S.07

Protran PR3800/PR3820/ PR3850/PR3860

Flush Diaphragm Pressure Transmitter

- Easy clean flush membrane to prevent clogging
- Thick film sensor technology for long service life
- Pressure ranges to 400bar
- Range of sanitary grade pressure fittings
- Up to 250°C media temperature option
- Models available with integral O-ring seal option to ensure flush pressure seal
- ATEX/IECEx option available (includes M1 for mining applications)

DESCRIPTION

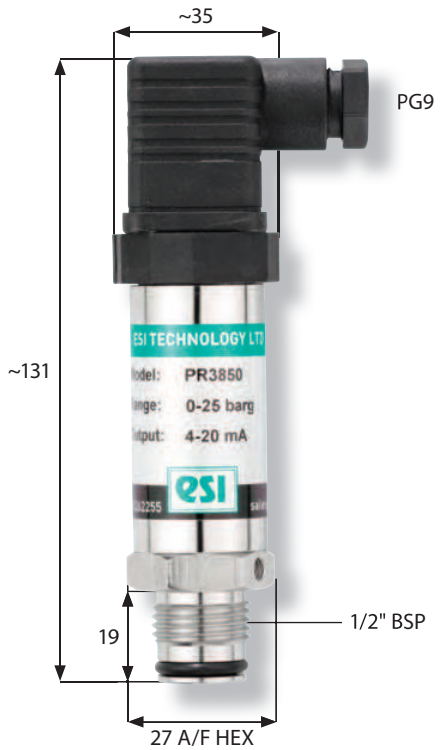
The range of flush diaphragm pressure transmitters have been designed to meet the requirements of the majority of industrial pressure measurement applications where a hygienic flush diaphragm or remote barrier seal connection is required.

Robustly constructed from stainless steel, this range of pressure transmitters incorporates the latest strain gauge technology together with a custom IC amplifier offering excellent stability and accuracy over a long service life. The range offers a stable and accurate output signal of 4-20mA with options for 0-5V and 0-10V.

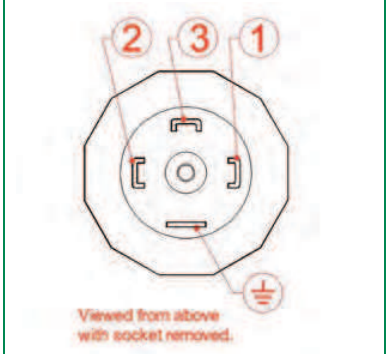
Typical applications include food processing, pharmaceutical, petrochemical, waste water and slurry handling. In these installations the process media may corrode the sensing diaphragm or clog the narrow pressure inlet on a standard transmitter. The flush membrane can be easily cleaned for long term reliability and outstanding performance. For hygienic applications the PR3800 series provides a sanitary grade pressure fitting. Seals are available in a variety of forms and materials for a wide range of applications and can be directly attached to the proposed connection or remotely via stainless steel capillary. For food processing, pharmaceutical and petrochemical applications the PR3860 is suitable for use at media temperature up to 250ºC. Pressure ranges available from 0-200mbar to 0-400bar.

An optional ATEX and IECEx approved versions of this range are available for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).

DIMENSIONS (in mm)



Model shown PR3850



ELECTRICAL CONNECTION (mA)

Pin. No.	2 wire
1	+ supply
2	4-20 mA signal
3	N/C
⏚	to case

ELECTRICAL CONNECTION (V)

Pin. No.	4 wire	3 wire
1	- supply	common
2	+ supply	+ supply
3	+ output	+ output
⏚	- output	to case

