

# GP:50

## INSTALLATION, CALIBRATION & TROUBLESHOOTING MANUAL

### Model 7200 Transducers



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**Record of Changes**

<b>REV</b>	<b>DESCRIPTION</b>	<b>DATE</b>	<b>BY</b>

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## **Disclaimer**

No representations or warranties are made with respect to the contents of this Installation Guide. GP:50 reserves the right to revise this guide and to make changes periodically to the content hereof, without obligation to notify any persons of such revisions.

## **Warning**

Pressurized vessels as such and associated equipment are potentially dangerous. The product described in the guide should be operated only by personnel trained in the procedures that will assure safety to themselves, to others, to the equipment, and to the product. Before performing any maintenance, turn the power off.

## **Introduction**

The Model 7200 pressure transducer is designed for pressure measurement and easy recalibration. The all stainless steel parts construction and the hermetically sealed enclosure ensure that the product meets all customer specifications. The pressure transducers are designed and manufactured in accordance with MIL-Standards and GP: 50 QA procedures.

## **Unpacking and Inspection**

The Model 7200 pressure transducer was thoroughly tested and inspected and carefully packed. Upon receipt of the shipment thoroughly inspect the transducer.

If you see any visible signs of obvious shipping damage, notify the Freight Company immediately.

## **Mechanical Installation**

**Installation Note-** Transducers are precision instruments and should be given the same care as any other precision instrument during installation and operation.

**Handling-** the transducer has a protective cap covering the pressure ports and electrical connector of the transducer. This ensures that the surface is protected from nicks and scratches. It is recommended that the caps remain in place during storage and handling, in order to prevent damage to the diaphragm and connector.

**Installation-** Remove the protective plugs from the pressure port before installation. Thread the pressure port into a plumbing system. Use proper wrench size installation. Installation torque is 120inlb for port options FA,FD. For port option FJ use 45ft-lbs torque with compatible thread sealing compound or tape.

In additional, mounting brackets can be employed for extra support if required by application. See Outline drawing for recommended location of the brackets. Included in the package is a O-ring for option FD connector so either the metal to metal joint or o-ring joint configuration can be used to seal the transducer to the manifold.

### **Electrical Installation**

USE ESD PRECAUTIONS DURING CONNECTION TO THE TRANSDUCER. Ensure power is off prior to connection or disconnection from the transducer or your instrumentation system.

The electrical connection for the model 7200 is either a 6 pin bayonet style, or 6 pin military grade threaded style connector. Below is a list of standard non-environmental plug part numbers available at the factory, please contact factory for other mating plug needs:

Option CA use P/N: PT06E-10-6S

Option CI use P/N: D38999/26WB98SN\*

Option DB use P/N: D38999/26WA35SN\*

- Plug only, backshell must be purchased separately.

Output of the transducer is as follows:

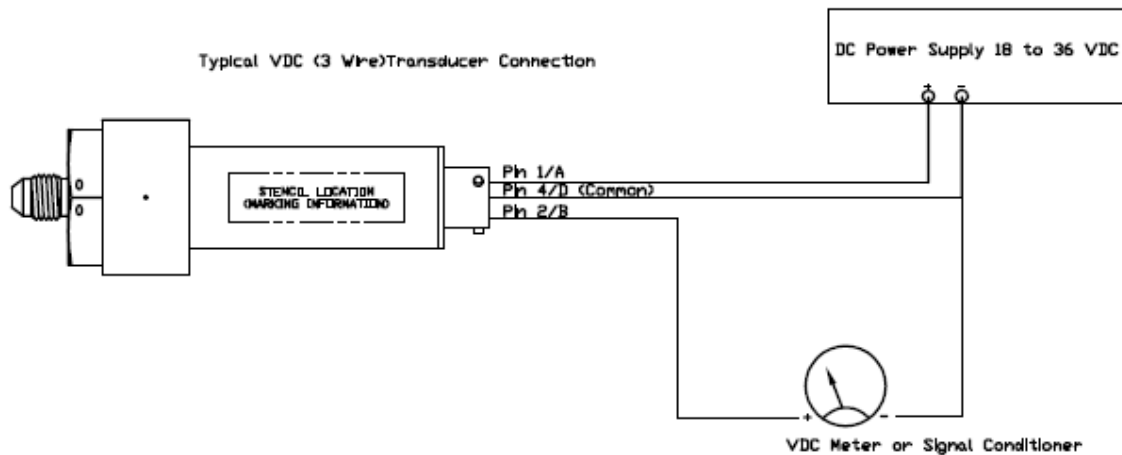
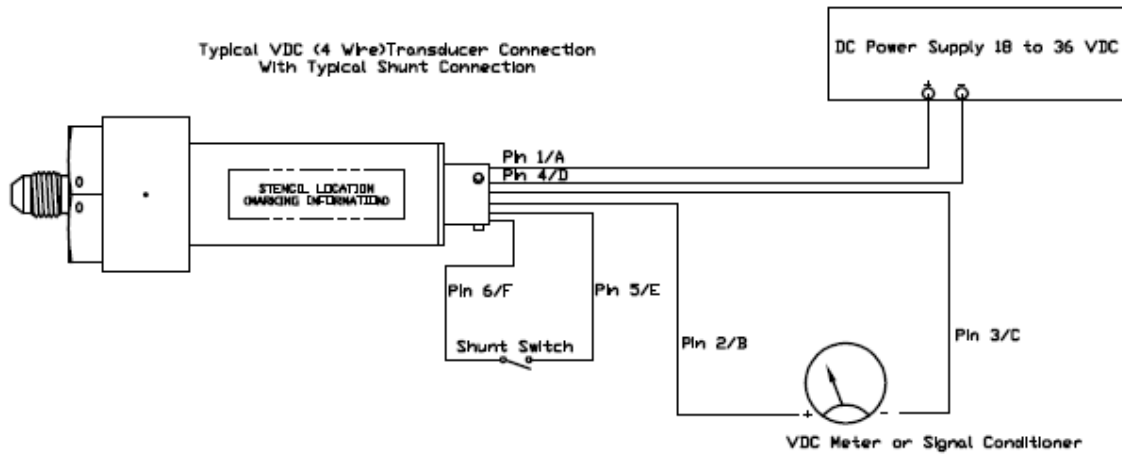
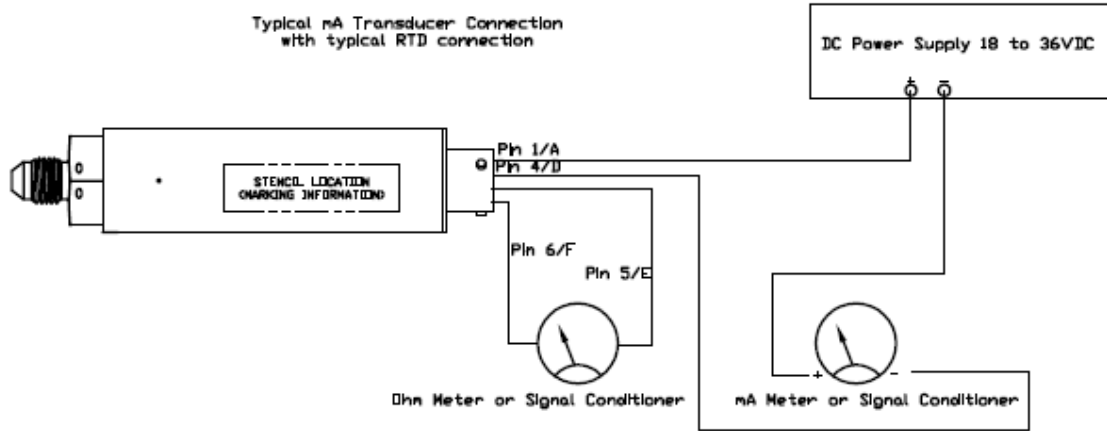
Option 2	0 to 5 VDC (4 wire, input/output electrically non-isolated)
Option 3	4 to 20 mA (2 wire)
Option 4	0 to 5 VDC (4 wire, input/output electrically isolated)
Option 5	0 to 10 VDC (4 wire, input/output electrically non-isolated)
Option 6	0 to 10 VDC (4 wire, input/output electrically isolated)
Option 9	0 to 5 VDC (3 wire, input/output electrically non-isolated)
Option 10	0 to 10 VDC (3 wire, input/output electrically non-isolated)

For proper wiring see wiring diagram below.

