C-mac® Temperature converters SM31/SM32

Temperature converters for Pt100 sensors
SM31: single channel SM32: double channel
15-30 V DC supply, isolated from internal electronics
Cable resistance compensation and cable fault monitoring
Made in accordance with the CE and EMC regulations

The C-mac® units SM31 and SM32 are single and double channel temperature converters, in a 22,5 mm wide standard DIN-housing.
The supply voltage is 15-30 VDC, and the supply voltage is galvanically isolated from the internal electronics.

A 3-wire metering principle is used, which means the module compensates for the external cable resistance, and in case of a short-circuit or breakage of the cable, the output will switch to 110% of nominal range.
The units are available with 9 different input metering ranges, and 4 output ranges.

Technical data:

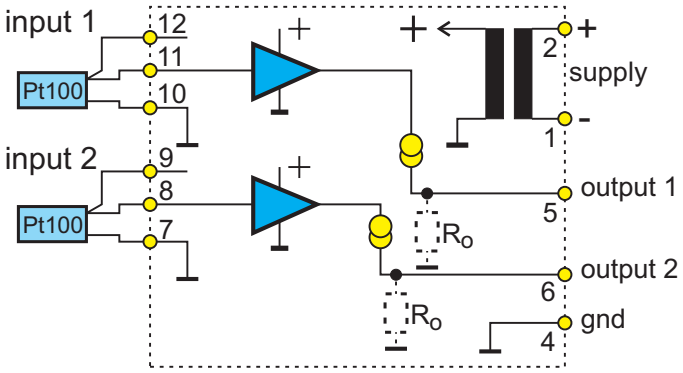
Supply voltage:	15-30 VDC The supply voltage is galvanically isolated from the internal electronics (Test voltage 2 kV AC)
Power consumption:	typ. 3 W (130 mA @ 24 V)
Accuracy:	0,3%
Linearity:	0,1%
Operation temp.:	-20°C to +60°C
Humidity:	0 - 90% RH, non-condensing
Storage temp.:	-35°C to +85°C
Temp. coefficient:	0,007% / °C
Metering current:	4 mA
Indications:	none
Adjustments:	Fine adj. +/- 5% of zero and span. The adjustment potentiometers are placed behind the front plate.
Cable monitoring:	The modules compensate for the cable resistance, up to max. 5Ω.
Cable fault:	In case of cable breakage or short-circuit, the output is 120% of normal output range.

EMC and safety regulations.

Emmision:	EN 50 081 - 1
Immunity:	EN 50 082 - 2
Safety:	EN 60 730

Approvals: The units are produced in accordance with the CE og low voltage regulations.

Block diagram:



Notes:

1. Connections 6-7-8-9: SM32 only
2. R_O: only voltage outputs

Input metering ranges:

0 - 50°C	0 - 250°C
0 - 100°C	0 - 300°C
0 - 120°C	-50 - 150°C
0 - 150°C	-20 - 130°C
0 - 200°C	

Output ranges:

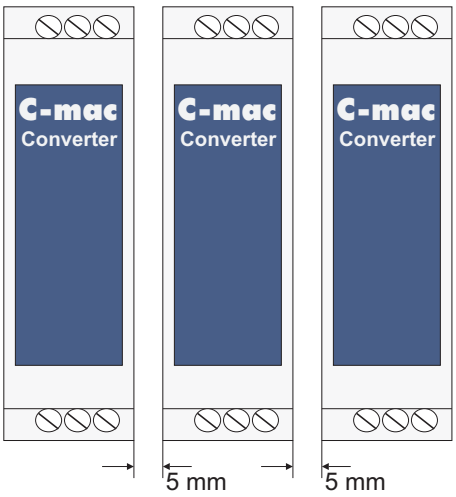
0 - 20 mA
4 - 20 mA 0 - 10 V(R_{Out} = 500Ω)

Max. output load, current outputs: 500Ω

Please note, that there is an internal resistor (R_O)on voltage outputs, which means the accuracy of the unit is dependent on the external load resistance.

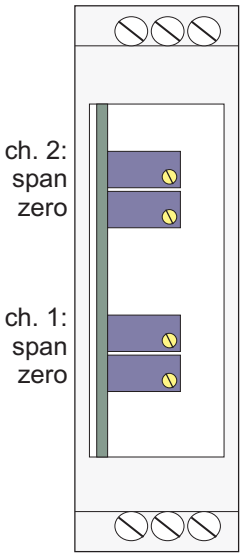
Ex: With 0-10 V output and load resistance 100 kΩ, the error caused by the load is 0,5%. With load resistance 10 kΩ, the error is 5%.

Panel installation:



Please note, that SM32 must be installed with minimum 5 mm gap between the units, because of the internal heat generation.

Fine adjustments:



Ordering guide:

SM31-x-y SM32-x-y

x = Input metering range

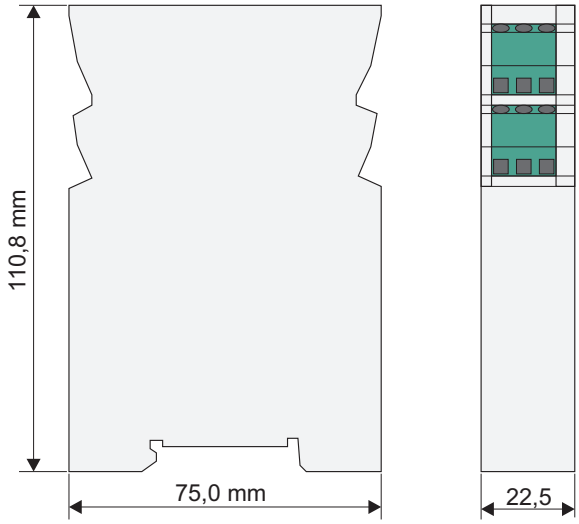
y = Output metering range

Input ranges:	Output ranges:
1 = 0 - 50°C	1 = 0 - 20 mA
2 = 0 - 100°C	2 = 4 - 20 mA
3 = 0 - 120°C	3 = 0 - 10 V
4 = 0 - 150°C	
5 = 0 - 200°C	
6 = 0 - 250°C	
7 = 0 - 300°C	
8 = -50 - 150°C	
9 = -20 - 130°C	

Ordering example: SM32-4-2

(Double temperature converter, input range 0-150°C, output range 4-20 mA)

Mechanical dimensions:



Materials and weight:

Housing:	Polycarbonate (30% GFR), grey, self-extinguishing
Terminal block:	Polycarbonate UL94 V-2, green,, self-extinguishing
Terminals:	Nickel-plated brass
Weight:	130 g