PRESSURE SYSTEMS

Intelligent Digital Pressure Standard

ISO-9001 Certified

Quartzonix™ Transducers Model 970

FEATURES

- Ranges: Barometric (11-16 psia) and 0-15 through 0-500 psia (0-115 kPa through 0-3333 kPa)
- Better than ±0.01% FS Accuracy
- Long term stability better than 0.01% FS per 6 months
- RS-485 interface
- Pressure output in choice of engineering units

APPLICATIONS

- Meteorological and barometric reference
- Low cost, high accuracy pressure standard
- Pressure calibration equipment
- Storage tank/liquid level determination

The Model 970 Intelligent Quartzonix™ pressure standard incorporates proven high accuracy vibrating quartz beam technology with low power miniature digital electronics to achieve a fully compensated 0.01% FS pressure measurement. The Model 970 uses a patented monolithic quartz structure and vibrating beam to measure pressure-induced stress. The beam's frequency of vibration changes by pressure induced stress that is applied to the beam via a miniature metal bellows. The bellows isolates the quartz sensing element from the applied gas, thereby making the sensor insensitive to gas density. The Intelligent Quartzonix™ has a resolution of 0.001% FS, and drift rates of less than 0.01% FS over a 6-month period.

The Model 970 uses a multi drop, 9600 baud ASCII character RS-485 type interface, allowing a network of up to 31 transducers on the same bus. The output pressure measurement is user programmable for both the pressure units and update rate. The update rate is capable of 9 readings per second. The extremely low power consumption design with a programmable sleep mode makes the Intelligent Quartzonix™ ideal for remote battery powered applications.

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For product literature updates visit:
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970 Specifications

Parameter	970	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 F.S.	
Burst Pressure[2]	2.0	x F.S.	
Pressure Media	Media compatible with 316SS nickel and solder		
Pressure Fitting	⅛" compression		
PERFORMANCE			
Resolution / Repeatability	±0.001	% F.S.	
Update Rate	9	updates/sec	User programmable
Static Accuracy[3]	±0.01	% F.S.	
Maximum Deviation over Temperature	±0.015	% F.S.	over specified temperature range
Thermal Hysteresis[4]	±0.005	% F.S.	over specified temperature range
Long Term Drift	±0.01	% F.S.	per 6 months, maximum
ELECTRICAL			
Input Voltage	5 to 12	VDC	Nominal 7.0 mA
Electrical Connection	6 pin circular Bendix		intermateability dimensions in accordance with MIL-C-26482 (Ref MS3113)
Turn on Time	300	m sec	
ENVIRONMENTAL / PHYSICAL			
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
Dimensions	4.25 x 1.25 dia (10.8 x 3.18 dia)	inches (cm)	
Maximum Shock	200	G/10mS	½ sine
Weight	8.3 (235)	oz (gms)	

Notes:

1 Maximum applied pressure without causing a calibration shift.
2 Maximum applied pressure without causing permanent damage to quartz sensing element.
3 Calibration conformance to a primary pressure standard after calibration.
4 Maximum error at 25ºC after exercising 970 to either operating temperature extreme.

Specifications subject to change without notice.

Operational Features 970

Operation	Command String	Notes
USER CONFIGURATION		
Set pressure units	$<node add.>SU n<CR>	where n=1,2,3,or 4 for psia, kPa, hPa, inHg
Save defaults	$<node add.>SD<CR>	Saves users defined settings
Clear defaults	$<node add.>SC<CR>	Restores factory settings
Recalibration, zero offset only	$<node add.>CS<applied pressure><CR>	Adjust for zero drift
Recalibration, offset and span	$<node add.>CL<low pressure><CR> $<node add.>CH<high pressure><CR>	Two point offset and span adjustment
Clear recalibration	$<node add.>CC<CR>	Restores factory set calibration
IDENTITY		
Ask for type and pressure range	$<node add.>TT<CR>	Returns Model, range and firmware version
Ask for serial number	$<node add.>TS<CR>	Returns S/N, sensor no. calibration number
Status request	$<node add.>ST<CR>	Returns system status and details of any sub-system faults
MEASUREMENT		
Single pressure reading	$<node add.>MR<CR>	Returns a single pressure reading
Continuous pressure reading	$<node add.>MC<CR>	Returns a pressure reading stream
Stop cont. pressure reading	<CR><LF>	Stops pressure reading stream
Request pressure units	$<node add.>MU<CR>	Returns the set pressure unit
Temperature measurement	$<node add.>MT<CR>	Returns internal temperature
Go into low power (LP) mode	$<node add.>LP<CR>	Shuts down sensor
Restore normal operation	Any above command	Wakes up unit from LP mode
WARNING MESSAGES		
The 970 will report a warning if it is being operated outside of its normal pressure or temperature range. This is transmitted as an additional string after a single or continuous pressure reading.		
PLIM	Operation is outside calibrated pressure range and will be in error	
RCAL	Operation is close to, or exceeding derangement pressure limit	
TLIM	Operation is outside calibrated temperature range and will be in error	
FAIL	Fault in the system.	

