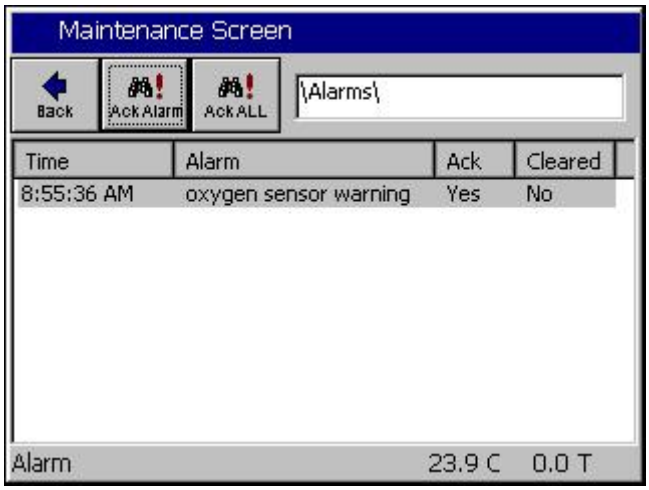
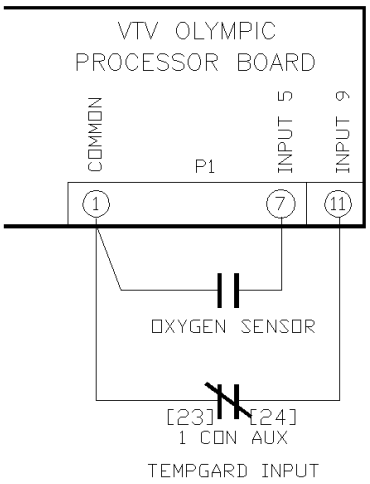
User Alarm System





Overview
The Synergy Controller provides a programmable user alarm system for customer specific warnings and for special applications where the alarm relays are used to operate a system function. This application note explains the user alarm setup procedure using two examples.

The User Alarm screen operates as a wizard like the profile wizard screen. This means that the setup instructions are provided along with the entry fields and the user follows along, entering information and pressing next or back as required until the alarm specification is complete.

There are 102 inputs that can be used for a user alarm condition (see the table below)
The input options are:

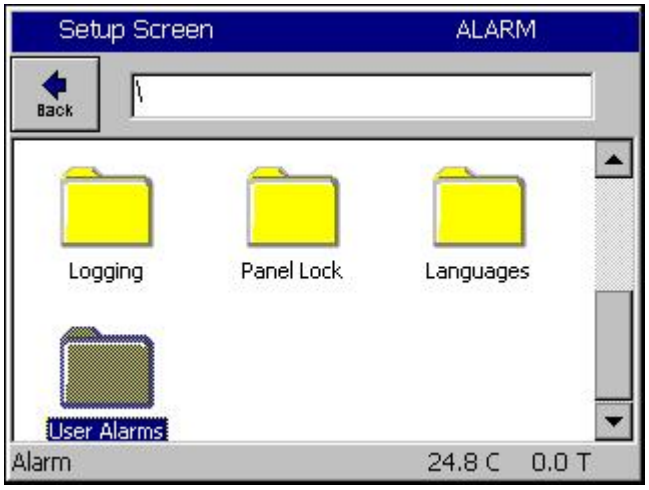
Module	Option1	Option2	Choices
Olympic Board	RTD1&2, Analog 1-4	N/A	6
UUT Module Inputs	UUT Module	Sensor	64
Machine Inputs	Low Resolution Channels 1 thru 8	N/A	8
Digital Inputs	Inputs 1 thru 16	N/A	16
Channels	Channels 1 thru 4	N/A	4
Setpoints	Setpoints 1 thru 4	N/A	4

There are four Comparison options.

