

Features

- 0 - 750 psid pressure range
- Temperature compensated pressure sensors
- Dual pressure ranges available
- $\pm .065\%$ full scale accuracy
- Scan rates up to 50kHz
- On board constant current sensor excitation
- Isolate-Purge feature standard



*ZOC17IP/8Px Muxless
Pressure Scanner (shown)*

General Description

The Model ZOC17 is a cable serviced electronic pressure scanner which accepts 8 or 16 pneumatic inputs. Each ZOC17 module incorporates 8 or 16 piezoresistive temperature compensated pressure sensors. These pressure sensors are manufactured in a vibration resistant can, which makes for easy field replacement, thus minimizing downtime in the event of sensor damage. The ZOC17 electronic pressure scanner also contains a pneumatic calibration valve, a high speed multiplexer (50kHz), and an instrumentation amplifier.

The integral calibration valve allows the ZOC pressure sensors to be automatically calibrated on-line. The ZOC17 calibration valve utilizes "Normally Px" valve logic where no control pressure defaults the valve to the operate mode.

Applications

The ZOC17 electronic pressure scanner is ideal for flight and turbine engine testing applications where ambient temperatures vary. It is also ideal for other industrial pressure measurement situations where high measureands may be encountered (750 psi max.). The ZOC temperature compensated pressure sensors are more than ten times less sensitive to temperature than typical piezoresistive pressure sensors. They may be mounted in any position, so the units may be installed close to the pressure sources to be measured.

When further temperature stability is required, as well as for use below 0°C, it is recommended that the ZOC17 pressure scanner be placed in a thermostatically controlled heater jacket, Model ZOC17TCU.

ZOC17 Features and Options

ZOC Calibration Valve Control Pressure

The ZOC17 calibration valves are “Normally Px” where no control pressure or a loss of control pressure defaults the ZOC calibration valve to the operate (sense) mode. 90 psi (120 psi for high pressures) control pressure is required to switch the ZOC calibration valve into purge, calibrate or isolate mode. This calibration valve allows the ZOC sensors to be automatically calibrated on-line.

Purge Feature

Isolate Purge valve is standard with all ZOC17 calibration valves. This valving isolates the pressure sensors from the applied purge pressures. This technique permits the safe use of high purge pressures without damaging the pressure sensors due to high over-pressure. The ISO purge valve logic also allows a pressure calibration to be performed during the purge process.

Dual Range

Each group of 8Px (pressure inputs) contains its own calibration valving and reference, thus a single ZOC17/16Px pressure scanner can incorporate up to two pressure ranges for maximum flexibility.

