

REQUEST FOR QUOTATION <i>(THIS IS NOT AN ORDER)</i>		THIS RFQ <input checked="" type="checkbox"/> IS <input type="checkbox"/> IS NOT A SMALL BUSINESS SET ASIDE		PAGE OF PAGES 1 15
1. REQUEST NO. NNS15558461Q	2. DATE ISSUED 08/21/2015	3. REQUISITION/PURCHASE REQUEST NO. 4200558461	4. CERT. FOR NAT. DEF. UNDER BDSA REG. 2 AND/OR DMS REG.1	RATING
5a. ISSUED BY NASA/Stennis Space Center Office of Procurement Building 1100 Room 251H Stennis Space Center MS 39529-6000			6. DELIVERY BY (Date) Multiple	
5b. FOR INFORMATION CALL: (No collect calls)			7. DELIVERY <input checked="" type="checkbox"/> FOB DESTINATION <input type="checkbox"/> OTHER (See Schedule)	
NAME GEORGE PICCOLO			9. DESTINATION	
AREA CODE 228 NUMBER 688-1879			a. NAME OF CONSIGNEE NASA/Stennis Space Center	
8. TO:			b. STREET ADDRESS	
a. NAME			c. CITY Stennis Space Center	
b. COMPANY			d. STATE MS e. ZIP CODE 39529-6000	
c. STREET ADDRESS				
d. CITY				
e. STATE				
f. ZIP CODE				
10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS (Date) 09/01/2015 1630 CT		IMPORTANT: This is a request for information, and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quote. Any representations and/or certifications attached to this Request for Quotations must be completed by the quote.		

11. SCHEDULE (Include applicable Federal, State and local taxes)

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
002	B2 Pressure Transducer 0-2 psig	4	EA		
003	B2 Pressure Transducer 0-30 psig	2	EA		
004	B2 Pressure Transducer 0-50 psig	4	EA		
Continued ...					

12. DISCOUNT FOR PROMPT PAYMENT	a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS	
				NUMBER	PERCENTAGE

NOTE: Additional provisions and representations are are not attached

13. NAME AND ADDRESS OF QUOTER			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION		15. DATE OF QUOTATION
a. NAME OF QUOTER			16. SIGNER		b. TELEPHONE
b. STREET ADDRESS					
c. COUNTY			a. NAME (Type or print)		AREA CODE
d. CITY	e. STATE	f. ZIP CODE	c. TITLE (Type or print)		NUMBER

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
NNS15558461Q

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NAME OF OFFEROR OR CONTRACTOR

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
005	B2 Pressure Transducer 0-60 psig	2	EA		
006	B2 Pressure Transducer 0-75 psig	3	EA		
007	B2 Pressure Transducer 0-200 psig	6	EA		
008	B2 Pressure Transducer 0-300 psig	45	EA		
009	B2 Pressure Transducer 0-400 psig	4	EA		
010	B2 Pressure Transducer 0-500 psig	3	EA		
011	B2 Pressure Transducer 0-1000 psig	9	EA		
012	B2 Pressure Transducer 0-1500 psig	25	EA		
013	B2 Pressure Transducer 0-2000 psig	2	EA		
014	B2 Pressure Transducer 0-4000 psig	2	EA		
Continued					

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
NNS15558461Q

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NAME OF OFFEROR OR CONTRACTOR

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
015	B2 Pressure Transducer 0-5000 psig	6	EA		
016	B2 Pressure Transducer 0-6000 psig	10	EA		
017	B2 Pressure Transducer 0-10000 psig	3	EA		
018	B2 Delta Press Trans 0-5 in H2O/50 psig	2	EA		
019	B2 Delta Press Trans 0-50 in H2O/50 psig	2	EA		
020	B2 Delta Press Trans 0-10in H2O/400 psig	4	EA		
021	B2 Delta Press Trans 0-100in H2O/400 psig	4	EA		
022	B2 Delta Press Transd 0-5 psi/300 psig	4	EA		
023	B2 Delta Press Transd 0-10 psi/300 psig	13	EA		
024	B2 Delta Press Transd 0-20 psi/300 psig	4	EA		
025	B2 Delta Press Transd 0-30 psi/300 psig Continued ...	4	EA		

