

Isolation amplifier for Pt100 sensors

SM33: single channel SM34: double channel

Galvanically isolation between inputs and outputs

20-30 V DC supply, isolated from the inputs

Cable resistance compensation and cable fault monitoring

Made in accordance with the CE and EMC regulations



The C-mac[®] units SM33 and SM34 are single and double channel temperature converters with isolation between input- and output signals, in a 22,5 mm wide standard DIN-housing.

The supply voltage is 20-30 VDC, and the supply voltage is galvanically isolated from the inputs.

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 140% of nominal range.

The units are available with 9 different input metering ranges, and 4 output ranges.

Technical data:

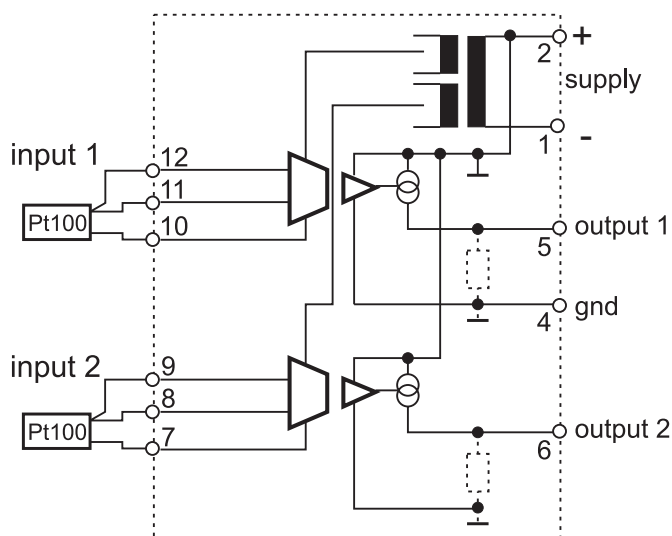
Supply voltage:	20-30 VDC The supply voltage is galvanically isolated from the inputs (Test voltage 2 kV AC)
Power consumption:	typ. 3 W (130 mA @ 24 V)
Accuracy:	0,3%
Linearity:	0,1%
Operation temp.:	-20°C to +60°C
Humidity:	0 - 90% RH, non-condensing
Storage temp.:	-35°C to +85°C
Temp. coefficient:	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 140% of normal output range.

EMC and safety regulations.

Emmission:	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:

- Connections 6-7-8-9: SM34 only
- 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:

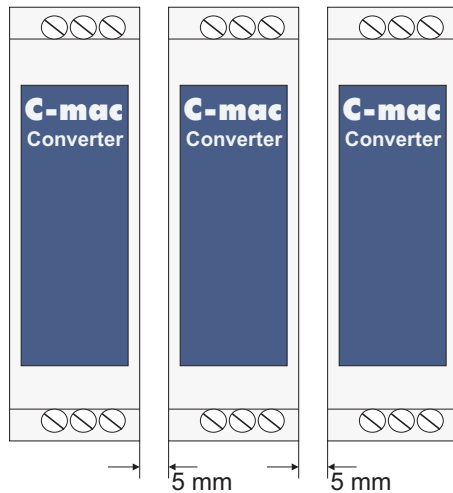
0 - 20 mA	
4 - 20 mA	0 - 10 V ($R_{Out} = 500\Omega$)

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.

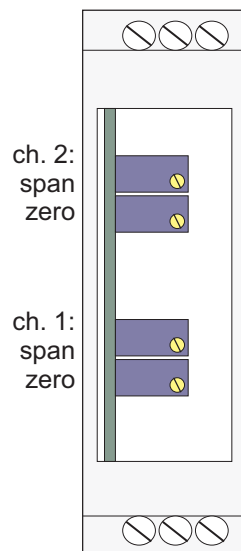
Ex: With 0-10 V output and load resistance 100 kΩ, the error caused by the load is 0,5%. With load resistance 10 kΩ, the error is 5%.

Panel installation:



Please note, that SM34 must be installed with minimum 5 mm gap between the units, because of the internal heat generation.

Fine adjustments:



Ordering guide:

SM33-x-y

SM34-x-y

x = Input metering range

y = Output metering range

Input ranges:

- 1 = 0 - 50°C
- 2 = 0 - 100°C
- 3 = 0 - 120°C
- 4 = 0 - 150°C
- 5 = 0 - 200°C
- 6 = 0 - 250°C
- 7 = 0 - 300°C
- 8 = -50 - 150°C
- 9 = -20 - 130°C

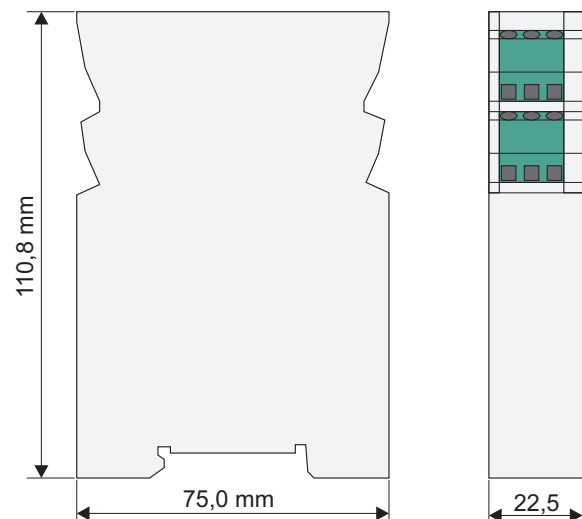
Output ranges:

- 1 = 0 - 20 mA
- 2 = 4 - 20 mA
- 3 = 0 - 10 V

Ordering example: SM34-4-2

(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