ZOC17 Sensors

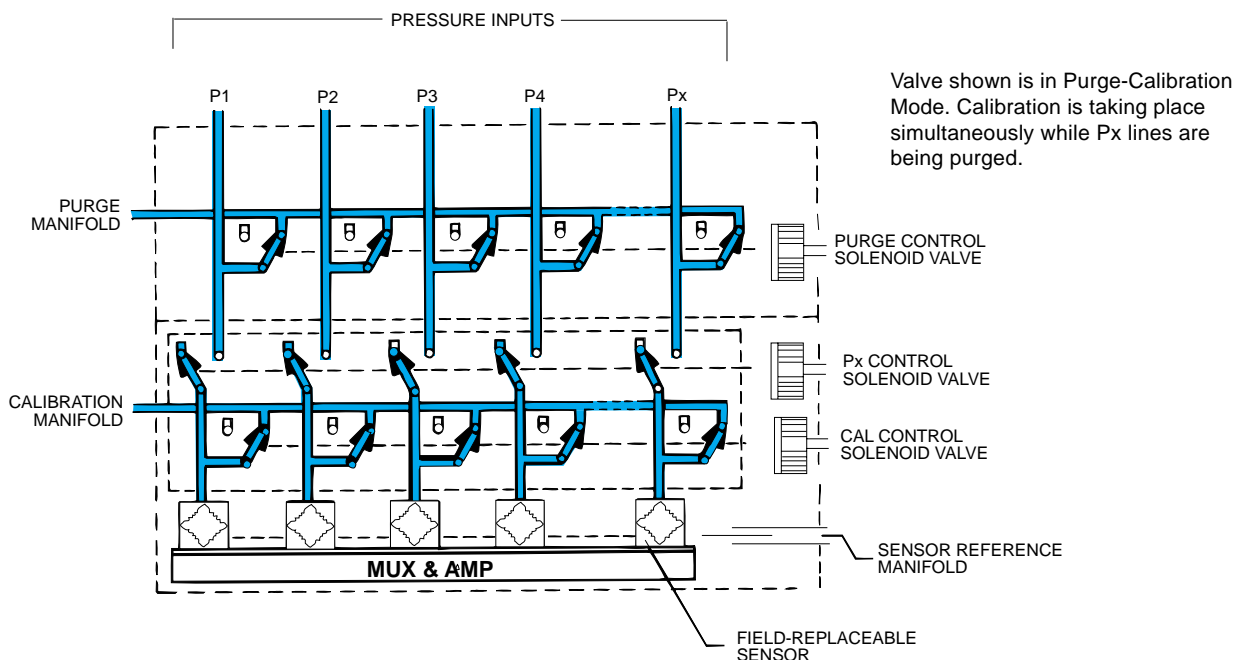
The ZOC17 pressure sensors are manufactured in a vibration resistant can with each pressure sensor having temperature compensating circuits. A constant current excitation is regulated on board the ZOC17 module, rather than a constant voltage, thus adding to the long term stability of the pressure sensors. No special tools are required for access to the sensors or for field replacement.

Muxless — The ZOC17 is available in an 8 channel muxless version (less amplifier and multiplexer). Each pressure sensor has its own 30-120mV F.S. analog output that is accessible through the electrical I/O connector.

Muxless — Amplifier Per Channel (APC) — The ZOC17 is available in an 8 channel muxless version (less multiplexer). Each pressure sensor has its own amplifier per channel with nominal $\pm 2.5\text{Vdc}$ output per channel. 3.0Vdc and 5.0Vdc available upon request.

Muxed — The ZOC17 is available in a 16 channel muxed version that includes a multiplexer and amplifier. A CMOS level binary address is required to select the appropriate channel. The corresponding channel is then amplified and output at $\pm 0 - 2.5\text{Vdc}$ F.S. or 0 - 5.0Vdc and 0 - 10.0Vdc F.S. outputs also optionally available.

ZOC Pressure Sensor Module Schematic



Specifications

Inputs (Px): 8 or 16 each .063 inch (1.6mm) O.D. tubulations. Optional 1/16 inch Swagelok fittings.

Full Scale Ranges: ±10 inch H₂O, 1, 2.5, 5, 15, 30, 50, 100, 250, 500, 600, 750 psid (±2.5, 7, 17, 35, 100, 205, 350, 700, 1725, 3500, 4200, 5250kPa)

Accuracy: 10 inch H₂O* = ±.20 % F.S.
(Including linearity, hysteresis, and repeatability)
1 to 499 psid = ±.065% F.S.
500 to 750 psid = ±.12% F.S.

Sensor Addressing: 4 bit binary, CMOS level (Muxed only)

Full Scale Output: Standard: ±2.5Vdc nominal (Muxed)
Optional: ±5Vdc, ±10Vdc

Full Scale Output: (Muxless)
(Muxless APC) ±30-120mV per sensor
2.5Vdc per channel (nominal)
3.0 Vdc or 5.0Vdc optional

Resolution: Infinite

Scan Rate: 50kHz

Operating Temperature: 0° to 70°C standard

Temperature Compensated Range: 0° to 50°C (Higher compensated ranges available.)

