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SEISMIC VELOCITY TRANSDUCER T1-40

Measurement of Omnidirectional Absolute Vibrations

Certified according to ATEX 94/9/CE directive

OPERATION

Transducer T1-40 serves for seismic measurement of the absolute vibrations of the machinery through direct fixing (omnidirectional) on the supports of the vibrating part in a dangerous area. It supplies an output signal directly proportional to the vibration speed of the point to which it is fastened. Such signal is then processed in a safe zone by a measuring channel of the "T" series.

The transducer, in its various models, is certified for applications in areas classified as:

ZONE 0	ZONE 1
- Ex II 1GD Ex ia IIC T6 Ex iaD 20 T85°C	**- Ex II 2GD Ex ia IIC T6 Ex iaD 21 T85°C**
- Ex II 1GD Ex ia IIC T5 Ex iaD 20 T100°C	**- Ex II 2GD Ex ia IIC T5 Ex iaD 21 T100°C**
- Ex II 1GD Ex ia IIC T4 Ex iaD 20 T135°C	**- Ex II 2GD Ex ia IIC T4 Ex iaD 21 T135°C**

PRINCIPLE OF OPERATION

A voltage, proportional to the speed of vibration, is induced in a coil suspended seismically to the transducer body and immersed in a field generated by a permanent magnet rigidly fastened to the transducer body.

SPECIFICATIONS

Type of measurement	: SEISMIC (absolute vibrations)
Field of application	: AMPLITUDE = ± 1000 µm p.p.
	FREQUENCY = 10÷1000 Hz
	DIRECT. OF VIBR. = ANY
Rated sensitivity	: 21,2 mV/mm/sec (RMS) a 25°C
Typical frequency	: 12 Hz
Damping coeff.	: 0.7
Cross sensitivity	: < 7%
Output impedance	: 1 Kohm at 25°C
Power supply	: None
Ambient operating range	: Temperature = see certification
	Humidity = 100% max
	Ambient = IP65 EN 60529/10.91
External connections	: Connector MS/MIL-C-5015 series 3102/16, std. accessory
Outer casing material	: Alluminium P.Al.Si 5.5 (Zone 1)
	or
	Stainless steel AISI 303 (Zone 0)
Weight of transducer	: approx. 0.300 kg
Fastening	: Screw, M8x1.25 – L=16 mm
Maintenance	: None
Enclosed drawings	: 17951 = Overall dimensions, layout and el. connections.

TRANSDUCER POSITIONING

Refer to drawing 17951.

***N.B.**: The operations should be performed possibly with the machine stationary and taking the greatest care so as not to damage the internal mechanisms of the transducer.*

1) On the support to be measured, drill a hole M8x1.25, 17 mm min. depth, making sure of its perpendicularity (if it is not possible to reach the depth of 17 mm, provide spacers of suitable thickness between the support surface and the transducer).
   The surface on which the transducer rests should be flat and smooth. It is advisable to apply a layer of silicone between the casing and the resting surface.
2) Screw the transducer in the M8x1.25 hole provided at point 1. Avoid knocks on the transducer. The use of a thread compound is advisable during tightening.
3) Carry out the electrical connections of the transducer to the measuring instrument by using the free lead connector (supplied as standard).

Notes regarding positioning:

- The wiring MUST be made with cables resistant to agents related to the workplace (oils, corrosive acids, temperature, etc.).
- Shielded cables MUST be used. Make sure that the shield is connected to the frame earth (GND=ground) at just one of the cable ends (the instrument side is advised).

- The electrical conductors must all have a minimum cross section of 1.0 mm², max. possible cross section = 2.5 mm² for a max. distance of approx. 800 metres.

Notes concerning certification:

1) The use of ATEX certified transducers is not allowed for different hazardous conditions or for those exceeding the data specified on the nameplate affixed to the transducer.
2) The transducer does not require maintenance. Any work regarding performance checks or repair should only be carried out in a laboratory duly authorized by CEMB SpA.

Notes for the identification :

The TRANSDUCER is manufactured in various versions in order to be correctly used according to :

1) the dangerous Zones where they will be used (zone 0 and 1)
2) the operating temperature (ambient t. and maximum t.)
3) the ambient operating characteristics (suitable or less suitable atmospheres for the following materials : STAINLESS STEEL, ALUMINIUM, PLASTIC)

These characteristics must match in order to meet ALL the plant requirements. The CEMB codes with which the main versions are identified and which meet requirements as per points 1 to 3 are as follows:

CEMB Code	ZONE 0	
9801145T4	TRANSDUCER T1-40/00/00/1C (-40÷+100°C) +135°C SURFACE, Zone 0, ATEX	II 1GD Ex ia IIC T4 Ex iaD 20 T135°C
9801145T5	TRANSDUCER T1-40/00/00/1B (-40÷+80°C) +100°C SURFACE, Zone 0, ATEX	II 1GD Ex ia IIC T5 Ex iaD 20 T100°C
9801145T6	TRANSDUCER T1-40/00/00/1A (-40÷+60°C) +85°C SURFACE, Zone 0, ATEX	II 1GD Ex ia IIC T6 Ex iaD 20 T85°C

