



E-opto16
User Manual

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1) Introduction

1. What is E-opto16?

The E-opto16 expansion module extends the securityProbe 5E capabilities by connecting an additional 16 opto-isolated dry contacts to the base unit. This increases the number of data points that can be monitored from a single securityProbe 5E.

The E-opto16 inputs are set as opto isolated only, so they require a voltage source.

If the inputs (on the E-opto16) are set to the normal state of voltage applied, then the status will go to a critical state if nothing is connected, or there is no input signal to the input and if the input is set to the normal state of no voltage applied, then the status will go into the critical state when a signal is applied (or voltage applied).

Note: The E-opto16 works in opto isolation mode only (a voltage source is required). So if a simple switch (not voltage) is connected to the inputs the E-opto16 will not display any alerts. (see section #4 for connecting switches).

Differences between the E-opto16, the X20 and X60 dry contact inputs, and IO-digital8 sensor and the DCS15 (RJ-45 dry contact sensor).

The dry contact inputs on the X20 and X60 units can be switched from opto-isolated mode to non-opto isolated mode (jumper setting on the boards), where the E-opto16 inputs are all shipped as opto isolated and cannot be configured as non-opto isolated. Because of this, the E-opto16 inputs do require an input voltage as the module will not supply this voltage.

The X60 inputs do not require any input voltage if left in their default configuration of non-opto isolated.

The E-opto16 (16 opto isolated dry contact inputs) expansion unit is used when the customer requires inputs of more than 5volts DC up to 24volts DC, hence the use of the term opto-isolated.

Differences between the E-opto16 and the IO-digital8 (8 dry contacts on a single sensor port) and DCS15.

Compared to the E-opto16, the IO-digital8 is for 5 Volts or less and it has the added advantage of supplying 5volts output at 20milliamps. This would be used if the dry contacts require inputs of 5 volts or less or the requirements are a 5 Volt output. The DCS15 is the same only using a single dry contact input or output on a single RJ-45 port.

2. How to use this manual

This manual is meant to provide the user with a step by step guide on how to configure and set up their unit. It utilizes screen shots in an effort to make things simpler for the user to follow. It is split up

into sections that form “mini tutorials”. These cover the basic set up and common configurations of the unit, and give an introduction to its most useful features.

If you need any further information or help with using your unit then please contact us on support@akcp.com and one of our technical support staff will be only to pleased to help you with any information you require.

3. Package Contents

Your E-sensor8 package contains the following items:-

- 1x Product CD
- 1x 7.5v, 3 A power supply
- 1x Brackets for rack mounting
- 1x 5 ft straight cable

4. Front and rear panels



Fig 1. Front panel

The front panel has several LED's that indicate the units status and notify you as to its activity.

1. Power LED

When the unit is powered up the power LED will be lit continuously. If the power LED is flashing then it indicates a problem with the CPU. If you notice this then please contact us on support@akcp.com

2. Link LED

The link LED indicates network connectivity and will light up when there is a connection present.

3. Expansion in / Expansion Out

These are named E-in and E-out. The E-in is for connecting your Esensor8 module to the securityProbe 5E base unit via a CAT5E straight cable, the E-out is for daisy chaining additional expansion modules again using a CAT5E straight cable.

4. Status / Online LED'S

These are numbered 1 – 16. They are used to indicate the connectivity status of the sensors connected to each port. These LEDs also can be used to indicate system status when undertaking various operations.

1. The LEDs will indicate the progress of an upgrade. The red LEDs will move from left to right to indicate activity, and the green LEDs will indicate overall progress of the upgrade. When all the red lights are off and all green are on the upgrade / recovery process is complete.
2. These lights will indicate if the unit is operating in safe mode. This is when the unit loads the Operating System (OS) with a minimal set of drivers. If your device enters safe mode after rebooting then please contact us on support@akcp.com
3. The unit may enter recovery mode if a firmware upgrade has been incomplete. This will be indicated by the unit displaying a continuously lit row of red LEDs. If this happens please contact us on support@akcp.com

