bar

APTSA

Precision absolute and gauge pressure transmitter

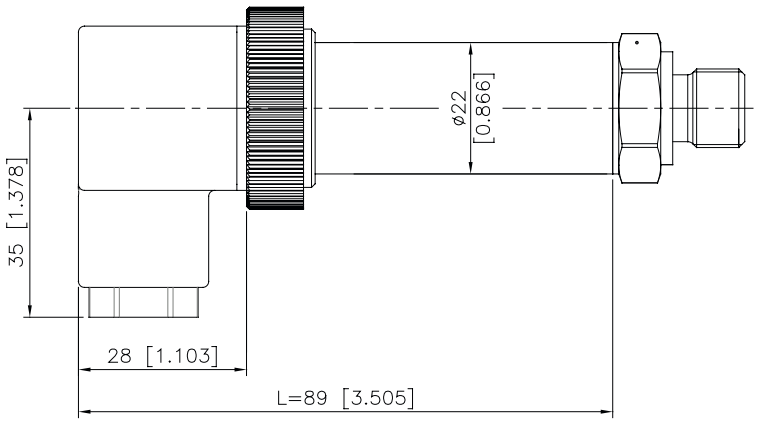
Series APTSA transmitters are based on silicon piezoresistive sensing element in wheatstone bridge configuration. Thanks to highly stable electronic components, these transmitters can be used in applications requiring long-distance signal transmission or in smart control systems.

APTSA pressure transmitters were developed mainly for pressure measurement in industrial refrigeration and air conditioning, compressor and pumps. They are also used for monitoring and control on automatic machines and general purpose industrial applications.

FEATURES

- Ranges: from 0...0.05 bar to 0...60 bar (0...1 to 0...1000 psi)
- Complete range of voltage/current outputs
- Protection rating: IP65/IP67
- Wetted parts: AISI316L
- Operating temperature range -40...+85°C
- Accuracy: ± 0.15% FS typical
- Fill Fluid: silicone oil
- Available absolute ranges
- Available “Barometric” range (0.8-1.2 bar abs)
- Available low ranges (50mbar and 100mbar)

INSTALLATION DRAWINGS / DIMENSIONS: mm [inches]



Version I 09.2025

TECHNICAL DATA

Output signal	**VOLTAGE**	**CURRENT**
Accuracy (**1**)	±0.15% FS typical; ±0.25% FS max (±0.5% FS for absolute ranges)	
Resolution	Infinite	
Overpressure (without degrading performance) (**2**)	see table	
Pressure containment (Burst test) (**3**)	see table	
Pressure media	Fluid compatible with AISI 316L Stainless steel	
Body materials	AISI 304 Stainless steel	
Power supply	15...30Vdc	10...30Vdc
Supply sensitivity	< 0,0015% FS/V	
Insulation resistance	> 1000 MΩ @ 50Vdc	
Zero output signal	C, M, N	4mA (E)
Full scale output signal	C, M, N	20mA (E)
Max current absorption	< 13mA	<32mA
Max allowed load	1mA	See diagram
Long term stability	< 0.1% FS/per year (ranges ≥ 250mbar)	
Operating temperature range (process)	-40...+85°C (-40...+185°F)	
Compensated temperature range	-10...+85°C (+14...+185°F)	
Storage temperature range	-40...+85°C (-40...+185°F)	
Temperature effects over compensated range (zero-span)	± 0.01% FS/°C typical (± 0.02% FS/°C max.) ranges >1 bar± 0.04%FS/°C typical ranges ≤ 1 bar	
Response time (10...90%FS)	< 4 msec.	
Start-up time	< 500 msec.	
Mounting position effects	Negligible (ranges ≥ 1bar)	
Humidity	Up to 100%RH non condensing	
Weight	200 gr. nominal	
Mechanical shock	100 g / 1 msec. according to IEC 60068-2-27	
Vibrations	20 g max a 15-2000Hz according to IEC60068-2-6	
Ingress protection	IP65/IP67	
Output short circuit and reverse polarity protection	YES	
EC conformity	According to Directive 2014/30/EU	