Temperature Sensitivity:

Range	Zero	Span
10 inch H ₂ O	.009% FS/°C	.007% FS/°C
1 to 750 psid	.009% FS/°C	.007% FS/°C

Connector Type: Muxed
Cannon 15 pin MDM-15SL2P
Muxless
Cannon 21 pin MDM-21SL2P
APC - DB25P

Power Requirements: ±15Vdc @ 100mA Nominal Muxed
±15Vdc @ 25mA Nominal Muxless
±15Vdc @ 200mA APC

Overpressure Capability: (With no damage)
10 inch H₂O = 2 psi (13.79kPa)
1 psid = 5 psi (35kPa)
2.5 - 499 psid (3493kPa) = 200%
500 psid (3500kPa) = 150%
600 psid (4200kPa) = 125%
750 psid (5250kPa) = 100%

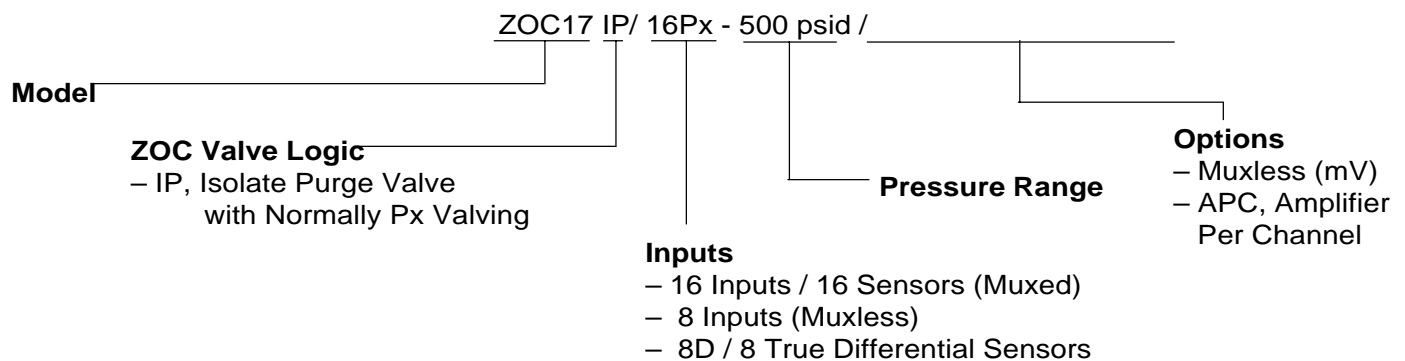
Maximum Reference Pressure: 250 psig (1725kPa)

Media Compatibility: Gases compatible with silicon, silicone, aluminum, and Buna-N

Weight: ZOC17IP/8Px (Muxless): 1.5 lbs.
ZOC17IP/16Px (Muxed): 3.2 lbs.
ZOC17IP/8Px (APC): 1.75 lbs.

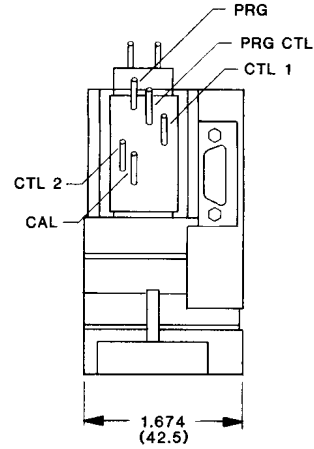
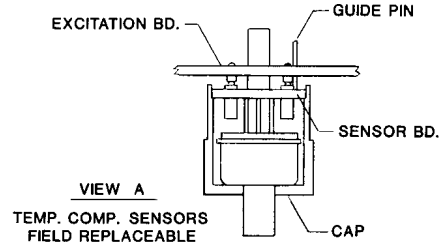
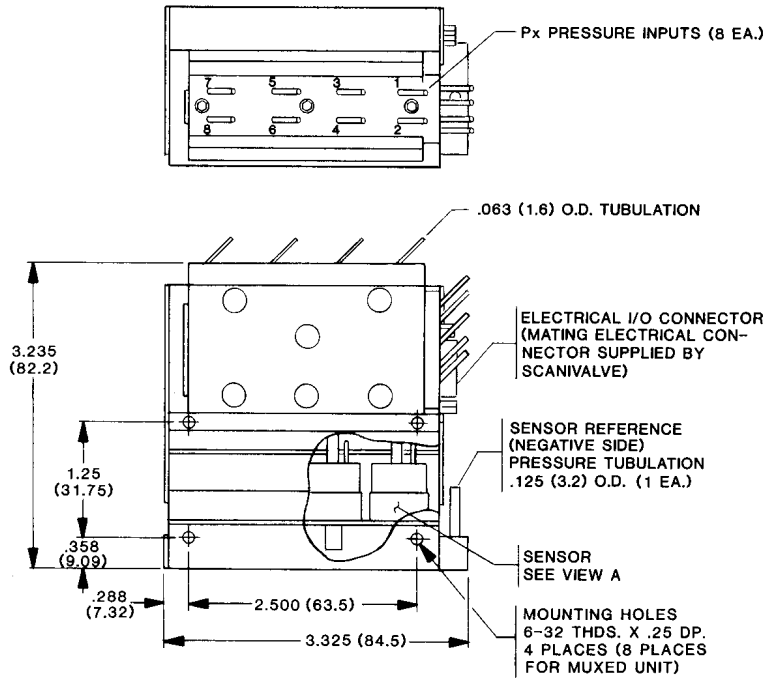
*10 inch H₂O = 25.4 cm H₂O = .36127 psi

