

GREISINGER electronic GmbH

Transmitter for

temperature

from version V3.2

Operating Manual

GTMU - MP

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1 Intended use

The device measures the temperature of air or non corrosive / non ionizing gases.

The safety instructions (see chapter 3) 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).

2 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.

3 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 timeIn 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.

4 Disposal notes



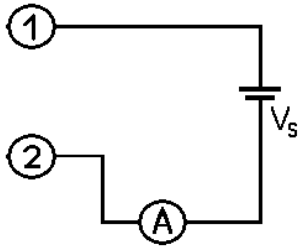
This device must not be disposed as "residual waste".

To dispose this device, please send it directly to us (adequately stamped).

We will dispose it appropriately and environmentally friendly.

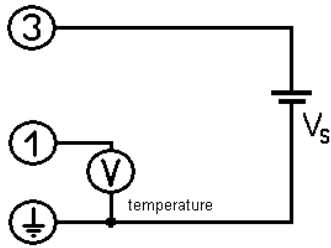
5 Assignment of elbow-type plug (depending on type)

4-20mA (2-wire connection)



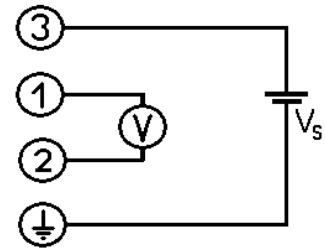
- 1 = supply voltage +Uv
- 2 = GND / signal

voltage (3-wire connection)



- 1 = signal +
- 3 = supply voltage +Uv
- ⊥ (4) = supply voltage -Uv
signal -

voltage (4-wire connection)



- 1 = signal +
- 2 = signal -
- 3 = supply voltage +Uv
- ⊥ (4) = supply voltage -Uv

The type "current-" or "voltage output" is set by works and cannot be changed.

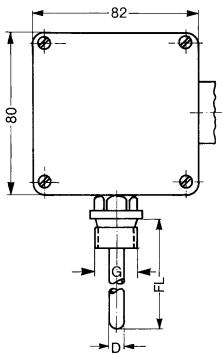
6 General installation instructions:

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).

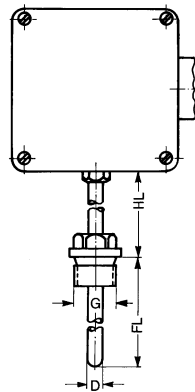
Pull out connection cable through PG gland and connect to the loose coupling insert as described in the wiring diagram. Replace loose coupling insert onto the pins at the transducer housing and turn cover cap with PG gland in the direction desired till it snaps on (4 different starting positions at 90° intervals). Re-tighten the screw at the angle plug.

7 Design types, dimension

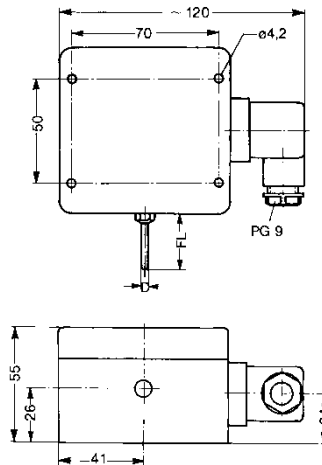
design-type 1



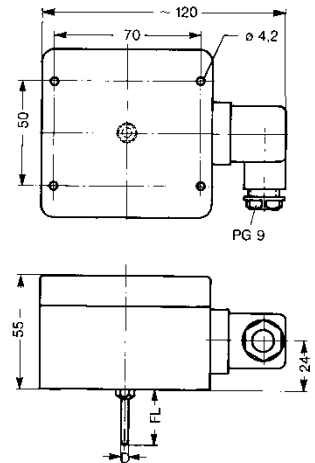
design-type 2



design-type 3



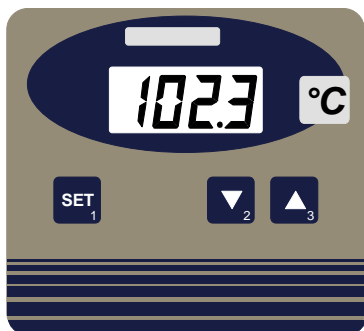
design-type 4



8 Display Functions

8.1 Measuring display

During normal operation the **temperature** in [°C] or [°F] is displayed.



