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GREISINGER GHTU-MP-KABEL-UNI Transmitter For Humidity Temperature Instruction Manual

Contents

GREISINGER

GREISINGER GHTU-MP-KABEL-UNI Transmitter For Humidity Temperature

Product Information

Specifications

- **Model**: H20.0.0X.6C1-11
- Transmitter for humidity temperature
- **Option**: selectable humidity display
- **Version**: V3.2

Product Usage Instructions

Intended Use

The device measures the relative humidity and temperature of air or non-corrosive/non-ionizing gases. It can also display derived values based on these measurements. The device is suitable for various applications such as room climate monitoring and monitoring of storage rooms.

General Advice

Before using the device, read through this operating manual carefully to familiarize yourself with its operation. Keep this manual easily accessible for reference in case of any doubts or questions.

Safety Instructions

Follow the safety instructions below to ensure trouble-free operation and reliability of the device:

1. The device should only be used within the specified climatic conditions mentioned in the specifications section. Rapid temperature changes may cause condensation and potentially affect the device's function. Allow the device temperature to adjust to the ambient temperature before starting it again.
2. Observe general instructions and safety regulations for electric, light, and heavy current plants, including domestic safety regulations (e.g., VDE).
3. When connecting the device to other devices (e.g., via PC), ensure careful circuitry design. Improper internal connections in third-party devices may result in voltage issues that can damage the device or other connected devices.
4. If there is any risk involved in running the device, switch it off immediately and mark it accordingly to prevent accidental restart. Return the device to the manufacturer for repair or maintenance in case of visible damage, non-compliance with specifications, or unsuitable storage conditions.
5. **Warning**: This product should not be used as a safety or emergency stop device or in any application where failure couldresult in personal injury or material damage.

FAQ

- **Q: Can the device measure relative humidity and temperature of gases?**
  - **A**: Yes, the device can measure the relative humidity and temperature of air or non-corrosive/non-ionizing gases.
- **Q: What are some applications for this device?**
  - **A**: This device is suitable for room climate monitoring and monitoring of storage rooms, among other applications.
- **Q: What should I do if there is visible damage to the device or it is not working as specified?**
  - **A**: In case of visible damage or non-compliance with specifications, please return the device to the manufacturer for repair or maintenance.
- **Q: Can I use this product as a safety or emergency stop device?**
  - **A**: No, this product should not be used as a safety or emergency stop device or in any application where failure could result in personal injury or material damage.

Intended use

- The device measures the relative humidity and temperature of air or non corrosive / non ionizing gases. From this values others can be derived and displayed instead of the rel. humidity.
- Field of application
- Room climate monitoring
- Monitoring of storage rooms etc…

- The safety instructions have to be observed.
- The device must not be used for purposes and under conditions for that the device had not been designed. The device must carefully dealt with and has to be used according to the specifications (do not throw, knock, etc.). It has to be protected against dirt.
- Do not expose the sensor to aggressive gases (like ammonia) for longer time.
  Avoid condensation, as after drying there may remain residues, which may affect the precision negatively. In dusty environment additional protection has to be applied (special protection caps).

General advice

Read through this document attentively and make yourself familiar to the operation of the device before you use it. Keep this document in a ready-to-hand way in order to be able to look up in the case of doubt.

Safety instructions

This device has been designed and tested in accordance to 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 it.

1. Trouble-free operation and reliability of the device can only be guaranteed if it is not subjected to any other climatic conditions than those stated under "Specification".
   - Transporting the device from a cold to a warm environment condensation may result 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. Whenever there may be 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 this product as safety or emergency stop device or in any other application 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.
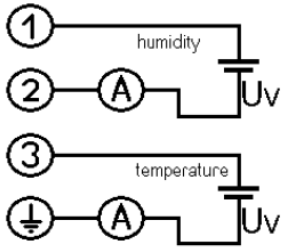
Disposal notes

This device must not be disposed as "residual waste".
To dispose this device, please send it directly to us (adequately stamped). We will dispose it appropriately and environmentally friendly.

