SensorsONE
Measurement Instrumentation Products

TPLA

PRESSURE TRANSMITTER

Main Features

- *Nominal Output Signal: voltage, current*
- *Wetted parts: Stainless Steel AISI 316L*

The TPLA transmitters use a silicon piezoresistive sensing element, engineered to deliver high sensitivity and long-term stability even at very low pressure ranges. Their accuracy makes them ideal for applications in food & pharma packaging, industrial printers, dosing systems, and extrusion blow moulding, as well as in any industrial process requiring precise low-pressure measurement.

TECHNICAL DATA

Non Linearity (BFSL)
± 0.15% FS (typ); ± 0.25% FS (max)
Hysteresis
+ 0.05% FS (typ); + 0.1% FS (max)
Repeatability
± 0.025% FS (typ); ± 0.05% FS (max)
Zero offset tolerance
± 0.15% FS (typ); ± 0.25% FS (max)
Span offset tolarance
± 0.15% FS (typ); ± 0.25% FS (max)
Accuracy at room temperature (1)
< ± 0.5% FS
Pressure ranges (2)
See table
Insulation voltage
250 Vdc
Overpressure (without degrading performance)
See table
Pressure containment (burst test)
See table
Pressure Media
Fluids compatible with Stainless Steel AISI 316L and FKM seal
Housing
Stainless Steel AISI 304
Long term stability (accuracy)
<0,2%FS per year (within compensated temperature range -20...+85 C° and nominal pressure range)
Operating temperature range (process)
-40...+125°C (-40...+257°F)
Operating temperature range (ambient) (4)
-40...+105°C (-40...+221°F)
Compensated temperature range
-20...+85°C (-4...+185°F)
Storage temperature range
-40...+125°C (-40...+257°F)
Temperature effects over compensated range (zero)
± 0,01% FS/°C typ (± 0,02% FS/°C max.) range >1 bar ± 0,02%FS/°C typ (± 0,04% FS/°C max.) range ≤ 1 bar
Temperature effects over compensated range (span)
± 0,01% FS/°C typ (± 0,02% FS/°C max.) range >1 bar ± 0,02%FS/°C typ (± 0,04% FS/°C max.) range ≤ 1 bar
Response time (10...90%FS)
< 1 msec.
Warm-up time (3)
< 30 sec.
Mounting position effects
Negligible
Humidity
Up to 100%RH non-condensing
Weight
100g nominal
Mechanical shock
100g 6ms according to IEC 60068-2-27 50g 11ms according to ISO 19014-3
Vibrations
20g max at 10...2000 Hz according to IEC 60068-2-6
Ingress protection
IP65/IP67 with female homologated connector mounted
Output short circuit and reverse polarity protection
YES

FS = Full scale

1) Incl. Non-Linearity, Hysteresis, Repeatability, Zero-offset and Span-offset tolerance (acc. to IEC 62828-2)

2) The operating pressure range is intended from 0.5 to 100% FS

3) Time within which the rated performance ia achieved

4) See possible restrictions in the paragraphs “Electrical connections” and “Accessories on request”.

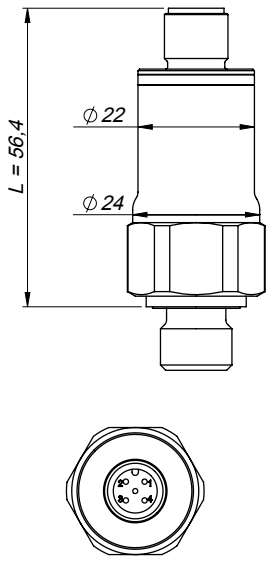
	4…20 mA (2 wires)	1…5 Vdc 0,5…4,5 Vdc 1..6 Vdc 0…5 Vdc 0,5…5,5 Vdc 0,5…5 Vdc (3 wires)	0…10 Vdc 0,05…10 Vdc 0,1…10,1 Vdc 0,2….10,2 Vdc 1…10 Vdc (3 wires)
Supply voltage polarity protected	8…30 Vdc	8…30 Vdc	11…30 Vdc
Supply - current consumption	-	6 mA	
Output impedance	-	≤ 90 Ω	
Load R (connected to 0 V)	see chart	R ≥ 5 kΩ	

