PTX/PMP 3000 series

Amplified Aerospace Pressure Transducers

Features

- Full EMI and lightning protection
- High accuracy and stability
- Wide operating temperature range
- Affordable solution with low technical risk
- Gauge, absolute, and differential versions

Our PTX/PMP3000 series has been the platform of choice, serving the Aerospace industry for the past 20 years. These products have been rigorously tested and qualified for use on a multitude of applications including: Hydraulic / ECS / APU / Engine / Landing Gear / Braking and others. This product range is tried and tested, used within the worlds most popular single aisle and twin aisle airframes.

Quality and reliability is at the heart of everything that we do at Druck, these fielded products provide our customers and end users with reliability and peace of mind.

At the heart of the 3000 series is an advanced high stability pressure sensing element, micro-machined from single crystal silicon in Druck's own Class 100 processing facility. Resistors are diffused into the silicon diaphragm by ion implantation that forms a fully active four-arm strain gauge bridge. Single crystal silicon is perfectly elastic and has excellent mechanical properties.

Druck technology offers the following features:

- Excellent linearity
- Negligible hysteresis
- Enhanced long-term stability
- High overpressure capability
- Low mass offering fast response and low 'g' effect

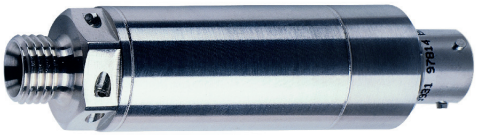
The micro-machined silicon sensing element is atomically bonded to a glass base and assembled into a high integrity glass-to-metal seal. Pressure media is isolated from the silicon element by a compliant metal diaphragm, resulting in a hermetic pressure module.

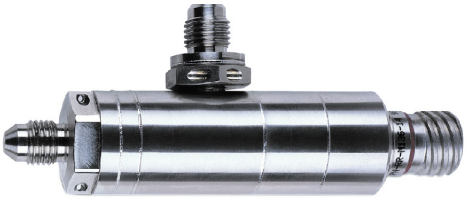
Every pressure module is temperature cycled to enhance long-term stability prior to installation of surface mount signal conditioning electronics. The electronics control and regulate the supply voltage to the strain gauge bridge and provide a high level output proportional to the applied pressure. Temperature signals, taken directly from the silicon sensing element, allow the bridge output to be corrected for changes in balance and sensitivity due to temperature change.

Integral protection circuitry includes an array of in-line filters, providing a low impedance path to case at high frequencies. All supply lines are protected against reverse polarity and signal lines against high voltage transients, resulting in compliance with stringent EMI and lightning requirements.

The pressure sensing module and electronics are housed within the case assembly which, together with pressure and electrical connectors, is fully welded to ensure high reliability. All wetted and external surfaces are manufactured from stainless steel. Prior to acceptance testing, all transducers are environmentally stress screened to optimize long-term performance and to remove premature failures.

Flexibility of design is maintained without compromising customer choice of interface, pressure range and output type. The PMP/PTX 3000 series is flight qualified to the environmental requirements of RTCA DO-160. It meets the demands of even the harshest environment and offers an affordable measurement solution with minimal technical risk.

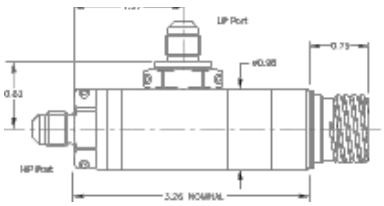




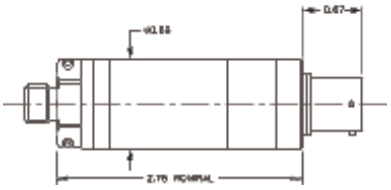
PTX/PMP 3000 specifications

Performance

Input parameters	Gauge and absolute	Differential
Pressure range *Other engineering units can be specified.*	5 psi to 5076 psi (0.34 bar to 350 bar)	5 psi to 500 psi (0.34 bar to 34 bar) Static pressure to 1000 psi (69 bar)
Proof pressure[1]	2X range to 15,000 psi (1034 bar) maximum	
Burst pressure	6X minimum to 20,000 psi (1379 bar) maximum	6X minimum (2X minimum to 300 psi (21 bar) maximum in negative direction)
Line pressure	—	1000 psi (69 bar)
Positive pressure media	Fluids and gases compatible with 316L stainless steel	
Negative pressure media	—	Stainless steel 316L, glass, silicon and structural adhesive
Supply voltage[2]	Aircraft 28 VDC	
Resolution	Infinite	
Output parameters		
Output configuration[1]	4 to 20 mA (two-wire) 0 to 5 VDC (three-wire) 0 to 5 VDC (four-wire) 0 to 5 VDC (four-wire) unbalanced output Others available on request, e.g. 0 to 10 V, 1 to 6 V	
Output impedance	Less than 20 Ω (PMP model)	
Total accuracy[1] includes the effects of non-linearity, hysteresis, repeatability, zero and span setting and thermal errors	±0.75% full scale (FS) over -40°F to 190°F (-40°C to 90°C) or ±1.25% FS over -65°F to 257°F (-54°C to 125°C)	
Stability	Typically less than ±0.05% FS/annum	
Interface parameters		
Pressure connection	7/16 in (11.17 mm) UNJF to MS 33656-4 Others available on request	
Electrical connection	6 pin plug to MIL-C-26482 Others available on request	



