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Pressure Transmitter with indication Type 4 AAI-10, NG 100

Description

Pressure transmitters are used for pressure measurement and transmission through standard electrical signals. A Bourdon element deflects under pressure, its movement is converted by an inductive displacement transducer into an electrical signal. The pressure transmitters are suitable for all liquids and gases provided they are not highly viscous or crystallising. Through the use of stainless steel the pressure transmitters are particularly suitable for corrosive media and for use in corrosive atmospheres.

Type designation

4 AAI - 10/ 4	Product group Pressure measurement pipe-mounted analogue indication inductive measuring system case 100 mm dia
A	output signal 0 to 10 V
A	output signal 0 to 20 mA
I	output signal 4 to 20 mA
- 10	
- 010	
- 020	
- 420	

Extra Codes

- /01 restrictor in pressure connection
- /09 case filled with damping liquid
- /52 without indication
- /53 with built-in power supply
220 V a.c., 50 Hz
- /54 with built-in power supply
110 V a.c., 60 Hz

Ordering example

Pressure transmitter
 Type 4 AAI - 10/020/01
 Range 0 to 10 bar

Operation

The pressure of the medium acts directly on the Bourdon tube whose free end rotates the pointer through a mechanical linkage. An inductive displacement transducer consisting of a differential transformer and a ferrite core attached to the Bourdon tube is energised by an oscillator in the primary winding of the differential transformer. The movement of the Bourdon tube under pressure displaces the ferrite core and causes a voltage change in the two secondary windings of the differential transformer.

06.91/00073117

Technical data

Case

case with bayonet ring, stainless steel,
 Mat. Ref. 1.4301

Safety devices

blow-out with breathing diaphragm, radially on case (operates at 0.2 - 0.4 bar overpressure inside the case)
 window laminated safety glass, 4 mm thick

Dial

white, black figuring, to DIN 16 109

Transmission mechanism

st. steel, Mat. Ref. 1.4301

Measuring element

Bourdon tube, stainless steel
 Mat. Ref. 1.4404

Vibration damping

Case filled with Energol liquid provides damping of the measuring system and the transmission mechanism in case of vibrations and pressure fluctuations. (Code /09)

Seals

all seals are Neoprene

Pressure connection

1/2" pipe to DIN 16 288, stainless steel,
 Mat. Ref. 1.4404

Ranges in bar

- 1 to 0	- 1/0/ 5
- 1/0/0.6	- 1/0/ 9
- 1/0/1.5	- 1/0/15
- 1/0/3	
0 to 0.6	0 to 25
0 to 1	0 to 40
0 to 1.6	0 to 60
0 to 2.5	0 to 100
0 to 4	0 to 160
0 to 6	0 to 250
0 to 10	0 to 400
0 to 16	0 to 600

Indication accuracy

to DIN 16 005, Class 1.0

Pressure limit

to DIN 16 005
 steady pressure = full scale
 fluctuating pressure = 90% full scale

Electrical connection

screw terminals up to 1.5 mm²
 conductor cross-section

Protection

IP 54



Supply

normally:
 19 to 31 V d.c.
 loading 40 mA max. for 20 mA output signal;
 220 V a.c., 50 Hz, with built-in power supply (Code /53);
 110 V a.c., 60 Hz with built-in power supply (Code /54)

Supply voltage error

0.1% between 19 and 31 V d.c.

Transfer characteristic

The linear output signal is proportional to pressure, accuracy ± 1%

Output

protected against short-circuit and open circuit
 0 to 10 V burden 2 kOhm min.
 0 to 20 mA burden 600 Ohm max.
 4 to 20 mA burden 600 Ohm max.
 potentiometer adjustment in the electronics:
 span: ± 20%
 zero: ± 15%

