

Vibration equipment division

TR-I TRANSMITTER

USE AND MAINTENANCE INSTRUCTION

MANUAL



www.cemb.com

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**Translation of the original instructions*



GENERAL INDEX

1.	DEVICE INSTALLATION	3
1.2	MAINTENANCE AND PRESERVATION	3
1.3	SHIPPING AND STORAGE	3
2.	SPECIFICATIONS	4
3.	TRANSMITTER CALIBRATION AND POWER SUPPLY	5
4.	CONNECTION DIAGRAM	6
5.	FUNCTIONAL SAFETY	7





1. DEVICE INSTALLATION



The TR-I transmitter must be positioned on the point where vibration must be monitored, typically on the bearing support of pumps, motors, fans. etc.

In order to assure a good mechanical coupling between transmitter and support it is suggested to foresee:

- In case of cylindrical thread M8:
 - > smoothing of the fixing surface
 - > a threaded hole orthogonal to the surface of 12 mm depth
 - > a thin film of grease
- In case of conical thread:
 - > a threaded hole ¼" 18 NPT
- Mounting torque: 5÷10 Nm

1.2 MAINTENANCE AND PRESERVATION

The device is designed to be permanently installed.

It is calibrated in factory and it doesn't require maintenance nor periodic calibration.

In case of failure the device cannot be repaired and need to be replaced.

1.3 SHIPPING AND STORAGE

Temperature: - 60°C ÷ +90°C with non condensing humidity

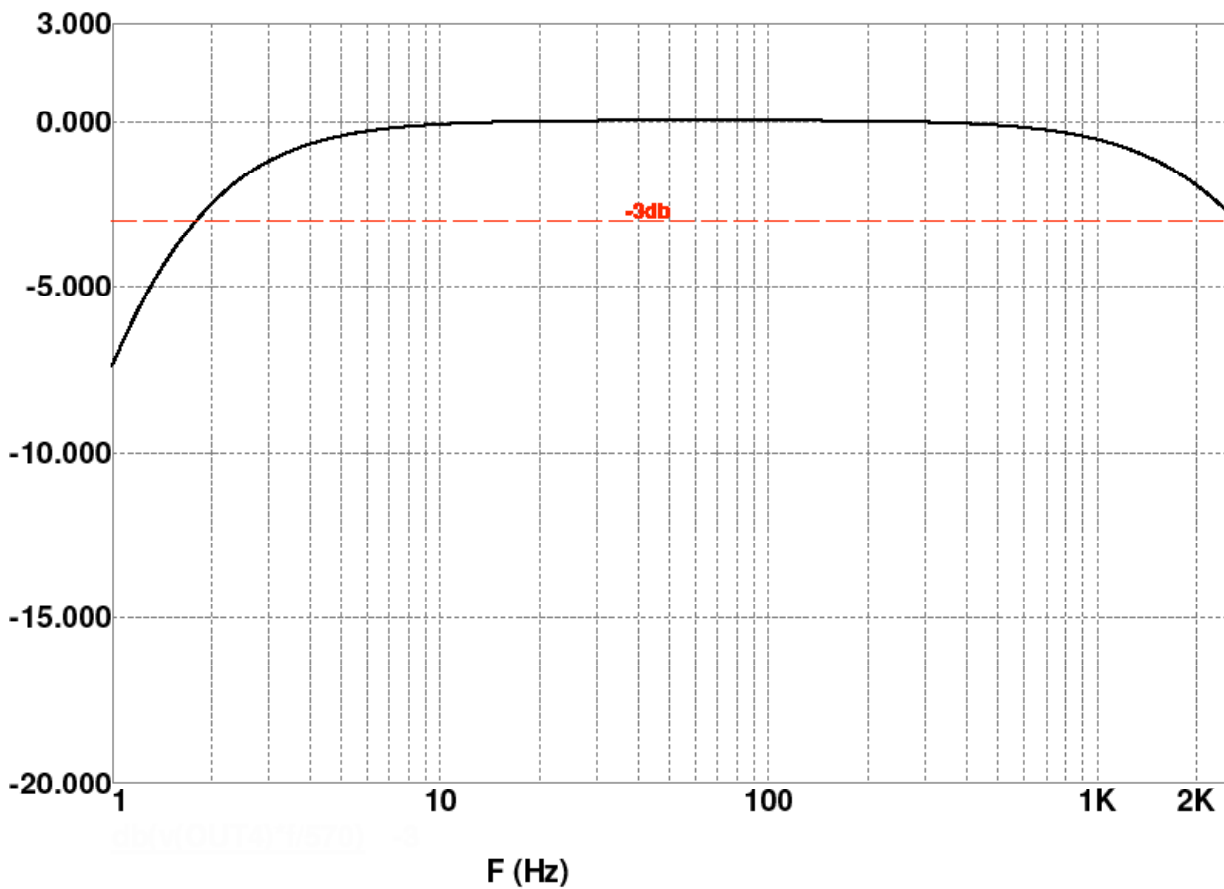
Do not remove from its original shipping package during shipping and storage

