www.AKCP.com

SPX+ Notifications Manual

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Introduction

This manual covers all of the built in notifications on the SPX+ and how to configure them.

What is the SPX+?

sensorProbeX+ is the latest generation of sensorProbe devices. In a completely new form factor that allows for 1U or 0U mounting with a low profile design it takes up much less cabinet space. SPX+ comes in several standard configurations, but with the AKCP configuration tool you are able to custom design a unit to your own specifications. Choose from various modules to specify the number of dry contacts, sensor ports or an internal modem.

Please check our SPX+ unit configurator tool on our website, where you can build your own custom configuration:
http://www.akcp.com/configuratorTool/

SPX+ Features:
- Modular design, 1U or 0U mounting
- IP based, including SNMPv3, HTTPS, VPN
- Send encrypted SNMP Trap and Email Notifications
- Supports at least 4 Intelligent Sensors and up to 120 Dry Contacts
- Optional cellular modem with external antenna
- Notification Wizards
- Front and Rear Thermal Mapping for any server cabinet
- Low Cost Daisy Chained Temperature sensors
- Optional Expansion Module connectivity
- Virtual Sensors
- Patented Fire Suppression feature
- AKCP Swing Handle Lock support
- Optional Dry Contact Sensors in I/O and Opto-Isolated modes

Important note: Some of the pictures shown in this manual might not represent the actual Web UI of the unit; this is because we are constantly working on improving the firmware. Please provide us with feedback if you have any issues configuring your unit.

What's the difference between the SP2+, SP2+X and SPX+?

The SP2+ has 4 sensor ports for connecting any compatible AKCP sensor.
The SP2+X has 3 sensor ports and 1 expansion port, but generally the same as SP2+.

The SPX+ builds on the SP2+X features - supporting expansion modules - in a modular design allowing you to choose your own configuration.
We have several standard configurations, but with the AKCP Configuration Tool you are able to custom design a unit to your own specifications.

Events

The **Events page** contains all logged events that the unit stores. It's functioning like a categorized syslog, where you can search for a specific event, and also export the logged entries to a file.

The default view is the **All Events** which contains all logs in one view. We'll explain all of the categories below.

You can filter the events by type, by clicking on the tabs.
In this picture we've chosen to display only the **System** events.

Events by category:

All Events - contains all logs from the device, sorted by date and time; you can specify the start- and end dates to narrow the list, or choose a specific log category.

System - contains the logs for the device's system events, such as reboot, firmware update etc.

Sensors - contains logs for all sensor related events, such as status changes, online/offline etc. and the port number where the sensor is attached.

Access - contains logs for all user authentication-related events, such as access granted/denied.

Notifications - contains logs for the active notifications on the device, for example the result of an email notification, heartbeat message or an SNMP Trap.

In the **Options**, you can change the number of log entries displayed per page. The default is 15, it's possible to specify up to 100. Also you can filter by **Severity Level**.

If you click on the **Export** button, a confirmation popup window will appear, asking if you'd like to export the log entries.
If you answer yes, then the full event log will be downloaded as a text file.
The file name will contain the IP address of the unit, for example: log_10.1.1.146.txt

The unit's **Summary page** also shows the **Event Log**, which contains all entries from the "All Events" category. The last 30 entries are shown, but if you're scrolling down the list, more events (30 more) will be loaded automatically. You can view the full log if you keep scrolling down.

If you have an expansion board, then the board name will be also logged in the events.

In this example picture we have a CCU (Cabinet Control Unit) connected. It has a built-in door port; the status has been logged in the Access category.

In this picture, you can see the difference between logs generated by sensors connected to the base unit (Main board) or the expansion board (Cabinet Control Unit).

Notifications

If you setup a notification you can define the action to take when a 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 thresholds (high warning, critical etc).

What function do the different types of notifications provide?

The notifications are used to notify you when a sensor reading has hit a certain preset "critical" threshold. There are many ways you can be notified. They are as follows :

SNMP Trap: This form of notification sends out a signal to your SNMP trap receiver server.
E-Mail: This sends a notification via e-mail.
SMS: This sends an SMS message to your mobile phone.
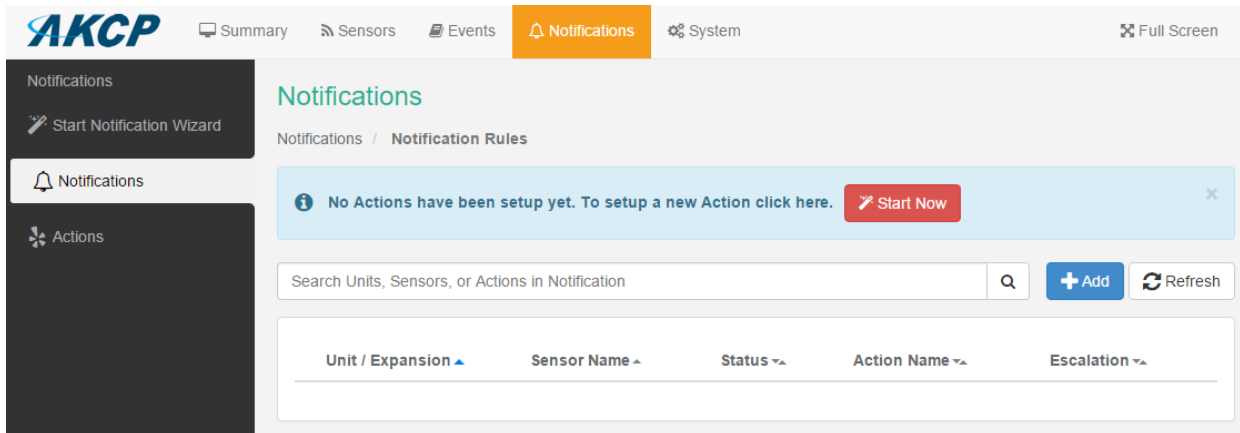**Relay:** The relay is used as a switch, for example it could switch on an air con unit if the temperature reading of a temperature sensor reaches a certain threshold.
Telephone call: Will call you and play a customizable text to speech message.
Door: Controls the door with the Handle Lock sensor.
Dry Contact: You can control the Dry Contact ports with the notification, similar to the Relay action.

Notifications page

This is the **Notifications** page. If you have notifications set up, they will appear in the list and you can edit or remove them.

If you don't have any actions set up, you'll need to create them first before making notifications.
The notice to run the **Action Wizard** is displayed on the top for easy action setup.
Click on the **Start Now** button or the **Start Notification Wizard** tab to start the wizard.
In the next section we'll show you how to set up the actions.

After you have actions set up, you can link the actions to a sensor with the **Add** button.
All notifications are following the same setup steps with the **Link Notification Wizard.** We'll show you how to use this wizard with an example notification below in the manual with an SMS action, you'll then be able to configure other notifications similarly.