CEMB Code	ZONE 1	
9831145T4	TRANSDUCER T1-40/00/00/1N (-40÷+100°C) +135°C SURFACE, Zone1,ATEX	II 2GD Ex ia IIC T4 Ex iaD 21 T135°C
9831145T5	TRANSDUCER T1-40/00/00/1M (-40÷+80°C) +100°C SURFACE, Zone1,ATEX	II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
9831145T6	TRANSDUCER T1-40/00/00/1L (-40÷+60°C) +85°C SURFACE, Zone 1,ATEX	II 2GD Ex ia IIC T6 Ex iaD 21 T85°C

Information complete table

T1- 40 / 00 / 00 / D

Where "D" =

Example of order

T1-40/00/00/1A

1A = Certif. Atex II 1GD Ex ia IIC T6 Ex iaD 20 T85°C

FOR ZONE 0, WITH PLASTIC CONNECTOR AND STAINLESS STEEL BODY

D : Certification Code

"D" Code	BODY	CONNECTOR	MARKING
/1A	STAINLESS STEEL	PLASTIC	II 1GD Ex ia IIC T6 Ex iaD 20 T85°C
/1B	STAINLESS STEEL	PLASTIC	II 1GD Ex ia IIC T5 Ex iaD 20 T100°C
/1C	STAINLESS STEEL	PLASTIC	II 1GD Ex ia IIC T4 Ex iaD 20 T135°C
/1D	STAINLESS STEEL	ALUMINIUM	II 2GD Ex ia IIC T6 Ex iaD 21 T85°C
/1E	STAINLESS STEEL	ALUMINIUM	II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
/1F	STAINLESS STEEL	ALUMINIUM	II 2GD Ex ia IIC T4 Ex iaD 21 T135°C
/1G	ALUMINIUM	PLASTIC	II 2GD Ex ia IIC T6 Ex iaD 21 T85°C
/1H	ALUMINIUM	PLASTIC	II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
/1I	ALUMINIUM	PLASTIC	II 2GD Ex ia IIC T4 Ex iaD 21 T135°C
/1L	ALUMINIUM	ALUMINIUM	II 2GD Ex ia IIC T6 Ex iaD 21 T85°C
/1M	ALUMINIUM	ALUMINIUM	II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
/1N	ALUMINIUM	ALUMINIUM	II 2GD Ex ia IIC T4 Ex iaD 21 T135°C
/1P	STAINLESS STEEL	PLASTIC	II 2GD Ex ia IIC T6 Ex iaD 21 T85°C
/1Q	STAINLESS STEEL	PLASTIC	II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
/1R	STAINLESS STEEL	PLASTIC	II 2GD Ex ia IIC T4 Ex iaD 21 T135°C