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
NNS15558461Q

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NAME OF OFFEROR OR CONTRACTOR

ITEM NO: (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
026	B2 Delta Press Transd 0-40 psi/300 psig	2	EA		
027	B2 Delta Press Transd 0-50 psi/300 psig	2	EA		
028	B2 Delta Press Transd 0-70 psi/300 psig	4	EA		

The contractor shall provide all resources necessary to provide the following Pressure Transducers as described in Attachment 1, titled "Instrument Specification for Pressure Transducers" Specification: 140GD-GM01, Revision 8. Pages 1-35

Quotes are to be itemized in the same order as listed in Specification 140GD-GM01, Revision 8.

The Government anticipates the award of a firm-fixed priced purchase order resulting from this solicitation.

2. INVOICES

The Contractor shall submit invoices to the following address:

NASA Shared Services Center (NSSC)
Financial Management Division (FMD) – Accounts Payable
Bldg. 1111, C. Road
Stennis Space Center, MS 39529
Email: NSSC-AccountsPayable@nasa.gov
Fax: 866-209-5415
Reference: Purchase Order # NNS15AA82P

3. PERIOD OF PERFORMANCE

The period of performance of this purchase order shall be eight weeks from the date of award.

4. CONTRACT CLAUSES

The following FAR clauses are included in full text:

52.212-5 -- Contract Terms and Conditions Required to Implement Statutes or Executive Orders -- Commercial Items.

As prescribed in 12.301(b)(4), insert the following clause:

Contract Terms and Conditions Required to Implement Statutes or Executive Orders -- Commercial Items (May 2015)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

- (1) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (Dec 2014)
- (2) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).

(3) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004) (Public Laws 108-77, 108-78 (19 U.S.C. 3805 note)).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the contracting officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

[Contracting Officer check as appropriate.]

(1) 52.203-6, Restrictions on Subcontractor Sales to the Government (Sept 2006), with Alternate I (Oct 1995) (41 U.S.C. 4704 and 10 U.S.C. 2402).

(2) 52.203-13, Contractor Code of Business Ethics and Conduct (Apr 2010) (41 U.S.C. 3509).

(3) 52.203-15, Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (Jun 2010) (Section 1553 of Pub L. 111-5) (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009).

(4) 52.204-10, Reporting Executive compensation and First-Tier Subcontract Awards (Jul 2013) (Pub. L. 109-282) (31 U.S.C. 6101 note).

(5) [Reserved]

(6) 52.204-14, Service Contract Reporting Requirements (Jan 2014) (Pub. L. 111-117, section 743 of Div. C).

(7) 52.204-15, Service Contract Reporting Requirements for Indefinite-Delivery Contracts (Jan 2014) (Pub. L. 111-117, section 743 of Div. C).

(8) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (Aug 2013) (31 U.S.C. 6101 note).

(9) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (Jul 2013) (41 U.S.C. 2313).

(10) [Reserved]

(11) (i) 52.219-3, Notice of HUBZone Set-Aside or Sole-Source Award (Nov 2011) (15 U.S.C. 657a).

(ii) Alternate I (Nov 2011) of 52.219-3.

(12) (i) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Oct 2011) (if the offeror elects to waive the preference, it shall so indicate in its offer)(15 U.S.C. 657a).

(ii) Alternate I (Jan 2011) of 52.219-4.

(13) [Reserved]

(14) (i) 52.219-6, Notice of Total Small Business Aside (Nov 2011) (15 U.S.C. 644).