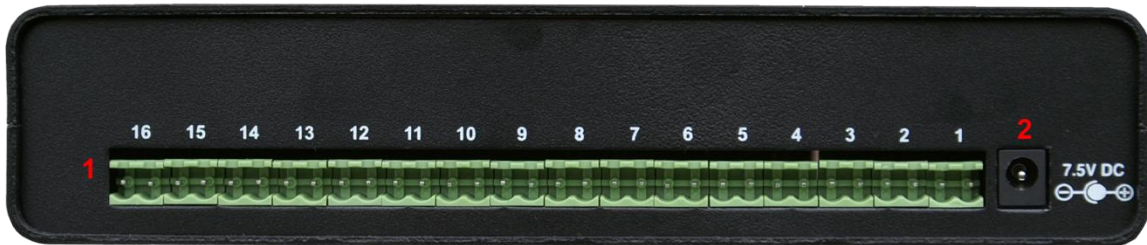


Fig 2. Rear panel

1. Dry Contact Ports

There are 16 two pin dry contact ports. These are for connecting the input voltage,

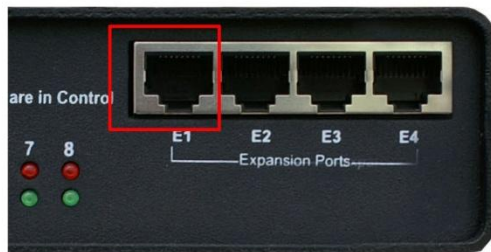
2. Power Connector

This is a 7.5V DC plug. We recommend using a 7.0 – 9V, 2.5 A power supply.

2) Installation

1. Connecting to the base unit

In this section we will now look at connecting the E-sensor8 to the AKCP securityProbe 5E. To begin setup the unit by following the instructions below:-



1) Connect the cable in your chosen port



2) Connect the opposite end in the “E-in” port

Note: make sure you also have your 7.5 volt power supply connected.

The expansion modules can be mounted in either a standard configuration, or daisy chained configuration. This is demonstrated below:-

Standard Configuration



In the above example you can see that we have connected two expansion modules from two separate expansion ports from the securityProbe. In the example below you can see we have connected the same two modules, only this time using the daisy chain method.

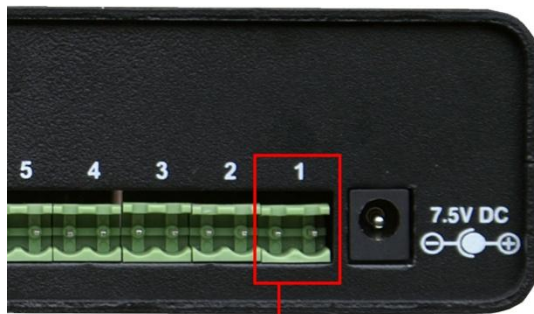
Daisy Chained Configuration



2. Setting up a Sensor (standard configuration)

In this section we will now go through the basic set up of a dry contact sensor, however this basic set up process is applicable to all of our sensors. If you require information on specific functions of a particular sensor then please download the manual for that sensor from our website, or locate it on your product CD.

- a) Plug the sensor into one of the dry contact ports on the rear panel of the unit. In this example we will use port 1.



Attach the dry contact to this port

- b) Now point your browser to the IP address of the unit (default, 192.168.0.100). Next you need to login as the administrator using your administrator password (default is “public”). You will then be taken to the summary page. This is shown below.

You will now notice your expansion board listed “Sensor Information”

Board Name	Type	Sensor Name	Reading	Status
Board 0A000004	Board	Board 0A000004	-	Normal
Internal R.445	Board	Internal R.445	-	Critical

System Log (18 messages)

1	009/09/01 06:19:48	Camera: Automatically stops when no video signal present for 3
2	009/09/01 06:19:23	Temperature Port 8 on Board 0A000004 is 28 °C, status is Normal
3	009/09/01 06:19:23	Humidity Port 8 on Board 0A000004 is 54 %, status is Normal
4	009/09/01 06:17:58	Temperature Port 6 is 29 °C, status is Normal
5	009/09/01 06:17:58	Security Port 5 status is Critical
6	009/09/01 06:17:58	Humidity Port 3 is 54 %, status is Normal
7	009/09/01 06:17:58	Water Detector Port 2 status is Critical
8	009/09/01 06:17:58	Dry Contact Port 1.8 status is Critical
9	009/09/01 06:17:58	Dry Contact Port 1.7 status is Critical
10	009/09/01 06:17:58	Dry Contact Port 1.6 status is Critical