### **Wiring**

PINOUT	4-20mA	(4Wire) VDC	(3Wire) VDC
Pin 1/A	+Excitation /Signal	+Excitation	+Excitation
Pin 2/B	N/C	+Signal	+Signal
Pin 3/C	-Excitation/Signal	-Signal	N/C
Pin 4/D	N/C	-Excitation	Common
Pin 5/E	N/C/RTD/SHUNT	N/C/RTD/SHUNT	N/C/RTD/SHUNT
Pin 6/F	N/C/RTD/SHUNT	N/C/RTD/SHUNT	N/C/RTD/SHUNT

Connect the wires as per the table above providing the proper excitation voltage to the transducer. See attached Outline Drawings for complete technical information.



**Please Note:** Electronics have been designed so that momentary incorrect wiring of the power leads on the transducer will not damage the circuitry of the transducer.

Each transducer has been supplied with a calibration card for reference output data at different pressures and compensated temperatures also identifying the non-repeatability, hysteresis, non-linearity static accuracy and total transducer errors. Additionally, the card will identify optional RTD output resistance at 70°F or 80% / 100% optional shunt output.

## **Troubleshooting**

<b>Symptom/Problem</b>	<b>Action</b>
No Output	<ul style="list-style-type: none"> <li>• Verify power supply voltage meets transducer requirements</li> <li>• Check wiring connections</li> <li>• Verify pressure is being applied</li> <li>• Verify output load is not shorted</li> </ul>
Erratic/Intermittent output or Zero drift	<ul style="list-style-type: none"> <li>• Verify pressure applied is constant</li> <li>• Verify power supply remains within specifications</li> <li>• Inspect electrical connections for discontinuity or damage.</li> <li>• Verify output with a multi-meter</li> <li>• Check insulation resistance between amplifier and transducer case.</li> </ul>
Loose or Leaking process connection	<ul style="list-style-type: none"> <li>• Inspect Weld joint</li> <li>• Re-torque process connection</li> <li>• Replace Teflon o-ring on face seal</li> </ul>

## Warranty

### GP:50 Warranty Statement

GP:50 warrants its products to the original customer/purchaser against defects in material and workmanship for a period of one (1) year from the date of sale by GP:50, as shown in its shipping documents, subject to the following terms and conditions:

Without charge GP:50 will repair or replace products found to be defective in materials or workmanship within the warranty period provided that:

1. The product has not been subjected to abuse, neglect, accident, incorrect wiring (not provided by GP:50), improper installation or servicing, or use in violation of instructions furnished by GP:50.
2. Electronic access screws have not been removed. This will void calibration and warranty
3. As to any prior defect in materials or workmanship covered by this warranty, the product has not been repaired or altered by anyone except GP:50 or its authorized service agencies.
4. The serial number has not been removed, defaced or otherwise changed.
5. Examination discloses, in the judgement of GP:50, a defect in materials or workmanship which developed under normal installation, use and service; and
6. GP:50 is notified in advance of, and approves the return; and the products are returned to GP:50 transportation prepaid.

THIS WARRANTY IS THE ONLY WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTY EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS. NO REPRESENTATIVE OR PERSONS ARE AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR GP:50 ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. GP:50 DOES NOT ASSUME THE COSTS OF REMOVAL AND/OR INSTALLATION OF THE PRODUCT OR ANY OTHER WORKMANSHIP, NOR WILL GP:50 BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR INSTALLATION OF ITS PRODUCT.

Contact our website <http://www.gp50.com> for a copy of our rework/repair policy or call our Aerospace dept.