8.2 Min/Max Value Memory

watch Min values (Lo): press ▼ shortly once
 watch Max values (Hi): press ▲ shortly once
 restore current values: press ▼ or ▲ once again
 clear Min-values: press ▼ for 2 seconds
 clear Max-values: press ▲ for 2 seconds

display changes between 'Lo' and Min values
 display changes between 'Hi' and Max values
 current values are displayed
 Min values are cleared. Display shows shortly 'CLr'.
 Max values are cleared. Display shows shortly 'CLr'.

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

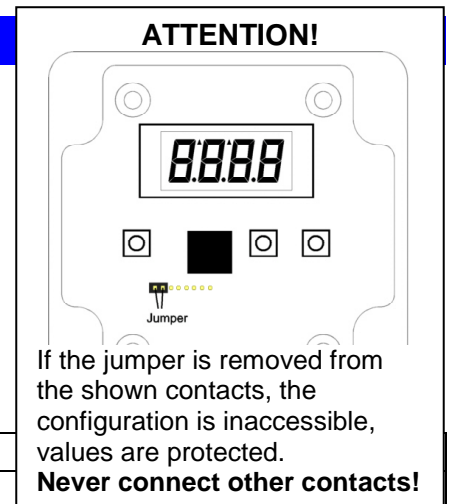
9 Error and system messages

Display	Description	Possible fault cause	Remedy
Err.1	Measuring range exceeded	Wrong signal	Temperatures above the measuring range are not allowed.
Err.2	Measuring value below measuring range	Wrong signal	Temperatures below the measuring range are not allowed.
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.	

10 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**.



Parameter	value	information
SET	▼ and ▲	
Unit	Unit of temperature displays <i>factory setting: °C</i>	
	°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 temperature output should deliver 4 mA (or 0V) (<i>factory setting: 0.0</i>)
Out.1	Display at maximum output for humidity 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) (<i>factory setting: 100.0</i>)
OFFS	Offset correction of humidity measuring *)	
	oFF	deactivated (<i>factory setting</i>)
	-5.0 ... +5.0	Selectable from -5.0 to +5.0 % rel. humidity
SCAL	Scale correction of humidity measuring *)	
	oFF	deactivated (<i>factory setting</i>)
	-15.00 ... +15.00	Selectable from -15.00 to +15.00 % scale correction

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

Please note: *If there is no key pressed within the menu mode within 2 minutes, the configuration will be cancelled, the entered settings are lost!*

*) if higher values are needed, please check sensor, if necessary return to manufacturer for inspection.
Calculation: corrected value = (measured value – Offset) * (1+Scale/100)

11 Notes to the calibration services

Calibration certificates - DKD-certificates - other certificates:

If 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. 25°C)

12 Specification

Measuring range	-50.0 ... 400.0 °C or -58.0 ... 752.0 °F
Accuracy	(at nom. temperature 25°C)
Display	±0.4% of meas. value. ±0.2°C
Add. Output signal	± 0.2% FS
Media	Non corrosive gasses
Sensor	Pt1000
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)
For option AV01, AV10	0 - 1 (10) V (3-wire)
Auxiliary energy:	4 - 20 mA: $U_v = 12 - 30 \text{ V DC}$
(supply voltage, each output)	0-1V: $U_v = 12 - 30 \text{ V DC, max. } 10\text{mA}$
	0-10V: $U_v = 18 - 30 \text{ V DC, max. } 10\text{mA}$
Perm. impedance	4 - 20 mA: $R_A(\text{Ohm}) < (U_v - 12\text{V}) / 0,02\text{A}$
	<i>example: for $U_v = 18\text{V}$: $R_A < (18\text{V} - 12\text{V}) / 0.02\text{A} \Rightarrow R_A < 300 \text{ Ohm}$</i>
Permissible load	0 - 1 (10) V: $R_L(\text{Ohm}) > 3000 \text{ Ohm}$
Display	approx. 10 mm high, 4-digit LCD-display
Operating elements	3 keys
Ambient conditions	
Nom. temperature	25°C
Operating temperature	Electronics: -25 ... 70 °C
	<i>Please consider that the allowable range of the housing and electronics must not be exceeded, especially when using the probe at higher temperatures!</i>
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 mm ² , 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.