- c) You can reach the sensor page by clicking on either the sensor name or by clicking the sensors tab at the top of the screen. This will bring you the following page:-

The screenshot shows the AKCP securityProbe interface. At the top, there's a navigation bar with tabs for Summary, Map, Picture Log / Sound Log, Sensors, Notification, Settings, Applications, and Help. The current page is 'Sensor Settings' for 'Extended Port1'. On the left is a 'Sensors Menu' with options like Sensor Ports, Camera Motion Detection, Sound Detector, No Camera Signal Detector, and Virtual Sensors. The main area shows 'Board 0B000004' selected, with fields for Board Name, Board Status (Connected), and Board Currenty (Enable). Below this is a row of 16 dry contact ports, numbered 1 to 16. Red annotations point to the board selection, configuration fields, and the dry contact ports.

Here you can see the expansion board selected

Here you can alter your board name

This shows online or offline status

This shows board status

Dry contact ports are listed from 1-16, click any of these to be taken to the sensor settings page

The 'Sensors Menu' sidebar is shown with the 'Extended Port' section highlighted. It lists 'Extended Port1', 'Extended Port2', 'Extended Port3', and 'Extended Port4' as sub-items.

Extended ports are listed from 1-4 on the left of the sensor settings page.

Once you have clicked on the sensor port you require you will be brought to the following page:-

The screenshot displays the AKCP securityProbe web interface. At the top, the header includes the AKCP logo, the product name "AKCP securityProbe", and the user role "Admin". Below the header, there are navigation tabs: "Summary", "Map", "Picture Log / Sound Log", "Sensors", "Notification", "Settings", "Applications", and "Help". The "Sensors" tab is active, leading to the "Sensor Settings" page for "Extended Port1".

The interface is divided into a left sidebar and a main content area. The sidebar contains a "Sensors Menu" with options like "Extended Port1", "Extended Port2", "Extended Port3", and "Extended Port4". Below this are sections for "Camera Motion Detection", "Sound Detector", "No Camera Signal Detector", and "Virtual Sensors". A "Help" section provides instructions on how to use the page. A "Helpful Suggestion" section offers advice on setting a "Continuous Time for Sensor" to reduce false warnings.

The main content area shows a visual representation of the sensor board, "Board 0B000004", with 16 numbered slots. Slot 1 is highlighted in yellow. Below the board, there are configuration fields for "Sensor Name", "Status" (set to "No Status"), "Sensor Currently" (set to "Offline"), "Description of Status When Normal", "Description of Status When Critical", and "Normal State" (with radio buttons for "Closed/GND" and "Open+5 Volts"). At the bottom, there are "Advanced Mode >>", "Save", and "Reset" buttons.

As with the securityProbe the procedure for changing sensor values remains the same, for more information on sensor settings refer to the securityProbe manual or individual sensor manual.

3. Setting up a Sensor (Daisy chained configuration)

Once again we will now go through the basic set up of a sensor, only this time we will look at the daisy chained configuration. We will focus once more on the AKCP temperature sensor; however this basic set up process is applicable to all of our sensors. If you require information on specific functions of a particular sensor then please download the manual for that sensor from our website, or locate it on your product CD.

- a) Connect the two modules together by following the instructions below:-



Insert your straight CAT5 cable into the E-out port.



Then insert the other end into the E-in port on your second expansion module

Note: make sure you also have your 7.5 volt power supply connected.

Once the unit is connected you will see the LED'S enter the boot-up sequence indicating your expansion module is communicating with your securityProbe 5E.

- b) Once again plug a sensor into one of the dry contact ports on the rear panel of the unit. In this example we will use port 1



Plug your sensor into this port

- c) Once the unit is connected you will need to access your web interface, point your browser to your desired IP address and log in, and navigate to the summary page. You will see two boards displayed within the sensor information window:-

Board Name ▲	Type ▲▼	Sensor Name ▲▼	Reading ▲▼	Status ▲▼
Board 0A000003	Board	Board 0A000003	-	Warning
Board 0B000004	Board	Board 0B000004	-	Connected
Internal RJ45	Board	Internal RJ45	-	Warning

Sensors status will be reloaded in 10 secs

Both expansion boards are now displayed.

