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# Transducers & Transmitters

Melt Pressure

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## INSTALLATION MANUAL

Models 330, 331 and Model 335

Models 430, 431

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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.

## **1 INTRODUCTION**

### **1.1 Product Description**

Models 330, 331, 335, 430 and 431 are melt pressure transmitters with a ½ -20UNF pressure port fitting (standard - optional ports available), 4-20mA output and measures pressures up to 30,000 psi (2200 bar).

### **1.2 Warning**

Pressurized vessels 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. Specific warnings are noted as in specific installation/operation sections.

### **1.3 Unpacking and Inspection**

All models covered in this manual are carefully tested, inspected and packed. Upon receipt of the shipment thoroughly inspect the transmitter. If you see any visible signs of obvious shipping damage, notify the freight company immediately.

### **1.4 Using this manual**

This manual is intended to help the end user install, maintain, and provide general service of GP:50 Models 330, 331, 335, 430 and 431 lines of pressure transmitters. The user should have a general understanding of current loops & general instrument control. All aforementioned models are precision instruments and should be given the same care as any other precision instrument during installation and operation.

## **2 INSTALLATION**

### **2.1 Mounting/Process Connection**

All melt pressure transmitters are shipped with a protective cap. Leave protective cap on until ready to install. Removing protective cap prior to installation can expose threads and diaphragm to unnecessary damage.

Prior to installation or subsequent reinstallations, ensure that the mounting hole is free from media or debris.



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Standard Models 330, 331, 335, 430 and 431 transmitters are supplied with a ½ -20 UNF pressure port. Installation of the device shall be in accordance with industry standard pipe fitting requirements for this size. Torque shall only be applied to the transmitter during installation (or removal) from the wrench flats provided on the pressure port. As a general rule of thumb, the device torque should be “wrench-tight” to preclude leakage from the process connection. Contact GP:50 sales personnel for additional information if required, or for specific installation requirements for non-standard process connections.



Ensure media is compatible with 15-5 PH (standard material, optional materials available, check part number (Appendix A) to verify wetted material to avoid premature corrosion of the diaphragm. This can cause performance degradation and eventual sensor rupture/failure.



Properly tighten process connections before applying pressure to insure no leaks or mechanical failure can occur.



Never insert sharp objects into diaphragm. This could cause permanent damage the sensor and / or mechanical failure/diaphragm rupture.

## 2.2 Power Supply Connection

For best operation the pressure transmitter needs clean, regulated power with an output impedance less than 20 ohms. Voltage range for 330,331 and 335 models is 9Vdc – 40Vdc. Models 430 and 431 operate between 12Vdc – 36Vdc. As loads are added to the current loop (galvanic barriers, current measuring devices resistors), the minimum excitation voltage must increase in order to maintain proper operating voltage.



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### 2.3 Wiring & Grounding

Wiring is set per charts below. PTIH-10-6P electrical connection is standard. PC02E-12-8P is available as option code “CC”; Mate PC06A-12-8S-(SR) is not included.

Do not run wires next to power lines, electrical systems, motors, generators, or any other equipment which may generate a significant amount of electrical noise or magnetic fields.

PTIH-10-6P	330, 331 & 335	430 & 431
A/1	+ EXC. / SIGNAL	+ EXC. / SIGNAL
B/2	- EXC. / SIGNAL	- EXC. / SIGNAL
C/3	NC	NC
D/4	NC	NC
E/5	CALIBRATE	NC
F/6	CALIBRATE	NC

PC02E-12-8P	330, 331 & 335	430 & 431
A/1	+ EXC. / SIGNAL	+ EXC. / SIGNAL
B/2	NC	- EXC. / SIGNAL
C/3	NC	NC
D/4	- EXC. / SIGNAL	NC
E/5	CALIBRATE	NC
F/6	CALIBRATE	NC
G/7	NC	NC
H/8	NC	NC

PIGTAIL	430 & 431
A/1 RED	+ EXC. / SIGNAL
B/2 BLACK	- EXC. / SIGNAL
C/3 GREEN	CASE GROUND*
D/4 SHIELD	CASE GROUND


\* Explosion Proof Units Only



## 2.4 Environment

The typical operating temperature range for the electronics is from -40°F (-23°C) to 185°F (85°C). The unit should be mounted as close to the process as possible with the ambient temperature surrounding the electronics in the range as specified above.

 Exceeding maximum temperature rating can cause electronics malfunction or failure, with IS units, an explosion risk.

 Protect electrical connection from direct/continued exposure to fluids. Moisture ingress can occur and cause eventual electrical failure.

## 3 OPERATION & MAINTENANCE

These models are designed to produce their respective outputs as a direct proportion to pressure. Specific pressure range, input voltage requirements and electrical connections are marked on unit. Appropriate mating connections are required for proper installation and safety. Other port and electrical connections are available and noted as option code in part number. See Appendix A for list of options.

After securely installed, bring system up to current operating temperature with no pressure applied. Once condition has been reached, adjust zero and span controls accordingly to maximize output accuracy.

\* Applicable to models 330, 331 or 335 with GJ option (zero and span adjustments for non-explosion proof) or MD option (zero and span for explosion proof models).

Replace broken fasteners (available through the factory) as they may compromise the seal and cause contamination and/or electronics failure.