PRESSURE RANGES

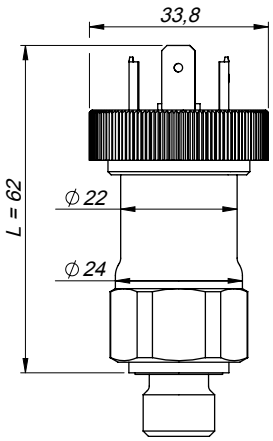
RANGE (bar)	0,050	0,100	0,250	0,500	1	-1…+1	2	2,5	4	5	6	7	10	16	20	25	30	40	50	60
Overpressure (bar)	0,175	0,175	0,625	1,400	2	4	4	5	7	14	14	14	20	40	40	40	70	70	140	140
Burst pressure (bar)	0,420	0,420	1,500	3,500	5	10	10	13	18	35	35	35	50	100	100	100	175	175	280	280

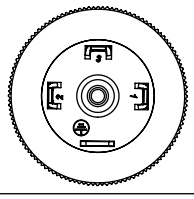
MECHANICAL DIMENSIONS

Z - M12 x 1

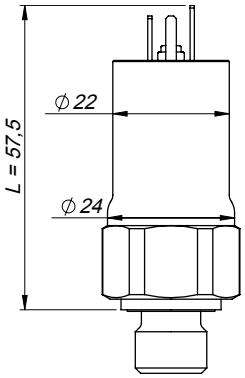


E - Electrovalve EN 175301-803 form A 18 mm pitch

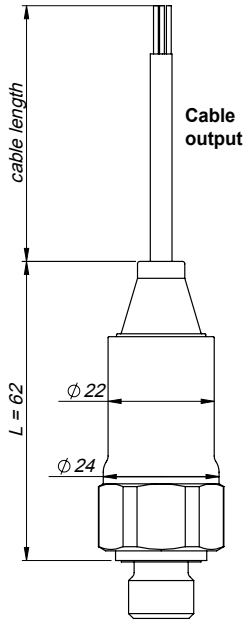


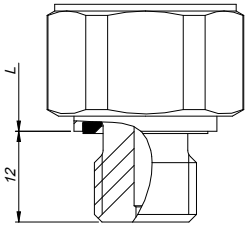


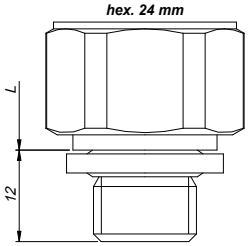
C - Microelectrovalve EN 175301-803 form C 8 mm pitch

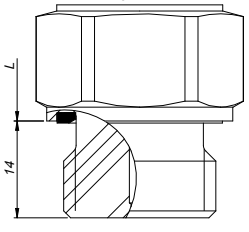


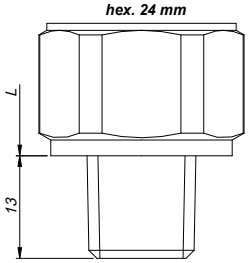
F - Cable output (1 m)

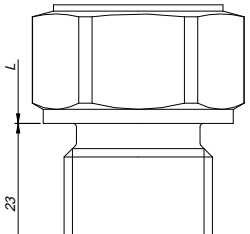






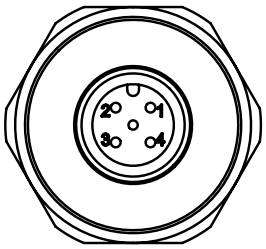






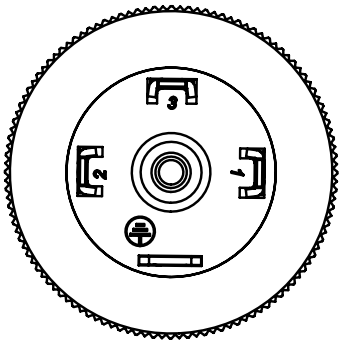
DIMENSIONI MECCANICHE - Connettori

Z - M12 x 1

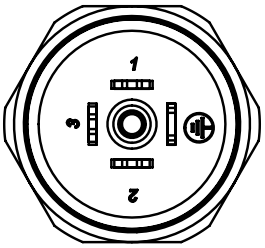


Every connector has a protection rating IP67 with female connector properly installed.
M12 with female homologated connector mounted, tightening torque 0.6Nm + low strenght threadlocker

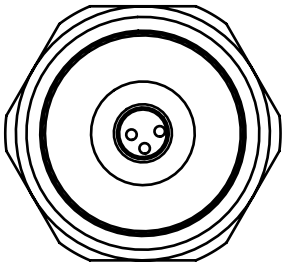
E - Electrovalve
EN 175301-803 form A
18 mm pitch



C - Microelectrovalve
EN 175301-803 form C
8 mm pitch



F - Cable output (1 m)

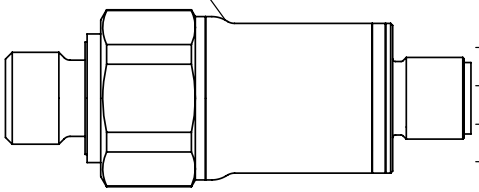


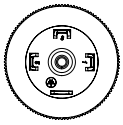
Every connector has a protection rating IP65 with female connector properly installed

Notes:
1. The IP rating specified in this document normally applies with the suitable female connector plugged-in and properly wired.

