K -LINE *PRESSURE TRANSMITTER*

These extremely versatile K -LINE 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**.

- **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**
- **Conformity to** ä **standards**



The transmitters are available as **absolute and relative pressure types** and either as 2-wire **current output** or as 3-wire **voltage output** models. The modular concept of this series was specially designed to meet requirements for customer specific applications fairly easily.

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
- Machine tools and automatic machinery
- Hydraulic and pneumatic equipment
- Food- and pharmaceutical industry
- Construction equipment and automotive industry
- Metrology and hydrometry
- Chemical and petrochemical industry
- Injection molding machines
- Aircraft and aerospace technology
- Level measurement

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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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KRISTAL

Technical Data

Absolute Pressure Transmitter

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

Range	$bar_{rel.}$	0,2	0,5	1	2	5	10	20
Overload	$bar_{rel.}$	2,5	3	4	7	15	30	60

		Current Output		Voltage Output	
Full scale output		20 mA	±0,5%	10V	±0,5%
Zero		4 mA	±0,05	0V	+0,05
Connection		2-wire technique		3-wire technique	
Power supply		12...30 VDC		16...30 VDC	
Burden resistance		0...900 Ω			
Load resistance				>500 kΩ	
Linearity, Hysteresis and Repeatability at 25°C		%FSO**		≤±0,25	
Stability	of sensitivity	%/a		≤±0,2	
	of zero	%FSO/a type		≤±0,3	
Thermal sensitivity shift (0...85°C)		%***		≤±1,0	
Thermal zero shift (0...85°C)		%FSO***		≤±1,0	
Reference temperature		°C		25	
Cutoff frequency (-3dB)		kHz		3...4	
Operating temperature range		°C		-20...85	
Storage temperature range		°C		-40...85	

Emission	fulfills EN 50081-1
Immunity	fulfills EN 50082-2
Pressure ports	G¼" and G½" male thread $^{7}/_{16}$"-20 UNJF-3A thread (MS 33656)
Options	G½" flush diaphragm**** G½" Manometer connection to DIN 16288 other pressure ports available on request
Electrical connection	Hirschmann-Stecker to DIN 43650
Options	Binder-connector 4-poles 2m integrated cable
Protection type: depending on plug used	IP40...IP67
Materials: wetted parts	Stainless steel 1.4435
Options	other materials available on request
Terminology	ANSI / ISA-Standard, ST 37.1-1975 (R1982)

Remarks

* suitable only for static pressure measurement
** Transmitters at 0,2 bar and 0,5 bar ±0.5%FSO
*** for all ranges ≥1bar
**** flush diaphragm only up to 20 bar
high pressure on request possible

Accessories

Binder Cable connector IP40	Type 1500A73
Binder Cable connector IP67	Type 1500A75
Binder Right angle connector IP63	Type 1500A77
Hirschmann-Connector	5.511.202
Gasket for Hirschmann connector	5.211.428

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 or voltage output signal.

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Testing and Calibration

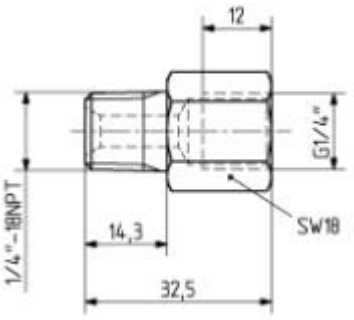
Each transmitter is subjected to an extended test program where zero and full scale output are individually adjusted as to guarantee the interchangeability of the transmitters. Additional calibration will not be necessary due to the excellent sensor characteristics.
Versions with the DIN 43650 type Hirschmann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

Ordering Code

R x xxx x x xxx x xx x x **K-LINE Transmitter**

A	.....	**Male thread**
I	.....	Female thread (on request)
G25	.....	**G¼" thread**
G50	.....	G½" thread
T50	.....	G½" thread Manometer DIN 16288
F50	.....	G½" thread flush diaphragm
J44	.....	**$^{7}/_{16}$"-20 UNJF-3A thread (MS 33656)**
xxx	.....	other pressure ports on request
A	.....	**Absolute pressure**
R	.....	**Relativ pressure (£ 20 bar)**
0,2	.....	**Measuring range**
0,5	.....	
1	.....	
2	.....	
5	.....	
10	.....	
20	.....	
50	.....	Absolute pressure only
100	.....	Absolute pressure only
200	.....	Absolute pressure only
500	.....	Absolute pressure only
1000	.....	Absolute pressure only
xxx	.....	other ranges on request
B	.....	**bar**
P	.....	psi
C1	.....	**4...20 mA**
V1	.....	**0...10 V**
xx	.....	other output signals on request
H	.....	**Hirschmann connector, DIN 43650**
B	.....	Binder connector
K	.....	Cable
x	.....	other connector types on request
-	.....	**Standard type**
V	.....	Special type

