

Humidity



Characteristics

System	Capacitive humidity measurement, temperature measurement via Pt100/Pt1000 Sensor
Evaluation	Integrated transmitter with output for standard signals
Indicator	LCD-display
Mounting mode	Field case, duct shape, rod shape

Applications

- Indoor climate monitoring
- Cool- and stockrooms
- Greenhouses
- Food applications

Product information

Humidity

Function

The GHTU and RF90 are used for long-term monitoring, monitoring room air conditioning and the monitoring of warehouses. They are offered with 1.5 m connection cables, plastic connection casing or with sturdy aluminium connection head and screw terminals to measure the relative humidity and temperatures in non-aggressive gases.
 Due to the sturdy surface-mounted casing, the measuring transducers are particularly suitable for use in industry.

Advanta

+e

- Compact Design
- integrated LCD display
- Device for high humidity recommended measuring range 5..95% r.h
- Accessories for high humidity and outdoor applications

Device overview

Device	Measuring ranges	Model	Output	Page
GHTU	0..100 % r.h. -40.0..+100 °C	Wall mounting, duct mounting	4..20 mA, 0..1 V DC, 0..10 V DC	3
RF90	0..100 % r.h. -30..+70 °C	Wall mounting, duct mounting	4..20 mA, 0..10 V DC	5

Mistakes reserved, technical specifications subject to change without notice.

Product information

Humidity

Humidity / Temperature Transmitter incl. Sensor GHTU



- On-site display for humidity and temperature
- Output signals freely scalable
- Several design types

Characteristics

The EBHT is used for long-term monitoring, indoor climate monitoring and monitoring of storage rooms. The sensor module is particularly suitable for industrial applications due to its robust surface-mounted housing.

Due to the availability of several design types (like e.g. for surface or duct mounting, with sensor in distance to housing or with weather protection shield) the GHTU are appropriate for almost all applications.

The housing of the module is made of robust ABS. The modules have an on-site display, therefore direct configuration is possible.

Design types

	1R	1K	2K	KABEL	SHUT
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Design type	surface design	surface / duct design	duct design	surface design with cable	surface design with weather proofing
Length of probe / cable / hat	EL = 50 mm	EL = 220 mm	EL = 220 mm	in distance to housing, 1 m Teflon cable	Hat = 82 mm
outlet probe / cable	on the side	on the side	bottom	on the side	bottom

Other features

- 1R / 1K / 2K : unscrewable protective cap with gauze filter insert made of stainless steel (105 µm mesh size)
- KABEL : includes high humidity sensor (HO) and varnished board (LACK) by default
- SHUT : weather protection shield made of plastic, reduces distortions by sun / rain, includes high humidity sensor (HO) and varnished board (LACK)

Technical data

Measuring ranges Humidity: Standard High humidity	0.0..100.0 % RH recomm. measuring range: 20..80 % RH recomm. measuring range: 5..95 % RH
Temperature	-40.0..+100 °C; 120.0 °C < 1min (-40.0..+248.0 °F)
Measuring sensors	capacitive polymer humidity sensor and Pt1000
Accuracy Humidity Temperature	±2.5 % RH (at recomm. measuring range) ±0.4 % of m.v. ±0.2 °C
Electric connection	elbow-type plug EN 175301-803/A, output 2-wire, max. 1.5 mm ² each
Output signal	2x 4..20 mA, 0..1 V, 0..10 V, freely scalable
Power supply	12..30 V DC for 4..20 mA or 0..1 V 18..30 V DC for 0..10 V
Permissible burden	$R_A [Ω] = (U_V [V] - 12 V) / 0.02 A$
Permissible load	$R_L [Ω] > 3000 Ω$
Display	10 mm high, 4-digit LCD-display
Housing	ABS, working temperature: -20..50 °C
Protection class	IP65 (housing)