Ordering Information

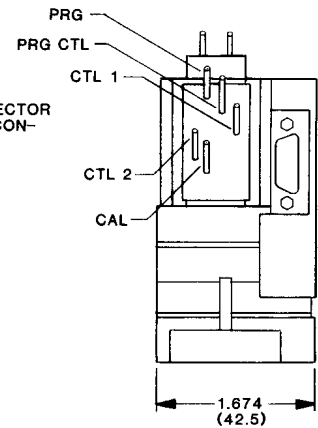
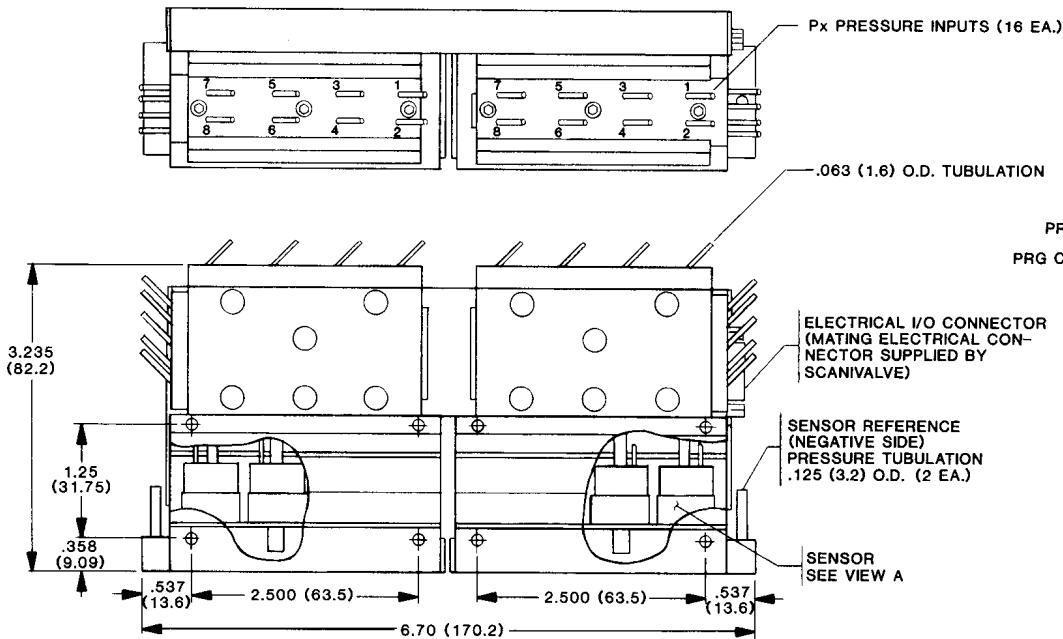


Dimensions inches (mm)

ZOC17IP/8Px-XX PSID MUXLESS



ZOC17IP/16Px-XX PSID MUXED



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