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TECHNICAL DATA

Type:	PR3800	PR3801	PR3802	PR3820	PR3821	PR3822
Output signal:	4-20 mA (2 wire)	0-5 V (4 wire)	0-10 V (4 wire)	4-20 mA (2 wire)	0-5 V (4 wire)	0-10 V (4 wire)
Supply Voltage:	13 to 36 VDC	13-30 VDC	13-30 VDC	13 to 36 VDC	13-30 VDC	13-30 VDC
Pressure Reference:	Gauge					
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V					
Standard Pressure Ranges:	0-1 bar Vac; 0-1 bar; 0-2.5 bar; 0-10 bar; 0-16 bar; 0-25 bar; 0-40 bar (other options available)					
Overpressure Safety:	1.5x for ranges 0-200 mbar to 0-40 bar					
Load Driving Capability:	4-20 mA: $R_L < [U_B - 13\ V] / 20\ mA$ (e.g. with supply voltage (U_B) of 36V, max. load (R_L) is 1150 Ω)					
Accuracy NLHR:	±0.30% FS typical max. BFSL					
Zero Offset and Span Tolerance:	±1.0% FS at room temperature ±5% FS (approx.) adjustment with easy access trimming potentiometers on amplified versions only					
Operating Ambient Temperature:	-20°C - +85°C					
Operating Media Temperature:	-20°C - +85°C					
Storage Temperature:	+5°C - +40°C (recommended best practice)					
Temperature Effects:	±2.5% FS total error band for -20°C - +70°C. Typical thermal zero and span coefficients ±0.04% FS/ °C					
ATEX/IECEx Approval Option (4-20mA version only):	Ex II 1 G Ex ia IIC T4 Ga (zone 0) Ex II 1 D Ex ia IIIC T135°C Da (zone 20) Ex I M 1 Ex ia I Ma (group 1 M1)					
ATEX/IECEx Safety Values:	Ui = 28 V, Ii = 119 mA, Pi = 0.65 W, Li = 0.1 µH, Ci = 62 nF, Temperature Range = -20°C - +70°C, Max. cable length = 105 m					
Electromagnetic Capability:	Emissions: EN61000-6-4 Immunity: EN61000-6-2 Certification: CE Marked					
Insulation Resistance:	> 100 MΩ @ 50 VDC					
Wetted Parts:	SAE 316L stainless steel					
Pressure Media:	All fluids compatible with SAE 316L stainless steel					
Pressure Connection:	Pipe clamp (Tri-clover) 1.5" 316L Stainless steel (Other options available)			DIN 11851 female 316L Stainless steel (Other options available)		
Electrical Connection:	Mating socket EN175301-803 Form A (ex DIN43650), a screw terminal connector rated IP65 with PG9 cable entry (other options available)					

DISCLAIMER: ESI Technology Ltd operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by ESI Technology Ltd are calibrated using precision calibration equipment with traceability to international standards.

ORDER MATRIX

Output	Wires	Type	Electrical Connector	Pressure Range	Process Connection
4-20 mA	2	PR3800			
	2	PR3820			
0-5 V	4	PR3801			
	4	PR3821			
0-10 V	4	PR3802			
	4	PR3822			

Electrical Connection / Option

DIN EN175301 plug and socket	–
Cable outlet 1m screened	A
M12 connector	B
Cable outlet 1m screened IP67 protection	C
ATEX/ IECEx certified with DIN EN175301 plug and socket	EX

Pressure Range in bar

0-1 bar vac	V001
0-1 bar	0001
0-2.5 bar	02.5
0-10 bar	0010
0-16 bar	0016
0-25 bar	0025
0-40 bar	0040

Process Connection

Pipe clamp (Tri-clover) 1.5" 316L Stainless steel (PR3800 only)	BG
Pipe clamp (Tri-clover) 2" 316L Stainless steel (PR3800 only)	BH
RJT 38mm female 316L Stainless steel (PR3820 only)	BJ
DIN11851 female 32mm Stainless steel (PR3820 only)	BR
SMS 40mm female 316 Stainless steel (PR3820 only)	BV

Order Number Example PR3800–0250BG

For options not listed please contact sales team.