- (ii) Alternate I (Nov 2011).
- (iii) Alternate II (Nov 2011).
- (15) (i) 52.219-7, Notice of Partial Small Business Set-Aside (June 2003) (15 U.S.C. 644).
- (ii) Alternate I (Oct 1995) of 52.219-7.
- (iii) Alternate II (Mar 2004) of 52.219-7.
- (16) 52.219-8, Utilization of Small Business Concerns (Oct 2014) (15 U.S.C. 637(d)(2) and (3)).
- (17) (i) 52.219-9, Small Business Subcontracting Plan (Oct 2014) (15 U.S.C. 637 (d)(4)).
- (ii) Alternate I (Oct 2001) of 52.219-9.
- (iii) Alternate II (Oct 2001) of 52.219-9.
- (iv) Alternate III (Oct 2014) of 52.219-9.
- (18) 52.219-13, Notice of Set-Aside of Orders (Nov 2011) (15 U.S.C. 644(r)).
- (19) 52.219-14, Limitations on Subcontracting (Nov 2011) (15 U.S.C. 637(a)(14)).
- (20) 52.219-16, Liquidated Damages—Subcontracting Plan (Jan 1999) (15 U.S.C. 637(d)(4)(F)(i)).
- (21) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (Nov 2011) (15 U.S.C. 657f).
- (22) 52.219-28, Post Award Small Business Program Rerepresentation (Jul 2013) (15 U.S.C. 632(a)(2)).
- (23) 52.219-29, Notice of Set-Aside for Economically Disadvantaged Women-Owned Small Business (EDWOSB) Concerns (Jul 2013) (15 U.S.C. 637(m)).
- (24) 52.219-30, Notice of Set-Aside for Women-Owned Small Business (WOSB) Concerns Eligible Under the WOSB Program (Jul 2013) (15 U.S.C. 637(m)).
- (25) 52.222-3, Convict Labor (June 2003) (E.O. 11755).
- (26) 52.222-19, Child Labor—Cooperation with Authorities and Remedies (Jan 2014) (E.O. 13126).
- (27) 52.222-21, Prohibition of Segregated Facilities (Apr 2015).
- (28) 52.222-26, Equal Opportunity (Apr 2015) (E.O. 11246).
- (29) 52.222-35, Equal Opportunity for Veterans (Jul 2014) (38 U.S.C. 4212).

X (30) 52.222-36, Equal Opportunity for Workers with Disabilities (Jul 2014) (29 U.S.C. 793).

___ (31) 52.222-37, Employment Reports on Veterans (Jul 2014) (38 U.S.C. 4212).

___ (32) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496).

___ (33) (i) 52.222-50, Combating Trafficking in Persons (Mar 2015) (22 U.S.C. chapter 78 and E.O. 13627).

___ (ii) Alternate I (Mar 2015) of 52.222-50, (22 U.S.C. chapter 78 and E.O. 13627).

___ (34) 52.222-54, Employment Eligibility Verification (Aug 2013). (Executive Order 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial items as prescribed in 22.1803.)

___ (35) (i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Items (May 2008) (42 U.S.C. 6962(c)(3)(A)(ii)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

___ (ii) Alternate I (May 2008) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

___ (36) (i) 52.223-13, Acquisition of EPEAT® -Registered Imaging Equipment (Jun 2014) (E.O.s 13423 and 13514

___ (ii) Alternate I (Jun 2014) of 52.223-13.

___ (37) (i) 52.223-14, Acquisition of EPEAT® -Registered Television (Jun 2014) (E.O.s 13423 and 13514).

___ (ii) Alternate I (Jun 2014) of 52.223-14.

___ (38) 52.223-15, Energy Efficiency in Energy-Consuming Products (Dec 2007) (42 U.S.C. 8259b).

___ (39) (i) 52.223-16, Acquisition of EPEAT® -Registered Personal Computer Products (Jun 2014) (E.O.s 13423 and 13514).

___ (ii) Alternate I (Jun 2014) of 52.223-16.

X (40) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging while Driving (Aug 2011) (E.O. 13513).

X (41) 52.225-1, Buy American--Supplies (May 2014) (41 U.S.C. chapter 83).

___ (42) (i) 52.225-3, Buy American--Free Trade Agreements--Israeli Trade Act (May 2014) (41 U.S.C. chapter 83, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, 19 U.S.C. 3805 note, 19 U.S.C. 4001 note, Pub. L. 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43).