Create an Action with the Action Wizard
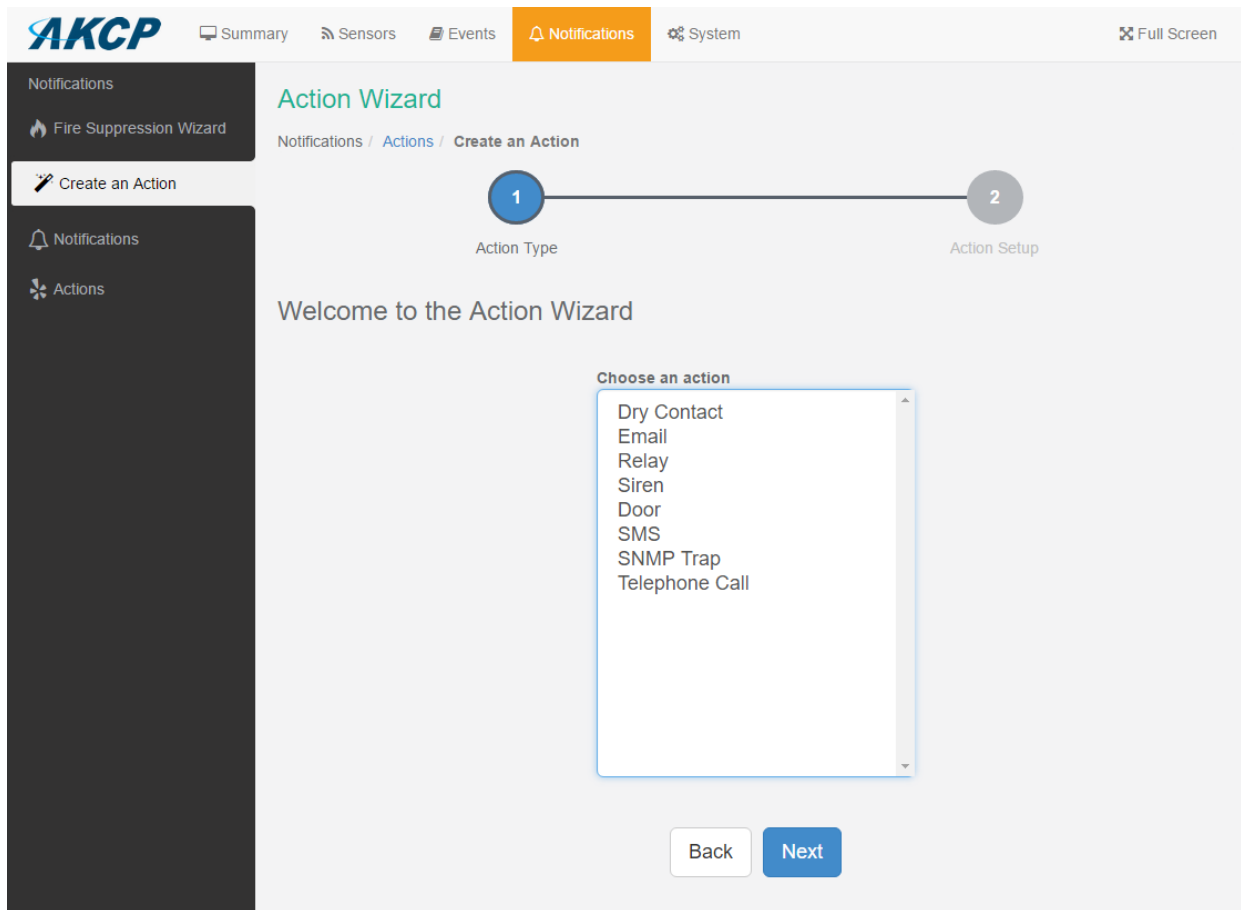
This is the Action Wizard's welcome page; the supported Web UI configurable actions are shown. Select one to configure and click **Next**.
We'll show you each action's configuration in the following sections.

Note: APS (AKCess Pro Server) allows more types of actions to be set up.

Dry Contact Action setup

You can use the Dry Contact Action to control a dry contact when a sensor reaches a certain threshold.

Note: When using the RJ45 I/O Dry Contacts, they need to be connected to the unit before they can be configured, and have to be in the **Output direction** (see below).

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Note: If you've connected an expansion board, you can choose it from the Unit/Expansion selection menu as shown below:

You'll have the following options for controlling the Dry Contact with the action:

If you choose to cycle the dry contact, you can specify the cycle time.

You'll need to change the RJ45 I/O Dry Contact sensor to **Output direction** mode from the **Sensors page** as shown below:

Change the **Direction** from Input to **Output** and click **Save**.

For the I/O Dry Contacts you can choose to manually control the sensor from the **Advanced** tab using the Sensor Control button:

For the input only Dry Contacts, the configuration doesn't need changing.

You can select the Normal State for a given Dry Contact from the Advanced tab, as well as enabling the Calendar, Graphing and Filter Status options.

Email Action setup

You can use the Email Action to send a notification by email when a sensor reaches a certain threshold.

Note: The SMTP server settings needed to be configured on the unit, before this action works.

All email actions will use this SMTP server for sending emails.

You can find more information in the Introduction manual about how to set up the SMTP server on the System page although it's very straight-forward.
Either click on the link on the notice, or go to the **System/SMTP page** for the configuration.

Action Wizard

Notifications / Actions / **Create an Action**

1 ————————— **2** ————————— **3**

Email Information   Email Message   Retry

Step 2 - Email Message

Subject
Testing Sensor Port 1 is now 80 Unit, status is n

Body
From: System Name (127.0.0.1)
Time: 11:12:10
Testing Sensor Port 1 is now 80 Unit, status is
now Normal

Customize

Back   Next   Cancel

After clicking *"***Next***"* you will get a page where you can input the e-mail name and message. Press the *"***Customize***"* button and the fields will re-write in a format that will allow for an automated e-mail that will display the sensor information.

Step 2 - Email Message

Subject
$[DESCRIPTION] is now $[VALUE] $[UNIT], sta

Body
From: $[SYSNAME] ($[IP])
Time: $[TIME]
$[DESCRIPTION] is now $[VALUE] $[UNIT],
status is now $[STATUS]

Preview   Restore Default   Macro Description

For all possible macro values (dynamic text values starting with $) you can see a detailed list at the end of this manual.

Action Wizard

Notifications / Actions / **Create an Action**

Step 3 - Retry

Maximum Times to Retry	5 ▾
Retry Interval	15 15s

Back   Finish   Cancel

Finish and Setup Notification

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Relay Action setup

You can use the Relay Action to control a relay when a sensor reaches a certain threshold.

Note: The relay needs to be connected to the unit before it can be configured.

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Note: If you've connected an expansion board, you can choose it from the Unit/Expansion selection menu as shown below:

You'll have the following options for controlling the relay with the action:

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

If you choose to cycle the relay, you can specify the cycle time.

On the **Sensors page** you can specify additional settings for the relay as shown below:

You can choose to manually control the sensor from the **Advanced** tab using the Sensor Control button.

Siren Action setup

You can use the Siren Action to turn on the siren and strobe light when a sensor reaches a certain threshold.

Note: The siren needs to be connected to the unit before it can be configured.

You'll have the following options for controlling the siren with the action:

If you choose Defined Time, you can specify the time in seconds for how long the siren should be turned on.

Note: If you've connected an expansion board, you can choose it from the Unit/Expansion selection menu as shown below:

On the **Sensors page** you can specify additional settings for the siren as shown below:

You can choose to manually control the sensor from the **Advanced** tab using the Sensor Control button.

Door Action setup

You can use the Door Action to open/close the door when a sensor reaches a certain threshold.

Note: The Handle Lock needs to be connected to the unit before it can be configured.

You'll have the following options for controlling the door with the action:

Note: If you've connected an expansion board, you can choose it from the Unit/Expansion selection menu as shown below:

Unit / Expansion	Cabinet Control Unit ▾
	Cabinet Control Unit
Relay	Main board

If you choose Defined Time, you can specify the time in seconds for how long the door should be opened before closing it again:

Action	Defined Time ▾
Door Open Period	5 5s

On the **Sensors page** you can specify additional settings for the Handle Lock as shown below:

Main board

Sensors / Main board ✎

1	2	3	4
Auto Sense	Auto Sense	Auto Sense	Auto Sense
▾ Thermal Map	▾ Thermal Map	N/C	▾ Handle Lock

| Handle Lock | Advanced | Status Text |

Sensor Name	Door Port 4
Sensor Status	Closed
Sensor Currently	Online
Door Held Open Alert	30 30s
Door Lock Time	5 5s
Manual Control	Unlock

Save   Cancel

You can choose to manually unlock the door using the **Unlock** button.
Further configuration of the Handle Lock is detailed in the separate **SP2+ Swing Handle Lock manual**.

SMS Action setup

You can use the SMS Action to send a notification by SMS when a sensor reaches a certain threshold.

The unit can send an SMS, or Voice alert to many different phone numbers, but you can specify only one phone number per action when setting it up. However, please keep in mind that both the SMS and the dial up actions such as Voice will call to the first number, then after sending to this number, it will call to the second number and so on. So, if you have many numbers in the call list, it will take that much more time to finish sending the SMS or dial up Voice call alerts.

Note: The modem module is needed and configured for this action.

After typing in your phone number, click **Next**.
You can specify only one phone number per action.

Action Wizard

Notifications / Actions / **Create an Action**

Step 2 - SMS Message

From	127.0.0.1
SMS Message	Testing Sensor Port 1 is now 80 Unit, status is now Normal

Customize

Back   Next   Cancel

After clicking "**Next**" you will get a page where you can input the SMS message. Press the "**Customize**" button and the fields will re-write in a format that will allow for an automated SMS that will display the sensor information.

Step 2 - SMS Message

From	$[IP]
SMS Message	$[DESCRIPTION] is now $[VALUE] $[UNIT], status is now $[STATUS]

Preview   Restore Default   Macro Description

For all possible macro values (dynamic text values starting with $) you can see a detailed list at the end of this manual.

