

# 350300 Dynamic Pressure Sensor

## Product Datasheet

Bently Nevada\* Asset Condition Monitoring

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### Description



The Hydro Dynamic Pressure Sensor System consists of the 350300 Hydro Dynamic Pressure Transducer which uses piezoresistive sensing technology and the 146824 interconnect cable. It is intended for measuring both static and dynamic pressure in fluid machines such as hydro turbines or centrifugal pumps.

This sensor is an integral part of a Hydro Turbine or Centrifugal Pump Condition Monitoring and Asset Management System and, when utilized with our 3500/46M Hydro Monitor and System 1\* Plant Asset Management software, static trending and specialized dynamic plots are available for diagnostics. The Dynamic Pressure Transducer has a robust design for high reliability in plant environments and is designed for 50 million cycles.

For Hydro Turbine applications, this measurement can help our customers monitor hydraulic phenomena such as Rough Load Zone, vortexing, and cavitation in the draft tube and head cover area, as well as pulsations in the penstock. For centrifugal pump applications, this measurement can help customers with monitoring cavitation and other flow instabilities that are potentially detrimental to machinery and operations.

# Specifications

## 350300 Dynamic Pressure Sensor

**Note:** Operation outside the specified limits will result in false or inaccurate readings.

### Transducer Characteristics

#### Measurement Range:

0 to 15/ 30/ 45/ 50/ 60/ 75/ 100/ 150/  
200/ 300/ 500/ 750/ 1000/ 1500/ 2000/  
3000/ 5000 *psia*

0 to 1.03/ 2.07/ 3.10/ 3.45/ 4.14/ 5.17/  
6.8/ 10.3/ 13.7/ 20.7/ 34.4/ 51.7/ 68.9/  
103/ 138/ 207/ 345 *bara*

#### Proof (Over) Pressure:

>3X Full Scale

#### Burst Pressure:

>4X Full Scale

#### Scale Factor

667 mV/psia (15 psia range)  
333 mV/psia (30 psia range)  
222 mV/psia (45 psia range)  
200 mV/psia (50 psia range)  
167 mV/psia (60 psia range)  
133 mV/psia (75 psia range)  
100 mV/psia (100 psia range)  
67 mV/psia (150 psia range)  
50 mV/psia (200 psia range)  
33 mV/psia (300 psia range)  
20 mV/psia (500 psia range)  
13 mV/psia (750 psia range)  
10 mV/psia (1000 psia range)  
7 mV/psia (1500 psia range)  
5 mV/psia (2000 psia range)  
3 mV/psia (3000 psia range)  
2 mV/psia (5000 psia range)

#### Full Scale Output:

$10 \pm 0.1 \text{ Vdc}$

#### Offset

$0.0 \pm 0.1 \text{ Vdc}$

#### DC Output Impedance:

< 200  $\Omega$

#### Minimum Load Resistance:

2,500  $\Omega$

#### Max. Current:

< 16 *mA*

#### Insulation Resistance:

100 M $\Omega$  @ 500V

#### Reverse polarity protection:

Yes

#### Compensated Temperature Range:

-40°C to 125°C (-40°F to 257°F)

#### Operating Temperature:

-55°C to 125°C (-67°F to 257°F)

#### Temperature Error: (Reference 20°C)

-10°C to 50°C (14°F to 122°F)

$\pm 1.0 \%FS$

-40°C to 125°C (-40°F to 257°F)

$\pm 1.5 \%FS$

#### Non-Linearity, Hysteresis & Repeatability (BFSL)

$\leq \pm 0.1 \%FS$

#### Frequency response:

2000 Hz

15.0 N-m (11.1 lbf-ft)

**Vibration  
Sensitivity, Max:**

- <0.00667 %FS/g (15 psia range)
- <0.00333 %FS/g (30 psia range)
- <0.00222 %FS/g (45 psia range)
- <0.00200 %FS/g (50 psia range)
- <0.00167 %FS/g (60 psia range)
- <0.00133 %FS/g (75 psia range)
- <0.00100 %FS/g (100 psia range)
- <0.00067 %FS/g (150 psia range)
- <0.00050 %FS/g (200 psia range)
- <0.00033 %FS/g (300 psia range)
- <0.00020 %FS/g (500 psia range)
- <0.00013 %FS/g (750 psia range)
- <0.0001 %FS/g (1000 psia range)
- <0.0007 %FS/g (1500 psia range)
- <0.0005 %FS/g (2000 psia range)
- <0.0003 %FS/g (3000 psia range)
- <0.0002 %FS/g (5000 psia range)

**Storage  
Temperature:**

-40°C to 140°C (-40°F to 284°F)

**Note:** Check the chemical compatibility of the sensor’s wetted parts (316L stainless steel) with the medium to be measured.