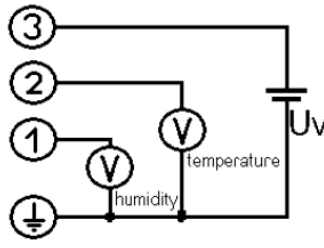### Assignment of elbow-type plug (depending on type)

4-20mA (2-wire connection)

1 = supply voltage +Uv (humidity value*)
2 = GND / signal (humidity value*)
3 = supply voltage +Uv (temperature)
⏚ (4) = GND / signal (temperature)

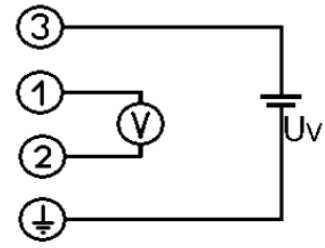## voltage, not electrically isolated (3-wire connection)

(1 combined elbow type plug for both signals)

1 = signal + (humidity value*)
2 = signal + (temperature)
3 = supply voltage +Uv
⏚ (4) = supply voltage -Uv

voltage, electrically isolated (3- resp. 4-wire connection)

(2 elbow type plugs: right plug is for humidity value , left plug is for temperature)*

1 = signal + (humidity value* or temp.)
2 = signal - (humidity value* or temp.)
3 = supply voltage +Uv
⏚ (4) = supply voltage –Uv
(note: ⏚ and 2 are connected internally)

The type "current-" or "voltage output" is set by works and cannot be changed.
ATTENTION: If the humidity circuit is not supplied, the temperature output won't give a valid signal! *) humidity value can be selected: rel. humidity, dew point temperature etc.

General installation instructions

- To mount the connection cable (2-, 3-, or 4-wire depending on type of device) the elbow-type 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 gland and connect to the loose coupling insert as described in the wiring diagram. Replace loose coupling insert onto the pins at the transducer housing and turn cover cap with PG gland in the direction desired till it snaps on (4 different starting positions at 90° intervals). Re-tighten the screw at the angle plug.

Design types, dimension

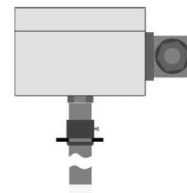#### Design type with 4-20mA output or voltage with not isolated outputs

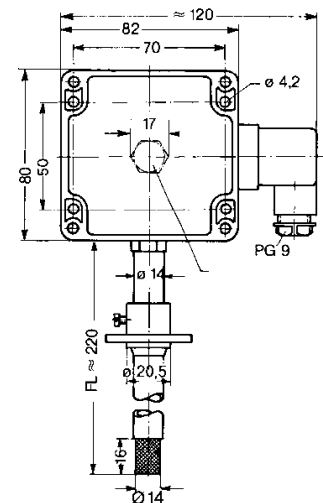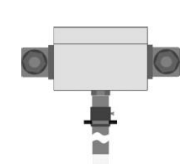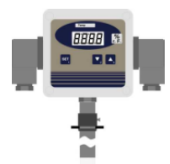| GHTU-1R-MP	GHTU-1K-MP	GHTU-2K-MP	GHTU-MP-Kabel
short sensor tube aside	*long sensor tube aside*	*long sensor tube bottom*	*separated sensor tube*
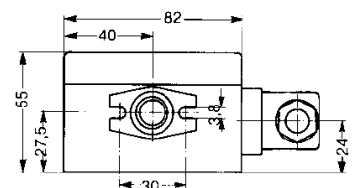
At design types with electrically isolated voltage outputs there are plugs at both sides (right plug for humidity, left plug for temperature)
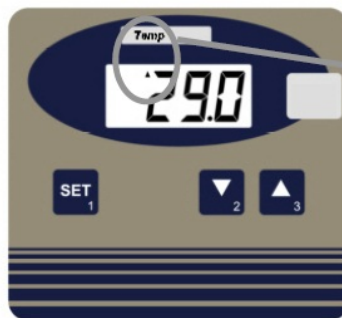
Display Functions

Measuring display

During normal operation the selectable humidity display value is displayed alternating to the temperature in [°C] or [°F].

