



Protran® PR3441

Submersible Depth/Level
Pressure Transmitter



- Piezoresistive sensor technology for excellent stability and repeatability
- Robust stainless steel construction
- Pressure ranges available from 0-1 mWG
- High strength, moulded cable for protection against ingress
- ATEX/IECEx option available (includes M1 for mining applications)
- DNV GL certification available



Vers. 20/1/Eng



Description

The PR3441 submersible transmitter has been designed for the accurate measurement of the depth and level of liquids in many applications.

Standard output signal is 4-20 mA two wire with supply range 13-36 Vdc. Electrical connection is via a high strength moulded polyurethane cable with integral tube for excellent trouble-free venting to the surface atmosphere. The standard depth transmitter is fitted with a stainless steel nose cone with radial inlet holes to prevent sludge build-up. The PR3441 transmitter is suitable for depth and level measurement in boreholes 25 mm diameter or greater. Lightning Protection is available on request.

Applications include borehole level and reservoir level monitoring, water mains pressure measurement in inspection chambers, power level and outlet pressure measurement on submersible pumps.

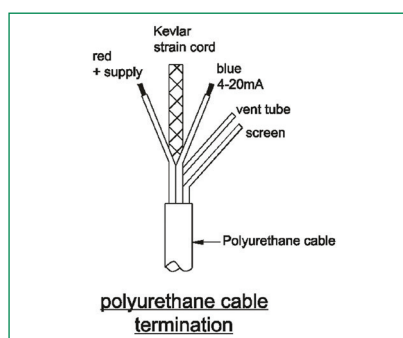
An optional ATEX and IECEx approved version of this product is available for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).

DNV GL rules for classification of ships, high speed & light craft and DNV GL offshore standards.

Dimensions (in mm)

ELECTRICAL CONNECTION (mA)

| | |
|--------|---------------|
| Red | +supply |
| Blue | 4-20mA signal |
| Screen | to case |



Technical Data

| Type: | PR3441 | PR3445 | PR3446 |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|
| Sensor Technology: | Isolated Piezoresistive Silicon | | |
| Output Signal: | 4-20 mA (2 wire) | 0-5 Vdc (4 wire) | 0-10 Vdc (4 wire) |
| Supply Voltage: | 13 -36 VDC | 13 -30 VDC | 13 -30 VDC |
| Pressure Reference: | Vented Gauge | | |
| Protection of Supply Voltage: | Protected against supply voltage reversal up to 50 V | | |
| Lightening Protection | On Request | | |
| Standard Pressure Ranges (mWG): | 0-1 mWG; 0-10 mWG; 0-20 mWG; 0-50 mWG; 0-100 mWG; 0-250 mWG; 0-500 mWG (other options available) | | |
| Standard Pressure Ranges (psi): | 0-3 psi; 0-5 psi; 0-7.5 psi; 0-10 psi; 0-15 psi; 0-30 psi; 0-50 psi; 0-100 psi; 0-200 psi; 0-300 psi (other options available) | | |
| Overpressure Safety: | 2x all ranges | | |
| Load Driving Capability: | 4 – 20 mA: $RL < [UB - 13 V] / 20 \text{ mA}$; (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1150 Ω ; 10 mV/V: n/a; 0 – 5 V: max. load $RL > 5 \text{ K}\Omega$; 0 – 10 V: max. load $RL > 10 \text{ K}\Omega$ | | |
| Accuracy NLHR: | $\leq \pm 0.3 \%$ of span BFLS (Optional higher accuracy version of $\leq \pm 0.15 \%$ of span BFLS available) | | |
| Zero Offset and Span Tolerance: | $\pm 0.5\%$ FS at room temperature | | |
| Operating Ambient Temperature: | -20 °C – +60 °C (-4 °F to +140 °F) | | |
| Operating Media Temperature: | Media must not freeze around the sensor | | |
| Storage Temperature: | +5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice | | |
| Temperature Effects: | $\pm 2.0\%$ FS total error band for -20 °C – +60 °C. Typical thermal zero and span coefficients $\pm 0.03\%$ 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 μ H Ci = 62 nF Temperature Range = -20 °C to +70 °C Max. cable length = 105 m | | |
| DNV GL Approval Class: | Temperature: D; Humidity: B; Vibration: B; EMC: B; Enclosure: D (contact sales for more information) | | |
| Electromagnetic Compatibility: | Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked | | |
| Insulation Resistance: | $> 100 \text{ M}\Omega @ 50 \text{ VDC}$ | | |
| Wetted Parts: | SAE 316L stainless steel housing and diaphragm, polyurethane cable and nitrile (NBR) o-ring seal | | |
| Pressure Media: | All fluids compatible with SAE 316L stainless steel, polyurethane and nitrile (NBR) | | |
| Pressure Connection: | Stainless steel nose cone with radial pressure inlets | | |
| Electrical Connection: | Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20 mm (24 AWG), resistance 8.9 Ω / 100 m (x2) | | |
| Net. Weight (Kg): | 0.4 Kg | | |