___ (ii) Alternate I (May 2014) of 52.225-3.

___ (iii) Alternate II (May 2014) of 52.225-3.

___ (iv) Alternate III (May 2014) of 52.225-3.

___ (43) 52.225-5, Trade Agreements (Nov 2013) (19 U.S.C. 2501, *et seq.*, 19 U.S.C. 3301 note).

X___ (44) 52.225-13, Restrictions on Certain Foreign Purchases (Jun 2008) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

___ (45) 52.225-26, Contractors Performing Private Security Functions Outside the United States (Jul 2013) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

___ (46) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (Nov 2007) (42 U.S.C. 5150).

___ (47) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (Nov 2007) (42 U.S.C. 5150).

___ (48) 52.232-29, Terms for Financing of Purchases of Commercial Items (Feb 2002) (41 U.S.C. 4505), 10 U.S.C. 2307(f)).

___ (49) 52.232-30, Installment Payments for Commercial Items (Oct 1995) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).

X___ (50) 52.232-33, Payment by Electronic Funds Transfer— System for Award Management (Jul 2013) (31 U.S.C. 3332).

___ (51) 52.232-34, Payment by Electronic Funds Transfer—Other Than System for Award Management (Jul 2013) (31 U.S.C. 3332).

___ (52) 52.232-36, Payment by Third Party (May 2014) (31 U.S.C. 3332).

___ (53) 52.239-1, Privacy or Security Safeguards (Aug 1996) (5 U.S.C. 552a).

___ (54) (i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) (46 U.S.C. Appx 1241(b) and 10 U.S.C. 2631).

___ (ii) Alternate I (Apr 2003) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or executive orders applicable to acquisitions of commercial items:

[Contracting Officer check as appropriate.]

___ (1) 52.222-17, Nondisplacement of Qualified Workers (May 2014) (E.O. 13495)

___ (2) 52.222-41, Service Contract Labor Standards (May 2014) (41 U.S.C. chapter 67.).

___ (3) 52.222-42, Statement of Equivalent Rates for Federal Hires (May 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

___ (4) 52.222-43, Fair Labor Standards Act and Service Contract Labor Standards -- Price Adjustment (Multiple Year and Option Contracts) (May 2014) (29 U.S.C.206 and 41 U.S.C. chapter 67).

___ (5) 52.222-44, Fair Labor Standards Act and Service Contract Labor Standards -- Price Adjustment (May 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

___ (6) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Requirements (May 2014) (41 U.S.C. chapter 67).

___ (7) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services--Requirements (May 2014) (41 U.S.C. chapter 67).

___ (8) 52.222-55, Minimum Wages Under Executive Order 13658 (Dec 2014) (E.O. 13658).

___ (9) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations. (May 2014) (42 U.S.C. 1792).

___ (10) 52.237-11, Accepting and Dispensing of \$1 Coin (Sep 2008) (31 U.S.C. 5112(p)(1)).

(d) *Comptroller General Examination of Record* The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records -- Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)

(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c) and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1) in a

subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause—

- (i) 52.203-13, Contractor Code of Business Ethics and Conduct (Apr 2010) (41 U.S.C. 3509).
- (ii) 52.219-8, Utilization of Small Business Concerns (Oct 2014) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$650,000 (\$1.5 million for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.
- (iii) 52.222-17, Nondisplacement of Qualified Workers (May 2014) (E.O. 13495). Flow down required in accordance with paragraph (1) of FAR clause 52.222-17.
- (iv) 52.222-21, Prohibition of Segregated Facilities (Apr 2015).
- (v) 52.222-26, Equal Opportunity (Apr 2015) (E.O. 11246).
- (vi) 52.222-35, Equal Opportunity for Veterans (Jul 2014) (38 U.S.C. 4212).
- (vii) 52.222-36, Equal Opportunity for Workers with Disabilities (Jul 2014) (29 U.S.C. 793).
- (viii) 52.222-37, Employment Reports on Veterans (Jul 2014) (38 U.S.C. 4212).
- (ix) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause 52.222-40.
- (x) 52.222-41, Service Contract Labor Standards (May 2014), (41 U.S.C. chapter 67).
- (xi) ____ (A) 52.222-50, Combating Trafficking in Persons (Mar 2015) (22 U.S.C. chapter 78 and E.O. 13627).
____ (B) Alternate I (Mar 2015) of 52.222-50 (22 U.S.C. chapter 78 E.O. 13627).
- (xii) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Requirements (May 2014) (41 U.S.C. chapter 67.)
- (xiii) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services--Requirements (May 2014) (41 U.S.C. chapter 67)
- (xiv) 52.222-54, Employment Eligibility Verification (Aug 2013).
- (xv) 52.222-55, Minimum Wages Under Executive Order 13658 (Dec 2014) (E.O. 13658).
- (xvi) 52.225-26, Contractors Performing Private Security Functions Outside the United States (Jul 2013) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

