

Analog temperature transmitter for sensors head mounting PT100, PT1000 or potentiometer input

Type CAL40

LOREME

- **CALP40** Pt100, Pt1000 temperature transmitter
- **CALpot40** potentiometer input
- **CALP40Si** ATEX version, Intrinsically safe
- **Shockproof head mounting system**
spring mounting
- **2 wires transmitter** 4-20mA loop powered
- **Led indicators for quick control of loop and sensor**
Green LED for current loop presence
Red LED for sensor failure
- **SIL2 according to IEC 61508**



The CAL40 transmitter converts the signals from temperature sensors or from position sensor (potentiometer) into a 2 wires 4-20 mA current (powered by loop current).

DESCRIPTION:

Temperature measurement:

- Platinum resistance sensor Pt100 or Pt1000, 3 wires mounting
- Linearization and line compensation
- Input measure range setting in accordance to user requirement.

Position measurement:

- Potentiometer CALPOT40.

Output:

- 4-20mA, loop powered
- Wide range of power supply, 14Vdc to 50Vdc
- Security:
 - high current value for sensor breaking, (limited to 24mA)
 - low current value on request (except for ATEX version)
- Protected against reverse polarity
- Adjustment of start and end scale by potentiometers.

Feature:

- DIN B type head mounting.
with M4 screws, 33mm spacing
- Wide central hole for sensor wires pass through (7mm diameter)
- Shockproof head mounting system:
optimal adjustment of the probe in the thermowell with the compression springs, improved accuracy and reliability.
- Connection with stainless steel spring terminals, 1,5 mm² wires.
- Quick checking of the current loop and sensor:
 - green led indicating power supply presence,
 - red led indicating failure, sensor breaking or excess by 15 % of the scale.
- Protection rating (enclosure/terminal blocks): IP68 / IP20.

Performance / Environment:

- Long-term stability 0.1 % / year.
- Operating temperature up to 85 °C.
- Excellent EMC performance.
- Resistant, protected against shocks and vibrations (polyurethane coating resin).

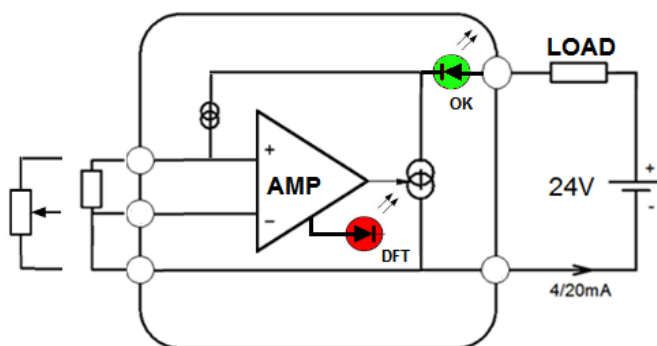
Operational safety data:

type A component , HFT = 0
 λf : 221 fit (1/MTBF)
 DC : 92.6 % (diagnostic coverage)
 PFH : 16 fit (probability of dangerous failure per hour)
 SFF : 94 % (safe failure fraction)

ATEX certification:

- Intrinsic safety Ex ia IIC T6 according to 2014/34/UE
- Harmonized standards **EN 60079-0** and **EN 60079-11**
- Type examination certificate n° **LCIE 02 ATEX 6151X**
- Notification in production n° **LCIE 02 ATEX Q8001**

Synoptic:



Version and order code:

CALP40: Pt100 or Pt1000 (2 or 3 wires) linearized input, measure range must be defined (30°C min range)

CALP40Si: ATEX intrinsically safe version

CALPOT40: potentiometer input

Option : - **SIL2** SIL2 version according to IEC61508

Option : **/RD** with DIN rail mounting hook



INPUT

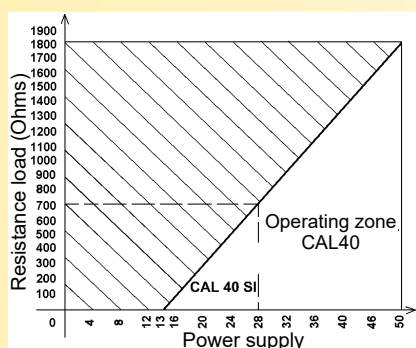
RTD probe Pt100 / Pt1000
 Excitation current Pt100 300µA
 Lead resistance influence (3 wires) < 0.3°C / 10 Ohms

