GP:50

Transducers & Transmitters

Industrial & Aerospace Pressure Measurement

www.gp50.com

Installation Manual

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1. INTRODUCTION

1.1 Product Description

GP:50 pressure transmitters provide an electrical output directly proportional to process pressure and/or temperature for a variety of industrial applications. Units measure pressures from 5 to 75,000 psi and operate using 10-28VDC input at standard operating temps from -40C to 85C, model dependent. Specifications are marked on individual units. The general part number configuration is shown below. Please contact GP:50 for specific questions regarding part number/transmitter specifications.

Model	Approval Code- if applicable	Accuracy	Pressure Range	Pressure Type	Options
●	●	●	●	●	●/●/●

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

The transmitter was carefully tested, inspected and packed. Upon receipt of the shipment thoroughly inspect the device. 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 transmitter. The user should have a general understanding of current loops and general instrument control. It 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 transmitter is supplied with an electrical and pressure connection. Mating of the device shall be in accordance with industry standard fitting requirements. Torque shall only be applied to the transducer during installation (or removal) from the wrench flats provided on the pressure port (where applicable). As a general rule of thumb, the device shall be torqued "wrench-tight" to preclude leakage from the process connection. Contact GP:50 sales personnel for additional information if required, or for specific installation requirements.

⚠ Insure media is compatible with wetted materials 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

Standard electrical connection is ½"NPT(M), unless otherwise noted in part number configuration per connector code (required connection for Flameproof/Explosion Proof units). Minimum and maximum range will be marked on unit. For best operation the pressure transmitter needs clean, regulated power with an output impedance less than 20 ohms. 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 malfunctions or failure. With Intrinsically Safe units, this can cause an explosion. Please refer to IS connection diagram and applicable local codes, for proper electrical installation.

Always inspect/clean electrical connection and sealing surface prior to installation.

2.3 Standard Product Marking: Standard product marking should include the following:

-GP:50 name/address - Part No. - Pressure range - Proof Pressure - Wiring
- Serial Number - Year of Mfg. - Electrical Input - Electrical Output
- Applicable approval marking including agency(s), area classifications and Categories, apparatus grouping, protection method and T code.

2.4 Wiring/Grounding

See Appendices for specific standard wiring diagrams dependent on specific output(s). For Hazardous Locations Ex ia/ic/nL units, refer to agency specific connection diagrams which are available at www.gp50.com.

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.

⚠ 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.

⚠ 30mA maximum allowable input on ATEX Flameproof units.

2.5 Environment

The typical operating (process) 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. This unit has an IP65 rating for Ex d rated units.

⚠ 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, causing eventual electrical failure.

3. OPERATION

3.1 Maintenance/Handling

The transmitter is designed to give an electrical output directly proportional to pressure and/or temperature. Specific pressure range, input voltage requirements and electrical output and connections are marked on unit. Appropriate mating connections are required for proper installation and safety.

⚠ 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.

3.2 Specific Conditions for Safe Use

For Ex d installations:
- Carbon Disulphide is excluded with model 1171 as the enclosure may have a greater than 100cm^3 volume.
- The flying leads or cable of the equipment shall be suitably installed within rigid metal conduit and routed to a suitably rated and Ex certified enclosure for connectoin/termination.

For Ex ia and Ex nA installations:
- The equipment is not capable of passing a 500V dielectric test. This must be considered during equipment installation.
- When optional RTD is included in addition to pressure output, it shall be considered a separate electrical circuit and installed as such.

For Ex nA installations:
- Where permanently connected flying leads are provided, Type ‘nA’ wiring methods shall be considered during installation.

3.3 Applicable Product Certifications (by Option Code) – Available at www.gp50.com

Intrinsic Safety

- A8EG-10AIA.CC ATEX Intrinsic Safety (AI/GI)
- A8EG-10AII.CC IEC Intrinsic Safety (AI/GI)
- A8EG-10IC.CC CSA Intrinsic Safety (I/GI)
- A8EG-10IF.CC FM Intrinsic Safety (I/GI)

Flameproof/Explosion Proof

- A8EG-10APA.CC ATEX Flameproof (AP/GP)
- A8EG-10API.CC IEC Flameproof (AP/GP)
- A8EG-10PC.CC CSA Explosion Proof (P/GP)
- A8EG-10PF.CC FM Explosion Proof (P/GP)

Nonincendive

- A8EG-10ANA.CC ATEX Nonincendive (AN/GN)
- A8EG-10ANI.CC IEC Nonincendive (AN/GN)
- A8EG-10NC.CC CSA Nonincendive (N/GN)
- A8EG-10NF.CC FM Nonincendive (N/GN)

CE

- A8EG-10AIE.DC EMC Declaration of Conformity (AI/GI/AN/GN/AP/GP/EC)
- A8EG-10AIP.DC PED Declaration of Conformity (AI/GI/AN/GN/AP/GP/EC)
- A8EG-10AIA.DC ATEX IS Declaration of Conformity (AI/GI)
- A8EG-10ANA.DC ATEX Zone 2 Declaration of Conformity (AN/GN)
- A8EG-10APA.DC ATEX Flameproof Declaration of Conformity (AP/GP)

