3000 SERIES

PMP/PTX 3000 Series

Druck

Amplified Aerospace Pressure Transducers

- FAA/CAA flight certified
- Full EMI and lightning protection
- High accuracy and stability
- Wide operating temperature range
- Affordable solution with low technical risk
- Gauge, absolute and differential formats

PMP/PTX 3000 Series

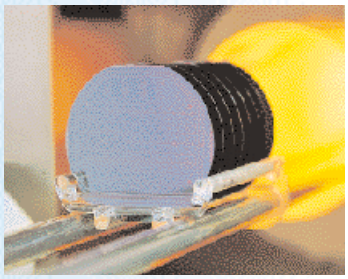
Amplified Aerospace Pressure Transducers

Maintaining affordability, whilst maximising performance and minimising risk, is the challenge facing the modern day aerospace transducer design engineer. The Druck PMP/PTX 3000 series of high level output pressure transducers fully meets this challenge, using proven technology within flight certified hardware.

At the heart of the 3000 Series is an advanced high stability pressure sensing element, micro-machined from single crystal silicon within Druck's own Class 100 processing facility. Resistors are diffused into the silicon diaphragm by ion implantation and form 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 pyrex (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.



Silicon wafers being loaded into an oxidisation furnace

Every pressure module is temperature cycled to enhance long-term stability prior to fitment of surface mount signal conditioning electronics. The electronics control the supply voltage to the strain gauge bridge and provide a high level output proportional to 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 variation.

Integral protection circuitry includes an array of in-line filters, providing a low impedance path to case at high frequencies. All supply and signal lines are protected against high voltage transients and reverse polarity connection, 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 electron beam welded to ensure high reliability. All wetted and external surfaces are manufactured from stainless steel or Hastelloy. Prior to acceptance testing, all transducers are environmentally stress screened to optimise long-term performance and to remove premature failures.

Flexibility of design is maintained without compromising customer choice of interface, pressure range, output type and, most importantly, flight certification. The PMP/PTX 3000 series is FAA/CAA flight certified, qualified to the requirements of JTSO C47, C45a and RTCA/DO-160. It meets the demands of even the harshest environment and offers an affordable measurement solution with minimal technical risk.

Druck's advanced in-house test facilities include a vibration rig which enables qualification of aerospace pressure transducers in accordance with programmable simulation parameters.

Druck

PERFORMANCE SPECIFICATION

INPUT PARAMETER	GAUGE AND ABSOLUTE	DIFFERENTIAL
Pressure Range *Other engineering units can be specified*	350 mbar to 700 bar	350 mbar to 35 bar
Proof Pressure [1]	2 x Range to 1000 bar maximum	
Burst Pressure	6 x minimum to 1400 bar maximum	6 x min to 200 bar max (2 x min to 20 bar max in negative direction)
Line Pressure		140 bar maximum
Positive Pressure Media	Fluids and gases compatible with 316L stainless steel and hastelloy C276	
Negative Pressure Media		Stainless steel 316L, glass, silicon and structural adhesive.
Supply Voltage [2]	Aircraft 28V d.c.	
Resolution	Infinite	

OUTPUT PARAMETER	GAUGE AND ABSOLUTE	DIFFERENTIAL
Output Configuration[1]	4 to 20 mA (2 wire) 0.5 to 5 V d.c. (3 wire) 0 to 5V d.c. (4 wire) others available on request, e.g. 0 to 10V, 1 to 6V	
Output Impedance	Less than 20 ohms (PMP only)	
Total Accuracy[1] *Includes the effects of non-linearity, hysteresis, repeatability, zero & span setting and thermal errors*	±0.75% FS over -40° to +90°C *or* ±1.25% FS over -54° to +125°C	
Stability	Typically less than ±0.05% FS/annum	

INTERFACE PARAMETER	GAUGE AND ABSOLUTE	DIFFERENTIAL
Pressure Connection	$^{7}/_{16}$" UNJF to MS 33656-4 Others available on request	
Electrical Connection	6 pin plug to MIL-C-26482 others available on request	

ENVIRONMENTAL PARAMETER	GAUGE AND ABSOLUTE	DIFFERENTIAL
Operating Temperature Range	-54° to +135°C	
Compensated Temperature Range	See Total Accuracy	
Storage Temperature Range	-54° to +150°C	
Weight	Less than 160g	Less than 240g
Altitude, Humidity, Salt, Fog, Sand and Dust, Fungus Resistance, Explosion Proofness	Not susceptible due to all welded hermetic construction	
Acceleration, Vibration and Mechanical Shock	Qualified to the severest levels of RTCA/DO-160D	
EMI, Power Supply and Lightning	Fully protected/qualified to the harshest levels of RTCA/DO-160D	
High/Low Operating Temperature	Qualified to RTCA/DO-160D	
Predicted Reliability (MIL-HDBK-217F)	5fpmh achievable - refer to Druck	

Notes: 1. Tested as part of the Acceptance Test Procedure (ATP)
2. Qualified in accordance with the requirements of JTSO C47, C45a and RTCA/DO-160D

Some company and product approvals

0221

PMP/PTX 3000 Series

Amplified Aerospace Pressure Transducers

Ordering Information

Please state the following:
(1) Select model number

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

Code	Output
0	2 wire (PTX only) : 4 to 20mA
1	3 wire: 0.5 to 5V
2	4 wire: 0 to 5V (Vcm=5V)
3	4 wire common 0V: 0 to 5V (Vcm=1.2V)
4	4 wire: 0 to 5V (Vcm=0V)
	(Linked internally)
	Note: Vcm= Common mode voltage

PMP	31	2	3

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

Calibration Standards

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

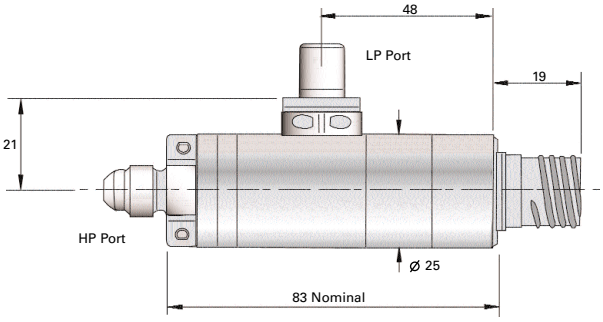
Related Products

Druck manufactures a comprehensive range of pressure sensors, indicators, calibrators, controllers, Air Data Test Systems and deadweight testers. The range of portable calibrators also covers temperature and electrical parameters.

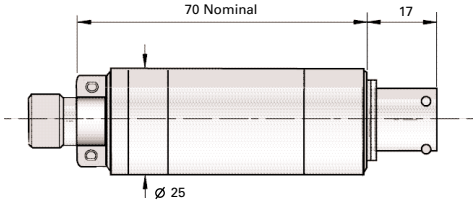
Refer to Manufacturer for further information and datasheets.

Continuing development sometimes necessitates specification changes without notice.

INSTALLATION DRAWINGS - Dimensions in mm



Differential Version



Gauge or sealed gauge/absolute version

ELECTRICAL CONNECTOR PIN ALLOCATIONS

2 WIRE

FUNCTION	CONNECTOR
SUPPLY +ve	A/1
SUPPLY -ve	B/2

3 WIRE

FUNCTION	CONNECTOR
OUTPUT +ve	A/1
COMMON	B/2
SUPPLY +ve	D/4

4 WIRE

FUNCTION	CONNECTOR
OUTPUT +ve	A/1
OUTPUT -ve	B/2
SUPPLY -ve	C/3
SUPPLY +ve	D/4

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