Operating Manual for Humidity Measuring Device

GRHU - 1R / 1K / 2K (and high humidity)

Specification:

Measuring area: please refer to type plate
Standard: 0 - 100 %RH (rec. range of application: 30 - 80 %RH)
High humidity: 0 - 100 %RH. (rec. range of application: 11 - 90 %RH)

Output signal: please refer to type plate

Sensor: Capacitive thin film sensor (unsuitable for dusty and aggressive media)

Accuracy: (at nominal temperature)

Linearity: Standard: ±2 %RH (from 30 to 80 %RH)
High humidity: ±2 %RH (from 11 to 90 %RH)

Hysteresis: Standard ±1.5 %RH (from 30 to 80 %RH)
High humidity: ±1.0 %RH (from 11 to 90 %RH)

Auxiliary energy: +Vs = 12 - 30 V DC (For 0-10V: +Vs = 18 - 30 V DC)

Reverse voltage protection: 50V permanent

Permissible impedance: 4-20 mA: RA < (Vs - 12V) / 0.02A

Permissible load: 0-1(10)V: RA > 3000 Ohm

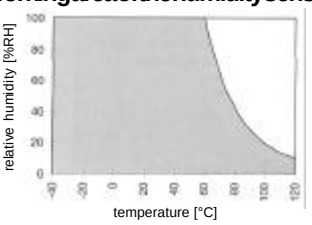
Working temperature: Electronics: 0 to 70°C
Sensors: 0 to 70°C (standard-sensor)
-30 to 120°C (with high temperature OPTION)

Nominal temperature: 25°C

Storage temperature: -20 to +85°C

Relative atmospheric humidity: 0 to 100 % RH (non-condensing)

workingareaofthehumiditysensor:



Housing: ABS (IP65)

Mounting position: Sensor tube pointing vertically downwards, ±90° angle deviation

Sensor tube: Aluminium, Ø 14 mm, anodized
with bronze filter 80-160 µm (for type -HO: plastic protection cap)

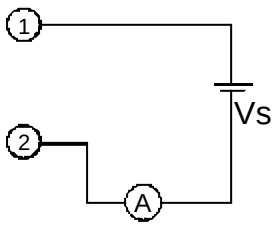
electric connection: Via angle plug according to DIN 43650 (IP65) for cables up to 1,5mm²

Mounting: By means of screw thread or mounting holes in housing (accessible after cover has been removed)

Mounting distance: 50 x 70mm, max. shaft diameter of mounting screws is 4mm

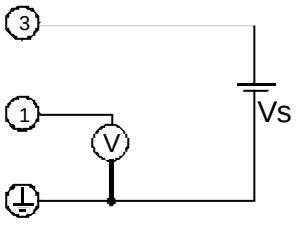
Assignment of Angle Plugs:

2-wire connection (4-20mA)



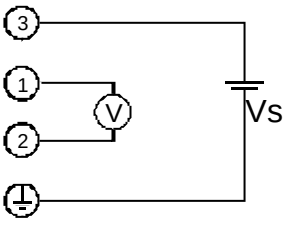
1 = supply voltage +Vs
2 = GND / Signal

3-wire connection (voltage)



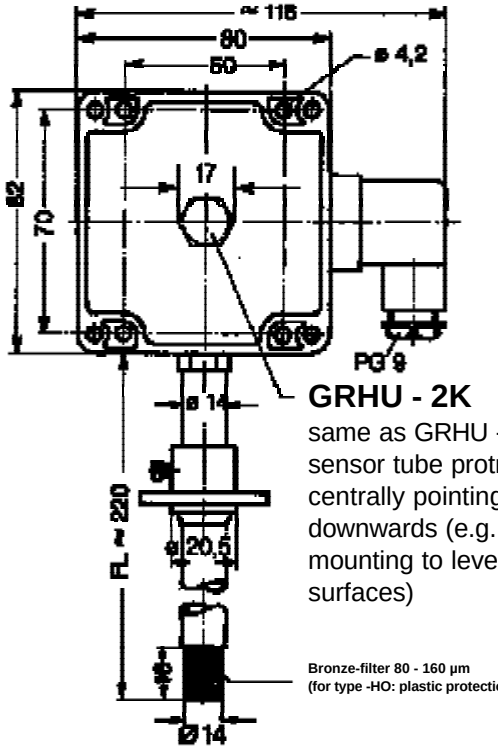
1 = signal +
3 = supply voltage +Vs
⏚ = supply voltage -Vs
signal -

4-wire connection (voltage)



1 = signal +
2 = signal -
3 = supply voltage +Vs
⏚ = supply voltage -Vs

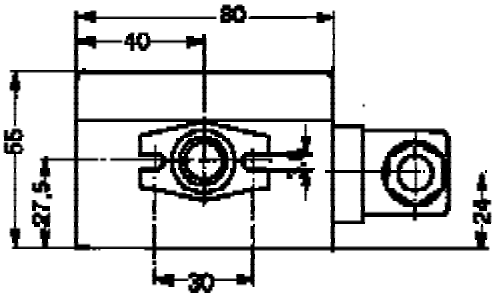
GRHU - 1K



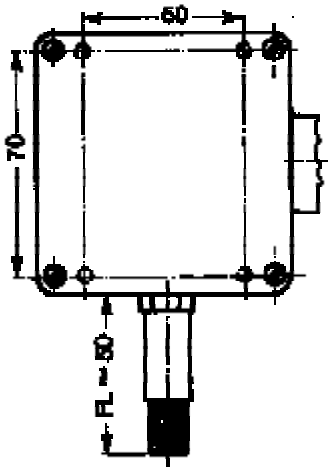
GRHU - 2K

same as GRHU - 1K, but sensor tube protruding centrally pointing downwards (e.g. for direct mounting to level duct surfaces)

Bronze-filter 80 - 160 µm
(for type -HO: plastic protection cap)



GRHU - 1R



General installation instructions:

To mount the connection cable (2-, 3-, or 4-wire depending on type of device) the angle plug screw has to be loosened and the coupling insert has to be removed by means of a screw driver at the position indicated (arrow). Pull out connection cable through PG glanding and connect to the loose coupling insert as described in the wiring diagram. Replace loose coupling insert onto the pins at the transmitter housing and turn cover cap with PG glanding in the direction desired till it snaps on. (4 different starting positions at 90° intervals). Re-tighten the screw at the angle plug.

⚠ Safety instructions:

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". 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.
2. General instructions and safety regulations for electric, light and heavy current plants, including domestic safety regulations (e.g. VDE), have to be observed.
3. If device is to be connected to other devices (e.g. via PC) 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 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.
5. **Warning:** Do not use these product as safety or emergency stop devices, or in any other appli-cation where failure of the product could result in personal injury or material damage.
   Failure to comply with these instructions could result in death or serious injury and material damage.