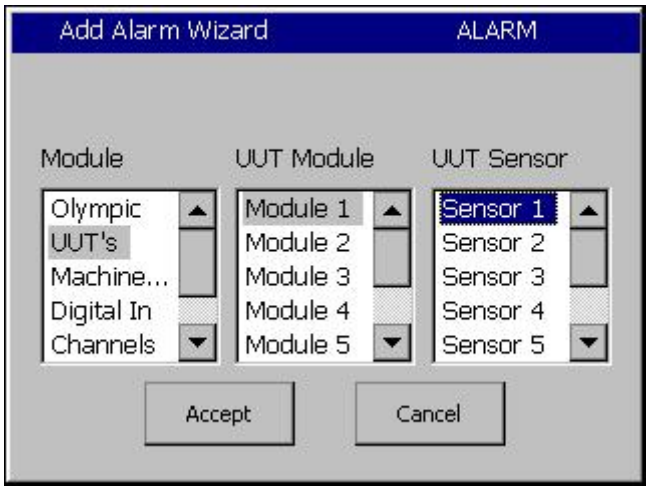
Comparison	Application
Input Open	Digital Inputs only
Input Closed	Digital Inputs only
Greater than Threshold	All inputs except Digital, Raw or Scaled.
Less than Threshold	All inputs except Digital, Raw or Scaled.

To enter a User Alarm, follow the steps of the wizard as shown below:

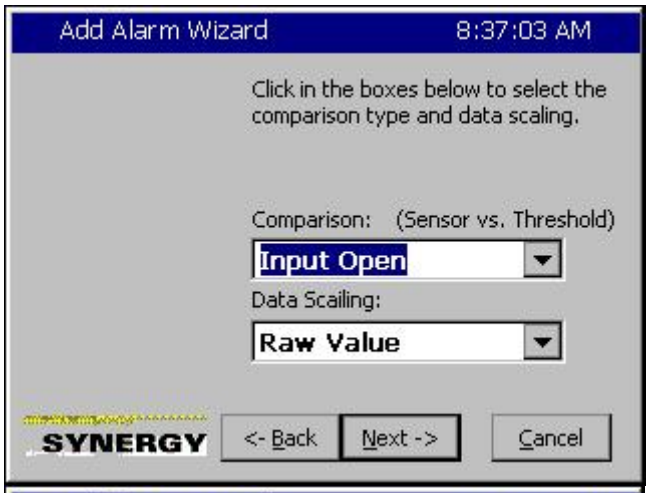
1. Open the Setup Screen and browse to the User Alarms folder
2. Select the Sensor, Setpoint or Channel.
3. Define the comparison type and the scaling, i.e. Input Open, Closed, Greater than, etc.
4. Select the Alarm Threshold. (Not required for Digital Inputs).
5. Enter a name for the alarm. This name appears in the alarm screen when the alarm occurs.
6. Select the desired alarm responses.
7. Confirm your choices and finish.



Open the Setup Screen and browse to the User Alarms folder



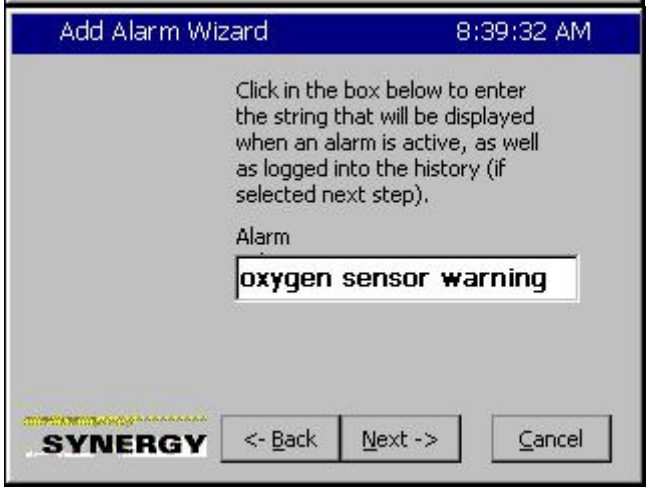
Select the Sensor, Setpoint or channel.



Define the comparison type and the scaling, i.e. Input Open, Closed, Greater than, etc.

Select the Alarm Threshold.

Note: This step is not required for Digital Inputs.

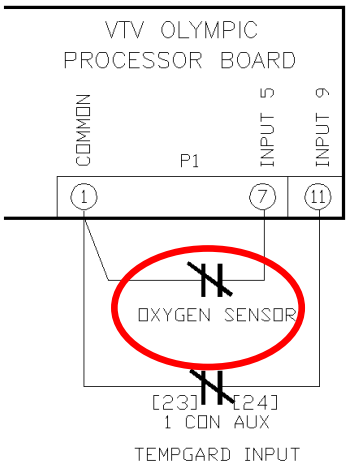


Enter a name for the alarm. This name appears in the alarm screen when the alarm occurs.

