

SP1+ Introduction Manual

User Manual - 2022



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Introduction

In this manual, we'll cover the main features and basic configuration of the SP1+ and the setup of notifications and the explanation of events will be in the SP1+ "Notifications" manual here as the units web interface & notifications are the same (just keep in mind this unit only has one sensor port): http://www.akcp.in.th/downloads/Manuals/SP1+/SP1+%20Notifications%20Manual.pdf

Please also see our Knowledge Base page here: <u>https://www.akcp.com/knowledge-base/sensorprobe-plus-series-knowledge-base/</u>

What is the SP1+?

The SP1+ is a high speed, accurate, compact, intelligent monitoring device, featuring a completely embedded host and operating system. The SP1+ is a complete redesign of the world's best-selling environmental monitoring platform, 3 years in the making with all new hardware and software. We've combined the low cost and simplicity of use of the SP1 & SP1+, along with many advanced features of our securityProbe platform.

The SP+ units support a maximum of 150 sensors (data points) per unit. This unit supports up to 1 (physical) sensor.

SP1 + Features:

- IP based, including SNMPv3, HTTPS, VPN
- Send encrypted SNMP Trap and Email Notifications
- Supports 1 Intelligent Sensors and 1 Dry Contact
- Notification Wizards
- Front and Rear Thermal Mapping for any server cabinet
- Virtual Sensors
- AKCP Swing Handle Lock support

Please check all the specifications & features on our SP1+ datasheet: <u>https://www.akcp.com/akcp-products/sp1-plus/</u>

Important notes:

A) Some of the pictures shown in this manual might not represent the actual Web UI of the SP1+ unit; this is because we are constantly working on improving the firmware. Some may represent the SP1+, but will still apply to the SP1+ units.

B) All SP+ H7 type units with firmware version 1.0.5824 or higher are now shipped with DHCP enabled by default. See below for more details. If you do not use DHCP on your network, the unit



will revert to the fixed IP address of 192.168.0.100. Please see the section in this manual on how to setup a new IP address on the unit. The SP+ F4 & F7 type units will not be affected.

C) AKCP also always highly recommends using a **dedicated 3rd party UPS on the units**. Any damage caused by unstable power or power outages *will void the warranty* on our units.

What's the difference between F4 (older) F7 & H7 (newer) processor versions?

When upgrading the firmware, there are three separate .bin files included in the firmware update packages. One for the F4 units, one for the F7 units and one for the H7 units. All SP1+ units are shipped are the H7 type and use the same bin file as all SP+ H7 type units.

If you try to upgrade your unit with the wrong .bin file, the firmware upgrade will fail. So please make sure you use the correct file for your unit type following the firmware upgrade instructions in the text file that is included in the compressed firmware package.

Also, <u>very important to note</u> that any backup configuration created on the F4 platform cannot be uploaded to the F7 platform unit and vice versa. This also applies to the H7 units. Backup configurations created on the F7 units <u>are compatible</u> with the H7 units (only SP1+ to SP1+).

H7 Units Specifications:

AKCP STM32H7 MCU 32-bit ARM micro-processor 1MB of RAM 64MB of non-volatile flash CPU speed: 216 MHz (F7) to 460 MHz (H7) The H7 is significantly faster than the F7 in real usage. In the SP+ units web UI you will be able to view which platform the unit is using.

This can be checked in the Settings >> General page >> System Description:

General System / General

/stem / General

System Description SP2+ F7 1.0.4946 May 27 2019 15:37:34

And in the Settings >> About page >> System Description:



About

System / About



System DescriptionSP2+ F7 1.0.4946 May 27 2019 15:37:34Manufacturing DateMonday, 4 February 2019Manufacturer NameAKCP

Product Name SP2+

Date / Time	About	
> Network	System / About	
Network Access Control		
матт	AKCP	
Modem	System Description	
VPN	SP2+ H7 1.0.5663 Oct 12 2021 06:43:37	
	Manufacturing Date	
Cloud Server	Tuesday, 12 October 2021	
SMTP	Manufacturer Name AKCP	
N SNMP	Product Name	
Server Integration	SP2+	
	Product Code	
Services	SP2-M4E2-VS	
Modbus	Ethernet MAC ID	
	00:0B:DC:01:02:10	
Password Checking	Modem IMEI Number	
Radius	-	
Maintenance	Modern Version	
Heartbeat Messages	Total Number of Sensors	
License Management	8	
About		



Port assignment information for SP1+ units



intelligent sensor port

Important note:

• If you're using analog pins on the sensor port (with the manually on-lined DCV sensor, and pin 7 of the RJ45 connector) make sure that the **voltage doesn't exceed 3 Volts**. Otherwise you can damage the unit!

New features on all H7 SP1+ units for no extra license fees include:

- 5 free virtual sensors.
- HTTPS and encrypted secure E-mail support.
- SNMPV3 included now as standard
- HTML5 user interface, MQTT/MQTTS, IPV6 option. (MQTTS only supported on H7 units)
- Support for all NIST2 and NIST3 temp sensors.
- Optional 5VDC USB power External USB power supply, used in combination with PoE as a redundant power input.

Note: All SP1+ units are shipped with the single sensor port unlocked. So no unlock code is needed.



LED information for SP1+ units



Power/Ethernet Link - Sensor 1 - Sensor 2 - Sensor 3 - Sensor 4

The **Power/Ethernet LED** will become red if there's no network connection, and blinking green (according to LAN activity) when the connection is normal.

LEDs Status:

Power = Solid red when connected Ethernet = Should be green and yellow blinking (when accessing the web UI) for good connection. Sensor, Internal Temp Sensor & Dry Contact = Green connected & normal status. Sensor & Temp Sensor = Slow blinking Warning status. Sensor & Temp Sensor = Fast blinking or red critical and error status.

Reset button functions for SP1+ units

There are specific commands you can send to the unit by holding the Reset button for a specified amount of time.

You will have to use something such as a ball point pen, or paper clip to be able to press Reset. However, be careful not to damage the button by aggressively pushing it in. Gently depress the button until you feel the button depress.

The reset button is located to the left of the Ethernet RJ-45 connector.

Commands:



Time to hold	Action
< 3 sec	Speak/show IP and broadcast its info (display on LCD sensor too, if connected)
37 sec	Reboot (reset CPU)
712 sec	Web UI password reset
1217 sec	Clear the sensor, notification and access DBs, logs Serial flash erase (DB erase without factory reset, the system configuration is kept)
1725 sec	Reset to factory defaults (serial flash erase + config erase)
> 25 sec	No action (useful when the button was pressed by mistake)

Notes:

- When the Reset button is held for longer than 12 seconds (DB erase) and then released, the Sensor Port 1 LED will give a visual indication of the state of database erase (the reboot and password reset doesn't have visual indication).

- When the button is held longer than 17 seconds (factory reset) and then released, these sensor port LED will be blinking fast and alternate during the factory reset mode.

Setting up the unit's IP address & troubleshooting connection issues

<u>Important Note</u>: The unit's ship with the passwords <u>**enabled**</u>. The default log in for the web interface is Username: *admin* Password: *public*

IMPORTANT UPDATE – The changes below on how to connect to the SP+ (**H7 type only**) units has been implemented when upgrading or using firmware version v1.0.5824 or higher. This <u>DOES NOT</u> apply to, or affect any F7 or H7 SP+ units already in the field or previously shipped when upgrading to the v1.0.5824 firmware or higher.

Note: This will also not apply to the F4 type units (final firmware version supported is v1.0.5606).

Please follow the directions in this SP+ setup video or the image for first connecting your unit:

https://www.youtube.com/watch?v=OtrccRpm1cw

Important Note: If you do not have a DHCP server, or do not use DHCP then the unit will only try DHCP for a few seconds, if there's no reply it will fall back to the default IP address of 192.168.0.100. Then you can use the direct cross over cable connection to your laptop or PC. Or simply connect the unit to your network switch and type in the default IP address above in your browser. This also applies if you are using the SP+ F4 or F7 type units.

Please note: The example in the video above & below shows our SP1+ unit. These steps will be the same for all SP+ (SP1+ & SPX+ H7) units shipped with firmware v1.0.5824 or higher.

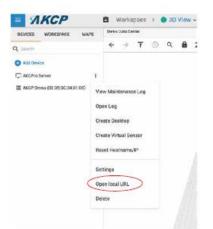


sensorProbe+ Quick Start Guide

- 1) Plugin the device to a DHCP Enabled network with internet connection
- 2) Power on the device
- 3) Open your web browser (Google Chrome recommended) and go to https://apscloud.akcp.com
- Sign in, or create your account. New users can create an AKCPro Server cloud account (free for up to 4 devices for 12 months).
- 5) In AKCPro Server add a new AKCP Cloud Device and enter the MAC ID of the sensorProbe+

DEVICES WOFKSTAGE MAP	5	Dame Cata Cent	wr .				Manufacture and a set	
Add Deske Add Desker Add Desker	1	€ →	T ©	۹ 🔒	2D	/	Add AKCP cloud device	
AKCP Dense (00:05:00:04:01:05)	£						P What server	CHICE NO

6) The unit will appear in the server explorer window of AKCPro Server. To access it's local web UI from here, open the device menu and select "Open local URL".



Additional Options for Connecting to your SP+ Units Web UI

Option #1. If **using DHCP** check your network router's DHCP assignments list.

How do I find the DHCP list on my router? (the following may be different depending on your router type)

Click the Status tab after logging into your router, then the Local Network sub-tab. Click the DHCP Client Table button under the DHCP Server section. This should bring up a list of clients that are currently connected to your network. You should see your SP+ unit in this list.

After identifying the IP address assigned, open your browser and type in the IP address.



Option #2. Use the IPSet utility.

A. You can also try using our IPSET utility which you can download using the QR code or direct link here:



http://www.akcp.in.th/downloads/Firmwares/InuxIPSet6.0.0.zip

B. Start the IPSET utility. Press the "reset" button on the sensorProbe+ unit once. IPSET will detect the units IP address and allow you to open the units web interface.

Option #3. If you have our AKCP LCD display sensor.

Connect the LCD display to any sensor port on the unit. The IP address will be displayed in the LCD panel.

Option #4. If you are **NOT using a DHCP server** (after the unit has reverted back to the default IP address).

Connect your SP+ unit directly to your network switch with a direct connect CAT5/6 cable and type in the default IP address of 192.168.0.100.

Re-assign your desired IP address in the Network settings as shown in the SP+ manuals.

VERY IMPORTANT NOTE: If you connect your SP+ (firmware versions beginning with 1.0.5824 or higher) unit directly to your laptop or PC using a cross over cable, DHCP will be temporarily disabled.

If you do not log into the unit's web UI and set a fixed IP address, then if you re-connect the unit to your network switch (using a straight through cable), DHCP will be re-enabled again. This does <u>NOT</u> apply to any H7 type SP+ units currently in the field prior to firmware v1.0.5824, or upgrading to the v1.0.5824 or higher.

Troubleshooting & Connection Problems

First please check our SP+ online Knowledge Base using this link to our website: https://www.akcp.com/knowledge-base/sensorprobe-plus-series-knowledge-base/

- A. Make sure you can ping the units assigned or default IP address.
- B. Make sure your laptop, PC or network fixed IP is configured for the default network subnet as the unit (192.168.0.1 for example). And that the IPv4 is checked/enabled on your PC.
- C. Check the Ethernet link LED on the unit and the PC. Check the patch cable (direct connect = crossover. Connect to switch = straight through).
- D. Try temporarily disabling your Antivirus & Firewall.
- E. You can also try using our IPSET utility as described above.



IMPORTANT NOTE: If you have performed a complete factory reset on your SP1+ H7 type (on firmware v1.0.5824 or higher) unit without choosing the option to retain the fixed IP address, then your unit will default back to DHCP. Please refer to the steps above again to determine your units newly assigned IP address.

Note: In some cases, your computer might not be able to connect to this default IP address. In this situation you either need to:

a) add this IP your computers routing table or

b) add a secondary IP address to the LAN card to allow access to the unit.

See below how to setup these.

Ensure the following items are available to you before starting:

- RJ45 CAT5 crossover cable with RJ45 male connection
- A PC with Ethernet card or LAN socket, logged in with Administrator rights

1) Connect the unit via the Ethernet port of the unit to your computers LAN or Ethernet port with a CAT5 crossover cable.

2) Open a web browser and type the default IP address, hit enter.

You'll be presented by the **Summary** page.

Go to the **System/Network** page to change the network settings (see below in this manual).

Once you have assigned the new IP address use the "ping" command to test the unit's reply.

How to add a manual route to the computer's routing table?

Open an Administrator Command Prompt (CMD) window and type:

route add 192.168.0.100 10.1.1.20

Where 10.1.1.20 is the IP address of the Ethernet interface on the PC that the unit is plugged into with the crossover cable.

Note: If you do not receive an 'OK!' message then a parameter was wrong or missing. The route is not persistent (removed upon rebooting), but you can also delete it with the route delete 192.168.0.100 command.

How to add a secondary IP address to the computer's LAN card?

You can do this via the GUI by opening the LAN connection's properties:



🖞 Local Area Connection Prop	erties 🔀
Internet Protocol Version 4 (1	TCP/IPv4) Properties
Advanced TCP/IP Settings	? 🗙
IP Settings DNS WINS	1
IP addresses	
TCP/IP Address	?×
IP address:	1 . 2 . 3 . 4
Subnet mask:	255.255.255.0
	Add Cancel

Or open an Administrator Command Prompt (CMD) window and type:

netsh interface ipv4 add address "Local Area Connection" 192.168.0.2 255.255.25.0

The above command adds the IP Address 192.168.0.2 (with Subnet Mask 255.255.255.0) to the connection titled "Local Area Connection".

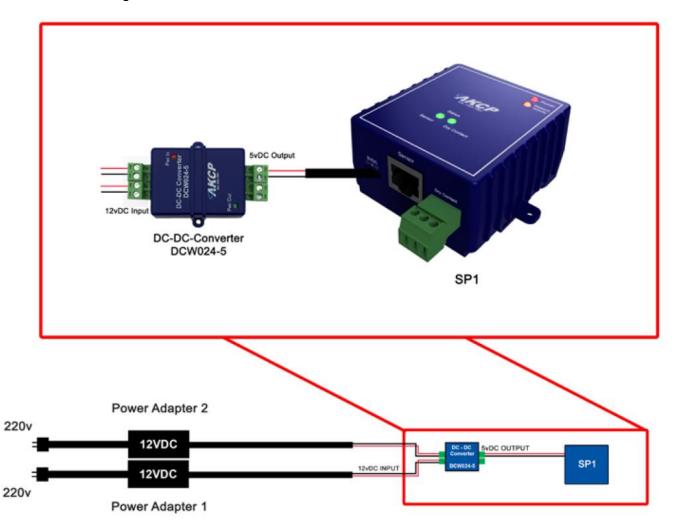
You will then be able to connect to the unit with its default IP.

Note: The secondary IP address is permanent for the LAN connection; don't use it if you only need it once. Instead use the routing table method above.



SP1+ Dual Power Input Option

SP1+ can be powered with dual inputs. PoE comes as standard, and an additional AC or DC source can provide primary power with PoE providing backup power. Or, in the absence of PoE dual inputs are available through our external DC-DC conversion box.





SP1+ Web UI Walkthrough

Menu navigation

With newer firmware (after 1.0.3074), the Web UI and the menu structure has been changed on all SP+ family devices. Also, please keep in mind most of these screen shots are from the SP2+ units which will be the same on the SP1+, only the SP1+ has a single sensor port.

Menu × Monitoring Host Log #1 Sensors 3 Q Search Ē Events ↓ Date/Time ↑ Level ort 4 ÷ Access Control Awaiting Reader Port 4 on Module 0 - 4x Sensor Ports ÷ Port 4 Â Notifications Unknown Card (card ID 8840102) : Ċ. Settings Door Port 4 on Module 0 - 4x Sensor Ports status is ntact Port 1 : 19/03/2018 08:47:43 Reader Port 4 on Module 0 - 4x Sensor Ports is now 19/03/2018 08:47:09

To open the menu, click on the three horizontal lines in the upper left corner:

This will bring up the full menu for navigation.

Depending on the device, you might see additional menu items, such as Power.

Important Note:- As Microsoft no longer supports the Internet Explorer web browser, we also do not support any version of IE when viewing our web interface on all AKCP base units. Please use the Chrome or Firefox browsers when viewing the base units web UI.

Monitoring Summary page





AKCP WORKSPACE	MAPS	Workspace	> Summary 🕂			×
ARCP WORKSPACE	MAPS					^
Search		[SP2+E] EXP Buzzer .185 (AK0	CP RD)			×
[SP2+E] EXP Buzzer .185	:	↑ Unit	↑ Name	Value	Status	
(10.1.1.185)	•	SP2+				
+ Main board	:	Main board	Siren Port 2		Off	:
		Main board	Temperature Port 1	25.5 °C	Normal	:
Internal Board	:	Internal Board	Buzzer		Off	:
Virtual Sensors	:	Virtual Sensors			Connected	
		04/06/2018 14:14:57 Mod 04/06/2018 14:14:47 Mod 04/06/2018 14:14:38 Mod 31/05/2018 14:07:06 Firm 30/05/2018 14:36:31 Restu	Port 2 on Main board status is Off temp2 238 on Virtual Sensors is now O temp2 238 on Virtual Sensors is now O temp 238 on Virtual Sensors is now O ware uploaded successfully from IP. 10 ore backup failed because it is not com ware upgrade was successfully comple	Disabled FFLINE 0.1.1.98. Updating Inpatible with the device		
			ware uploaded successfully from IP. 10	.1.1.98. Updating	Notice	
		Temperature Port 1			C :	
		Live			From: 05/06/2018 10: To: 05/06/2018 11:	

This is the Summary page with Sensor Status and the Event Log, with the Temperature Sensor Graph enabled.

Host Log

The Host Log contains all entries from the "All Events" category. We'll explain the different categories in the Notifications manual.

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.

In the Summary page's Sensors Information window you can do the following:



V	Norkspace > <mark>Su</mark>	mmary 🗸 🕂				
Syste	em Name (System Location))			×	Host Log #
	↑ Unit	↑ Name	Value	Status		Q Search
PX+	÷					↓ Date/Tir
	Module 0 - 4x Sensor Ports	Temperature Port 1	26.5 °C	Normal	: -	15/03/201
	Module 1 - 20x Dry Contacts IO	Dry Contact Port 1		Critical	:	15/03/201
	Virtual Sensors			Connected		15/03/201
CU ((0D000037)					15/03/201
	CCU 1.2	Cabinet Door Port 1		Forced	:	15/03/201

Click on the configuration menu button [‡] directly next to the right of a sensor to access its popup menu.

Sensor Error Normal Off Connected	View Graph Enable Graph Acknowledge Offline	Directly acknowledge a sensor's status, and put the sensor offline
	Settings	

Sensor Control	Control th
On	Control an
Off	
Toggle Off-On	
Toggle On-Off	
View Graph	
Enable Graph	
Acknowledge	
Settings	
	On Off Toggle Off-On Toggle On-Off View Graph Enable Graph Acknowledge

Control the relay-type sensors

View G	raph	
Disable	e Graph	
Acknow	wledge	
Setting	js	

Enable/disable graph data collection per sensor (if they support it), and display the graph display window for the Summary page We'll explain the Graph feature in more detail below.



Graph feature

After you've enabled the data collection for a sensor, you can choose to display specific time intervals of the stored data: hourly/daily/weekly/monthly and custom display interval. You can also export the recorded data in multiple formats.

Temperature Port 1 C I × Last Update: 08/01/2018 12:31:50 Live 34 08/01/2018 03:09:00 Temperature Port 1 Show all
 32 30 พกก.พ 28 26 15:00 18:00 21:00 03:00 06:00 09:00 Jan 08 12:00

Important: The maximum number of enabled graphs per unit is 14.

In this example picture, we've chosen to display the temperature sensor's daily maximum. You could also resize the graph window (including full screen) and move the scale to display more or less data.



		C	×
	L	Display Time Range	53
	·····	 1 Hour 1 Day 1 Week 1 Month Custom 	II
)0 10	06:00	Multiple Graphs	
	Save As PNG	Filter Disable Graph Copy Graph Export •	
	Save As SVG Save As CSV Save As JSON		

You can choose to export the graph data in selected formats by clicking on the graph's menu on the right, then by choosing the desired format from the popup menu.

The file will be downloaded automatically and assigned a file name that will contain the sensor's name, IP address of the unit, and the date and time.

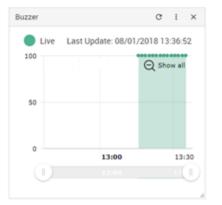
The graph is always a **Live Graph**; you can set the data collection period in the General Settings page (see below for more information).

You may also refresh the graph data manually with the refresh button on the right.

Graph Data Collection Period	901m 30sGraph data can be stored for 31 days 23h 45m 0s.
Sensor Control On	If you want to view multiple sensor graphs, first you need to Enable Graph for a sensor that supports graphing from the sensor's menu. Then select View Graph to display it. The data collection will run in the background even if you
Off	don't display the graph.
Toggle Off-On	
Toggle On-Off	
View Graph	
Enable Graph	
Acknowledge	
Settings	The second graph will appear below the first graph (you can freely rearrange it).









Managing Desktops and Maps

The updated SP+ Web UI has the Workspaces feature from the AKCPro Server's HTML5 UI. With this you can manage and view different Desktop layouts in a quick and easy way, create multiple custom Desktops as well as select from pre-defined layouts with placeholders for displaying your sensor gauges, logs etc.



To enter into the Workspace mode, click on the Workspace link circled in red as shown above.

The default Desktop is the Summary page on all devices.

= 🦌	KCP	SP2+		
AKCP	WORKSPACE	MAPS	Workspace	e > Summary 🕂
Q Search			[SP2+E] EXP Buzzer .185 (Ak	KCP RD)
	14		↑ Unit	↑ Name
+ Add De		0 0 0	SP2+	
Add Lay	yout		E Main board	Siren Port 2
🕂 Add Fol	der		Main board	Temperature Port 1
💷 Su	mmary		😑 Internal Board	Buzzer
-	-		Virtual Sensors	

We did add a new built in Map Feature (not the Rack Maps detailed below) which you can use to map sensors in your data center or any other facility.

Please use the link below to download the manual for setting up the maps on your sensorProbe+. <u>http://www.akcp.in.th/downloads/Manuals/SP1+/sensorProbe+%20and%20WTG%20Map%20Manual .pdf</u>

If you find this limiting, you can also use our AKCPro Server for advanced mapping which can be downloaded from this link here:

https://www.akcp.com/akcp-products/akcpro-server/



Important Notes on custom desktops

Please note the custom Desktops that are created **ARE NOT** stored in the SP+ units memory. These are HTML based, so they are stored in the browser cache, or local data on the Chrome & Firefox browsers. In other words, the Workspaces are not portable.

So, if you factory reset the unit or clear the cache on your internet browser the folders and custom desktops will be lost.

Generating a backup file from the Maintenance menu will also contain the custom desktops (added after firmware version 1.0.4209).

Without generating a full backup file, you could to export and then import the desktop configuration before you change browser, change your device or before you clear your browser cache. The configuration files will be saved as JSON files.

You can click the Export / Import command on a Desktop to save/reload it individually:

AKCP WORKSPACE	MAPS	🖨 Workspace > Folder1 > Desk2 🗸 🕂
Q Search		
+ Add Desktop	0 0 0	
 Add Layout Add Folder 	<u></u>	Import to Current Folder
t Workspace > Folder1	8	Export From Current Folder
112	0	
😑 Desk2	0 0 0	

Viewing custom desktops different users & PC's

Regarding the viewing of your custom desktops via other users. Because multiple users can log into the SP+ unit from the same PC or different PC's on the network, the following applies:-

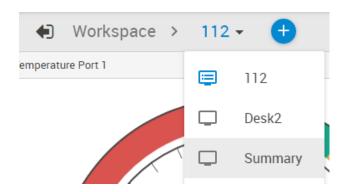
If two different users (different usernames) log in to the same SP+ unit they will not be able to view the other users custom desktops.

If the same user logs into the SP+ from two different PC's they will not be able to view the custom desktops (they do not synchronize), so the custom desktops will only be viewable on the original PC that they were created on as again these are stored on the PC's browser local data.

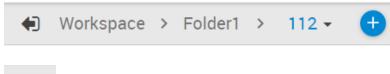


Managing Desktops

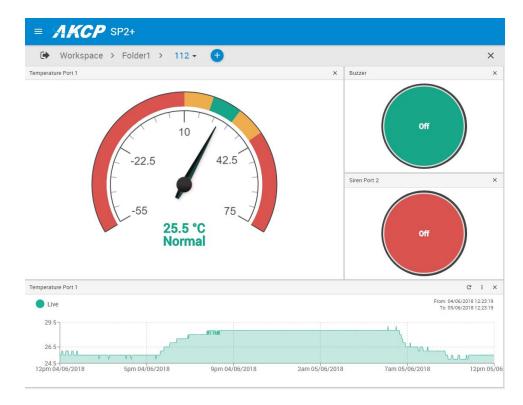
Navigation



You can manually change between Desktops using the arrow menu, or by directly clicking on the desired Desktop if they are stacked under a folder.



With this button, your current Desktop will expand to the browser's screen width as shown on the screenshot below:





Click it again to go back to the full view.

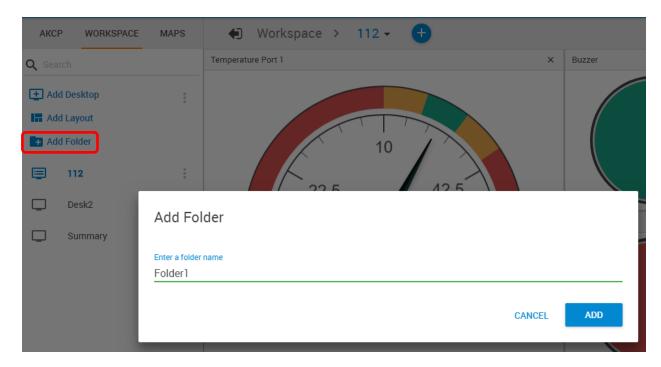


AKCP	WORKSPACE	MAPS		Workspace	>	Desk2 -	•
Q Searc	h						
🛨 Add	Desktop	0 0 0					
Add	Layout						
🕂 Add	Folder						
	Desk2		Rename				
	Summary		Move to				
			Export				
		Î	Delete				

On each Desktop and Folder item, you have the option to Rename, Move, Export or Delete them. Move is useful if you've created multiple folders (see below). As noted earlier, don't forget to export your Workspace items to save them permanently.



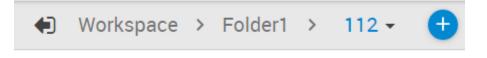
Folders



You can add Folders to arrange your desktops into a hierarchical view.

AKCP WORKSPACE	MAPS	AKC	P WORKSPACE
Q Search		Q Sea	arch
+ Add Desktop	0 0 0	🛨 Ad	ld Desktop
Add Layout		Ad	ld Layout
+ Add Folder		📑 Ad	ld Folder
Folder1	0 0 0	1 Wor	rkspace > Folder1
Summary			112
-	•		Desk2

After created, you can simply drag and drop your Desktops under the folder, or use the Move menu. The folder structure will also display on the Desktop selector menu on top:





Desktops

You can add new Desktops where you can customize the layout to place any sensor gadget, logs, graphs etc. on the screen.



There are two ways to add a new desktop. The first is by creating a blank desktop using the **Add Desktop** link under the Workspace tab:

🛨 Add Desktop 📑 Add Folder	SPX+	Q Search
Workspace > Steve's Desktop	∧ Module 0 - 4x Sensor Ports	Temperature Port 1 on CCU 1.2 is 25 * 15/03/2018 08:38:58
This folder is empty	Temperature Port 1 Normal 26 °C	Temperature Port 2 on CCU 1.2 is now 15/03/2018 08:38:48
	Module 1 - 20x Dry Contacts I0	Temperature Port 1 on CCU 1 2 is 25.*
A	Add Desktop	s
E	nter a desktop name	
s second s	teve's Desktop	
		CANCEL ADD

Name the new desktop and click the **Add** button.

АКСР	WORKSPACE	MAPS	٧	It will appear in the Workspace menu list.
Q Search				
🛨 Add Des	sktop 📑 Add	Folder		
1 Workspa	ce 👂 Steve's 🛛	Desktop		
🚍 Ste	eve's Desktop	0 0 0		

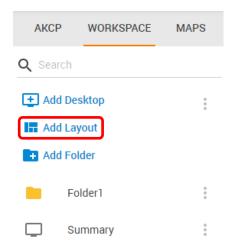


In addition to the simple blank desktop, the second way to add a new desktop is via pre-defined Desktop Layouts. You could choose one that best suits your monitoring needs to drag and drop your sensor gadgets.

Use the plus button at the top of the page and select the layout for your new desktop:

Summary	+ ←	
	+ Add Desktop	Log #1
		earch
Ports	Desktop Layout	nperature Port 03/2018 08:38
	1+1+2 1+1+4 1+2	1 perature Port 03/2018 08:38
ntacts IO	1+5	1 perature Port 03/2018 08:38
	4 2x2 2x3	1 perature Port 03/2018 08:38
C ∶ ×	2+8 9 3x3	perature Port
03/2018 08:31:27 03/2018 09:32:26	16 4x4 25 5x5	

Alternatively you can click on the Add Layout link to select from layouts:



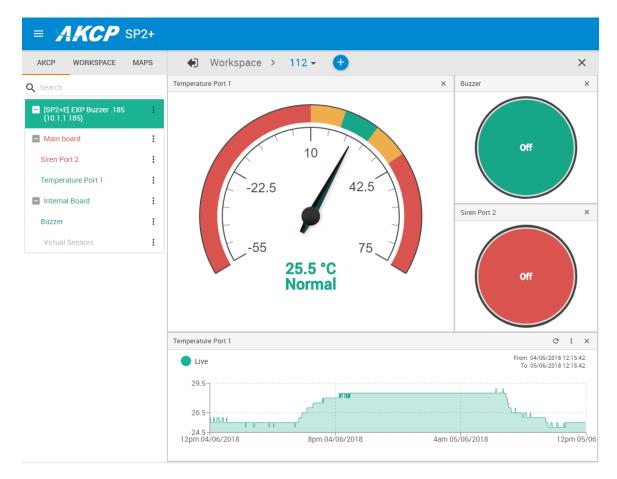




The empty desktop will have placeholders similar to this:

AKCP	WORKSPACE	MAPS	Workspace	> St	eve's Desk	top -	•
Q Search							
🛨 Add Desk	ktop 📑 Add	Folder					
Stev	ve's Desktop	:					
🗐 Ster	ve's Desktop	:					
C Sun	nmary						

As an example below, we've selected the 1+1+2 layout. Then you can drag and drop sensors, logs and graphs on the layout:



Below we'll show you how you can add sensors to the desktops.



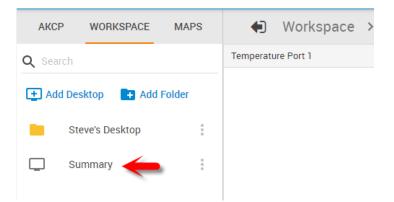


Adding items to your custom desktop

AKCP WORKSPACE MAI		Workspace	>	Steve's Desktop	>	Steve's Desktop	θ
Q Search							
- System Name (10.1.1.183)	÷						
Gateway							
Module 0 - 4x Sensor Ports	:						
Temperature Port 1	:						
Module 1 - 20x Dry Contacts IO	:						
Dry Contact Port 1	:				I		
Virtual Sensors	:					_	
CCU 1.2	:						
Cabinet Door Port 1	:						
Cabinet Door Port 1 (Reader 2)	:						
Temperature Port 1	:						

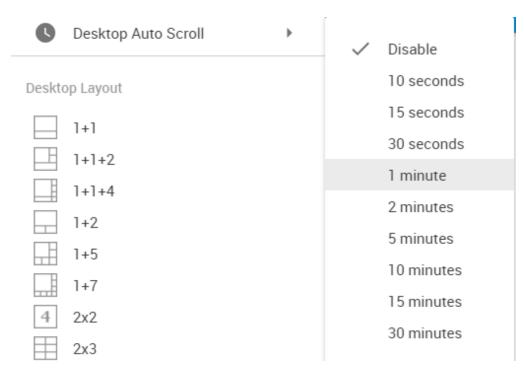
To add items from the units that are connected to the SP+ unit, you will first need to click on the AKCP link in the Navigation Tree as shown above.

Next simply drag and drop the items you wish to add to your new desktop. This is also how you can add items to the Summary page. To navigate back to the Summary or Main Monitoring page click on the Summary link shown below.

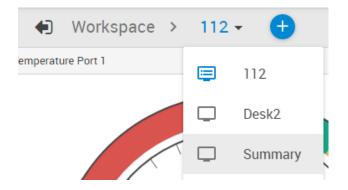




Desktop Auto Scroll feature



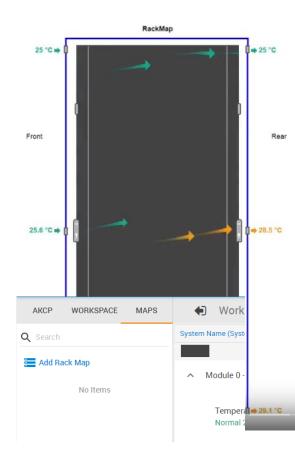
With this feature enabled, your desktop view will automatically switch between the created additional desktops within the specified time interval.



You can also manually change between Desktops using the menu.



Managing Rack Maps



The Rack Map feature was originally (and still is) included in the AKCess Pro Server / AKCPro Server (HTML5) and has also been added to the SP+ units. You can add a Rack Map as a graphical representation of your server rack, and to display and record the temperature of the airflow within your server cabinets.

Note that on SP+ family Web UI only limited options are available for the Rack Map; for example you cannot add devices or assets.

Click on the Maps tab and Add Rack Map link to add a Rack Map:

= ^K(P SP2+		
AKCP WORKS	SPACE MAPS	🔹 Workspace > Folder1 > Desk2 + 🕂	×
Q Search			
Add Rack Map			
No It			
	Add Rack M	p	
	Rack Map Name RackMap		
	Front Label Front		
	Rear Label Rear		
			CANCEL ADD

After created, you can drag and drop the Rack Map to a desktop.



You can add Temperature sensors, the Swing Handle Lock and the Sensor Status Light gadget on a Rack Map. Simply drag and drop the desired sensor from your unit's sensor list, as shown below.

AKCP WORKSPACE M	APS	Workspace	> Folder1 > Desk2 -	•			×
X Search	Rack	Мар		: ×			
 [SP2+E] EXP Buzzer .185 (10.1.1.185) Main board 	:	Temperature Port 1	RackMap				
Siren Port 2	:						
Temperature Port 1	:						
Internal Board	: FI	ront		Rear			
Buzzer	:						
			p				
	4	0	0			This oxom	plo picturo chowr
AKCP WORKSPACE	MAPS		space > RackMap •				ple picture shows
AKCP WORKSPACE	MAPS				: ×	Sensor Sta	atus Light added
Search	MAPS	Works	space > RackMap •		: ×	Sensor Sta Rack Map	atus Light added :
Search Add Desktop		Works			i ×	Sensor Sta Rack Map Please see	atus Light added : e the Thermal Ma
Search Add Desktop Add Layout		Works	space > RackMap •		: ×	Sensor Sta Rack Map Please sea sensor ma	atus Light added e the Thermal Ma inual for complete
Search Add Desktop Add Layout Add Folder		Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
Search Add Desktop Add Layout Add Folder 111	:	Works	space > RackMap •		: X Rear	Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete
Search Add Desktop Add Layout Add Folder 111 222	:	Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
Search Add Desktop Add Layout Add Folder 111 222	:	Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
Search Add Desktop Add Layout Add Folder 111 222 333	:	Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
 Search Add Desktop Add Layout Add Folder 111 222 333 Mon 		Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
Search Add Desktop Add Layout Add Folder 1111 2222 3333 Mon New Desktop		Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi
Search Add Desktop Add Layout Add Folder 1111 2222 3333 Mon		Works RackMap	space > RackMap •			Sensor Sta Rack Map Please see sensor ma installation	atus Light added e the Thermal Ma inual for complete n & setup instructi



Access Control Users and Groups

⊟ A	^	
•	Users	
	Groups	
0	Time Schedules	
	Holiday	

The Access Control Users and Groups are managed from the AKCPro Server and are used for accessing doors with the Swing Handle Lock. You can only view the existing users and groups from the unit's Web UI and modify only a few parameters on them.

AKCP SP2+				
Users Access Control / Users			Q Search	
↑ First Name	↑ Last Name	Group	Card ID	
Admin	Admin	(None)	-	
Jo	oL	(None)	-	
mot	mot	(None)	-	

SAKCP Est USA 1981			
≡	Menu		
<u></u>	Summary		
	Access Control		
-	Users		
-	S Groups		
C	Time Schedules		
Ē	Holiday		
٣	Sensors		
Ē	Events 🗸		
٠	Notifications V		
¢	Settings		

This feature has its own manual, refer to the SP+ Swing Handle Lock Manual for more information.



Notifications and Events

🖻 Events	🔔 Notifications 🔥
✓ All Events	 Notification Rules
System	Actions
Sensors	Fire Suppression
Access	
Notifications	You can view all of the SP+ unit's events and filter them by each of the categories' listed above in the Events drop down menu.

Please refer to the SP+ units "Notifications Manual" for setting up the alerts and the Event log on the units.

The Sensors menu



The "Sensors" shortcut will allow you navigate directly to the sensors setting page where you can setup the sensors connected to the unit. This is covered in the Sensors section in this manual.

The Settings menu



This shortcut will take you to the unit's system settings pages. Each page will be described below in detail.



System page

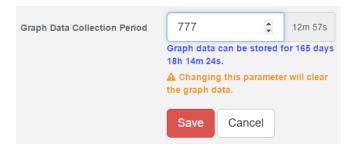
General

■ AKCP SP2+		
System		
🗱 General	General	
🛗 Date/Time	System / General	
🕂 Network	System Description	SP2+ 1.0.4034 Dec 19 2017 15:17:28
奈 Modem	System Name	[SP2+E] EXP Buzzer .185
VPN	System Location	AKCP RD
SMTP	System Education	
	System Contact	Charles
Server Integration	System URL	http://www.example.com
Services	Sensor Notification On System	
🔆 Modbus	Boot Up	○ On ● Off
Password Checking	Graph Data Collection Period	90 1m 30s
Se Maintenance		Graph data can be stored for 31 days 23h 45m 0s.
Heartbeat Messages	Language	English • Manage
🔚 License Management		Save Cancel
i About		
Get SNMP OID		

Here you can change general settings for the device.

The unit's firmware version is shown in the Description field, and the System Name/Location/Contact options are user configurable. You could also specify the System URL option, for quick access of a custom part of the Web UI for example, but you can specify any URL.

With newer firmware you can also specify GPS coordinates.



By changing the **Graph Data Collection Period**, you can choose how frequently the data is sampled. Note that if you had stored graph data previously, changing this setting will clear the data.





With the option **Sensor Notification On System Boot Up**, you can choose to allow/disallow running the notifications with sensor values read at system boot up. In some cases, invalid values are read while the unit is starting up, and you could get false alarm notifications. You can enable/disable the notification processing at startup with this option.

On each System subpage you can see a Get SNMP OID button (where applicable):

/IP OID of General			
Description -	Syntax -	Access 🖡	
cfgSystemDescription	DISPLAY STRING	read-write	.1.3.6.1.4.1.3854.3.2.1.8.0
cfgSystemName	DISPLAY STRING	read-write	.1.3.6.1.4.1.3854.3.2.1.9.0
cfgSystemLocation	DISPLAY STRING	read-write	.1.3.6.1.4.1.3854.3.2.1.10.0
cfgSystemContact	DISPLAY STRING	read-write	.1.3.6.1.4.1.3854.3.2.1.11.0
cfgGraphDataCollectionPeriod	INTEGER	read-write	.1.3.6.1.4.1.3854.3.2.1.104.0
cfgSystemURL	DISPLAY STRING	read-write	.1.3.6.1.4.1.3854.3.2.1.107.0

This will give you a popup window with all relevant OIDs for the actual page (here the General page is shown).

You can use OIDs for SNMP calls and in custom scripts, or for setting up the unit for monitoring by a third party NMS software such as WhatsUpGold or Paessler.

This button is also accessible on the Sensors page for each sensor.



Language management

Language English	*	Manage
------------------	---	--------

You can change the display language of the Web UI with this option. Only one additional language is supported, together with the default (and fallback if there's an error) English.

Language			
System / General / Language			
Default Language	English (en) 1.4		
Custom Language	N/A		
Edit Language	Edit		
Install New Language	Language Packs (Require Internet 🔹		
	Install		
Download Language File	English		
Upload Language File	Choose file		
	A The new language file will overwrite the existing file after being uploaded.		
	Save Cancel		

In **Manage**, you can choose to **Download Language File** if you'd like to edit the language file offline (you can also download the custom language's file if it's already present). Then upload the completed file, and it will be selectable as the Custom Language. For official translation files, the language code and version will show the correct values.

Note: Whenever you upload or install a custom language file, it will overwrite the old file. Only one additional language is supported.





You can get separately downloadable language files from our website in the Support section.

If you have active internet connection, the unit supports installing the official language files directly from our server.

Select a language from the drop-down menu Install New Language:

Install New Language	Language Packs (Require Internet 🔹
	Language Packs (Require Internet Access)
	French
	Russian
Download Language File	Spanish

Then press the **Install** button. It will ask you to confirm the action in a popup window:



Wait until the language is downloaded and installed:

🔿 Installing a new language. Uploading a language file.



The unit will notify you about the successful language installation. If you installed it from the list, it won't change the language of the Web UI automatically.

Now you can switch display languages by selecting from the drop-down list on the **General** page, then pressing **Save**:

Language	English	•	Manage
	English		
	Spanish		

After you've added the custom language, you can manage it from the same menu:

Language System / General / Language			
Default Language	English (en) 1.4		
Custom Language	Spanish (es) 1.4		
Edit Language	Edit		
Install New Language	Language Packs (Require Internet		
	Install		
Download Language File	English Custom		
Upload Language File	Choose file		
	A The new language file will overwrite the existing file after being uploaded.		
	Save Cancel		

Note: The official language files are also included in the firmware update packages.



You can also edit the chosen language directly in the Web UI, if you choose Edit Language:

Custom Language	Spanish Save Cancel	•	
Group	Total Entries	Translated Entries	
General	110	110	Edit
Setup	25	25	Edit
Code Activation	9	9	Edit
Menu	33	33	Edit
Explorer	3	3	Edit
Gadget	97	97	Edit
Login	б	б	Edit
Sensor Setting	519	519	Edit
Event	120	120	Edit
Notification Type	21	21	Edit
Action Selection	2	2	Edit
Sensors Control Action	6	б	Edit
Relay Action	15	15	Edit
Dry Contact Action	15	15	Edit
Siren Action	13	13	Edit
Door Action	16	16	Edit



Date/Time

≡ ////// SP2+			
System			
🔅 General	Date/Time		
Hate/Time	System / Date/Time		
1 Network	Timezone	(GMT+07:00) Bangkok, Hanoi, J	aki 🔻
奈 Modem	Date/Time	11/01/2018 10:55:56	m
S VPN			
SMTP	Network Time Protocol	Continuously	•
₩ SNMP	NTP Server 1	time.windows.com	
Server Integration	NTP Server 2	107.0.0.1	
Services	NTF Server 2	127.0.0.1	
A Modbus	RTC Battery Status	Good	
Password Checking		Save Cancel	
Se Maintenance			
Heartbeat Messages			
E License Management			
i About			
Get SNMP OID			

The system date and time with time zone is user configurable, with NTP server synchronization. If the unit is connected to APS (AKCPro Server), then it will sync with the APS NTP service. Also displayed is the status of the RTC battery (good/bad).

F7 units will also let you specify secondary NTP, and secured NTP servers.

Network Time Protocol	Continuously		
NTP Server 1	Do not use One time On system start up Once a month		
NTP Server 2	Once a week Once a day		
RTC Battery Status	Once a Continu		
	Save	Cancel	

You can also select the frequency of NTP synchronization with the drop-down menu.



Network

≡ AKCP SP2+			
System			
😋 General	Network		
🛗 Date/Time	System / Network		
🔒 Network	Use DHCP	 Enable Disable 	
奈 Modem	IP Address	10.1.1.185	
VPN			
SMTP	Subnet Mask	255.255.255.0	
⇒ SNMP	Default Gateway	10.1.1.2	
Server Integration	Domain Name Server	8.8.8.8	
a Services			
Nodbus	Ethernet MAC ID	00:0B:DC:10:01:85	
Password Checking		Save Cancel	
Se Maintenance			
Heartbeat Messages			
🔜 License Management			
i About			
Get SNMP OID			

The unit's MAC ID is displayed here, and all user configurable options for IPv4 with fixed IP or DHCP client mode.

F7 units also have IPv6 settings (separately licensed feature), we have a separate manual about this feature.



VPN

≡ //KCP SP2+			
System			
🗱 General	VPN		
🛗 Date/Time	System / VPN		
击 Network	1 This feature has no license. To	request a license click here.	×
奈 Modem	VPN	Enable Disable	
😵 VPN	Status	Not Connected	
SMTP	IP Address	0.0.0.0	
	VPN Server Address	VPN Server Address	
Server Integration			
Services	VPN Server Port	1194	
A Modbus	VPN Password	Password	
Password Checking	Confirm VPN Password	Or a firm VDN Decouverd	
Se Maintenance	CONTINU VEN PASSWORD	Confirm VPN Password	
Heartbeat Messages	VPN Encrypt Method	Blowfish	
🔜 License Management		Save	
i About			
Get SNMP OID			

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

This feature is used by connecting the SP1+ with the APS VPN server. After the license has been activated and the APS VPN server is set up, you'll need to fill out the same options here to be able to use the VPN connection (see below).

VPN Encrypt Method	Blowfish •
	None
	Blowfish
	AES
	Triple DES

Note 1: You can also configure these settings from the APS console for the unit.

Note 2: If you use the VPN option, the maximum number of sensors that can be used by the unit will be reduced to 36 on F4 units (no limit on H7).



Set up VPN connection to APS

In the following pages, we'll describe how to set up the VPN connection to APS.

1. On APS HTML, Go to Settings>Server Settings>Virtual Private Network

	o Server
Server Settings	Virtual Private Network Settings / Server Settings / Virtual Private Network
•• VPN	Enable VPN Server
Notification NTP	Status: VPN Server is running Network Settings
LDAP	Network Address 192.168.17.0
LanguageServices	Subnet Mask 255.255.255.0 Listening Port
	1196 Authentication Settings
	Network Encryption AES
	Network Password
	SAVE CANCEL

Enable the VPN Server by clicking on the checkbox, and then change the **Network Password** in Authentication Setting. Remember the **Network Encrytion Mode** that you have chosen; you'll need to provide the same setting on the SP+. See more details in the APS HTML manual.

You can also make changes to the network settings, but you'll have to use the same port on both sides of the VPN.

Note: The VPN virtual network has to be an entirely different subnet from the one you're currently using, otherwise it won't work!

Ex. if you're using 192.168.1.x network subnet on your LAN, use 192.168.11.x (or any other that's different from 192.168.1.x) for the VPN link.



You could also configure the VPN settings using the deprecated APS Windows Client interface: **Settings>Server Option>Virtual Private Network**

Server Options				×
Connections Virtual Private Network NTP options Log options DAP options Server Name Service	Enable VPN Server Status : VPN Server is Network Setting Network Address Subnet Mask Listening port Authentication Sett Network Password Confirm Network I Network Encryptio	192.168.11.0 255.255.255.0 1194 Ig exceeds assword exceeds a second seco		
			ОК	Cancel



2. On the SP+ Web UI, enable the VPN

First change the VPN Client on the top to "Enabled" and configure the VPN Settings on the form:

- Specify the AKCPro Server's IP or DNS name in VPN Server Address

- Use the VPN Network Password that you have specified on APS

- Set up the the VPN Encrypt Method on the Encryption tab; use the same setting that you have specified on APS.

After clicking the "Save" button, the unit will ask you to reboot.

After the unit has rebooted and shows "Connected", it will show the VPN client's IP Address.

VPN	
System / VPN	
VPN	Enable Oisable
Status	Connected
IP Address	192.168.17.3
VPN Server Address	10.1.1.98
VPN Server Port	1196
VPN Password	Password
Confirm VPN Password	Confirm VPN Password
VPN Encrypt Method	AES
	Save Cancel

You can review the unit's syslog to see if there were any errors with connecting to the VPN server.



3. On your APS console, the SP+ unit will be added to the **Server Explorer** automatically, with an IP address automatically assigned from the range you specified.

- SPX 56 (192.168.17.3)	:
Host Status	:
Module 0 - 4x Sensor Ports	:
Dry Contact Port 1	:
Relay Port 2	:
Virtual Sensors	
_	
SNMPGet	:
VPing	:
vi ling	•

Important notes:

- A) If the SP+ was previously added to the APS using a LAN IP, it has to be removed (delete host). Connecting by VPN will use a different IP address for SP+ but the unit's MAC address is the same, and they'll be in conflict. This is not an issue if the unit has never been added to APS before.
- B) If the SP+ unit was previously monitored by APS, you should do a "reset to factory defaults" from the Maintenance menu to fully remove the APS integration from the unit (the existing IP configuration can be kept).
- C) The Virtual Sensor Ping cannot ping an IP address on the VPN network.



SMTP

= AKCP SP2+		
System		
😋 General	SMTP	
🛗 Date/Time	System / SMTP	
🕂 Network	Send Email	Enable O Disable
奈 Modem	Email From	from@address.com
VPN		
✓ SMTP	SMTP Server	SMTP Server
≓ SNMP	SMTP Port	SMTP Port
Server Integration	SMTP Authentication	 Enable Disable
Services	Login Name	Login Name
Modbus		5
Password Checking	Password	Password
Maintenance	Confirm Password	Confirm Password
Heartbeat Messages	Connection Security	None
🔚 License Management	connection occurry	
i About		Save Cancel
Get SNMP OID		

The SMTP server configuration options are shown here, it's required to be set up for the Email actions.

Fill out all parameters; the address in the *Email From* parameter will be used by the Email actions by default, but you could change it if your mail server supports it (when it's not required to match the SMTP user for example).

Connection Security	None 🔻
	None
	SSL/TLS
	STARTTLS

SSL/TLS and STARTTLS are supported for the connection security.

You could also turn off any email sending from the unit by disabling the Send Email option.



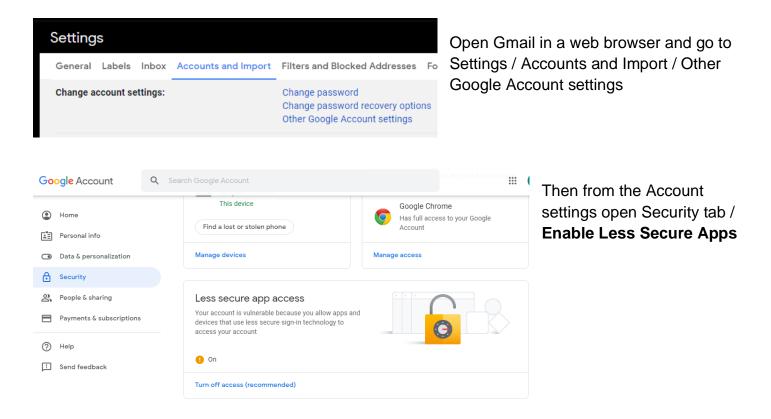


Settings for Gmail

Send Email	e Enable O Disable
Email From	@gmail.com
SMTP Server	smtp.gmail.com
SMTP Port	587
SMTP Authentication	e Enable Disable
Login Name	@gmail.com
Password	
Confirm Password	
Connection Security	STARTTLS

You can use Gmail account to send Email alerts with the settings shown on this screenshot on the left.

Important: before this can work, you'll need to set up an additional setting in your Google account.





Settings for office365

Important Note: Sending office365 email alerts are only supported on the SP+ F7 & H7 units running the latest firmware on our website and are not supported on the older F4 type SP+ units.

First you need to ensure that the SMTP settings and the email action configuration are correct as follows (our account is used as an example):

stem / SMTP	
Send Email	
Source Linda	
Email From	
o365@akcp2.onmicrosoft.com	
SMTP Server	
smtp.office365.com	
SMTP Port	
587	
Connection Security	
STARTTLS	
SMTP Authentication	
Login Name	
o365@akcp2.onmicrosoft.com	
Password	
······	
Confirm Password	



Email Action

1 Email Configuration	 Email Message 	Retry Action
Name the action and fill in the ema	il of the sender and receivers	
Network Interface		
Default		¥.
Action Name		
Email Action 1		
Email From		
o365@akcp2.onmicrosoft.com		
Email To		
Same State Black States		

Very important: the "Mail from" parameter must match the same as the SMTP login parameter in the settings.

The mail servers are strict about the "mail from" parameter for antispam methods, and it cannot be different than the email login setting.

Please also check our SP+ Knowledge Base using this link:

https://www.akcp.com/knowledge-base/sensorprobe-plus-series-knowledge-base/

And also, our SP+ Email Setup Quick Start guide using this link:

http://www.akcp.in.th/downloads/Manuals/SP1+/SP+%20Email%20Alerts%20Quick%20Start%20Gui de.pdf



SNMP

≡ <i>AKCP</i> SP2+						
System						
Ø [®] General	SNMP					
🋗 Date/Time	System / SNMP					
La Network	SNMPv1/v2c	SNMPv1/v2c				
奈 Modem	SNMPv1/v2c	Enable Disable				
VPN	SNMP Port	161				
SMTP						
≓ SNMP	Read Community	Read Community				
Server Integration	Confirm Read Community	Confirm Read Community				
Services	Write Community	Write Community				
St Modbus	Oran Firms White Orange in					
Password Checking	Confirm Write Community	Confirm Write Community				

The SNMP service configuration options are shown here, it is required for SNMP operations.

SNMPv1 is enabled by default, with community password "**public**". This is provided for the easiest integration with third party SNMP tools. For enhanced security, it is recommended that you change the default SNMP password.

Scroll down for SNMPv3 options.



SNMPv3

SNMPv3						
1 This feature has no license. To	This feature has no license. To request a license click here.					
SNMPv3	 Enable Disable 					
SNMPv3 Mode	Authentication Only					
SNMPv3 engineID	АКСР					
	enginelD parse: 80001F8804414B4350					
SNMPv3 Username	admin					
Access Privilege	Read Only •					
Authentication Protocol	SHA					
SNMPv3 Pass Phrase	SNMPv3 Pass Phrase					
Confirm SNMPv3 Pass Phrase	Confirm SNMPv3 Pass Phrase					
Privacy Protocol	AES					
Privacy Protocol Pass Phrase	Privacy Protocol Pass Phrase					
Confirm Privacy Protocol Pass Phrase	Confirm Privacy Protocol Pass Phras					

The SNMPv3 options can be found by scrolling down on the SNMP page.

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

Below we'll give a quick description of each setting:

<u>Level</u>	Authentication	Encryption	<u>Description</u>
No Authentication	Username	No	Match Username (same as SNMP v1/v2c)
Authentication Only	MD5 or SHA	No	Auth Based on Algorithms (check password)
Auth&Privacy	MD5 or SHA	Yes - DES	Auth Algorithms and Encryption

Basically if you select **No Authentication** then the setup will be the same as with SNMP v1 and v2c versions: authentication is only checked by unencrypted username.

Authentication Only will provide password protection but no encryption.

Authentication&Privacy provides encrypted username and password protection.



Server Integration

≡ <i>AKCP</i> SP2+		
System		
🔅 General	Server Integration	
🛗 Date/Time	System / Server Integration	
🖧 Network	Server Integration	Enable Disable Disable
奈 Modem	Server Address	10.1.1.111
VPN	Server Integration Port	5000
SMTP		
≓ SNMP	Send Keep Alive Every	1 Minutes •
A Server Integration	Server Access Control Sync	Enable Disable
a Services		Save Cancel
🔆 Modbus		
Password Checking		
Se Maintenance		
Heartbeat Messages		
E License Management		
i About		
Get SNMP OID		

If the unit has been added to the AKCPro Server console, the server's IP address will be displayed here. User configurable options are the APS port and keep-alive period.

Send Keep Alive Every	1 Minutes 🔹
	30 Seconds
ver Access Control Sync	1 Minutes
	5 Minutes
	10 Minutes
	15 Minutes
	30 Minutes
	1 Hour
	2 Hours
	5 Hours
	12 Hours
	24 Hours

You can change the APS port when the server's port changes, and the keep-alive period (heartbeat sync to APS).

Alternatively you can re-initialize your unit from the APS console to re-establish communication.

You may disable the **Access Control Sync** on this device. This will disable importing the Access Control users and groups that are set up in APS. This feature is used by the Swing Handle Lock.



Services

= AKCP SP	2+			
System 🚭 General 🛗 Date/Time	Services System / Services Web Interface			
♣ Network 중 Modem ♀ VPN	Web In	tterface (HTTP) HTTP Port	• Enable Disable	
SMTP SNMP	Secure Web Inte	erface (HTTPS) HTTPS Port	 Enable Disable Use as Default 443 	
Services	Upload	Certificate File		Choose file
 Password Checking Maintenance Heartbeat Messages 			Save Cancel	
License Management				
Get SNMP OID				

You can close or change the ports used to access the unit's web interface, disable HTTP and enable HTTPS only, which can also be set to be used as default.

On the SP+ family, the HTTPS supports TLS v1.1 and v1.2. The HTTPS cypher suites are not customizable.

Using the "Upload Certificate File" option you can upload an SSL certificate that will be used by the unit's Web UI for HTTPS connection (see below).

Important: the default, built-in self-signed SSL certificate is only provided for user convenience so that the HTTPS WebUI would work on the units out of the box. It WILL raise browser SSL security warnings and is not meant to be used in production environments where higher security is mandatory. To use SSL without warnings, you need to either add the units IP address to the exceptions, or replace the certificate using the method described below.



SSL Certificate

SSL certificates are generated for DNS host names and not IP addresses. You should set a host name for the SP+ unit in your local DNS server or DHCP server, and then generate the SSL certificate for that host name.

Example: spplus.mycompany.org

The unit's DNS host name is "spplus". Wildcard SSL certificates should also work, but this hasn't been tested.

If the name doesn't match with the one in the certificate, the browser will still show a security warning.

You can purchase a certificate from a trusted, verified Certificate Authority such as GoDaddy or use your company's own CA if you have one.

Please note that only non-password protected certificate files are supported.

When you select the file for uploading, you'll get a warning if the file is not in .PEM format:



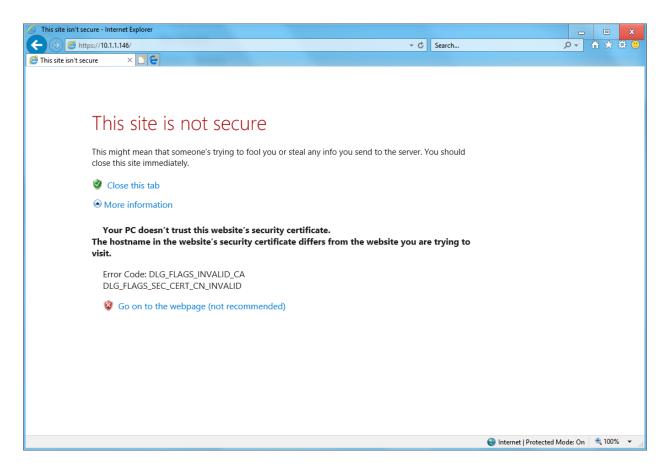


The .PEM file is the private key + certificate combined. You can copy them to one file using Notepad++ if you have 2 separate files, as shown below (it has to be in Unix Line Format and not Windows):

		lotepad+											x
File	<u>E</u> dit <u>S</u> earch	<u>V</u> iew	E <u>n</u> coding	<u>L</u> anguage	Se <u>t</u> tings	<u>M</u> acro	<u>Run Plug</u>	ns <u>W</u> indo	N <u>?</u>				Х
1	BEGI	N RSA P	RIVATE K	EY									<u>^</u>
2	MIIEowIBA	AKCAQEA	2wkww355	96aYwv9KK	3RzABhpVB	9S70pPQ	VmXrXRc2	۱KrBfF					
3													
4	Dh1q7CMp4HpLq9McrdJ+Rs0Xyy+Z3TITceiAktA6GDXY2mEfVUTPgGubEYW0PQqA												
5													
6 7													
8	Eo3QVA/1+t m0c4vFDXfF												
9	md+5jRu6Rs												
10	0DMNUM7TdF												
11	v5hmcNJsFc												
12	RsVH0IHI0												
13	c+vLibrRAd												
14	/ek0iD0t+2	2xI7tX7	jf0ZS5rz	18e3ymB29	70DnwcMi2	88yb00k	cEwfk1HcL	LRrfaG					
15	+PZz1vsyto												
16	N16Jsjfppo												
17	qwVZ18SId/												
18	NikCNFMww												
19	jBF7vX6I5E												
20 21	StF4jldxcp												
21	XdWbvNHCXg 1selrjuF/>												
22	XzfVWhoEH9												
24	WRQwbQKBg												
25	PjaGvx0ay(
26													
27	e6nvTbd2aSlmPhUdDhYIaZUk1czEp/P2ORbNN0PRdsaoUZ2JJVEB END RSA PRIVATE KEY												
28	BGIN CERTIFICATE												
29	MIIDTjCCAjYCCQDLi/D8hB/C1DANBgkqhkiG9w0BAQUFADBpMQswCQYDVQQGEwJa												
30	WjEWMBQGA1UECAwNVXN1cl9Mb2NhdG1vbjEVMBMGA1UECgwMVXN1cl9Db21wYW55												
31	MQ0wCwYDVQQDDARVc2VyMRwwGgYJKoZIhvcNAQkBFg11c2VyQHVzZXIubmV0MB4X												
32													
33	BgNVBAgMDVVzZXJfTG9jYXRpb24xFTATBgNVBAoMDFVzZXJfQ29tcGFueTENMAsG A1UEAwwEVXNlcjEcMBoGCSqGSIb3DQEJARYNdXNlckB1c2VyLm5ldDCCASIwDQYJ												
34 35													
36	KoZIhvcNAQ T0FZ1610XM												
37	IGEM9gF0/a												
38	H1VEz4Brm>												
39													
40													
41													
42													
43	43 721mHWlkuyWMnQnRsupOwZcXR5cO5uhXzvs1xP2MHzzGa7hBm/ZzxazO0j5s8Ced												
44	· · · · · · · · · · · · · · · · ·												
	45 Axm3yrInytiF+0mWt+V0iAfWlUX2J1Xmp8VJnM5H1UGh7NZG59qGvGKEx1qcKXxH 46 rr3DPTV54XCws4eCE9YSvDBCbngd7Ye8cqTd/WT+Qk1P4A==												
46					qTd/WT+Qk	1P4A==							
47	END (LERIIFI	CATE										v .
Name	Land Cla		1	while + 2.004	lines 40		last o	1.1.0-1-0	10		nin (LE)	UTF-8	INC
Norma	I text file		len	igth : 2,884	iines : 48		LULI C	1:1 Sel:0	10	 U	nix (LF)	UTF-8	 INS



If you don't upload a certificate but enable HTTPS, a built-in certificate will be used. You'll get a browser warning upon opening the Web UI about an incorrect certificate. This is normal and you should add it as an exception or proceed, depending on your browser:



Important: the default, built-in self-signed SSL certificate is only provided for user convenience so that the HTTPS WebUI would work on the units out of the box. It WILL raise browser SSL security warnings and is not meant to be used in production environments where higher security is mandatory. To use SSL without warnings, you need to either add the units IP address to the exceptions, or replace the certificate.



Modbus RS-485 (optional on the SP1+ using the dry contact input)

MODBUS RTU is a non-proprietary serial communications protocol that is widely used in the process control industry actuation.

SP1+ only supports pre order optional Modbus with the RJ45 connector (RTU) on the dry contact input port. For just Modbus, only the pin 1 and 2 are used, being respectively, Modbus A/+ and Modbus B/-.

Note: Modbus queries are slow (up to 3 seconds). This is per Modbus protocol definition, it's not an AKCP limitation. The more sensors you have, the bigger the polling interval must be.

Configuring the Modbus options and more information about this feature is explained in the separate SP+ Modbus manual here;

http://www.akcp.in.th/downloads/Manuals/Modbus%20on%20SP+/SP+%20Modbus%20Manual.pdf



Password Checking and Security

= AKCP SP2+					
System	Password Checking System / Password Checking				
👬 Network	Password Checking On Off				
VPN	'Viewer' Account Password Required On Off Show User Names on Login Page On Off On Off 				
₩ SNMP					

You can turn on the password checking for the Web UI to ensure only authenticated users have access to the unit. You can also specify to show all user names on the login page, or keep them confidential.

After you enable the password checking, you'll need to re-login.

If you don't remember the Admin password, you can hold the unit's reset button for 7-12 seconds to be able to log in to the Web UI without a password.

Note 1: The passwords can only be set from the unit's Web UI; this option is not available from APS. *Note 2:* The default password is "public" for all access levels.

Web UI user access levels and permissions

Admin - full access to all settings, system and notification configurations

Viewer - read-only guest access for every page

User - full access to most settings except for those which are the system-related such as network

In detail, the User access level provides these permissions in addition to the Viewer level:

Allow modifying board/sensor settings Allow add/modify/remove notifications Allow add/modify/remove heartbeats Allow open/close the door on the Handle Lock Allow send configuration to Support Allow change Graph settings

SP2+
Username
Admin
Password
LOG IN
Copyright 2017 AKCP All Rights Reserved



Allow change the Web UI language



Password Security options

= AKCP SF	2+		
System	Password Security		
🔅 General			
🛗 Date/Time	Admin Password	Admin Password	
🚓 Network	Confirm Admin Password	Confirm Admin Password	
奈 Modem	Password Expiration		
VPN	Password Expiration	90 Days	
SMTP	Lock-down period after invalid login attempts	5 Minutes	
Server Integration	User Password	User Password	
a Services	Confirm User Password	Confirm User Password	
st Modbus			
A Password Checking	Password Expiration	90 Days	
Se Maintenance	Lock-down period after invalid login attempts	5 Minutes	
Heartbeat Messages			
E License Management		Unlock User Account	

All user account types (Admin, User, Viewer) have adjustable password expiration and lockdown periods.

The password can be up to 15 characters (a-z, A-Z, 0-9 and special characters).

The IP address of the remote user's computer will be logged in the syslog so you can trace back each login session to its origin.

F7 units also support Radius password checking (licensed separately), we have a separate manual about this feature.



Lockdown

User Password	User Password	
Confirm User Password	Confirm User Password	
Password Expiration	90 Days	
Lock-down period after invalid login attempts	5 Minutes	
	None	
	1 Minute	
	3 Minutes	
	5 Minutes	
	10 Minutes	
Viewer Password	15 Minutes	
	30 Minutes	
	60 Minutes	
Confirm Viewer Password	90 Minutes	
	Indefinitely	
Password Expiration	90 Days	



A Error!

The username or password is incorrect.

A Error!

The username or password is incorrect.

A Error!

Your account has been locked because you have reached the maximum number of invalid login attempts. Please try again later.

A Error!

Your account has been locked because you have reached the maximum number of invalid login attempts. Please try again later.

Username User

LOG IN

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The accounts can be set to lock down the account after 3 invalid login attempts, to prevent brute-force hacking attempts. You can specify how long the account will automatically unlock itself.

Note that for the Admin user, you can't select "indefinitely" as this would prevent you from logging in to the Web UI if it has locked itself.

If an account has been locked, you can unlock it immediately by logging in with the Admin user, and by using the green unlock button:

Unlock User Account



Password Expiration

Admin Password	Admin Password
Confirm Admin Password	Confirm Admin Password
Password Expiration	90 Days
	None
Lock-down period after invalid	15 Days
login attempts	30 Days
	60 Days
	90 Days
User Password	User Password

You can specify password expiration between every 15 and 90 days for all account types. You could also set "none" to disable expiration.

Confirmation

Your password has expired. Would you like to change it now?

YES NO

You'll get a notification upon login when the password has expired, and will be asked to change it. It's advised to change it when asked, but you can still proceed without changing.



Maintenance

= AKCP SP2+			
System	Maintenance		
🔅 General	System / Maintenance		
🛗 Date / Time	Clear Event Logs	Clear	
🚠 Network			
奈 Modem	Restore Original Settings	Restore	 Keep present network setting
VPN	Backup All Settings To Backup File	Backup	
SMTP	The second se		
	Restore All Settings From Backup File		Choose file
Server Integration			network setting kup file is generated from another
Nodbus		device Restore on ne	ew MCU module
Password Checking		Restore	
Se Maintenance	Send Configuration To Support	support@a	kcp.com
Heartbeat Messages			
🚍 License Management		Send	
i About		Download	
	System Firmware Upgrade	Upgrade	
	System Reboot	Reboot	

On this page the following options are available:

Clear Event Logs: clears all logged events.

Restore Original Settings: removes all customized settings and returns the unit to factory defaults - you can also choose to keep the network configuration intact.

Backup/Restore All Settings: the unit's configuration can be backed up to a file and restored quickly and easily. You can choose to keep the present network settings, if the backup file is from another unit. The backup file contains all settings and notifications for the unit.

Send Configuration To Support: when asked by Support, this sends the unit's backup file to us. This also contains the device's internal logs which are useful for troubleshooting.



System Firmware Upgrade: allows you to upgrade to the latest firmware of the unit - alternatively you could upgrade from APS. We'll show you the process of the Web UI firmware upgrade below in another section.

System Reboot: this will initiate a software reboot of the unit, useful when you only have remote access. You'll need to specify the Admin user's password again.



Heartbeat Messages

≡ ///// SP2+	
System	
🗱 General	Heartbeat Messages
🋗 Date / Time	System / Heartbeat Messages
🚓 Network	Search Heartbeat Tasks Q + Add 2 Refresh
奈 Modem	Name 🔺 Task 🔺 Next Run Time 🖡 Last Run Time 🔩 Result 🖡 Success 🖡
VPN	
SMTP	
₩ SNMP	
Server Integration	
⋒ Services	
Se Modbus	
Password Checking	
Maintenance	
V Heartbeat Messages	
License Management	
i About	

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.

We'll show you how to set up these in another manual with the other notifications and actions.



License Management

≡ //KCP SP2+									
System	License Management								
Oceneral	System / License Management								
🋗 Date / Time				E	Reque	st License	0	Refresh	
🕂 Network	License Type 🔺	Total 🔺	U	ised 🖡	B	emaining 🖡			
奈 Modem	3rd Party Modbus	3	0		3	-			
VPN	5 Dry Contact	3	0		3				
SMTP	Access Control User	100	1		99	9			
≓ SNMP	SNMPv3	×			~	•			
Server Integration	Virtual Sensor	20	2		18	В			
Services	VPN	~	•		~	,			
🔆 Modbus									
Password Checking	License Key								
Se Maintenance	Search License Key				Q	+ Add	2	Refresh	
Heartbeat Messages									
License Management	Liespee Key		5 Dry Contact	Access Control	Virtual Sensor	SNMPv3	VPN	3rd Party Modbus	
1 About	License Key 🔺		▼▲	User 🖡	▼▲	▼ ▲	₹.	▼▲	\$
	Default License		0	100	5	×	×	0	1
	- i kan pinka wana kana kana kana ka	e an air an	3	0	15	~		3	,

Here you can manage the purchased licenses for specific features on the unit.

For example you can request SNMPv3 license by clicking on the **Request License** button. This will send an email to our Sales team with your unit's MAC ID. You can then add the purchased license key with the **Add** button and activate this feature on the unit.

License keys can be backed up/restored with the backup file. All keys are unique per device and per feature.



Features that needs separate licensing:

- 5 Dry Contact option: Allows you to connect 5 dry contacts (input only) per sensor ports. See below for more information.
- Access Control User licenses over 100: The first 100 user licenses are free (1 is always used for the Admin user), and you can get more licensed users in blocks of 100; the limit is 1000.
- SNMPv3 feature: Allows you to use and configure secure, authenticated SNMP trap messages.
- Virtual Sensors: Allows you to use and configure virtual sensors. The first 5 sensors are free, you can get more license in blocks of 5.
- VPN feature: Currently the APS VPN integration is supported, to use a secure VPN channel between the unit and APS. Please note that when using this option, the number of maximum sensors that can be used by the unit will be reduced to 34 on the older F4 units.
- 3rd Party Modbus Device: Allows you to easily integrate your Modbus devices with the SP+ units using configuration template files. This is only available on units with expansion ports.
- F7 units: IPv6 and Radius features (see separate manuals about these).

About Dry Contact Inputs

The dry contact inputs can be configured as *inputs only* up to 5 Volts.

1	2	3	4	
Auto Sense	Auto Sense	Auto Sense	Auto Sense	 ✓ Dry Contact Port 1.1 Dry Contact Port 1.2 Dry Contact Port 1.3 Dry Contact Port 1.4
5 Input Dry Contact	Advanced Continuous Tim	e		Dry Contact Port 1.5
	Sensor Name	Dry Contact Port 1.1		Practical applications:
	Sensor Status	Normal		The dry contact inputs can be
	Sensor Currently	Online		used to monitor many types of equipment, for example, you can
Descript	ion of Status When Normal	Normal		run the connection from warning
Descript	ion of Status When Critical	Critical		lights on alarm panels to the dry contact inputs, so that when the
Description of	f Status When Sensor Error	Sensor Error		warning light on the alarm panel is
		Offline All Sensors In Error Or Save Cancel	n This Port	activated, the dry contact is triggered, thus allowing you to send notifications via emails or SNMP traps.