THIRD PARTY AGENCY APPROVAL CODE: N/A

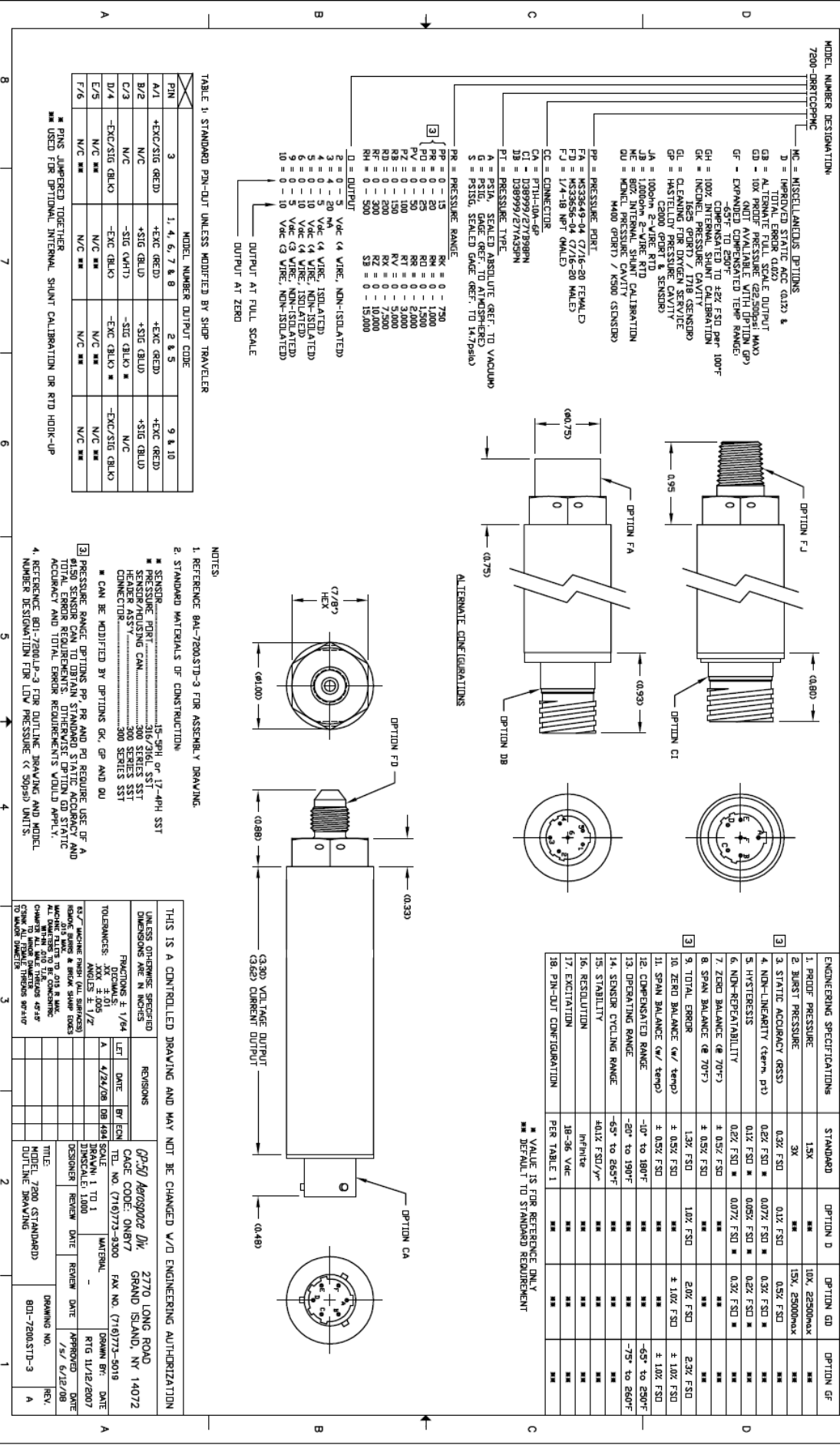


TABLE 1: STANDARD PIN-OUT UNLESS MODIFIED BY SHOP TRAVELER

MODEL NUMBER	DESTINATION	7	6	5	4	3	2	1
7200-ERRTC6PHC								
MC	MISCELLANEOUS OPTIONS							
D	IMPROVED STATIC ACC (0.12%) & ALTERNATE OUTPUT							
GB	ALTERNATE OUTPUT							
GD	10X PRECISION (0.0001% MAX) (NOT AVAILABLE WITH OPTION GP)							
GF	EXPANDED COMPENSATED TEMP RANGE							
GH	COMPENSATED TO 482 FSD @ 100°F							
GI	100% INTERNAL SHUNT CALIBRATION							
GK	INTERNAL PRESSURE CAVITY							
GL	100% GROUND LTV (SENSOR)							
GM	CLEAN SURFACE FINISH							
GN	HASTELLOY PRESSURE CAVITY							
GO	1000psi 2-WIRE RTD							
GP	1000psi 2-WIRE RTD							
GQ	802 INTERNAL SHUNT CALIBRATION							
GR	MCNCL PRESSURE CAVITY							
GS	MCNCL PRESSURE CAVITY							
GT	400 GPORT / K900 (SENSOR)							
GU	400 GPORT / K900 (SENSOR)							
FA	MS3346-04 (7/16-80 FEMALE)							
FB	MS3346-04 (7/16-80 MALE)							
FJ	1/4-18 NPT (MALE)							
CC	CONNECTOR							
CA	PTH-10A-6P							
CJ	D38999/27Y939PM							
CB	D38999/27Y939PM							
PT	PRESSURE TYPE							
A	PSIA, SEALED ABSOLUTE REF. TO VACUUM							
B	PSIA, SEALED ABSOLUTE REF. TO VACUUM							
S	PSIG, SEALED GAGE REF. TO 14.7(P/SIA)							
