Operation manual CAM 100

Digital panel meter for Thermometer Pt100

About this manual:

Read this manual carefully for safety instructions and operating guidance before installation.

1 Description

1.1 General

With the digital panel meter **CAM 100** temperatures are measurable with Pt100 sensor. The connection of the Pt100 sensor can take place in 2-, 3- or 4-wire technology. Two different measuring range can be programmed. Despite the small dimensions the LED display can be read off even from larger distance well.

1.2 Safety instructions

This equipment is built and according to quality standards examined in accordance with European guidelines. It left the work in safety-relevant perfect condition. The references and warning notes contained in this operating instructions must be considered around a safe enterprise to ensure. Without impairment of its working reliability the equipment can be operated within the certified site conditions. See chapter 3. This equipment may be taken only by a specialist in enterprise, which is familiar with the associated dangers and/or the relevant regulations.

1.3 Maintenance

All repairs of the device may only be carried out by a specialist workshop. In case it is inevitable to carry out repairs on the opened device which is still supply voltage this may only be effected by a trained specialist who knows about the dangers usually related to any such procedure. In case of misuse or wrong operation of the decice we do not assume any liability for any damages that might occur.

1.4 Mounting

The equipment is to be inserted from the front into the cutout planned for it (according to DIN 43 700). Dimensions of the cutout: 45 x 22.2 [mm]. The attachment takes place with the help of enclosed fastening parts. The tightening screws are to be tightened mutually, until the equipment sticks. During the placement of the equipment is the radiant heat of neighbouring devices to consider (consider permissible ambient temperature!). The electrical connection is to be made according to appropriate regulations (e.g. VDE 0100). Supply voltage is indicated on the type plate and is to put on the clamps 5 and 6.

# 2. Operation

2.1 Starting

With the digital panel meter **CAM 100** the temperature - measuring range can be stopped by programming places. The decimal point is likewise set with programming places.

2.2 Adjustment Pt 100
1. Select the temperature display range (see table 2) by closing the solder pads (see picture 2).
2. Connect the Pt100 Simulator to terminal block corresponding to table 1 / picture 1.
3. Bring the display to the required value for span start using the zero potentiometer "NP" (see pict. 1).
4. Apply the value for span end with the Pt100-simulator to terminal block.
5. Bring the display to the required value for span end using the gain potentiometer „V" (see pict. 1).
6. Repeat step 3 to 5 until the display corresponds to the required measuring range.

2.3 Rear view and solder pads

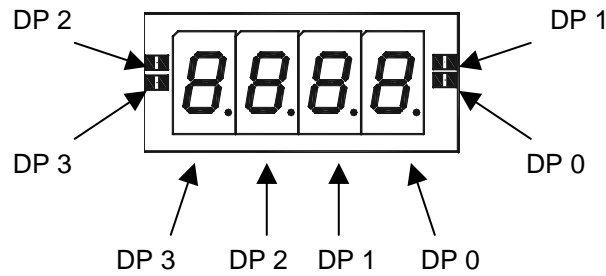**Picture 1:**   Connecting diagram
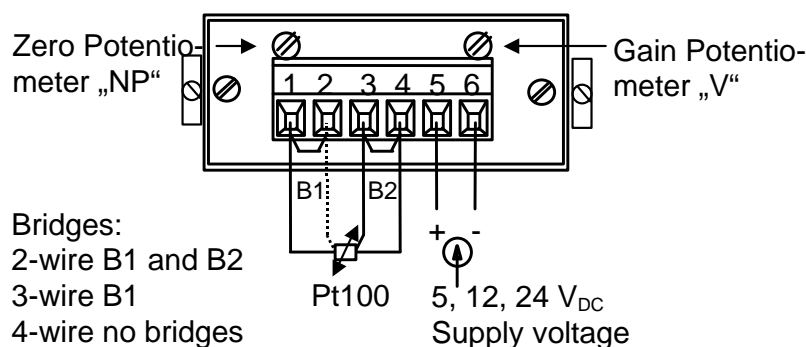
Picture 2: Solder Pads

