

Temperature Meter T 1010

Pt100 - Pt1000

Features

- LED-Display 14.2mm red
- Measuring input
Pt100, -100.0 ... 600.0°C*
Pt1000, -50.0 ... 200.0°C*
*switch off decimal point possible
- Max. 2 Alarm outputs
- Analog output, 0/4 ... 20mA and 0/2 ... 10V DC
- Protection IP65



Field case 100x100x60mm
with 2 PG11 cable glands

General

The Temperature Meter T1010 is suitable for measuring temperatures in connection with RTD sensors Pt100, Pt1000. Devices for other temperature sensors are available on request. The measuring input is isolated to the supply voltage. The measuring range can be limited in the configuration level. It is identical with the range of the analog output.

Short information

Programming	Programming is made via front-side membrane keypad.
Alarm outputs	Switching performance for the alarm outputs is programmable as minimum or maximum function.
Digital filter	With activated digital filter last 16 measured values will be averaged continuously and the result shown in the display.
Analog output	Proportional to the programmed temperature range an output signal 0 ... 20mA / 0 ... 10V DC or 4 ... 20mA / 2 ... 10V DC can be generated. Output changed automatically from current signal to voltage signal depending on burden.

Technical data

Power supply

Supply voltage	: 230V AC $\pm 10\%$; 115V AC $\pm 10\%$, 24V AC $\pm 10\%$ or 24V DC $\pm 15\%$
Power consumption	: max. 3.5VA, with analog output 5VA
Operating temperature	: -20 ... +55°C standard (extended temperature range on request)
Rated voltage	: 250V~ acc. to VDE 0110 between input / output / supply voltage over voltage category III

Test voltage : 4kV-, between input / output / supply voltage

CE - Conformity : EN55022, EN60555, IEC1000-4-3/4/5/11/13

Input

Pt100 / Pt1000	: -100 ... 600°C / -50 ... 200°C
-Accuracy	: Pt100 and Pt1000 < 0.1% ± 2 Digit, max. 100 Ohm line resistant
Temperature coefficient	: 0.004%/K

Display

Indicating range	: Input-dependent
Parameter display	: LED 2-digit red, 7mm (parameter - und alarm output indicator)

Output

Relays	: SPDT, <250V AC<250VA<2A, <300V DC<50W<2A
Analog output	: 0/4 ... 20mA burden $\leq 500\Omega$; 0/2 ... 10V burden $> 500\Omega$, not isolated to the input automatic output changing (load dependent)
-Accuracy	: 0.1%; TK 0.01% / K

Field Case : Case polyamide, with fibre-glass PA6-GF 15/15, Keypad polyester

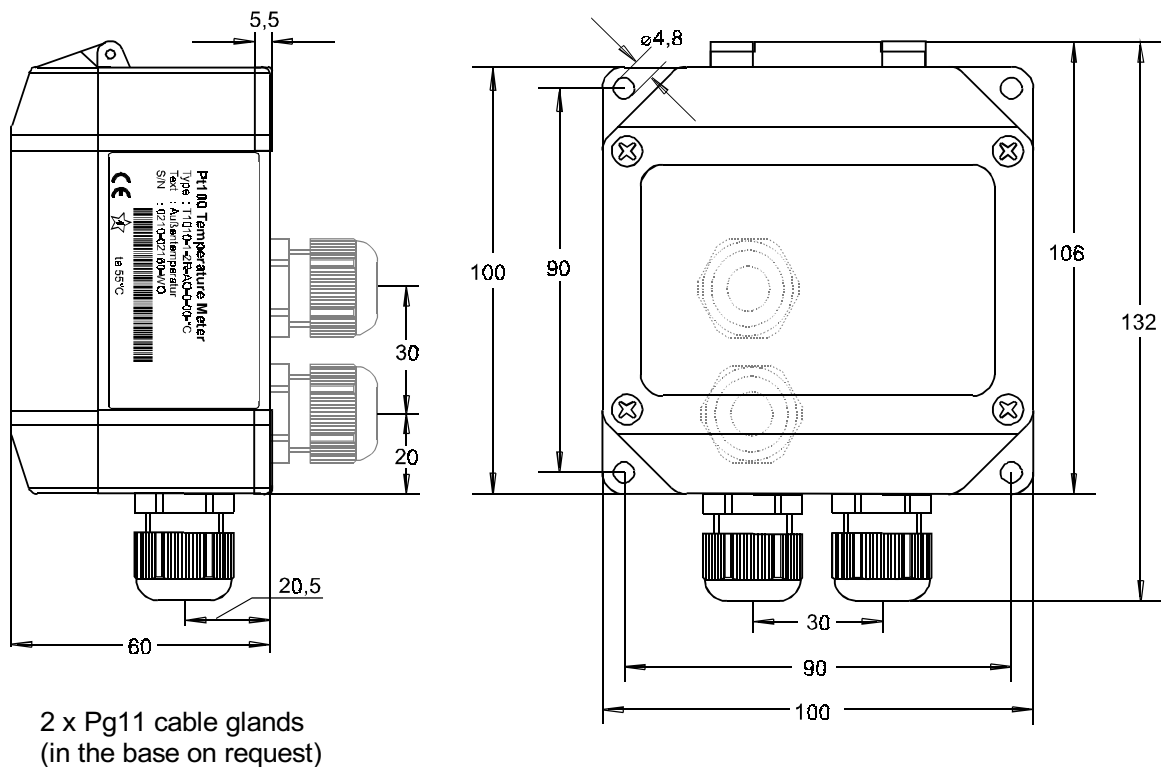
Dimensions : 100x100x60mm (WxHxD)

