Product Datasheet

350300 Dynamic Pressure Sensor

Bently Nevada* Asset Condition Monitoring

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.

General Safety Approvals Pending...

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 ± 0.1 *Vdc*

Offset

0.0 ± 0.1 *Vdc*

DC Output Impedance:

< 200 Ω

Minimum Load Resistance:

2,500 Ω

Max. Current:

< 16 *mA*

Insulation Resistance:

100 MΩ @ 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)

± 1.0 %FS

-40°C to 125°C (-40˚F to 257˚F)

± 1.5 %FS

Non-Linearity, Hysteresis & Repeatability (BFSL)

≤ ±0.1 *%FS*

Frequency response:

2000 Hz

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)

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)

Mounting Torque:

15.0 N-m (11.1 lbf-ft)

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.

Power Supply

Power Supply Voltage:

13 - 42 *Vdc*

Supply Voltage Effects:

<0.005 %FS/V

Ordering Information

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) located at the following website: www.GEmeasurement.com.

350300 Dynamic Pressure Sensor

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

350300-AXXXX-BXX

A: Pressure Range Option

0 0 1 5	0 to 15 psia (0 to 1.03 bara)
0 0 3 0	0 to 300 psia (0 to 2.07 bara)
0 0 4 5	0 to 45 psia (0 to 3.10 bara)
0 0 5 0	0 to 50 psia (0 to 3.45 bara)
0 0 6 0	0 to 60 psia (0 to 4.14 bara)
0 0 7 5	0 to 75 psia (0 to 6.89 bara)
0 1 0 0	0 to 100 psia (0 to 6.89 bara)
0 1 5 0	0 to 150 psia (0 to 10.3 bara)
0 2 0 0	0 to 200 psia (0 to 13.8 bara)
0 3 0 0	0 to 300 psia (0 to 20.7 bara)
0 5 0 0	0 to 500 psia (0 to 34.5 bara)
0 7 5 0	0 to 750 psia (0 to 51.7 bara)
1 0 0 0	0 to 1000 psia (0 to 68.9 bara)
1 5 0 0	0 to 1500 psia (0 to 103 bara)
2 0 0 0	0 to 2000 psia (0 to 138 bara)
3 0 0 0	0 to 3000 psia (0 to 207 bara)
5 0 0 0	0 to 5000 psia (0 to 345 bara)

B: Approvals Option

0 0	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)

Associated 3500 Monitors

3500/46M

Hydro Monitor

Spares

176449-06

3500/46M Hydro Monitor

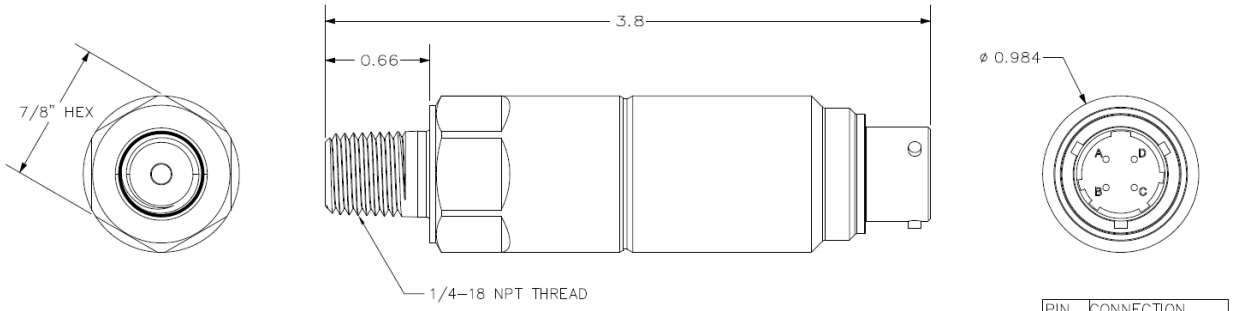
169715-01

Multimode Positive Input I/O Module with internal Terminations

169715-02

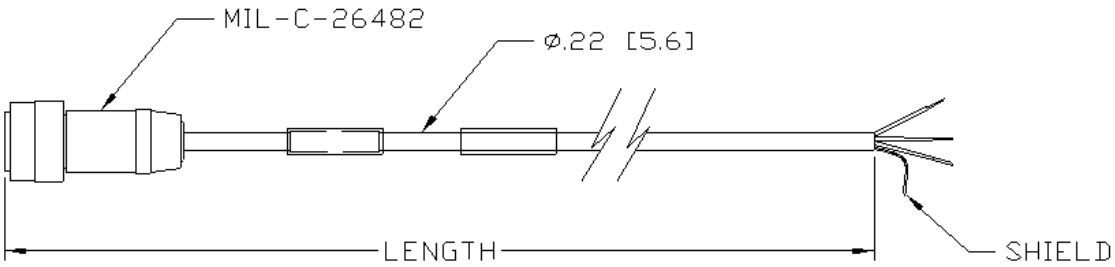
Multimode Positive Input I/O Module with external Terminations

Graphs and Dimensional Drawings



PIN	CONNECTION
A	(+) SUPPLY
B	(–) COMMON
C	(+) OUTPUT
D	(–) COMMON
CASE	NOT CONNECTED

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 2. 146824-AAAA Cylinder Pressure Cable

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