970 Ordering/Part Number Information

Ordering Information:

970A-AAAABCDE00 Intelligent Pressure Standard, ±0.01% F.S. Accuracy

AAAA = Pressure Range

BARO, 11-16 psia	0045, 45 psia	0300, 300 psia
0015, 15 psia	0065, 65 psia	0500, 500 psia
0023, 23 psia	0100, 100 psia	
0030, 30 psia	0200, 200 psia	

B = Pressure Fitting

1, ⅛" compression fitting

C = Electrical Termination

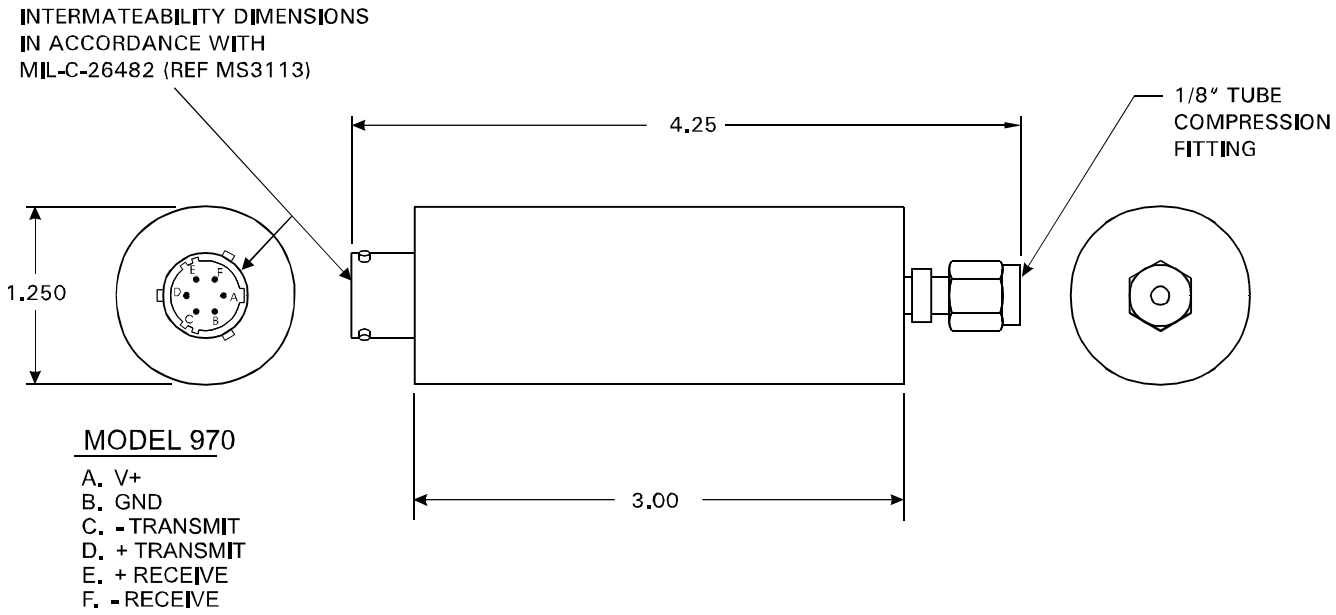
1, 6 pin circular

D = Pressure Calibration

1, Standard

E = Calibrated Temperature Range

1, 0 to 60ºC
2, -20 to 70ºC



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