Weight : max. 450g

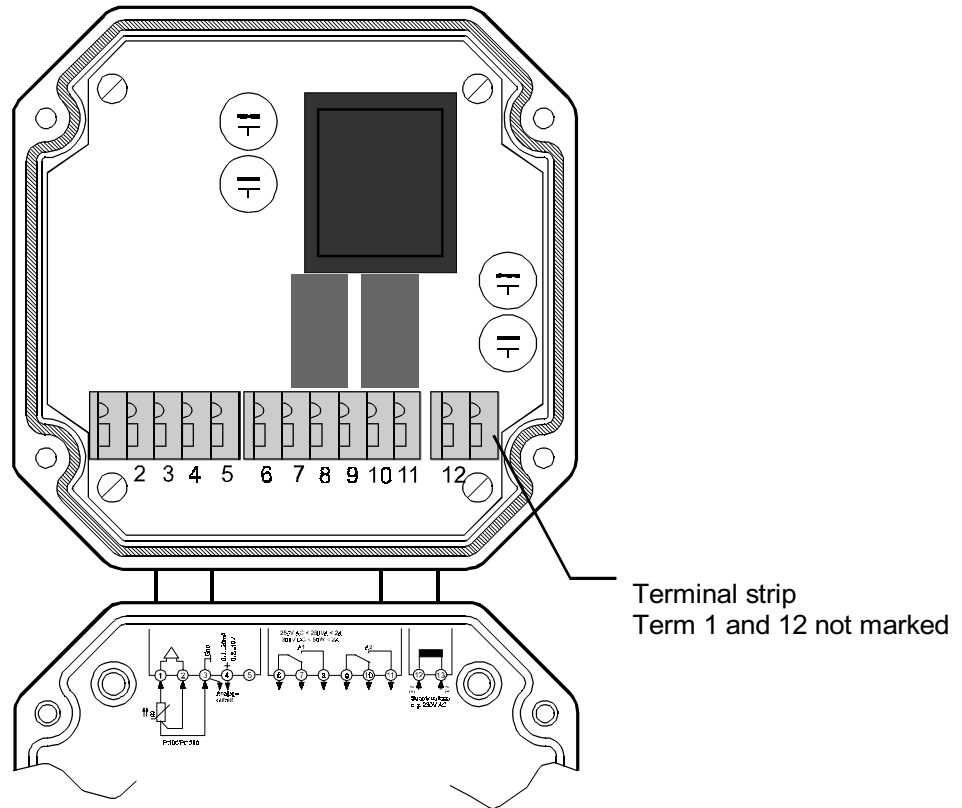
Connection : Clamp terminals, 2mm² single wire, 1mm² flexible wire, AWG 14

Protection : Front IP65, terminals IP20, fingersafe acc. <German BGV A2 (old VBG4)

