 4 mm to cable gland "B" and "A"; make sure to apply higher pressure to connection "B".

### **For measurements of absolute pressure (absolute pressure sensor):**

- Connect plastic tube with an internal dia of 4 mm to cable gland "A". (Cable gland "B" is not used.)

## **Safety requirements:**

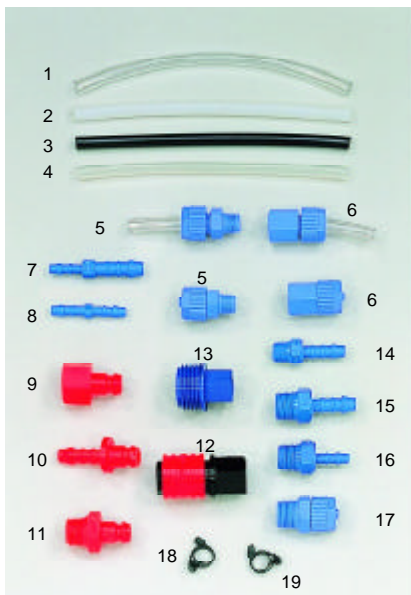
This device has been designed and tested in accordance with the safety regulations for electronic devices.

However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using the device.

1. Trouble-free operation and reliability of the device can only be guaranteed if the device is not subjected to any other climatic conditions than those stated under "Specification".
2. If the device is transported from a cold to a warm environment condensation may result in a failure of the unit. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.
3. If device is to be connected to other devices (e.g. via serial interface) the circuitry has to be designed most carefully. Internal connection in third party devices (e.g. connection GND and earth) may result in not-permissible voltages impairing or destroying the device or another device connected.
4. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting.  
Operator safety may be at risk if:
  - there is visible damage to the device
  - the device is not working as specified
  - the device has been stored under unsuitable conditions for a longer time.

In case of doubt, please return device to manufacturer for repair or maintenance.

## **Accessories (tubes, tube clips and adapters etc.):**



- |   |  |                                   |
|---|--|-----------------------------------|
| 1 = PVC tube  | 5 bar  | 6/4 (6mm outside-Ø, 4mm inside-Ø) |
| 2 = PE (polyethylene)   | 10 bar   | 6/4 (6mm outside-Ø, 4mm inside-Ø) |
| 3 = PU (polyurethane)   | 9 bar  | 6/4 (6mm outside-Ø, 4mm inside-Ø) |
| 4 = PAW (polyamide)   | 25 bar   | 6/4 (6mm outside-Ø, 4mm inside-Ø) |
| 5 = Screw-type glanding for tube  | 6/4 with external thread R <sup>1</sup> / <sub>8</sub> " |                                   |
| 6 = Increaser glanding for tube   | 6/4 with internal thread R <sup>1</sup> / <sub>8</sub> " |                                   |
| 7 = Double reducer for tube with 6 mm inside-Ø to tube 6/4  |  |                                   |
| 8 = Double reducer for tube 6/4 onto tube 6/4   |  |                                   |
| 9 = Coupling adapter with internal thread R <sup>1</sup> / <sub>4</sub> " (suitable for pos. 12)                                |  |                                   |
| 10 = Coupling adapter for tube 6 mm inside-Ø (suitable for pos. 12)   |  |                                   |
| 11 = Coupling adapter with external thread R <sup>1</sup> / <sub>4</sub> " (suitable for pos. 12)                               |  |                                   |
| 12 = Coupler socket (single-hand use) with internal thread R <sup>1</sup> / <sub>8</sub> "                                      |  |                                   |
| 13 = Increaser/reducer with external thread G <sup>1</sup> / <sub>2</sub> " and internal thread G <sup>1</sup> / <sub>8</sub> " |  |                                   |
| 14 = Reducer for tube 6/4 with external thread R <sup>1</sup> / <sub>8</sub> "  |  |                                   |
| 15 = Reducer for tube with 6mm inside-Ø with external thread R <sup>1</sup> / <sub>8</sub> "                                    |  |                                   |
| 16 = Reducer for tube 6/4 with external thread R <sup>1</sup> / <sub>4</sub> "  |  |                                   |
| 17 = Reducer glanding for tube 6/4 with external thread R <sup>1</sup> / <sub>4</sub> "   |  |                                   |
| 18 = Tube clamp for tube 6/4  |  |                                   |
| 19 = Tube clamp for tube with 8mm outside Ø und 6mm inside Ø  |  |                                   |

Other accessories upon request.