(xvii) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations. (May 2014) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

(xviii) 52.247-64, Preference for Privately-Owned U.S. Flag Commercial Vessels (Feb 2006) (46 U.S.C. Appx 1241(b) and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of Clause)

52.232-99 PROVIDING ACCELERATED PAYMENT TO SMALL BUSINESS SUBCONTRACTORS (AUG 2012) (DEVIATION)

This clause implements the temporary policy provided by OMB Policy Memorandum M-12-16, Providing Prompt Payment to Small Business Subcontractors, dated July 11, 2012.

(a) Upon receipt of accelerated payments from the Government, the contractor is required to make accelerated payments to small business subcontractors to the maximum extent practicable after receipt of a proper invoice and all proper documentation from the small business subcontractor.

(b) Include the substance of this clause, including this paragraph (b), in all subcontracts with small business concerns.

(c) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(End of clause)

52.246-11 -- Higher-Level Contract Quality Requirement. (Dec 2014)

(a) The Contractor shall comply with the higher-level quality standard(s) listed below.
ISO 9001

(b) The Contractor shall include applicable requirements of the higher-level quality standard(s) listed in paragraph (a) of this clause and the requirement to flow down such standards, as applicable, to lower-tier subcontracts, in—

(1) Any subcontract for critical and complex items (see 46.203(b) and (c)); or

(2) When the technical requirements of a subcontract require—

(i) Control of such things as design, work operations, in-process control, testing, and inspection; or

(ii) Attention to such factors as organization, planning, work instruction, documentation control, and advanced metrology.

(End of Clause)

A. Federal Acquisition Regulation (FAR) clauses: (48CFR CHAPTER 1) CLAUSES <https://www.acquisition.gov/far/>

The following FAR clauses are included by reference:

- 52.204-7 System for Award Management (JUL 2013)
- 52.212-4 Contract Terms and Conditions (Commercial Items. (MAY 2015)
- 52.246-2 Inspection of Supplies-Fixed Price (AUG 1996)
- 52.247-34 F.O.B. Destination (NOV 1991)

B. NASA FEDERAL ACQUISITION REGULATION SUPPLEMENT (48CFR CHAPTER 18) CLAUSES (<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>)

The following NFS clauses are included by reference:

- 1852.215-84 Ombudsman (Oct 2003) Fill In: b. [Kenneth R. Human, Associate Director, Mail Code AA00, John C. Stennis Space Center, MS 39529-6000, E-Mail (ken.r.human@nasa.gov), Phone 228-688-1128, or Fax (228) 688-3240]
- 1852.223-72 Safety and Health (Short Form) (Apr 2002)
- 1852.225-70 Export Licenses (Feb 2000) Fill In: b. [NASA John C. Stennis Space Center]
- 1852.233-70 Protest to NASA (Oct 2002)

1852.237-73 Release of Sensitive Information.

As prescribed in 1837.203-72(b), insert the following clause:

RELEASE OF SENSITIVE INFORMATION

(JUNE 2005) (a) As used in this clause, "sensitive information" refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at 1852.237-72, Access to Sensitive Information.

(c)(1) The Contractor shall identify any sensitive information submitted in support of this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another

source without restriction. The information subject to this restriction is contained in pages [insert page numbers or other identification of pages].

Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.

(2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

(1) Comply with all specified procedures and obligations, including the

Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.

(2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

(3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(4) Allow access to sensitive information only to those employees that need it to perform services under its contract.

(5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.

(6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.

(7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.

(f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.

