Type CERALINE-S

CERALINE-S PRESSURE TRANSMITTER

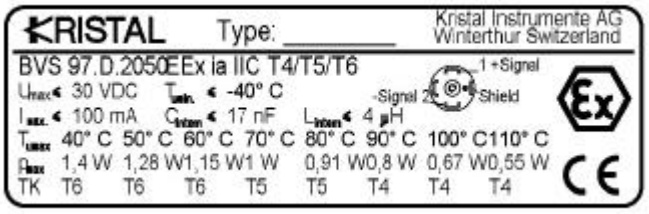
CERALINE-S pressure transmitters are extremely versatile and suitable for measuring dynamic and static pressures. The built-in ceramic measuring cell is highly corrosion resistant, stable and of optimized accuracy. Thanks to their high natural frequency and the rugged construction the CERALINE-S transmitters withstand high shocks and vibrations.

- **Industrial General Purpose Transmitter**
- **Extremely corrosion resistant**
- **Measuring ranges from 1 to 400 bar**
- **Rugged ceramic measuring cell**
- **Shock and vibration resistant**
- **Short dimensions**
- **Optimal accuracy**
- **Conformity to ä standards**



Options

- **Intrinsically safe EEx ia**
- **Flush mounted**



The transmitters are available as **absolute and relative pressure types** with either 2-wire **current** or 3-wire **voltage output**.

Measuring Principle

The pressure to be measured acts without transmitting liquid on a stable, corrosion resistant ceramic measuring cell. Piezoresistive resistors are attached to the cell and connected into a Wheatstone bridge configuration. The output signal of this bridge is converted into a standardized current or voltage output signal.

Applications

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

Examples

- Standard hydraulic- and pneumatic equipment
- Process control
- Machine tools and automatic machinery
- Monitoring systems
- Servo valves and drives
- Chemical- and petrochemical industry
- Air- and gas compressors
- Loading and brake systems

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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

Pressure Ranges

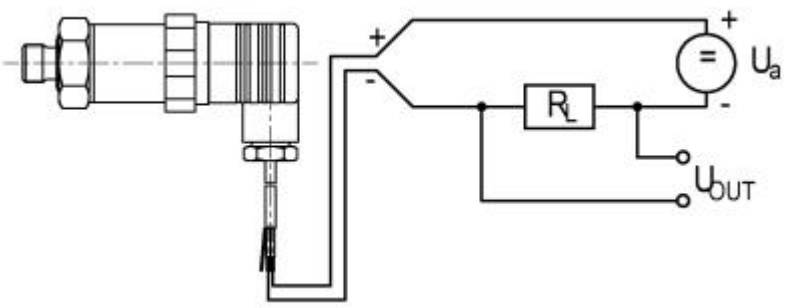
Range	bar abs./rel.	1	2	5	10	20	50	100*	200*	400*
Overload	bar abs./rel.	4	7	12	25	50	120	250	500	600

	Current output		Voltage output	
Connection type	2-wire technique		3-wire technique	
Output signal FS	20 mA	±0,5%	10 V	±0,5%
Zero measurand output	4 mA	±0,05	0 V	+0,05
Load resistance max @ 24 V	25...1100 Ω		≥10kΩ	
Power supply	10...32 VDC		15...32 VDC	
Influence of excitation	%FSO/V		0,02	
Accuracy at 25°C	%FSO		≤±0,5	
Repeatability	%		≤±0,2	
Cutoff frequency (-3 dB)	kHz		≤2	
Operating temperature range	°C		0...85	
	other operating temperature range on request			
Compensated temperature range	°C		0...70	
	other temperature compensation on request			
Thermal sensitivity shift	%/°C typ.		≤±0,015	
Thermal zero shift	%FSO/°C typ.		≤±0,02	
Reference temperature	°C		25	

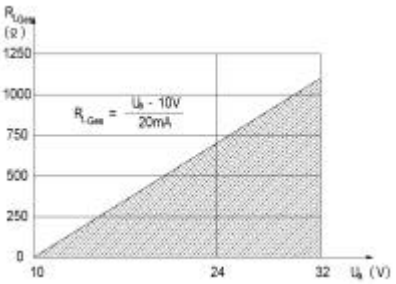
Emission	complies EN 50081-1
Immunity	complies EN 50082-2
Ex-protection intrinsic safety (optional)	EEx ia IIC T4/T5/T6 according to BVS 97.D.2050 U max = 30 VDC I max. = 100 mA P max. = 1,4 W for T4
Process connection	G ¼" and $^{7}/_{16}$"-20 UNJF-3A thread Other connection possible upon request
Electrical connector	Hirschmann-connector according to DIN 43650 other connector types possible upon request
Protection type: (depending on connector)	IP65
Wetted parts	Stainless steel 1.4435 and Al_2O_3 96%
Cell gasket	NBR (Nitril)
Vibration- and shock resistance	complies MIL 810-E
Terminology as per	ANSI / ISA-Standard, ST 37.1-1975 (R1982)

