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JUMO
MEASUREMENT AND CONTROL

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
A	pipe-mounted
A	analogue indication
I	inductive measuring system
– 10	case 100 mm dia
– 010	output signal 0 to 10 V
– 020	output signal 0 to 20 mA
– 420	output signal 4 to 20 mA

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.

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_{rms}, 50 Hz, 1 min

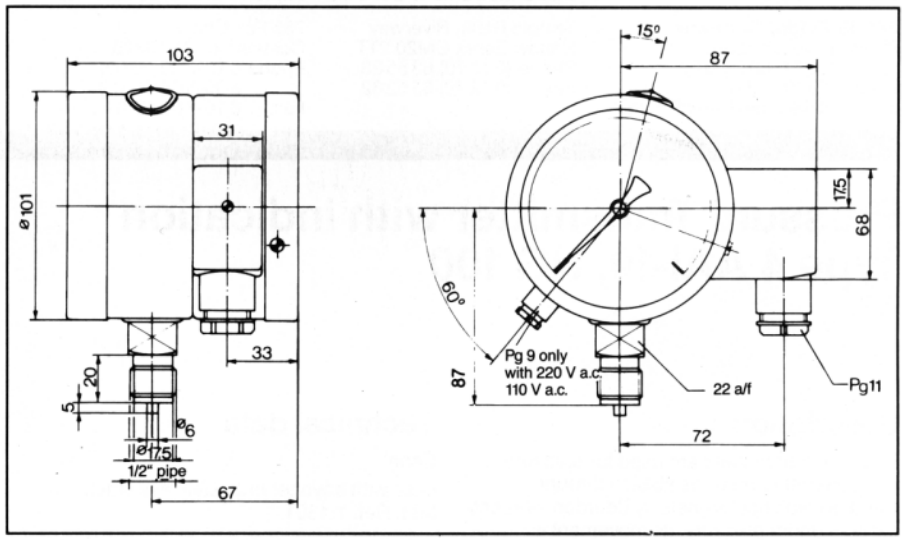
Permitted ambient temperature
– 10 to + 60°C

Ambient temperature error (0 + 40°C)

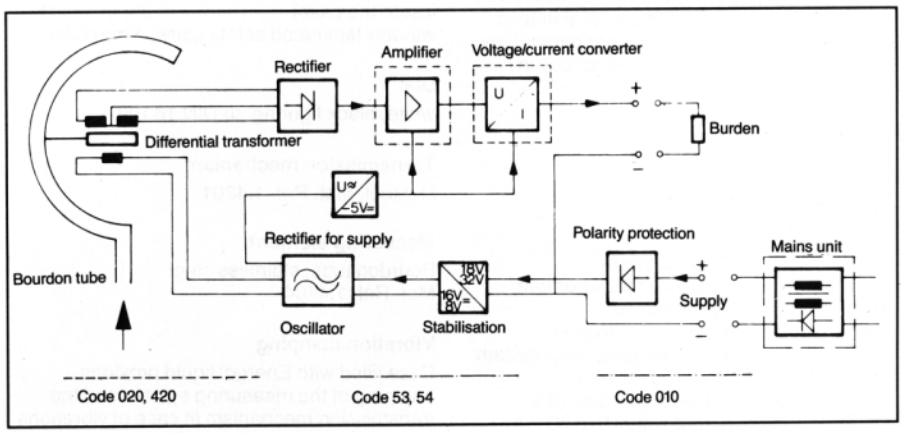
	Voltage output	Current output
Zero drift	± 0.03%/°C	± 0.03%/°C
Span drift	± 0.03%/°C	± 0.03%/°C

Nominal position
vertical

Dimensions

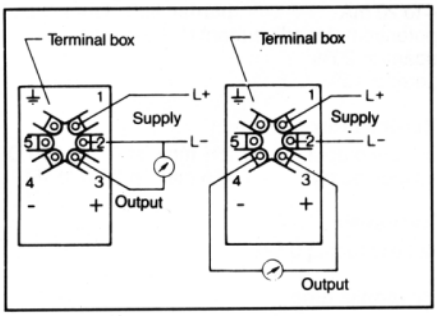


Block diagram



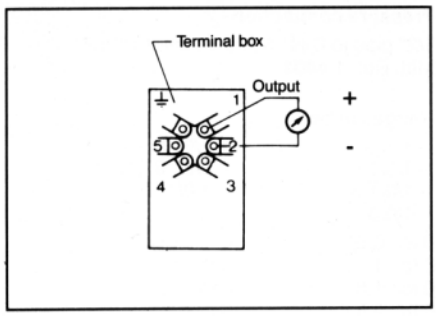
Connection diagrams

without mains unit

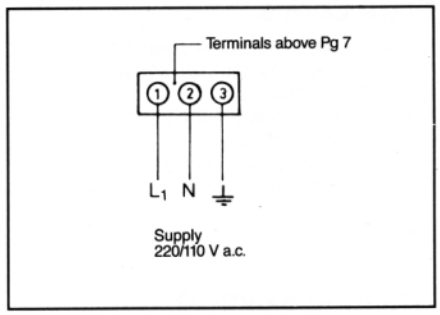


3-wire **4-wire**

with mains unit



terminals



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 mm²	0.024 in²

Note

Digital Indicator Type PdA. – 48 ____ Data Sheet 91.300
Electronical 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