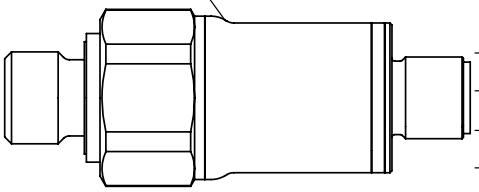
ELECTRICAL CONNECTION - Connection diagrams

VOLTAGE OUTPUT



	Z - M12 x 1	E - Electrovalve EN 175301-803 form A 18 mm pitch	C - Microelectrovalve EN 175301-803 form C 8 mm pitch	F - Cable output (1 m)
				
supply +	3	3	3	red
supply -	2	2	2	black
signal	1	1	1	white
⏚	n.c.	n.c.	n.c.	/

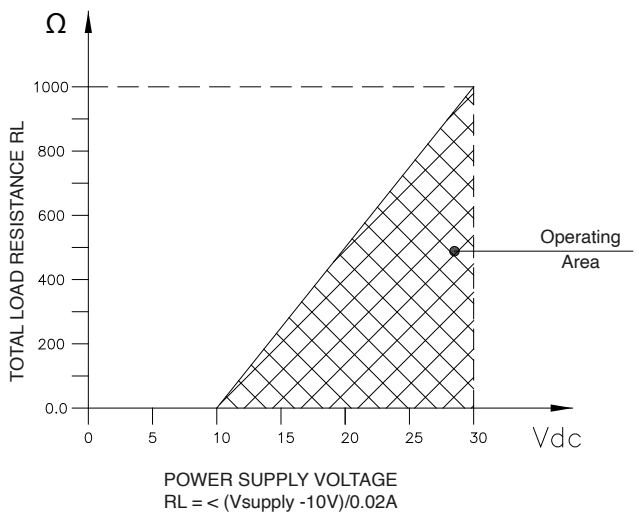
CURRENT OUTPUT



supply +	1	1	1	red
supply -	n.c.	n.c.	n.c.	
signal	2	2	2	black
⏚	n.c.	n.c.	n.c.	/

LOAD DIAGRAM

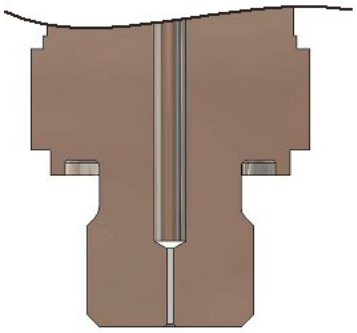
Current output



PRESSURE PEAKS PROTECTION

Many industrial applications, especially in hydraulics, could present dangerous phenomena like cavitation, liquid hammer or pressure peaks, due for example to pumps start and stop or fast closing of a valve.
These phenomena can be harmful to the transducer.

The TPLA series, upon request, is available with an integrated pressure snubber which, thanks to a 0.5 mm diameter through hole, eliminates these harmful peaks, to protect the transducer (see ordering information)



EMC compliance according to: Standard / Directive /Regulation	**Title**
2014/30/EU	EMC Directive (Electromagnetic compatibility)

