

# DSA<sup>®</sup>3207/3307-PTP

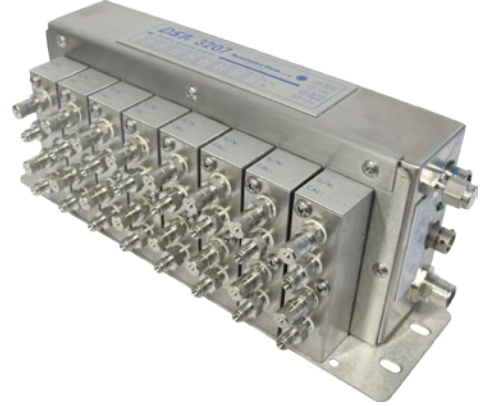
Liquid Digital Sensor Array

## Scanivalve

### Ethernet Pressure Scanner

#### Features

- Intelligent pressure modules
- “Network Ready” Ethernet TCP/IP, FTP, & UDP
- 850 samples/channel/second EU
- 0 – 1500 psi pressure range
- Temperature compensated sensors
- Liquid pressure measurement (psid, psig, psia)
- IEEE1588-2008v2 PTP compliant
- “All Media” compatibility



*DSA3207PTP/Base with  
8 ea. Sensor packs*

#### General Description

The DSA3200/3300-PTP series pressure acquisition systems represent the next generation of multi-point electronic pressure scanning. Model DSA3207/3307-PTP Digital Sensor Array, incorporates 2 to 16 temperature compensated media isolated piezoresistive pressure sensors.

All data acquisition, data conversion and communications tasks are handled by the integrated A/D converters and processor. This combination provides easy setup, simple operation and long term reliability. The result is a network ready intelligent pressure scanning module for “all media” service.

The microprocessor compensates for environmental temperature changes and performs engineering unit conversion. Pressure data outputs the data in either ASCII or Binary format over the Ethernet network TCP/IP or UDP. The DSA-PTP can be setup by the user and all configuration variables can be set over the same Ethernet connection.

#### Applications

The DSA3207/3307PTP Digital Sensor Array is a rugged design for use with turbine and diesel engine test applications or any liquid measurement application. It is ideal for industrial pressure measurement where long calibration intervals are required and temperatures can vary greatly. An optional heater kit is available for temperatures down to -20° C.

DSA firmware allows for liquid head correction and online rezeroing of the pressure sensors.

There are 3 configurations listed below available for measuring liquids:

- Gauge measurement (wet/dry)
- Absolute measurement (wet)
- Differential measurement (wet/wet)

#### DSA3207-PTP - Gauge & Absolute (wet/dry)

This model contains a stainless steel diaphragm isolating the measurement side of each pressure transducer from the media. The back side of the gauge transducer must be dry. This design also contains a bleed valve per transducer for venting gas bubbles from the input lines. These individual bleed valves also allow for back filling the DSA input lines.

#### DSA3307-PTP - Differential (wet/wet)

This model contains 2 to 16 single sensing element pressure transducers that are isolated from the media on both sides by a 316L stainless steel diaphragm.

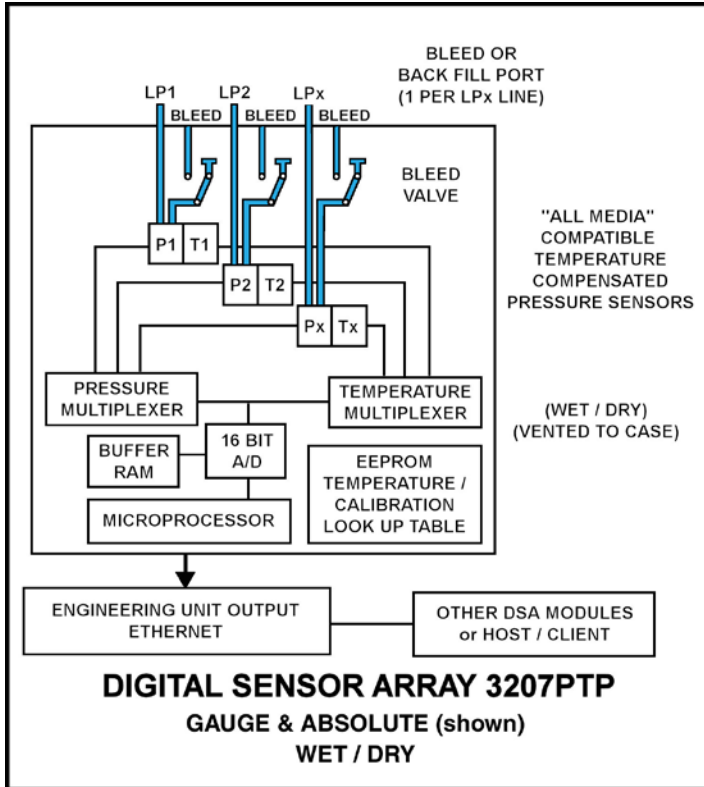
It is used in applications for measuring flow or when measuring high line low differential liquid measurements.

