Transmitter

TRAL-A / TRAL-V

Vibration transmitter



CEMB

BALANCING MACHINES

TRAL-A / TRAL-V

► Function

Measurement of the absolute vibration of the bearing or support of any type of rotating machine which can be interfaced directly to an acquisition system supplying an analog signal (4 ÷ 20 mA) and 2 alarm contacts.

► Tipical applications

The need to keep an ever increasing number of machines under control with acceptable costs, above all in the large installations, requires compact systems, easy to install and interface to the centralized acquisition system.
The TRAL - A and TRAL - V transmitters minimize the incidence of installation and wiring, which normally limits the application possibilities of conventional vibration monitoring systems. These types of transmitters acquire the current signal (4 to 20 mA), respectively proportional to the displacement or speed of vibration in the first case and to the speed or acceleration in the second case.
Connection between sensor (velocity meter or accelerometer) and transmitter is through a bi-polar shielded cable (2 x 1 mm^2); a 24 Vdc power supply is provided. High and low pass filters are also available for limiting the vibration signal to within a defined frequency range.
A BNC socket allows connection of a spectrum analyser for analysis of the signal and diagnostics of the monitoring machinery.

► Main characteristics

The TRAL - A and TRAL - V transmitters are suitable for direct field installation within a junction box IP65 or for rear panel mounting within an electrical cabinet. The latter application is advisable when it is required to monitor machines located in a classified area (chemical or petroleum industry) using "intrinsecally safe" certified transducers which are interfaced with the transmitters installed in a safe area through Zener barrier located in the vicinity of the transmitter.



Possible arrangements when placing the order:

- **Type of transducer** (velocity meter, accelerometer, PT100).
- **Quantity measured** (displacement, velocity, acceleration, temperature).
- **Measurement mode** (RMS, peak, peak-to-peak).
- **Range of measurement.**
- **Characteristics of the high pass filter.**
- **Characteristics of the low pass filter.**

Technical characteristics

Composition:

- Transmitter designed for mounting on DIN guide
  TRAL - V model interfaceable with velocity meter
  TRAL - A model interfaceable with preamplified accelerometer.

Transducers which can be used:

- Velocity meters
  T1-40 - T1-40V - T1-40BF
  T1-38 - T1-38V - T1-38BF

- Accelerometers
  TA18 - M16 - M602.

Power supplies:

- 24 Vdc rated (24-35 Vdc).

External connections:

- Terminal board for connection of transducer and acquisition system (max cable size 2,5 mm²).
- Terminal board for connection of alarm contacts (max cable size 2,5 mm²).
- BNC connector for connection to analyzer.

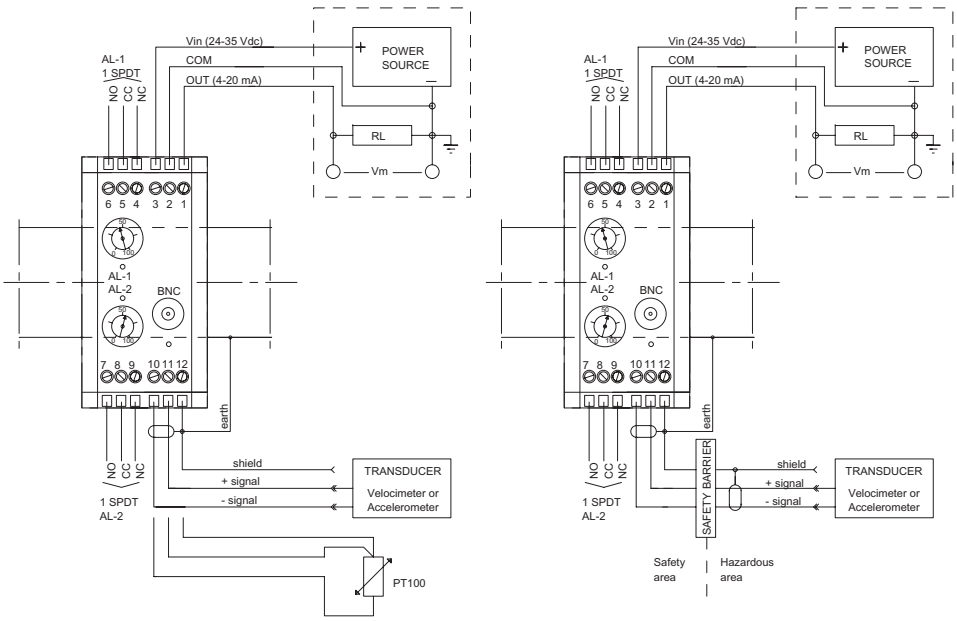
Ambient operating temperature range:

- -35°C ÷ +70°C

Alarms:

- 2 thresholds adjustable between 10% and 100% of the range of measurement through graduated trimmers.
- time delay in tripping, adjustable through trimmers (0,2 ÷ 5 sec.).
- 2 led's signalling tripping of relays.

► TRAL - A/V: connection diagrams

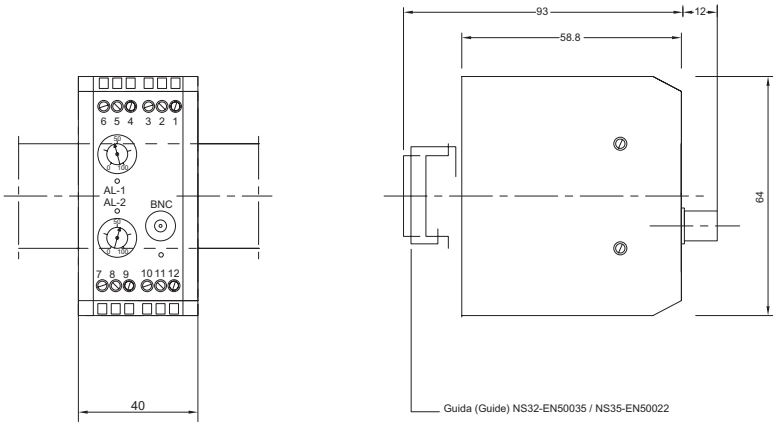


Grado protezione agenti esterni (Mechanical protection degree): IP40 CEI 70-1

Sezione cavi collegamento (Cables size): 0,2-2,5 mm²

Assorbimento (absorption) max.= 80mA / 2W

► TRAL - A/V: overall dimensions



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ORDER INFORMATION

A / B / C / D / E / F / G

TRAL - [ ] [ ] [ ] [ ] [ ] [ ] [ ]

A: Type of transducer

V	velocity transducer
A	acceleration transducer
T	temperature

B: Quantity measured

0	displacement (only for TRAL-V)
1	velocity
2	acceleration (only for TRAL-A)
3	temperature

C: Measurement modes

0	RMS
1	peak
2	peak-to-peak
3	PT100

D: Range of measurement

0	0 to 100 µm
1	0 to 200 µm
2	0 to 500 µm
3	0 to 10 mm/s
4	0 to 20 mm/s
5	0 to 50 mm/s
6	0 to 1 g
7	0 to 5 g
8	0 to 10 g
9	0 to 20 g
10	0 to 100 °C
11	0 to 150 °C
S	Special to be defined

E: High pass filter

0	without filter
1	5 Hz
2	10 Hz
3	20 Hz
4	50 Hz
5	100 Hz
6	1000 Hz
S	Special to be defined

F: Low pass filter

N.B: frequency of the low pass filter should be at least double than that of the high pass filter.

0	without filter
1	100 Hz
2	1000 Hz
3	2500 Hz
4	5000 Hz
5	10000 Hz
S	Special to be defined

G: Output signal

0	4 ÷ 20 mA
1	0 ÷ 20 mA
2	0 ÷ 10 Vdc
3	Other to be defined

Example of how to order:

A / B / C / D / E / F / G

TRAL - V / 1 / 0 / 3 / 2 / 2 / 0

- G: 4 ÷ 20 mA output
- F: low pass filter 1000 Hz
- E: high pass filter 10 Hz
- D: range of measurement 0 ÷ 10 mm/s
- C: RMS measurement
- B: velocity
- A: acceleration transducer



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