ACCESSORIES ON REQUEST

MATING CONNECTORS

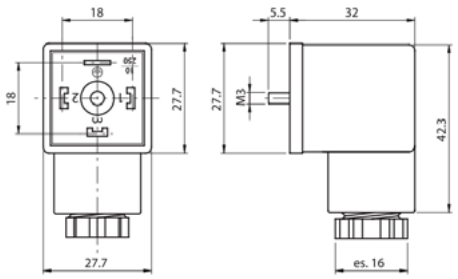
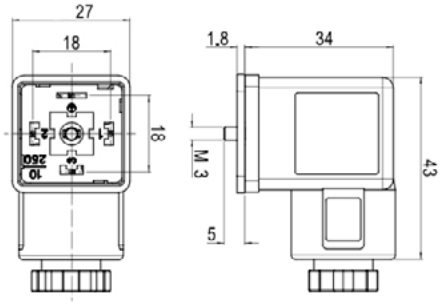
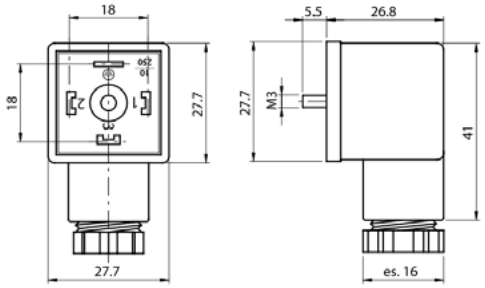
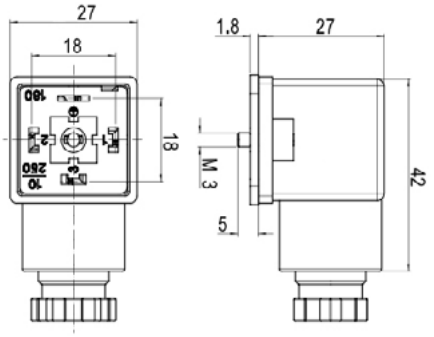
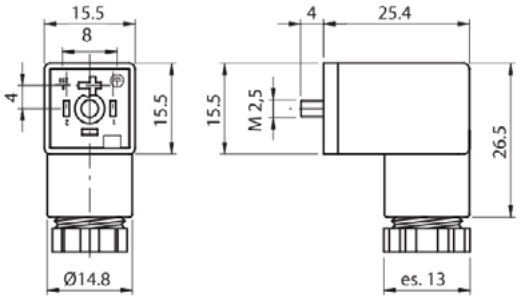
DESCRIPTION	IP RATING	CODE	cULus CERTIFIED	TEMPERATURE RATINGS **
Connection E EN 175301-803 4 pin DIN Form A (P 18) - H=32	IP65	CON064	X	-40+125 °C -40+65°C (cULus)
		CON113	X	-40+90°C
Connection E 3 pole connector + ground EN 175301-803-A H28	IP65	CON045	X	-40+125 °C -40+65°C (cULus)
		CON114	X	-40+90°C
Connection C EN 175301-803 4 pin MicroDIN Form C (P 8)	IP65	CON047		-40+125 °C
		CON116	X	-40+90°C
Connection Z 4 pole female cable connector M12x1	IP67	CON293		-25+85°C
		CON087	X	-25+90°C
Connection Z 4 pole female cable connector, 90° M12x1	IP67	CON050		-25+85°C
		CON088	X	-25+90°C

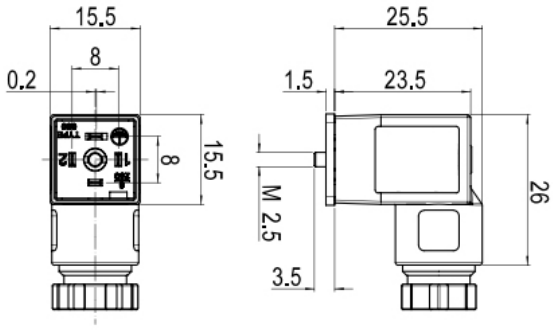
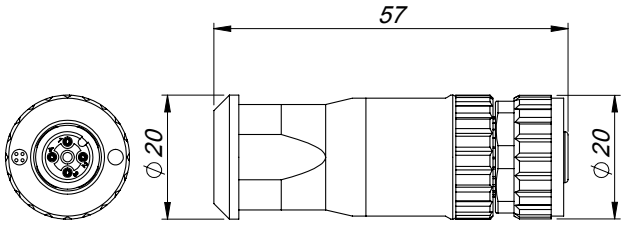
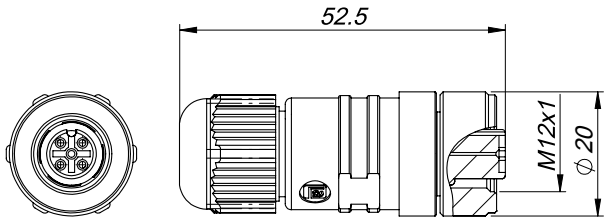
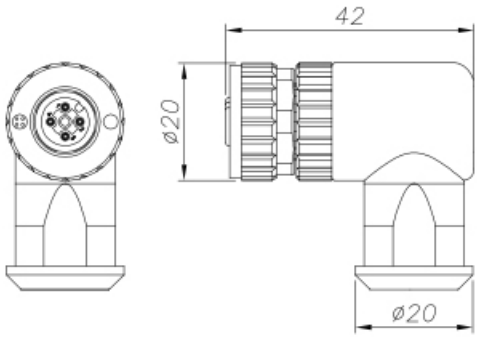
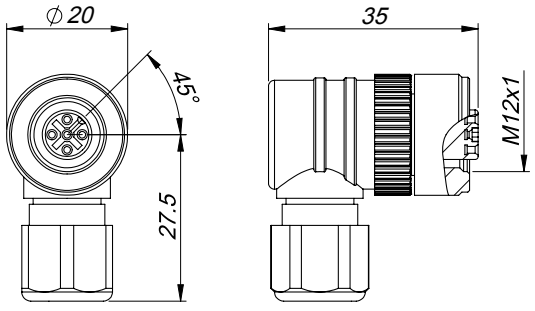
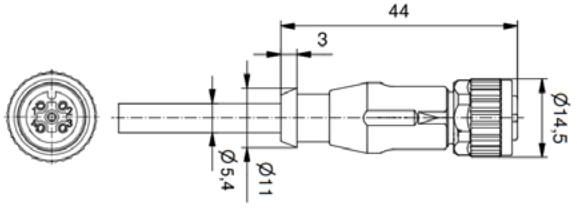
EXTENSION CABLES*