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Troubleshooting the SMS Action

If you are having trouble sending the SMS alerts, please go through the check list below. Also, try moving the modem's antenna to a slightly different location.

Test the SIM card on mobile phone: verity the account is active, has adequate credit for making phone calls and that the PIN code is disabled.

Ensure the SIM card is properly inserted in the modem's slot. Inserting and removing the SIM is only possible while the unit is powered off; otherwise you can damage the SIM or the unit.

SNMP Trap Action setup

You can use the SNMP Trap Action to send a notification (Trap message) to your SNMP Trap Receiver server when a sensor reaches a certain threshold.

SNMP v1 action

Enter your Destination IP Address and Community; the default SNMP port is automatically selected.

Notifications / Actions / **Create an Action**

Step 2 - SNMP Trap Type

SNMP Trap Type	customTypeTraps ▼

specificTypeTraps
generalTypeTraps
specific & generalTypeTraps
statusTypeTraps
customTypeTraps

VarBind

☑ Sensor Index
☑ Sensor Name
☑ Sensor Description
☑ Sensor Type
☑ Sensor Sub Index
☑ Sensor Status Name
☑ Board ID
☑ Board Description
☑ Event Time Stamp

☑ Event Class Number   `0`

☑ Event Class Name   `INFORMATIONAL`

☑ Sensor Decimal Value
☑ Sensor ID

[Back] [Next] [Cancel]

A different trap message is sent for each sensor type such as temperature, humidity, and switch. The trap messages include *VarBind* fields that include the current sensor status (Normal, Critical High, Warning High, Critical Low, Warning Low, and sensorError), the current sensor value, the level exceeded, the sensor index, the sensor name, and the sensor description.

You can enable or disable specific fields if you choose the *customTypeTraps* from the drop-down list.

Action Wizard

Notifications / Actions / **Create an Action**

Step 3 - Retry

Maximum Time to Retry	0 ▼
Retry Intervals	10 10s

[Back] [Finish] [Cancel]

Finish and Setup Notification

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

SNMP v2c action

Enter your Destination IP Address and Community; the default SNMP port is automatically selected.

You can choose the packet to be sent between SNMP Trap or Inform packet.

Notifications / Actions / **Create an Action**

① ————— ② ————— ③ ————— ④
SNMP Information   SNMP Details   SNMP Trap Type   Retry

Step 3 - SNMP Trap Type

SNMP Trap Type   customTypeTraps ▼

VarBind
☑ Sensor Status
☑ Sensor Value
☑ Sensor Level Exceeded
☑ Sensor Index
☑ Sensor Name
☑ Sensor Description
☑ Sensor Type
☑ Sensor Sub Index
☑ Sensor Status Name
☑ Board ID
☑ Board Description
☑ Event Time Stamp

☑ Event Class Number | 0 |

☑ Event Class Name | INFORMATIONAL |

☑ Sensor Decimal Value
☑ Sensor ID

[Back] [Next] [Cancel]

A different trap message is sent for each sensor type such as temperature, humidity, and switch. The trap messages include *VarBind* fields that include the current sensor status (Normal, Critical High, Warning High, Critical Low, Warning Low, and sensorError), the current sensor value, the level exceeded, the sensor index, the sensor name, and the sensor description.

You can enable or disable specific fields if you choose the *customTypeTraps* from the drop-down list.

Action Wizard

Notifications / Actions / **Create an Action**

1 — 2 — 3 — 4

SNMP Information   SNMP Details   SNMP Trap Type   Retry

Step 4 - Retry

Maximum Time to Retry   [0   ▼]

Retry Intervals   [10   ] [10s]

[Back] [Finish] [Cancel]

[Finish and Setup Notification]

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

SNMP v3 action

Only SNMPv3 provides secure SNMP communication. The previous versions are considered unsecure and unencrypted.

This feature requires a separate license. You can read more details about the licensing in the Introduction manual.

Enter your Destination IP Address and Community; the default SNMP port is automatically selected.

You can choose the packet to be sent between SNMP Trap or Inform packet.
Configure the settings for authentication, and access privileges.
Below we'll give a quick description of each setting:

Level	Authentication	Encryption	Description
noAuthNoPriv	Username	No	Match Username (same as SNMP v1/v2c)
authNoPriv	MD5 or SHA	No	Auth Based on Algorithms (check password)
authPriv	MD5 or SHA	Yes - DES	Auth Algorithms and Encryption

Basically if you select **noAuthNoPriv** then the setup will be the same as with SNMP v1 and v2c
versions: authentication is only checked by unencrypted username.
authNoPriv will provide password protection but no encryption.
authPriv provides encrypted username and password protection.

A different trap message is sent for each sensor type such as temperature, humidity, and switch. The trap messages include *VarBind* fields that include the current sensor status (Normal, Critical High, Warning High, Critical Low, Warning Low, and sensorError), the current sensor value, the level exceeded, the sensor index, the sensor name, and the sensor description.

You can enable or disable specific fields if you choose the *customTypeTraps* from the drop-down list.

Action Wizard

Notifications / Actions / **Create an Action**

Step 4 - Retry

Maximum Time to Retry	0 ▾
Retry Intervals	10 10s

Back   Finish   Cancel

Finish and Setup Notification

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Telephone Call Action setup

You can use the Telephone Call Action to send custom voice call alerts to your phone when a sensor reaches a certain threshold.

The unit can send an SMS, or Voice alert to many different phone numbers, but you can specify only one phone number per action when setting it up. However, please keep in mind that both the SMS and the dial up actions such as Voice will call to the first number, then after sending to this number, it will call to the second number and so on. So, if you have many numbers in the call list, it will take that much more time to finish sending the SMS or dial up Voice call alerts.

Note: The modem module is needed and configured for this action.

After typing in your phone number, click **Next**.
You can specify only one phone number per action.

Now you can select the **volume** and **playback speed** for your phone call.
The call will be made by using a Text to Speech module.

You can also specify to have the call acknowledged:

If Speech Acknowledgement is selected the user will be requested to dial 1 on their phone when prompted in the call to confirm their acknowledgement.

Message $[DESCRIPTION] is now $[VALUE] $[UNIT],
status is now $[STATUS]

Preview   Restore Default   Macro Description

A preview of the message that will be read is displayed, which you may customize further. The sent message will include the details relevant to your sensor.

For all possible macro values (dynamic text values starting with $) you can see a detailed list at the end of this manual.

Action Wizard

Notifications / Actions / **Create an Action**

1 — Telephone Call Information

2 — Message

3 — Retry

Step 3 - Retry

Maximum Times to Retry | 0 ▾

Retry Interval | 10 | 10s

Back   Finish   Cancel

Finish and Setup Notification

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

If you click on the **Finish and Setup Notification** button, this will launch the **Link Notification Wizard** where you can use the new action for making a notification.

Example notification setup: SMS Notification

In our example we've set up an SMS action and we'll link that to notify us by SMS when the *Humidity sensor's* value reaches *High Critical*.

On the **Notifications** menu we click on **Add**.
This will start the **Link Notification Wizard**.