By clicking on the lower of the two boards you will be taken to the sensors page. (this page can also be accessed by clicking the sensors tab at the top of the summary page).

The screenshot shows the AKCP securityProbe web interface. The top navigation bar includes 'Summary', 'Map', 'Picture Log / Sound Log', 'Sensors', 'Notification', 'Settings', 'Applications', and 'Help'. The 'Sensors' tab is active, leading to the 'Sensor Settings' page for 'Extended Port1'. The page displays two expansion boards: 'Board 0B000004' (Primary expansion board) and 'Board 0A000003' (Secondary expansion board). Below these, the 'Daisy chained board details' for Board 0B000004 are shown, including its name, status (Connected), and a 'Board Currently' toggle set to 'Enable'. At the bottom, a row of 16 sensor slots is visible, with a red box highlighting them and the label 'Sensors attached to expansion board'. The footer indicates '©1991 - 2009 AKCP All rights reserved.' and 'Sensors status will be reloaded in 10 secs'.

By clicking on any available sensors you will be taken to the settings for that particular sensor as shown below:-



Once you have clicked on the sensor port you require you will be brought to the following page:-



As with the securityProbe the procedure for changing sensor values remains the same, for more information on sensor settings refer to the securityProbe manual or individual sensor manual.

3) Notifications

If you setup a notification you can define the action to take when the sensor gives a reading beyond your previously set thresholds. This allows you to determine how you will be notified that a sensors reading has reached the specified parameters (high warning, critical etc) that we looked at in the previous section.

This tutorial provides you the information needed to setup a notification.

To get to the starting point of this tutorial:

- Login as administrator
- Click the “Notifications” tab

1. Adding a notification

a) First click on the “notification wizard”

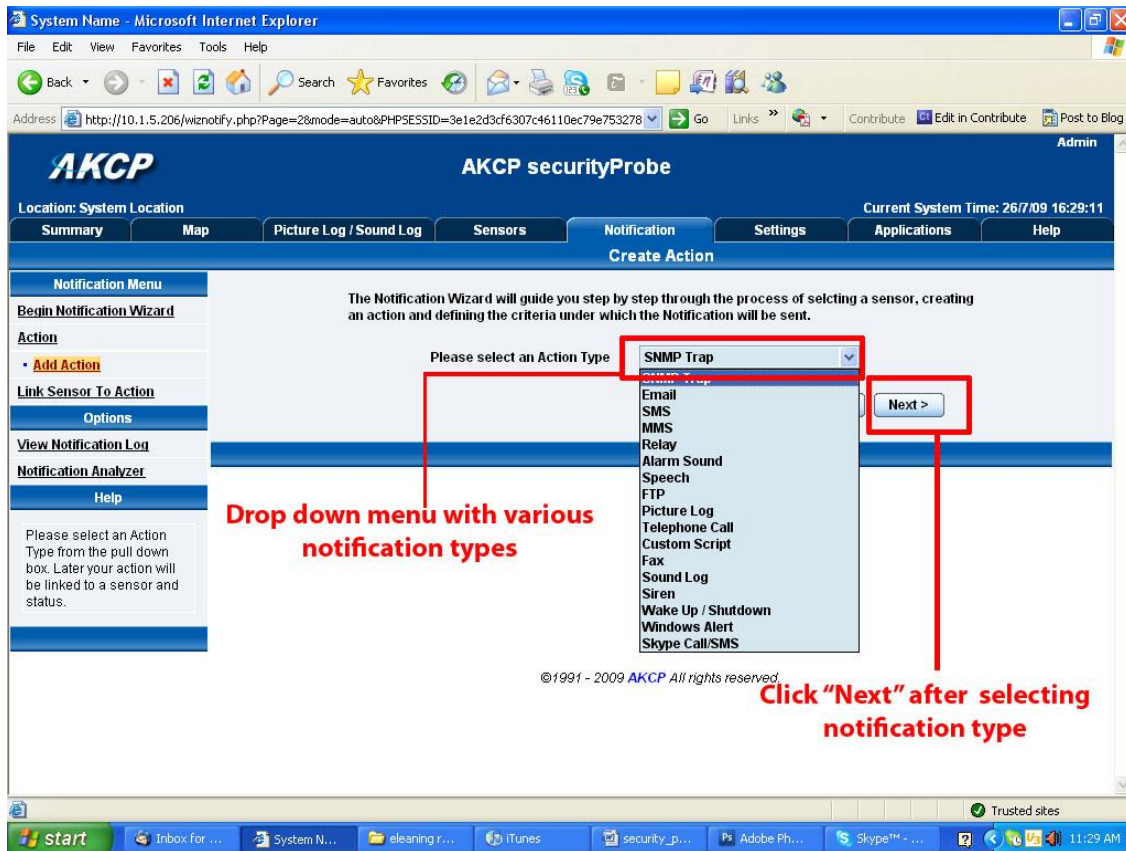
The screenshot shows the AKCP securityProbe web interface. The browser window title is "System Name - Microsoft Internet Explorer". The address bar shows "http://10.1.5.206/wiznotify.php". The page header includes the AKCP logo and "AKCP securityProbe". The current system time is "26/7/09 16:22:31". The navigation menu includes "Summary", "Map", "Picture Log / Sound Log", "Sensors", "Notification", "Settings", "Applications", and "Help". The "Notification" tab is highlighted with a red box and labeled "Click notification tab". Below the navigation menu, there is a "Notification Menu" section with links for "Begin Notification Wizard", "Link Sensor To Action", "Options", "View Notification Log", "Notification Analyzer", and "Help". The "Begin Notification Wizard" link is highlighted with a red box and labeled "Click here to begin setting up a notification". The main content area shows a "Link Sensor To Action" section with a table and buttons for "Create", "Edit", "Create Escalation", and "Remove".