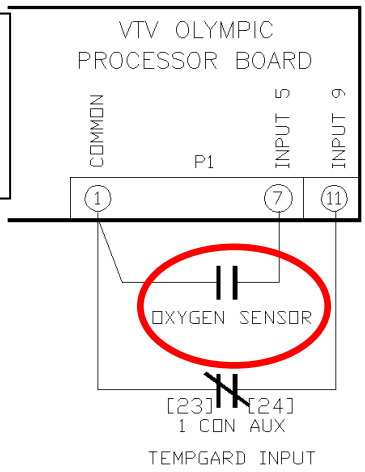
	Select the desired alarm responses
	Confirm your choices and finish

Example 1:
Create an alarm that senses Digital Input 5 and Displays “Oxygen Sensor Warning” when the input is Open.

Oxygen Sensor Warning Normal State

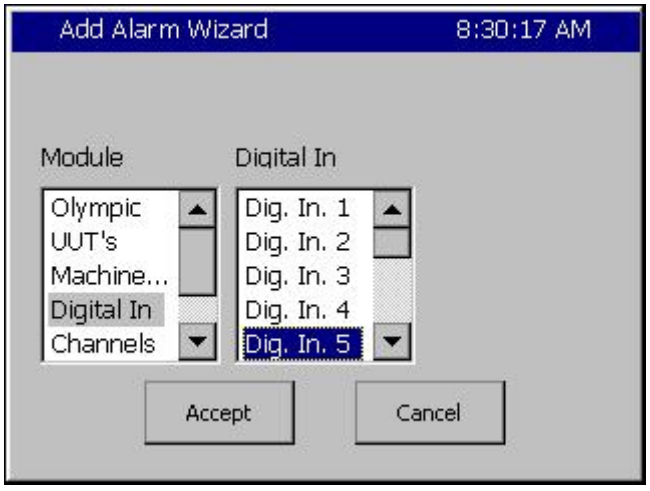


Oxygen Sensor Warning Alarm State



Select the Sensor, Setpoint or channel.

Begin by pressing in the Sensor text box.

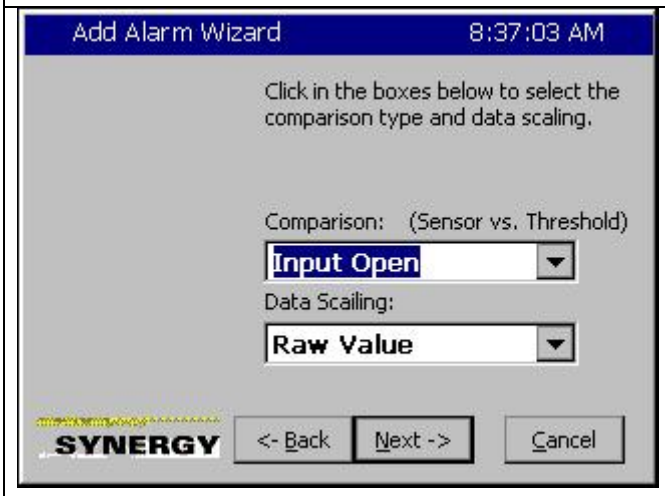


Select Digital Input 5

Then press Accept.

The wizard displays the code for this alarm.

Then press Next ->



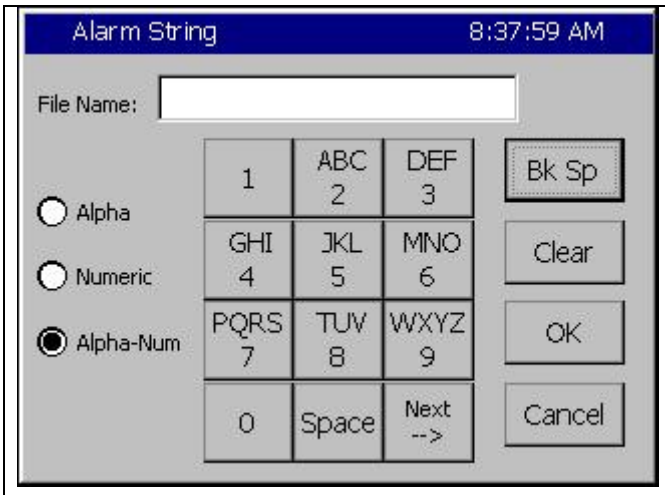
Select the Comparison. In this case Input Open.