You can set up any notification with any action with the same steps as in this example.
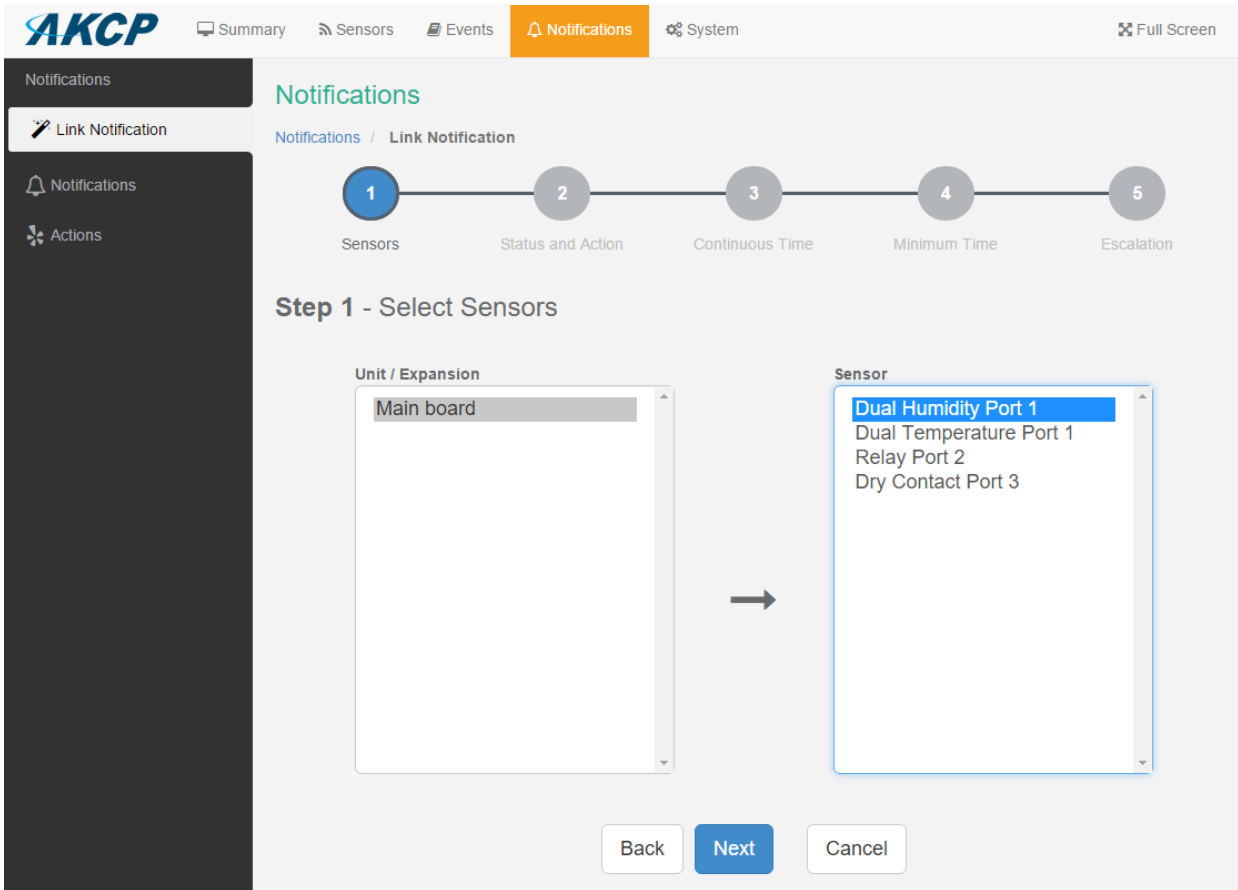
The first step is to select the sensor that we'll link the notification to.
You could also select multiple sensors for a single notification.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board as well, as shown below:
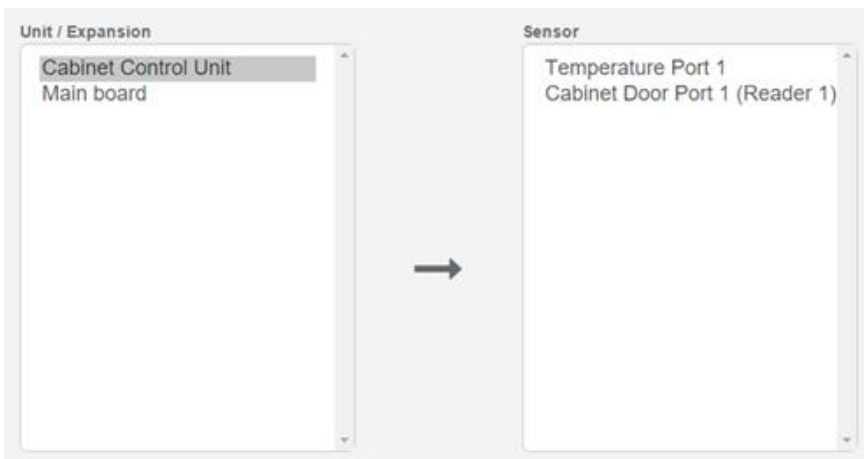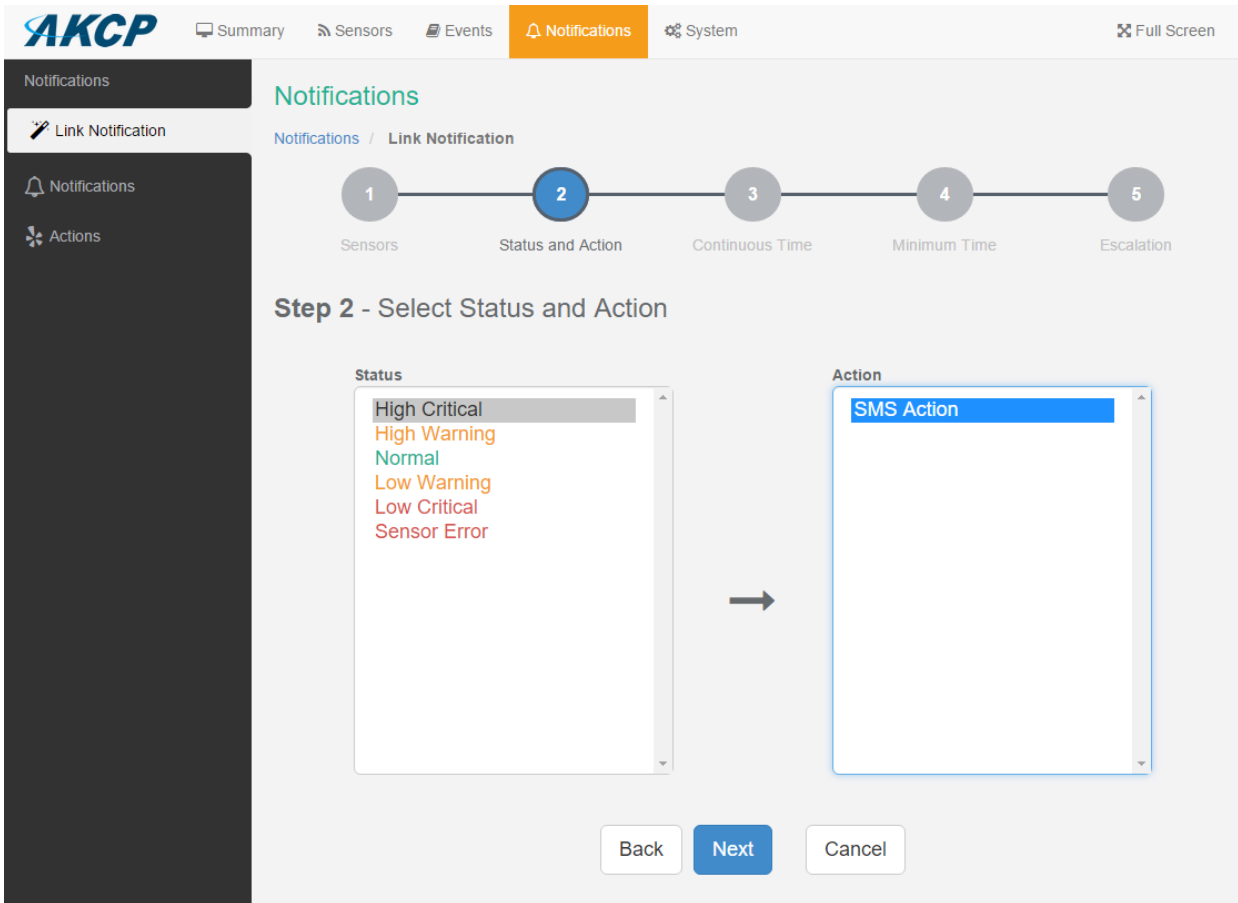
Next we choose the status *High Critical* for the sensor, and use the previously created SMS Action. You could also select multiple statuses for a sensor.

Note: If you connect an expansion board, you might be able to select special statuses valid only for the expansion board, as shown below:

We set the continuous time as 2 seconds - this means the sensor's state has to remain at least 2 seconds in the chosen state before the notification runs.

