

pressure transmitter - Ex

N-JB

CRESSTO

- **ATEX - intrinsic safety**
- **group IM1 Ex ia I Ma**
- **group II1G Ex ia IIB T4 Ga**
- **very high sensitivity**
- **overpressure endurance**
- **protection IP65**
- **vibration endurance**
- **damping time constant selection**



These transmitters can be used both in the medium with occurrence of flammable dust or methane, ie. especially in mines. They are approved by an accredited laboratory in versions I M1 Ex ia I Ma and II1G Ex ia IIB T4 Ga.

The transmitters have wide use in the area of measuring and regulations of low and very low pressures, ie especially in the area of air-conditioning, ventilation systems, combustion process control, device constructions, etc. It is constructed for measuring differential pressure and so also covers the requirement for measuring relative pressures. But they are not intended for measuring at high consistent pressure, eg. measuring on flow hoods in pressure distribution systems. Special attention should be paid to measuring absolute, thus also barometric pressure, whose changes are substantial for a lot of industrial processes. For this measuring, transmitters with specially adjusted range with suppressed zero are made. The measured medium can be non-aggressive gas, applications of any aggressive media is prohibited.

The whole transmitter, ie. the pressure sensor, power supply, compensation and amplifying circuits and the filter for increasing the interference resistance, are placed in a plastic box from polyester of an antistatic type. Pressure inlets are created by inlets from nickel coated brass with diameter 6 mm which are suitable for putting on a tube. Besides that, the medium comes into contact with silicon, silicon rubber, and plastic material polyetherimid.

For connection to the measuring circuit, there is a sealed arrested connector, type DIN 43650, with a cable bushing which enables using a cable with diameter max. 9 mm.

With this type of transmitter, the pressure is measured by means of a sensor with a silicon membrane, the measuring principle is piezoelectric. Thanks to this, the transmitter achieves high overload capacity, it is vibration resistant and can work in any position. An undisputable advantage for some applications is the possibility to measure both underpressure and overpressure by one transmitter. The electronics is realized by the surface mounting technology. The electronics is protected by a double layer of varnish.

The output signal, which carries the information about the pressure difference at the input, is current or voltage. The transmitters are supplied in the two-conductor type $4 \pm 20\text{mA}$ or the three-conductor type with special ranges $0.2 \pm 1\text{mA}$ or $0.05 \pm 1\text{V}$. It is possible to operate the transmitter with a voltage output in the range of power supply voltages 8.5 to 22V. Changing of the power supply voltage in these ranges does not have a practical influence on the measurement accuracy.

The transmitter is firmly calibrated on the required pressure range. Fine adjustment (ca. 2%) of the end points of the transfer characteristic is possible by means of multi-revolution trimers which are accessible after unscrewing the transmitter cover. The trimer for adjusting the range beginning (zero) are marked red. Short-circuit couplings for choosing the damping time constant are also situated under the cover.

We recommend using standardized pressure ranges, but based on an agreement it is possible to adjust any range in the range of nominal pressures and outputs, including symmetric and asymmetric combinations underpressure-overpressure.

Technical parameters:

Nominal pressure range	± 100 Pa to ± 100 kPa
Overpressure to 2 kPa	20 kPa
from 2 kPa to 20 kPa	50 kPa
from 20 kPa to 100 kPa	300 % nominal range
over 100 kPa	200 % nominal range
Error	max. 1% (0,5%) ± 2Pa
Zero temperature error	typ. 0,2 % max. 0,3%/10°C
Span temperature error	typ. 0,2 % max. 0,3 %/10°C
Compensated temp. range	0 ÷ 70°C
Operating temp. range	-20 ÷ +60°C
Storage temperature	-25 ÷ +100°C
Supply voltage - output F,G	10 ÷ 22V dc
Supply voltage - output H	8,5 ÷ 22V dc
Supply current - output G,H	typ. 4,5mA
Output	4 ÷ 20mA two-wire 0,2 ÷ 1mA three-wire 0,05 ÷ 1V three-wire
Operating position	arbitrary
Protection	min. IP 65
Weight	cca 400g

ATEX group I M1 Ex ia I
ATEX group II1G Ex ia IIB T4 Ga

Barometric transmitters are produced with standard range 80 ÷ 120 kPa.