Mechanical Shock: 100 g

2. SPECIFICATIONS

Environmental	Transmitter: - 40°C ÷ + 70°C IP 65 - EN 60529/10.91
Measure type	Omnidirectional seismic (absolute vibration) along the axis of the sensor
Dynamic field	± 18 g
Transverse sensitivity	< 5 %
Linearity	± 2% - 75 Hz
Insulation	≥10 ⁸ Ω between signal and case
Dynamic performances	±3% / 10Hz-1kHz - see figure 2 -3db / 1,5Hz - 2kHz
Mounting torque	5÷10 Nm

TYPICAL FREQUENCY RESPONSE [DB]





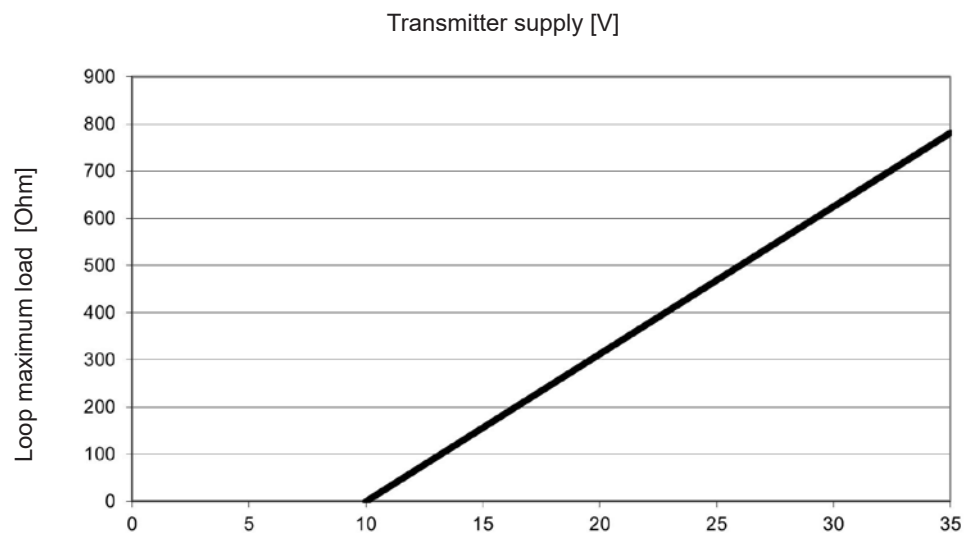
3. TRANSMITTER CALIBRATION AND POWER SUPPLY

Employ bipolar shielded cable to be connected to the terminals in the transmitter casing.