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 Have the following information ready:

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

Contact: sales@gp50.com or 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:

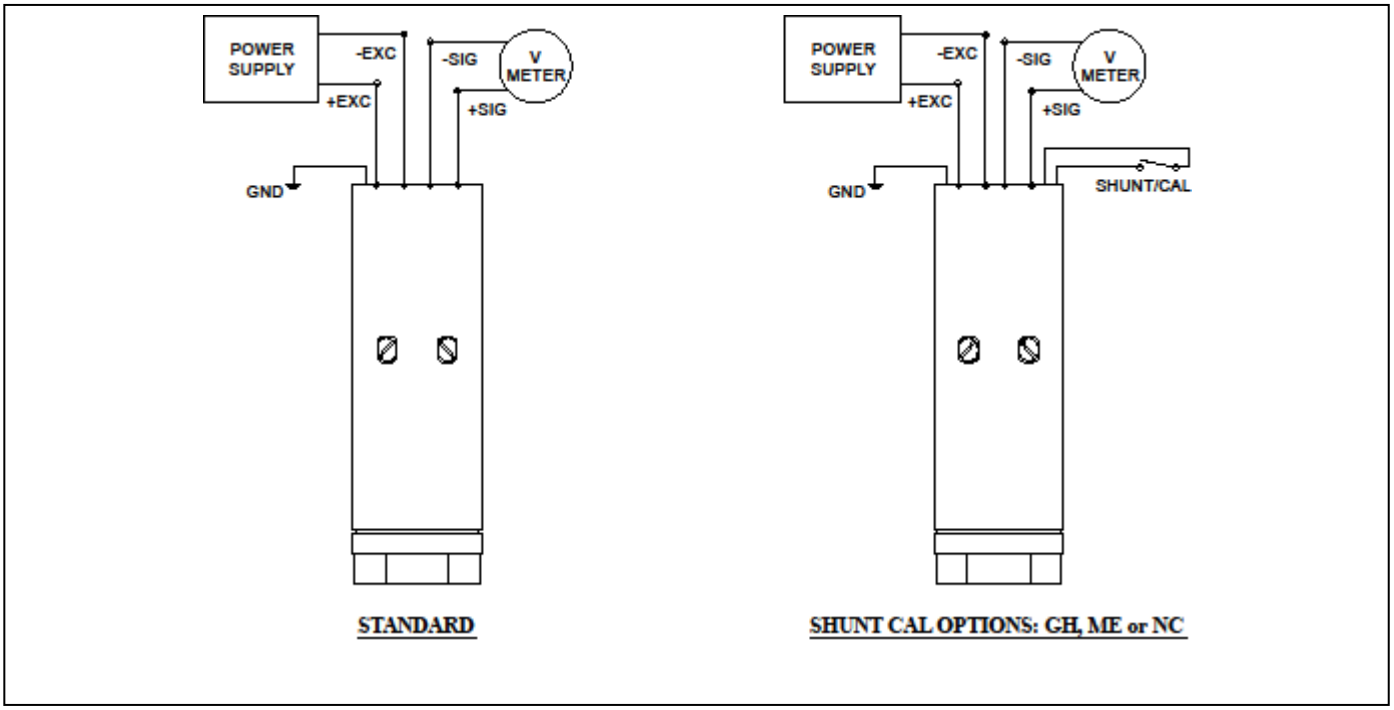
1. The product has not been subjected to abuse, neglect, accident, incorrect wiring (not provided by GP:50), improper installation or servicing, or use in violation of instructions furnished by GP:50.
2. As to any prior defect in materials or workmanship covered by this warranty, the product has not 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 judgement of GP:50, a defect in materials or workmanship which developed under normal installation, use and service; and
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 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 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, OR WILL GP:50 BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR INSALLATION OF ITS PRODUCT.

