Type 428xAE...-438xAE...

PRESSURE TRANSMITTER 428xAE... – 438xAE...

These extremely versatile pressure transmitters are suitable for measuring dynamic and static pressures. The built-in silicon measuring chip offers besides its **high accuracy** also an **excellent long term stability** coupled with a **very low temperature drift**. Due to their high cutoff frequency and rugged construction, the pressure transmitters can withstand high shocks and vibrations.

- **High accuracy**
- **Excellent long term stability**
- **Very low temperature drift**
- **Measuring ranges from 0,2 to 1000 bar**
- **High dynamic resistancy**
- **Absolute or relative pressure**
- **Long life**
- **Intrinsically safe EEx ia**
- **Conformity to ä standards**



The transmitters are available as **absolute and relative pressure types** with 2-wire **current output** and **intrinsic safe EEx ia** circuit. The process connection can be modified to match other threads with US or standards.

Applications

The transmitters can be used for a wide range of applications in process control, automatic machinery and hydraulic or pneumatic system design.

Examples

- Process control equipment
- Equipment for chemical industry
- Equipment for petrochemical industry
- Hydraulic and pneumatic equipment in hazardous areas
- Oil and Off-Shore industry
- Gas distribution

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All information is the best representation of actual knowledge. All data is subject to change. Kristal does not assume any liability arising out of the application or use of any product or circuit described herein.

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Technical Data

Absolute Pressure Transmitter 42**8**x

Type		AE1	AE2	AE5	AE10	AE20	AE50	AE100	AE200	AE500	AE1000*
Range	bar abs.	1	2	5	10	20	50	100	200	500	1000
Overload	bar abs.	4	7	15	30	60	150	250	500	750	1250

Relative Pressure Transmitter 43**8**x

Type		AE0,2	AE0,5	AE1	AE2	AE5	AE10	AE20
Range	bar rel.	0,2	0,5	1	2	5	10	20
Overload	bar rel.	2,5	3	4	7	15	30	60

Full scale output		mA	20 ±0,5%
Zero		mA	4 ±0,05
Connection		2-wire technique	
Linearity & hysteresis at 25 °C		%FSO**	≤±0,25
Repeatability		%FSO	≤±0,1
Stability	of sensitivity	%/a	≤±0,2
	of zero	%FSO/a	≤±0,5
Thermal sensitivity shift			
	(0...85°C)	%***	≤±1,0
Thermal zero shift			
	(0...85°C)	%FSO***	≤±1,0
Reference temperature		°C	25
Power supply		VDC	12...30
Influence of excitation voltage		%FSO/V	0,01
Load resistance		Ω	up to 1000
Cutoff frequency (±5%)		kHz	5
Operating temperature range		°C	-20...60

Emission	fulfills EN 50081-1	
Immunity	fulfills EN 50082-2	
Pressure port	Flush mounted G ½"****	4x8**5** / 4x8**6**
	Manometer port G ½" according to DIN 16288	4x8**3** / 4x8**4**
	other pressure ports available on request	
Electrical connection	Binder plug 4-poles	4x8**3** and 4x8**5**
	2m integrated cable	4x8**4** and 4x8**6**
Options:	Hirschmann according to DIN 43650	**V59**
Protection type: depending on plug used	IP40 to IP67	
Ex-protection:	EEx ia IIC T4 BVS 97.D.2073	
Zener barrier limitations:	U max. ≤ 30 VDC	
	I max. ≤ 100 mA	
	P ≤ 1.1 W for T4	
Materials of wetted parts	Stainless steel 1.4435	
Optional	Hastelloy-C other materials on request	
Terminology	ANSI / ISA-Standard, ST 37.1-1975 (R1982)	

* only available with manometer port G ½" 4x8**3** / 4x8**4**, only for use in static pressure applications.
** Transmitters at 0,2 bar and 0,5 bar ±0.5%FSO
*** only for ranges ≥1 bar
**** flush mounted diaphragm only up to 20 bar ⇨ higher pressure on request only!

Accessories

- Cable connector IP40 Type 1500A73
- Cable connector IP67 Type 1500A75
- Right angle connector IP63 Type 1500A77

000-079e-11.00 (DBA4.10e-11.00)

Measuring Principle

The pressure to be measured acts through thin corrosion resistant steel diaphragm on a silicon measuring element. The pressure transmitting medium is silicon oil.
The measuring element contains diffused piezoresistive resistances which are connected into a Wheatstone bridge. The output signal of the bridge is temperature compensated and converted into a standardized current output signal.

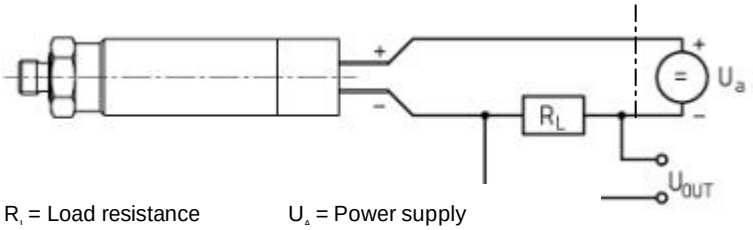
Testing and Calibration

Each transmitter is subjected to an extended test program where zero and full scale output are individually adjusted as to guarantee the interchangeability of the transmitters. Additional calibration will not be necessary due to the excellent sensor characteristics.
Versions V59 with the DIN 43650 type Hirschmann connector can be adjusted individually if needed.