We don't use a minimum time between notifications (default value).
If you get multiple notifications of the same type, this option could help to reduce the frequency of them.
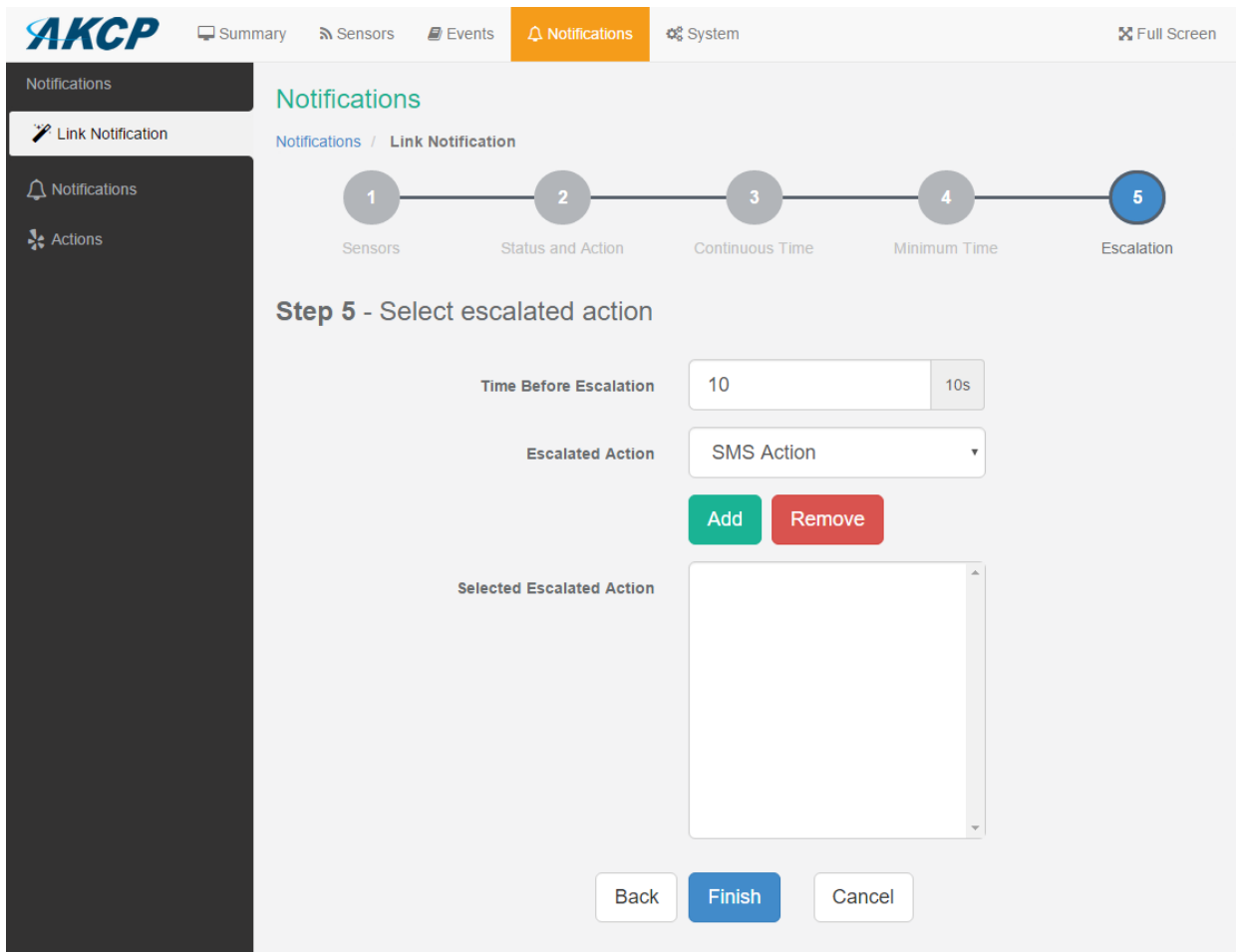
All actions have an option **Escalation**. With this you could specify additional actions to run after the initial action, with the specified time.
Use the **Add** and **Remove** buttons to add or remove escalated actions.
The maximum number of escalated actions is 10.

Note that the additional actions need to be created before you could select them.

In this example we won't use escalated action.

After the wizard has finished, you can view, edit or remove the completed notification in the **Notifications** menu.

Heartbeat Messages

This feature allows you to set up periodical "keep alive" notifications task by email, SMS or SNMP Trap to indicate the unit is still working properly.

Navigate to **System/Heartbeat Messages** and click on the **Add** button to begin the wizard.

In the first step you can choose the type of the heartbeat notification, which can be Email, SMS or SNMP Trap. In our example we'll use **Email notification**.

Choose the recipients of the action. If you haven't yet set up the SMTP server options, you'll be asked to do so.

If you choose SMS action in the previous step, then you'll need to fill in a phone number here.

For the SNMP Trap you'll need to specify the SNMP options; see the SNMP Trap Action configuration in this manual for more help.

Heartbeat Messages

System / Heartbeat Messages / **Add Heartbeat Task**

① 1 Heartbeat Information —— ② 2 Action Information —— ③ 3 Sensors —— ④ 4 Schedule

Step 3 - Sensors in Heartbeat Message

Unit / Expansion

Main board

Sensor

Dual Humidity Port 1
Dual Temperature Port 1
Relay Port 2
Siren Port 3
Dual Humidity Port 4
Dual Temperature Port 4

→

Back   **Next**   Cancel

In this step you can choose one or more sensor's status and reading to include in the heartbeat message. Select at least one sensor.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board also, as shown below:

Unit / Expansion

Cabinet Control Unit
Main board

Sensor

Temperature Port 1
Cabinet Door Port 1 (Reader 1)

→

Finally, choose a schedule for the heartbeat message. This picture shows the by-minute schedule.
You can choose between Minute, Day, Week, Month.
We'll also show the configuration for all of them below.

This is the by-daily schedule.

Heartbeat Messages

System / Heartbeat Messages / **Add Heartbeat Task**

1	2	3	4
Heartbeat Information	Action Information	Sensors	Schedule
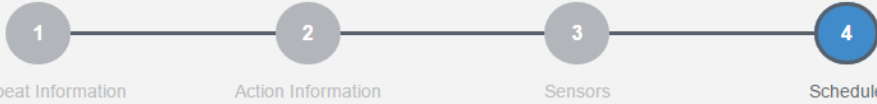
Step 4 - Schedule to perform this task

Perform this Task by	Minute	Day	**Week**	Month

Every	1	week(s)

Start Time	22:00	hh:mm

Select days of the week

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday

This is the by-weekly schedule.

Heartbeat Messages

System / Heartbeat Messages / **Add Heartbeat Task**

① ——— ② ——— ③ ——— ④

Heartbeat Information   Action Information   Sensors   Schedule
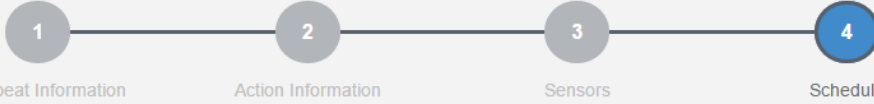
Step 4 - Schedule to perform this task

| Perform this Task by | Minute | Day | Week | **Month** |

| Every | 1 | month(s) |

| Start Time | 22:00 | hh:mm |

Select dates of the month:

```
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
```

This is the by-monthly schedule.

Heartbeat Messages

System / **Heartbeat Messages**

	Name ▲	Task ▲	Next Run Time ▼▲	Last Run Time ▼▲	Result▼ ▲	Success▼ ▲		
☑	Heartbeat Task	Start at 22:00, Every 1 month(s)	01/03/2016, 22:00	-	OK	0 reset	✏	🗑

When you've finished the wizard, it will appear in the list.
You could edit or remove the task, and reset the success counter.

Note that you can define multiple heartbeat notification tasks with different schedule or notification methods.

Notifications

	Date/Time ▼	Event ▲
1	29/02/2016 12:53:36	Email ok: Good mail sent to "████████@akcp.com"

First < 1 > Last

You can view the result of the notification at the Events page's Notifications section.