FS = Full Scale

1 BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability
2 tested for more than 1000 strokes with single duration <2msec.
3 tested for more than 100 strokes with single duration <2msec

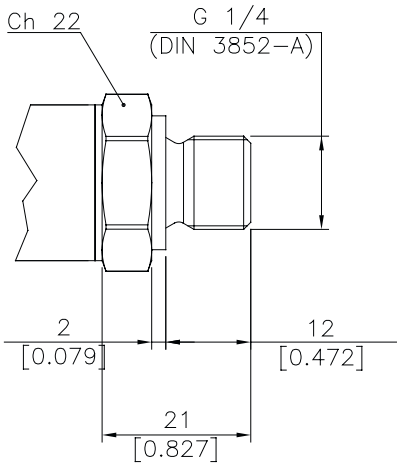
MESSBEREICHE

MEASUREMENT RANGE (Bar)	**0.05**	**0.1**	**0.25**	**0.5**	**1**	**0.8-1.2**	**2**	**2.5**	**4**	**5**	**6**	**7**	**10**	**16**	**20**	**25**	**30**	**40**	**50**	**60**
Overpressure	0.2	0.2	0.7	1.4	2	2	5	5	8	12	12	20	20	32	50	50	80	80	100	120
Burst test	0.3	0.3	1	2	3	3	7.5	7.5	12	18	18	30	30	48	75	75	120	120	150	180

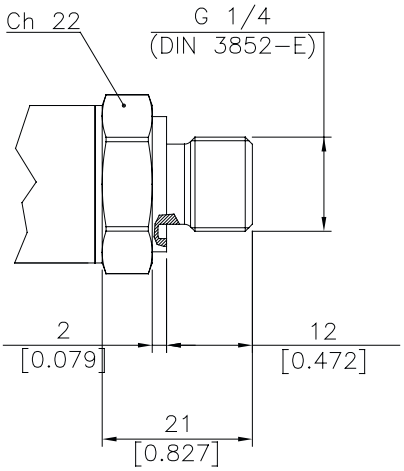
Version | 09.2025

PRESSURE CONNECTION

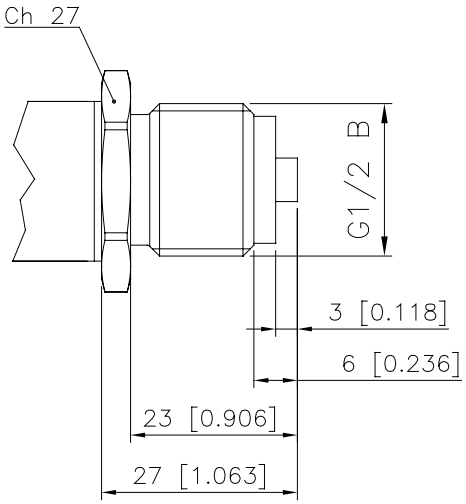
(1) G 1/4 MALE (DIN 3852-A)



(E) G 1/4 E (DIN 3852-E)

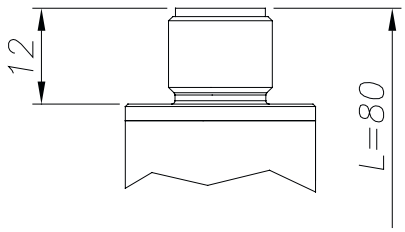


(3) G 1/2 B (EN 837)

