Specification: 140GD-GM01
Revision 8
June 10, 2015

Instrument Specification
for
Pressure Transducers

B2 Test Stand
National Aeronautics and Space Administration
John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

Revision Record

Revision Number	Date	Description of Changes	Approvals
1	7/26/00	Update for new X33 xdcr buy	W. Hughes
2	2/22/07	Update for new J2X xdcr buy	N. LaBorde
3	3/13/12	Update for J2X xdcr buy	P. Gomez
4	3/14/12	Update for J2X xdcr buy	P. Gomez
5	4/24/12	Updated requirements verbiage	P. Gomez
6	10/17/12	Updated 15 PSIA shunt value	P. Gomez
7	6/3/2015	Updated for Taber unit buy	D. Carver
8	6/10/2015	Updated electrical connector	D. Davis

Table of Contents

1.0 General

1.1 Scope of Work

This specification has been written for strain gage pressure transducers rated 0-10,000 psig/psid/psia.

The supplier shall design, fabricate, test, tag, package, and ship the ordered instrumentation in accordance with the requirements of this equipment specification and all documents specified herein.

The work includes the furnishing of all labor, technical, and professional services, materials, and performance of all incidentals in connection with the engineering, design, fabrication, testing, and delivery of process instrumentation for pressure measurement.

Materials and equipment to be provided shall be the standard catalog products of manufacturers regularly engaged in the manufacture of the products, unless otherwise specified and documented by buyer purchase requirements and manufacturer drawings and specifications.

The manufacturer warrants the satisfactory and successful operation of all equipment furnished under this specification at the rating, conditions, and the type of service specified herein.

1.2 Other Specifications

The equipment supplied under this specification shall meet the applicable portions of the following:

NEC- Handbook, 5-501	Class I Locations
MIL-I-45208A	Inspection System Requirements
MIL-HBDBK-217	Reliability Prediction of Electronic Equipment
MIL-STD-810, 513.1	Acceleration
MIL-STD-810, 514.1	Mechanical Shock
MIL-STD-810, 516.1	Identification Marking of U.S. Mil. Property

Where conflicts arise between this Equipment Specification and the other specifications, standards, and codes, these shall be referred to the Buyer for clarification before quotation. When a document revision is not specified, it shall be that in effect at the time of the proposal. *Modifications to NASA SSC documents, specified herein, take precedence over the base document.*

1.3 Work Not Included

Field installation
Field test
Final cleaning
Calibration other than specified in data sheets

2.0 Requirements

2.1 Installation Requirements

The equipment specified herein will be installed outdoors and shall operate satisfactorily under the following conditions:

Altitude of Site:	Sea Level
Barometric Pressure:	14.7 psia
Ambient Temperature:	0°F to 120°F
Humidity	0% to 100% (relative)
Outdoor Conditions:	Class I, Division 2, Group B, Classified Area
Location:	Stennis Space Center, Mississippi

2.2 Service Requirements

2.2.1 Scope: Each pressure transducer shall be suitable for use with gaseous and liquid oxygen, hydrogen, nitrogen, and helium, as well as air and water.

2.2.2 Oxygen Compatibility: All materials exposed to oxygen under any operating conditions, including failure modes, shall be compatible with it, and shall not react spontaneously.

2.2.3 Hydrogen Compatibility: Transducers must be compatible with hydrogen in both materials and construction. All materials exposed to hydrogen under any operating condition, shall be compatible with it and shall not exhibit hydrogen embrittlement degradation.

2.2.4 Interchangeability: All units shall be designed to permit interchangeability of units with the same part number.

2.2.5 Serviceability: The transducer shall be designed to permit cleaning and full visual inspection of all surfaces exposed to the pressure medium. Any disassembly and reassembly necessary to perform this function shall not affect transducer performance.

2.3 Mechanical Requirements

2.3.1 Design: Each pressure transducer and its accessories shall be in accordance with the data sheets and the requirements specified herein. The pressure transducer shall be

capable of operating within the performance requirements specified throughout the full operating range. Vendors shall also provide all necessary engineering calculations.

2.3.2 Materials: Materials of construction shall be new and free of defects and imperfections. They shall retain satisfactory mechanical properties throughout the specified working temperature and pressure range. All pressure containing components shall conform to the requirements of ASME Code, Section VIII and ANSI B31.3. The equipment shall be manufactured from the materials specified on the data sheets. All alternate recommendations must be submitted in writing to Buyer as part of the vendor's proposal. Alternate materials are prohibited unless approved by the Buyer.

2.3.3 Connections: All pressure transducers, unless otherwise noted, shall be installed in 1/4" tubing and their pressure connection shall be MS33649-4 (7/16-20 UNF internal thread).

2.3.4 This requirement has been removed from this specification.

2.3.5 Repair: If any special tools are required for assembly and/or disassembly, they shall be included with the transducers.

