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K-Line Pressure Transmitter

Type RAG...

for Absolute and Relative Pressure to 0,2 ... 1 000 bar

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 1 000 bar
- Absolute or relative pressure
- Long life
- Conformity to CE standards

Description
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.

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 conficured in a Wheatstone bridge. The output signal of the bridge is temperature compensated and converted into a standardized current or voltage output signal.

Application
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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Technical Data

Ranges

Type RA... Abs. Pressure		**...A1...**	**...A2...**	**...A5...**	**...A10...**	**...A20...**	**...A50...**
Range	bar abs.	0 ... 1	0 ... 2	0 ... 5	0 ... 10	0 ... 20	0 ... 50
Overload	bar abs.	4	7	15	30	60	150

Type RA... Abs. Pressure		**...A100...**	**...A200...**	**...A300...**	**...A500...**	**...A1000*...**	
Range	bar abs.	0 ... 100	0 ... 200	0 ... 300	0 ... 500	0 ... 1 000	
Overload	bar abs.	250	500	750	1 250	1 250	

Type RA... Rel. Pressure		**...R 0,2...**	**...R 0,5...**	**...R 1...**	**...R 2...**	**...R 5...**	**...R 10...**	**...R 20...**
Range	bar rel.	0 ... 0,2	0 ... 0,5	0 ... 1	0 ... 2	0 ... 5	0 ... 10	0 ... 20
Overload	bar rel.	2,5	3	4	7	15	30	60

	Current Output	**Voltage Output**
Full scale output	20 mA ±0,5 %	10 V ±0,5 %
Zero	4 mA ±0,05	0 V +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 typ	±0,3
Thermal sensitivity shift (0 ... 85 °C)		%***	±1,0
Thermal zero shift (0 ... 85 °C)		%FSO***	±1,0
Reference temperature		°C	25
Frequency response (–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:		G1/4" and G1/2" male thread, 7/16"-20 UNJF-3A thread (MS 33656)
Options:		G1/2" flush diaphragm, G1/2" Manometer connection to DIN 16288
		other pressure ports available on request
Electrical connection:		Hirschmann-connector to DIN 43650
Options:		Binder-connector 4-poles, 2 m 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)

* suitable only for static pressure measurement
** Transmitters 0,2 bar and 0,5 bar ±0,5 %FSO
*** for all ranges >1 bar

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Dimensions

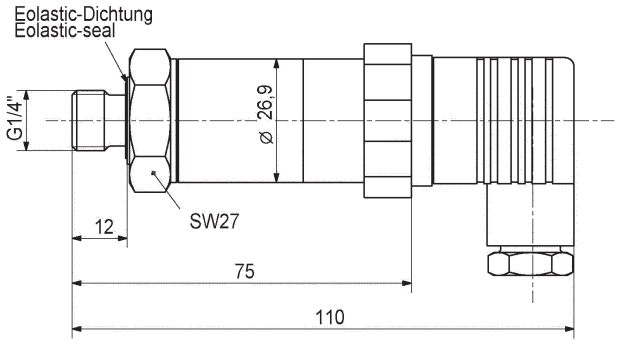

Fig. 1: Type RAG25...

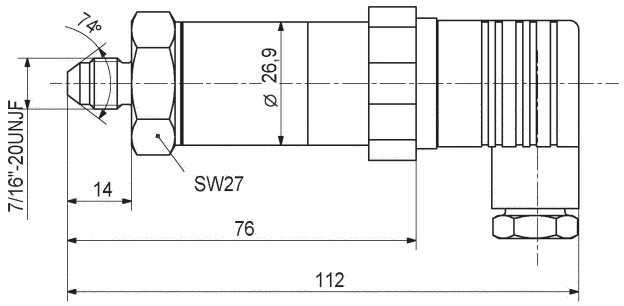

Fig. 2: Type RAJ44...

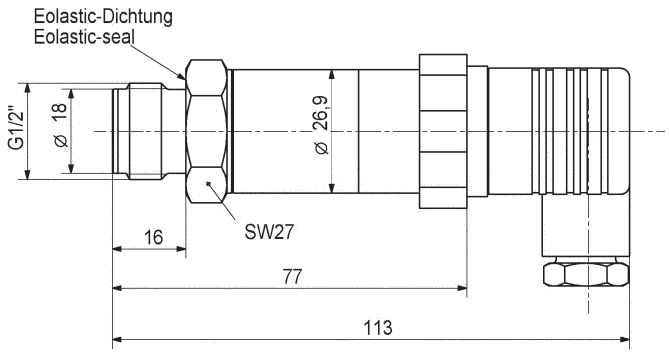

Fig. 3: Type RAF50...

