

intelligent differential pressure transmitter

SH

CRESSTO

- **for liquid and gas media**
- **overpressure endurance**
- **uP signal processing**
- **users SW configuration**
- **analogue, digital and two-state outputs**
- **supply 5 ÷ 36 V**
- **protection IP65**
- **wide temperature range**
- **display fit-out possibility**



These SH pressure transmitters are designed for measuring of pressure in gases and liquids. They are applicable in many sectors of industry, in heating engineering, water-supply engineering, agricultural engineering, construction of machines or in laboratories etc.

The medium being measured may be gases and liquids also aggressive character. Measured media is in a contact directly with stainless separation diaphragm, stainless housing and Viton sealing. Transmitter is connected into the pressure circuit by impulse piping diameter 6mm, can be used proper screw M12x1,5. In case of build to order is possible to produce transmitter also with different connection armature. All components of the transmitter are placed in robust box from aluminum alloy, which serves as a good mechanical and electrical protection. Protection suits to IP65. For electrical connection serves internal terminal block with screws for cable with metal grommet PG-9. For some outputs can be used also sealed latched mini connector type DIN 43650 - C with cable grommet PG7, which enables to use cable diameter of max. 6,5mm.

This type of transducer measures the pressure by means of a silicon diaphragm on a piezoelectric principle. Silicon diaphragm is separated from measured media by stainless diaphragm and oil filling. Therefore this transducer attains a good overload endurance and chemical resistance. Inside SH transmitter are used two independent pressure sensors, matching to common mode pressure. Thereby this differential transmitter has high one-side overpressure endurance and user has got information about common mode pressure in pressure circuit. Electronic circuitry is realized by a surface mount technology and for increasing protection is passivated by a coat.

Electrical signals from both sensors are after amplifying

converted by 16bit ADC to digital format. By means of two-dimensional polynomial approximation of 3rd order are obtained values of pressure which serves to calculate pressure difference based on special algorithm. With special agreement it is possible to compensate down to -20°C. Output pressure value can be read directly via serial port RS485, RS 232 or USB. Transmitter has special output stage, which convert calculated value to analogue value 4-20mA (two-wire) or 0-20mA, 0-10V, 0-3V(three-wire). Particular analogue outputs can be switch by software and it is possible to change measuring pressure range and set other parameters, for example damping etc. In addition it is possible at analogue outputs to switch linear conversion characteristics to switching two-state one and realize logic levels with voltage output. Transmitters can be fitted with output switching module, which has small relay with one contact and two independent outputs with NPN transistors with open collector with LED indication. All switching parameters can be set only via software. Next option is 4 or 5 digit LCD with white LED back lighting. There is also place for FLASH memory, where can be stored measured data with desired period (without timestamps). Transmitters can be supply with DC voltage with wide range from 5 to 35 Volts. Change in this range has no effect to measurement accuracy.

Software configuration is realized via special USB adapter with program for Windows. Transmitter can be supplied from USB and due to adapter totally DC isolation can be connected to PC whenever in the final application.



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Technical parametrs:

Nominal diff. pressure range	± 10 kPa to ± 100 kPa *	
Error	max. 1%	
Zero temperature error	typ. 0,1 % max. 0,3%/10°C	
Span temperature error	typ. 0,1 % max. 0,3 %/10°C	
Max. common mode pressure	10 x Pdiff. nominal	
Max. overpressure	20 x Pdiff. nominal	
Operating temp. range with display	-20 ÷ +85°C -20 ÷ +70°C	
Media temperature	-20 ÷ +100°C	
Storage temperature	-25 ÷ +100°C	
Supply voltage	5 ÷ 35V DC	
Supply current	typ 4 mA	
Output	4 ÷ 20mA	two-wire
	0 ÷ 20mA	three-wire
	0 ÷ 10 V	three-wire
	0 ÷ 3 V	three-wire
	RS232	four-wire
	RS485	four-wire
	USB	four-wire
Operating position	arbitrary	
	relay	
Protection	min. IP 65	
Voltage endurance	min. 1000V DC	
Weight	cca 350g	

* pressure difference can be increase to max. common pressure mode level by software

CE ČSN EN 61326-1

Operating instructions:

- Before connection of the transducer into the pressure circuit, it is necessary to verify that the pressure being measured corresponds to the nominal range of this transducer. Even a transient loading over the maximum allowable overpressure may cause a destruction of the measuring diaphragm!
- If you measure a pressure of aggressive media it is necessary to verify the transducer material endurance.

Electrical connection:

Transmitters are connected into electrical circuit by common way. They are protected against supply reversing polarity by series diode. ATTENTION with more-wire connection, when for example changing output and supply wire may cause transmitter damage.

Detailed description all types of electrical connections, pin assignments and protocol description for series communication are in special document, which is a part of transmitter delivery. All information can be found on www.cressto.cz

How to order this device:

Such an order shall include a specification of transducer according following selection. Alternatively can be sent full description of all requested parameters.

Legend:

SH D 5 1 1 P 5 U B D M S	
Pressure measurement	
differential	D
Pressure range	
± 10 kPa	4 1
± 30 kPa	4 3
± 100 kPa	5 1
other	0 0
Accuare	
1%	1
other	0
Pressure connection	
impulse piping d = 6mm	P
other	X
Electrical connection	
cable 1m	2
connector DIN 43650 C	4
terminal block and grommet	5
Analogue electrical output	
analogue 4÷20mA, 0÷20mA, 0÷3V, 0÷10V	U
other	X
Digital electrical output	
series RS232	A
series RS485	B
series USB	C
none	X
other	X
Display	
4 digits display	D
Memory	
FLASH memory	M
Switch	
contact relay, 2x open collector + LED	S

Dimensions:

