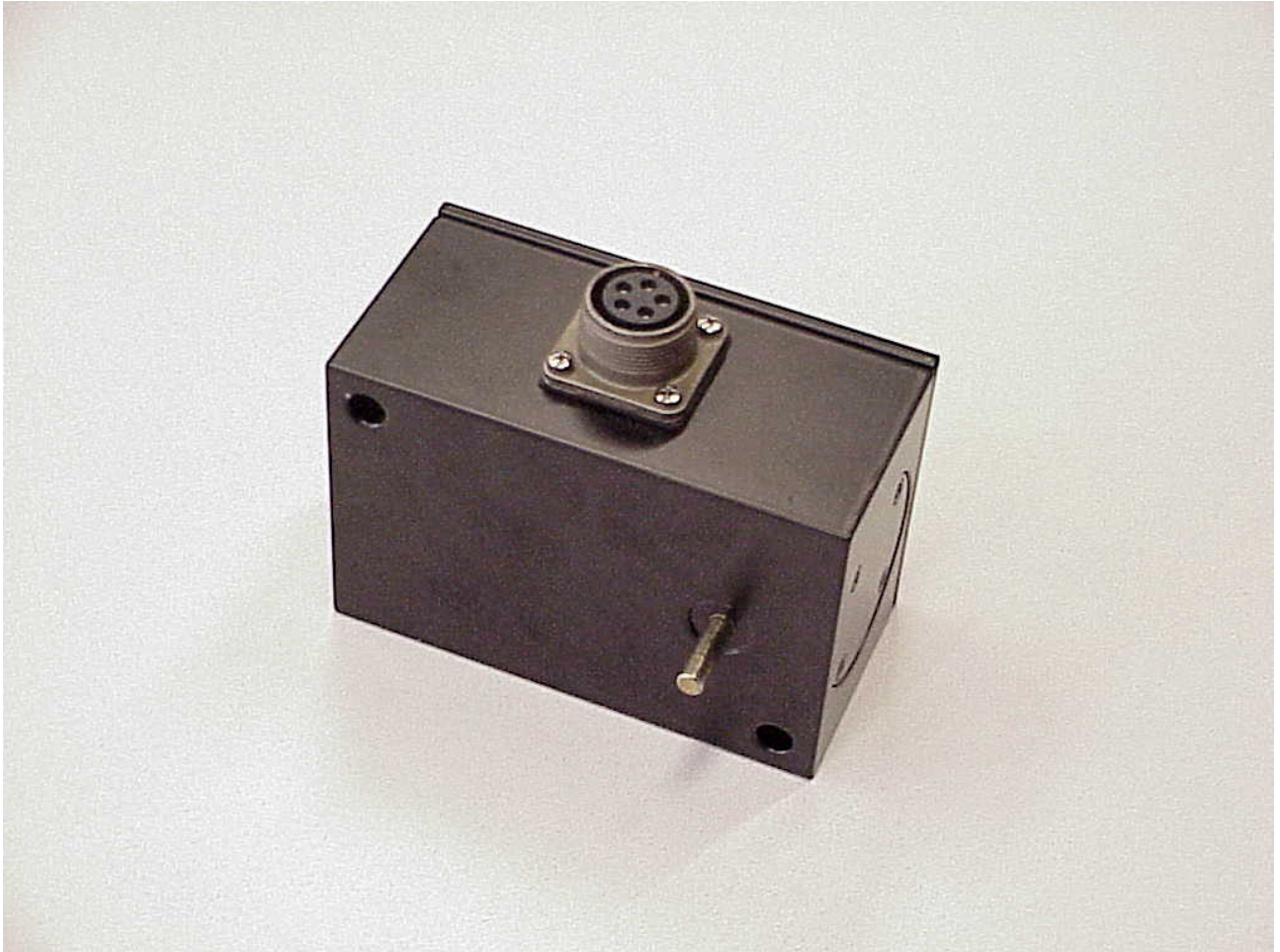


## TRANSDUCER T7-LVDT/120/24



### **FUNCTION**

Transducer T7-LVDT/120/24 is used for measuring, through the position transducer system with linear variable differential transformer (LVDT), the **OPENING POSITION of steam VALVES in a turbine**; the measurement is performed by keying the transducer shaft integrally with the valve opening control device in order to measure the rotation of such device. The signal picked up should be sent to a measuring channel CEMB /T7 units for processing.

