

# CTC AppNotes

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

## New CTC Hazardous Area Products:

### Small Sensors, Multi-axis Sensors and Vibration with Temperature Sensors

Many factories and manufacturing facilities have areas where flammable gases or dusts may collect in concentrations where the possibility of spontaneous ignition can occur if a spark or heat source comes in contact with the flammable material. For areas like this CTC developed our hazardous and intrinsically safe series of sensors many years ago. Over time, with the introduction of new styles and capabilities in CTC's sensors, our customers requested that we make these improvements available for hazardous and intrinsically safe rated areas as well.



Figure 1— Small single axis sensors for C1D1 or ATEX Zone 0 use.

#### Small Sensors

The new small sensors include both top exit and side exit versions for both Class 1 Div. 1 (ATEX Zone 0), the AC970 and AC974 series sensors, and

Class 1 Div. 2 (ATEX Zone 2), the AC940 and AC944 series. Integral cable versions are available for all the sensors in this category. With nominal outputs of 100 mV/g these sensors are suitable for most applications that could be encountered in rated areas. Cables for use with Div. 2 sensors require the use of the J2Q mini-MIL connectors.

#### Multi-axis Sensors

Some safety engineers want to limit the numbers of cables that are utilized in rated areas. For situations like these multi-axis sensors with the proper ratings can help an analyst obtain up



Figure 2— Triaxial ATEX, IECEx, and Class 1 Div. 1 CSA rated sensor .

to three axes of data through one cable. One thing to note, in Class 1 Div. 1 or ATEX Zone 0, where energy limiting barriers are required, one barrier is required for each axis. The AC979 biaxial sensor series and the AC980 triaxial sensor series are suitable for these applications with barriers. In Class 1 and 2 Div. 2 areas the AC949 biaxial and AC950 triaxial sensors should be used with properly rated matching cables.

#### Dual Output Vibration with Temperature Sensors

Many analysts are familiar with CTC's standard dual output vibration with temperature sensors. Now available as our TA9xx series dual output sensors, the sensors are available for both hazardous and intrinsically safe rated areas in both 10 mV/g and 100 mV/g versions.

#### New Cable/Connector Combinations

In order to comply with hazardous area regulations, specific parameters must be met by cabling and connectors used in these areas with the properly rated sensors. Our existing two conductor CB190 cable is suitable for applications requiring only 2 conductors but was not suitable for the new TA9xx series sensors or for use with biaxial or triaxial offerings. To fill this gap we now offer CB191 three conductor cable and CB192 four conductor cable. New connectors were also required, D3Q for the biaxial and dual output sensors, J2Q for the small mini-MIL AC940/944 sensors and J4Q connectors for the triaxial sensors.



Figure 3— New TA935 sensor, dual vibration and temperature for C1D2



Figure 4 - J2Q connector on left, J4Q connector on right

If you have any questions or for further information feel free to contact CTC via Email [techsupport@ctconline.com](mailto:techsupport@ctconline.com) or call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.