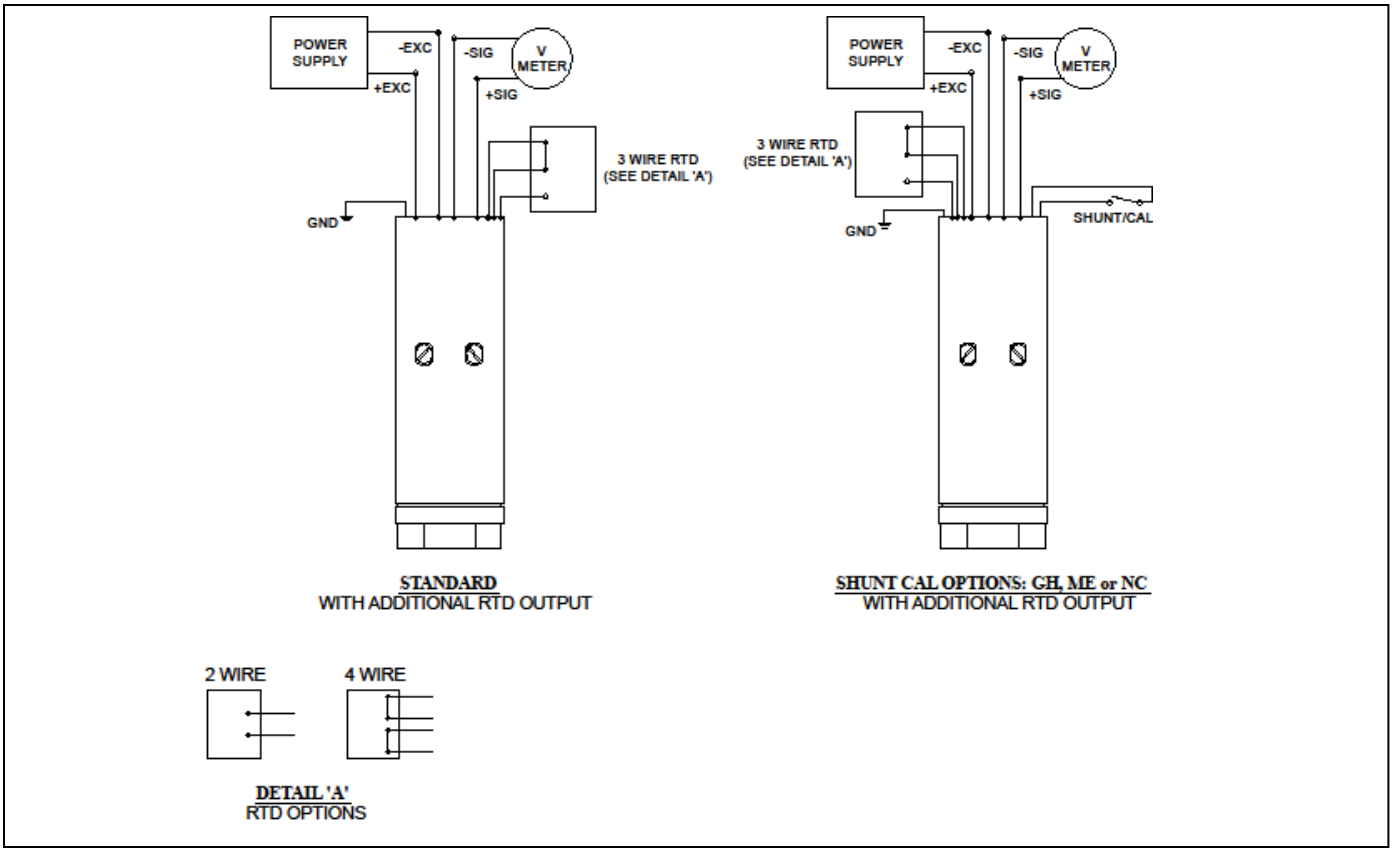
Contact our website http://www. GP50.com for a copy of our repair policy or call our repair dept.

6. APPENDIX: STANDARD WIRING

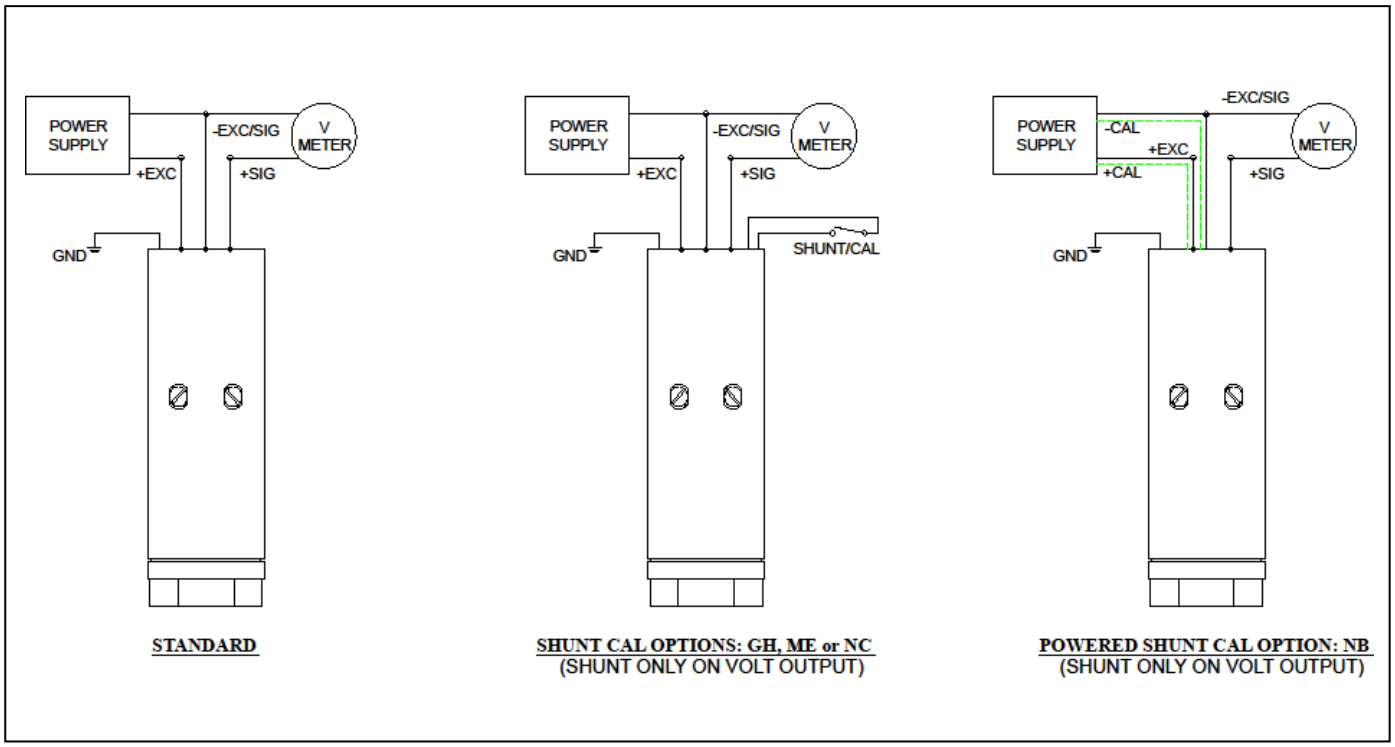
6.1 mV output



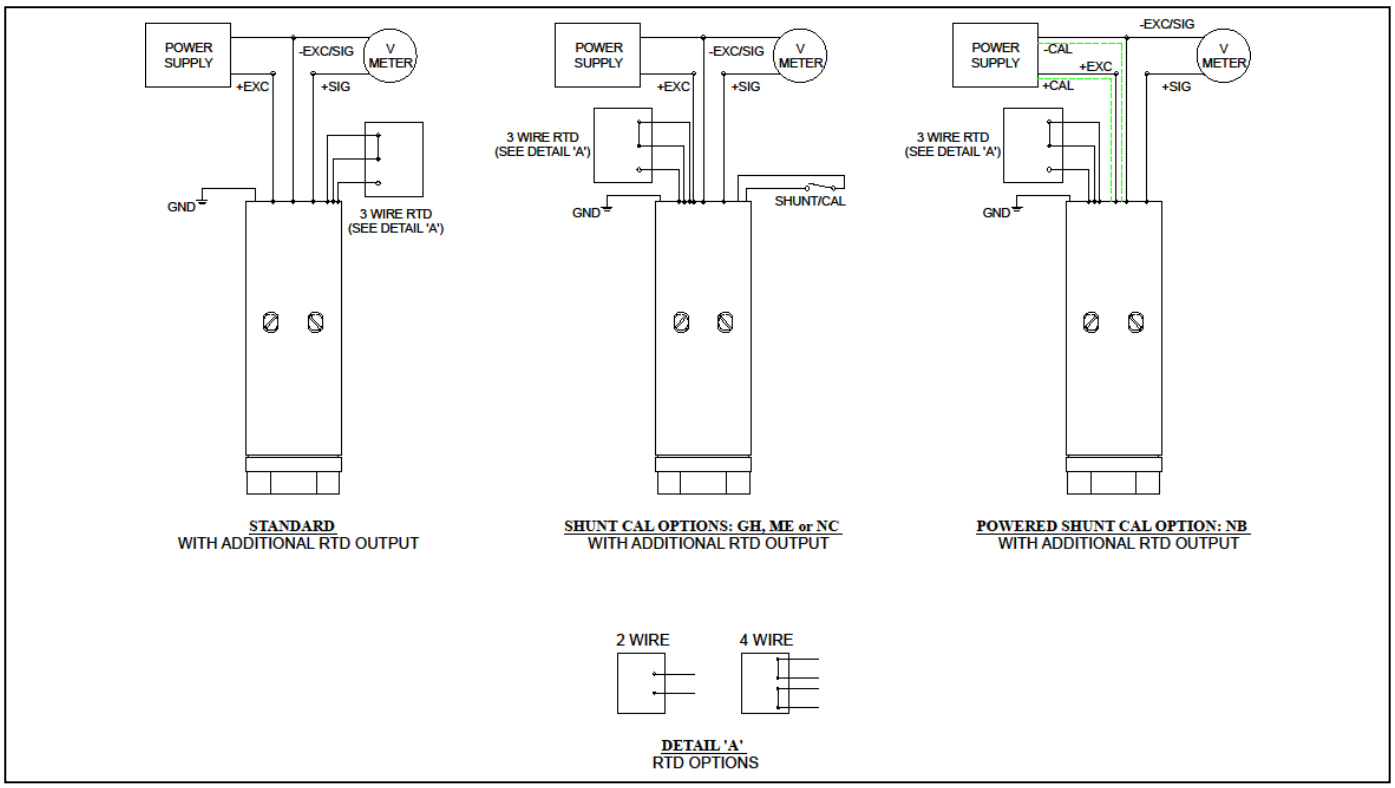
6.2 mV with RTD output



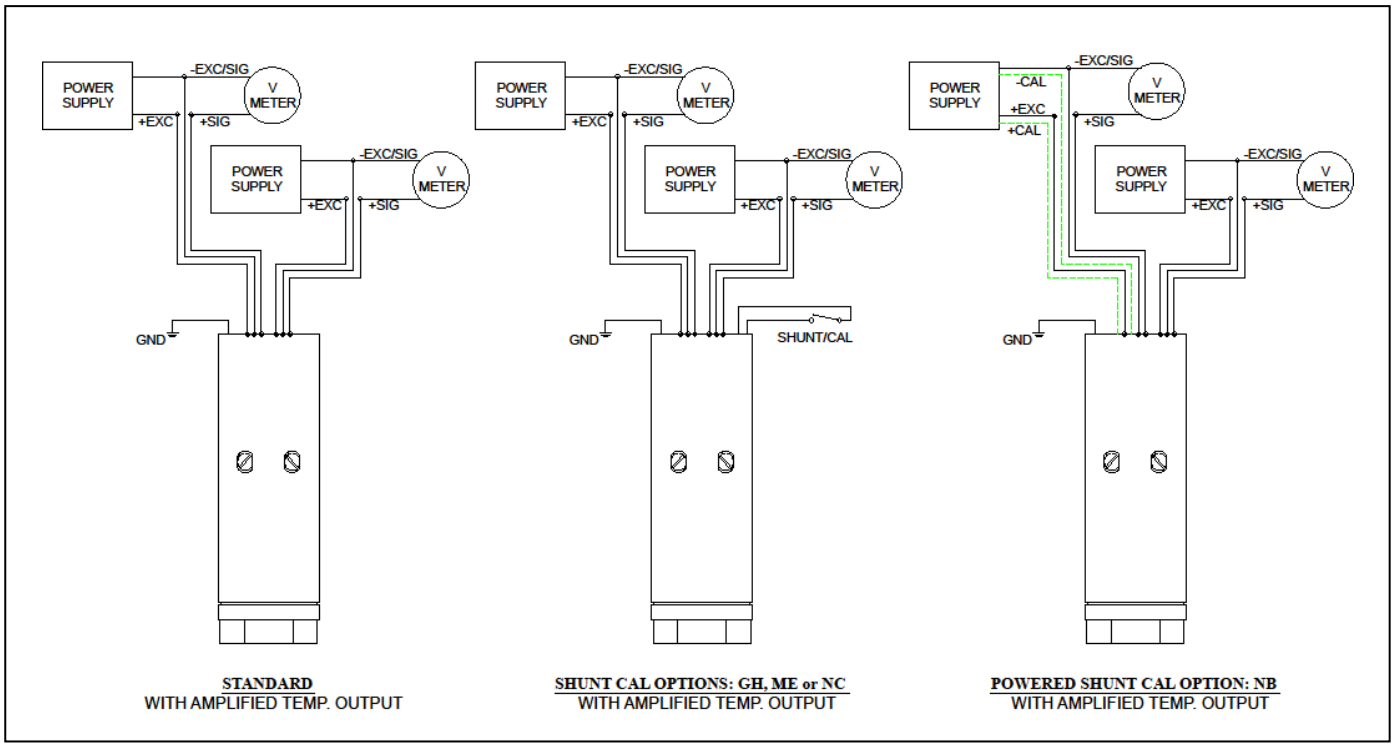
6.3 3-wire VDC (or SDI 12) output



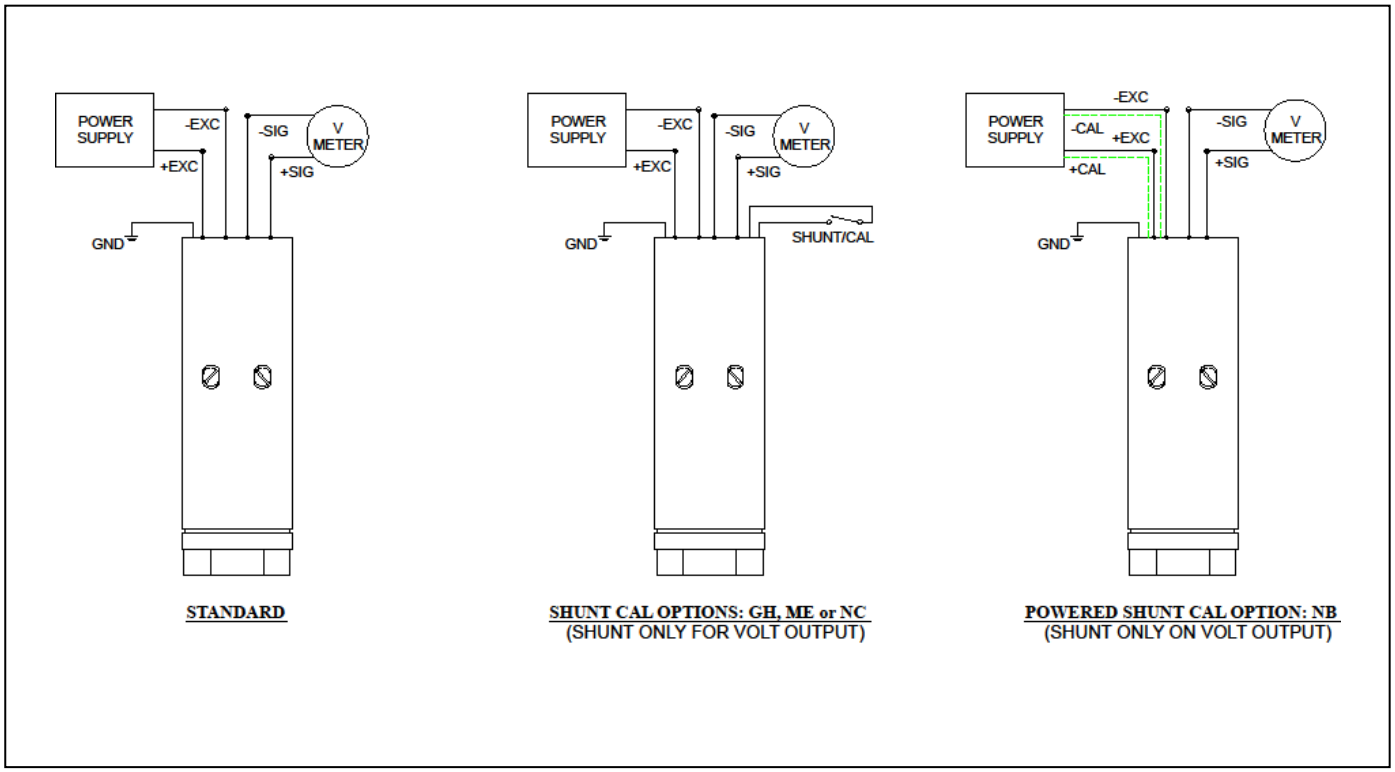
6.4 3-wire VDC with RTD output



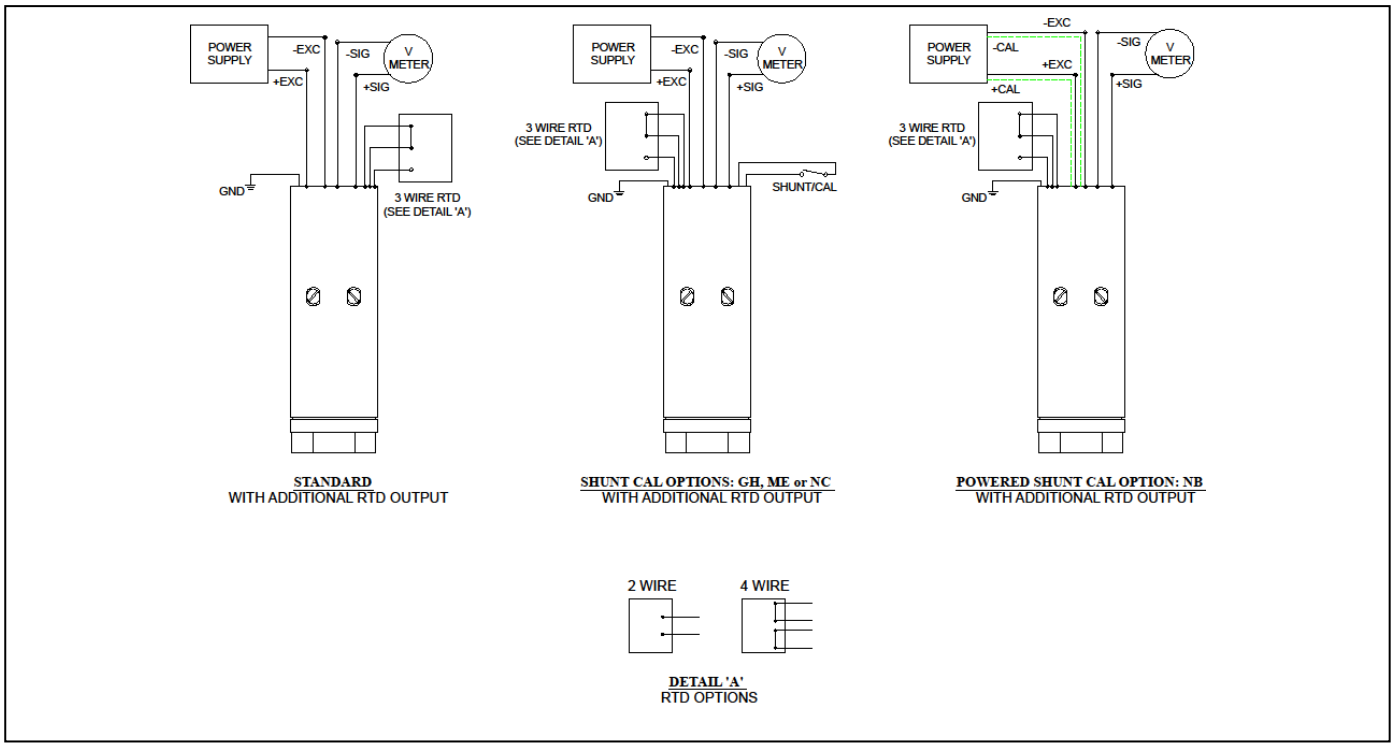
6.5 3-wire VDC (Amplified Pressure and Temperature) output



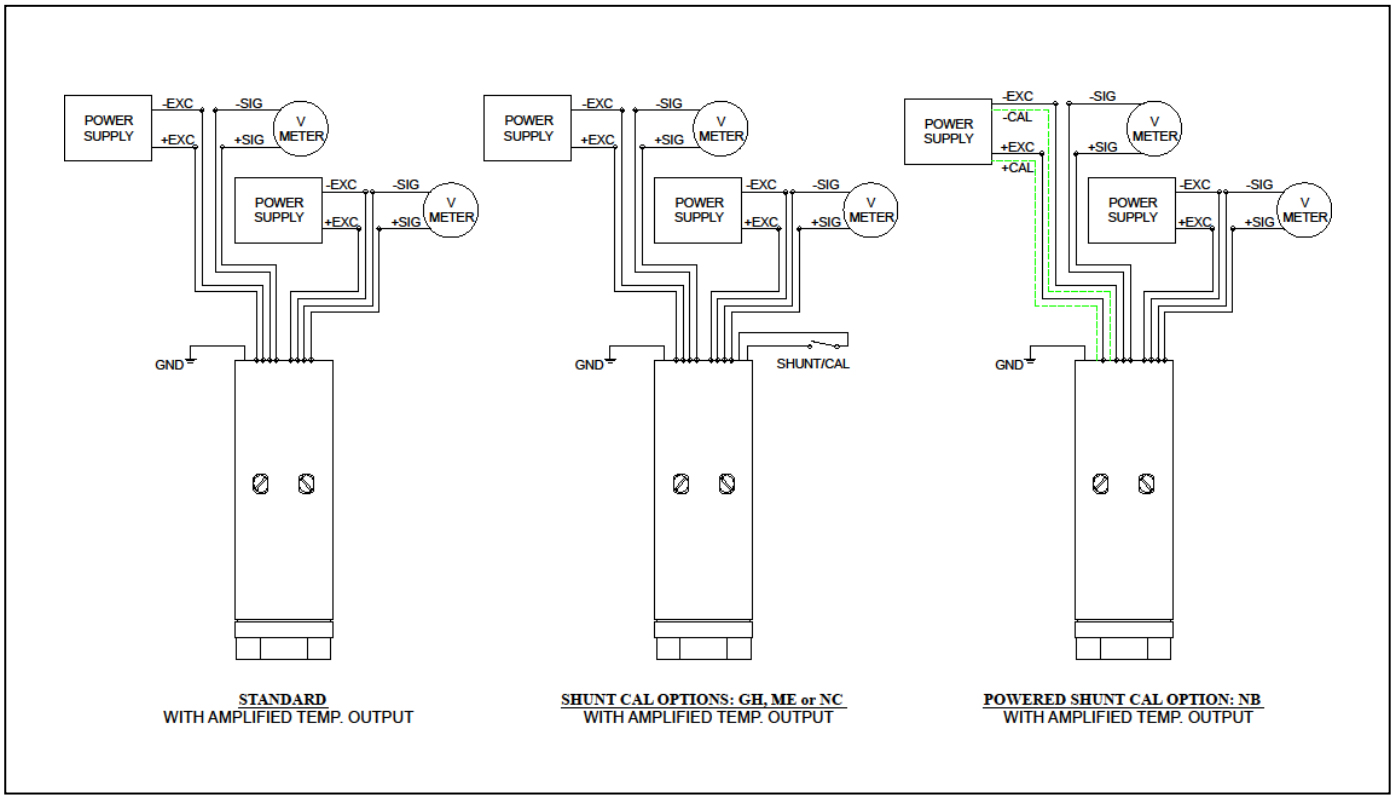
6.6 4-wire VDC (or CANBUS, RS485 or USB) output



