

#### FEATURES

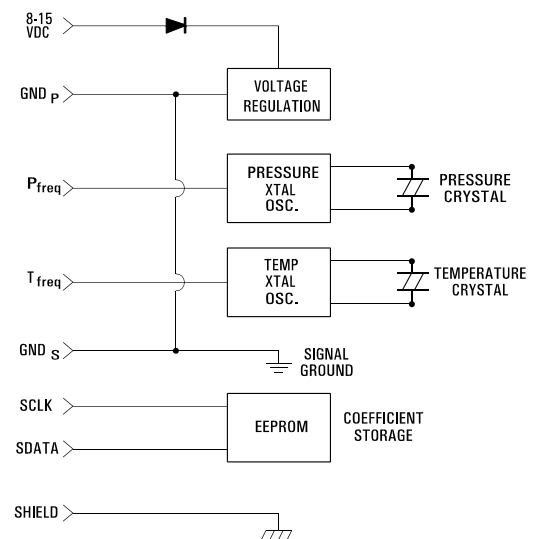
- Ranges: Barometric and 15 to 500 psia FS (103 to 3447 kPa)
- $\pm 0.0001\%$  FS Resolution
- $\pm 0.01\%$  FS Accuracy
- $\pm 0.01\%$  FS/6 month Stability
- Shock, Acceleration and Vibration Resistant
- Available with Oil-filled Capillary Tube for Water Level Measurement

#### APPLICATIONS

- Flight Testing
- Calibration Transfer Standards
- Metrology
- Windtunnel/Turbine Test
- Oceanography



Series 960 Quartzonix™ Pressure Standards are designed for use as a precision pressure transducer where the highest levels of traceable accuracy and stability are required. Quartzonix™ pressure standards use a patented monolithic quartz resonator to achieve unparalleled accuracy and stability. Pressure is measured via a change in the resonant frequency of an oscillating quartz beam by pressure-induced stress. Quartzonix™ pressure standards produce an output frequency between 30 and 45 kHz and can achieve a pressure resolution of  $\pm 0.0001\%$  FS. The units provide conformance to a calibration curve of better than  $\pm 0.01\%$  FS and have long-term stability of  $\pm 0.01\%$  FS over a six month period. Precise thermal compensation is provided via an integrated quartz temperature sensor used to measure the operating temperature of the transducer. The low mass design of the sensing elements allows the transducer to be employed in applications which experience high acceleration, shock and vibrational loads.



Functional Diagram

**Presented By : A-Tech Instruments Ltd.**

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@ 25°C unless otherwise stated

Parameter	960	Units	Comments
<b>PNEUMATICS</b>			
Pressure Ranges	11 - 16 15 23 30 45 65 100 200 300 500	(76 - 110) (103) (159) (207) (310) (448) (689) (1379) (2068) (3447)	psia (kPa)  Barometric only
Proof Pressure <sup>1</sup>	1.5	x FS	
Burst Pressure <sup>2</sup>	2.0	x FS	
Pressure Media	Media compatible with 316SS, nickel and solder		
Pressure Fitting	1/8" compression		
<b>STATIC PERFORMANCE</b>			
Resolution <sup>3</sup>	±0.0001	% FS	
Pressure Hysteresis	±0.005	% FS	
Static Accuracy <sup>4</sup>	±0.01	% FS	
Maximum Deviation over Temperature <sup>5</sup>	±0.015	%FS	over specified temperature range
Thermal Hysteresis	±0.005	% FS	over specified temperature range
Long Term Drift	±0.01	% FS	6 months, maximum
<b>ELECTRICAL</b>			
Pressure Signal <sup>6</sup> Temperature Signal	45-30 172	kHz kHz	nominal +45 ppm/°C
Output Signal	4	volt P-P	square wave capacitively coupled
Turn on Time	250	m sec	typical, 500 m sec worst case
Power Requirements	8-15	VDC	2 mA @ 8V
Electrical Connection	8 ea. #30 AWG flying leads		

**Notes:**

- 1 Maximum applied pressure without causing a calibration shift.
- 2 Maximum applied pressure without causing permanent damage to quartz sensing element.
- 3 Achievable resolution using gate time of 1/2 second for frequency counter with 20,000 MHz time base. Increased or decreased resolution may be obtained by lengthening or shortening gate times.
- 4 Calibration conformance to a primary pressure standard after calibration.
- 5 Maximum error at any pressure within calibrated temperature range using supplied calibration coefficients/equations.
- 6 Nominal 10% frequency change with full scale pressure.