Spare Eolastic Seals:

	Type/Art. No.
• G1/2" NBR	1100A75
• G1/4" NBR	1100A97A1

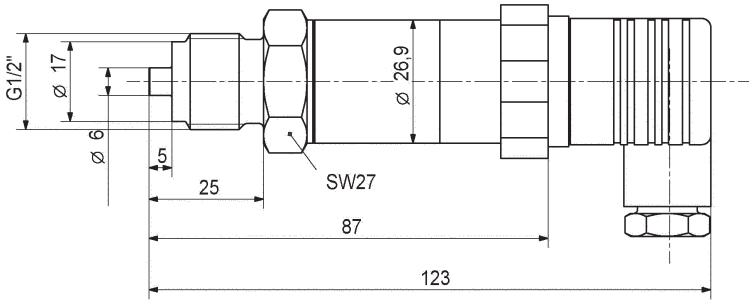

Fig. 4: Type RAT50...

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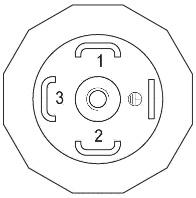
Electrical Connections

Hirschmann-Connector

2-wire	
1	+ Signal
2	– Signal
⏚	Shield/Housing

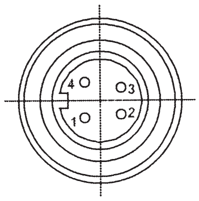
3-wire	
1	+ Supply
2	GND
3	+ Signal
⏚	Shield/Housing



Binder-Connector

2-wire	
1	+ Signal
4	– Signal
Shield	Housing

3-wire	
1	+ Supply
2	+ Signal
4	GND
Shield	Housing

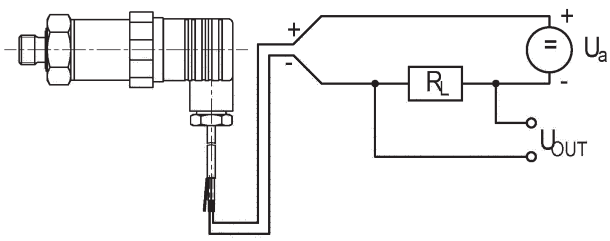


Integrated Cable

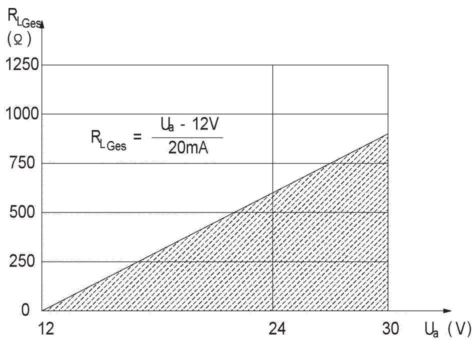
2-wire	
black	+ Signal
white	– Signal
Shield	Housing

3-wire	
black	+ Supply
red	+ Signal
white	GND
Shield	Housing

System Connection for 2-Wire Transmitter



Burden Diagram (current output)



Working area: shaded

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.

Installation

The transmitters can be fitted directly to a suitable counter thread G1/4". 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.

Mounting torque: 30 N·m (for all Types).

Accessories Included

None

Optional Accessories	Type
• Binder Cable connector IP40	1500A73
• Binder Cable connector IP67	1500A75
• Binder Right angle connector IP63	1500A77
• Hirschmann-Connector including gasket	1500A89

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Ordering Key

Bold = Standard Types

Type K-Line R ☐ ☐☐☐ ☐ ☐☐☐ ☐ ☐☐ ☐ ☐

Thread

Male thread	**A**
Female thread (on request)	I

G1/4" thread	**G25**
G1/2" thread	G50
G1/2" thread Manometer DIN 16288	T50
G1/2" thread flush diaphragm	F50
7/16"-20 UNJF-3A thread (MS 33656)	J44
other pressure ports on request	xxx

Measuring Range/Units

Absolute pressure	**A**
Relativ pressure (<20 bar)	**R**

Measuring range 0,2 bar	**0,2**
Measuring range 0,5 bar	**0,5**
Measuring range 1 bar	**1**
Measuring range 2 bar	**2**
Measuring range 5 bar	**5**
Measuring range 10 bar	**10**
Measuring range 20 bar	**20**
Measuring range 50 bar Absolute pressure only	**50**
Measuring range 100 bar Absolute pressure only	**100**
Measuring range 200 bar Absolute pressure only	**200**
Measuring range 300 bar Absolute pressure only	**300**
Measuring range 500 bar Absolute pressure only	**500**
Measuring range 1 000 bar Absolute pressure only	**1 000**
other ranges on request	xxx

Adjusted in bar	**B**
Adjusted in psi, on request	P

Output Signal

4 ... 20 mA	**C1**
0 ... 10 V	**V1**
other output signal on request	xx

Electrical Connections

Hirschmann Connector, DIN 43650	**H**
Binder Connector	B
Cable	K
other connector Types on request	x

Version

Standard Type	**–**
Special Type	V0xxx

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Tel +41 52 224 11 11, Fax +41 52 224 14 14, info@kistler.com, www.kistler.com