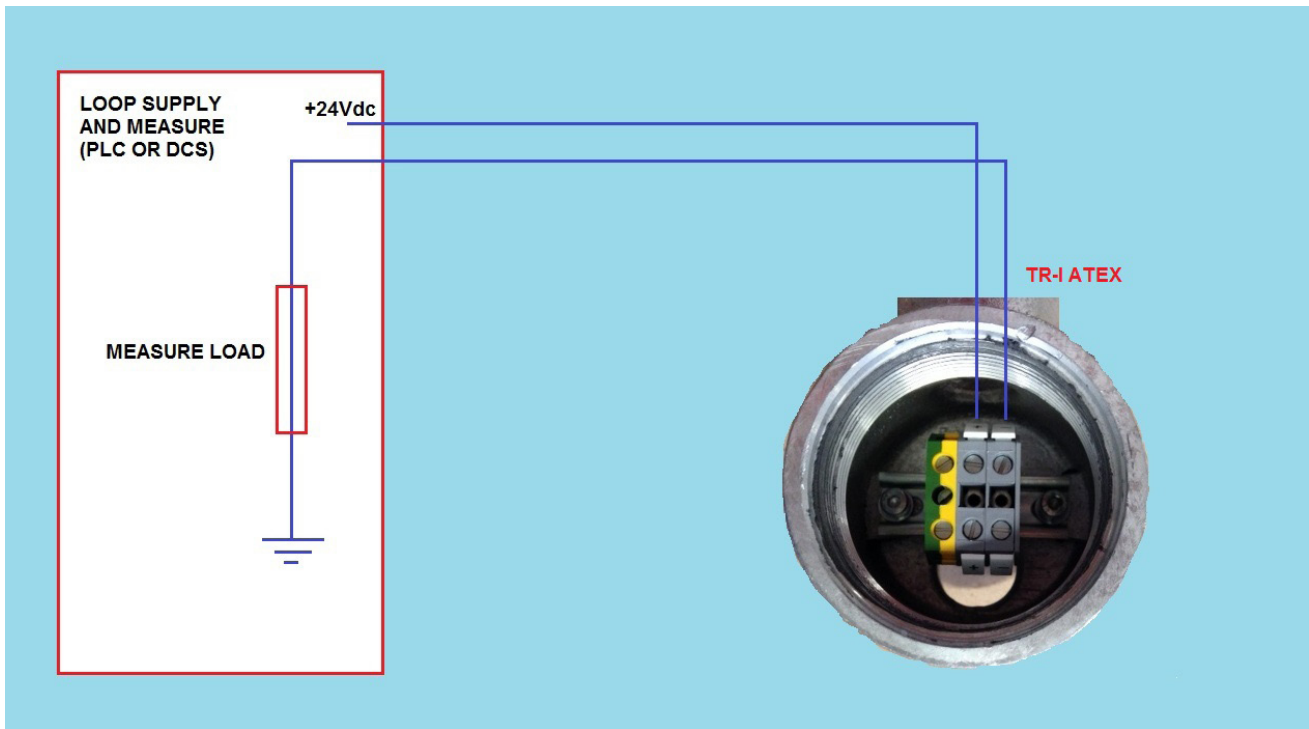
The wire section depends on the distance between transmitter and acquisition system.

In case of a considerable distance, one must take into account the sum of the voltage drops on the load and on the cable which must assure the correct power supply to the transmitter. The rated supply voltage is 24 Vdc. The transmitter can correctly monitor even with a voltage from 10 Vdc to 35 Vdc, assuring a loop load maximum value (sum of measure plus cable resistance) according to below graph.

LOOP MAXIMUM LOAD VS POWER SUPPLY



4. CONNECTION DIAGRAM



0	1	2	3	4	5	6	7	8	9
					Rev.	Creazione	Descrizione	Modifica	Disegnatore

The technical drawings include:
 - A side view of the device with a section line A-A.
 - A front view of the device.
 - A cross-section labeled 'Sezione A-A' showing internal components.
 - A detailed view of the device with the following dimensions and features:
 - Overall height: 89.5
 - Diameter: $\varnothing 66$
 - Thread: 3/4" NPT
 - Key: Key 27
 - Thread: 1/4" 18" NPT M8
 - Thread: 1/4" 18" NPT 9 (M8)
 - Length: 151

Data:	11/03/2013	<p>CEMB Ing. Buzzi & C. - S.p.A. Centrali Edilizia Meccaniche</p>	SCALE	1:2	Tipo di macchina:	TR-I ATEX	Cod:	48ATTR14	Rev.	A
Disegnatore:	ghislanz		FOLGIO	1 d 1	Disegno:	TR-I ATEX 1/4" 18NPT				
Clienti:			FORNATO	A4						
Ordine:										



5. FUNCTIONAL SAFETY

The Vibration Transmitters TR-I meets the requirements with regard to the following functions in accordance with IEC 61508.

(FITs means failures per 10^9 hours or failures per thousand million hours).

Functional Safety Data (FIT)

Failure mode	Category	Failure rate TR-I
Output current >24mA (upscale)	λ_{dd}	35
Output current <3 mA (downscale)	λ_{dd}	25
Output current within range but >2% in error	λ_{du}	83
Output current correct within $\pm 2\%$	λ_{su}	18

