

**I/A Series<sup>®</sup> Pressure S Series Transmitters  
FM/CSA Safety Information**



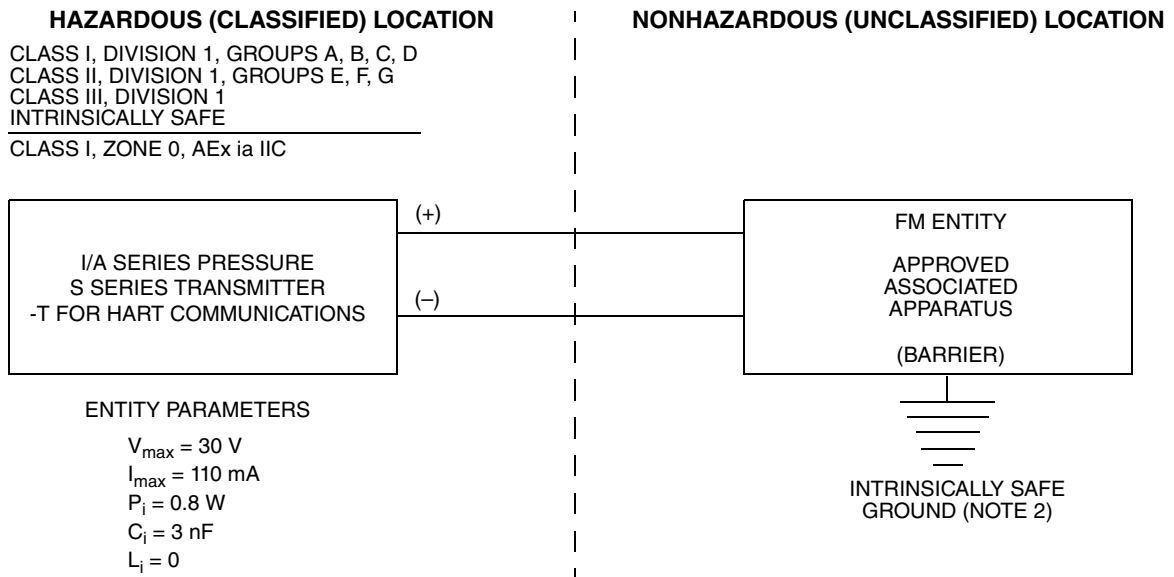


# HART Communication Protocol

If your S Series pressure transmitter with HART communication protocol is classified as intrinsically safe, connect per the following control diagrams for the appropriate agency.

## FM Approvals

*Figure 1. Loop Diagram for HART Transmitters Using Entity Parameters*



**NOTE**

1. Figure 1 must not be modified without prior FM approval.
2. Total resistance between Intrinsic Safety Ground and Earth Ground must be less than 1 ohm.
3. Barriers must be FM certified and must be installed in accordance with manufacturer's instructions.
4. Barrier must be installed in an enclosure that meets the requirements of ANSI/ISA S82.01
5. Control equipment connected to associated apparatus or barrier must not use or generate more than 250  $V_{rms}$  or V dc.
6. Installation should be in accordance with ANSI/ISA RP 12.6 "Installation of Intrinsically Safe Systems For Hazardous (Classified) Locations":
 
$$V_{max} \text{ or } U_i \geq V_{oc} \text{ or } V_t$$

$$I_{max} \text{ or } I_i \geq I_{sc} \text{ or } I_t$$

$$C_i + C_{cable} \leq C_o \text{ or } C_a$$

$$L_i + L_{cable} \leq L_o \text{ or } L_a$$
 (Terms defined in document) ANSI/NFPA 70 "National Electrical Code" and manufacturer's control drawing for associated apparatus.

7. Some models have the main electronics enclosure manufactured from aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This must be considered during installation, particularly if the equipment is installed in a Zone 0 location.
  8. When installed in a hazardous location where a flammable dust may be present, under certain extreme circumstances an incendive electrostatic charge may build up on the painted surfaces, which are non-conducting. Therefore, the user/installer must implement precautions to prevent the buildup of electrostatic charge; for example, place the equipment in a location where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with a damp cloth.
  9. When installed in a hazardous location where a flammable dust may be present, the installer shall ensure that the cable entry maintains the dust-tightness of the enclosure.
  10. On installation, the I/A Series pressure transmitters shall be provided with supply transient protection external to the apparatus such that the voltage at the supply terminals does not exceed 58.8 V dc.
  11. The maximum permitted ambient temperature of the I/A Series pressure transmitters is 80°C. To avoid the effects of process temperature and other thermal effects, care shall be taken to ensure that the electronics temperature does not exceed an ambient temperature of 80°C.
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**! WARNING**  
Substitutions of components may impair intrinsic safety.