2.4 Electrical Requirements

2.4.1 Pressure transducers shall operate within the requirements specified in this specification and on the data sheet herein.

2.4.2 Factory calibration shall be NIST traceable. Calibration sheets shall be included with each transducer.

Four tests shall be conducted on each transducer: 1) the transducer shall be calibrated at ambient temperature at the following increments of the pressure rating: 0%, 20%, 40%, 60%, 80%, 90%, and 100%, for ascending and descending pressures pressure cycles. Data shall be provided for each step of each of three cycles. 2) then the transducer shall be calibrated at the minimum temperature for 0%, 100%, and back to 0% full scale output, 3) at maximum temperature for 0%, 100%, and 0%, 4) finally, at ambient temperature for 0%, 100%, and back to 0% full scale output.

2.4.3 Non-Linearity and Hysteresis: The combined effects of non-linearity and hysteresis, over the full pressure range of the transducer, shall produce no deviation greater than ±0.008 millivolts per volt as measure from a straight line drawn through two points, one at 80%FS and the other at zero gage pressure (based on a downscale approach to both points). That is,

$$[(X_{80\%} - X_{0\%}) \div (0.8)] * Y + X_{0\%} = X_Y \pm 0.008 \text{ mV/V}$$

for all pressures, Y, expressed as a fraction of full range pressure.

2.4.4 Repeatability: The output voltages at 70 ± 5°F at the two points noted in paragraph 2.4.3 shall be repeatable within ± 0.003 millivolts per volt when the transducer is pressure cycled between the two points four times in a one hour period.

2.4.3 Electrical Connection: All transducers, unless otherwise noted, shall be stainless steel, MIL-C-38999/27YC98PN connector or equivalent. The excitation shall be applied to pins D (+) and C (-) such that applied pressure shall cause an output at pins A (+) and B (-). Internal Shunt Calibration shall be provided at 80% FS with an accuracy of .25%.

2.5 Environmental Requirements

2.5.1 Temperature: The transducer shall withstand continuous exposure to any temperature in the ranges listed on the spec. sheets without damage or subsequent change in performance.

2.5.2 Shock: The transducer shall withstand six 30g peak, half sine shocks of 11 ± 1 milliseconds duration along each of its principal axes without damage or subsequent change in performance.

2.5.3 Vibration: The transducer shall withstand sinusoidal vibrations of 1/4 inch double amplitude from 5 to 25 Hertz and 25 g RMS from 25 to 2000 Hertz without damage or subsequent change in performance. The transducer output shall be less than .05% FS/gRMS along any axis at frequencies up to 1000 Hertz.

2.5.4 Humidity: The transducer shall perform within the stated requirements of this specification in a relative humidity of 100% at temperatures up to 170°F. Performance shall not be affected by condensation due to temperature changes. If necessary, the transducer shall be coated/protected to prevent gage degradation due to humidity.

2.6 Fabrication

All external hardware items shall be stainless steel. All internal and external surfaces shall be free of grit, scale, slag, chips, dirt, or other foreign matter. All burrs and sharp edges shall be ground smooth.

2.7 Inspection and Testing

2.7.1 This requirement has been removed from this specification.

2.7.2 The supplier shall perform all tests required by the referenced codes, standards, and regulations, as well as any tests mentioned in the data sheets or this specification.

2.7.3 Pressure Testing: Pressure retaining components shall withstand the proof pressure stated in the data sheets without change in performance characteristics or

bursting. Unless otherwise specified, each transducer shall be capable of withstanding a minimum of 3 times full range pressure without rupturing the diaphragm or housing.

2.7.4 This requirement has been removed from this specification.

2.7.5 Rejection and Retest: Failure of a transducer to pass the manufacturer's qualification test or a Stennis verification test will be cause for rejection of the transducer. The rejected transducer may be reworked by the manufacturer and then, after complete retesting, may be submitted for acceptance.

2.7.6 LOX Compatibility and Cleaning: Each pressure transducer shall be capable of being cleaned to be used in Liquid Oxygen applications.

2.8 Identification

Each pressure transducer shall be permanently marked with the following information:

Manufacturer
Model Number
Serial Number
Pressure Rating
Excitation Voltage
Electrical Pin-out

3.0 Packaging

The pressure transducer shall be packaged in accordance with good commercial practice. Packaging shall be adequate to protect the hardware during handling, shipping, and storage.

4.0 Submittals

4.0.1 This step has been removed from this specification.

NOTE: If the supplier has an existing transducer which substantially but not entirely meets all of the requirements of this specification, the supplier is encouraged to submit a proposal on such a transducer. The proposal should reference by paragraph number of this specification those requirements which cannot be entirely met. The proposal should state to what extent the transducer can meet the requirements in question and should state the reasons for not meeting other requirements. The Buyer will evaluate all such proposals and determine whether the transducer can be granted deviations to the specification.