Installation

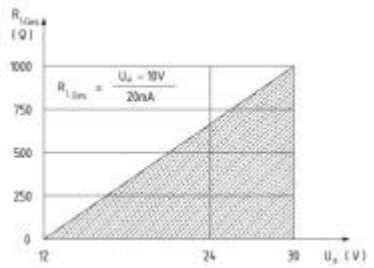
The transmitters can be fitted directly to a suitable counter thread. Transmitters with pressure ranges of 0,2 and 0,5 bar should preferably be mounted vertically to avoid influence from the filling liquid. For all other transmitters the mounting position will not have any influence on the measurement. In order to achieve CE-conformity, shielded cable must be used. Both sides of the cable shield must be connected to ground either by connection to the connector housing or stuffing box or to the pin located on the connector.
In order to comply with intrinsic safety standards a suitable zener barrier or repeater power supply must be used with the specified limitations. The barrier and power supply must be used in the safe area whereas the transmitter will be installed in the hazardous location.
Mounting torque: 50 Nm (for all types).

System Connection for 2-wire Transmitter



R_i = Load resistance U_a = Power supply

Operating area : shaded



Ordering Code

4	x	8	x	**AE**	xxxx	Vxx	Pressure Transmitter
	2						..... Absolute pressure
	3						..... Relative pressure
		8					..... Current output 4...20 mA, EEx ia IIC T4
			3			**V55**	..... Manometer port with Binder connector
			4			**V55**	..... Manometer port with integrated cable 2 m
			5			**V55**	..... Flush diaphragm with Binder connector
			6			**V55**	..... Flush diaphragm with integrated cable 2 m
				0,2			..... Measuring range in bar
				0,5			.....
				1			.....
				2			.....
				5			.....
				10			.....
				20			.....
				50			..... Ranges ≥20 bar only absolute pressure
				100			.....
				200			.....
				500			.....
				1000*			.....
				xxxx			..... Special calibration on request
						V59	..... with Hirschmann connector
						V83	..... G ¼" with Hirschmann connector
						V84	..... ¼-18 NPT with Hirschmann connector
						V85	..... 7/16-20 UNJF with Hirschmann connector
						Vxx	..... Special types with other process connections.

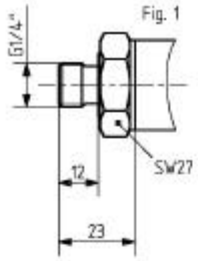
Special calibrations and measuring range adjustments are available on request.

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KRISTAL

V83

Fig. 1



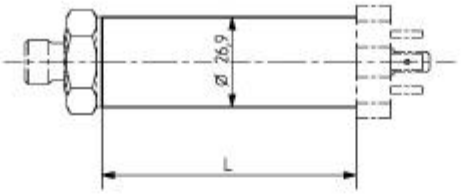
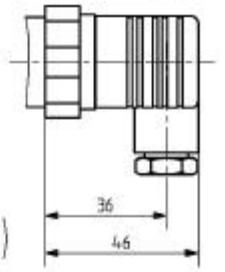
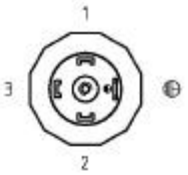


Fig. 10





4...20 mA
(2-wire technique)

1 +Signal
2 -Signal
⏚ Shield

L = 76 mm für Stecker for connector DIN 43650 Fig. 7 (frontbündig flush diaphragm Fig. 3)

L = 91 mm für Stecker for connector DIN 43650 Fig. 7

L = 62 mm für alle anderen Varianten for all other types (frontbündig flush diaphragm Fig. 3)

L = 77 mm für alle anderen Varianten for all other types

Fig. 2

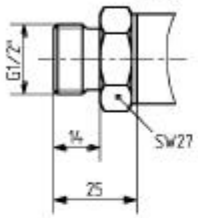


Fig. 3

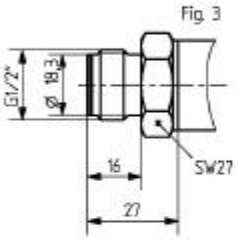
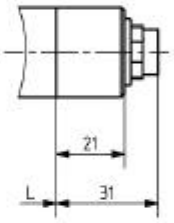
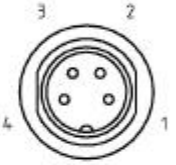


Fig. 11

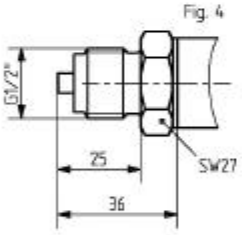




4...20 mA
(2-wire technique)

1 +Signal
4 -Signal

Fig. 4



V85

Fig. 5

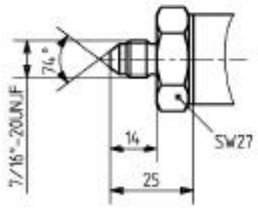
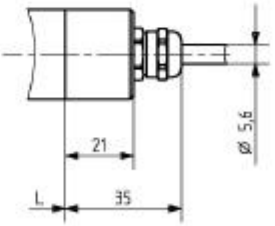


Fig. 12

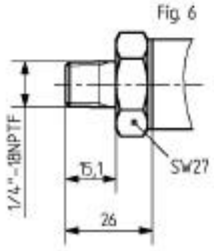


4...20 mA
(2-wire technique)

black +Signal
white -Signal

V84

Fig. 6



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