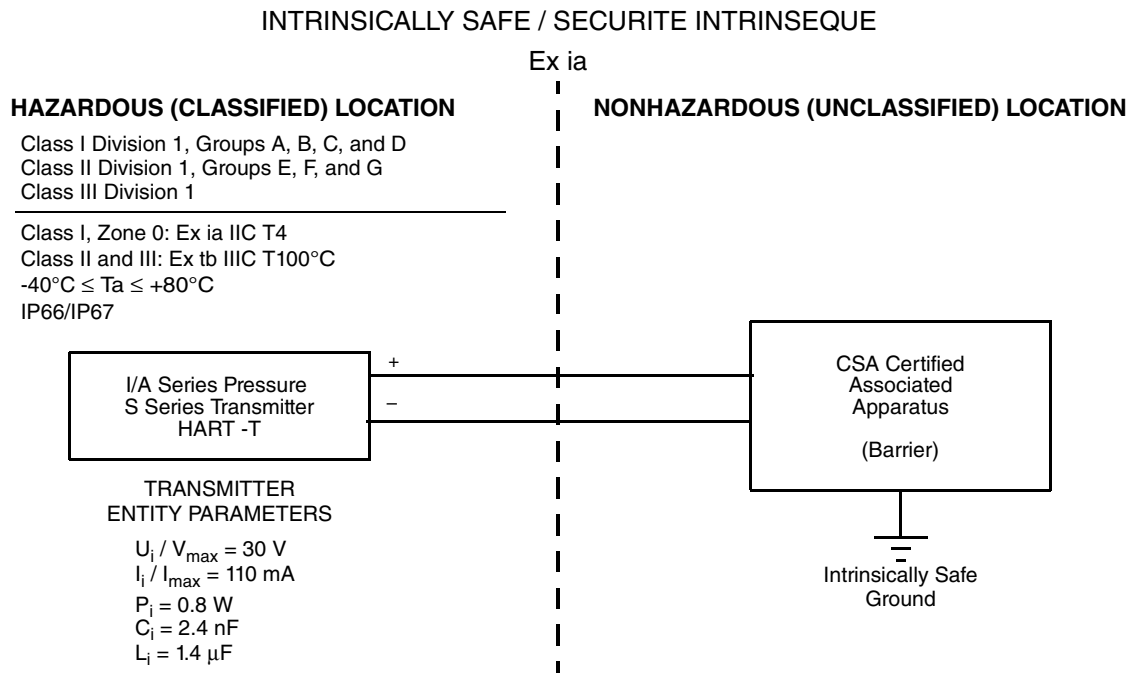
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**! WARNING**  
To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

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# Canadian Standards Association (CSA) Intrinsically Safe Approval

Figure 2. Loop Diagram for HART Transmitters Using Entity Parameters



## NOTE

1. Figure 2 must not be modified without prior CSA approval.
2. Barriers must be CSA certified and must be installed in accordance with manufacturer's instructions.
3. Maximum nonhazardous area voltage must not exceed 250 V.
4. Intrinsically safe circuits shall be wired and separated in accordance with the wiring methods of the Canadian Electrical Code C22.1 or in accordance with the authority having jurisdiction.
5. Entity parameters must meet the following requirements:
 
$$U_o / V_{oc} \leq U_i / V_{\max}$$

$$I_o / I_{sc} \leq I_i / I_{\max}$$

$$C_i + C_{\text{cable}} \leq C_o \text{ or } C_a$$

$$L_i + L_{\text{cable}} \leq L_o \text{ or } L_a$$
6. Total resistance between Intrinsic Safety Ground and Earth Ground must be less than 1 ohm.
7. Some models have the main electronics enclosure manufactured from aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This must be considered during installation, particularly if the equipment is installed in a Zone 0 location.

8. When installed in a hazardous location where a flammable dust may be present, under certain extreme circumstances an incendive electrostatic charge may build up on the painted surfaces, which are non-conducting. Therefore, the user/installer must implement precautions to prevent the buildup of electrostatic charge; for example, place the equipment in a location where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with a damp cloth.
9. When installed in a hazardous location where a flammable dust may be present, the installer must ensure that the cable entry maintains the dust-tightness of the enclosure.

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**! WARNING**

Substitutions of components may impair intrinsic safety.

**AVERTISSEMENT :**

La substitution de composantes peut compromettre la securite intrinseque.

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**ISSUE DATES**

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10900 Equity Drive  
Houston, TX 77041  
United States of America  
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