PR	PRESSURE RANGE							
RK	0 - 750							
RI	0 - 1500							
PV	0 - 2000							
PZ	0 - 3000							
RV	0 - 7000							
RW	0 - 10000							
RZ	0 - 10000							
RH	0 - 500							
SB	0 - 15,000							
D	OUTPUT							
2	0 - 5 Vdc (4 WIRE, NON-ISOLATED)							
3	4 - 20 mA (4 WIRE, ISOLATED)							
4	0 - 5 Vdc (4 WIRE, ISOLATED)							
5	0 - 10 Vdc (4 WIRE, ISOLATED)							
6	0 - 10 Vdc (4 WIRE, ISOLATED)							
9	0 - 5 Vdc (3 WIRE, NON-ISOLATED)							
10	0 - 10 Vdc (3 WIRE, NON-ISOLATED)							

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5	0 - 10 Vdc (4 WIRE, ISOLATED)							
6	0 - 10 Vdc (4 WIRE, ISOLATED)							
9	0 - 5 Vdc (3 WIRE, NON-ISOLATED)							
10	0 - 10 Vdc (3 WIRE, NON-ISOLATED)							

NOTES:

- REFERENCE BAU-7200STD-3 FOR ASSEMBLY DRAWING.
- STANDARD MATERIALS OF CONSTRUCTION
- SENSOR BODY: 316 STAINLESS STEEL, S31603
- SENSOR HEAD: 316 STAINLESS STEEL, S31603
- SENSOR HEAD ASSY: 300 SERIES SST
- CONNECTOR: 300 SERIES SST
- MCNCL CAN BE MODIFIED BY OPTIONS GK, GP AND GU
- PSIA SENSOR CAN TO OBTAIN STANDARD STATIC ACCURACY AND ACCURACY AND TOTAL ERROR REQUIREMENTS SHOULD APPLY.
- REFERENCE BAU-7200LP-3 FOR OUTLINE DRAWING AND MODEL NUMBER DESIGNATION FOR LTV PRESSURE (C 50959) UNITS.