### **PRINCIPLE OF OPERATION**

Transformer T7-LVDT/120 allows transforming the rotational movement of the valve control device into a linear movement measured by a magnetic core which is displaced within a fixed coil in the transducer body. The coil has one primary winding and two secondary windings connected in opposing phase; the output signal (secondary winding) is proportional to the mechanical displacement of the core and, therefore, to the angle of rotation performed by the valve control device.

## TECHNICAL CHARACTERISTICS

Range of measurement : 0 to 120°

Sensitivity : 5 mV/°

Transformer LVDT : . Range = ±5.08 mm  
: . Impedance, primary winding = 970 ohm/2500 Hz  
: . Impedance, secondary windings = 1010 ohm/2500 Hz  
: . Max linearity error = ± 0.5% f.s.  
: . Nominal sensitivity = 63 mV/mm  
: . Frequency range = 50 Hz to 10 kHz  
: . Supply voltage = 3 V rms (rated)

Range of application : . Temperature = -55°C to +95°C  
: . Humidity = max 95% not condensing  
: . Vibrations = max 20 g / 2 KHz  
: . Ambient = IP55 EN60529/10.90 standards

Composition : . Transducer T5-LVDT/25  
: . Converter AD1

Power supply : . Transducer = ± 15 Vdc, GND  
: . Converter AD1 = +15 to 24 Vdc, GND

Connection : . Transducer = connector 7-pin MIL C-5015 series 3106/16, standard kit  
: . Converter = connector 5-pin MIL C-5015 series 3106/16, standard kit

Conn. shaft diameter : Dia.6.0 h6 x L.18.0 mm

Outer casing material : Aluminium

Weight : Kg 8 approx.