Solder Side
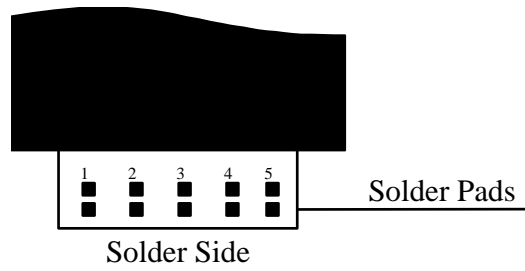
Picture 3: Display-ranges

Table 1:
Connecting Pt100

Connection	terminal block / bridges
4 - wire	to terminal block 1, 2, 3, 4, no bridges
3 - wire	to terminal block 1, 3, 4, and bridge B1
2 - wire	to terminal block 1 a. 4, and bridge B1 a. B2

Table 2:
Select the temperature display range by closing the solder pads

Connection	Display range	Solder Pads closed
2 / 4 - wire	- 100.0 ... + 199.9 °C	2 [1]
2 / 4 - wire	- 200 ... + 700 °C	1 and 4
3 - wire	- 100.0 ... + 199.9 °C	3
3 - wire	- 200 ... + 700 °C	1 and 4

1) Preset delivery configuration.

3 Technical data

Display	
Display	7 – Segment display, 8 mm LED red
Display range	± 1999 digits
Decimal point	via solder bridge
Measurement range	Display „1" at overrange or sensor break Display „-1" at underrange

Measurement functions	
Measurement range	via solder bridge
Meas. method	Dual Slope
Meas. rate	approx. 2,5 / sec.
Response time	< 2 sec. (at 100% Stepp)
Input signals	Temperature
Meas. range (Resolution: 0,1 K)	- 100,0 ... + 199,9 °C Accuracy: $\leq \pm 0,2$ K $\pm 0,2$ % of display value Temp. effect: $\leq \pm 0,02$ K / K (reference +25°C)
Meas. range (Resolution: 1 K)	- 200 … + 700 °C Accuracy: $\leq \pm 1$ K $\pm 0,2$ % of display value Temp. effect: $\leq \pm 0,04$ K / K (reference +25°C) Connection for 2-wire (max. 3 Ω resistance), 3- or 4-wire sensors (each max. 100 Ω resistance) Wire effect: 3-wire connection: $\leq \pm 0,01$ K / Ω 4-wire connection: $\leq \pm 0,002$ K / Ω Distribution: 4-wire connection: Meas. range: -100,0 … +199,9 °C

Supply voltage	
Supply volltage	$5V_{DC}$ 4,5-5,5V_{DC}, $12V_{DC}$ 12 –13,2V_{DC}, $24V_{DC}$ 22,3 – 26,4V_{DC}, galvanically separated, ripple max. 100 m$V_{SS.}$
Protection	Protection against pole reversal
EMC References	According to European Directive 89/336/EWG „Electromagnetic Compatibility" and 73/23/EWG "Low Voltage Directive". Meets with EN 50081, EN 50082 and EN 61010 for unrestricted industrial use

Dimensions	
Dimension (W x H x L)	appr. 48 x 24 x 78 [mm]
Recommended panel cut-our	45 x 22,2 [mm]
Mounting depth	appr. 72 mm
Material	Glass-fibre reinforced Noryl, hardly inflammable, removable front frame
Weight	appr. 50 g
Panel thickness	max. 5mm
Attachment	via 2 attachment elements

Environment	
Ambient temperature	0 ... 50 °C, no dew allowed
Protection	Front panel IP 50, Terminal block IP 20 (DIN 40050, IEC 144)
Protective class	II (prot. isolation)

Connections	
Interconnection technology	Terminal screws with wire protection for max. 1.5 mm^2