Blue Ribbon Corporation

Installation Manual

Model 311

Hazardous Approved Transmitter

Table of Contents

DISCLAIMER: **No representations or warranties are made with respect to the contents of this Installation Guide. Blue Ribbon Corporation reserves the right to revise this guide and to make changes periodically to the content thereof, without obligation to notify any persons of such revisions.**

1. INTRODUCTION

1.1. Product Description

The Model 311 is an oil field service pressure transmitter with a "NPT(F) pressure port fitting (standard - optional ports available), 4-20 mA output and measures pressures up to 75,000 psi (5168 bar).

1.2. Warning

Pressurized vessels and associated equipment are potentially dangerous. The product described in this 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/Inspection

The Model 311 was carefully tested, inspected and 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.

1.4. Using This Manual

This manual is intended to help the end user install, maintain, and provide general service of the Blue Ribbon Corp. Model 311 pressure transmitter. The user should have a general understanding of current loops and general instrument control. The Model 311 is a precision instrument and should be given the same care as any other precision instrument during installation and operation.

2. INSTALLATION

2.1. Mounting/Process Connection

The standard Model 311 transducer is supplied with a ¼" NPT(F) 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 transducer during installation (or removal) from the wrench flats provided on the pressure port. As a general rule of thumb, the device shall be torqued "wrench-tight" to preclude leakage from the process connection. Contact Blue Ribbon Corp. sales personnel for additional information if required, or for specific installation requirements for non-standard process connections.

⚠ Insure media is compatible with 15-5 SST (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 to the sensor and/or mechanical failure/diaphragm rupture.

2.2. Power Supply Connection

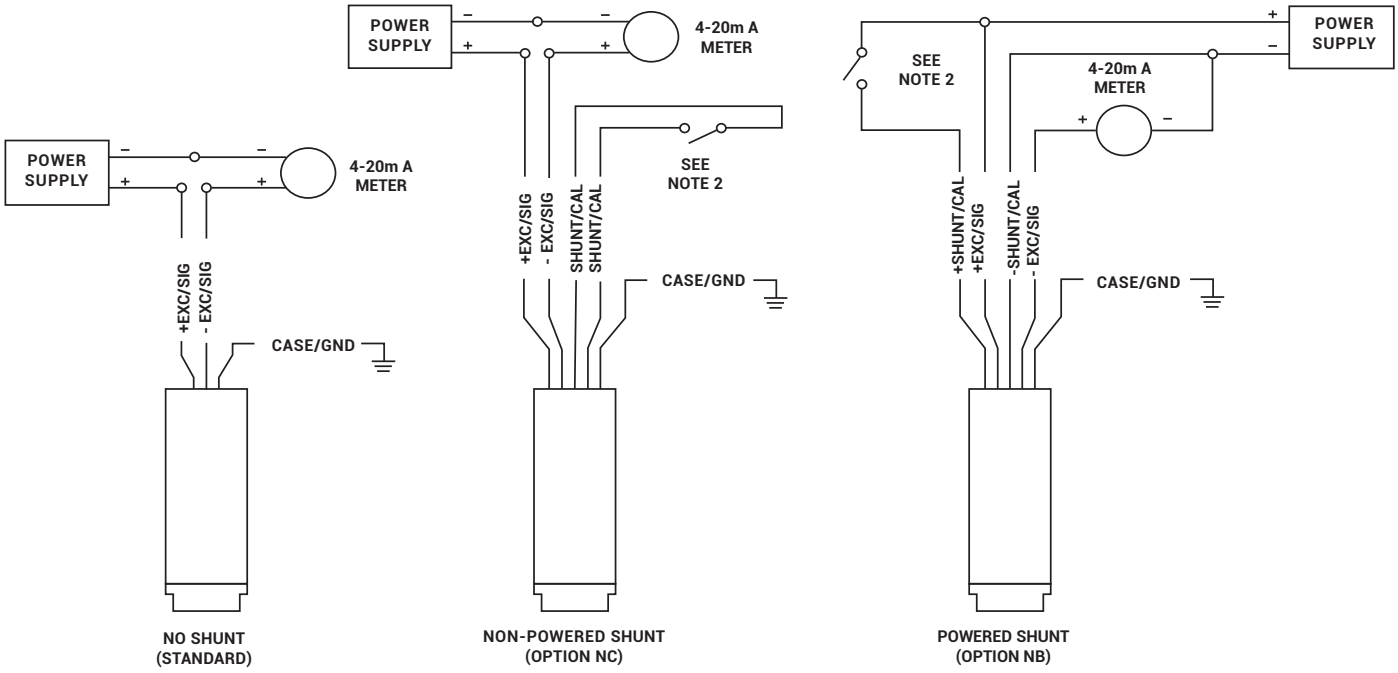
For best operation, the pressure transmitter needs clean, regulated power with an output impedanance less than 20 Ω. Minimum voltage is 10 volts with no resistive loading, to a maximum of 36 Vdc (Z, P + X Series) (28 Vdc for I, AI + GI Series units). As loads are added to the current loop (galvanic barriers, current measuring devices resistors), the minimum excitation voltage must increase in order to maintain proper operating voltage.