DESCRIPTION	IP RATING	CODE	cULus CERTIFIED	TEMPERATURE RATINGS **	CABLE COLOR CODE	
					Pin	Wire
Connection Z female connector M12x1 + 2/3/5/10m of cable	* IP67 with female homologated connector mounted, tightening torque 0.6Nm + low strenght threadlocker	CAV220	X	-30+80°C	1	Brown
		CAV221			2	White
		CAV222			3	Blue
		CAV223			4	Black

* Other lengths on request
** The nominal temperature ranges, except where expressly indicated, are also applicable in the UL scope.
For cULus applications extension cables, a 3 pole 26AWG Style 2464 cable is advised

ACCESSORIES DRAWINGS

DESCRIPTION	CODE	DRAWING
Connection E EN 175301-803 4 pin DIN Form A (P 18) H=32	CON064	
	CON113	
Connection E 3 pole connector + ground EN 175301-803-A H=28	CON045	
	CON114	
Connection C EN 175301-803 4 pin MicroDIN Form C (P 8)	CON047	

DESCRIPTION	CODE	DRAWING
Connection C EN 175301-803 4 pin MicroDIN Form C (P 8)	CON116	
Connection Z 4 pole female cable connector M12x1	CON293	
	CON087	
Connection Z 4 pole female cable connector, 90° M12x1	CON050	
	CON088	
Connection Z female connector M12x1 + 2/3/5/10m of cable	CAV220 CAV221 CAV222 CAV223	

ORDERING INFORMATION

TPLA	-	N	E1	Z	-	B01U	-	0	-	G	-	0 0	-	0	-	0	0	0	0	-	0	0	0

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

OUTPUT SIGNAL	
4…20 mA	**E**
0…10 V	N
1…5 V	**P**
available on request	
0,5…4,5 V	**4**
0,050…10 V	**A***
0,1…10,1 V	**C**
1…6 V	**K**
0…5 V	**M**
1…10 V	**Q**
0,2…10,2 V	**T**
0,5…5,5 V	**V**
0,5...5 V	**Y**

PROCESS CONNECTIONS	
G 1/4 ISO 1179-2	**E1**
G1/2 ISO 1179-2	**31**
R 1/4 ISO 7/1	**H4**
G1/4 DIN 3852-1 type A	**12**
G 1/2 B (EN 837)	**35**

ELECTRICAL CONNECTIONS	
M12x1 (4-pin)	**Z**
Conn. EN 175301-803A (P.18)	**E**
Conn. EN 175301-803C (P. 8)	**C**
Cable output	**F**

MEASUREMENT RANGE	
0…0,05	BV05
0…0,1	BV10
0…0,25	BV25
0…0,5	BV50
0...1 *	B01U
-1…+1bar	N01U
0...2 *	B02U
0...2,5 *	B2V5
0…4 *	B04U
0…5 *	B05U
0…6 *	B06U
0…7 *	B07U
0…10 *	B01D
0…16 *	B16U
0…20 *	B02D
0…25 *	B25U
0…30 *	B03D
0…40 *	B04D
0…50 *	B05D
0…60 *	B06D

TRANSDUCER CLEANING	
NO Transducer cleaning	**0**
Transducer cleaning	**1**

CALIBRATION REPORT	
Without report	**0**
Wwith report	**1**

PRESSURE	
Absolute	**A**
Relative	**G**

SNUBBER	
Without snubber	**0**
With snubber	**S**

*Absolute pressure available
(≥ 4 bar only absolute and not relative)

Sensors are manufactured in compliance with: - EMC 2014/30/EU Compatibility Directive
- RoHS 2011/65/EU Directive
- 2006/42/EC Machinery Directive