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LabVIEW<sup>®</sup> is a registered trademark of National Instruments.  
Swagelok<sup>®</sup> is a registered trademark of Swagelok Corp.  
Viton<sup>®</sup> is a registered trademark of Dupont Dow Elastomers.

# DSAModule

## On-line Sensor Compensation Calibration

Each DSA3207/3307-PTP piezoresistive pressure sensor is isolated from the media to be measured by a stainless steel diaphragm and body. This pressure sensor package is rugged and field replaceable.



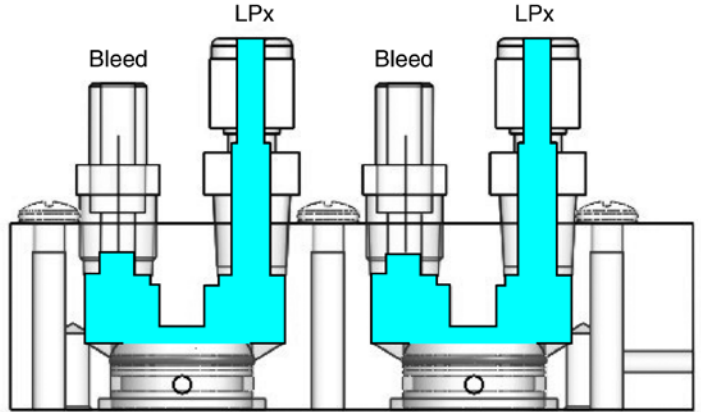
The pressure sensors are factory calibrated over their full pressure and temperature ranges. The calibration result data is stored in a 60 plane pressure/temperature look-up table in memory. A re-zero calibration can be performed on demand. Each pressure sensor's offset is then updated and saved in flash memory.

As the sensor bridge temperature changes, the microprocessor selects the appropriate temperature plane or interpolates between planes to correct the pressure reading. This on-line calibration corrects for zero drift and liquid head pressure, thus assuring a long term 6 month accuracy.

Each pressure input channel is isolated and independent. Up to 8 pressure ranges can be incorporated into one module. In addition, each pressure input channel can be a different fluid.

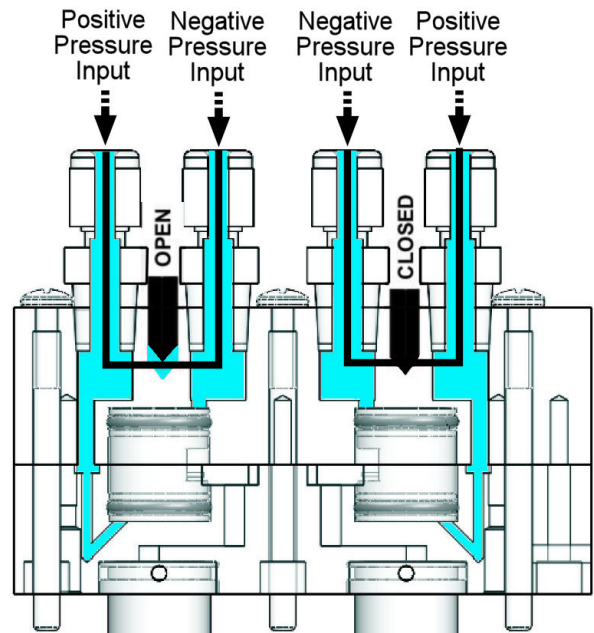
## Gauge & Absolute (wet/dry)

Model DSA3207-PTP contains a stainless steel diaphragm isolating only the measurement side of the pressure transducer, the backside must be dry. This design also contains a bleed valve per sensor.



## Differential (wet/wet)

Model DSA3307-PTP contains a single sensing element pressure transducer that is isolated from the media on both sides by a 316L stainless steel diaphragm. A shunt-purge valve is installed to provide flow between the positive and negative pressure inputs and allow gas bubbles to be purged from the system.