Order Matrix

| Output | Wires | Type | Electrical Connector | Pressure Range | Process Connection | Cable Length |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|----------------------|----------------|--------------------|--------------|
| 4-20mA | 2 | PR3441 | | | | |
| 0-5 V | 4 | PR3445 | | | | |
| 0-10 V | 4 | PR3446 | | | | |
| | | | | | | |
| Electrical Connection/ Option | | | | | | |
| No special option required | | | - | | | |
| ATEX/ IECEx certified | | | EX | | | |
| DNV GL Approval | | | M | | | |
| DNV GL Approval plus ATEX/IECEx certified | | | EXM | | | |
| Higher accuracy option | | | H | | | |
| Pressure Range in mWG (Metres Water Gauge) | | | | | | |
| 0-1 mWG | | | | 0001 | | |
| 0-5 mWG | | | | 0005 | | |
| 0-10 mWG | | | | 0010 | | |
| 0-50 mWG | | | | 0050 | | |
| 0-100 mWG | | | | 0100 | | |
| 0-250 mWG | | | | 0250 | | |
| 0-500 mWG | | | | 0500 | | |
| Process Connection | | | | | | |
| Protective nose cone | | | | | AX | |
| 1/4" BSP (G1/4) | | | | | AB | |
| Cable Length | | | | | | |
| Cable length is specified by adding a 3 digit numeric code as a suffix to the part number. e.g. -010 = 10 metres. (Max cable length 500 metres) | | | | | | |
| xxx | | | | | | |

Order Number Example PR3441H0010AX-010

For options not listed please contact the sales team

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Protran® PR3442

Slim Submersible Depth/Level
Pressure Transmitter



- Slimline 16mm diameter
- Piezoresistive sensor technology for excellent stability and repeatability
- Robust stainless steel construction
- Pressure ranges available from 0-50 mWG
- High strength, moulded cable for protection against ingress



Vers. 20/1/Eng



Description

The PR3442 ultra slim submersible transmitter has been designed for the accurate measurement of the depth and level of liquids in borehole applications.

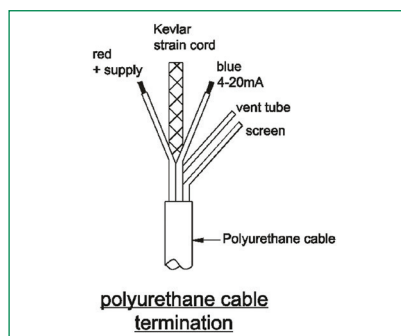
Standard output signal is 4-20 mA two wire. Supply range 13-36 Vdc, with integral transient voltage protection. Electrical connection is via a high strength moulded polyurethane cable with internal tube for excellent trouble-free venting to the surface atmosphere. The standard depth transmitter is fitted with a stainless steel nose cone with radial inlet holes to prevent sludge build-up. The PR3442 has a slim-line 16 mm diameter suitable for 19 mm boreholes or greater.

Applications include borehole level and reservoir level monitoring, water mains pressure measurement in inspection chambers, power level and outlet pressure measurement on submersible pumps.

Dimensions (in mm)

ELECTRICAL CONNECTION (mA)

| | |
|--------|---------------|
| Red | +supply |
| Blue | 4-20mA signal |
| Screen | to case |



~185



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Technical Data

| | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type: | PR3442 |
| Sensor Technology: | Isolated Piezoresistive Silicon |
| Output Signal: | 4-20 mA (2 wire) |
| Supply Voltage: | 13 -36 VDC |
| Pressure Reference: | Vented or Sealed Gauge |
| Protection of Supply Voltage: | Protected against supply voltage reversal up to 50 V |
| Standard Pressure Ranges (mWG): | 0 – 30 mWG; 0 – 50 mWG; 0 – 80 mWG; 0 – 100 mWG; 0 – 150 mWG; 0 – 250 mWG; 0 – 500 mWG (other options available) |
| Standard Pressure Ranges (psi): | 0-50 psi; 0-75 psi; 0-100 psi; 0-150 psi; 0-200 psi; 0-300 psi; 0-750 psi (other options available) |
| Overpressure Safety: | 2x all ranges |
| Load Driving Capability: | 4-20 mA: $RL < [UB - 13 V] / 20 \text{ mA}$ (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1150 Ω) |
| Accuracy NLHR: | $\leq \pm 0.3 \%$ of span BFSL |
| Zero Offset and Span Tolerance: | $\pm 0.5\%$ FS at room temperature |
| Operating Ambient Temperature: | -20 °C – +60 °C (-4 °F to +140 °F) |
| Operating Media Temperature: | Media must not freeze around the sensor |
| Storage Temperature: | +5 °C to +40 °C (+41 °F to +104°F) Recommended Best Practice |
| Temperature Effects: | $\pm 2.0\%$ FS total error band for -20 °C – +60 °C. Typical thermal zero and span coefficients $\pm 0.03\%$ FS/°C |
| Electromagnetic Compatibility: | Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked |
| Insulation Resistance: | > 100 M Ω @ 50 VDC |
| Wetted Parts: | SAE 316L stainless steel housing and diaphragm, polyurethane cable and nitrile (NBR) o-ring seal |
| Pressure Media: | All fluids compatible with SAE 316L stainless steel, polyurethane and nitrile (NBR) |
| Pressure Connection: | Stainless steel nose cone with radial pressure inlets |
| Electrical Connection: | Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20 mm (24 AWG), resistance 8.9 Ω / 100 m (x2) |
| Net. Weight (Kg): | 0.4 Kg |

