

# Pressure Transmitter PTU For Ultra High Pressure Applications

## CERTIFICATIONS



## DESCRIPTION

The pressure transmitter PTU has been designed for industrial applications with ultra-high pressure. The transmitter has an excellent long-term stability, also under dynamic pressure with high pressure peaks.

The measuring ranges cover from 0...1,600 bar up to 0...8,000 bar. The wetted parts (pressure port and measuring element) consist of stainless steel and can be used under harsh environmental conditions. The pressure port and measuring cell are welded together enabling the sensor to withstand shock and vibration.

PTU pressure transmitters offer a variety of pressure & electrical connections and therefore are an optimal solution to different applications.

The PTU pressure transmitter complies with electromagnetic compatibility requirements (EMC) as per EN 61326.



## MEASURING RANGES / OPTIONS

Gauge pressure:

- Positive: 0...1,600 bar to 0...8.000 bar

## FEATURES

- Measuring ranges from 0...1,600 bar to 0...8.000 bar
- Calibration of all pressure ranges below the maximum pressure feasible
- Corrosion resistant, stainless steel design
- Robust against shock and vibration
- Dynamic and static measurements feasible
- Simple installation
- CE, RoHS confirm

## APPLICATIONS

- Autofrettage
- Waterjet cutting
- Hydroforming
- High-pressure cleaning
- High-pressure test bench
- High-pressure pasteurization

## SPECIFICATIONS

Model	PTU			Options
<b>Pressure Type</b>	Positive Gauge			
<b>Pressure Range</b>	0...1,600 bar to 0...8,000 bar			
<b>Overpressure Limit</b>	X 1.5			
<b>Burst Pressure</b>	X 1.6			
<b>Accuracy<sup>1</sup></b>	$\leq \pm 0.5\%$ FS $\leq \pm 0.25\%$ FS On request			
<b>Non-Linearity</b>	$\leq \pm 0.2\%$ of span BFSL (per IEC 61298-2)			
<b>Non-Repeatability</b>	$\leq \pm 0.1\%$ of span (per IEC 61298-2)			
<b>Setting Time</b>	$\leq 1$ ms			
<b>Measuring Rate</b>	200 Hz			
<b>Output Signal</b>	Power Supply	Maximum Load $R_A$	Other Signals Feasible	
2-wire (A): 4...20 mA	7...36 VDC	$R_A \leq (U_b - 10 \text{ V}) / 0.02 \text{ A}$		
3-wire (A): 0...20 mA	6...36 VDC	$R_A \leq (U_b - 3 \text{ V}) / 0.02 \text{ A}$		
3-wire (V): 0...10 VDC	14...30VDC	$R_A > \text{max. Output Signal} / 1 \text{ mA}$		
0...5 VDC	10...30 VDC	$R_A > 4.5 \text{ k}\Omega$		
1...5 VDC	10...30 VDC			
0.5...4.5 VDC	4.5...5.5 VDC			
<b>Sensor Element</b>	Thin Film			
<b>Long-term Stability</b>	0.1 % of FS / year at Reference Conditions according to IEC 61298-2			
<b>Case</b>	Stainless Steel 316L			
<b>Pressure Connection</b>	M16x1.5 Female (Up to 7,000 bar)	M20x1.5 Female	(9/16-18 UNF Female (Up to 7,000 bar)	Other Pressure Connections Feasible
<b>Wetted Parts</b>	Stainless Steel 17-4PH			
<b>Electrical Connection / IP Rating</b>	DIN EN 175301-803A: IP 65	M12x1 (4-Pin): IP67	Other Electrical Connections Feasible	
	Cable Outlet: IP67 / 68	Bayonet 6-pin: IP 67		
<b>Electrical Protection</b>	Short-Circuit (S+ vs. 0V)	Over-Voltage (max. DC 36V)	Reverse Polarity (Ub vs. 0V)	
<b>Insulation Voltage</b>	500 VDC			1000 VDC (optional)
<b>Thermal Error in Compensated Range: 0...80 °C</b>	$\leq 0.25\text{bar}: \leq 0.4\%$ of FS / 10K $> 0.25\text{bar}: \leq 0.2\%$ of FS / 10K			
<b>Thermal Error on Zero</b>	$\leq 0.5\%$ of FS / 10 K			
<b>Permissible Temperatures</b>	Storage -40...100 °C	Medium -40...125 °C	Environment -20...80 °C	
<b>MTTF</b>	> 100 years			

<sup>1</sup>Including Non-Linearity, Hysteresis, Zero Point and Full Scale Error  
(Corresponds to Error of Measurement per IEC 61298-2)

FS = Full Scale

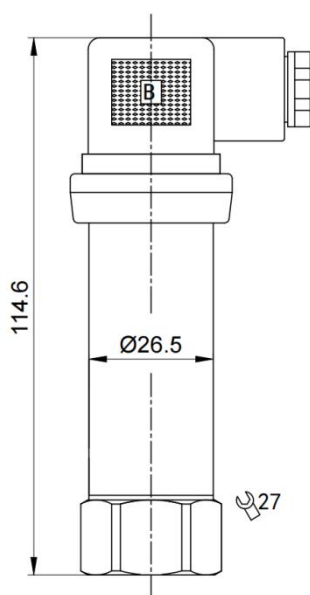
## SPECIFICATIONS

Model	PTU	Options
<b>Conformity</b> Pressure Equipment Directive EMC Directive Shock Resistance Vibration Resistance	CE, RoHS  97/23/EC 2004/108/EEC, EN 61326 Emission (Group 1, Class B) 1000g according to IEC 60068-2-27 20g according to IEC 60068-2-6	
<b>Weight</b>	Approx. 0.25kg	

