

# PT100, thermocouple analog transmitter

## Compact isolator 0..10V and +/- 10V

- **CALP25** Pt100, PT1000, 2 or 3 wires
- **CALT25** Thermocouple input
- **CAL25** mV, mA, potentiometer inputs
- **2-wire transmitter**, 4-20 mA loop powered
- **3-wire transmitter**, 0-10 V output
- **CAL25isoV** Signal isolator  
0..10V input, 0..10V output, 24Vdc power supply  
+/-10V input, +/-10V output, 24Vdc power supply
- **LED indicators for supply and sensor**  
Green LED for 4-20mA loop current OK  
Red LED for sensor breaking
- **SIL2 and SIL3 compliance** according to IEC 61508



The CAL25 series of signal conditioners provide for an input type (Pt100, Thermocouple, mA, mV or potentiometer) a current output (4-20 mA in 2 wires), or a voltage output (0..1..5..10V in 3 wires). The CAL25isoV is a compact voltage signal isolator with a 1:1 ratio.

### DESCRIPTION (Models):

- Thermocouples: CALT25
- Platinum Pt100: CALP25
- voltage (mV): CAL25
- current (mA): CAL25
- potentiometer: CALpot25
- Isolator 0 ... 10V / 0 ... 10V : CAL25isoV

### Correction of sensors

- Platinum RTDs linearization .
- Cold junction compensation for thermocouples.
- Line compensation for Platinum RTDs.

### Feature:

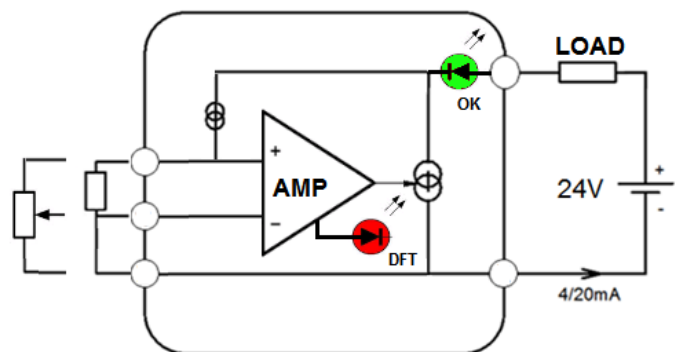
- DIN rail mounting (symmetrical or asymmetrical),
- Protection rating (enclosure / connectors) IP20,
- Connection on screw terminals (section of the wires up to 2.5 mm<sup>2</sup>),
- Green led indication of supply voltage,
- Red led indication of sensor failure (sensor breaking or 15% exceed of range),
- Potentiometers to adjust measure scale,
- Factory setting according to user defined scales,
- Fallback value of output if sensor breaking (24 mA limitation, low value on request),
- protected against reverse polarity,
- "test" terminals to control the output current without opening the loop (green led is off during control). Do not put any load on this "test" terminals !

### Environment:

- Long term stability: 0.1% / year,
- peak operating temperature up to 85°C,
- resistant, protected against shocks and vibration,
- High EMC immunity

**Operational safety data:**  
 type A components, HFT = 0  
 $\lambda f$  : 221 fit (1/MTBF)  
 DC : 92.6 % (diagnostic coverage)  
 PFH : 16 fit (probability of dangerous failure per hour)  
 SFF : 94 % (Safe failure fraction)

### Synoptic:



Version and order code:

[Request a quote](#)

- CALP25:** Pt100 to Pt1000 (2, 3 wires mounted) linearized,
- CALT25:** Thermocouple input (B, E, J, K, R, S, T, ...to define),
- CAL25:** Voltage (mV), current (mA), potentiometer
- CALpot25:** Potentiometer input
- CAL25isoV:** Voltage signal isolator. 1:1 ratio (0-10V or +/-10V)

The measure range is defined by user at order

Option : - **SIL2 / SIL3** ( all versions)

**INPUT**

- CALP25:** Pt100 to Pt1000 (2 or 3 wires)  
 - minimum measure range: 30 °C,  
 - line length compensation,  
 - response time: < 30 ms,  
 - accuracy: 0.2 % of full range,
- CALT25:** Tc (B, E, J, K, R, S, T, ... to be specified)  
 - minimum measure range: ~ 100 °C,  
 (according to the type of thermocouple)  
 - cold junction compensation (-10 to 60 °C),  
 - response time: < 200 ms,  
 - accuracy: 0.5 % of full range,
- CAL 25:** mV, mA, potentiometer  
 - minimum voltage measure range: 5 mV,  
 - potentiometer measure range: 100 - 1MOhms,  
 - response time: < 30 ms,  
 - accuracy: 0.2 % of full range,
- CAL25isoV:** Voltage input  
 - measure range 0...10V or +/-10V  
 - response time: < 30 ms,  
 - accuracy: 0.2 % of full range  
 - transfer function: 1:1, output signal = input signal

**Output / power supply (2 wires technology)**

- Current Loop voltage 14 to 50 V  
 Output current (loop powered) 4-20mA  
 Max. load 500 Ohms at 24V  
 Permissible load: (Vsupply - 14V) / 0.02  
 Load influence 0.005% / 100 Ohms  
 Power supply influence 0.003% / V  
 intrinsic consumption < 3.6mA  
 Safety value > 22mA

**Output / power supply (3 wires technology)**

- Power supply 14 to 50V  
 Voltage output 0 - 10V  
 Load influence negligible  
 Minimal load 1KOhms

**ENVIRONMENT**

- Operating temperature -20 to +60 °C  
 Storage temperature -25 to +85 °C  
 Humidity 85 % non condensing  
 Influence (% of the full scale) < 0.01 % / °C
- plastic enclosure weight: 40 g
- Protection rating: IP20
- MTBF (MIL HDBK 217F) > 4 000 000 Hrs @ 25°C  
 Life time > 200 000 Hrs @ 30°C
- Shock IEC 60068-2-27 (operating) 15 G / 11 ms  
 Bump IEC 60068-2-29 (transportation) 40 G / 6 ms  
 Vibration IEC 60068-2-6 (operating) 1 G / 10 - 150 Hz  
 Vibration IEC 60068-2-6 (transportation) 2 G / 10 - 150 Hz

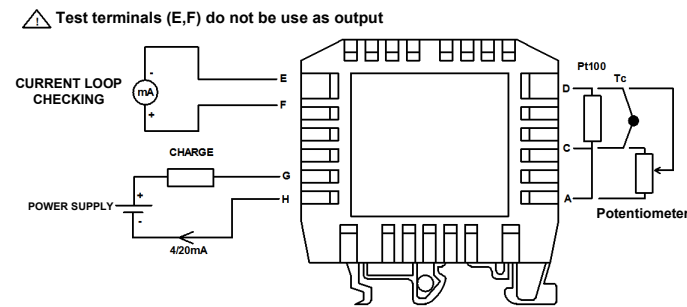
**Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE**

Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4
EN 61000-4-2 ESD	EN 61000-4-8 AC MF	EN 55011  group 1 class A
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	
EN 61000-4-6 RF	EN 61000-4-29 DC dips	



**WIRING AND OUTLINE DIMENSIONS:**

2-wire transmitter : 4-20mA output, loop powered.



3-wire transmitter : 0-10V output