Virtual Sensors
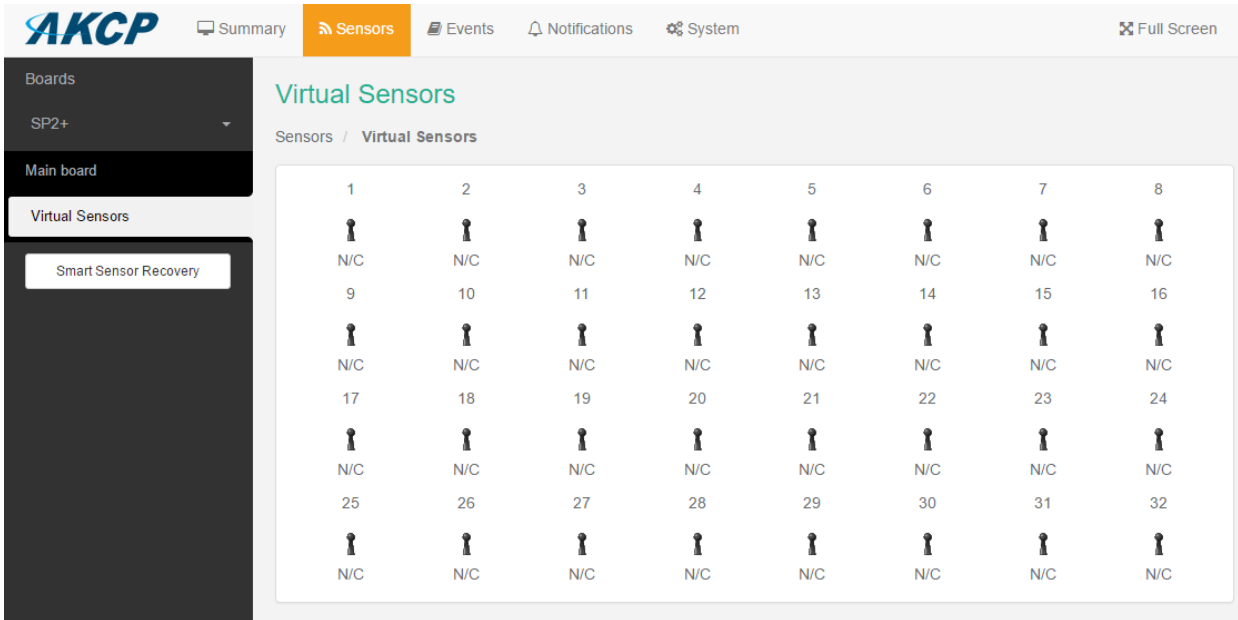
Virtual Sensors can be a very powerful tool in your monitoring system. On the SP+ products you can have up to 32 of these virtual sensors and they allow for a multitude of applications.
SNMP Get, sensor logic evaluation and ping commands among others are all possible from the virtual sensors. An example use of this could be to use the SPX+ as a probe manager. If you had a SPX+ and multiple sensorProbe devices they could all be monitored, mapped and alerted via the SPX+. You can perform SNMP Get commands on a server to monitor memory or CPU load, or you can ping network enabled devices and be alerted if they go offline.

You can configure the Virtual Sensors under a separate tab under the Sensors menu.
The first 5 sensors are free, if you need to use more you can purchase additional licenses (see the Licensing section in the Introduction manual).
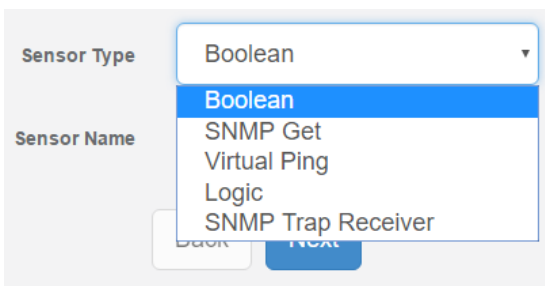
Select a sensor from the list, and choose its type.

In the following sections we'll go through each Virtual Sensor type, and how to configure them.

Boolean

Boolean works on the virtual sensor by checking the status of, for example 2 to 3 sensors and if the sensors status matches that of the setting, they will return a value of 1. The normal value is 0.

You can select the sensor type between **AND / OR** for comparison:

You can set your virtual sensor to be critical by choosing your sensors from the drop-down lists, choosing their statuses like the image example below, and then go to the **Notifications** page to make the notification using the new virtual sensor:

Boolean Type	OR ▼	
Unit	**Sensor**	**Status**
Main board ▼	Dual Humidity Po ▼	High Critical ▼
Main board ▼	Dual Temperature ▼	Low Critical ▼
Main board ▼	Dry Contact Port : ▼	Critical ▼

Back   Finish

In this example picture the virtual sensor's status will be critical when any of the Humidity/Temperature/Dry Contact sensors will have a *high/low/critical* status.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board also.

SNMP Get

With SNMP Get sensor, you can get a value from any SNMP device. Note that a custom string return value is not supported.

Host IP: The IP address of the unit on which you wish to perform an SNMP Get command. For example this could be the IP address of a sensorProbe2 device.
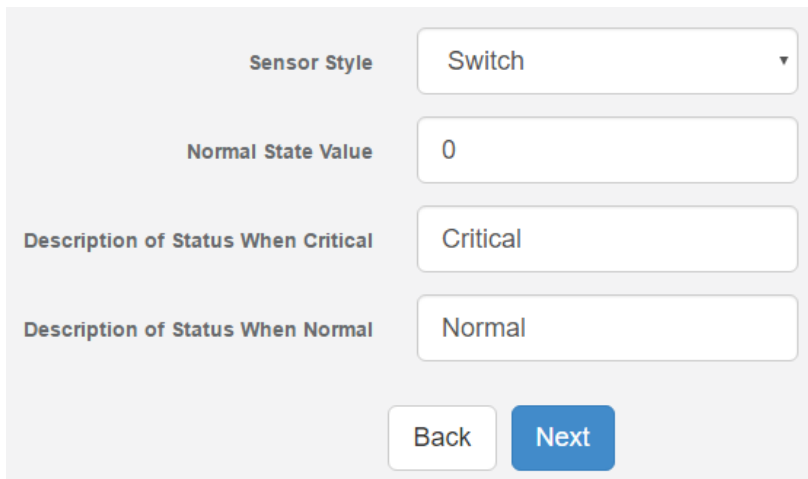
SNMP Version: v1 works with most devices; you can also select v2c and v3.

SNMP Read Community: The SNMP password of the unit, default is usually "public".

OID: The OID for what you wish to monitor. If for example you want to poll temperature data from a sensorProbe 2 device with a Temp sensor on Port 1 then you would use the following OID: 1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0
Where the last digit (0) is Port 1. For Port 2 the last digit would be 1. If you are monitoring some other device you will need the relevant OID for what you wish to measure.
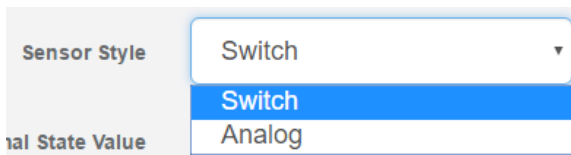
Sensor Style: You can choose either Switch or Analog. A Switch sensor would be for example a water sensor, on or off, an Analog sensor would be a Temperature sensor or Humidity sensor, or some other sensor that gives a data value.

Description when Normal: eg, Normal, Critical, Online etc.

Description when Critical: eg, Critical, Offline, Low etc

Normal State value: 0 or 1 (for Switch type sensor only).

If you choose an **Analog** sensor, you will get a slightly different menu:

Value Multiplier gives you the choice to multiply the reading value by a given number.

Unit text: example, if measuring temperature "degrees centigrade" or if measuring humidity "percentage humidity" etc.

Value range: The range that you wish to measure.
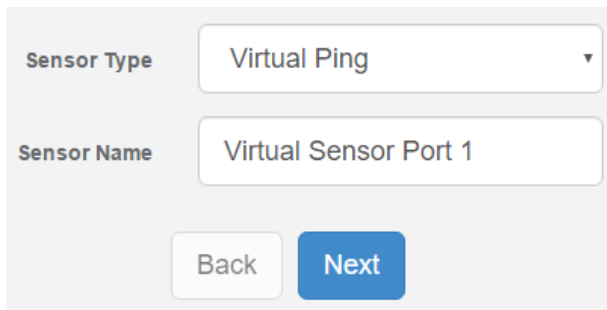
You can also configure the time interval between data polling, timeout and retries.

Virtual Ping
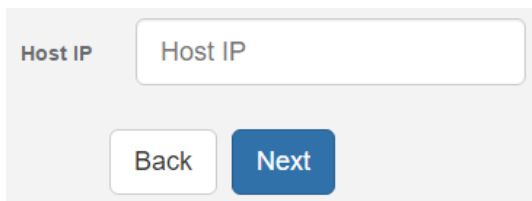
| Sensor Type | Virtual Ping ▾ |
| Sensor Name | Virtual Sensor Port 1 |
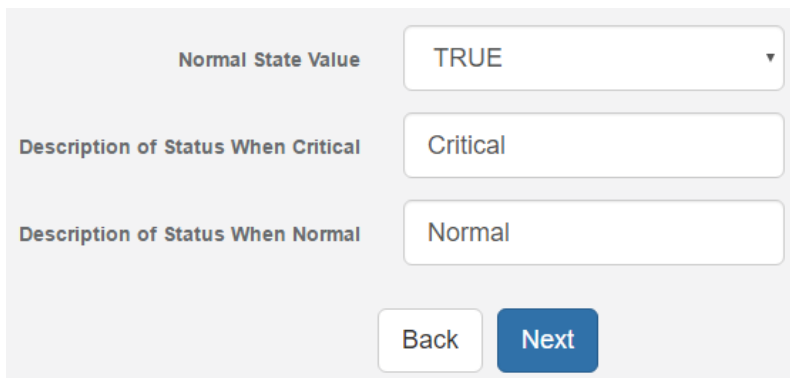
Back Next

With the ping sensor, you can set up ping monitoring of a network device or server.

| Host IP | Host IP |

Back Next

Host: The IP address of the network device you wish to ping.