Board Name	Sensor Name	Action on Status	Action Name

Buttons: Create, Edit, Create Escalation, Remove

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b) You will now have the notification wizard page displayed, like below.



We will now show a sample notification. To learn what the other types of notifications do refer to the separate notification manuals that can be found on your product CD.

SNMP trap

We will set up a notification via SNMP trap, so that when your sensor reaches a certain threshold it will send a notification to your SNMP server.

This tutorial provides you the information needed to setup an SNMP trap.

To get to the starting point of this tutorial:

- Log in as administrator
- Click the “Notifications” tab
- Choose “Notifications wizard”
- Choose SNMP trap

a) After selecting to add an SNMP trap you will need to fill in the following information

The screenshot shows a web form for adding an SNMP trap destination. The form includes the following fields and controls:

- Action Name:** A text input field containing "SNMP Trap 1". A red box highlights this field with the annotation "Enter name for your SNMP notification".
- Trap Version:** Radio buttons for "v1" (selected), "v2c", and "v3".
- SNMP Trap send port(default is : 162): 162** A text input field.
- Destination Address:** A text input field containing "192.168.0.XXX". A red box highlights this field with the annotation "Enter the IP address of your SNMP trap".
- Community:** A text input field containing "public". A red box highlights this field with the annotation "Enter community name of trap".
- Add Trap Destination:** A button.
- Cancel** and **Next:** Buttons at the bottom right.