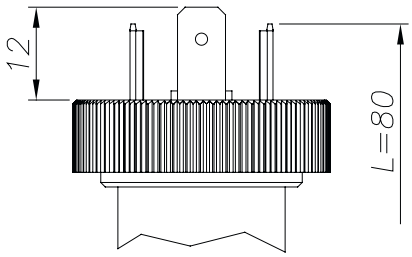


ELECTRICAL CONNECTION

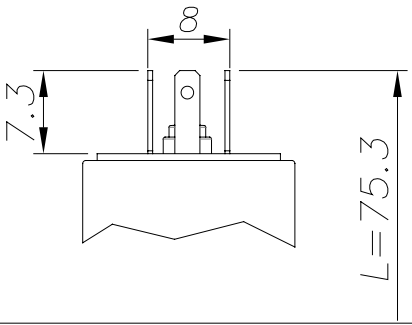
Z - 4 pole connector M12x1



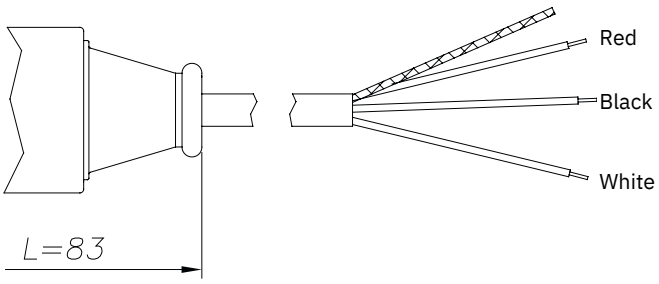
E - EN 175301-801 type A



C - EN 175301-801 type C



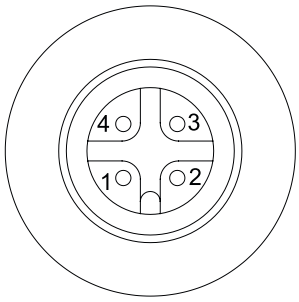
F - 2/3 pole cable



Version I 09.2025

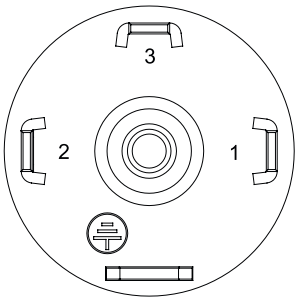
ELECTRICAL CONNECTION - CONNECTORS

Z - M12 x 1 (4 pin)



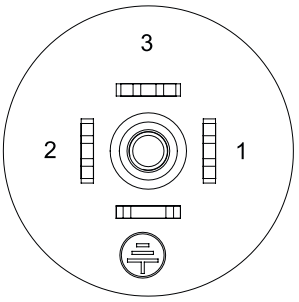
Protection IP67

E - EN 175301-803A



Protection IP65

C - EN 175301-803C

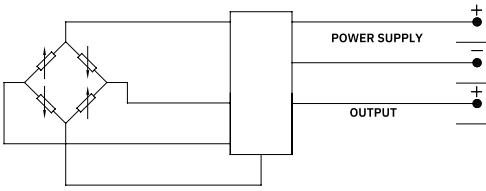


Protection IP65

1. The IP rating specified in this document normally applies with the suitable female connector plugged-in and properly wired.
2. The transducers with relative pressure measuring ranges require vented cable and/or mating connector, to allow the compensation of the atmospheric pressure reference.

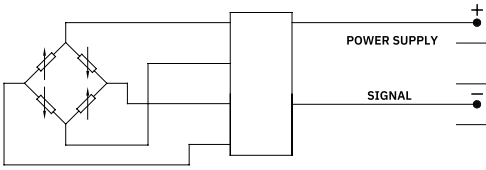
ELECTRICAL CONNECTION - CONNECTION DIAGRAMS

VOLTAGE AMPLIFIED OUTPUT - mod. **C/M/N**



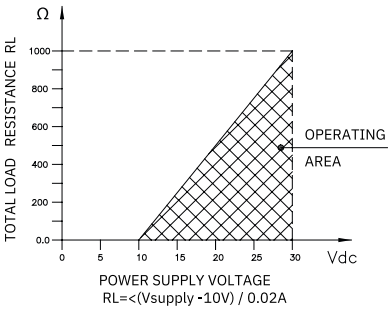
cod. E/C	cod. Z	cod. F
3	3	Red
2	2	Black
1	1	White