Normal State Value	TRUE ▾
Description of Status When Critical	Critical
Description of Status When Normal	Normal

Back Next

Description when Normal: eg, online/reachable

Description when Critical: eg, offline/unreachable

Normal State Value:

TRUE = sensor will be Normal status if ping successful (otherwise it will be in Critical status)

FALSE = sensor will be Normal status if ping times out (otherwise it will be in Critical status)

You can also configure the time interval between data polling, timeout and retries.

Logic

The logic is a new virtual sensor type on SP2+ which uses FlipFlop logic. You can monitor physical sensor statuses with it, and change the virtual sensor's state with the pre-set values for the status of a physical sensor (SET Source Sensor).
The logic will ignore all other intermediate physical sensor statuses and only changes the virtual sensor's state back if it **exactly** matches the specified physical sensor status (RESET Source Sensor).

Choose your **Unit** (on SP2+ Standard, only Main board is selectable), physical **Sensor**, and the **Status** you'd like the logic to monitor.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board also.

Trigger Logic | FlipFlop ▾

SET Source Sensor

Unit	Sensor	Status
Main board ▾	Dual Temperature ▾	High Critical ▾

RESET Source Sensor

Unit	Sensor	Status
Main board ▾	Dual Temperature ▾	Normal ▾

Back   Finish

On this example picture, we've set the logic to change the virtual sensor to *Critical* if the *Temperature sensor's status* becomes *High Critical*, and only change it back to *Normal* when the *Temperature sensor's status* also becomes *Normal*.

There's also support for **Dual Sensors FlipFlop** logic:
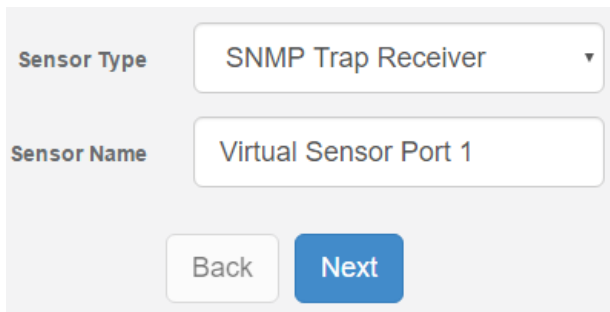
In this mode you can choose 2 sensors for monitoring.

It has AND relation between them, and only changes the virtual sensor's state if there's an **exact match** for these statuses.

SNMP Trap Receiver

Sensor Type	SNMP Trap Receiver ▾
Sensor Name	Virtual Sensor Port 1

Back **Next**

The SNMP Trap Receiver type will check 3 parameters before setting a value for the virtual sensor. These three parameters are the IP Address, the sensor's OID and the Trap sub-type.

IP Address	IP Address
OID	OID
Specific (0 for Trap version 3)	Specific (0 for Trap version
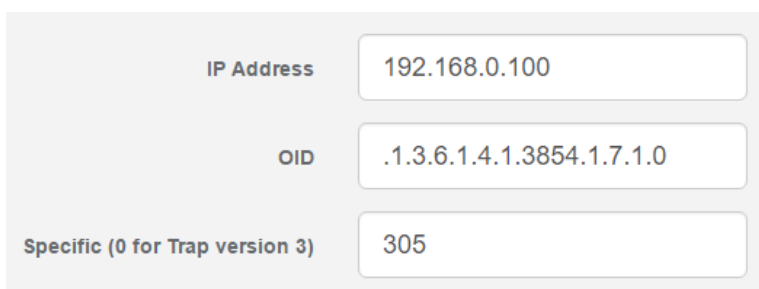
Back **Next**

Normally the Trap will have 6 OIDs, you can specify the specific OID from them with the Specific.

Example:

In our example below the Trap is sent by the **Motion Sensor** on **Port 5** of our sensorProbe unit. Our device IP is 192.168.0.100. Our sensorProbe Trap Type is set to the specific sub type and will check status of our Motion Sensor:

IP Address	192.168.0.100
OID	.1.3.6.1.4.1.3854.1.7.1.0
Specific (0 for Trap version 3)	305

1. spSensorStatus (.1.3.6.1.4.1.3854.1.7.1.0). The current integer status of the sensor causing this trap to be sent: noStatus(1), normal(2), highWarning(3), highCritical(4), lowWarning(5), lowCritical(6), sensorError(7), turnOn(8), turnOff(9).

2. spSensorValue (.1.3.6.1.4.1.3854.1.7.2.0). The current integer value of the sensor causing this trap to be sent.

3. spSensorLevelExceeded (.1.3.6.1.4.1.3854.1.7.3.0). The integer level that was exceeded causing this trap to be sent.

4. spSensorIndex (.1.3.6.1.4.1.3854.1.7.4.0). The integer index of the sensor causing this trap to be sent.

5. spSensorName (.1.3.6.1.4.1.3854.1.7.5.0). The name of the sensor causing this trap to be sent.

6. spSensorDescription (.1.3.6.1.4.1.3854.1.7.6.0). The description of the sensor causing this trap to be sent.

The specific value depends on the sensorProbeTrap type (.1.3.6.1.4.1.3854.1.2.2.1.60.0).
If it is set to specificTypeTrap(1) specific value is to show the sensor type and port (Specific value of Motion Sensor port 5 is 305).
If it is set to generalTypeTrap(2) specific value is to show the sensor type (Specific value of Motion Sensor port 5 is 30).
If it is set to bothTypeTraps(3) device will send the trap two times specific value will show sensor type and show sensor type and port (Specific value of Motion Sensor port 5 is 305 and 30).
If it is set to statusTypeTraps(4) specific value is up to status of sensor (spSenUnknownStatus(51), spSenNoemalStatus(52), spSenWarningStatus(53), spSenCriticalStatus(54)).

Sensor Style	Switch ▾
Normal State Value	0
Normal State Value (String)	Normal State Value (String)
Critical State Value (String)	Critical State Value (String)
Description of Status When Critical	Critical
Description of Status When Normal	Normal

Back   Finish

With the **Switch Sensor Style** you'll need to specify the **Normal State Value**. Value 2 means that the sensor's status is normal so far.

If you choose an **Analog** sensor style, you will get a slightly different menu:

The configuration values are similar to other analog type sensors.

Fire Suppression System

This feature provides fire suppression for your cabinet. It uses Smoke Detectors to detect a fire hazard, then the unit can cut power to the cabinet using a Relay, removing the heat source of the fire.

To use it, you'll need at least 1 Smoke Detector and 1 Relay connected to the unit.
For increased efficiency you can use 2 Smoke Detectors. This will reduce false positive alerts.
Optional audiovisual warning could be made using an additional Siren Strobe sensor.

Whenever you connect a Smoke Detector, the Web UI will also offer to start the Fire Suppression Wizard.

Single Detector System

The Single Detector System is using 1 Smoke Detector with 1 Relay, and an optional Siren sensor.

Choose the Smoke Detector from the drop-down list, and it's recommended to put a minimum delay before the shutdown action is performed.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board also.

Choose the Relay from the drop-down list.
You can also choose to turn the power back on if needed:

However, for this feature to work, the sensorProbe+ unit has to be on a separate power line.
Otherwise the relay will also power down the unit and it can't turn the power back on.

If you have existing Relay actions, you could also select to perform them instead of creating a new one:

Fire Suppression Wizard

Notifications / **Fire Suppression Wizard**

①————————②————————③————————④

Fire Suppression System   Fire Detection   Relay Action   Siren Action

Step 4 - Turn on siren when smoke is detected.

Do you want to turn on siren when smoke is detected?

Yes **No**

Back Finish

If you don't have a Siren strobe installed, just click on the **Finish** button to finish configuring the Fire Suppression.

The wizard will take you to the **Notifications** list, where you could reconfigure the notification the same way as with any other notification (see below).

If you do have a Siren, you can choose to configure it for additional audiovisual warning:

The Siren can be specified to turn off when the Smoke Detector's status changes, or after a period of time:

Click on the **Finish** button to finish configuring the Fire Suppression.