4.0.2 The Buyer will review Vendor's submittal for principle and important dimensions and for conformance with design requirements. The Buyer's approval of Vendor's drawings, calculations, procedures, or other submittals does not relieve the Vendor of

responsibility to ensure that the equipment meets the requirements of this specification and applicable code requirements, nor does it relieve the Vendor of responsibility for accuracy of dimensions, performance, or design details.

4.0.3 All submitted information/material shall be mailed to:

National Aeronautics and Space Administration
Bldg 3225 Room B33
John C. Stennis Space Center
Stennis Space Center, Mississippi 39529-6000
Attn: Dawn Davis

4.0.4 The Vendor shall present a schedule of events showing, as a minimum, the critical path, key milestones, and required action dates for submittal.

4.0.5 The Vendor shall submit a Certificate of Conformance stating that the furnished equipment meets the requirements of this specification.

5.0 Warranty

All equipment to be furnished under this section of the specifications shall be guaranteed against defective materials, design, and workmanship for a period of one year from the DATE OF Manufacture, but not before the equipment involved has passed all specified tests. Upon receipt of notice from the Buyer of failure of any part of the guaranteed equipment during the guaranty period, new replacement parts shall be furnished by the Vendor at no additional cost to the Buyer. The Vendor shall acknowledge his responsibility under these guaranty provisions by letter, stating that the equipment and materials referred to herein are guaranteed and the inclusive dates for the guaranty period.

The supplier shall warrant the satisfactory and successful operation of all equipment furnished under this specification at the conditions and type of service specified herein.

SSC B-2 FACILITY
PRESSURE TRANSDUCERS DATA SHEET

GENERAL

PRESSURE RANGE	0-2 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-30 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-50 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-60 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-75 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 3

GENERAL

PRESSURE RANGE	0-200 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 6

GENERAL

PRESSURE RANGE	0-300 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 45

GENERAL

PRESSURE RANGE	0-400 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-500 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 3

GENERAL

PRESSURE RANGE	0-1,000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 9

GENERAL

PRESSURE RANGE	0-1,500 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 25

GENERAL

PRESSURE RANGE	0-2000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-4,000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 2 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-5,000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 2 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 6

GENERAL

PRESSURE RANGE	0-6,000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 1.5 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 10

GENERAL

PRESSURE RANGE	0-10,000 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 1.5 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 3

GENERAL

PRESSURE RANGE	0-5 Inches H_20
LINE PRESSURE	0-50 PSIG
TYPE	Bonded Foil Strain Gage
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
PROOF PRESSURE	Minimum of 3 X pressure range
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-50 Inches H_20
LINE PRESSURE	0-50 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 125 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-10 Inches H_20
LINE PRESSURE	0-400 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 800 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal G + sense H – sense K Case Ground
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-100 Inches H_20
LINE PRESSURE	0-400 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 800 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-5 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-10 psid

LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 13

GENERAL

PRESSURE RANGE	0-20 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-30 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4

GENERAL

PRESSURE RANGE	0-40 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-50 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 2

GENERAL

PRESSURE RANGE	0-70 psid
LINE PRESSURE	0-300 PSIG
TYPE	Bi-directional differential pressure transducer
MOUNTING	By pressure fitting
ELEMENT AND BODY MATERIAL	316 stainless steel
OVERLOAD PRESSURE	Capable of withstanding 600 psi on either port without causing a zero shift greater than 1% of Full Scale
MECHANICAL SHOCK	30 G's for 11 ms
MAXIMUM DELIVERY TIME	6 weeks

PHYSICAL

ENCLOSURE TYPE	Must meet or exceed NEC 501 requirements
ENCLOSURE MATERIAL	316 stainless steel
MECHANICAL CONNECTION	MS33649-4 (7/16-20 UNF internal thread)
ELECTRICAL CONNECTION	See section 2.4.3 in specification (MIL-C-38999/27YC98PN or equiv.)
PIN OUT ORIENTATION	D +excitation C -excitation A +signal B -signal
SPECIAL REQUIREMENTS	Internal shunt calibration on E and F at 80% with 0.25% min. accuracy

PERFORMANCE

OPERATING TEMP RANGE	-100°F to 300°F
COMPENSATED TEMP RANGE	-65°F to 250°F
ZERO BALANCE	0.00 mV ± 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 ± 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within ± 0.25% Full Scale
REPEATABILITY	within ± 0.10% Full Scale
HYSTERESIS	within ± 0.25% Full Scale
OUTPUT RESISTANCE	350 ± 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than ± 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than ± 0.01% Full Scale per °F
INSULATION RESISTANCE	Greater than 10 K megohms at 50Vdc at 70°F.
CALIBRATION	Given in specification

TOTAL NUMBER NEEDED 4