Order Matrix

| Output | Wires | Type | Electrical Connector | Pressure Range | Process Connection | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------|----------------|--------------------|-----|
| 4-20mA | 2 | PR3442 | | | | |
| Electrical Connection/ Option | | | | | | |
| No special options available | | | - | | | |
| Pressure Range in mWG (Metres Water Gauge) | | | | | | |
| 0-50 mWG | | | | 0050 | | |
| 0-100 mWG | | | | 0100 | | |
| 0-250 mWG | | | | 0250 | | |
| 0-500 mWG | | | | 0500 | | |
| Process Connection | | | | | | |
| Protective nose cone | | | | | AX | |
| Cable Length | | | | | | |
| Cable length is specified by adding a 3 digit numeric code as a suffix to the part number. e.g. -010 = 10 metres. (Max cable length 500 metres) | | | | | | xxx |
| Order Number Example | | PR3442-0100AX-0100 | | | | |

For options not listed please contact the sales team

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Protran® PR3420

Sludge Platform Submersible
Depth/Level Pressure Transmitter



- Sludge Platform to raise sensor above sediment level
- Piezoresistive sensor technology for excellent stability and repeatability
- Robust stainless steel construction
- Pressure ranges available from 0-1 mWG
- High strength, moulded cable for protection against ingress
- ATEX/IECEx option available (includes M1 for mining applications)



Vers. 20/1/Eng



Description

The PR3420 submersible depth and level transmitter has been designed for accurate level measurement where sediment is present. The integral sludge platform ensures that the sensing element is elevated above the sediment level.

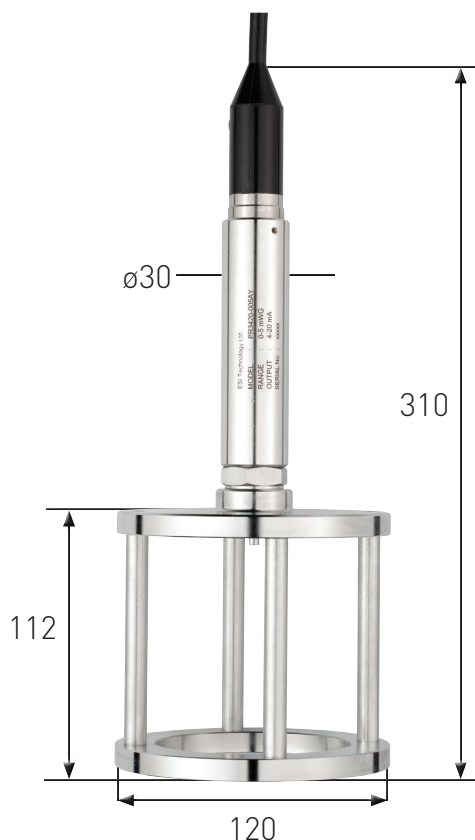
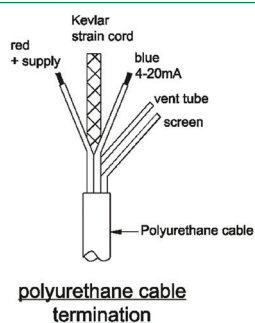
The submersible range of pressure transmitters has been designed for the accurate measurement of the depth and level of liquids in many applications. Standard output signal is 4-20 mA, and electrical connection is via a high strength moulded cable with integral tube for trouble-free venting to the surface atmosphere.