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**Power Supply**

**Power Supply**

**Voltage:**

13 - 42 Vdc

**Supply Voltage**

**Effects:**

<0.005 %FS/V

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**Compliance and Certifications**

For the detailed listing of country and product specific approvals, refer to the **Approvals Quick Reference Guide**, document 108M1756, at [www.GEmeasurement.com](http://www.GEmeasurement.com)

Note: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

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**Physical & Environmental**

**Weight:**

< 8 oz

**Dimensions:**

See Figure 1

**Materials:**

316L Stainless Steel Body

**Pressure  
Connection:**

¼-18 NPT male

**Electrical Connector:**

MIL-C-26482 (4 pin)

**European Community Directives:**

- EMC Directive  
2014/30/EC and Amendments
- PED Directive  
2014/68/EU and Amendments
- ROHS Directive  
2011/65/EU and Amendments

**Standards:**

- EN61326-1: 2013
- CISPR 11:2009 + A1:2010
- EN 55011:2009 +A1:2010

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**Mounting Torque:**

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## Ordering Information

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### 350300 Dynamic Pressure Sensor

**Note:** All transducers have a ¼-18 NPT male thread.

#### 350300-AXXXX-BXX

**A:** Pressure Range Option

**0015** 0 to 15 psia (0 to 1.03 bara)  
**0030** 0 to 300 psia (0 to 2.07 bara)  
**0040** 0 to 45 psia (0 to 3.10 bara)  
**0050** 0 to 50 psia (0 to 3.45 bara)  
**0060** 0 to 60 psia (0 to 4.14 bara)  
**0075** 0 to 75 psia (0 to 5.17 bara)  
**0100** 0 to 100 psia (0 to 6.89 bara)  
**0150** 0 to 150 psia (0 to 10.3 bara)  
**0200** 0 to 200 psia (0 to 13.8 bara)  
**0300** 0 to 300 psia (0 to 20.7 bara)  
**0500** 0 to 500 psia (0 to 34.5 bara)  
**0750** 0 to 750 psia (0 to 51.7 bara)  
**1000** 0 to 1000 psia (0 to 68.9 bara)  
**1500** 0 to 1500 psia (0 to 103 bara)  
**2000** 0 to 2000 psia (0 to 138 bara)  
**3000** 0 to 3000 psia (0 to 207 bara)  
**5000** 0 to 5000 psia (0 to 345 bara)

**B:** Approvals Option

**00** No Approvals

### 146824 Interconnect Cable

#### 146824-AXXXX

**A:** Length Option

**0010** 10 ft (3 m)  
**0025** 25 ft (7.6 m)  
**0050** 50 ft (15.2 m)  
**0100** 100 ft (30.5 m)  
**0200** 200 ft (61.0 m)  
**0300** 300 ft (91.4 m)  
**0400** 400 ft (121.9 m)  
**0500** 500 ft (152.4 m)  
**1000** 1,000 ft (304.8 m)

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## Associated 3500 Monitors

### 3500/46M

Hydro Monitor

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## Spares

### 176449-06

3500/46M Hydro Monitor

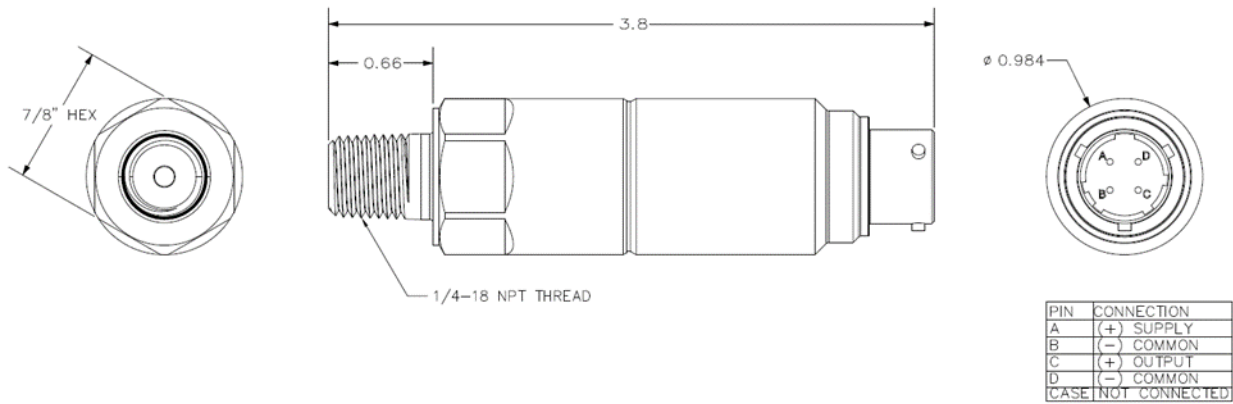
### 169715-01

Multimode Positive Input I/O Module with Internal Terminations

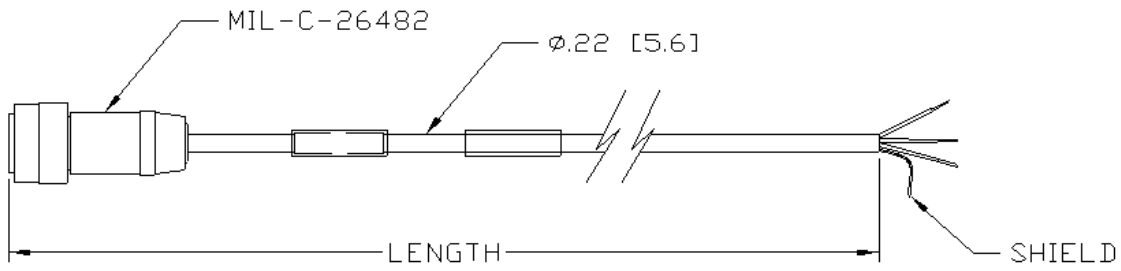
### 169715-02

Multimode Positive Input I/O Module with External Terminations

## Graphs and Dimensional Drawings...



**Figure 1: 350300 Dynamic Pressure Sensor Dimensions and Pinout ...**



CONNECTOR	WIRE COLOR	WIRE DESCRIPTION
PIN "A"	RED	POWER
PIN "B"	BLACK	COMMON
PIN "C"	WHITE	SIGNAL
PIN "D"	N/C	

**Figure 1: 146824-AAAA Cylinder Pressure Cable**

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