

TPSA

PRECISION PRESSURE TRANSMITTER



Main Features

- Ranges: from 0...50 bar to 0...1000 bar (0...750psi to 0...15000psi)
- Accuracy: $\pm 0.1\%$ FSO typical
- Complete range of voltage/current outputs
- Stainless Steel construction
- Protection rating: IP65/IP67
- Wetted parts 17-4PH
- Temperature range -40...+105°C

Series TPSA transmitters are based on the extensimetric measurement principle with strain gauges on metal base. An innovative mechanical structure makes the sensor completely insensitive to tightening during installation. This transmitter is suitable for all those applications where in addition to ruggedness and reliability high accuracy is required.

TECHNICAL DATA

	Output signal	VOLTAGE	CURRENT
Accuracy (1)		$\pm 0.1\%$ FSO typical; $\pm 0.15\%$ FSO max ≥ 100 bar/1500psi $\pm 0.15\%$ FSO typical; $\pm 0.25\%$ FSO max < 100 bar/1500psi	
Resolution		Infinite	
Overpressure (without degrading performance) (2)		See table	
Pressure containment (Burst test) (3)		See table	
Pressure media		Fluid compatible with INOX 17-4PH Stainless Steel	
Body materials		Stainless Steel INOX AISI 304 and Nylon 66GF35V0	
Power supply		C/N/Q 18...32Vdc B/M/P/R 12...32Vdc	E 10...30Vdc
Supply sensitivity		$< 0.0015\%$ FSO/V	
Insulation resistance		$> 1000 \text{ M}\Omega @ 50\text{Volt}$	
Zero output signal		B, C, M, N, P, Q, R	4mA (E)
Full scale output signal		B, C, M, N, P, Q, R	20mA (E)
Max. current absorption		$< 30\text{mA}$	$< 32\text{mA}$
Max allowed load		1mA	see diagram
Long term stability		$< 0.1\%$ FSO/ per year	
Operating temperature range (process)		-40...+105°C (-40...+221°F)	
Compensated temperature range		-10...+85°C (14...+185°F)	
Storage temperature range		-40...+125°C (-40...+257°F)	
Temperature effects over compensated range (zero-span)		$\pm 0.008\%$ FSO/°C typical ($\pm 0.015\%$ FSO/°C max.)	
Response time (10...90%FSO)		$< 1 \text{ msec.}$	
Start-up time		$< 500 \text{ msec.}$	
Mounting position effects		Negligible	
Humidity		Up to 100%RH non condensing	
Weight		110 gr. nominal	
Mechanical shock		100 g / 1 msec. according to IEC 68-2-6	
Vibrations		20 g max @ 15-2000Hz according to IEC68-2-6	
Ingress protection		IP65/IP66/IP67	
Output short circuit and reverse polarity protection		YES	
Voltage spike protection		$> 2\text{kV}$ burst test, to EN61000-4-4	
CE Conformity (89/336 Directive)		EMC Emissions EN61000-6-3 EMC Immunity EN61000-6-2 (10V/m)	

FSO = Full Scale Output

1 BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability

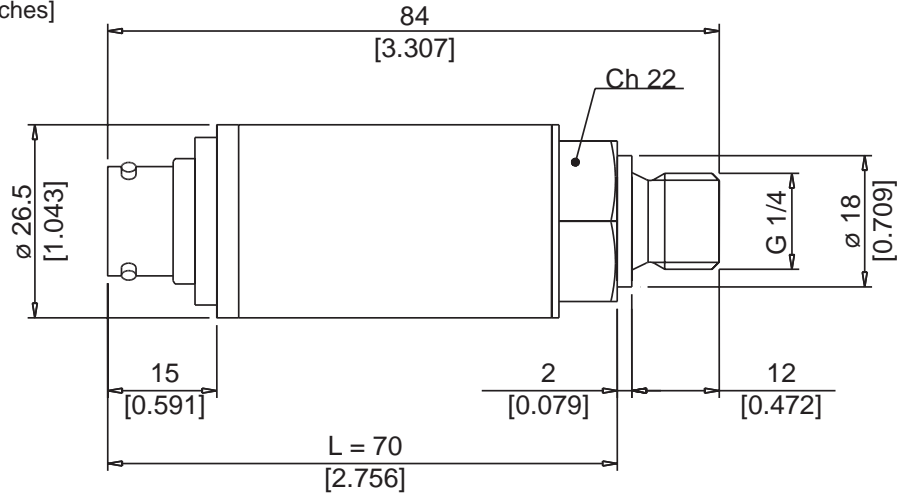
2 tested for more than 1000 strokes with single duration $< 2\text{msec.}$