(g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

(End of clause)

The following NFS clause is included in full text:

1852.216-78 FIRM FIXED PRICE (DEC 1988)

The total firm-fixed price of this contract is \$ _____.

(End of Clause)

5. POINTS OF CONTACT

NASA SSC Contract Specialist
George Piccolo / DA10
Phone: 228-688-1879
E-mail: george.r.piccolo@nasa.gov

NASA SSC
Dawn Davis /
Phone: 228-688-3102
Email: dawn.m.davis@nasa.gov

6. LIST OF ATTACHMENT(S)

The following document(s) are attached hereto and made a part of this award:

<u>Attachment No.</u>	<u>Description/Title</u>	<u>Date</u>	<u>Pages</u>
*1	Offeror Representations and Certifications	MAR 2015	1
2	Instrument Specification For Pressure Transducers Specification: 140GD-GM01 Revision 8	06/10/2015	34

SOLICITATION PROVISIONS*A. FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1)**

(<https://www.acquisition.gov/far/>):

The following FAR provision is included by reference:

52.212-1 Instructions to Offerors – Commercial Items (Apr 2014)

The following FAR provisions are included in full text:

52.212-2 EVALUATION--COMMERCIAL ITEMS (Oct 2014)

(a) The Government will award a contract resulting from this solicitation to the responsible offeror whose offer conforming to the solicitation will be most advantageous to the Government, price and other factors considered. The following factor(s) shall be used to evaluate offer: *(i) price and delivery.*

(b) A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either party. Before the offer's specified expiration time, the Government may accept an offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.

(End of Provision)

52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es): Federal Acquisition Regulation (FAR) clauses: <https://www.acquisition.gov/far/>; NASA FAR Supplement (NFS) clauses: <http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>

(End of Provision)

B. NASA FEDERAL ACQUISITION REGULATION SUPPLEMENT (48CFR CHAPTER 18) PROVISIONS (<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>):

The following NFS provision is included by reference:

1852.233-70 Protest to NASA (Oct 2002)

**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

<u>Revision Number</u>	<u>Date</u>	<u>Description of Changes</u>	<u>Approvals</u>
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

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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 $70 \pm 5^{\circ}\text{F}$ 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 H₂O
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 ₂ O
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 within ± 0.25% Full Scale
LINEARITY	within ± 0.10% Full Scale
REPEATABILITY	within ± 0.25% Full Scale
HYSTERESIS	350 ± 3.5 ohms at 70°F
OUTPUT RESISTANCE	Infinite
RESOLUTION	Less than ± 0.005% Full Scale per °F
THERMAL SENSITIVITY SHIFT	Less than ± 0.01% Full Scale per °F
THERMAL ZERO SHIFT	Greater than 10 K megohms at 50Vdc at 70°F.
INSULATION RESISTANCE	Given in specification
CALIBRATION	

TOTAL NUMBER NEEDED

2

GENERAL

PRESSURE RANGE	0-10 Inches H ₂ O
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 ₂ O
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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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
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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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION 10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE) 3.00 \pm 0.015 mV per volt of excitation at 70°F
Calibrate at 10.00 VDC
LINEARITY within \pm 0.25% Full Scale
REPEATABILITY within \pm 0.10% Full Scale
HYSTERESIS within \pm 0.25% Full Scale
OUTPUT RESISTANCE 350 \pm 3.5 ohms at 70°F
RESOLUTION Infinite
THERMAL SENSITIVITY SHIFT Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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 \pm 1%FS at 70°F
EXCITATION	10 VDC, 15 VDC MAX
OUTPUT SIGNAL (FULL SCALE)	3.00 \pm 0.015 mV per volt of excitation at 70°F Calibrate at 10.00 VDC
LINEARITY	within \pm 0.25% Full Scale
REPEATABILITY	within \pm 0.10% Full Scale
HYSTERESIS	within \pm 0.25% Full Scale
OUTPUT RESISTANCE	350 \pm 3.5 ohms at 70°F
RESOLUTION	Infinite
THERMAL SENSITIVITY SHIFT	Less than \pm 0.005% Full Scale per °F
THERMAL ZERO SHIFT	Less than \pm 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