

General

CAM 135



- For direct current voltage up to 200 V
Direct current signals 0 (4) - 20 mA (max. 800 mA)
- Frequency measurement 0...100 kHz
- Thermocouples (type K, J, L, S) (freely adjustable)
- Temperature measurement with Pt100 sensors
- 2 limit contacts (optional)
- 3 1/2 digit red LED display
- Display range from -1999 to 1999 freely scalable

Display

Indication	7 segment display, 13 mm, red LED, 2 LED for GK (optional)
Display range	± 1999 digit
Decimal point	Selectable by means of a jumper on the front side
Error indication	"1" in case of excess of the measuring range and sensor break "-1" in case of lower deviation of the measuring range

Measurement functions

Measuring range setting	Selectable by means of a jumper on the front side or an external scaling resistor
Measurement principle	Dual Slope
Measuring rate	Approx. 2.5 measurements / second
Setting time	< 2 seconds in case of abrupt modification
Input variables	Voltage, current (DC), resistance, thermocouples (not available yet), resistance thermometer Pt100, frequency
Range of measurement U/I	0 ... 10 V, 0 (4) ... 20 mA, with scale resistor of max. 800 mA ± 0,2 / ± 2 / ± 20 / ± 200 V Measurement error: ≤ ± 1 digit ± 0.15 % of the display Temperature influence: ≤ ± 0.08 digit / K (referred to 25 °C) Amplification change: max. ± 20 % Zero offset: max. ± 500 digit, extendable in the works

TC	<p>IEC NiCrNi Type K -160 ... 1360 °C IEC FeCuNi Type J -120 ... 1200 °C DIN FeCuNi Type L -120 ... 900 °C IEC PtRh-PT Type S -50 ... 1700</p> <p>Measurement error: $\leq \pm 1.5 \text{ K} \pm 0.5 \%$ of the display Temperature influence: $\leq \pm 0,05 \text{ K/K}$ (referred to 25 °C) Input: Resistance > 1 MΩ, current < 20 nA Internal temperature compensation (0...50 °C)</p>
Pt100	<p>Range of measurement: - 100,0 ... + 199,9 °C Measurement error: $\leq \pm 0.2 \text{ K} \pm 0.2 \%$ of the display Temperature influence: $\leq \pm 0.02 \text{ K/K}$ (referred to 25 °C) Range of measurement: - 200 ... + 700 °C Measurement error: $\leq \pm 1 \text{ K} \pm 0.2 \%$ of the display Temperature influence: $\leq \pm 0.04 \text{ K/K}$ (referred to 25 °C) Connection in 2, 3 or 4-wire technology Delivery of a 4-wire terminal - range of measurement: -100.0 ... +199.9°C</p>
Frequency	<p>Range of measurement: 50 Hz ... 10 kHz Measurement error: $\leq \pm 10 \text{ Hz} \pm 0.1 \%$ of the display Temperature influence: $\leq \pm 0.05 \text{ digit/K}$ (referred to 25 °C) Range of measurement: 500 Hz ... 100 kHz Measurement error: $\leq \pm 100 \text{ Hz} \pm 0.1 \%$ of the display Temperature influence: $\leq \pm 0,05 \text{ digit/K}$ (referred to 25 °C) Input level 0.75 V ... 30 V</p>

Voltage supply

Voltage supply	90 - 264 V _{AC} , 48 ... 62 Hz, approx. 7 VA 24 V _{DC} galvanically isolated
Fuse	Reverse polarity protection and temperature protection
Current input	max. 200 mA

Output signals

Limit contacts (optional)	Two voltage free relay contacts (two-way contact) switched as min. and max. contact Load: 250 V _{AC} max. 8 A, pick-up delay: approx. 1 second Switching hysteresis: 3 digit (10 digit with Pt100 -100.0 ... 199.9 °C) Narrowed control range and GK logic adjustable in the works on request
Analogue output (optional)	Signal range either 0 ... 10 V, max. 5 mA or 0 (4) ... 20 mA, Burden max. 700 Ω , burden influence: $\leq \pm 0.1 \%$ wit 100 % load modification Scaling range: -1999 ... +1999, ripple: $\leq 0,2 \%$, Error: $\leq \pm 0.2 \%$ of the display, temperature influence: $\leq \pm 100 \text{ ppm/K}$ (referred to 25°C)
Sensor supply (optional)	24 V _{DC} max. 30 mA galvanically separated for sensors (not for devices with 24 V _{DC} supply or analogue output)

Measurements

E462510 Rev 03

Measurement	Approx. 96 x 48 x 135 mm (W x H x L) via terminals
Mounting cut-out	92 x 45 mm
Mounting depth	approx. 126 mm
Material	Glass fibre reinforced Noryl, of low flammability, front frame removable
Weight	approx. 490 kg
Thickness of the control panel	max. 40 mm
Fastening	By means of 2 fastening elements

Environment

Operating temperature	0 ... 50 °C, thawing not permitted
Type of protection	Before the front panel IP 50 without limit contacts and IP30 with limit contacts, terminals IP20 (DIN 40050, IEC 144)
Class of protection	II (insulated)

Connections

Connection technology	Plugged screw terminal with wire protection for max. 1.5 mm ²
Pin configuration	<p>Diagram illustrating the pin configuration for the CAM 135 panel meter. The terminal block has 16 pins, numbered 1 to 16. The connections are as follows:</p> <ul style="list-style-type: none"> Pins 1 and 2: + - Pins 3 and 4: + - (connected to Pt100 sensor) Pins 5 and 6: + - (connected to TC sensor) Pins 8, 9, 10, 11, 12, 13: Connected to two limit switches, GK1 and GK2, each with S, Y, and O contacts. Pins 14, 15, 16: Connected to a power supply (Versorgung < 7 VA 90...264VAC / 24VDC). <p>Additional labels in the diagram include: Pt100, Analogausgang oder Sensorversorgung, U/I, TC, Rs, GK1, GK2, and Frequenz[Hz].</p>

Date: April 2008
Alterations reserved