Each DSA-PTP module has a unique, factory set, MAC address. The IP address of the DSA-PTP module is user configurable.

## Communications

The DSA3207/3307-PTP module interfaces directly to a host via Ethernet connection. Scanivalve's free configuration utility software for LabVIEW® Runtime is designed to assist a user in establishing communications and configuring the DSA-PTP module.

Additionally, a Software Development Kit is available for users who want to write their own detailed data acquisition program in LabVIEW®. This Develop-

ment Kit includes the Configuration Utility software and examples to assist a user in the setup of the system. An OPC driver is also available.

## Specifications

**Inputs (Px):** 2 up to 32 1/8 inch Swagelok® stainless steel fittings

PRESSURE		ACCURACY (%F.S.)	
RANGES (psi)	GAUGE	ABSOLUTE*	DIFFERENTIAL
2.5	±0.20%	N/A	N/A
5	±0.20%	N/A	±0.50%
15	±0.12%	±0.12%	±0.50%
30	±0.12%	±0.12%	±0.50%
50	N/A	N/A	±0.50%
100	±0.12%	±0.12%	±0.50%
250	±0.12%	±0.12%	N/A
300	N/A	N/A	±0.50%
500	±0.15%	N/A	N/A
1000-1500	±0.30%	N/A	N/A

\* Accuracy is dependent upon performing CALB

**Resolution:** 16 bit  
**Scan Rate:** 850 samples/channel/sec EU  
**Communication:** Ethernet 100baseT

**Protocol:** TCP/IP or UDP

**Operating Temperature:** 0 – 60° C  
**With heater** -20 to 60° C

**Temperature Compensated Range:** 0 – 69° C

**Mating Connector Type:** I/O: D-Code M12  
 Power: Bendix PTO6A-8-3S, 3 pin female  
 Trigger: Bendix JT06RE8-6S-SR, 6 pin female

**Power Requirements:** 28Vdc nominal @ 400 mA (20-36 Vdc)

**External Trigger:** 6.5 mA at 9-15Vdc minimum edge sensing

### Maximum overload sensor pressures without damage

sensor pressure range (psi)	DSA3307-PTP		DSA3207-PTP
	maximum line pressure applied equally both sides (psi)	maximum overload pressure applied to one side only (psi)	maximum overload pressure (psi)
2.5	N/A	N/A	5
5	100	15	10
15	100	45	30
30	100	90	60
50	250	150	N/A
100	250	250	200
250	N/A	N/A	500
300	500	500	N/A
500	N/A	N/A	1000
1000	NA	N/A	2000
1500	N/A	N/A	2000

**Media Compatibility:** Water, fuel oil, lubricating oils on sense side only of transducers

Wetted parts are constructed from 300 series stainless steel. Note: Standard internal O-rings are BUNA-N. Consult factory for optional internal o-ring materials such as Viton or Neoprene®.

**Weight:** **DSA3207-PTP:** 9.5 lbs. (4.31 kg) With 8 ea. DSA3007/2LPx installed.

**DSA3307-PTP:** 15.5 lbs. (7.03 kg) With 8 ea. DSA3307/2DLPx installed.

**Total Thermal Error Over 0-60° C Range:** +/- .003% F.S./° C

## Ordering Information/ Dimensions

Ordering DSA3207-PTP or DSA3307-PTP is done in two parts:

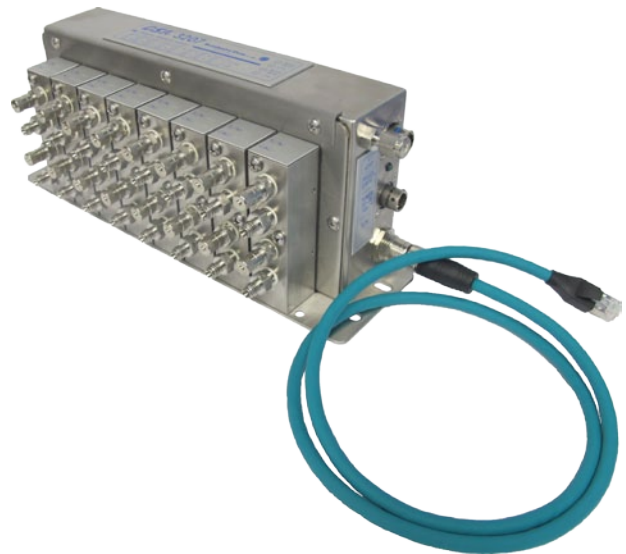
**1. Base**—The base contains all of the electronics, connectors, firmware, and up to 8 blanking plates filling up unused spaces.