continued on next page

Dimensions

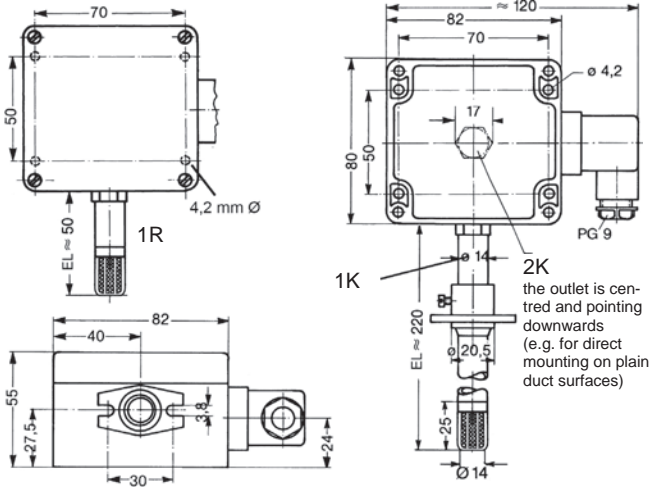
- 1R / 1K / 2K : 82 x 80 x 55 mm (H x W x D) (without probe/plug) tube-Ø 14 mm
- KABEL : 82 x 80 x 55 mm (H x W x D)

Product information

Humidity

SHUT

(without probe/plug)
 probe tube in distance to housing,
 sensor head (Ø 14 x 68 mm)
 : 82 x 80 x 55 mm ((H x W x D)
 (without probe/plug)
 shield Ø 110 mm, height 140 mm



	output signals are electrically isolated
AV2	0..1 V, freely scalable, output signals are not electrically isolated
AV3	0..10 V, freely scalable, output signals are not electrically isolated
GV2	0..1 V, freely scalable, output signals are electrically isolated
GV3	0..10 V, freely scalable, output signals are electrically isolated
4. Option (general) (combination of multiple options possible)	
00	without option
LACK	board varnished on both sides (for outdoor usage) standard for types KABEL and SHUT
UNI	selectable humidity display unit Instead of displaying and output the standard humidity value you can change to one of the fol- lowing values via interface or VO-display: <ul style="list-style-type: none"> • wet bulb temperature • dew point temperature • enthalpy • atmospheric humidity • absolute humidity

Ordering example:
 GHTU-KABEL-MP-HO-000-GA1-LACK-UNI

Ordering code

1. 2. 3. 4.
 GHTU - - MP - - -

1. Design type	
1R	Surface design
1K	Surface / duct design
2K	Duct design
KABEL	Surface design with cable (incl. HO + LACK)
SHUT	Weather protective shield / heat-protective hat (incl. HO + LACK)
2. Option (sensor)	
00	standard sensor (standard for 1K, 1R and 2K) (recomm. measuring range: 20..80 % RH)
HO	high temperature sensor (standard for KABEL and SHUT) (recomm. measuring range: 5..95 % RH)
3. Fitting length EL	
000	without fitting length (for KABEL / SHUT)
050	length = 50 mm (standard for type 1R)
220	length = 220 mm (standard for type 1K / 2K)
300	length = 300 mm
400	length = 400 mm
500	length = 500 mm
4. Output signal	
GA1	4..20 mA, freely scalable,

Accessories / Spare parts

Spare protective cap

made of plastic with gauze filter insert made of stainless steel
 (suitable for standard and high humidity)

Brass filter

(not suitable for high humidity)

Product information

Humidity

**Humidity transmitter
 RF90**

Dimensions / connection diagrams

Rod shape

Wall mounting

Duct mounting



- Capacity measurement for non aggressive gases
- Analogue outputs 4..20 mA or 0..10 V DC
- Good dynamic performance
- Resistance against dew formation
- Operating temperature -20..80 °C

Characteristics

Humidity-/temperature sensors of the series RF compact, versatile sensors in a rod-type design. They are available with a 1.5 m connecting cable without cable (or with a robust aluminum connecting head and terminal screws for measuring relative humidity, relative humidity and temperature or temperature in air and other non-aggressive gases. The advantages of the series RF are its improved dynamics, in particular at low air speeds and also its increased service life.

For extreme applications (near the sea, desert, mountains, areas with high air speed etc.) we recommend our stainless steel sinter filter

Technical data

Power supply

- Supply voltage : 24 V DC ±10 %
- Current output : 12..30 V DC
- Voltage output : 24 V DC ±10 %
- Operating temperature : -1,-3 : -30..+70 °C
- : -2 : -20..+80 °C
- Ambient temperature : -40..+80 °C
- CE-conformity : EN 60730-1:2012; EN60730-2-13:2008;
 EN60730-2-9:2011; EN 61326-1:2013;
 EN 61326-2-3:2013