THIS IS A CONTROLLED DRAWING AND MAY NOT BE CHANGED W/O ENGINEERING AUTHORIZATION

UNLESS OTHERWISE SPECIFIED	REVISIONS	DATE	BY	ENR
FRACTIONS ± 1/64	4/24/08	DB	404	
DECIMALS ± 0.01				
TOLERANCES: MAX ± 0.01				
MIN ± 0.001				
± 0.0001				
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± 0.0005				
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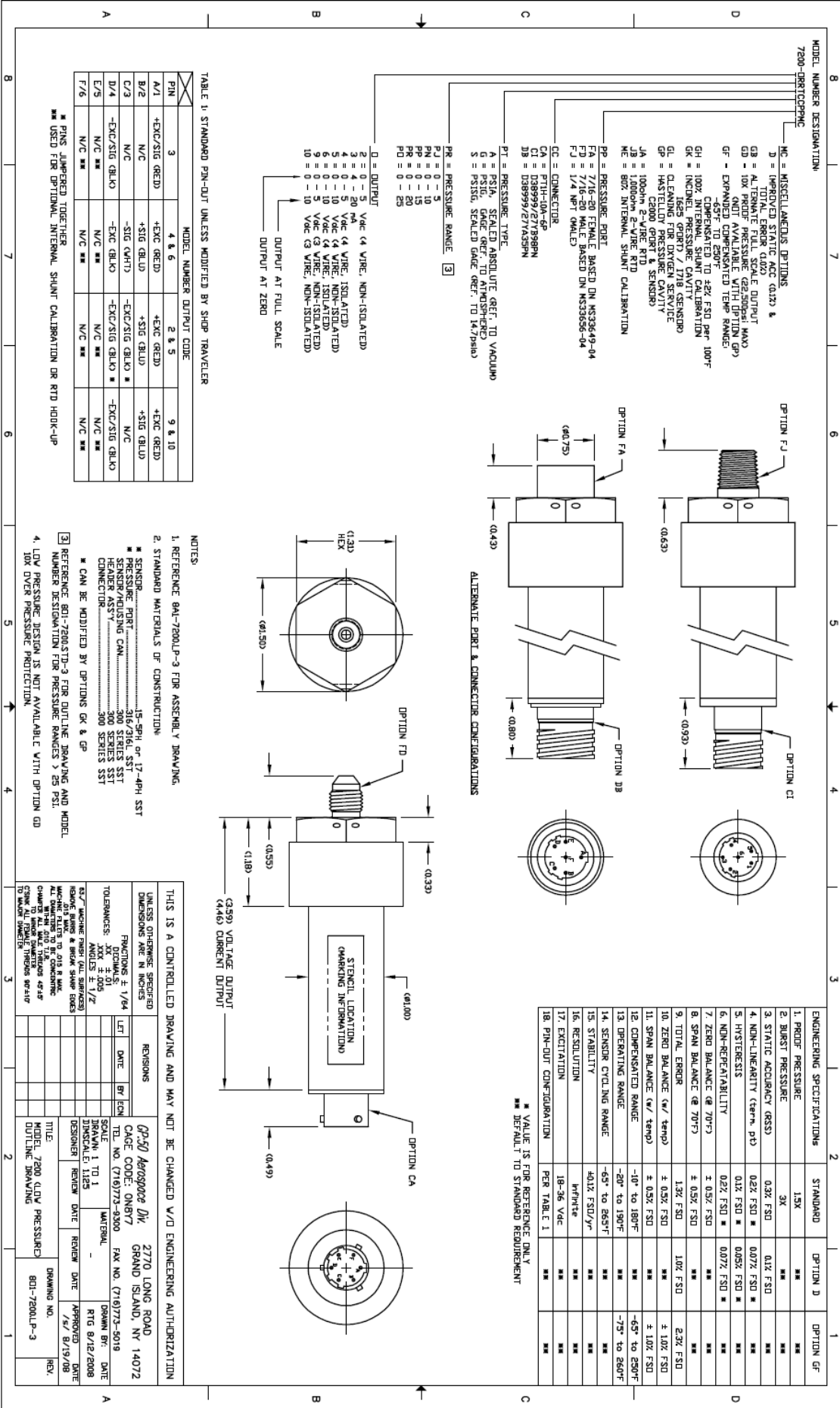