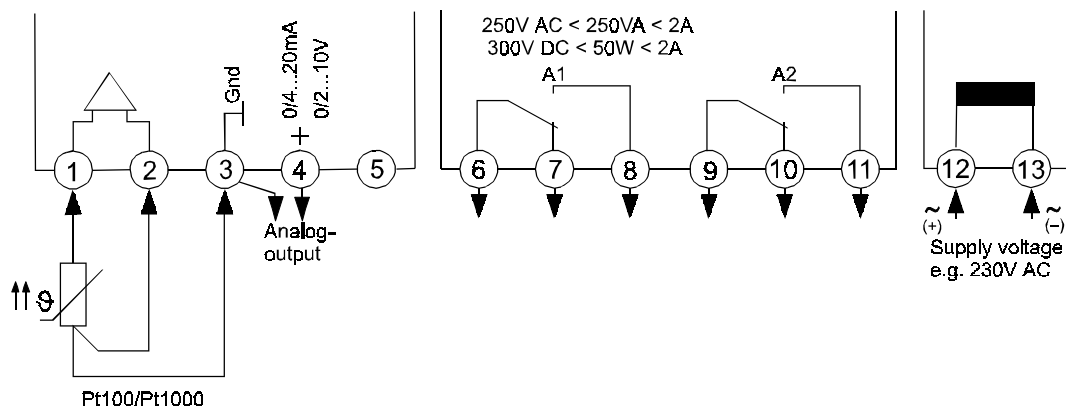
Dimensions



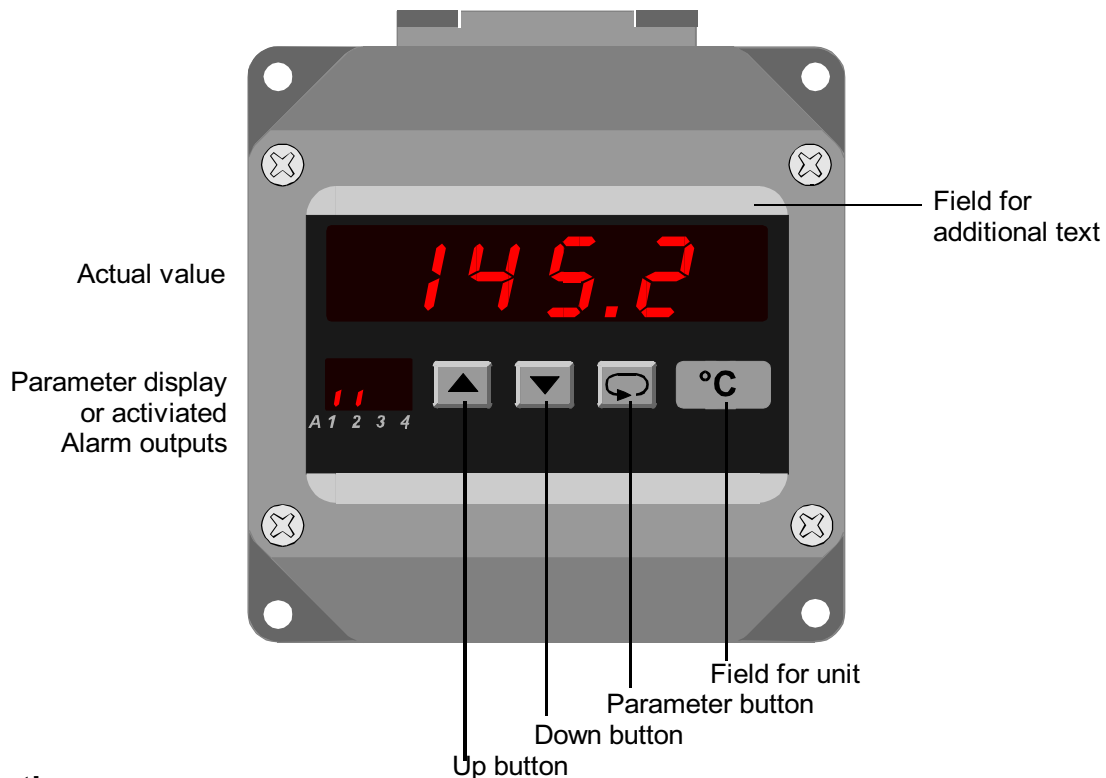
Legend (opened lid)



Connection diagram



Controls and indicators



Description

Operating of the device is arranged in 2 levels. The requested parameter can be called by button. Selection within a parameter or entering data, use buttons and . Parameters are stored zero-voltage safe in the EEPROM.

After switching on the supply voltage, the device initializes itself. The display shows the message *l n i t*. After the initializing procedure the device is working in the **Working level**. Set points of the alarm outputs can be preselected if available.

Activating the button for more than 2 seconds, the program is jumping into the **Configuration level**. Now all the parameters defining the function of the device can be programmed.

After finishing the configuration or when longer than 2 minutes no button was pushed, the program jumps back to the working level. Leaving the configuration level is possible at any time when pushing the button for 2 seconds.

Error codes:

Display flashes If the input signal is more than 3% outside of the programmed measurement range the A/D- converter is over driven and the display flashes with appr. 1Hz

Error! EEPROM test. Reading this message, a program error has been occurred. When pushing the button a copy of the EEPROM will be reloaded and the device will work with the factory settings. If this copy does not work, please ship the device to factory for repair service.

Loc Program lockout. See configuration page 7.