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

Dimensions (in mm)

ELECTRICAL CONNECTION (mA)

| | |
|--------|---------------|
| Red | +supply |
| Blue | 4-20mA signal |
| Screen | to case |



Technical Data

| Type: | PR3420 | PR3421 | PR3422 |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|
| Sensor Technology: | Isolated Piezoresistive Silicon | | |
| Output Signal: | 4-20 mA (2 wire) | 0-5 Vdc (4 wire) | 0-10 Vdc (4 wire) |
| Supply Voltage: | 13 -36 VDC | 13 -30 VDC | 13 -30 VDC |
| Pressure Reference: | Vented Gauge | | |
| Protection of Supply Voltage: | Protected against supply voltage reversal up to 50 V | | |
| Lightening Protection: | On Request | | |
| Standard Pressure Ranges (mWG): | 0-1 mWG; 0-10 mWG; 0-20 mWG; 0-50 mWG; 0-100 mWG; 0-250 mWG; 0-500 mWG (other options available) | | |
| Standard Pressure Ranges (psi): | 0-3 psi; 0-5 psi; 0-7.5 psi; 0-10 psi; 0-15 psi; 0-30 psi; 0-50 psi; 0-100 psi; 0-200 psi; 0-300 psi (other options available) | | |
| Overpressure Safety: | 2x all ranges | | |
| Load Driving Capability: | 4 – 20 mA: $RL < [UB - 13 V] / 20 \text{ mA}$; (e.g. with supply voltage (UB) of 36V, max. load (RL) is 1150 Ω ; 10 mV/V: n/a; 0 – 5 V: max. load $RL > 5 \text{ K}\Omega$; 0 – 10 V: max. load $RL > 10 \text{ K}\Omega$ | | |
| Accuracy NLHR: | $\leq \pm 0.3 \%$ of span BFSL | | |
| Zero Offset and Span Tolerance: | $\pm 0.5\%$ FS at room temperature | | |
| Operating Ambient Temperature: | $-20^\circ\text{C} - +60^\circ\text{C}$ (-4°F to $+140^\circ\text{F}$) | | |
| Operating Media Temperature: | Media must not freeze around the sensor | | |
| Storage Temperature: | $+5^\circ\text{C}$ to $+40^\circ\text{C}$ ($+41^\circ\text{F}$ to $+104^\circ\text{F}$) Recommended Best Practice | | |
| Temperature Effects: | $\pm 2.0\%$ FS total error band for $-20^\circ\text{C} - +60^\circ\text{C}$. Typical thermal zero and span coefficients $\pm 0.03\%/^\circ\text{C}$ | | |
| 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: | $U_i = 28 \text{ V}$ $I_i = 119 \text{ mA}$ $P_i = 0.65 \text{ W}$ $L_i = 0.1 \mu\text{H}$ $C_i = 62 \text{ nF}$ Temperature Range = -20°C to $+70^\circ\text{C}$ Max. cable length = 105 m | | |
| Electromagnetic Compatibility: | Emissions: EN61000-6-4; Immunity: EN61000-6-2; Certification: CE Marked | | |
| Insulation Resistance: | $> 100 \text{ M}\Omega$ @ 50 VDC | | |
| Wetted Parts: | SAE 316L stainless steel housing and diaphragm, polyurethane cable and nitrile (NBR) o-ring seal; 303 stainless steel sludge platform | | |
| Pressure Media: | All fluids compatible with SAE 316L stainless steel, 303 stainless steel, polyurethane and nitrile (NBR) | | |
| Pressure Connection: | Sludge platform | | |
| Electrical Connection: | Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20 mm (24 AWG), resistance 8.9 Ω / 100 m (x2) | | |
| Net. Weight (Kg): | 2.5 Kg | | |

Order Matrix

| Output | Wires | Type | Electrical Connector | Pressure Range | Process Connection | Cable Length |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|----------------------|----------------|--------------------|--------------|
| 4-20mA | 2 | PR3420 | | | | |
| 0-5 V | 4 | PR3421 | | | | |
| 0-10 V | 4 | PR3422 | | | | |
| Electrical Connection/ Option | | | | | | |
| No special option required | | | - | | | |
| ATEX/ IECEx certified | | | EX | | | |
| Pressure Range in mWG (Metres Water Gauge) | | | | | | |
| 0-1 mWG | | | | 0001 | | |
| 0-5 mWG | | | | 0005 | | |
| 0-10 mWG | | | | 0010 | | |
| 0-50 mWG | | | | 0050 | | |
| 0-100 mWG | | | | 0100 | | |
| 0-250 mWG | | | | 0250 | | |
| 0-500 mWG | | | | 0500 | | |
| Process Connection | | | | | | |
| Sludge platform | | | | | AY | |
| Cable Length | | | | | | |
| Cable length is specified by adding a 3 digit numeric code as a suffix to the part number. e.g. -010 = 10 metres. (Max cable length 500 metres) | | | | | | xxx |
| Order Number Example | | PR3420-0010AY-010 | | | | |
| For options not listed please contact the sales team | | | | | | |

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