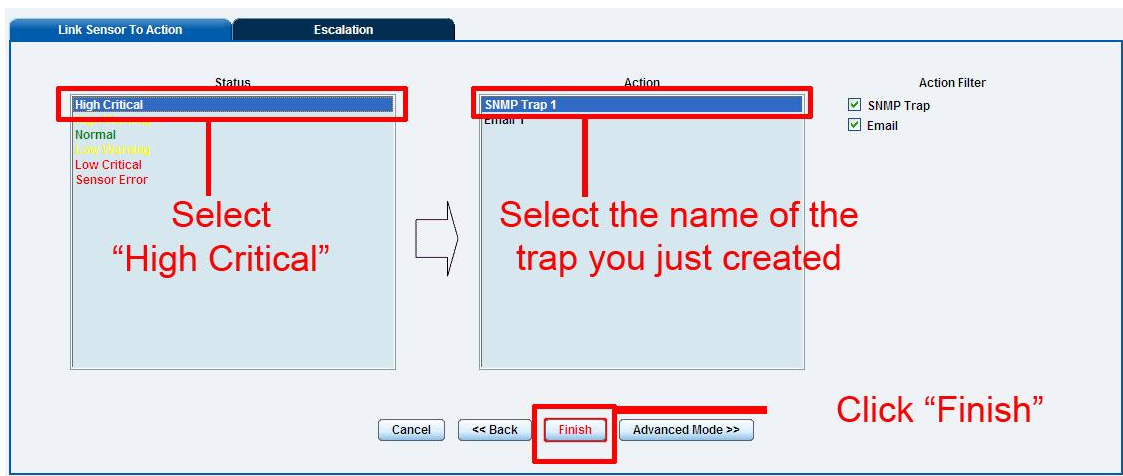
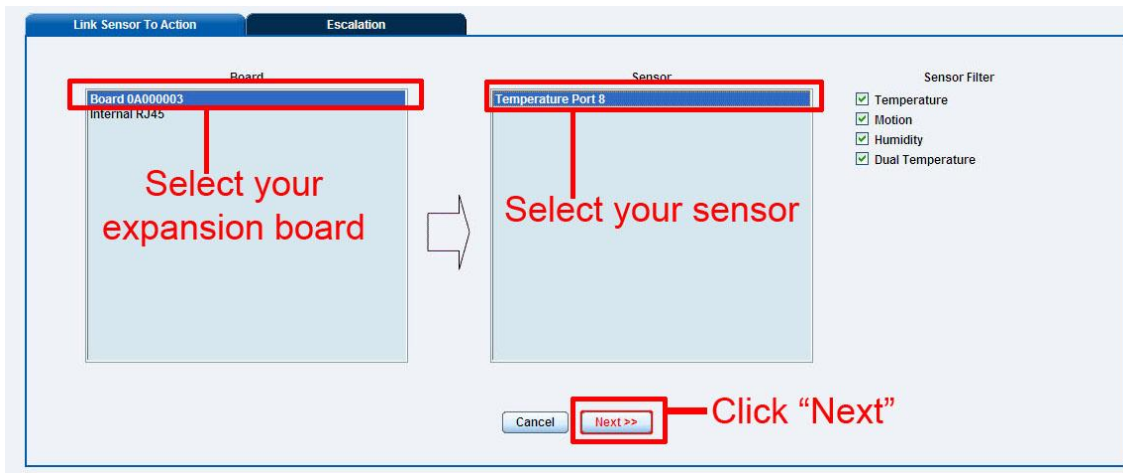
b) Once this information is correct you can press the “Add Trap Destination” button. After clicking this you have the option of inputting another trap, or clicking on “Next”. Now you can enter the following parameters:-

The screenshot shows the "SNMP Trap Action Wizard" configuration form. It includes the following fields and controls:

- Sensors** and **Notification** tabs at the top.
- SNMP Trap Action Wiz** title.
- Maximum Times to Resend:** A dropdown menu set to "0".
- Resend Intervals (secs):** A text input field containing "10" and a label "10 secs".

