

# Series ST1300

Space Rated Pressure Transducer



## Description

The Series ST1300 pressure transducers are designed to meet the environmental demands of orbital space flight. These space rated pressure sensors combine rugged all welded stainless steel construction and radiation hardened electronic components to ensure reliable performance over the life of the mission. Each ST1300 pressure transducer incorporates electronic components that have been qualified by DSCC to be “Rad Hard” and compliant to the Grade 1 requirements of EEE-INST-002, thus improving reliability for these transducers when exposed to radiation in high earth orbit. Additional design features include a wide compensated temperature range, long term stability, low sensitivity to shock and vibration, and infinite resolution. Standard pressures range from 5 psi to 10,000 psi. Series ST1300 units with pressure ranges equal to or less than 2500 psi, have built in over pressure protection. These pressure transducers are available in absolute, gage, and sealed pressure references. Each unit is shipped with a 19 point calibration record traceable to NIST as standard.

## Standard Features

- Designed for orbital environments
- Compact Size (1 in. OD)
- Electronics manufactured to NASA 8739.3
- Radiation grade electronics
- 5 Vdc Full Scale Output
- Improved thermal performance
- Pressure ranges to 40,000 psi
- All Stainless Steel Construction
- Shock and Vibration Resistant
- 19 Point Calibration Record Traceable to NIST

## Optional Features

- Grade 1 Electronics per EEE-INST-002
- Expanded Temperature Compensation Range
- Customer Specified Process Connections
- Customer Specified Electrical Termination
- Special Pressure Ranges Up To 40,000 psi
- Special Calibrations

**ST1300**

# Series ST1300

## Specifications

Baseline Configuration Specs Represented.  
Modifications Encouraged - See Below  
Custom Designs Available

### Performance

#### Static Accuracy

(some ranges)  
Linearity:  $\pm 0.20\%$  FSO. ( $\pm 0.10\%$ )  
Hysteresis:  $\pm 0.20\%$  FSO. ( $\pm 0.10\%$ )  
Repeatability:  $\pm 0.10\%$  FSO. ( $\pm 0.05\%$ )

#### Resolution

Infinite.

#### Thermal Zero Shift

$< \pm 0.005\%$  FSO/ $^{\circ}$ F.

#### Thermal Span Shift

$< \pm 0.005\%$  FSO/ $^{\circ}$ F.

#### Zero Balance

$\pm 0.5\%$  FSO at 70 $^{\circ}$ F.

#### Full Scale Output

5.00 Vdc  $\pm 0.5\%$  FSO at 70 $^{\circ}$ F.

### Mechanical Characteristics

#### Standard Ranges

0 - 5, 15, 25, 30, 50, 75, 100, 200, 500,  
750, 1000, 1500, 2000, 3000, 5000,  
7500, 10000 PSIA/PSIS .

#### Proof Pressure

1.5 X range or 500 PSI,  
whichever is greater.

#### Burst Pressure

2.0 X range or 500 PSI,  
whichever is greater.

#### Operating Media

Fluids and gases compatible with  
stainless steel. Inconel and other  
materials optional.

#### Enclosure

Body of stainless steel.

#### Pressure Fitting

Stainless Steel weld tube and  
AS type ports available.

#### Vibration and Shock

Random > 25 Grms.  
Pyroshock > 5000 G.

#### Weight

Approximately 10 oz.

### Electrical Characteristics

#### Excitation

16-40 Vdc unregulated.

#### Electronics Reliability Classification

Class S / Grade 1 per  
GSFC INST-EEE-002/MSFC-STD-3012.

#### DSCC Electronics Radiation Qualification

Up to 100K rad TID.

#### MTBF (MIL-STD-217)

Greater than 1500 years in orbit.

#### Electrical Protection

- EMI/RFI protected per MIL-STD-461.
- Short circuit protected

#### Electrical Isolation

Input to output isolation greater than  
100 megohms at 50 Vdc at 70 $^{\circ}$ F.

#### Insulation Resistance

> 100 megohms at 50 Vdc at 70 $^{\circ}$ F.

#### Electrical Termination

Customer specify.

### Environmental Characteristics

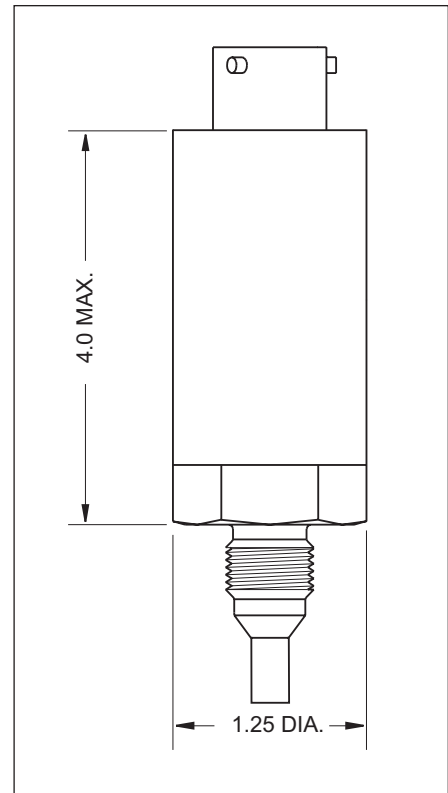
#### Compensated Temperature Range

-60 $^{\circ}$ F to +200 $^{\circ}$ F.

#### Operating Temperature Range

-65 $^{\circ}$ F to +250 $^{\circ}$ F.

### Dimensions (inches)



CE

0539

MODIFICATIONS: We realize transducer applications vary greatly and as such our designs are flexible. Choice of pressure port, electrical termination, material compatibility and performance characteristics are a few of the many options available. Specifications on this datasheet represent the standard configuration only. Product and company names listed are trademarks of their respective companies. Specifications subject to change without notice.  
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