Then press Next ->

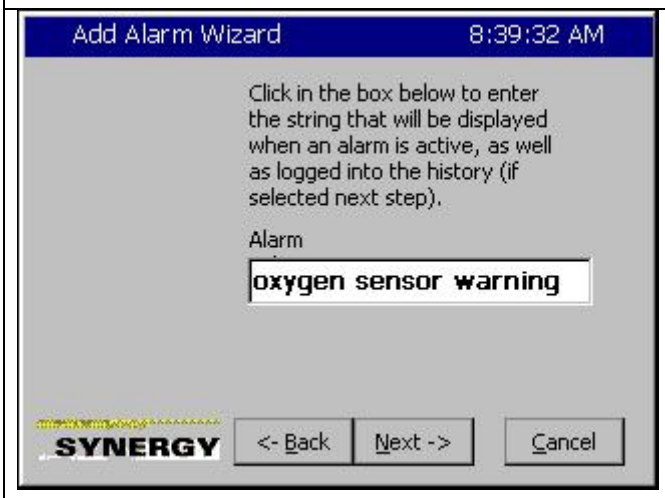
Note: Data Scaling doesn't apply for digital inputs

Enter a name for this alarm.

Begin by pressing in the Alarm text box.



Enter a name for this alarm using the T-9 pad.



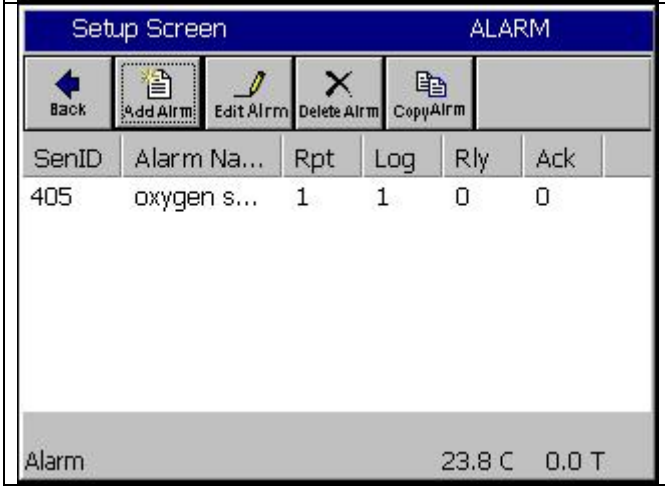
When the name is complete,

Then press Next -> to continue.

Select the desired alarm actions as shown at left,

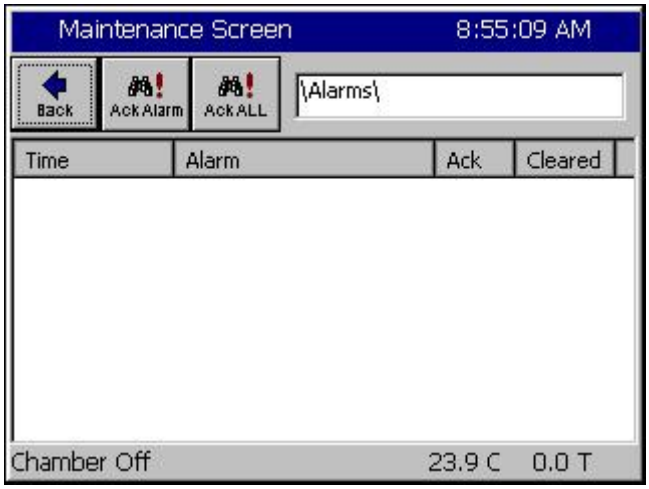
Then press Next -> to continue.

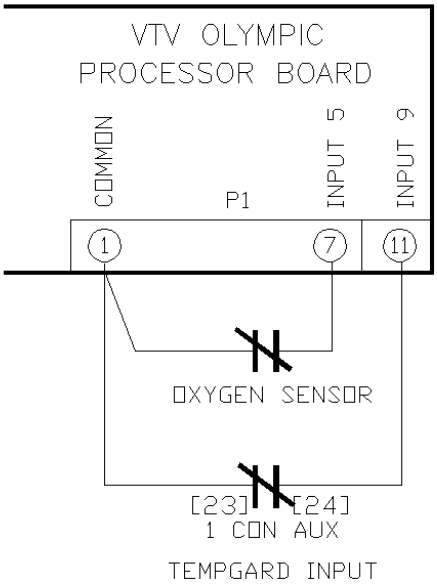
Confirm your choices and press Finish to complete the User Alarm entry process and close the Add Alarm Wizard.