At the customer's wish it is possible to secure a metrological verification of the transmitters at an accredited Calibration Service Centre.

Legend:

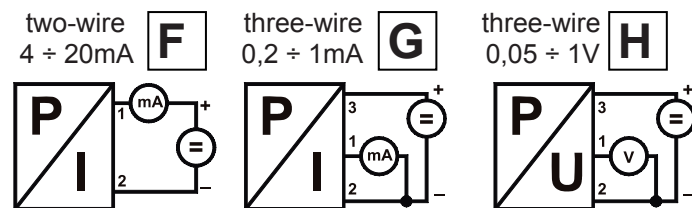
T M G 3 3 8 N 3 F JB

type of press. mesure.		
differential		
absolutne, barometrical	A	
exponent of pressure range		
10 ² Pa (hundreds Pa)		2
10 ³ Pa (units kPa)		3
10 ⁴ Pa (tens kPa)		4
10 ⁵ Pa (hundreds kPa)		5
multiplacand of pressure range		
1,0		1
1,6		2
2,5		3
4,0		4
6,0		6
membrane material		
silicon		8
case material		
polyester, pressure connection 6mm		N
electrical connection		
connector DIN 43650		3
electrical output		
current	4 ÷ 20mA	F
current	0,2 ÷ 1mA	G
voltage	0,05 ÷ 1V	H
additional signs - ATEX intrinsic safety		JB

Operating instructions:

- Before the transmitter is connected to the pressure circuit it is necessary to check whether the measured pressure corresponds with the nominal range of the transmitter. Even a short-time overload over the maximum permissible overpressure can cause destruction of the measuring membrane!

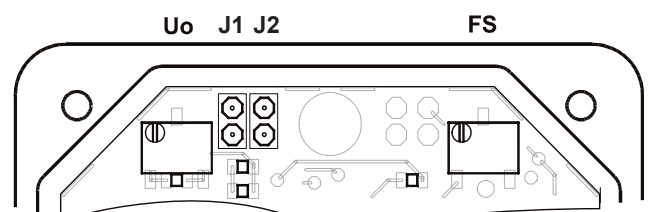
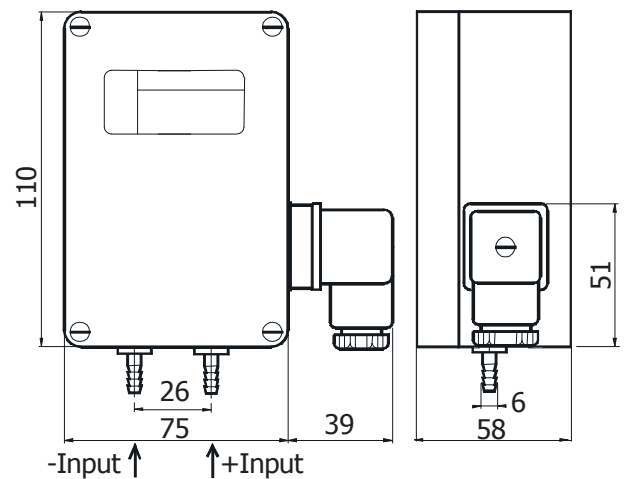
Electrical connection:



Pin assignments: valid for connector DIN 43650

	two-wire 4 ÷ 20mA	three-wire 0,2 ÷ 1mA	three-wire 0,05 ÷ 1V
+ supply voltage	1	3	3
- supply voltage	2	2	2
output		1	1
shielding	⊥	⊥	⊥

Dimensions:



Time damping

	J1	OFF	ON	OFF	ON
J2	OFF	OFF	ON	ON	
τ [s]	0	1	2	3	