TABLE 1: STANDARD PIN-OUT UNLESS MODIFIED BY SHOP TRAVELER

MODEL NUMBER	DESIGNATION	2 & 5	3	4 & 6	9 & 10
A/1	+EXC/SIG (GRED)	+EXC (GRED)	+EXC (GRED)	+EXC (GRED)	+EXC (GRED)
B/2	N/C	+SIG (BLU)	+SIG (GRED)	+SIG (BLU)	+SIG (BLU)
C/3	N/C	-SIG (WHI)	-EXC/SIG (BLU)	N/C	N/C
D/4	-EXC/SIG (BLU)	N/C	-EXC/SIG (BLU)	-EXC/SIG (BLU)	-EXC/SIG (BLU)
E/5	N/C	N/C	N/C	N/C	N/C
F/6	N/C	N/C	N/C	N/C	N/C

■ PINS SHIPPED TOGETHER  
 ■■ USED FOR OPTIONAL, INTERNAL, SHUNT CALIBRATION OR RTD HOOP-UP

- NOTES
1. REFERENCE 8A1-7200LP-3 FOR ASSEMBLY DRAWING.
  2. STANDARD MATERIALS OF CONSTRUCTION:  
 SENSOR.....15-3PH or 17-4PH SST  
 PRESSURE PORT.....316/316L SST  
 SENSOR/HOUSING CAN.....300 SERIES SST  
 TENSILE FASTENERS.....300 SERIES SST  
 CONNECTOR.....300 SERIES SST
  3. CAN BE MODIFIED BY OPTIONS GK & GP
  4. LOW PRESSURE DESIGN IS NOT AVAILABLE WITH OPTION GD
  5. NUMBER DESIGNATION FOR PRESSURE RANGES > 25 PSI.
  6. LOW PRESSURE DESIGN IS NOT AVAILABLE WITH OPTION GD
  7. BOX OVER PRESSURE PROTECTION

THIS IS A CONTROLLED DRAWING AND MAY NOT BE CHANGED W/O ENGINEERING AUTHORIZATION UNLESS OTHERWISE SPECIFIED

REVISIONS

LET	DATE	BY	REASON
1			

TITLE: MODEL 7200 (LOW PRESSURE) DRAWING NO. 801-7200LP-3  
 DESIGNER: DATE: REVIEWER: DATE: APPROVED: DATE:

2770 LONG ROAD  
 GRAND ISLAND, NY 14072  
 TEL. NO. (716) 773-9300 FAX NO. (716) 773-9019  
 DRAWN BY: DATE: RTO: B/12/2008  
 MATERIAL:

ENGINEERING SPECIFICATIONS

ITEM	STANDARD	OPTION D	OPTION GF
1. PROOF PRESSURE	1.5X	■	■
2. BURST PRESSURE	3X	■	■
3. STATIC ACCURACY (GSS)	0.2% FSD	0.1% FSD	■
4. NON-LINEARITY (term. pt)	0.2% FSD	0.07% FSD	■
5. HYSTERESIS	0.1% FSD	0.05% FSD	■
6. NON-REPEATABILITY	0.2% FSD	0.07% FSD	■
7. ZERO BALANCE (± 70°F)	± 0.5% FSD	■	■
8. SPAN BALANCE (± 70°F)	± 0.5% FSD	■	■
9. TOTAL ERROR	1.3% FSD	1.0% FSD	2.3% FSD
10. ZERO BALANCE (± temp)	± 0.5% FSD	■	± 1.0% FSD
11. SPAN BALANCE (± temp)	± 0.5% FSD	■	± 1.0% FSD
12. COMPENSATED RANGE	-10° to 180°F	■	-65° to 250°F
13. OPERATING RANGE	-20° to 180°F	■	-75° to 260°F
14. SENSOR CYCLING RANGE	-65° to 265°F	■	■
15. STABILITY	±0.1% FSD/yr	■	■
16. RESOLUTION	Infinite	■	■
17. EXCITATION	18-36 Vdc	■	■
18. PIN-OUT CONFIGURATION	PER TABLE 1	■	■

■ VALUE IS FOR REFERENCE ONLY  
 ■■ DEFAULT TO STANDARD REQUIREMENT