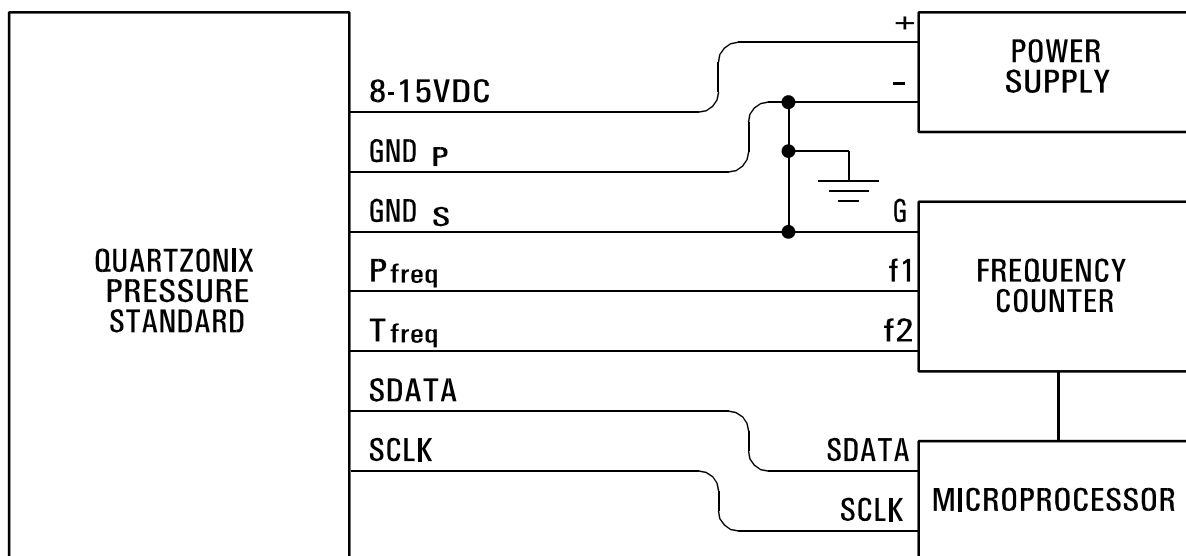
*Specifications subject to change without notice.*

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Parameter	960	Units	Comments
<b>ENVIRONMENTAL</b>			
Calibrated Temp Range	0 to 60 -20 to 70 (optional)	°C	
Acceleration Sensitivity	±0.004	% FS/g	worst axis
Vibration Sensitivity	±0.001	% FS/g	20g peak, 10 Hz - 2 kHz
Maximum Shock	200	g/10 msec	½ sine
<b>PHYSICAL</b>			
Size	1.73 x 1.73 x 1.35 (4.4 x 4.4 x 3.4)	in (cm)	
Weight	9.5 (270)	oz. (gms)	



**Interface Diagram**

Note: Transducer calibration coefficients are stored within an on-board serial EEPROM.

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# Series 960

# Ordering/Part Number Information

## Ordering Information:

PN: 960A-AAAA111EFF

Model 960 Pressure Standard,  $\pm 0.01\%$  FS Accuracy, 1/8" compression fitting, flying leads

### AAAA = Pressure Range

BARO,	Barometric 11-16 psia (76-110 kPa)	0065,	65 psia (448 kPa)
0015,	15 psia (103 kPa)	0100,	100 psia (689 kPa)
0023,	23 psia (159 kPa)	0200,	200 psia (1379 kPa)
0030,	30 psia (207 kPa)	0300,	300 psia (2068 kPa)
0045,	45 psia (310 kPa)	0500,	500 psia (3447 kPa)

### B = Pressure Fitting

1, 1/8" compression fitting

### D = Pressure Calibration

1, Standard

### FF = Specials

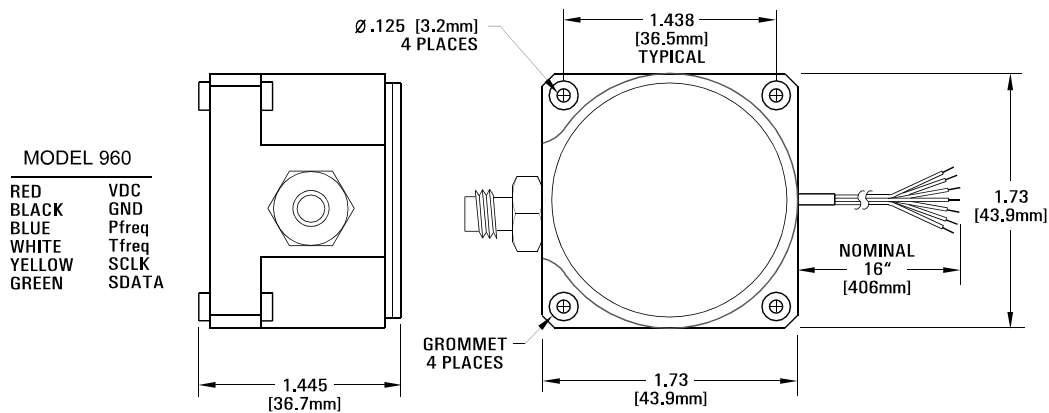
00, Standard  
10, Oil-filled capillary

### C = Electrical Termination

1, Flying Leads

### E = Calibrated Temperature Range

1, 0 to 60°C  
2, -20 to 70°C



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No. 1004