Arrow to "Temp" indicates temperature display

display of selectable humidity value   display temperature

If the relative humidity in [%] should be shown, although other display is selected (e.g. dew point temperature, mixing ratio…):

press ▼ and ▲ simultaneous display changes between 'r.H.' and measurand

Min/Max Value Memory

- **watch Min values (Lo):** press ▼ shortly once / display changes between 'Lo' and Min values
- **watch Max values (Hi):** press ▲ shortly once /display changes between 'Hi' and Max values
- **restore current values**: press ▼ or ▲ once again /current values are displayed
- **clear Min-values**: press ▼ for 2 seconds /Min values are cleared. Display shows shortly 'CLr'.
- **clear Max-values**: press ▲ for 2 seconds /Max values are cleared. Display shows shortly 'CLr'

After 10 seconds the currently measured values will be displayed again.

Usage of Unit-Labels
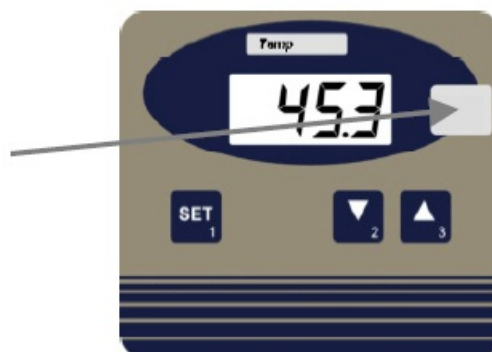
As the transmitter is a multiple purpose device, many different display units are possible, e.g. g/kg, g/m3.
Therefore unit-labels (within scope of supply) can be shoved between the case cover and the front foil behind the transparent unit-window.
To replace a label, unscrew the cover, pull out the old label (if present) and shove in the new one.
The unit depends on the configuration settings "Unit"!
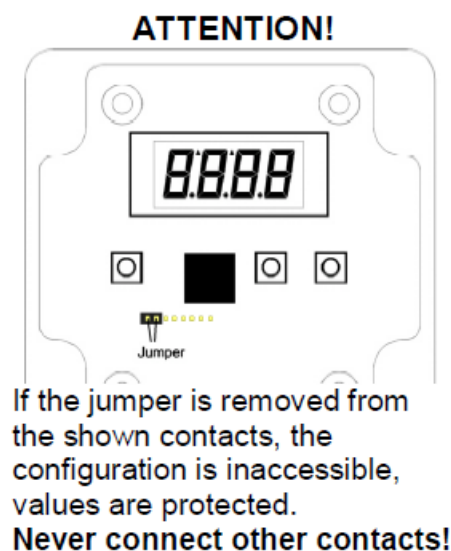Please refer to table in chapter "10 Configuration of the device"

Error and system messages

Display	Description	Possible fault cause	Remedy
Err.1	Measuring range exceeded	Wrong signal	Temperature above 120°C not allowed.
Err.2	Measuring value below measuring range	Wrong signal	Temperature below -40°C not allowed.
Err.3	Display range has been exceeded	Value >9999	Check settings
Err.7	System fault	Error in device	Disconnect from supply and reconnect. If error remains: return to manufacturer
Err.9	Sensor error	Sensor or cable defective	Check sensors, cable and connections, damages visible?
Er.11	Calculation not possible	Calculation variable missing or invalid	Check temperature
8.8.8.8	Segment test	The transducer performs a display test for 2 seconds after power up. After that it will change to the display of the measuring.	

Configuration of the device

Follow these instructions to configure the functions of the device:

- Press SET until the first parameter ⎍⋂⋂⏚ UNIT appears in the display
- If a parameter should be changed, press ▼ or ▲,
- The device changed to the setting – edit with ▼ or ▲
- Confirm the value with SET
- Jump to the next parameter with SET.

ATTENTION!

If the jumper is removed from the shown contacts, the configuration is inaccessible, values are protected.
Never connect other contacts!

