

TRANSDUCER CONDITIONER AMPLIFIER TCAB

The lid is connected to the box through 175mm ye/gn wire.

Connection through screw terminals.
Wire size: max 1.5 mm².

The aluminium enclosure may have the Protective Earth potential.

The cable shields must be connected to the housing inside the cable gland.

Cable assembly

30 mm stripped cable

Wires

Shield

Sealing

PG 7

Cable size: 3-6.5 mm

Standard 4-20mA 0-5V

Reversed 0-20mA ±2.5V

JUMPER SETTINGS

“LT”: Only customer specified products.

PG7 Combi cable gland.
Cable size: 4-7mm. Cable surrounded by Ø10mm metalplast tube. Bending radius: min. 50mm. Cable shield must be connected with internal wafer.

External Connections sign placed inside lid.

External Connections		
A. 4-20mA 2-wire	B. 0-20mA BA 4-20mA 3-wire	C. 0-5V D. +/-2.5V 4-wire

PCB Block diagram and Connection setups

SHIELD BOX

2-wire 4-20 mA load related to supply voltage

DESCRIPTION

The TCAB signal conditioner and amplifier is designed to interface the H. F. Jensen inductive single coil line of displacement transducers, together performing a linear measuring system. The electronic includes an excitation stage, a differential input amplifier, a phase-sensitive demodulator, low-pass filter and output stages. Further it compensates for transducer temperature drift, measuring the coil temperature by DC-current, hereby achieving very low shift over a large temperature range. The product will function over a wide range of supply voltage with no change in output and it offers various output signals configured by the user through jumpers. The layout, filtered and transient protected connections plus a metal shieldbox covering all sensitive components ensures high electromagnetic compatibility. The EMC is further enhanced through shielded cable glands in the outer aluminium enclosure. All this features a robust and IP65 tight unit compatible with most industrial environments.

SPECIFICATIONS

Power requirement	12-30 V _{DC} , 4 mA _{DC} + output signal current
Supply voltage rejection	min. 86 dB between 12 and 30 V _{DC}
Sensor excitation	1 mA _{RMS} , 5 kHz + 1.25 mA _{DC} .
Output signals and load	Selected by jumpers placed beside the terminals
- A	4-20 mA _{DC} , 2-wire, R _L : see diagram, C _L < 1μF
- B	0-20 mA _{DC} , 3-wire, R _L < 700 Ω , C _L < 1μF
- BA	4-20 mA _{DC} , 3-wire, R _L < 700 Ω , C _L < 1μF
- C	0-5 V _{DC} , 4-wire, R _L > 5 kΩ. C _L < 1μF
- D	±2.5 V _{DC} , 4-wire, R _L > 20 kΩ. C _L < 1μF
Load resistance rejection	min. 60 dB for max ΔR _L
Response time (0-100 %)	6 msec.
Output signal ripple	< 0.05 % p-p of FSO
Polarity S/R	Selected by jumper placed beside the terminals
Non-linearity	< 0.01 %
GAIN adjustment	± 10 % of signal output
BALANCE adjustment	± 10 % of FSO
Temperature range	-25 °C to +85 °C
Temperature coefficient incl. transducer	Typical 0.01 %/°C, max. 0.03 %/°C of FSO
Cable length	Max. 50 m between sensor and amplifier
Environmental conditions	
- vibration	According to IEC 68-2-6 (10-150 Hz, 0.35 mm/5g)
- shock	According to IEC 68-2-27 (1000 g half sine, 1 msec)
- electromagnetic immunity	According to EN 50082-2 (generic industrial standard)
- electromagnetic emission	According to EN 50081-2 (generic industrial standard)
Materials and protection class	Box of Al Si 12, IP65 - Cable glands of brass, IP67
Weight	250 gram

INSTALLATION

Remove the box lid. The box is easily mounted with M4 screws through the screw-channels. Check the jumper setting according to the application and connect the sensor, supply and output signal according to the *External Connections* sign. Use only shielded cables for connection. The cable shield should be connected inside the transmitter cable gland and to the EMC-reference of the associated electronics to ensure compatibility. Keep gasket and surfaces between box underpart and lid clean at all times. Make sure the lid screws and cable gland nuts are tightened after connection.

ADJUSTMENT

The measuring system consisting of displacement sensor and the TCAB is factory calibrated with reference to the requested output signal and type sign, and followed by a *Certificate of Accuracy*. Calibration should be checked after service performed by the user or according to a user maintenance procedure. The output signal can be changed by moving the jumpers on the PCB. Calibration is within 2 %. To recalibrate, place core in its mid-position. BALANCE to the 50 % output signal value (0 V_{DC} in the D-configuration). Move the core to the wished inner position. Adjust to 0 % or 100 % output signal value with GAIN. Check output with core in opposite position and repeat if necessary. A new offset can now be adjusted with BALANCE. The output polarity can be changed with a jumper.

ORDERING INFORMATION

TCAB x x x

Output signal configuration: A/B/BA/C/D (please see SPECIFICATIONS)

Calibrated range in mm

Corresponding transducer type. E.g: Specify "LW" when transducer type is XLW