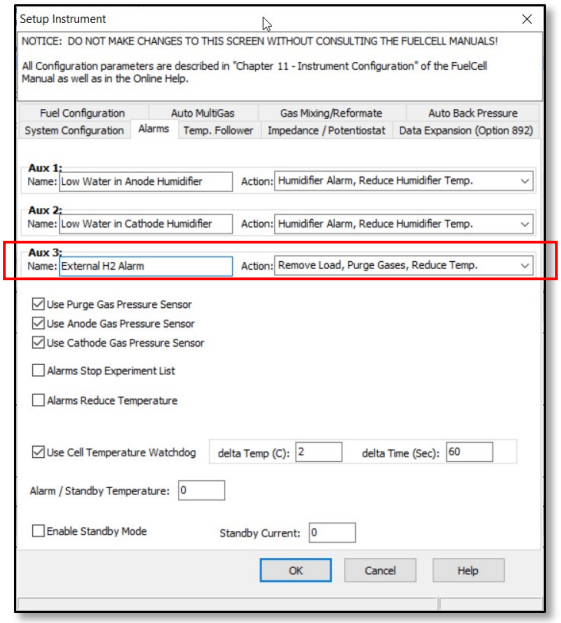
Q: Can the 850 Fuel Cell Test System be connected to an external device such as a hydrogen (H_2) detector in order to promote an automatic shut down on an alarm condition?

A: The 850 has an External Alarm input that can be used to shut the system down in the event of an alarm from an external device such as a room or building H_2 detector. It is a good, additional safety feature. The external alarm device is connected to the 850 via its Auxiliary Signals connector.

If an alarm is detected, the shut-down includes turning off the 850's Load, Fuel (Switch to Purge Gas) and Temperatures, putting the cell and test system in a safe state.

The external alarm is a digital input so the alarm device (*i.e.*, the H_2 detector) needs to have a digital output signal. The External Alarm device must have a Normally Closed (NC) relay output available. This means that the device triggers a relay from the Closed position to the Open position when the alarm condition occurs. This will then signal the *FuelCell* software via the 850 that there has been an alarm event on the "Aux 3" alarm input. The Aux 3 Alarm Input can have a user-defined name such as "External H2 Alarm".



NOTE: The alarm-generating device should not produce any voltage on the 850's alarm input. It should only have a relay contact.

Scribner provides Neodym "HydroKnowz" sensors that have an alarm trigger that occurs at 10% of the Lower Explosive Limit (LEL) for H_2 in Air (~ 0.4 % H_2 in Air). When triggered, this opens the relay output (*i.e.*, like electrical dis-connection of the two alarm wires) causing an Aux 3 system alarm.

Any number of items can be wired in series together on the Aux 3 alarm input as long as they each have a Normally Closed relay output available. If any of these devices triggers its relay output, the system will receive the Aux 3 alarm signal.

For systems with an 850R Gas Mixing Interface, the alarm signals are available on a corresponding screw terminal (Aux Alarm 3) of the 850R.