Operating Manual for Digital Precision Manometer

GDH 12 AN

CE

Specification:

Measuring range:	0 to 1300 mbar absolute.
Overload:	max. 2 bar abs. (sensor will neither be destroyed nor will a recalibration be necessary)
Resolution:	1 mbar
Accuracy (device)**:**	1 mbar ± 1 digit (at nominal temperature 25°C)
Drift (device)**:**	0.01 % / K
Sensor:	piezoresistive absolute pressure sensor, externally mounted in plastic case, connection terminal for plastic tube 6 x 1 mm (4 mm i.d.), approx. 1 m of 4-wire PVC connecting cable with 4-pin mini DIN plug. Temperature in sensor is compensated from 0 to 70° C. Sensor suitable for non-corrosive and non-ionising gases and liquids (do not use for water - air cushion or hydrophobic filter).
Sensor accuracy: (typ.)	± 0.2% full scale hysteresis and linearity ± 0.4% full scale temperature influence: 0 to 50°C
[Option]: (typ.)	± 0.1% full scale hysteresis and linearity ± 0.2% full scale temperature influence: 0 to 50°C
Operating temperature:	device: 0 to 50°C sensor: -40 to 85°C (temperature in sensor is compensated from 0 to 70° C)
Relative humidity:	0 to 80 % r.F. (non-condensing)
Storage temperature:	-10 to 70°C
Display:	3½ digit LCD-display , approx. 13 mm high
Analog output:	0 - 1 V DC equiv. 0 to 1300 mbar connection over 3.5 mm dia jack connector (plug included in scope of supply)
Power supply:	9V battery, type JEC 6F22 (in scope of supply)
Power consumption:	approx. 5 mA
Mains connection:	2.5 mm socket for external 10 - 12V supply voltage. (suitable power pack: GNG10) Battery will be automatically disconnected as soon as power pack is connected.
Low battery warning:	"BAT" displayed automatically in case of low battery
Dimensions (device):	approx. 150 x 86 x 30 mm (H x W x D), impact resistant ABS plastic housing with integrated pop-up clip for table-top or uspended use.
Dimensions (sensor):	approx. 67.5 x 26 x 15 mm (H x W x D), with suspension eye
Weight:	approx. 340g (device ready for operation)
EMC:	The device 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 error: <1%

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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. Mains operation:
   - When using a power supply device please note that operating voltage has to be 9 to 12 V DC.
     Do not apply overvoltage!! Cheap 12V-power supply devices often have excessive no-load voltage. We, therefore, recommend using regulated voltage power supply devices. Trouble-free operation is guaranteed by our power supply GNG10.
   - Prior to connecting the power supply to the mains make sure that the operating voltage stated at the power supply is identical to the mains voltage.
2. 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.

   Warning: If device is operated with a defective mains power supply (short circuit from mains voltage to output voltage) this may result in hazardous voltages at the device (e.g. sensor socket at interface)
3. 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".
   If the device is transported from a cold to a warm environment condensation may cause in a failure of the function. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.
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 a 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.

What to observe during operation:

a) When to replace battery:

Make sure to apply correct operating voltage as wrong voltage will lead to measuring inaccuracies. As soon as "BAT" is displayed, battery is used up and needs to be replaced.

If the indication is ignored (e.g. device switched on inadvertently for an extended period of time) and battery is very low, the battery voltage may be too low to trigger BAT display. The values in the display may, however, seem to be correct (although they no longer correspond to the analog output voltage) !
In case of measuring faults make it a rule to first of all check battery and replace battery if necessary !

b) Both measuring device and sensor have to be treated carefully and should only be used in accordance with the specifications (do not throw, bump device etc.). Plug and socket have to be protected from soiling.

c) The pressure sensor may be disconnected - do not tear at cable when doing so!
When connecting the sensor the arrow on the plug has to point upwards; make sure to enter the plug centrally into the socket. Plug has to be level when being entered into socket, do not tilt ! In the correct position the plug will easily slide into the socket.
An inaccurate or tilted position when trying to connect the sensor may lead to the connector pins being spoiled by bending or being broken. => Plug can no longer be used and will have to be replaced.

Please note: When exchanging the sensor, the device will have to be re-calibrated for the new sensor!

d) Connection of pressure tube:

For absolute pressure measurement:

- Connect plastic tube with internal diameter of 4 mm to connecting terminal "A";
  connection "B" will not be used!

As the sensor connection terminal is made of plastic, they may break when being handled inexpertly (e.g. bending etc.). To disconnect sensor you should simultaneously tear and turn at the plastic tube.
If tube has to be changed frequently, it is good practice to connect a short tube permanently at the sensor and to use an adapter (accessories) at the open end.

e) The device and the sensor will be calibrated before leaving our works.
If the permissible pressure has been exceeded (overload), recalibration of the device and sensor may be required.
In case you are not in a position to carry out recalibration yourself, please return **both** sensor **and** device to our works.