

Wiring For Triaxial Sensors

Executive Summary

CTC manufactures many sensors that offer benefits beyond just single axis vibration outputs. Triaxial sensors for simultaneous horizontal, vertical and axial readings are becoming much more popular among analysts and either require the use of a specialized junction box or special consideration when wiring and collecting data from standard junction boxes.

Wiring for Triaxial sensors

Triaxial sensors are offered by many manufacturers. CTC's offerings include the following sensor series: AC230 and AC115.



AC230-1D Triaxial sensor

CTC offers switched output solutions in Stainless and fiber-glass enclosures for these triaxial sensors. These modules offer an easy solution for collecting data from the triaxial sensors. Many customers have had questions regarding the proper

way to wire such sensors in various configurations.

The wiring convention most manufacturers use is fairly common in the industry, where colored wires are "positive" or "signal" wires and black wires are "common" or "ground" wires. The illustration at right shows how easy it is to install the four wire output leads into a specialty junction box designed specifically for these sensors (TSB1000/TSB2000 and TSB3000



CTC's TSB1000/2000/3000 series switch boxes accept inputs from triaxial sensors into one easy to install wiring block.

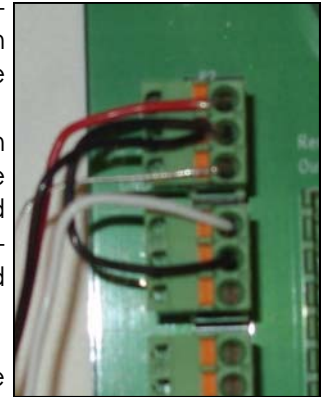
series enclosures). The three signal wires are attached to a single block with the black wire acting as a shared common. The shield wire is attached to the fifth input in the block to help eliminate any electrical interference. (note: the junction box

should be grounded for this shielding method to be effective)

Wiring triaxial sensors in a standard junction box

For new installations, a specialized box is easy to specify and an appropriate choice, but many analysts are looking to use some of these specialized sensors with an already installed base of junction boxes in order to conserve resources.

CTC's standard junction boxes can be used for these specialty sensors if wired properly, as all of these sensors use a common ground wire for all channels.



Wiring triaxial output sensors into a Standard switchbox.

In the illustration at right, the X axis vibration signal is input to the upper block (channel one) and the Y-axis vibration signal is input into the next lower block (channel two) with a jumper wire connecting the commons for both channels. This process is repeated (Signal wire to positive and jumper to common) for the z-axis in the third block. (Note the shield/drain wire is not required to be jumpered across all three channels) Using this method will require that each axis will have to be powered and measured on the data collector separately.

Using a standard switch box, data must be collected from each channel individually as only one channel will be read from each switch position. The same jumpering process can be used with CTC's CT series boxes and MX series boxes as well.

Parts included in this discussion

TSB1000/2000/3000 series switch boxes
AC115 series triaxial vibration sensor series
AC230 series triaxial vibration sensor series

If you have any questions or for further information please contact CTC directly via email at dgripe@ctconline.com or sales@ctconline.com or feel free to call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.

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