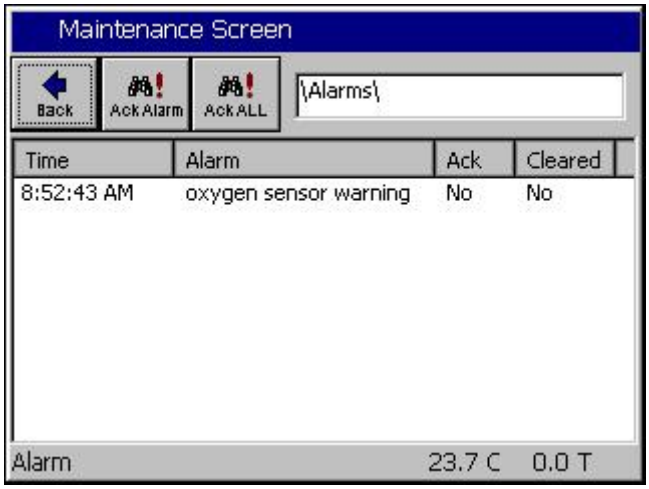
The User Alarm screen will list the new User Alarm entry as shown at list.

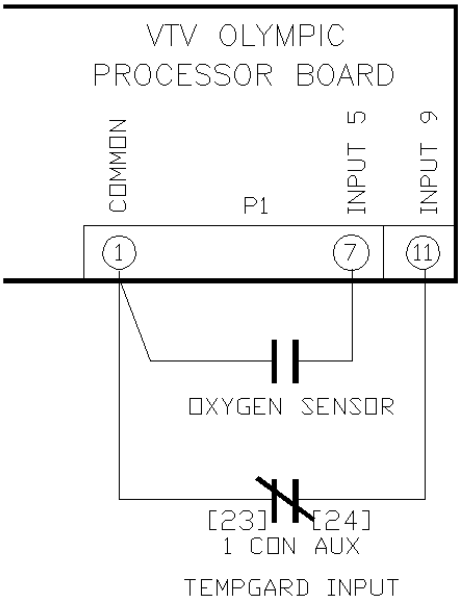
In operation, the Alarm Screen in the Maintenance folder indicates a normal state when the Input is closed as shown in the figures below:





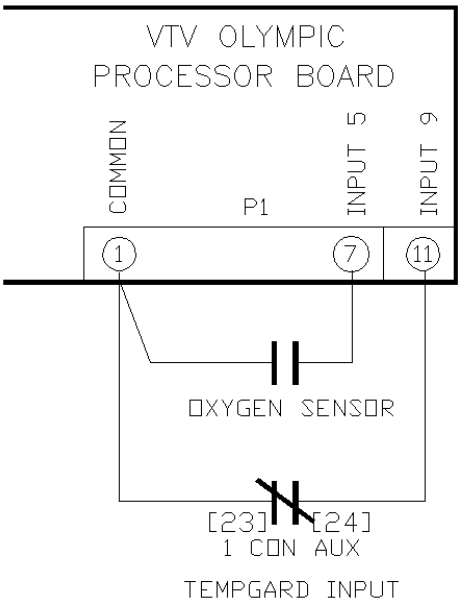
The Alarm Screen in the Maintenance folder indicates the alarm condition when the input is open as shown in the figure below:



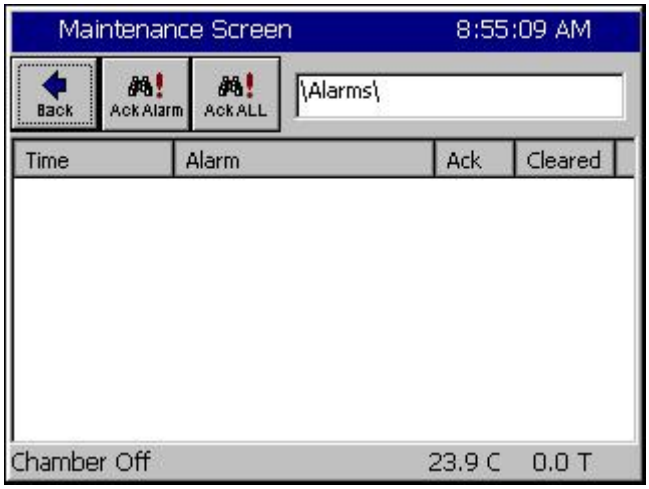


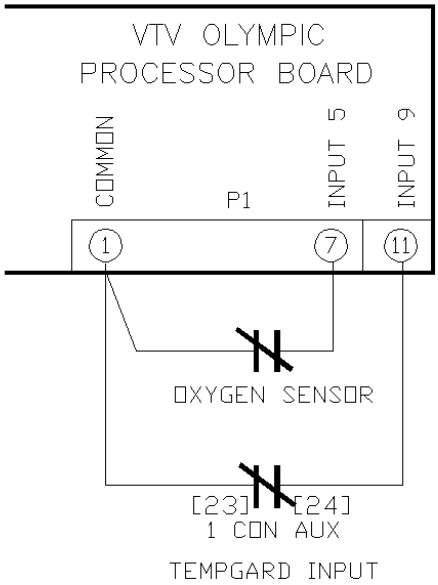
User alarms in the Maintenance/Alarm screen operate just like the High and Low limit alarms. The alarm entry displays “Yes” in the “Ack” column after an alarm is acknowledged. This can be done before or after it has cleared. The alarm is removed from the list only after the alarm condition has cleared and it has been acknowledged by the operator.

The alarm in the screenshot below has been acknowledged but the alarm condition still exists since the Ack column reports “Yes“ and the Cleared column reports “No“.



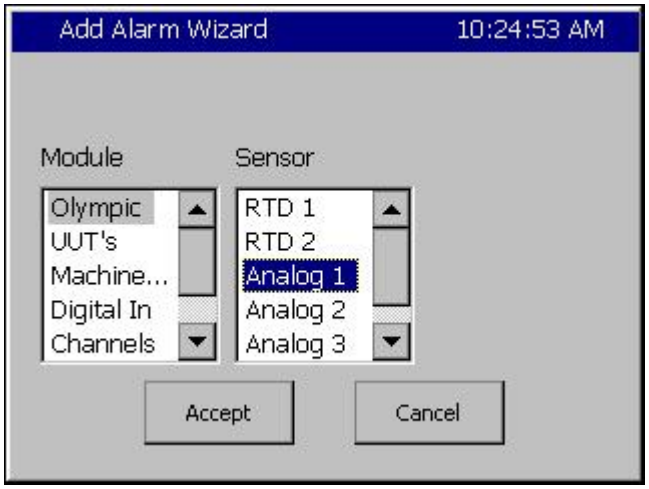
In the screenshot below, the alarm has been acknowledged and the alarm condition has cleared so the alarm entry has been removed from the list





Example 2

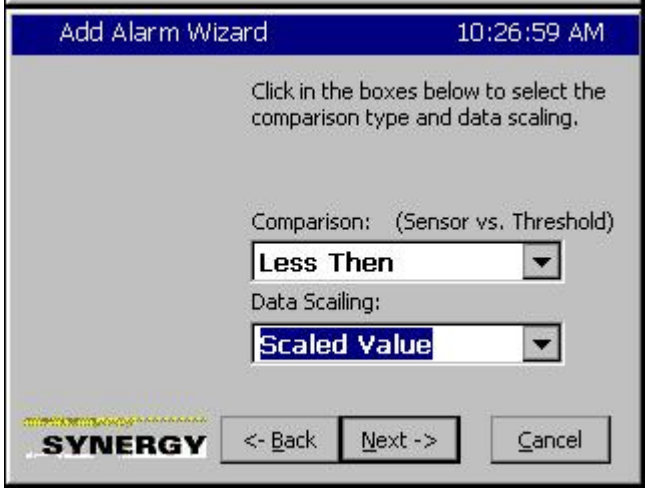
At low atmospheric pressures, the heaters in most altitude chambers are turned off so they don't overheat when convection cooling capacity is reduced at low pressures. In this example we will create an alarm that senses Hi Res Input 3 (Torr) and opens Relay 2 when the value is less than 30 Torr. This alarm displays "Heater Safety Shutoff" when the input is Open.



Select the Olympic Module and Analog input 1, then press Accept.

This screen at left shows the Sensor code for the Olympic Module and Analog input 1.

then press Next -> to continue.



Since we want the alarm to trigger when the pressure is less than 30 Torr, we select the "Less Then" comparison type. We also select the Scaled Value for Data Scaling because we want to compare the scaled Torr value as opposed to the Raw 0-5 Volt input.