3 tested for more than 100 strokes with single duration $< 2\text{msec.}$

MEASUREMENT RANGE (Bar)	50	100	160	200	250	350	400	500	600	700	1000
Overpressure	150	300	480	600	750	1050	1200	1500	1800	2000	2000
Burst test	250	500	800	1000	1250	1750	2000	2500	2500	2500	2500

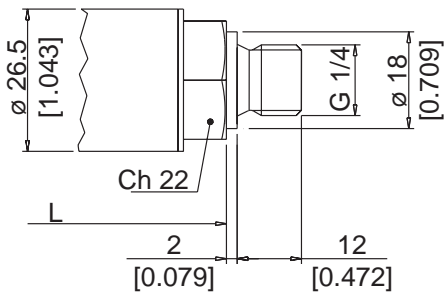
INSTALLATION DRAWINGS

Dimensions: mm [inches]

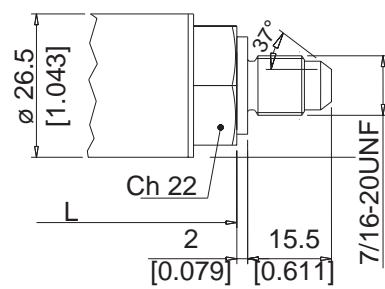


PRESSURE CONNECTION

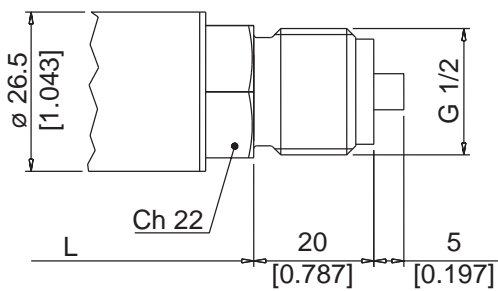
(1) G 1/4 MALE (DIN 3852-A)



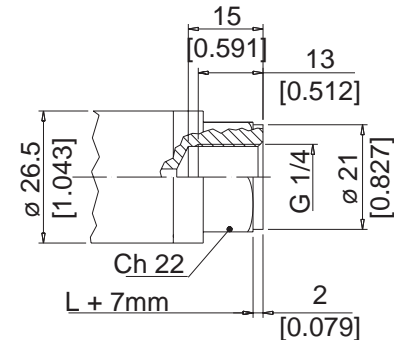
(2) SAE 04 AS4395 - E



(3) G 1/2 A (DIN 16288)