- minimum measuring range: 30 °C
- linearity: +/- 0.1%
- response time: < 30 ms
- accuracy: 0.25 % of measure range
- scale adjustment: +/- 15 % (others on request)

Potentiometer: 100 Ohms to 1 MOhms
 - response time: < 200 ms
 - accuracy: 0.5 % of measure range
 - scale adjustment: +/- 15 % (others on request)

POWER SUPPLY / OUTPUT (2 wires transmitter)

Output current, loop powered 4 / 20 mA
 Max. load: 500 Ohms to 24 Vcc
 admissible load (V_{supply} - 14) / 0.02
 Load influence: 0.005 % / 100 Ohms
 Power supply influence: 0.003 % / V
 Current consumption: < 3.6mA
 Sensor breaking detection current: >22mA

**ENVIRONMENT**

Operating temperature: -20 to +75 °C
 Storage temperature: -25 to +85 °C
 Thermal drift (% full scale) : < 0.01 % / °C

Humidity : 85 % not condensed

Weight : 45 g

Protection rating : terminal blocks: IP20 / electronic: IP68

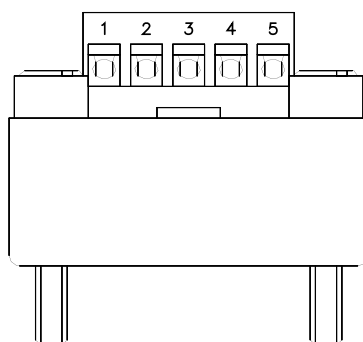
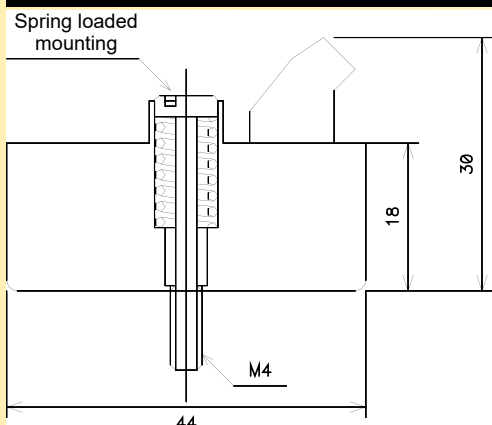
MTBF (MIL HDBK 217F) > 4 000 000 Hrs @ 25°C
 Life time > 200 000 Hrs @ 30°C

INTRINSIC SAFETY SPECIFICATIONS

Current loop 4-20mA Supply max. 28 V
 Short circuit current max. 200 mA
 Operating power max. 1.2 W
 Li 0 H
 Ci 0 F

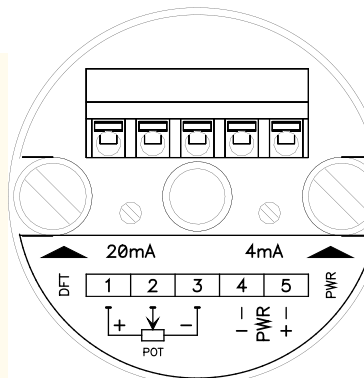
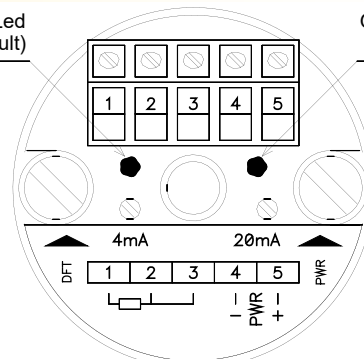
**Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE**

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:**

Red Led
(Default)

Green Led
(Power)



Potentiometer input version -->