PT100, thermocouple analog transmitter CAL25

- ***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

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.

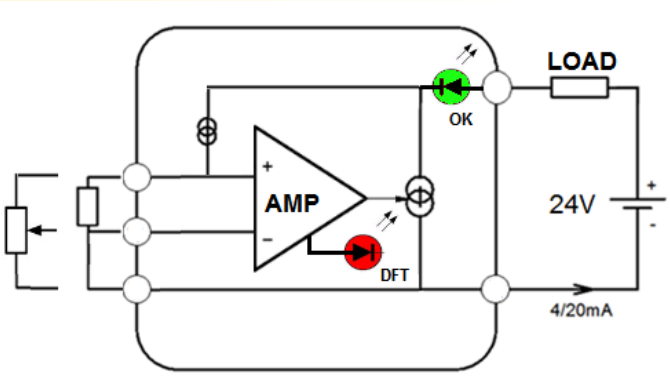
Feature:
- DIN rail mounting (symmetrical or asymmetrical),
- Protection rating (enclosure / connectors) IP20,
- Connection on screw terminals
  (section of the wires up to 2.5 mm²),
- Green led indication of supply voltage,
- Red led indication of sensor failure
  (sensor breaking or 15% exceed of range),
- 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

λf : 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:

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)

90 days accuracy (20 °C +/- 2 °C) *DATA SHEET CAN BE DOWNLOADED ON* WWW.LOREME.FR

TECHNICAL SPECIFICATIONS

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
Permissive 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

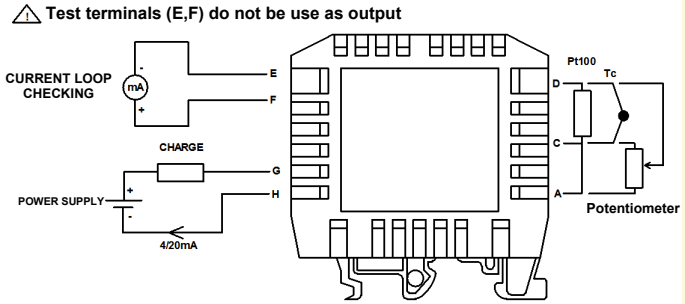
Shock IEC 60068-2-27 (operating)	15 G / 11 ms
Bump IEC 60068-2-29 (transportation)	40 G / 6 ms
Vibration IEC 60068-2-6 (operating)	1 G / 10 - 150 Hz
Vibration IEC 60068-2-6 (transportation)	2 G / 10 - 150 Hz

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

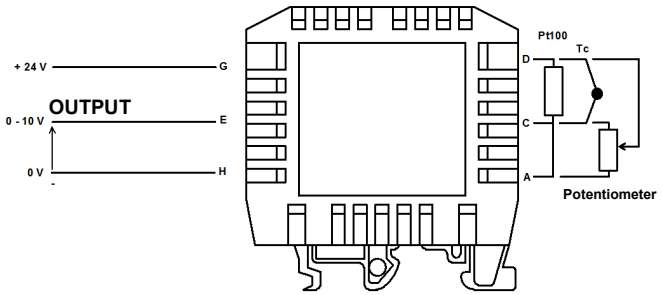
Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4	
EN 61000-4-2 ESD	*EN 61000-4-8 AC MF*	*EN 55011*	CE
EN 61000-4-3 RF	*EN 61000-4-9 pulse MF*		
EN 61000-4-4 EFT	*EN 61000-4-11 AC dips*	*group 1 class A*	
EN 61000-4-5 CWG	*EN 61000-4-12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

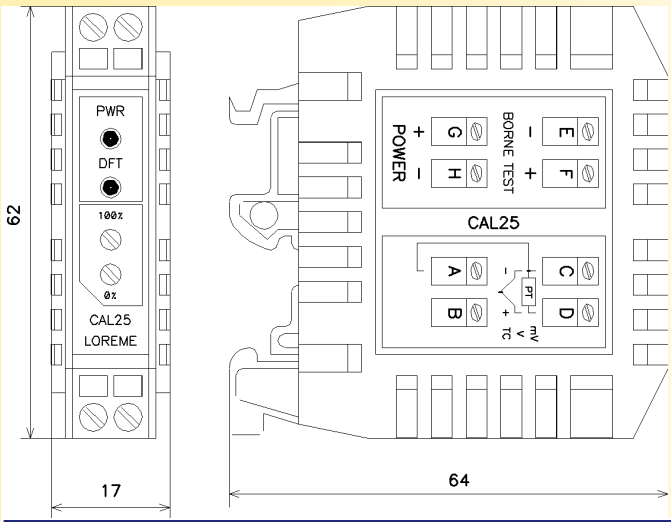
WIRING AND OUTLINE DIMENSIONS:

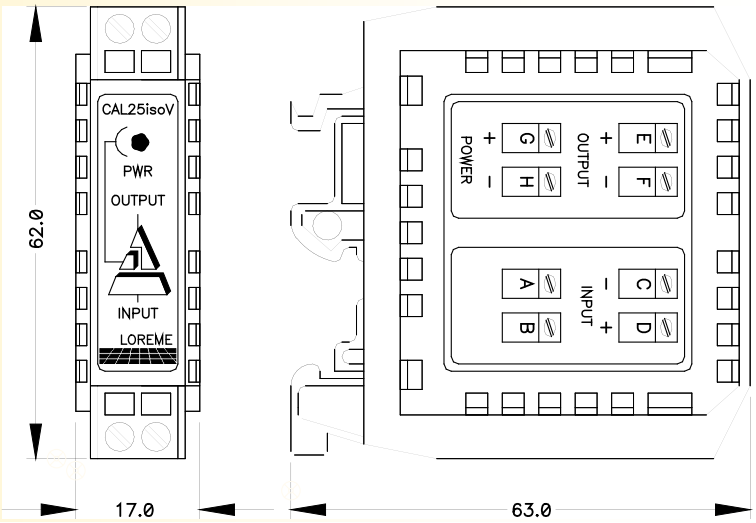
2-wire transmitter : 4-20mA output, loop powered.



3-wire transmitter : 0-10V output







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