⚠ Exceeding maximum supply voltage can damage electronics and cause malfunction or failure, and can cause an explosion with Intrinsically Safe units. Please refer to the attached IS connection diagram (Appendix B), and applicable local codes, for proper electrical installation. Always inspect/clean electrical connection and sealing surface prior to installation.

2.3. Wiring/Grounding

Wire per Fig. 1 connection diagrams for standard wiring or specific shunt option. 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.

Fig. 1: Connection Diagrams (for IS units see Appendix B)



NOTE 1: QUALIFIED END-USER TO INSTALL GROUND WIRE PER CODE REQUIREMENTS.
NOTE 2: SHORT WIRES TOGETHER OR CLOSE SHUNT SWITCH (SUPPLIED BY END USER) TO ACTIVATE SHUNT.

⚠ Install only after verifying both input power and line pressure are off and at zero.

⚠ Avoid contact with exposed leads or connector pins, high voltage may be present on leads and can cause electrical shock.

⚠ Observe safe ESD handling precautions to avoid static damage to sensitive components.

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, and is an explosion risk with IS units.

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

3. Operation/Maintenance/Handling

The Model 311 is designed to give a 4-20 mA output directly proportional to pressure. Specific pressure range, input voltage requirements and electrical connections are marked on unit. See Appendix A for all performance specifications. Standard electrical connection is a HEYCO connector on the I.S. approved product +½" NPT M on Explosion Proof Series and pressure port is ¼" NPT(F). Appropriate mating con nections 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.

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

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

4. Trouble Shooting/Return Information

4.1. No output

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

4.2. 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

4.3. Slow Response

- Verify pressure port is not clogged

If the problem persists, please call the factory as indicated below for assistance and have the following information ready:

- Serial number
- Model number
- Loop setup – power supply, resistor, cable routing/length
- What action caused devices to fail?

Contact: brsales@blueribboncorp.com
716-773-9300

Repairs should only be done by Blue Ribbon Corporation. 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 must be cleaned prior to return and must include the Material Safety Data Sheet for all substances.

5. WARRANTY

Blue Ribbon Corporation warrants its products to the original customer/purchaser against defects in material and workman ship for a period of one (1) year from the date of delivery by Blue Ribbon Corp., as shown in its shipping documents, subject to the following terms and conditions:

Without charge Blue Ribbon Corp. 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 Blue Ribbon Corp.), improper installation or servicing, or use in violation of instructions furnished by Blue Ribbon Corp.
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 Blue Ribbon Corp. or its authorized service agencies.
3. The serial number has not been removed, defaced or otherwise changed.
4. Examination discloses, in the judgement of Blue Ribbon Corp., a defect in materials or workmanship which developed under normal installation, use and service; and
5. Blue Ribbon Corp. is notified in advance of, and approves, the return by issuing a Return Material Authorization Number; and the products are returned to Blue Ribbon Corp. transportation prepaid. Products returned without an RMA number will not be accepted and be returned to sender at sender's expense.

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 BLUE RIBBON CORP. ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. BLUE RIBBON CORP. DOES NOT ASSUME THE COSTS OF REMOVAL AND/OR INSTALLATION OF THE PRODUCT OR ANY OTHER WORKMANSHIP, OR WILL BLUE RIBBON CORP. BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR INSALLATION OF ITS PRODUCT.

For a copy of our repair policy, visit our website at www. BlueRibbonCorp.com or call our repair department at 716-773-9300.

6. Appendix A - Approval Info

6.1. Approval Documentation packages to be shipped with units, per option code

- AI - ATEX Intrinsic Safety
  - A8EG-10AIA.CC-ATEX C of C
  - 8C1-55.01-2-ATEX/IEC Connection Diagram, Model 311
  - A8EG-10AIA.DC - CE: ATEX Declaration of Conformity
  - A8EG-10AIE.DC - CE: EMC Declaration of Conformity
  - A8EG-10AIP.DC - CE: PED Declaration of Conformity
- EC - CE Compliance (EMC and PED)
  - A8EG-10AIE.DC – CE: EMC Declaration of Conformity
  - A8EG-10AIP.DC – CE: PED Declaration of Conformity
- I - FM/CSA Intrinsic Safety
  - A8EG-10IC.CC – CSA C of C
  - A8EG-10IF.CC – FM C of C
  - 8C1-56.01-2 – FM/CSA Connection Diagram, Model 311

Return to Table of Contents

Blue Ribbon Corporation
2770 Long Road
Grand Island, NY 14072
U.S.A.
Tel: 716.773.9300
Toll Free: 877-774-4751
Fax: 716. 773.5019
email: sales@blueribboncorp.com

Visit our website www.blueribboncorp.com