PRESSURE SYSTEMS

Digital Pressure Standard

ISO-9001 Certified

Quartzonix™ Pressure Standard — Series 960

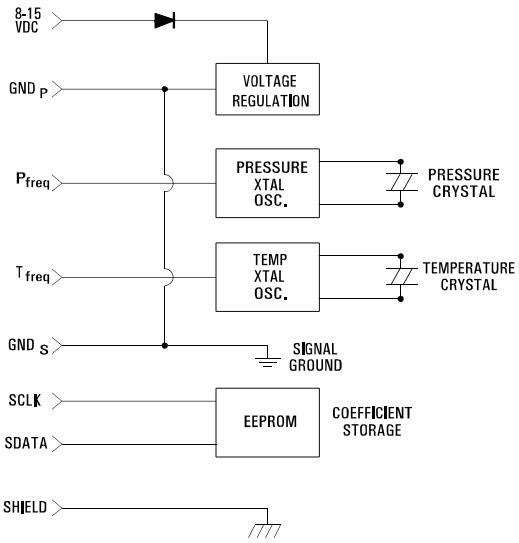
FEATURES

- Ranges: Barometric and
  15 to 500 psia FS (105 to 3400 kPa)
- ±0.0001% FS Resolution
- ±0.01% FS Accuracy
- ±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 ±0.0001% FS. The units provide conformance to a calibration curve of better than ±0.01% FS and have long-term stability of ±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

Pressure Systems, Inc.
A Weston Company of The Roxboro Group PLC
34 Research Drive
Hampton, VA 23666
USA
Phone: (757) 865-1243
Toll Free: 800-328-3665
Fax: (757) 865-8744
E-mail: sales@psih.com

Web: *PressureSystems.com*

Updates: *PressureSystems.com/updates.html*

Resource Center: *LEVELandPRESSURE.com*

PSI Ltd.
124, Victoria Road
Farnborough, Hants
GU14 7PW
United Kingdom
Phone: +44 1252 510000
Fax: +44 1252 510099
E-mail: psi@westonaero.com

Series 960 Specifications

@ 25ºC unless otherwise stated

Parameter	960	Units	Comments
PNEUMATICS			
Pressure Ranges	11 - 16 (76 - 110) 15 (105) 23 (160) 30 (210) 45 (310) 65 (450) 100 (690) 200 (1380) 300 (2070) 500 (3400)	psia (kPa)	Barometric only
Proof Pressure[1]	1.5	x FS	
Burst Pressure[2]	2.0	x FS	
Pressure Media	Media compatible with 316SS, nickel and solder		
Pressure Fitting	⅛" compression		
STATIC PERFORMANCE			
Resolution[3]	±0.0001	% FS	
Pressure Hysteresis	±0.005	% FS	
Static Accuracy[4]	±0.01	% FS	
Maximum Deviation over Temperature[5]	±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
ELECTRICAL			
Pressure Signal[6] **Temperature Signal**	45-30 172	kHz kHz	nominal +45 ppm/ºC
Output Signal	4	volt P-P	square wave capacitively coupled
Turn on Time	30	m sec	
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 ½ second for frequency counter with 20.000 MHz time base. Increased or decreased resolution may be obtained be 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.

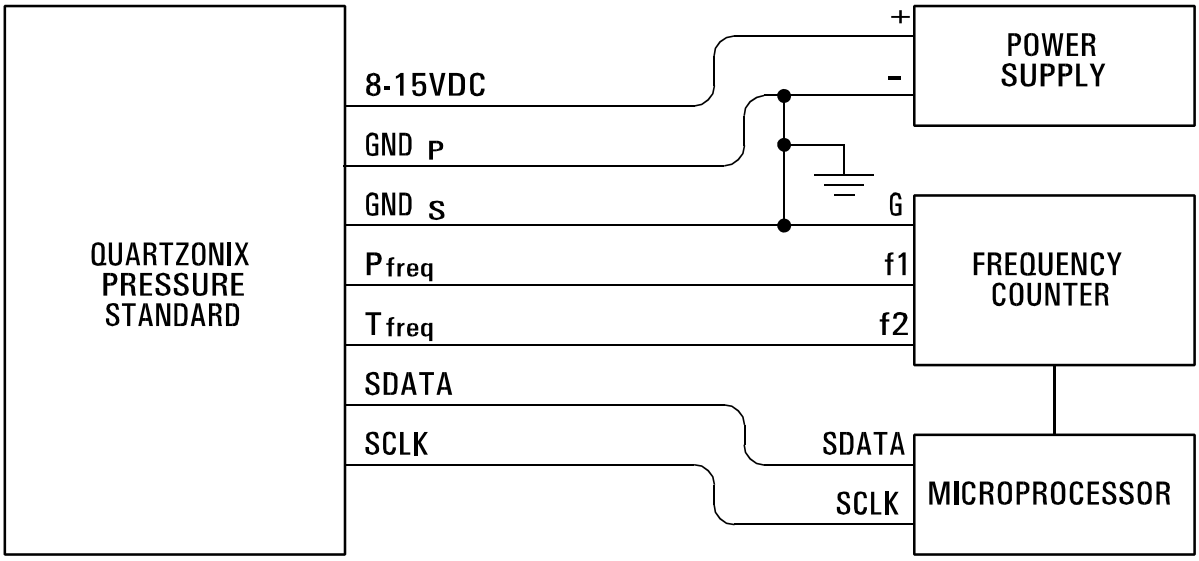
6 Nominal 10% frequency change with full scale pressure.

Specifications subject to change without notice.

Specifications Series 960

@ 25ºC unless otherwise stated

Parameter	960	Units	Comments
ENVIRONMENTAL			
Calibrated Temp Range	0 to 60 -20 to 70 (optional)	ºC	
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
PHYSICAL			
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.

Specifications subject to change without notice.

Series 960 Ordering/Part Number Information

Ordering Information:

PN: 960A-AAAABCDEFF Model 960 Pressure Standard, ±0.01% FS Accuracy

AAAA = Pressure Range

BARO,	Barometric 11-16 psia (76-110 kPa)
0015,	15 psia (105 kPa)
0023,	23 psia (160 kPa)
0030,	30 psia (210 kPa)
0045,	45 psia (310 kPa)
0065,	65 psia (450 kPa)
0100,	100 psia (690 kPa)
0200,	200 psia (1380 kPa)
0300,	300 psia (2070 kPa)
0500,	500 psia (3400 kPa)

B = Pressure Fitting

1, ⅛" Swagelok

C = Electrical Termination

1, Flying Leads
2, 9 pin D-shell (For use with Model 9600 Pressure Gage)

D = Pressure Calibration

1, Standard

E = Calibrated Temperature Range

1, 0 to 60ºC
2, -20 to 70ºC

FF = Specials

00, Standard
10, Oil-filled capillary