Burden error

current output 0.2% max. at 0 Ω to 600 Ω
 voltage output 0.2% max. at 2 kΩ to ∞

Hysteresis

not exceeding 0.5%

Response time

50 msec approx.
 1 sec approx.
 for transmitters with liquid damping

Voltage test

connections against case to VDE 0411,
 500 V_{ms}, 50 Hz, 1 min

Permitted ambient temperature

- 10 to + 60°C

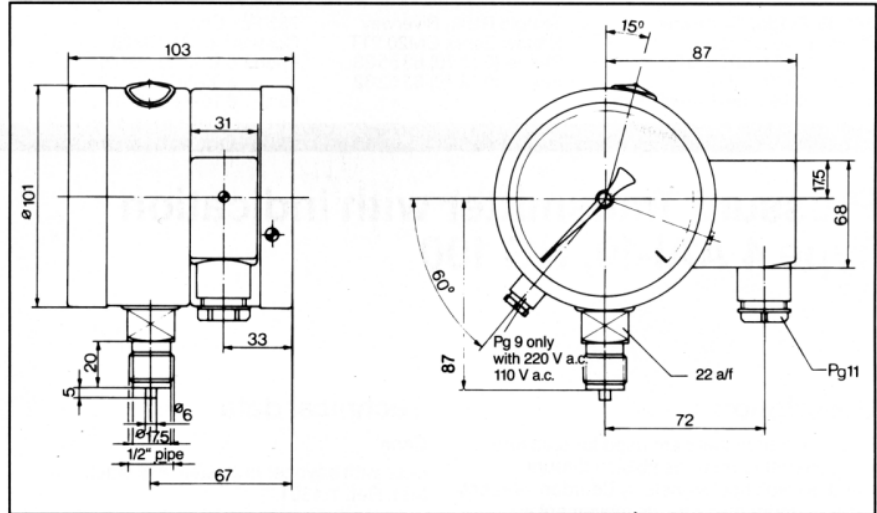
Ambient temperature error (0 + 40°C)

Zero drift	Voltage output ± 0.03%/°C	Current output ± 0.03%/°C
Span drift	± 0.03%/°C	± 0.03%/°C

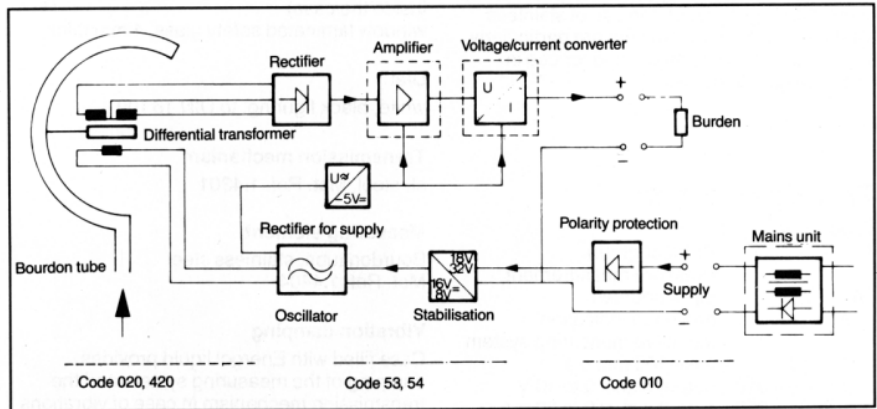
Nominal position

vertical

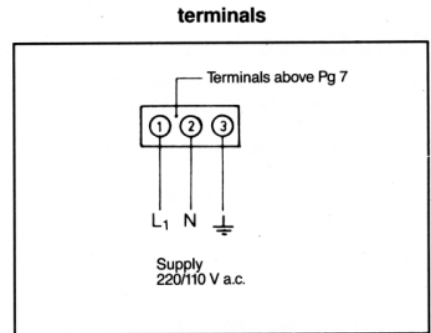
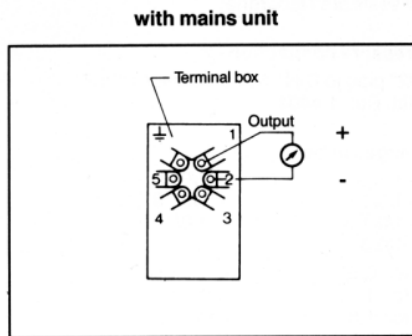
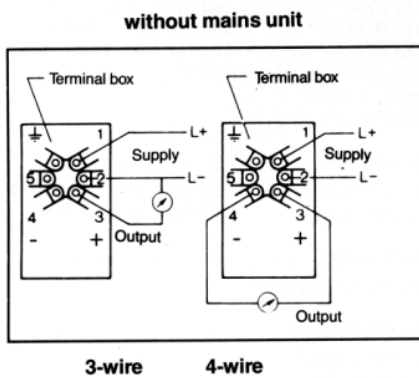
Dimensions



Block diagram



Connection diagrams



3-wire 4-wire

mm	inch
5	0.20
6	0.24
17.5	0.69
20	0.79
31	1.22
33	1.30
67	2.64
68	2.68
72	2.83
87	3.43
100	3.94
101	3.98
103	4.06
1.5 mm ²	0.024 in ²

Note

Digital Indicator Type PdA. – 48 _____ Data Sheet 91.300
 Electronic controllers to Data Sheets of Group _____ 97.000
 JUMO Comp single-channel and multi-channel printing recorders _____ Data Sheet 92.300
 JUMO Comp single-channel and multi-channel pen recorders _____ Data Sheet 92.710