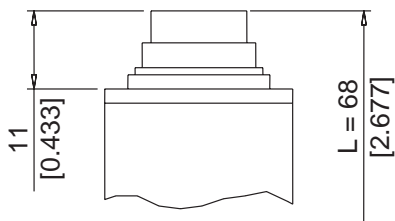


(4) G 1/4 FEMALE

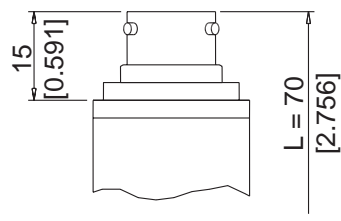


ELECTRICAL CONNECTION

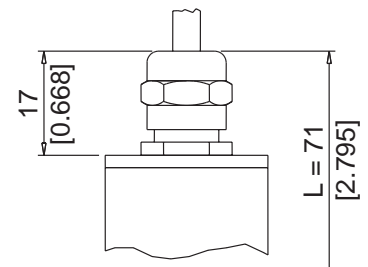
P - 7 pole connector



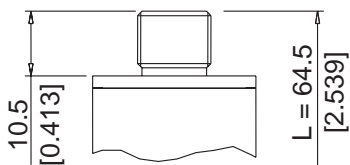
V - 6 pole connector



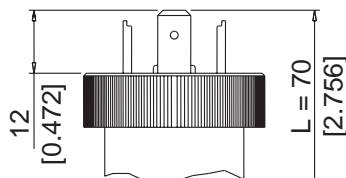
F - 2/4 pole cable



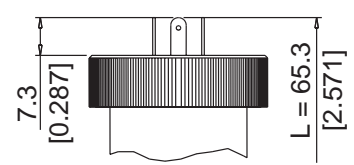
Z - 4 pole connector
M12 x 1



E - 4 pole connector
solenoid

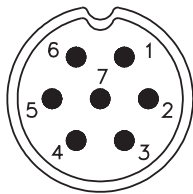


M - 4 pole connector
microsolenoid



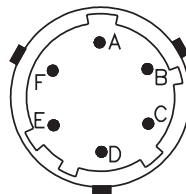
ELECTRICAL CONNECTION - Connectors

P - 7-pole connector



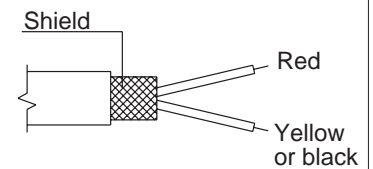
Male connector 09-127-09-07
Protection IP67

V - 6-pole connector



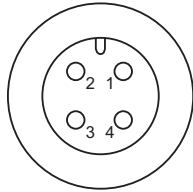
Male connector VPT02A10-6PT2
Protection IP66

F - 2 pole cable



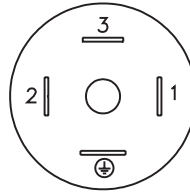
Shielded cable 2x0.25 - 2m. (output E)
Protection IP65

Z - 4 pole male connector M12 x 1



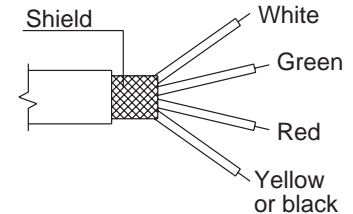
4 pole series 713 male connector
Protection IP67

E - 4 pole solenoid connector M - 4 pole microsolenoid connector



Solenoid DIN 43650A - ISO4400
Protection IP65
Microsolenoid DIN 43650C - ISO4400
Protection IP65

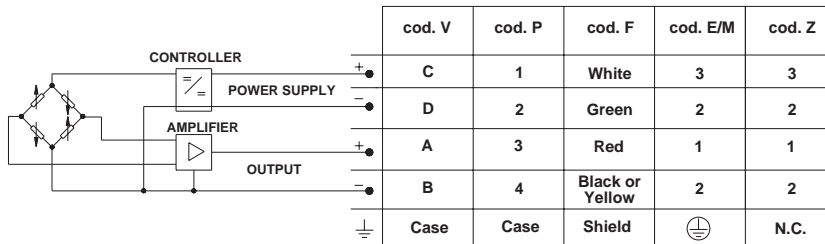
F - 4 pole cable



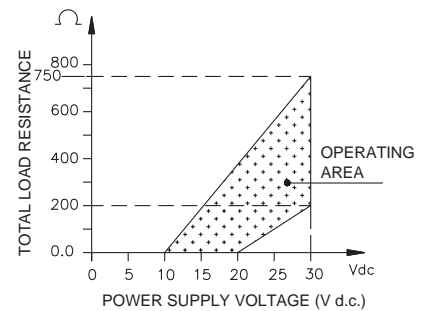
Shielded cable 4x0.25 - 2m
Protection IP65