Start-up note:

Before the device can be used, it must be configured for the intended use

⇒ see page 6

Notes to representation



Parameter is only displayed when configured




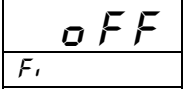




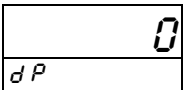




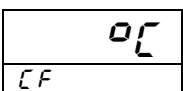




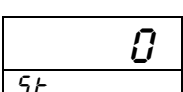




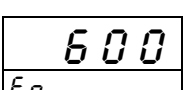




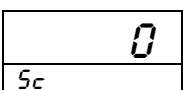













Parameter is only displayed when feature is included (see order code)


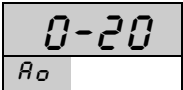
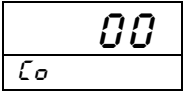
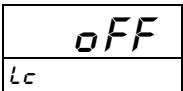
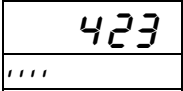
Please note: All parameters can be called if they are not blocked by other programmed parameters and if they are available. Factory settings are shown in [].

Working level

Button	Display	Description
		Actual value. Alarm output indication (only if installed and activated).
		Display brightness (permanent changing possible) Setting possible in 9 steps with buttons and .
		Display maximum reading. Reset with buttons or , or with every power off.
		Display minimum reading. Reset with buttons or , or with every power off.
		Setpoint output A1. Setting possible from $5t \dots E_n$ with buttons and . $5t$ (start value) ... E_n (end value)
		Setpoint output A2. Setting possible from $5t \dots E_n$ with buttons and . $5t$ (start value) ... E_n (end value).

Configuration level

Button	Display	Description	[Factory settings]
 2s betätigen		Digital filter . <i>oFF</i> , <i>on</i> Averaging of the last 16 measured values continuously. Selection with buttons  and  .	[<i>oFF</i>],
 		Decimal point position <i>.0</i> , <i>0.</i> Selection with buttons  and  .	[<i>0.</i>]
 		Unit of the temperature. <i>°C</i> , <i>°F</i> Selection with buttons  and  .	[<i>°C</i>]
 		Start value for indicating range and analog output Setting possible from min. ... <i>En</i> with buttons  and  . min: Pt100 = -100°C; Pt1000 = -50°C; In case of modification new configuration of the alarm outputs is necessary.	[<i>-100</i>]
 		End value for indicating range and analog output Setting possible from <i>St</i> ... max. with buttons  and  . max: Pt100 = 600°C; Pt1000 = 200°C; In case of modification new configuration of the alarm outputs is necessary.	[<i>600</i>]
 		Indicating correction Setting possible from <i>-99</i> ... <i>99</i> digit with buttons  and  .	[<i>0</i>]
 		Switching performance output A1. Function <i>oFF</i> ; <i>on L</i> (min); or <i>on J</i> (max) In case of modification the set point is set to the start value. Selection with buttons  and  .	[<i>oFF</i>]
 		Setpoint output A1. Setting possible from <i>St</i> (initial value) ... <i>En</i> (final value) with buttons  and  .	[<i>0</i>]
 continue page 7			

Button	Display	Description	[Factory settings]
↓		Hysteresis A1. Setting possible from 1 ... 9999 digit with buttons ▲ and ▼ .	[10]
↻		Note: Switching performance and setpoint of the alarm outputs A1 to A2 are identical.	
↓		Analog output. 0 - 20 mA (0 - 10 V DC) or 4 - 20 mA (2 - 10 V DC). Changing from current to voltage output is load dependent. (≤ 500Ω = current output, > 500Ω = voltage output). Selection with buttons ▲ and ▼ .	[0 - 20]
↻			
↓		Code for factory settings.	
↻			
↓		Program lockout. oFF = no lock CoNF. = configuration level locked ALL = all parameter locked Selection with buttons ▲ and ▼ .	[oFF]
↻			
		Return to the working level.	

Order code

T1010 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Input

1	Input	Pt100	-100 ... 600°C
3	Input	Pt1000	-50 ... 200°C

2. Alarm output

00	not installed		
2R	2 alarm outputs	relay	

3. Analog output

00	not installed		
AO	Analog output	0/4 ... 20mA and 0/2 ... 10V DC, not isolated	

4. Supply voltage

0	230V 50/60Hz	±10%
1	115V 50/60Hz	±10%
4	24V 50/60Hz	±10%
5	24V DC	±15%

5. Option

00	without option
01	Min-and Max-value hold
07	Display brightness programmable

6. Unit (appears on the unit field)

7. Additional text (will be placed in the field for additional text max. 3mm x 70mm HxW)