Certifications according to ATEX 94/9/CE

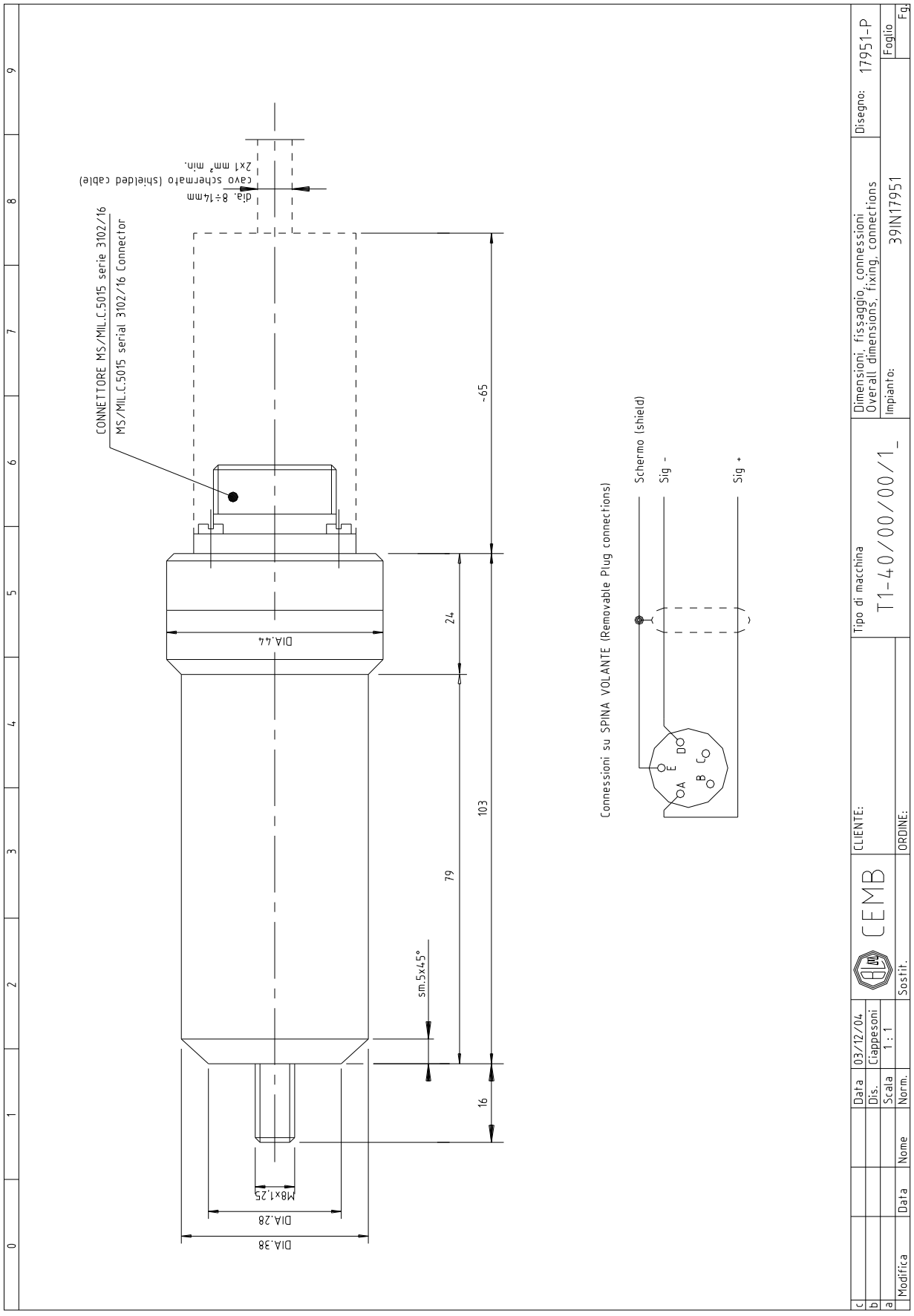
CE 0722 Ex II 1GD Ex ia IIC T6 Ex iaD 20 T85°C
CE 0722 Ex II 1GD Ex ia IIC T5 Ex iaD 20 T100°C
CE 0722 Ex II 1GD Ex ia IIC T4 Ex iaD 20 T135°C

CE 0722 Ex II 2GD Ex ia IIC T6 Ex iaD 21 T85°C
CE 0722 Ex II 2GD Ex ia IIC T5 Ex iaD 21 T100°C
CE 0722 Ex II 2GD Ex ia IIC T4 Ex iaD 21 T135°C

CESI 01 ATEX 050

Legend of nameplate safety data

CE	Marking of compliance with the applicable European directives
0722	Number of the Notified Body carrying out the surveillance (CESI)
Ex	Marking of compliance with 94/9/CE Directive and relevant technical standards
II 1GD / II 2GD	II 1 GD Equipment intended for use in areas in which Ex atmosphere caused by gases and dust, suitable for Zone 0 and 20 II 2 GD Equipment intended for use in areas in which Ex atmosphere caused by gases and dust, suitable for Zone 1 and 21 Not suitable for mines
Ex ia	Equipment belonging to category "ia" with intrinsic safety
II C	Suitable for substances (gas) of group IIC, also suitable for groups IIA and IIB
T6-T5-T4	T6 temperature class (surface temperature: 85°C) T5 temperature class (surface temperature: 100°C) T4 temperature class (surface temperature: 135°C)
Ex iaD T85°C **Ex iaD T100°C** **Ex iaD T135°C**	Protection for Dust
T. amb.	For T6 class, ambient temperature : -40 ÷ 60 °C For T5 class, ambient temperature : -40 ÷ 80 °C For T4 class, ambient temperature: -40 ÷ 100 °C
CESI 01 ATEX 050	Certificate identification : • Name of the laboratory issuing the CE-type-examination certificate • 01 = year of certificate issue • 050 = certificate number


CONNETTORE MS/MIL.C.5015 serie 3102/16
MS/MIL.C.5015 serial 3102/16 Connector
dia. 8÷14mm
cavo schermato (shielded cable)
2x1 mm² min.
-65
24
103
79
16
sm.5x45°
DIA.44
DIA.38
DIA.28
M8x1,25
Connessioni su SPINA VOLANTE (Removable Plug connections)
Schermo (shield)
Sig -
Sig +
A
B
C
D
E
CEMB
CLIENTE:
ORDINE:
Tipo di macchina
T1-40/00/00/1_
Dimensioni, fissaggio, connessioni
Overall dimensions, fixing, connections
Impianto:
39IN17951
Disegno: 17951-P
Foglio
Fg.
Data 03/12/04.
Dis. Ciappesoni
Scala 1 : 1
Norm.
Sostit.
Modifica
Nome
Data

ASTD90420