

## CRA-P-331



- differential pressure transmitter for liquids and gases
- differential pressure: from 0...20 mbar up to 0...16 bar
- output signals: 2-wire: 4...20 mA; 3-wire: 0...10 V
- stainless steel sensor
- accuracy 0.5 % span
- differential pressure wet / wet
- permissible static pressure - up to 30 times of differential pressure range
- compact design
- mechanical robust and reliable at dynamic pressures
- optional: different electrical and mechanical connections

The CRA-P-331 is a differential pressure transmitter for industrial applications and is based on a piezoresistive stainless steel sensor, which can be pressurized on both sides with fluids or gases compatible with SST 1.4404 (316L) and 1.4435 (316L).

The compact design allows an integration of the CRA-P-331 in machines and applications with limited space. The CRA-P-331 calculates the difference between the pressure on the positive and the negative side and converts it into a proportional electrical signal.

## PREFERRED AREAS OF USE ARE



Plant and machine engineering



Energy industry

## TECHNICAL DATA

Input pressure range							
Nominal pressure [bar]	0.2	0.4	1	2.5	6	16	
Differential pressure range [bar]							
TD 1 : 1	0 ... 0.02	0 ... 0.04	0 ... 0.1	0 ... 0.25	0 ... 0.6	0 ... 1.6	
up to	up to	up to	up to	up to	up to	up to	
TD 10 : 1	0 ... 0.2	0 ... 0.4	0 ... 1	0 ... 2.5	0 ... 6	0 ... 16	
Permissible static pressure, one-sided [bar]	0.5	1	3	6	20	60	

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_S = 12 \dots 36 V_{DC}$
Option 3-wire	3-wire: 0 ... 10 V / $V_S = 14 \dots 36 V_{DC}$
Performance	
Accuracy <sup>1</sup>	For ranges of max. input pressure + PN > 1 bar (codes C,D,E) $\pm 0.5\%$ span (differential pressure range with TD from 1:1 up to 5:1) $\pm 1\%$ span (differential pressure range with TD > 5:1 up to 10:1) For ranges of max. input pressure + PN > 1 bar (codes A,B,F) $\pm 0.5\%$ span (differential pressure range with TD from 100 to 50 % from static pressure) $\pm 1\%$ span (differential pressure range with TD > 50 to 10 % from static pressure)
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 A] W$ voltage 3-wire: $R_{min} = 10 kW$
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kW
Long term stability	$\pm 0.2\%$ span / year
Response time	< 5 msec

<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects<sup>2</sup> (Offset and Span) / Permissible temperatures

Nominal pressure P <sub>N</sub> [bar]	0.2	0.4	1.0
Tolerance band [% span]	$\pm 2.5$	$\pm 2$	$\pm 1.5$
TC, average [% span / 10 K]	$\pm 0.4$	$\pm 0.3$	$\pm 0.2$
in compensated range [°C]	0 ... 50		0 ... 70
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 100 °C

<sup>2</sup> relating to nominal pressure range

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	aluminium, black anodized
Seals (media wetted)	FKM / others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g
Operational life	100 million load cycles
Ingress protection	IP 65
CE-conformity	EMC Directive: 2014/30/EU

