

CTC AppNotes

A series of technical documents written by members of the CTC community

PRO Intrinsically Safe Barrier Usage

CTC's PRO line of intrinsically safe products includes four different types of barriers for use with different types of sensors. As this can raise questions as to the correct barrier to use with CTC's various sensor types, this paper will clarify which barrier should be used with any of our intrinsically safe sensors.



Figure 1. CTC's available barrier choices. From left, IS111-1B, IS131-1C, IS141-1B and IS151-1B. Note there is almost no physical differentiation between the IS111-1b and IS131-1C.

Accelerometers

The IS 111-1B is the appropriate choice for use with CTC's standard and small size single axis and multi-axis accelerometers. This barrier is acceptable for use whether the sensor is IECEx, ATEX, or CSA rated accelerometer. Note that three IS111-1B barriers would be required when used with CTC intrinsically safe triaxial sensor such as the AC972-1D. The IS111-1B needs to be properly installed as illustrated in the diagram engraved on each barrier.



Figure 2. IS111-1B

Dual Output Vibration/Temperature Sensors

When CTC's dual output Vibration and temperature sensors are used, the TA900 series, the IS131-1C



Fig. 3. IS131-1C

barriers are the correct choice. These barriers allow for two separate signals to be transmitted from the sensor through the barrier for data collection or signal conditioning in the safe zone. Once again care should be exercised when connecting the sensors to the barriers and the diagram provided should be followed diligently, otherwise the barrier could fail to perform correctly and an installation could be compromised.

4-20 mA output sensors

CTC's IS141-1b barrier should be used with the LP800 and LP900 series of intrinsically safe sensors. These barriers are not appropriate for use with CTC's standard intrinsically safe accelerometers or IS dual output vibration/temperature sensors, but are specifically for use with intrinsically safe series loop powered sensors. Directions for connecting sensors are clearly printed on the barrier itself.



Fig. 4. IS141-1B

Proximity Probes

IS151-1B barriers are strictly for use in negative voltage applications and are to be used with PRO and Bentley compatible proximity probes in Class 1/2 Division 1 (Zone 0, Zone1) areas. Follow all installation instructions carefully.



Fig. 5. IS151-1B

If you have any questions feel free to contact CTC directly. Call toll free 1-800-999-5290 in the US/Canada or +1-585-924-5900 internationally, or email techsupport@ctconline.com.

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If any CTC vibration analysis hardware product should ever fail, we will repair or replace it at no charge.