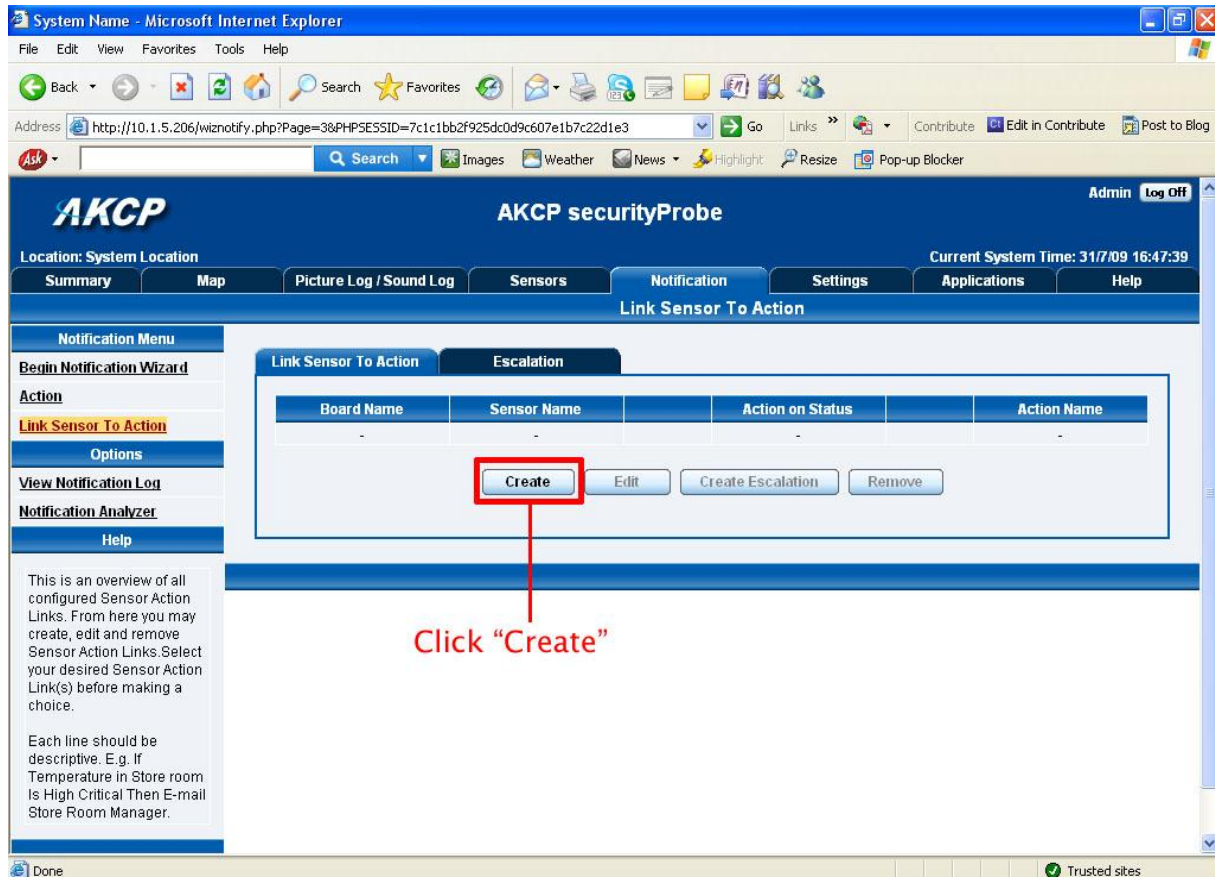
These parameters set the maximum number of times to send the trap notification and the time interval between each notification.

