

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 ¹	For ranges of max. input pressure + PN > 1 bar (codes C,D,E) ≤ ± 0,5 % span (differential pressure range with TD from 1:1 up to 5:1) ≤ ± 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) ≤ ± 0,5 % span (differential pressure range with TD from 100 to 50 % from static pressure) ≤ ± 1 % span (differential pressure range with TD > 50 to 10 % from static pressure)
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / k Ω
Long term stability	≤ ± 0.2 % span / year
Response time	< 5 msec
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects ² (Offset and Span) / Permissible temperatures	
Nominal pressure P _N	[bar] 0.2 0.4 ≥ 1.0
Tolerance band	[% span] ≤ ± 2.5 ≤ ± 2 ≤ ± 1.5
TC, average	[% span / 10 K] ± 0.4 ± 0.3 ± 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
² 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



Pressure transmitters

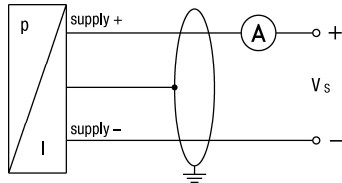
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	aluminium, black anodized
Seals (media wetted)	FKM / others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal 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

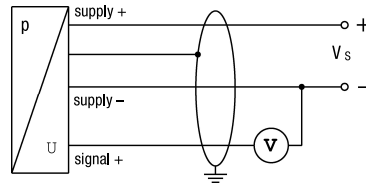
Pin configuration	
Electrical connection	ISO 4400
Supply +	1
Supply -	2
Signal + (only 3-wire)	3
Shield	ground pin

Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)



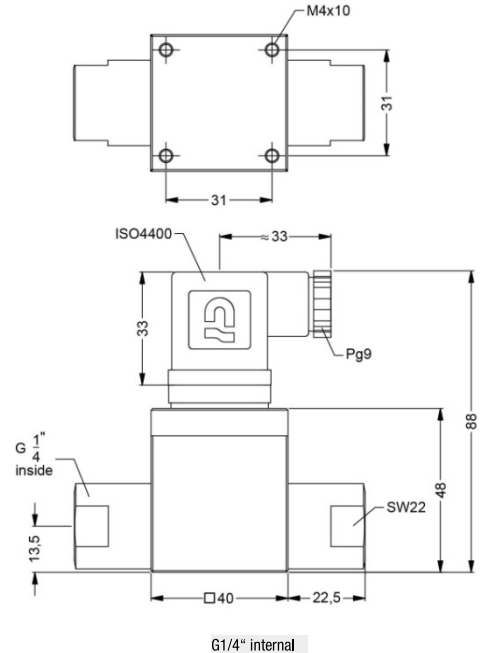
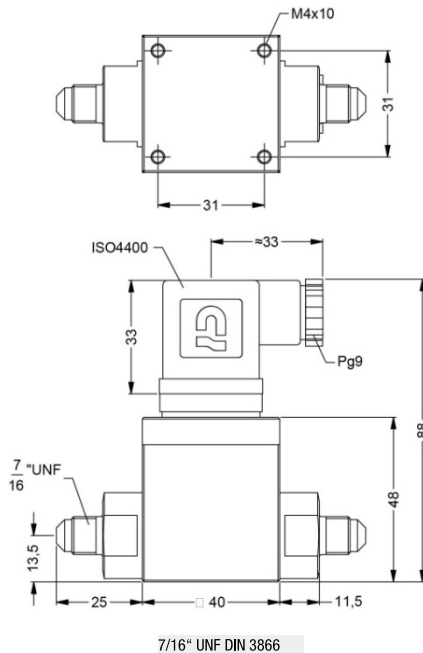
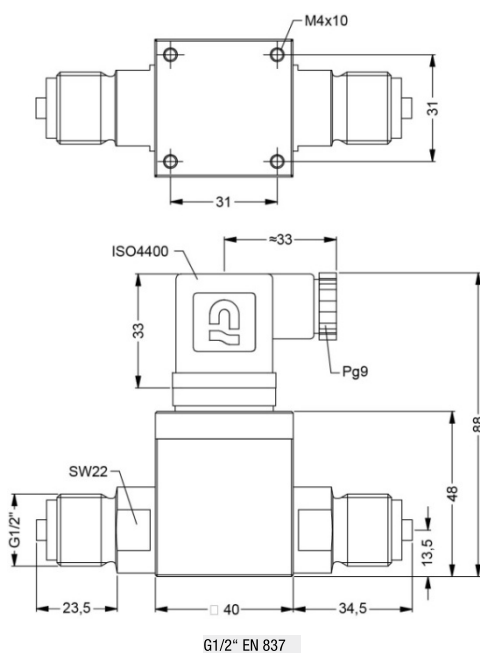
Electrical connection

Standard	male and female plug ISO 4400 (IP 65)
Others	on request

MECHANICAL CONNECTION

standard

option



Pressure transmitters

ORDER CODE

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Pressure																					
Differential pressure				7	3	0															
Max. input pressure + Differential pressure		Max. permissible static pressure																			
200 mbar	(0 ...20 / 200 mbar)	1 bar																			
400 mbar	(0 ...40 / 400 mbar)	1 bar																			
1,0 bar	(0 ...100 mbar / 1,0 bar)	3 bar																			
2,5 bar	(0 ...250 mbar / 2,5 bar)	6 bar																			
6,0 bar	(0 ...0,60 / 6,0 bar)	20 bar																			
16,0 bar	(0 ...1,60 / 16,0 bar)	60 bar																			
Customer																					
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																					
Customer underpressure																					
Output																					
4 ... 20 mA / 2-wire																					
0 ... 10 V / 3-wire																					
0 ... 5 V / 3-wire																					
Customer																					
Accuracy																					
1 % (diff. pressure range TD > 5:1)																					
0,5 % (diff. pressure range TD from 1:1 to 5:1)																					
1 % including Calibration Certificate (diff. pressure range TD > 5:1)																					
0,5 % including Calibration Certificate (diff. pressure range TD from 1:1 to 5:1)																					
Customer																					
Electrical connection																					
Connector DIN 43650 (ISO 4400)(IP 65)																					
Connector ISO 4400 (IP 65) + silicone seals																					
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67)																					
Customer																					
Mechanical connection																					
G 1/2" EN 837																					
M 20 x 1,5 EN 837 + cap nuts and welding nipples																					
G 1/4" internal thread																					
7/16 UNF DIN 3866																					
M 12 x 1 special																					
Customer																					
Seals																					
Viton (FKM)																					
Without seals - welded (only with EN 837; only for $0,16 \leq P_N \leq 40$ bar)																					
EPDM																					
FFKM																					
Customer																					
Special version																					
Standard																					
Customer																					

Standard EN 837-1/-3 corresponds to original Standard DIN 16288

The span of differential pressure can be selected on an individual basis from 10% to 100% max. pressure on input +.

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



Pressure transmitters

1 - only available with pressure port G1/2" EN 837

2 - according to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of $RP > 260 \text{ N/mm}^2$ in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!

3 - RS-232 interface only possible with el. connection Binder serie 723/423 (7pin)

Software, Interface and cable for transmitter with option RS-232 have to be order separately.

(Ordering code: CIS Set 510; Software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP)

Manufacturer reserves the right to change sensor specifications without further notice.

The manufacturer provides the EU declaration of conformity.

Calibration - All production undergoes output control, which is performed by comparison with standards. The traceability of standards and working gauges is ensured in accordance with Act No. 505/1990, as amended, on metrology.

The manufacturer offers the possibility to supply sensors calibrated in the calibration laboratory, accredited according to ČSN EN ISO / IEC 17025: 2018.