Scanco No. DSA3207-PTP/Base (gauge or absolute)

Scanco No. DSA3307-PTP/Base (differential)

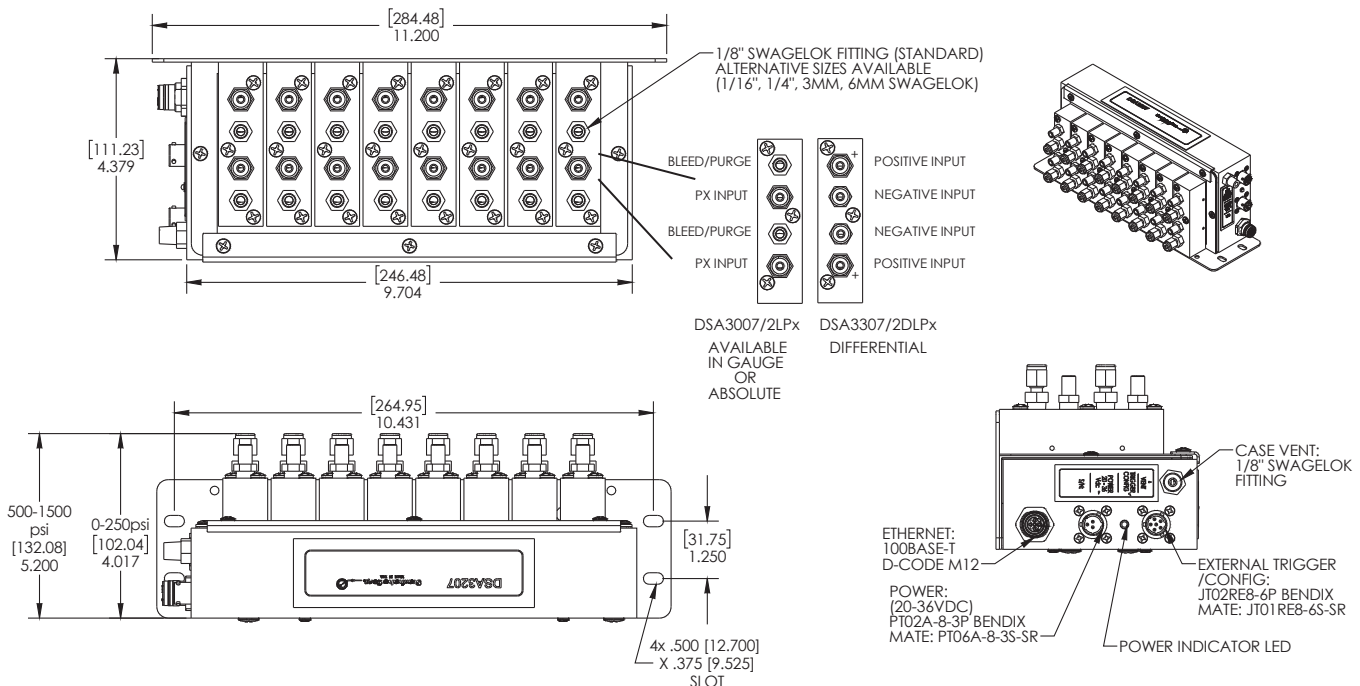
*(Transducers ordered separately - see below)*

**2. Pressure Transducer Two Pack**—The transducer package contains 2 each isolated pressure transducers of the same pressure range. Order up to 8 sensor packs for each DSA3207/3307-PTP Base. Up to 8 different pressure ranges can be connected on one base.



<b>Scanco No.</b>	<b>DSA3307</b>	<b>/</b>	<b>2LPx</b>	<b>-</b>	<b>xxpsig</b>	<b>BUNA-N</b>
	DSA3007 (psig, psia) DSA3307 (psid only)				pressure range psig, psia, psid (specify)	Elastomer -BUNA-N (standard) -Neoprene® -Viton
			-2LPx Liquid, gauge -2LAPx Liquid, absolute -2DLPx Liquid, differential (DSA3307 only)			

## DSA3207-PTP/16LPx and DSA3307-PTP/16DLPx Inches [mm]



\*Each DSA-PTP module comes with the mating trigger and power connector, as well as a 3ft Ethernet cable.

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# Scanivalve

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