ELECTRICAL CONNECTION

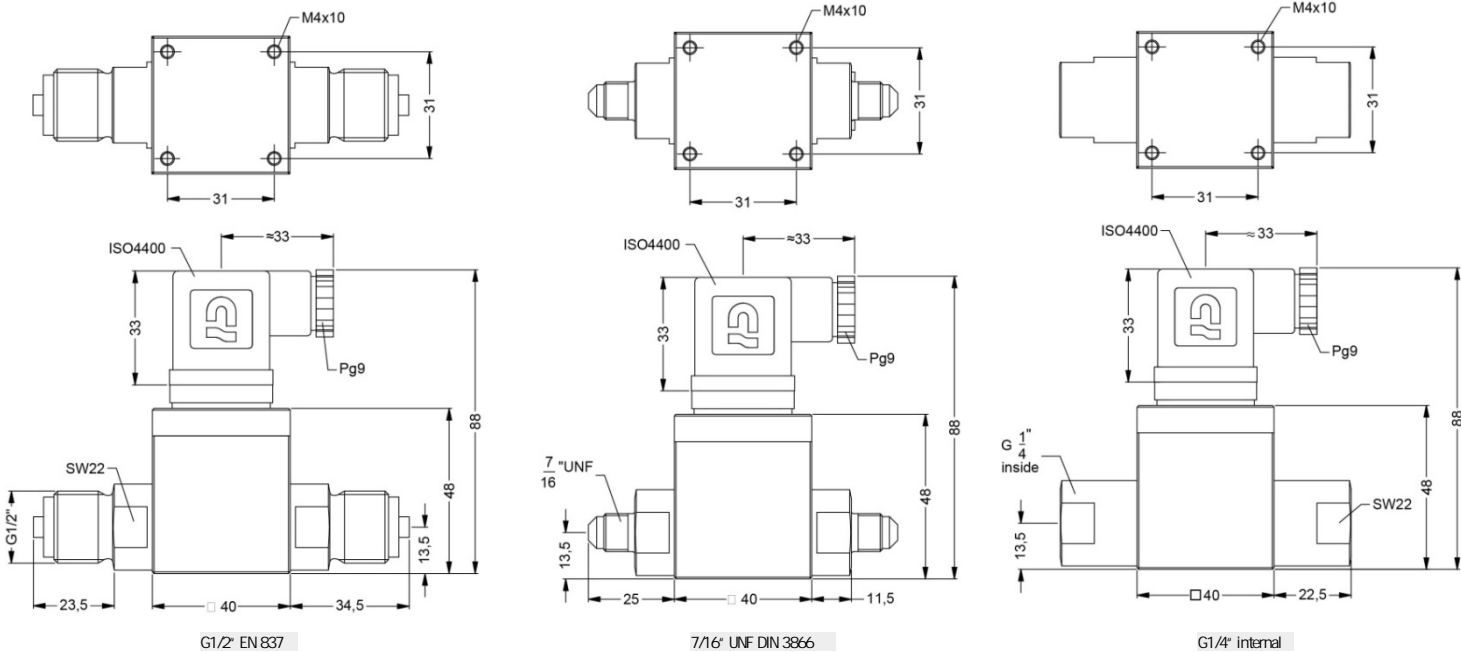
Pin configuration	
Electrical connection	ISO 4400
Supply +	1
Supply -	2
Signal + (only 3-wire)	3
Shield	ground pin

Wiring diagrams	
2-wire-system (current)	3-wire-system (voltage)
Electrical connection	
Standard	male and female plug ISO 4400 (IP 65)
Others	on request

MECHANICAL CONNECTION

standard

op on



CRA-P-331- [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Pressure					
Differential pressure	7	3	0		
Max. input pressure + Differential pressure      Max. permissible static pressure					
200 mbar (0 ...20 / 200 mbar)	1 bar			F	
400 mbar (0 ...40 / 400 mbar)	1 bar			A	
1,0 bar (0 ...100 mbar / 1,0 bar)	3 bar			B	
2,5 bar (0 ...250 mbar / 2,5 bar)	6 bar			C	
6,0 bar (0 ...0,60 / 6,0 bar)	20 bar			D	
16,0 bar (0 ...1,60 / 16,0 bar)	60 bar			E	
Customer				9	
Differential pressure range	F	A	B	C	D E
0 ... 20 mbar	X				
0 ... 40 mbar	X	X			
0 ... 100 mbar	X	X	X		
0 ... 200 mbar	X	X	X		
0 ... 250 mbar		X	X	X	
0 ... 400 mbar		X	X	X	
0 ... 0,60 bar			X	X	X
0 ... 1,0 bar			X	X	X
0 ... 1,6 bar			X	X	X
0 ... 2,5 bar			X	X	X
0 ... 4,0 bar				X	X
0 ... 6,0 bar				X	X
0 ... 10,0 bar					X
0 ... 16,0 bar					X
Customer range					9 9 9 9
Customer underpressure					X X X X
Output					
4 ... 20 mA / 2-wire					1
0 ... 10 V / 3-wire					3
0 ... 5 V / 3-wire					4
Customer					9
Accuracy					
1 % (di . pressure range TD > 5:1)					8
0,5 % (di . pressure range TD from 1:1 to 5:1)					5
1 % including Calibration Certificate (di . pressure range TD > 5:1)					U
0,5 % including Calibration Certificate (di . pressure range TD from 1:1 to 5:1)					T
Customer					9
Electrical connection					
Connector DIN 43650 (ISO 4400)(IP 65)					1 0 0
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67)					E 0 0
Customer					9 9 9
Mechanical connection					
G 1/2" EN 837					2 0 0
M 20 x 1,5 EN 837 + cap nuts and welding nipples					8 0 0
G 1/4" internal thread					J 0 0
7/16 UNF DIN 3866					U 0 0
M 12 x 1 special					D 2 2
Customer					9 9 9
Seals					
Viton (FKM)					1
EPDM					3
FFKM					7
Customer					9
Special version					
Standard					0 0 0
Customer					9 9 9

X - selected version of max. pressure on input "+" and differential pressure is producible.