Parameter	value	information	
SET	▼ and ▲		
Unit	**Unit and Range of humidity display** *factory setting: rel.H*		
	reL.H	0.0 100.0 % relative air humidity	
	F.AbS	0.0 ... 200.0 g/m^3 absolute humidity	
	FEU.t	-27.0 ... 60.0 °C wet bulb temperature	
	t.d.	-40.0 ... 60.0 °C dew point temperature	
	Enth	-25.0 ... 999.9 kJ/kg Enthalpy	
	F.G.	0.0 ... 640.0 g/kg Mixing ratio (atmospheric humidity)	
Unit + Temp arrow	**Unit of temperature displays** *factory setting: °C*		
	°C	Temperatures in °Celsius	
	°F	Temperatures in °Fahrenheit	
Out.0	**Display at zero output of humidity display value (output scaling)**		
	-xxx.0 ... +xxx.0	Entry of display value at which the humidity output should deliver 4 mA (or 0V) *(factory setting: 0.0)*	
Out.1	**Display at maximum output for humidity display value (output scaling)**		
	-xxx.0 ... +xxx.0	Entry of display value at which the humidity output should deliver 20 mA (or 1 V / 10 V) *(factory setting: 100.0)*	
Out.0 + Temp arrow	**Display at zero output of temperature display value (output scaling)**		
	-xxx.0 ... +xxx.0	Entry of display value at which the temperature output should deliver 4mA (or 0V) *(factory setting: 0.0)*	
Out.1 + Temp arrow	**Display at maximum output for temperature display value (output scaling)**		
	-xxx.0 ... +xxx.0	Entry of display value at which the temperature output should deliver 20 mA (or 1 V / 10 V) *(factory setting: 70.0)*	
OFFS	**Offset correction of humidity measuring *)**		
	oFF	deactivated *(factory setting)*	
	-5.0 ... +5.0	Selectable from -5.0 to +5.0 % rel. humidity	
SCAL	**Scale correction of humidity measuring *)**		
	oFF	deactivated *(factory setting)*	
	-15.00 ... +15.00	Selectable from -15.00 to +15.00 % scale correction	
OFFS + Temp arrow	**Offset correction of temperature measuring *)**		
	oFF	deactivated *(factory setting)*	
	-2.0 ... +2.0	Selectable from -2.0 to +2.0 °C (or -3,6 to +3.6 °F)	
SCAL + Temp arrow	**Scale correction of temperature measuring *)**		
	oFF	deactivated *(factory setting)*	
	-5.00 ... +5.00	Selectable from -5.00 to +5.00 % scale correction	
ALti	**Altitude input (not at all units available)** *factory setting: 340*		
	-500 ... 9000	-500 ... 9000 m selectable	

Pressing SET again stores the settings, the instruments restart (segment test)

Please note: If there is no key pressed within the menu mode within 2 minutes, the configuration will be canceled, the entered settings are lost!
if higher values are needed, please check the sensor, if necessary return to the manufacturer for inspection.
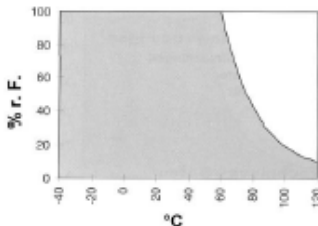

Calculation: corrected value = (measured value – Offset) * (1+Scale/100)

Notes to the calibration services

- Calibration certificates – DKD-certificates – other certificates:
- If the device should be certificated for its accuracy, it is the best solution to return it with the referring sensors to the manufacturer. (please state desired test values, e.g. 70 %RH)
- Only the manufacturer is capable to do efficient recalibration if necessary to get results of the highest accuracy! Humidity transmitters are subject to ageing. For optimum measuring precision we recommend a regular adjusting at the manufacturer (e.g. every 2nd year). Cleaning and checking of the sensors is part of the service.