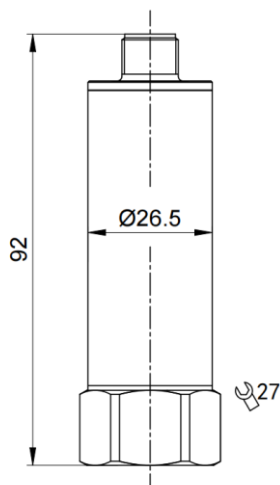
## DIMENSIONS (mm)

### CASE

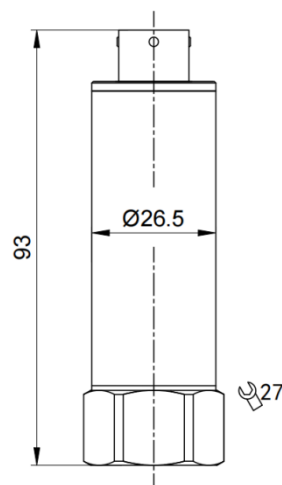
Angular Connector  
DIN EN-175301-803-A, IP 65



Circular Plug-In Connector  
M12x1 4-Pin, IP 67



Bayonet Connector  
6-Pin, IP 67



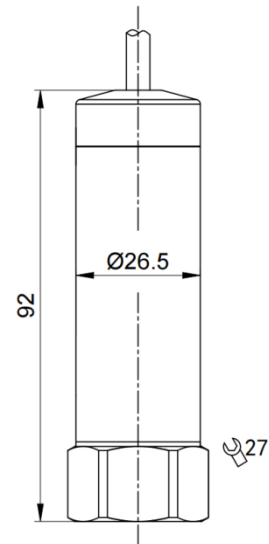
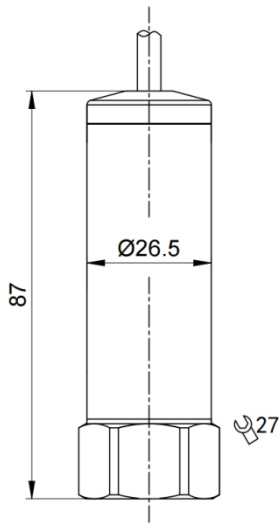
# DIMENSIONS (mm)

## CASE

Cable Outlet With Free End

IP 67

IP 68

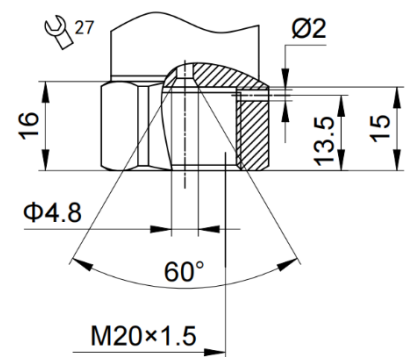
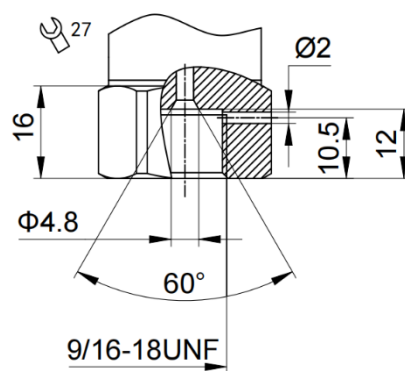
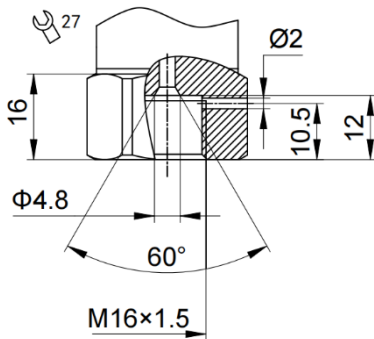


## PRESSURE CONNECTIONS

M16x1.5 Female  
(Up To 7,000 bar)

9/16-18 UNF Female  
(Up To 7,000 bar)

M20x1.5 Female



# ELECTRICAL CONNECTION

	2-wire	3-wire
DIN PLUG EN 175301-803-A With Junction Box		
Circular Connector M12x1 - 4-Pin		
Bayonet Connector 6-Pin		
Cable Outlet With Free Ends IP 67 & IP 68		

# ORDERING CODE PTU

## PTU-AAAA-B-CC-DDD-EE-FFF

AAAA	Pressure Range (bar)	
	1604	1,600
	2504	2,500
	3004	3,000
	4004	4,000
	5004	5,000
	6004	6,000
	7004	7,000
	8004	8,000
	Others on request	

B	Output Signal	
	1	4...20 mA, 2-wire (8-36 VDC)
	2	0...10 V, 3-wire (12-36 VDC)
	3	0.5...4.5 V, 3-wire (8-36 VDC)
	4	0.5...4.5 V, 3-wire (5 VDC)
	5	0...5 V, 3-wire (8-36 VDC)
	6	1...5 V, 3-wire (8-36 VDC)
Others on request		

CC	Accuracy (% FS)	
	02	0.25
	05	0.5
Others on request		

DDD	Pressure Connection	
	M20	M20x1.5 Female
	M16	M16x1.5 Female
	1UF	9/16-18 UNF Female
Others on request		

EE	Electrical Connection	
	DA	DIN EN 175301-803-A
	M1	M12x1, 4-pin
	C1	Cable version IP 67
	C2	Cable version IP 68
	B6	Bayonet 6-pin
Others on request		

FFF	Customized	
	111	Standard version
	XXX	Customer specific