c) After clicking next you will be presented with the following screens:-

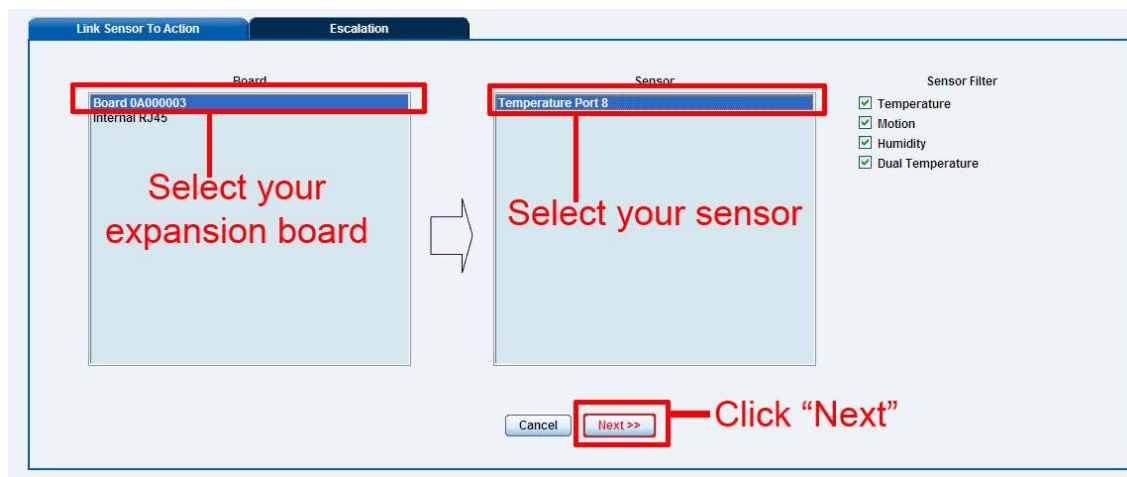


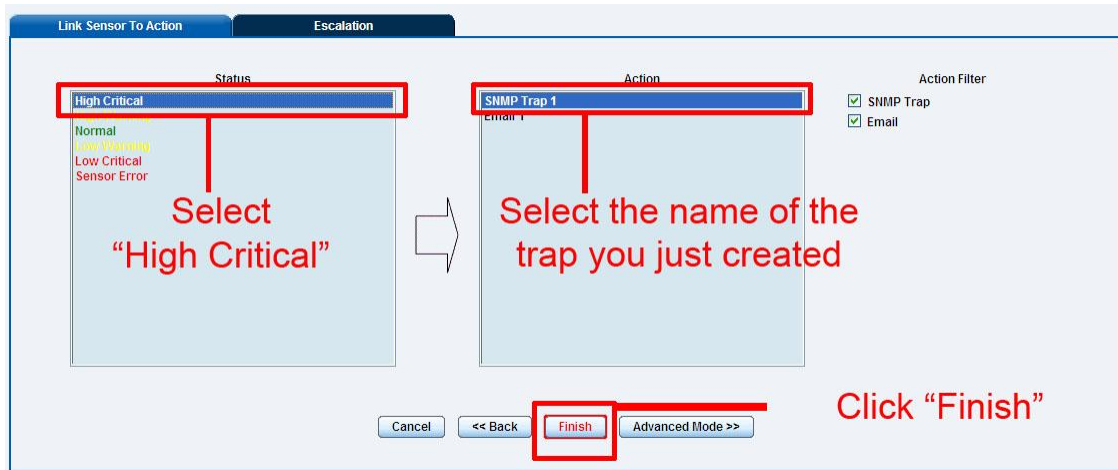
On these screens you can select the parameters for when to send the SNMP trap notification. In our example we have selected to bind the SNMP trap to the temperature sensor we have connected on port 1. The trap will be sent when the sensor reads a "High Critical" and we bind this to the SNMP trap we just created and named "SNMP Trap 1"

d) Once we have created the parameters for the SNMP trap, we need to make it active. To do this go back to the notifications tab and it should look like the following:-

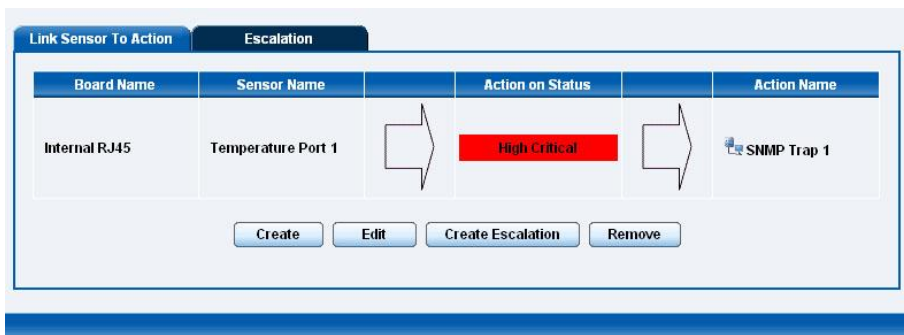


d) Select the sensor and SNMP trap parameters as before





f) Now you will see the SNMP trap has been added to our notifications page:-



Note: To remove this trap and make it inactive, highlight the notification and click remove.

You can repeat this process to set up multiple SNMP traps for different sensors, or for multiple SNMP servers etc.

4) Using the E-opto16 inputs with open and closed switches

If you require to use the E-opto16 inputs with simple open and closed switches, this can be setup as follows.

Please see this diagram below for connecting switches to the E-opto16 inputs:

Power Supply Specifications: The maximum current is 80mA.6 - 10mA can be used per port for driving the E-opto16 inputs, so at least 96 - 160mA can be used and 5VDC 200mA is enough for the E-opto16.

(see the diagram on the following page)

