

Wiring For Dual Output Sensors

Executive Summary

CTC manufactures many sensors that offer benefits beyond just vibration outputs. Dual output sensors for temperature and acceleration readings are the most common and either require the use of a specialized junction box or special consideration when wiring and collecting data from standard junction boxes.

Wiring for dual output sensors

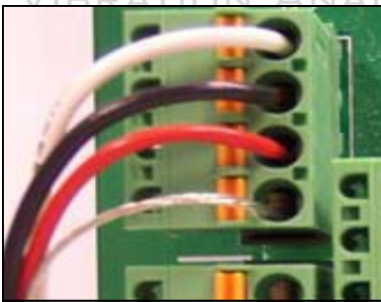
Dual output sensors for temperature and acceleration readings are offered by many manufacturers. CTC's offerings include the following sensor series: TA102, TA104, TA131, TA135, TA172, TA174, TA178, and TA184. Other dual output sensors are available for 4-20 mA loop power outputs combined with dynamic vibration. CTC provides the LP401 series, LP402 series and LP404 series for these dual loop powered options.

A wide variety of switchboxes are available including ones custom designed for the dual outputs from these specialized sensors. These junction boxes offer an easy solution to collecting data from multiple output sensors. Many customers have had questions regarding the proper way to wire a dual output sensor.

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 three wire output leads into a specialty junction box specifically for these sensors. The two signal wires are attached to a single block with the black wire as a shared common. The shield wire is attached to the fourth input in the block to help eliminate any electrical interference.



Dual output (TA104-1A) sensor

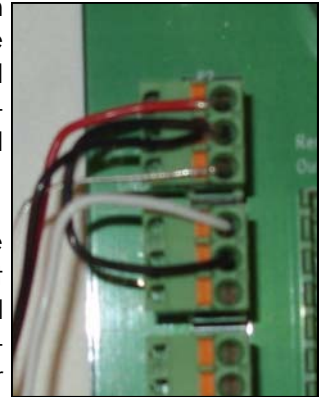


CTC's SB142/242 switch boxes accept inputs from dual output sensors into one easy to install wiring block.

Wiring dual output 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 a dual output sensor into a Standard switchbox.

In the illustration at right, the temperature signal is input to the upper block (channel one) and the vibration signal is input into the lower (channel 2) block with a jumper wire connecting the commons for both channels. (Note the shield/drain wire is not required to be jumpered across both channels) Using this method will require that the temperature and vibration will have to be recorded 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

SB100/200 series switch boxes

SB142/242 series switch boxes

TA100 temperature/vibration sensor series

LP400 4-20 mA/dynamic 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.