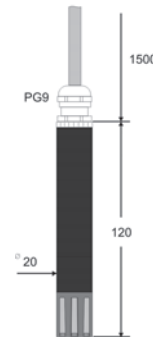
Output

- Humidity : 4..20 mA or 0..10 V DC
- Measuring range : 0..100 % r.h.
- Measuring element : FE09/1
- Accuracy : ±2 % r.h.
- Temperature : 4..20 mA or 0..10 V DC
- Measuring range : -30..+70 °C
- Measuring element : Pt100 class B
- Accuracy : ±0.3 K
- Burden current : 500 Ω at 24 V DC
- Load voltage : ≥10 kΩ
- Measuring delay : 60 s at airspeed 1 m/s
 for humidity and temperature

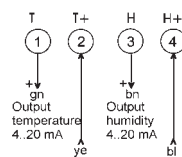
Protection class

- Sensor : IP30 (standard with gauze filter)
- Case : IP54
- Terminal head : IP65
- Dew formation and splashes do not damage the sensor

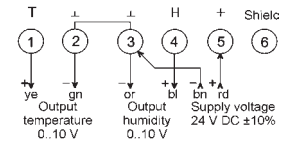
RF90-1-X



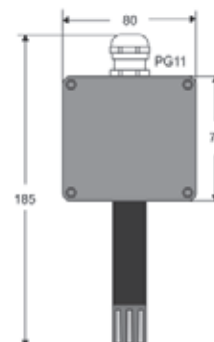
2-wire 4..20 mA



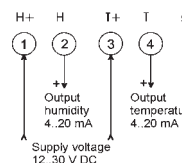
3-wire 0..10 V DC



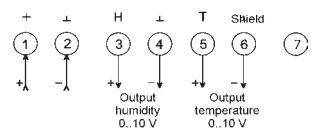
RF90-2-X



2-wire 4..20 mA

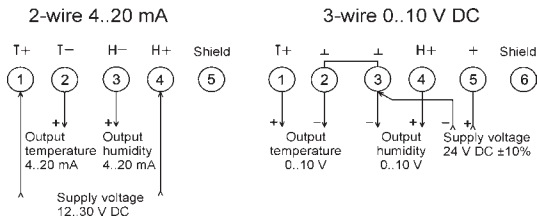
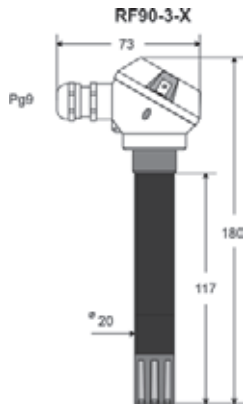


3-wire 0..10 V DC



Product information

Humidity



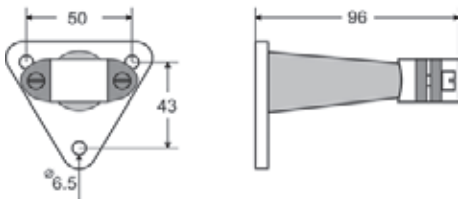
Ordering code

RF90 - 1. - 2.

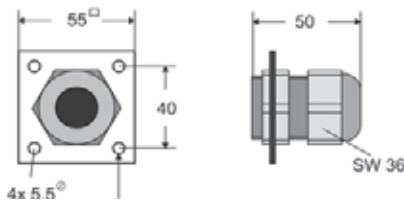
1. Model		
1	rod shape with 1.5 m connection cable	
2	wall mounting	
3	duct mounting	
2. Output		
1	rel. humidity	0..10 V DC
2	rel. humidity	4..20 mA
3	rel. humidity & temperature	0..10 V DC
4	rel. humidity & temperature	4..20 mA
Accessories		
B90	attachment plate	
W90	console for wall mounting	
F90	protection filter sintered (for dust ambient)	
FG90	protection filter Goretex (for outdoor using)	

Accessories

Console for wall mounting W90



Attachment plate B90



Protective basket F90
 stainless steel sinter filter



Protective basket FG90
 gauze filter



Product information

Humidity

Product Overview

„Industrial Sensors and Instrumentation“

- Temperature
- Flow
- Level / Filling Height
- Analysis
- Humidity
- Pressure
- Weighing Instruments



„Process Instrumentation “Hygienic Design“

- GHMadapt
- Temperature
- Flow
- Level / Filling Height
- Analysis



“Laboratory Instrumentation“



„Industrial Electronics“

- Displays / Controller
- Transmitter / Signal conditioning
- Isolating converters
- Safety and Monitoring Devices
- Power Electronics
- Calibration and Testing



“Measuring Data Acquisition“

- Data Logging and Monitoring
- Test Bench Measurement Technology
- Renewable Energies