ELECTRICAL CONNECTION - connection diagrams

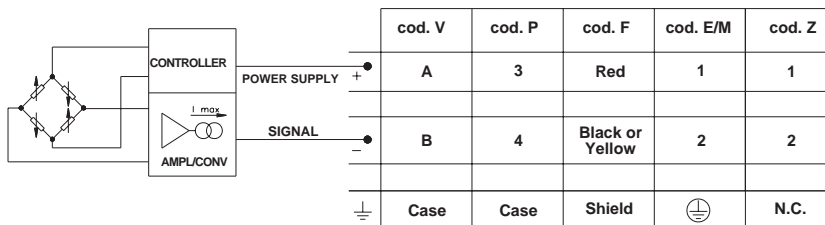
VOLTAGE AMPLIFIED OUTPUT - mod. B/C/M/N/P/Q/R



LOAD DIAGRAM



CURRENT AMPLIFIED OUTPUT - mod. E



ACCESSORIES ON REQUEST

Connectors Plugs

Connection E

3 poles connector + ground DIN43650A ISO4400
Prot. IP65 **CON 006**

Connection Z

4 poles connector
Prot. IP67 **CON 293**

Connection M

3 poles connector + ground DIN43650C ISO4400
Prot. IP65 **CON 008**

Connection P

7 poles female cable connector Prot. IP67 **CON 321**

Connection V

6 poles female cable connector Prot. IP66 **CON 300**

EXTENSION CABLES

6-pin connector with 8m (25ft) cable

C08WLS

6-pin connector with 15m (50ft) cable

C15WLS

6-pin connector with 30m (100ft) cable

C30WLS

Other lengths

consult factory

Cable color code

Conn.	wire
A	Red
B	Yellow/Black
C	White
D	Green
E	Blue
F	Orange

ORDERING INFORMATION

Pressure transmitter

TPSA



OUTPUT SIGNAL		
Standard		
0.1 .. 10.1 Vdc	C	
4 .. 20 mA	E	
0 .. 10 Vdc	N	
On request		
0.1 .. 5.1 Vdc	B	
0 .. 5 Vdc	M	
1 .. 5 Vdc	P	
1 .. 10 Vdc	Q	
1 .. 6 Vdc	R	

PRESSURE CONNECTION		
Standard		
G 1/4 gas male	1	
On request		
7/16-20 UNF-2A male (SAE 4 for AS4395-E)	2	
G 1/2A (DIN 16288)	3	
G 1/4 gas female	4	
1/8-27 NPT female	5	
1/4-18 NPT female	6	
1/4-18 NPT male	7	
M14 x 1.5 male	8	
1/8-27 NPT male	9	
G 1/4 male (DIN 3852-E)	E	
M12 x 1.5 male	R	
7/16-20 UNF-2A male (SAE 4 for J1926-2) (*)	K	
7/16-20 UNF-2A female (SAE 4)	F	

(*) Max. working pressure:
630 bar (9137 psi)

ELECTRICAL CONNECTION		
4-pole connector solenoid	E	
shielded cable	F	
4-pole connector	Z	
4-pole connector microsolenoid	M	
7 pole connector	P	
6 pole connector	V	

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

RESPONSE TIME	
V	Fast (< 1 msec)

ACCURACY	
T	± 0.1% FSO typical ≥100bar/1500psi ± 0.15% FSO typical <100bar/1500psi

MEASUREMENT RANGE			
	bar		psi
B05D	0..50	P75D	0..750
B01C	0..100	P15C	0..1500
B16D	0..160	P20C	0..2000
B02C	0..200	P25C	0..2500
B25D	0..250	P03M	0..3000
B35D	0..350	P05M	0..5000
B04C	0..400	P75C	0..7500
B05C	0..500	P10M	0..10000
B06C	0..600	P15M	0..15000
B07C	0..700		
B01M	0..1000		

CALIBRATION STANDARDS
Instruments are calibrated against precision pressure calibration equipment which is traceable to International Standards.

Ex.: **TPSA - N - 1 - P - B35D - T - V**

Pressure transmitter TPSA with 0...10Vdc output signal, G 1/4 male pressure connection, 7 pole connector, 0...350 bar measurement range, ± 0.1% FSO accuracy, 1msec response time.

cod. TPSA - 01/06