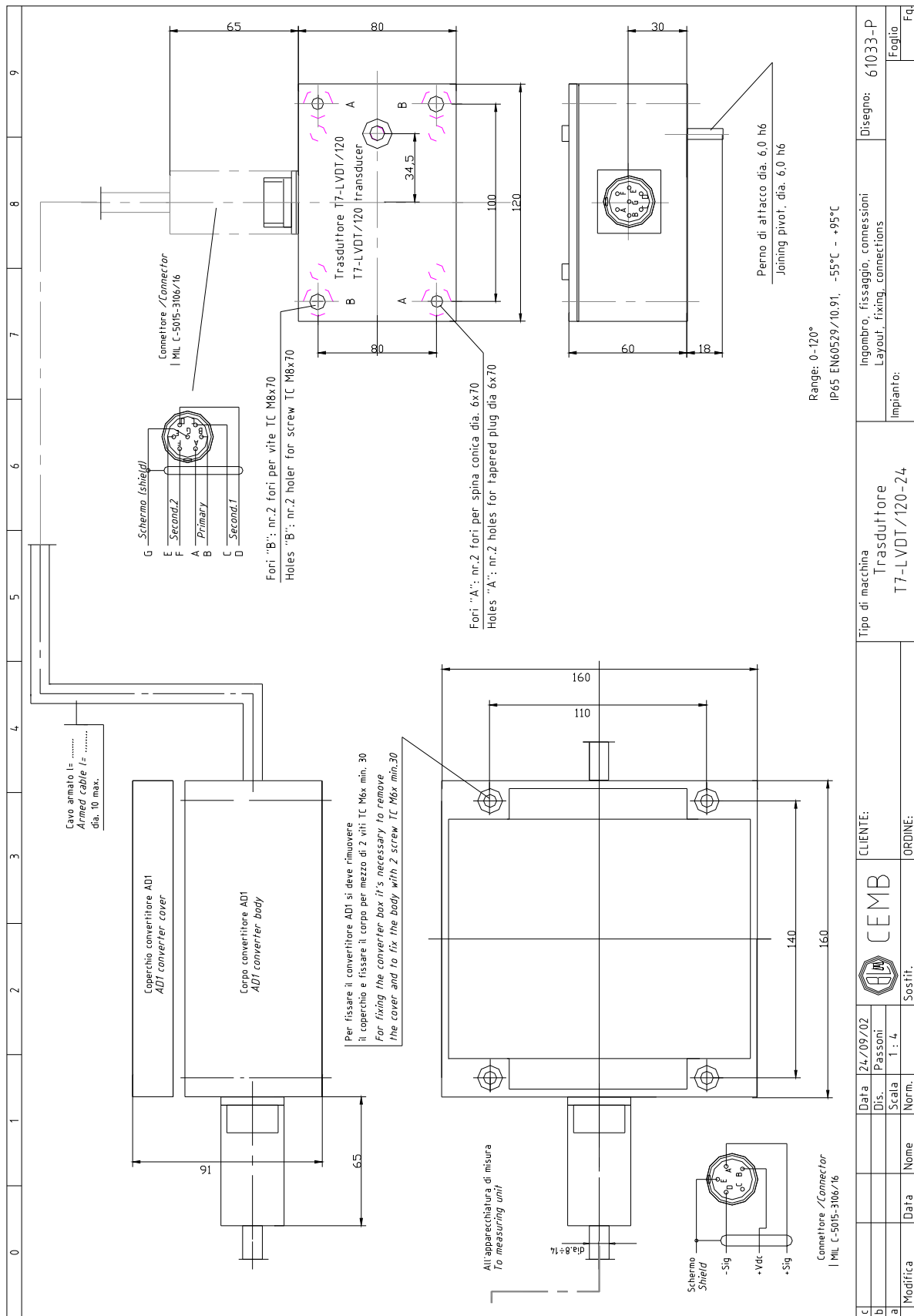
Maintenance : none

Drawings enclosed : 61033 = Overall dimensions, mounting, connections

## TRANSDUCER POSITIONING

Refer to drawing Nr. 61033

- 1) Separate transducer T7 from converter AD1 (necessary for converting the LVDT signal into a signal which can be analyzed by the instrument)
- 2) Fasten transducer T7 at the anchoring point without locking the shaft diameter 6.0 mm to the valve opening control mechanism; bear in mind that the shaft is provided with preloading which sends the linear transducer to end of stroke in one of the two directions; to return the stroke to mid position, turn the shaft clockwise.
- 3) Fasten converter AD1 (the access holes can be located by removing the cover from the box)
- 4) Reconnect transducer T7 to converter AD1 and connect the latter to the measuring instrument using the flying plug connector provided as standard.
- 5) Connect a voltmeter in parallel to the signal input in the measuring instrument, downstream to adapter module AD1 (voltmeter connected across pins A and D of the converter connector (or else across the corresponding terminals of the transducer signal input of the measuring instrument))
- 6) With the measuring instrument operating, search for exact coincidence between the mid measurement of the transducer and the mid measurement of the valve control mechanism to which the shaft should be connected by proceeding as follows:
  - Set the valve opening control mechanism in position corresponding to 50% of its opening angle (max. possible for the transducer = 120°) noting its direction of opening
  - turn the shaft until reading 0 Vdc on the voltmeter checking that the reading is decreased when rotating in direction opposite to the direction of opening of the valve control mechanism, while it is increased when the wheel rotates in the opening direction
  - rigidly fasten the transducer shaft to the valve control mechanism being careful not to knock the transducer and making sure that the rotation of the shaft is only stressed by the torsion imposed by the rotational motion.
- 7) If possible, check whether the minimum and maximum mechanical opening of the valve control mechanism corresponds with the scale start and full scale readings of the measuring channel of the instrument in question
- 8) If this is not possible, carry out operation 6 and proceed to re-calibration of measuring channel by following the instructions given in the instruction manual regarding the instrument supplied.



c	Data	24/09/02	CLIENTE:	Tipo di macchina	Ingombro, fissaggio, connessioni	Disegno:	61033-P
b	Dis.	Passoni		Trasduttore	Layout, fixing, connections		
a	Scala	1 : 4	Sostit.	T7-LVDT/120-24	Impianto:	Foglio	Fg.
	Modifica	Data	Nome	ORDINE:			