

# humidity and humidity/temperature transducer

## GRHU ... MP and GHTU ... MP

### General

The newest generation of humidity/temperature transducer offers even greater possibilities to compensate the special sensor characteristics due to the newest micro-processor technology. Regarding precision, temperature stability and functionality a new dimension is entered.

The transducer can be used for almost all applications due to the different types (e.g. wall or channel mount, with separated probe or with heat absorption hat) and the wide temperature range (electronic: -25°C...+50°C; sensor: -40...+120°C).

- on-site display for humidity and temperature
- output ranges freely scaleable
- temperature range up to 120°C
- adjustment by operator possible
- output signals for humidity and temperature are electrically isolated
- available output signals: 4-20mA, 0-1V or 0-10V

### Specification

#### Measuring ranges:

Humidity: 0,0 ... 100,0 %RH (temperature compensated)  
 Temperature: -40,0 ... 120,0 °C or -40,0 ... 248 °F

**Recommended humidity range:** 20,0 ... 80,0 %RH (standard)  
 5,0 ... 95,0 %RH (with option high humidity)

#### Display range options:

*alternativ display and output value instead of humidity measuring value.*

FK: Wet bulb temperature -27,0 ... 60,0 °C  
 TP: Dewpoint temperature -40,0 ... 60,0 °C  
 EP: Enthalpy -25,0 ... 999,9 kJ/kg  
 FG: Atmospheric humidity 0,0 ... 640,0 g/kg

#### Accuracy: (at 25°C and in recommended range)

Display: humidity ±2,5 %RH  
 temperature: ±0,4 % of meas. value ±0,2°C  
 Add. output signal: each ±0,2 % FS

#### Temperature compensation:

automatically

#### Output signal:

**GRHU** 1 x 4-20mA (2-wire), freely scaleable  
**GHTU** 2 x 4-20mA (2-wire), freely scaleable  
 option: 0-1V, 0-10V (other output signals upon request)

#### Connection:

4 - 20 mA (2-wire) note for GHTU:  
 output signals are electrically isolated from each other  
 for option AV01, AV10: 0 - 1 (10) VDC (3-wire) note for GHTU:  
 output signals are not electrically isolated from each other  
 for option AV01G, AV10G: 0 - 1 (10) Volt (3- or 4-wire) note for GHTU:  
 output signals are electrically isolated from each other

#### Auxiliary energy:

Reverse voltage protection: 50V, permanently

Perm. impedance (at 4-20mA):  $RA [\Omega] = (U_v [V] - 12V) / 0.02 A$

Permissible load (at 0-1(10)V):  $RL [\Omega] > 3000\Omega$

#### Display:

approx. 10 mm high, 4-digit LCD-display,  
 alternating humidity and temperature display

#### Working temperature:

-25 to 50°C (electronics)

#### Sensor head and tube:

-40 to 100°C - for short time up to 120°C

#### Storage temperature:

-25 to 70°C

#### Relative humidity (electronic):

0 to 95 %RH (non-condensing)  
 If there is a risk of condensation due to temperature changes, please use our encapsulated or lacquered types (optionally available).

#### Housing:

ABS (IP65)

#### Sensor tube:

tube 14 mm Ø, with screw-type protection cap

#### Sensor length:

50 mm (...1R) or 220 mm (...1K, ...2K)  
 option: 300mm, 400mm, 500mm

#### Electric connection:

elbow-type plug acc. to DIN 43650 (IP65),

#### Mounting:

4 housing holes for wall mounting or  
 by means of plastic tube clamps for duct mounting

#### Functions:

min-/max-value memory,  
 offset and slope adjustable,  
 output signal scaleable

### Design types

#### Surface mounting

Sensor tube at the side  
 Tube Length: 50mm

Design type: ...-1R

#### Duct mounting

Sensor tube at the side  
 Tube Length: 220mm

Design type: ...-1K

#### Duct mounting

Sensor tube downwards  
 Tube Length: 220mm

Design type: ...-2K



### Prices - humidity transducer

**GRHU - 1R - MP** (sensor tube at the side, FL = 50mm)

**GRHU - 1K - MP** (sensor tube at the side, FL = 220mm)

**GRHU - 2K - MP** (sensor tube pointing downwards, FL = 220mm)

### Prices - humidity / temperature transducer

**GHTU - 1R - MP** (sensor tube at the side, FL = 50mm)

**GHTU - 1K - MP** (sensor tube at the side, FL = 220mm)

**GHTU - 2K - MP** (sensor tube pointing downwards, FL = 220mm)

### Options / upcharges

- **HO: High-humidity sensor** upcharge:  
 (for humidity measuring < 20 %RH and > 80 %RH)

*Note: Upon ordering the range of application can be stated, for this the device will be optimised free of charge (e.g. 10-40% or 60-90%).*

- **FK, TP, EP, FG:** optional display range upcharge:

- **LACK: Encapsulated PC board** upcharge:  
 (for outdoor application, i.e. applications where condensation is possible)

- **FL300, FL400, FL500:** upcharge:  
 (Extra long sensor tube - no interim lengths possible)

- **AV01: output signal 0-1V** (note: please refer to connection) upcharge:

- **AV01G: output signal 0-1V** (note: please refer to connection) upcharge:

- **AV10: output signal 0-10V** (note: please refer to connection) upcharge:

- **AV10G: output signal 0-10V** (note: please refer to connection) upcharge:

- **KABEL: with separated sensor tube** upcharge:  
 Sensor tube (Ø14x 68mm) connected to device via 1m teflon cable.  
 Inclusive option high-humidity sensor  
 (Ordering note: specifying the design type (e.g. -1R) is unnecessary)

- **SHUT: heat absorption hat / weather protection shield** upcharge:  
 (Ordering note: specifying the design type (e.g. -1R) is unnecessary)



#### Application:

The heat absorption hat is especially designed for measurements in the open air. The measuring results that can be achieved will not be influenced by either sun or rain.

#### Design:

Heat absorption hat made of plastic, dia 110 mm, approx. 140 mm high. Additionally equipped with a stainless steel base for wall mounting, with 3 fixing holes for screws with a max. shaft Ø of 5 mm. Large projection approx. 160 mm.

### Order code (examples)

**GHTU-2K-MP / AV10, FL300:** GHTU-2K-MP, 0-10V, FL = 300 mm

**GRHU-MP / KABEL, HO:** GRHU-MP, with separated sensor tube and high humidity sensor

### Spare / accessory parts

**Spare protection cap** with stainless steel gauze  
 (105µm mesh size) - for standard and high humidity use

**Bronze filter** (not for use in high humidity)