CURRENT AMPLIFIED OUTPUT - mod. **E**



cod. E/C	cod. Z	cod. F
1	1	Red
2	2	Black

LOAD DIAGRAM



ACCESSORIES ON REQUEST

Connectors Plugs

Connection E
EN 175301-803 4 pin Type A – Prot. IP65 **CON 006**

Connection Z
4 poles connector M12x1 – Prot. IP67 **CON 293**

Connection C
EN 175301-803 4 pin Type C – Prot. IP65 **CON 047**

EXTENSION CABLES

IP67 female connector M12 x 1 + 2 m of cable	**CAV220**
IP67 female connector M12 x 1 + 3 m of cable	**CAV221**
IP67 female connector M12 x 1 + 5 m of cable	**CAV222**
IP67 female connector M12 x 1 + 10 m of cable	**CAV223**

Cable color code	
Pin	**Wire**
1	Brown
2	White
3	Blue
4	Black

Version I 09.2025

ORDERING INFORMATION

Pressure transmitter **APTSA** □ □ □ □□□□ □ □ □ □

OUTPUT SIGNAL	
4 .. 20 mA	**E**
0 .. 10 Vdc	**N**
0,1 .. 10,1 Vdc	**C**
0 .. 5 Vdc	**M**
Different outputs available on request	

PRESSURE CONNECTION	
G ¼ male (DIN 3852-A)	**1**
G ¼ male (DIN 3852-E)	**E**
G ½ B male (EN 837)	**3**
Different pressure connections available on request	

ELECTRICAL CONNECTION	
EN 175301-803 type A	**E**
4 pole M12x1 connector	**Z**
EN 175301-803 type C	**C**
Shielded cable (1 m)*	**F**
Different connectors available on request	
* Different lengths of cable available on request	

Mechanical and/or electrical characteristics differing from standard may be arranged on request.

RESPONSE TIME	
V	Fast (< 4 msec)

ACCURACY	
T	±0,25%FS

G	Relative
A	Absolute

CALIBRATION STANDARDS

Instruments manufactured are calibrated against precision pressure calibration equipment wich is traceable to International Standards.

MEASUREMENT RANGE

bar			psi		
BV05	0...0.05		**P01U**	0...1	
BV10	0...0.1		**P2V5**	0...2.5	
BV25	0...0.25		**P05U**	0...5	
BV50	0...0.5		**P15U**	0...15	
B01U	0...1		**P18U**	11...18	
B1V2	0.8...1.2		**P03D**	0...30	
B02U	0...2		**P05D**	0...50	
B2V5	0...2.5		**P75U**	0...75	
B04U	0...4		**P01C**	0...100	
B05U	0...5		**P15D**	0...150	
B06U	0...6		**P25D**	0...250	
B07U	0...7		**P03C**	0...300	
B01D	0...10		**P05C**	0...500	
B16U	0...16		**P75D**	0...750	
B02D	0...20		**P01M**	0...1000	
B25U	0...25				
B03D	0...30				
B04D	0...40				
B05D	0...50				
B06D	0...60				

= Range available also“Absolute”

B1V2 = Range available only “Absolute”(Barometric)

P18U = Range available only “Absolute”(Barometric)

Note: The measurement range B1V2 is for absolute pressure from 0.8 to 1.2 bar and is defined as “Barometric”. The signal output is scaled from 800mbar (i.e. 4mA) to 1200mbar (i.e. 20mA).

Sensors are manufactured in compliance with: - EMC 2014/30/EU compatibility directive
- RoHS 2011/65/EU directive

The regulations for electrical installation and the declaration of conformity are available for download.

Ex.: **APTSA - N - 1 - Z - B03D - G - T - V**
Pressure transmitter TSA with 0...10Vdc output signal, G 1/4 male pressure connection, M12x1 connector, pressure range 0...30 bar gauge, ±0.25% FS accuracy, 4 msec response time.

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