Prior to transmitter removal, ensure that the polymer is hot and liquid to avoid diaphragm damage. Once removed, immediately wipe the entire tip of the transmitter with a soft, non abrasive cloth.

Unit can be hot when removed from service. Wear protective gloves when handling unit in this condition.

Model 335 includes a J-Type thermocouple. To remove simply loosen the Allen Screw with a 6/32 x 1/4 Allen Wrench and pull thermocouple assembly straight out without bending or twisting. If needed, Contact GP:50 for replacement or repair.



## **4 TROUBLESHOOTING & RETURN INFORMATION**

### **No output**

- Verify power supply voltage meets transmitter requirements
- Check wiring connections
- Verify pressure if being applied
- Verify output load is not shorted

### **Erratic output or zero drift**

- Verify pressure applied is constant
- Verify power supply remains within specifications
- Inspect electrical connections for discontinuity or damage
- Verify output with a multi-meter
- Check insulation resistance between amplifier and transmitter case

### **Slow Response**

- Verify pressure port is not clogged

\* If the problem persists, please call the factory as indicated below for assistance. Please have the following information ready:

- Serial number
- Model number
- Loop setup details (power supply, resistor, cable routing/length)
- Which action caused devices to fail.

Contact: sales@gp50.com

716-773-9300



Repairs should only be done by GP:50. Repairs done by customer will void any warranties and may cause permanent damage to unit. Repairs done by customer on Intrinsically Safe units will void the approvals and are a potential explosion hazard.



Returned products that have been exposed to hazardous substances should be cleaned prior to return and should include the Material Safety Data Sheet for all substances.



## **5 WARRANTY**

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 delivery 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 GP:50), improper installation or servicing, or use in violation of instructions furnished by GP:50.
2. 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.
3. The serial number has not been removed, defaced or otherwise changed.
4. Examination discloses, in the judgment of GP:50, a defect in materials or workmanship which developed under normal installation, use and service.
5. GP:50 is notified in advance of, and approves, the return by issuing a Return Material Authorization Number; and the products are returned to GP:50 transportation prepaid. Products returned with out an RMA number will not be accepted and be returned to sender at sender's expense.

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**Contact our website [http://www. GP50.com](http://www.GP50.com) for a copy of our repair policy or call our repair dept.**

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### 6 APPENDIX A - OPTIONS

**AA** None (standard connector PTIH-10-6P)

#### ALTERNATE CONNECTOR OR CABLE

- CC** Bendix PC02E-12-8P,[Mate: PC06A-12-8S-(SR), not included]  
**CD** Cannon WK6-32S,[Mate: WK6-21C, not included]  
**CF** 1/2" NPT(M) thread with 36" potted leads  
**CZ** Alternate Connector/ Cable/ Other

#### ALTERNATE PRESSURE PORTS

- FB** M18 X 1.5 Metric Thread  
**FG** M14 X 1.5 Metric Thread  
**FZ** Non-Standard Pressure Port

#### GENERAL OPTIONS

- GB** Alternate Electronic Output - specify zero and span output values  
**GJ** Add Zero and Span Controls. (Approximately  $\pm 20\%$  FSO adjustment)  
**GP** Hastelloy C-276 Diaphragm and Thread  
**GQ** Boron-Hardened diaphragm  
**GS** 0-10 Vdc FSO, Model 2xx only, (Requires 16-32 Vdc excitation)  
**GV** Silicone Oil Fill. (Increases Thermal Shift) Consult factory  
**GW** NaK Fill with Inconel diaphragm and stem for 1000°F max. applications  
**GX** Mineral Oil Fill. (Increases Thermal Shift) Consult factory  
**GZ** Customer Special  
**JA** 100 ohm RTD., 3 - wire, provided with no external cal. & 8 - pin standard connector

- JW** Titanium Nitride-Coated Diaphragm & Threads  
**MD** Zero and Span Controls, 330X, 331X only. (Span adjustment  $\pm 20\%$  FSO, Zero adjustment +10% - 80% FSO for ranges below 500 psi, Zero adjustment  $\pm 20\%$  FSO for ranges 500 psi & up)  
**ME** Internal Calibration Resister set to 80%  $\pm$  0.5% FSO  
**MO** Gentran Wiring  
**MP** Barber-Colman Wiring  
**NE** Second 4-20 mA output for temperature (with HART®)  
**QF** Second 4-20 mA output for temperature (no HART®)  
**QG** Temperature compensated to 350°F  
**QJ** NaK Fill for 750°F max. applications  
**QS** Diamond coating

#### RIGID STEM

- GN** 12.5" Rigid Stem  
**GO** 9" Rigid Stem  
**HD** 3" Rigid Stem  
**HJ** 1 3/16" Rigid Stem  
**HT** 24" Rigid Stem  
**HU** 4" Rigid Stem  
**MU** Non-Standard Rigid Stem

#### FLEX TUBING

- GT** 30" Armored Capillary Tube  
**HS** 9" Armored Capillary Tube  
**HV** 24" Armored Capillary Tube  
**HY** 12" Armored Capillary Tube  
**MT** Non-standard Armored Capillary Tube (50" max)

\*Not all options are available for all models; consult manufacturer for details.

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