Adapter G ¼" ⇨ ¼-18 NPT



Order Code 5.210.336

Bold text: Standard types

Ordering example: **RAG25R10BC1H**
Transmitter with G ¼"male thread, 10bar$_{rel.}$, output signal 4...20 mA,
Hirschmann connector as per DIN 43650

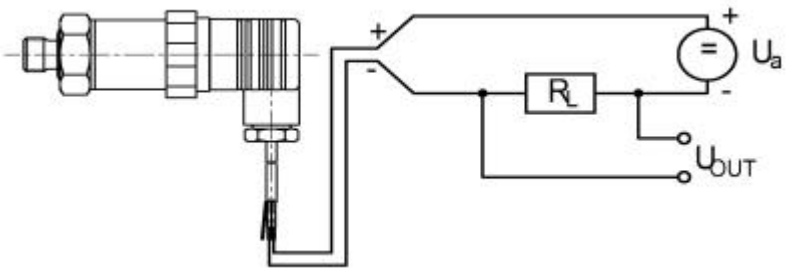
Optionally K-LINE Transmitters can be manufactured to special customer requirements at little to no surcharge, particularly above quantities ≥50 pieces.

Installation

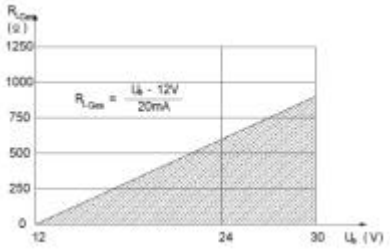
The transmitters can be fitted directly to a suitable counter thread G¼". Transmitters with pressure ranges of 0,2 and 0,5 bar should preferably be mounted vertically to avoid influence from the filling liquid. For all other transmitters the mounting position will not have any influence on the measurement. In order to achieve ä-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.
Mounting torque: 30 Nm (for all types).

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System connection for 2-wire transmitter

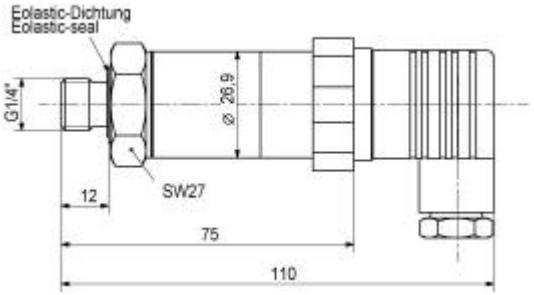


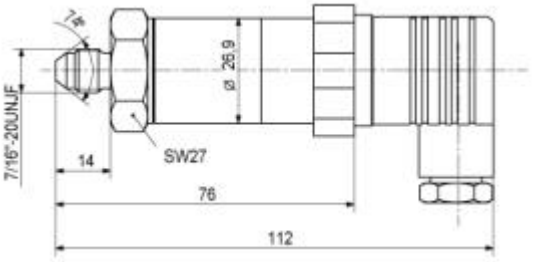
Burden diagram (current output)

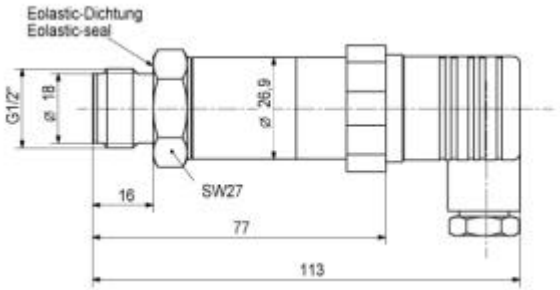


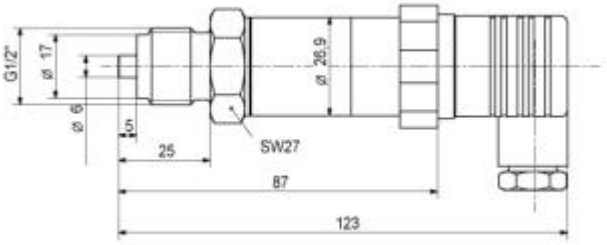
Working area: shaded

Dimensions









Electrical connections

Hirschmann-Connector



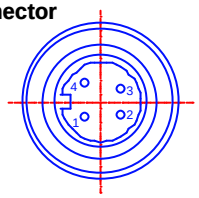
2-wire

1	+ Signal
2	– Signal
S	Shield/Housing

3-wire

1	+ Supply
2	GND
3	+ Signal
S	Shield/Housing

Binder-Connector



2-wire

1	+ Signal
4	- Signal
Shield	Housing

3-wire

1	+ Supply
2	+ Signal
4	GND
Shield	Housing

Integrated cable

2-wire

black	+ Signal
white	- Signal
Shield	Housing

3-wire

black	+ Supply
red	+ Signal
white	GND
Shield	Housing

Submersible transmitters and transmitters for applications in food industry consult data sheets A4.20 and A4.50

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