Specification

Display ranges humidity	Relative air humidity: 0.0...100.0 %RH
	Wet bulb temperature: -27.0 ... 60.0 °C (or -16,6 ... 140,0 °F)
	Dew point temperature: -40.0 ... 60.0 °C (or -40,0 ... 140,0 °F)
	Enthalpy: -25.0 ... 999.9 kJ/kg
	Mixing ratio (atmospheric humidity): 0.0 ... 640.0 g/kg
	absolute humidity: 0.0 ... 200.0 g/m³
Recommended humidity measuring range	Standard: 20.0 ... 80.0 %RH
	Option "high humidity": 5.0 ... 95.0 %RH
Meas. range temperature	-40.0 ... 120.0 °C or -40.0 ... 248.0 °F
Accuracy Display	(at nom. temperature 25°C)
	Rel. Air humidity: ±2.5 %RH (within recom- mended measuring range)
	Temperature: ±0.4% of meas. value. ±0.2°C
Add. Output signal	± 0.2% FS
Media	Non corrosive gasses
Sensor	capacitive polymer humidity sensor and Pt1000
Temperature compensation	automatic
Meas. frequency	1 per second
Adjusting	Digital offset and scale adjustment for humidity and temperature
Min-/Max-value memory	Min and max measured values are stored
Output signals	refer to type plate,
Scaling	both freely scalable by entering display values for 4mA (resp. 0V) and 20mA (resp. 1V/10V) output
Connection	4 - 20 mA (2-wire) – output signals are electrically isolated from each other
For option AV01, AV10	0 - 1 (10) V (3-wire) – output signals are not electrically isolated from each other
For option AV01G, AV10G	0 - 1 (10) V (3- / 4-wire) – output signals electrically isolated from each other
Auxiliary energy:	4 - 20 mA: Uv = 12 - 30 V DC
(supply voltage, each output)	0-1V: Uv = 12 - 30 V DC, max. 10mA
	0-10V: Uv = 18 - 30 V DC, max. 10mA
Perm. impedance	4 - 20 mA: R_A(Ohm) < ((Uv - 12V) / 0,02A)
	example: for Uv = 18V: R_A < (18V - 12V) / 0,02A => R_A < 300 Ohm
Permissible load	0 - 1 (10) V: R_L (Ohm) > 3000 Ohm
Display	approx. 10 mm high, 4-digit LCD-display
Operating elements	3 keys
Ambient conditions	
Nom. temperature	25°C
Operating temperature	Electronics: -25 ... 50 °C, sensor head and shaft: -40 ... 100 °C, short time 120 °C
	for Option "SHUT": sensor head max. 80 °C
Relative humidity	Electronics: 0 ... 95 %RH (not condensing)
Storage temperature	-25 ... 70 °C
Housing	ABS (IP65, except sensor head)
Dimensions	82 x 80 x 55 mm (without elbow-type plug and sensor tube)
	for Option "Kabel": Sensor head Ø14mm*68mm, 1m teflon cable, high humidity sensor
Mounting	Holes for wall mounting (in housing - accessible after cover has been removed).
Mounting distance	50 x 70 mm, max. shaft diameter of mounting screws is 4 mm
Electrical connection	Elbow-type plug conforming to DIN 43650 (IP65),
	max. wire cross section: 1.5 mm², wire/cable diameter from 4.5 to 7 mm
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 (2004/108/EG). In accordance with EN 61326-1: 2006, additional errors: <1 % FS. When connecting long leads adequate measures against voltage surges have to be taken.

Working range of humidity sensor:

GHM Messtechnik GmbH

- Standort Greisinger Hans-Sachs-Str. 26
- D-93128 Regenstauf
- +49 (0) 9402 / 9383-0
- +49 (0) 9402 / 9383-33
- info@greisinger.de

Documents / Resources

GREISINGER GHTU-MP-KABEL-UNI Transmitter For Humidity Temperature [pdf] Instruction Manual
GHTU-MP-KABEL-UNI Transmitter For Humidity Temperature, GHTU-MP-KABEL-UNI, Transmitter For Humidity Temperature, Humidity Temperature, Temperature

References

- Ⓜ **Manual-Hub.com - Free PDF manuals!**
- **User Manual**