PR3820

Protran PR3800/PR3820/ PR3850/PR3860

Flush Diaphragm Pressure Transmitter

TECHNICAL DATA

Type:	PR3850	PR3851	PR3852	PR3860	PR3861	PR3862
Output signal:	4-20 mA (2 wire)	0-5 V (4 wire)	0-10 V (4 wire)	4-20 mA (2 wire)	0-5 V (4 wire)	0-10 V (4 wire)
Supply Voltage:	13 to 36 VDC	13-30 VDC	13-30 VDC	13 to 36 VDC	13-30 VDC	13-30 VDC
Pressure Reference:	Gauge					
Protection of Supply Voltage:	Protected against supply voltage reversal up to 50 V					
Standard Pressure Ranges:	0-10 bar; 0-25 bar; 0-100 bar; 0-250 bar; 0-400 bar (other options available)					
Overpressure Safety:	1.5x all ranges					
Load Driving Capability:	4-20 mA: $R_L < [U_B - 13\ V] / 20\ mA$ (e.g. with supply voltage (U_B) of 36V max. load (R_L) is 1150 Ω) 0-5 V: max load $R_L > 5$ KΩ 0-10 V: max load $R_L > 10$ KΩ					
Accuracy NLHR:	±0.30% FS typical max. BFSL					
Zero Offset and Span Tolerance:	±1.0% FS at room temperature ±5% FS (approx.) adjustment with easy access trimming potentiometers on amplified versions only					
Operating Ambient Temperature:	-20°C - +85°C					
Operating Media Temperature:	-20°C - +85°C			0°C to +250°C (sensor and electronics thermally insulated from media temperature)		
Storage Temperature:	+5°C - +40°C (recommended best practice)					
Temperature Effects:	±2.5% FS total error band for -20°C - +70°C. Typical thermal zero and span coefficients ±0.04% FS/ °C					
ATEX/IECEx Approval Option (4-20mA version only):	Ex II 1 G Ex ia IIC T4 Ga (zone 0) Ex II 1 D Ex ia IIIC T135°C Da (zone 20) Ex I M 1 Ex ia I Ma (group 1 M1)					
ATEX/IECEx Safety Values:	Ui = 28 V, Ii = 119 mA, Pi = 0.65 W, Li = 0.1 µH, Ci = 62 nF, Temperature Range = -20°C - +70°C, Max. cable length = 105 m					
Electromagnetic Capability:	Emissions: EN61000-6-4 Immunity: EN61000-6-2 Certification: CE Marked					
Insulation Resistance:	> 100 MΩ @ 50 VDC					
Wetted Parts:	SAE 316L stainless steel					
Pressure Media:	All fluids compatible with SAE 316L stainless steel					
Pressure Connection:	1/2" BSP male with integral nitrile (NBR) o-ring seal and flush SAE 316L stainless steel diaphragm with high temperature fitting			1/2" BSP male with standard integral Viton (FKM) o-ring seal and flush SAE 316L stainless steel diaphragm. O-ring seal is for service temperature up to max. 205ºC. An alternative o-ring material can be provided for service up to 250ºC (charged accessory)		
Electrical Connection:	Mating socket EN175301-803 Form A (ex DIN43650), a screw terminal connector rated IP65 with PG9 cable entry (other options available)					

ORDER MATRIX

Output	Wires	Type	Electrical Connector	Pressure Range	Process Connection
4-20 mA	2	PR3850			
	2	PR3860			
0-5 V	4	PR3851			
	4	PR3861			
0-10 V	4	PR3852			
	4	PR3862			

Electrical Connection / Option

DIN EN175301 plug and socket	–
Cable outlet 1m screened	A
M12 connector	B
Cable outlet 1m screened IP67 protection	C
ATEX/ IECEx certified with DIN EN175301 plug and socket	EX

Pressure Range in bar

0-10 bar	0010
0-25 bar	0025
0-100 bar	0100
0-250 bar	0250
0-400 bar	0400

Process Connection

1/2" BSP male with flush membrane	BA
1" BSP male with flush membrane (PR385x only)	BC

Order Number Example PR3860–0250BA

For options not listed please contact sales team.

PR3850

PR3860