Next we enter the Alarm Threshold.

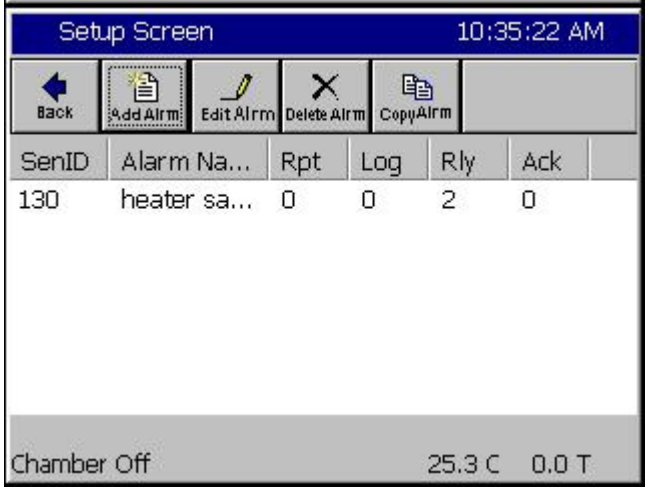
Press the Alarm Threshold text box.

Then we enter the Alarm Threshold using the number pad and press Accept.

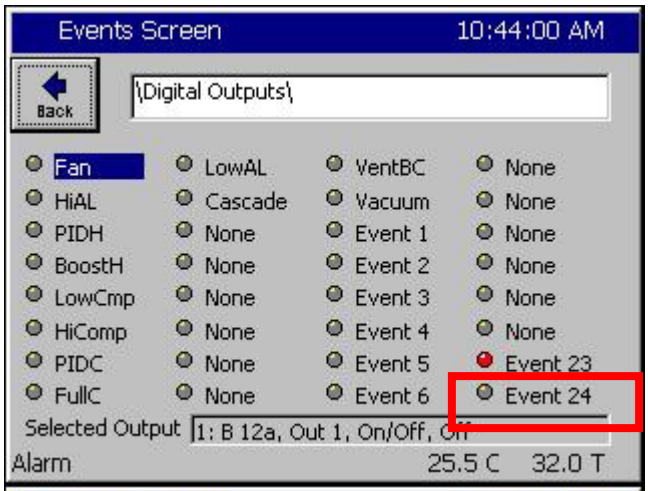
Next we confirm the Alarm Threshold and press Next-> to continue.

Next we select the Alarm Actions and press Next-> to continue..

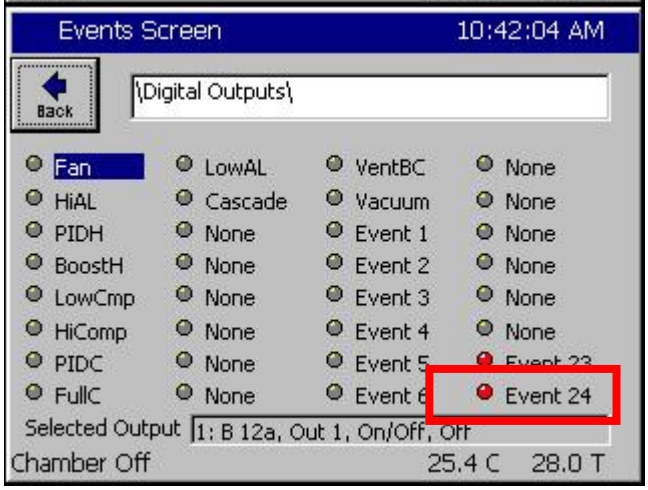
And finally, we confirm our settings and press Finish to close the Add Alarm Wizard.



The Setup/User Alarm screen shows our new alarm.



When the Torr value is greater than 30 Torr, as shown at left, the Relay (Event 24) is Inactive (Grey).



When the Torr value is less than 30 Torr, as shown at left, the Relay (Event 24) is active (Red).

Note that this alarm only operates Relay 2 as defined by our entries in the Add Alarm Wizard. It doesn't appear in the title bar, in the alarm screen or in the log file.

This concludes the User Alarm demonstration. For more information concerning User Alarms, consult the Synergy Controller Technical Manual on our website and/or contact technical support at the factory.

About Tidal Engineering

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award-winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems. Tidal's products are available exclusively through ADI American Distributors Inc., an ISO-9002 certified distributor of electronic and electromechanical components and assemblies.

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