Differential Version



Gauge or sealed gauge/absolute version

Electrical connector pin allocations

(others available, please specify)

Two-wire function connector:	Three-wire function connector:	Four-wire function connector:
Supply + A/1	Output + A/1	Output + A/1
Supply - B/2	Common B/2	Output - B/2
	Supply + D/4	Supply - C/3
		Supply + D/4

Installation drawings - dimensions in inches

Environmental parameters	Gauge and absolute	Differential
Operating temperature range	-65°F to 275°F (-54°C to 135°C)	
Compensated temperature range	See total accuracy	
Storage temperature range	-65°F to 300°F (-54°C to 150°C)	
Weight	Less than 0.35 lb (5.6 oz)	Less than 0.53 lb (8.5 oz)
Altitude, humidity, salt, fog, sand and dust, fungus resistance, explosion-proof	Not susceptible due to all welded hermetic construction	
Acceleration, vibration and mechanical shock	Qualified to RTCA/DO-160D	
EMI, power supply and lightning	Fully protected and qualified to RTCA/DO-160D	
High/low operating temperature	Qualified to RTCA/DO-160D	
Fire resistance	Qualified to 2,000°F (1,100°C) flame for 15 minutes	
Predicted reliability (MIL-HDBK-217F)	5 FPMH achievable - refer to Baker Hughes	

1. Tested as part of the Acceptance Test Procedure (ATP)
2. Qualified in accordance with the requirements of RTCA/DO-160D, section 16 category B

Continuing development sometimes necessitates specification changes without notice.

PTX/PMP 3000 specifications

Related products

We manufacture a comprehensive range of pressure sensors, indicators, calibrators, controllers and Air Data Test Systems. With our range of portable calibrators covering temperature and electrical parameters.

Refer to manufacturer for further information and data sheets.

PACE 6000

3700 Series

Druck Air Data Test Sets (ADTS)

PDCR300

UNIK 5000

ADROIT6000

Warning – Do not use with media that has an oxygen concentration >21% or other strong oxidising agents.

This product contains materials or fluids that may degrade or combust in the presence of strong oxidising agents.

Calibration standards

Transducers manufactured by Druck are calibrated against precision pressure calibration equipment, which is traceable to international standards.

Ordering information

Please state the following:

1. Select model number
2. Pressure range and units
3. Gauge, sealed gauge or absolute
4. Output level (PMP model), e.g. 0 to 10 V
5. Pressure connection (include negative side for differential)
6. Calibrated temperature range
7. Mating electrical connector (if required)

Code	Basic Type Number
PMP	High level voltage output
PTX	4 to 20 mA current

Code	Pressure Reference
30	Gauge, sealed gauge or absolute
31	Differential

Code	Electrical Connection
0	6 PIN D38999/25YB98PN
1	6 PIN D38999/25YA35PN
2	6 PIN MIL-C-26482 series 1 shell size 10
3	6 PIN MIL-C-26482 series 2 shell size 10
4	4 PIN MIL-C-26482 series 1 shell size 8
5	5 PIN MIL-C-83723 shell size 10
6	other, please specify

Code	Output
0	two-wire (PTX only) 4 to 20 mA
1	three-wire 0.5 to 5 V
2	four-wire 0 to 5 V
3	four-wire common 0 to 5 V
4	four-wire 0 to 5 V (Pins B and C Linked internally)
5	three-wire 0 to 5 V
6	three-wire 1 to 10 V
7	four-wire 0 to 10 V
8	four-wire common 0 to 10 V
9	four-wire 0 to 10 V (Pins B and C linked internally)

PMP	--	--	--	**Typical model number**

This product is designed to be used in flight qualified applications and flight safe instrumentation, use outside this application is not covered by Druck and the End user/installer is responsible for compliance to all local Laws and Regulations.

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