The wizard will take you to the **Notifications** list.

You could reconfigure the notification the same way as with any other notification, and it's possible to add **Escalation** actions as well:

Dual Detector System

The Dual Detector System is using 2 Smoke Detectors with 1 Relay, and an optional Siren sensor.

Choose the Smoke Detectors from the drop-down list, and it's recommended to put a minimum delay before the shutdown action is performed.

Note: If you connect an expansion board, you'll be able to select sensors from the expansion board also.

Fire Suppression Wizard

Notifications / **Fire Suppression Wizard**

1 ──────── **2** ──────── **3** ──────── **4**

Fire Suppression System   Fire Detection   Relay Action   Siren Action

Step 3 - Cut the power off when smoke is detected.

Create relay action to cut the power off

Relay	Relay Port 4 ▾
Power back on	Never ▾

Back   Next

Choose the Relay from the drop-down list.
You can also choose to turn the power back on if needed:

Power back on   Never ▾

Never
When smoke is no longer detected
When smoke detector is acknowledged

However, for this feature to work, the sensorProbe+ unit has to be on a separate power line.
Otherwise the relay will also power down the unit and it can't turn the power back on.

If you have existing Relay actions, you could also select to perform them instead of creating a new one:

Create relay action to cut the power off   Select an existing relay action

Relay	Relay Port 4 ▾	**Relay Action**	Turn Relay Port 4 OFF ▾
Power back on	Never ▾		Create a new relay action
	Choose from an existing relay action		

Fire Suppression Wizard

Notifications / **Fire Suppression Wizard**

1	2	3	4
Fire Suppression System	Fire Detection	Relay Action	Siren Action

Step 4 - Turn on siren when smoke is detected.

Do you want to turn on siren when smoke is detected?

Yes | **No**

Back | Finish

If you don't have a Siren strobe installed, just click on the **Finish** button to finish configuring the Fire Suppression (see the Single Detector System for the Siren options).

The wizard will take you to the **Notifications** list, where you could reconfigure the notification the same way as with any other notification:

Notifications

Notifications / **Notification Rules**

Search Units, Sensors, or Actions in Notification 🔍 | **+ Add** | ⟳ Refresh

Unit / Expansion ▲	Sensor Name ▲	Status ▾ ▲	Action Name ▾▲	Escalation ▾▲	
☑ Virtual Sensors	Dual Smoke Detector Port 1	→ Smoke →	Turn Relay Port 4 OFF		✏️ 🗑️

Note that when you're using the Dual Detector System, then a Virtual Sensor is set up to detect smoke from both detectors.

You can edit its settings at the **Virtual Sensors** tab under the **Sensors** menu.

AKCP
🖥️ Summary | 📶 Sensors | 📓 Events

Boards
SP2+

Main board

Virtual Sensors

Smart Sensor Recovery

Virtual Sensors
Sensors / **Virtual Sensors**

1	2
Dual Smoke…	N/C
9	10

Logic | Advanced | Virtual Sensor Setting | Continuous Time

Sensor Name	Dual Smoke Detector Port
Sensor Status	**Normal**
Sensor Currently	Online
Sensor Enabling	Enable
Normal State Value	FALSE ▾
Description of Status When Critical	Smoke
Description of Status When Normal	Normal

Save   Cancel

The Virtual sensor used for the smoke detection is **Logic** type, with the following settings:

Logic | Advanced | Virtual Sensor Setting | Continuous Time

Trigger Logic	Dual Sensors FlipFlop ▾

SET Source Sensor

Unit	Sensor	Status
Main board ▾	Smoke Detector ▾	Smoke ▾
Main board ▾	Smoke Detector ▾	Smoke ▾

RESET Source Sensor

Unit	Sensor	Status
Main board ▾	Smoke Detector ▾	Normal ▾
Main board ▾	Smoke Detector ▾	Normal ▾

Save   Cancel

Please check the **Virtual Sensors section** for additional explanation about how this setup works.

Macro Description for actions

Macro Name	Description
$[SYSNAME]	System name.
$[SYSLOCATION]	System location.
$[SYSCONTACT]	System contact.
$[SYSURL]	System URL.
$[IP]	The IP address of this system.
$[IP_ETH]	The IP address of ethernet interface.
$[IP_VPN]	The IP address of VPN interface.
$[TIME]	The time when a sensor transmits the notification in the format of HH:MM:SS Ex: 18:45:10.
$[DATE]	The date when the sensor transmits the notification in the format of YYYY/MM/DD Ex: 2005/01/31.
$[DAY_OF_WEEK]	The day of the week when the sensor transmits the notification. Ex: Monday, Tuesday, etc.
$[DAY]	The date of the month when the sensor transmits the notification. Ex: 1,2,3,...
$[MONTH]	The month when the sensor transmits the notification. Ex: January, February, etc.
$[YEAR]	The year when the sensor transmits the notification. Ex: 2014.
$[PORT]	The port number when the sensor transmits the notification. Ex: 2.
$[DESCRIPTION]	The description to identify the reporting sensor transmitting the notification. Ex: Temperature of computer room.
$[STATUS]	The status of the sensor transmitting the notification. Ex: High Critical.
$[VALUE]	The current reading of the sensor when a notification occurs. Ex: 40 Percent, 20 Volts, etc.
$[UNIT]	The unit of the sensor. Ex: Percent, Volts, etc.

Note: This macro help window is also available from the Web UI when you click on the **Macro Description** button.
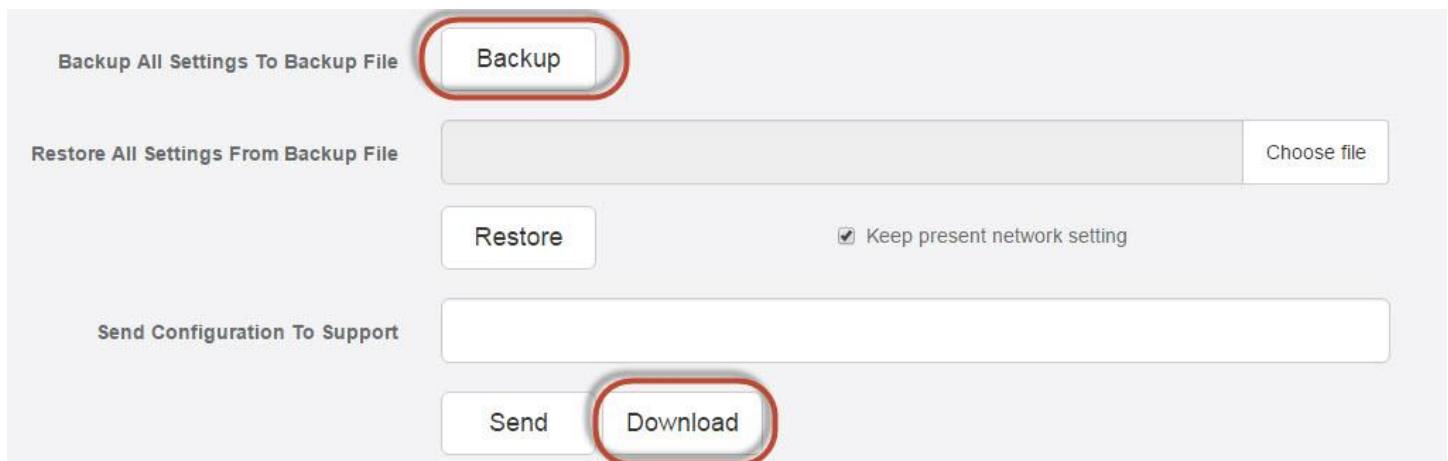
Troubleshooting

I am having problems with the unit but not sure what to do next?

Please email support@akcp.com and include the following detailed information in your email;

Note: The more details you can provide the easier and faster we can provide you with a resolution, so please be as detailed as possible.

1. The details of the problem, condition of the LEDs etc.
2. What you did to determine the unit has this problem?
3. Was there anything done to the unit prior to having the problem?
4. Did the unit always have this problem, if not when did this start?
5. Do you have more than one unit having the same problem?
6. What did you do to try and fix the problem?
7. What version of firmware is running on the unit? Did you try and upgrade it?
8. Include the settings and backup configuration files to support (both files, see below).
9. If you can put the unit online this would be the fastest way for us to solve the problem.
10. What is the MAC ID of the unit?

Please contact support@akcp.com if you have any further technical questions or problems.

Thanks for Choosing AKCP!