* for static pressure applications

System connection for 2-wire Transmitter



Load resistance (current output)



Working area: shaded

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Ordering Code

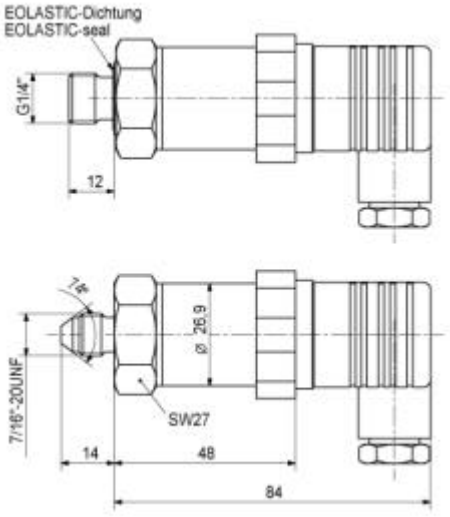
S x xxx x x xxx x xx x x		**CERALINE-S**
A	.....	**Male thread**
I	.....	Female thread *on request*
G25	.....	**G ¼" thread**
J44	.....	**$^{7}/_{16}$"-20 UNJF-3A thread** (MS 33656)
xxx	.....	other process connections on request
A	.....	**Absolute pressure**
R	.....	**Relative pressure (£ 20 bar) - gauge**
-	.....	**Standard type**
E	.....	Ex-protection (intrinsic safe) – only with current output**
1	.....	**Measuring range**
2	.....	
5	.....	
10	.....	
20	.....	
50*	.....	only absolute pressure
100*	.....	only absolute pressure – *on request*
200*	.....	only absolute pressure – *on request*
400*	.....	only absolute pressure – *on request*
xxx	.....	other ranges on request
B	.....	**calibration in bar**
P	.....	**calibration in psi**
C1	.....	**4...20 mA**
V1	.....	**0...10 V**
xx	.....	other output signals on request
H	.....	**Hirschmann-connector, DIN 43650**
x	.....	other connector types on request
-	.....	**Standard type**
V	.....	Special type

***** Absolute pressure only
****** EEx ia IIC T4/T5/T6 according to BVS 97.D.2050

Bold text: Standard types

Ordering example: SAG25R10BC1H
Transmitter with G ¼"male thread, 10 $bar_{rel.}$, output signal 4...20 mA,
Hirschmann-connector according to DIN 43650

CERALINE-S can be manufactured to your requirements in larger quantities of approx. 50...100 pieces, normally without surcharge.





2-wire

1	+ Signal
2	– Signal
S	Shield/Housing

3-wire

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

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Installation Instructions for CERALINE-S Pressure Transmitters

Introduction

CERALINE-S Pressure Transmitters are rugged measuring instruments. However they need to be handled with the appropriate care. In particular, the mechanical effect of sharp objects on the measuring diaphragm should be avoided as much as possible.

Remark:

We recommend to thoroughly check the installation and application conditions. Please consult KRISTAL for further advise if required.

Installation

The transmitter can be installed onto any matching counter piece of the same type and size without an additional adapter. The mounting location of the transmitter is optional and has no effect on the signal output. To insure CE conformity, a shielded cable must be used. The shield must be connected to ground (earth) on both sides and connected properly to the rules of EMI.

Tightening torque: 50 Nm (for all types)

Insure that the gasket is correctly fitted before installing the transmitter. Clean the area of the gasket so that it is free from dirt.
The mounting position has no influence on the output signal. However, we recommend you to follow the general rules (gases = installation in any position; liquids = installation from the bottom). With special conditions i.e. dirty liquids tending to build up please consult KRISTAL.

Important note: Never install or remove transmitters under internal pressure!

Purging (with liquids)

When installing transmitters, it must be insured that no air cushion can build-up in front of the diaphragm. Otherwise there is a risk of inaccurate measurement or early failure.
The possibility of the formation of air cushions depends particularly on whether it is used with viscous liquids or gases. Gases do not have an influence whereas liquids must be treated more carefully.
For dynamic measurements in liquids and gases we recommend to add an orifice device.

Installation of the pressure transmitter

1. Clean the area of the seal and fit the appropriate seal.
   (with manometer type threads according to DIN 16288 use the enclosed metal seal)
2. Purge the air of the transmitter head by filling the hole with the measuring liquid with the appropriate method.
   To insure long life time of the transmitter purging is absolutely necessary especially with dynamic pressure measurements.
3. Tighten the transmitter head with 50 Nm tightening torque.

In the case of **relative pressure transmitters** with a cable with integrated venting tube, it must be **insured** that **venting** takes place through the terminal box .

To ensure trouble-free fitting and removal of transmitters, there must be sufficient space for thread and connector.

Normally CERALINE-S does not need any special maintenance. However, we recommend periodical checking of the transmitters.

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