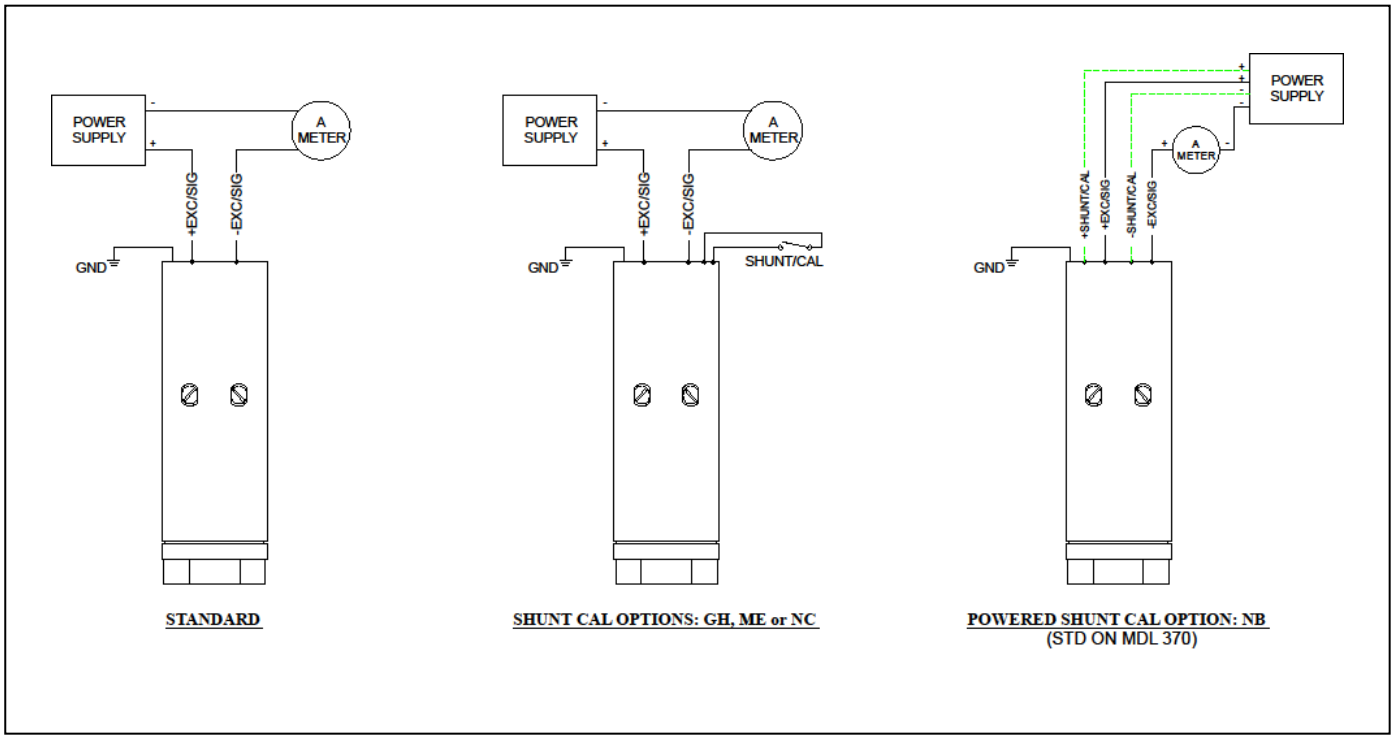
6.7 4-wire VDC with RTD output



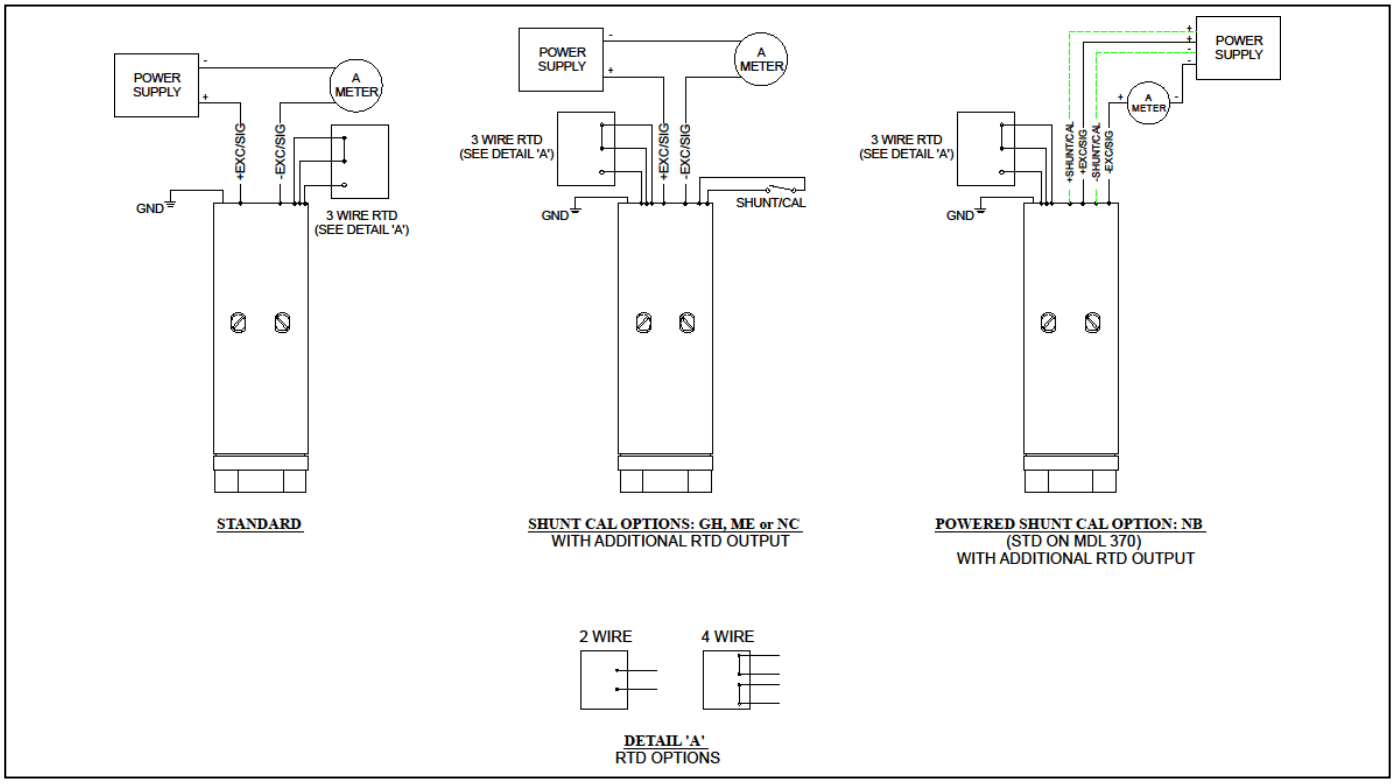
6.8 4-wire VDC (Amplified Pressure and Temperature) output



6.9 mA output



6.10 mA with RTD output



6.11 mA (Amplified Pressure and Temperature) output