About

= AKCP SP2+		
System		
😋 General	About	
🋗 Date / Time	System / About	
📇 Network		АКСР
奈 Modem		
🔇 VPN	System Description	SP2+ 1.0.4307 May 16 2018 13:56:05
SMTP	Manufacturing Date	Friday, 24 November 2017
₩ SNMP	Manufacturer Name	АКСР
A Server Integration	Product Name	SP2+ with Expansion
a Services	Product Code	
Nodbus	Ethernet MAC ID	00:0B:DC:10:01:85
Password Checking	Modem IMEI Number	863789020696799
Se Maintenance	Modem Version	SIM5360E_V3.5
Heartbeat Messages		
License Management		
i About		

This page shows information about the **Manufacturing Date**, **Ethernet MAC ID**, **System Description** and **unit type (F4/F7)** which are important when you request support.

You could make a similar screenshot when you need help with your unit, as this information can help us diagnose the problem.



Sensors

Sensors page

11 0010010				
= AKCP SP2+				
Monitoring	Main board			
Boards	Sensors / Main board 🖋			
SP2+ •	1	2	3	4
Main board	Auto Sense	Auto Sense	Auto Sense	Auto Sense
Virtual Sensors				
Smart Sensor Recovery	Temperature	N/C	Relay	N/C
	Sensor Error		Off	

On this page you can view all sensors connected to the unit per port.

Non-connected sensors will be also displayed, until you re-attach or manually remove them from the configuration.

Main board		
Sensors / Main board 🖋		
	Board Name	Main board
	Board Status	Connected
		Save Cancel

You could also rename the unit's Main board by clicking on the pencil icon:

Please note the **maximum supported cable length to use with Thermal Map Sensors**: Maximum extension cable length from the SP1+ sensor port to the TMS using CAT5 = 28 Feet Maximum extension cable length from the SP1+ sensor port to the TMS using CAT5e & CAT6 = 60 Feet



Important note: If you're using analog pins on the sensor ports (with manually on-lined DCV sensors, and pin 7 of the RJ45 connector) make sure that the **voltage doesn't exceed 3 Volts**. Otherwise you can damage the unit!



General options for all sensors

You can change the following general options for all sensors:

Disable Auto Sense

Auto Sense

Click on the Auto Sense button to turn off the automatic sensor detection for a port.



This feature is useful if you want to simulate a sensor (this works for Relay type sensors) or to prevent a sensor from going offline state. Note however that the sensor will be in "sensor error" state if the unit can't get any reading from the sensor.

Choose Sensor Type

Sensor Type	4-20 mA •
	4-20 mA
	5 Input Dry Contact (No License)
	AC Voltage
	Airflow Digital Voltmotor
	Digital Voltmeter Dry Contact I/O
	Dual Sensors
	Liquid Rope
	Motion Detector
	Relay
	Security
	Siren Strobe
	Smoke Detector
	Temperature
	Thermal Map
	Ultrasonic Fuel Level
	Water Detector



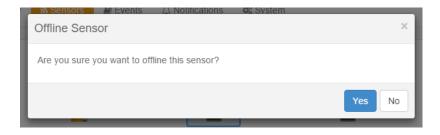
You can pre-configure a specific sensor type if needed, for example if you put the sensor offline before.



Offline a sensor

Sensor Currently Online

You can manually offline any sensor by clicking on the green **Online** button on the sensor's configuration page.



You'll be asked for confirmation in a popup window.

Note: if you change a sensor to "offline" it will no longer be displayed on the web interface. In order to reactivate it, you have to toggle it back to "online".

Smart Sensor Recovery



This feature will be used **only** for the new **Smart Sensor** type. The firmware can be updated on these sensors automatically, and if the upgrade has failed for some reason and the sensor becomes unresponsive, with this option you can recover them to the default firmware. It's not used by other sensor types.



Smart Sensor Recovery	×
 How to recover a smart sensor 1. Connect the smart sensor to any sensor ports on the master device. 2. Select the port number the sensor is connected to. 3. Press the 'Recovery' button to start the process and wait a few minutes. 	
Sensor Port 1 T	
Recovery Cancel	

Note:

If there's a difference between the version stored in the unit's firmware and the sensor's firmware, it will upgrade/downgrade the sensor's firmware upon powering up/reboot of the unit, or on sensor reconnection. If you need to downgrade the smart sensor firmware, you can only do so together with the unit's firmware.



Change Continuous Time

Digital Voltmeter	Advanced	Continuous Time		
Cor	ntinuous Tim	e for a Sensor Sta	tus to be active before accepting a	s a new status
		High Critical	0	
		High Warning	0	
		Normal	0	
		Low Warning	0	
		Low Critical	0	
		Sensor Error	0	
			Save Cancel	

The following advanced functions are for setting the time frame in which the system should delay a notification being triggered when a sensor gives a reading that exceeds the thresholds (high warning, normal, etc).

Continuous Time to Report High Critical: This helps to eliminate unnecessary messages during minor fluctuations. You can set the amount of time to delay a notification of a status change from high warning to high critical. Enter the time in seconds and press the "Save" button. The amount of time that can be entered is between 0 and 65535 seconds which equals approximately 18 hours. *Continuous Time to Report High Warning:* As above but delays notification for "High Warning". *Continuous Time to Report for Normal:* As above but delays notification for return to "Normal" state. *Continuous Time to Report for Low Warning:* As above, but delays notification for "Low Warning" state.

Continuous Time to Report for Low Critical: As above but delays notification for "Low Critical" state. *Continuous Time to Report for Sensor Error:* As above, but delays notification being sent for sensor going into an error state.

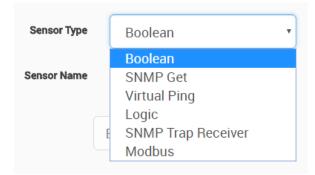
Example: An airflow sensor or humidity sensor may have temporary drops in readings which are normal operating characteristics; a logical time limit is set to show abnormal conditions.



Virtual Sensors

onitoring	Virtual Sen	sors						
oards	Sensors / Virtual							
SP2+ •	1	2	3	4	5	6	7	8
ain board								
ernal Board	1 N/C	1 N/C	1 N/C	1 N/C	1 N/C	1 N/C	1 N/C	1 N/C
irtual Sensors	10,0	10,0	10,0	11/0	10/0	10/0	11/0	11/0
	9	10	11	12	13	14	15	16
Modbus Device	1	t	1	t	1	t	t	1
Smart Sensor Recovery	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	17	18	19	20	21	22	23	24
	I	t	t	I	T	t	I	I
	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	25	26	27	28	29	30	31	32
	1	1	1	1	1	1	1	1
	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	33	34	35	36	37	38	39	40
	1	1	t	I	1	1	t	1
	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

On this page you can configure the Virtual Sensors. The first 5 sensors are free; if you need to use more you can purchase additional licenses (see the Licensing section in this manual).



Virtual Sensors can be a very powerful tool in your monitoring system. On the SP1+ 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 SP1+ as a probe manager. If you had a SP1+ and multiple sensorProbe devices they could all be monitored, mapped and alerted via the SP1+. 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.

Please note:

The Virtual Sensor Ping cannot ping an IP address on the VPN network.

We'll explain more about the Virtual Sensors and how to configure them in the Notifications manual.

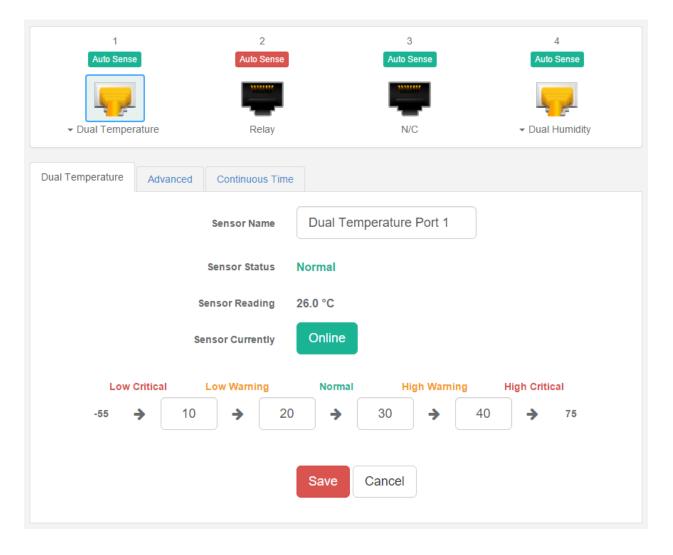


Example sensor configuration

Below we'll show the configuration of 2 sensor types: the Temperature/Humidity and a Relay sensor. The configuration of these 2 types of sensors covers most settings that can be configured for other sensor types.

Temperature/Humidity Sensor

Click on the sensor port where the sensor is connected to open the sensor's configuration. *Note:* another way of accessing this page is to click on the sensor from the Summary page.



From this page you can carry out various operations. You can view the current status (normal, low critical, high critical etc), rename the sensor, put it offline and change the thresholds. In the screen shot above you can see the sensor is indicating a temperature of 26 degrees °C, and a status of Normal.



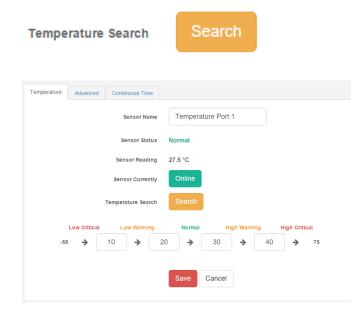


You can re-configure the thresholds for each sensor state. After changing a threshold value, click "**Save**". In the next screen shot you can see that a threshold has been changed to 27 make a new "low warning" state, and along with it the sensor status has changed:

Dual Temperature	Advance	Continu	ous Time						
		Sensor	lame	Dual Ten	nperature	e Port 1			
		Sensor St	atus Lo	ow Warnin	g				
		Sensor Rea	ding 25	5.5 °C					
		Sensor Curr	ently	Online					
Low	Critical	Low Warn	ing	Normal	н	igh Warni	ng l	High Critic	al
-55	→ 1	0 →	27	>	30	>	40	>	75
				Save	Cancel				

Note: the Humidity sensor has the same configuration options as the Temperature sensor.

You might see a Temperature Search option for the connected Temperature sensors:



What this button does is to search for new temperature sensors in a chain, if you've connected more than 1 sensor in a Daisy-Chain Temperature (DCT) sensor chain. It is **not** available for Thermal Map Sensors (TMS).



	.	<		
Advanced sensor	continuration	tor I pm	noraturo/Humidit	VSANSORS
	conngulation		iporataro/rrannan	y 30/130/3

Dual Temperature Advanced Continuous Tin	ne
Unit	Celsius Fahrenheit Fahrenheit Fahrenheit Second
Rearm	2
Reading Offset	0
Data Collection Type	Average •
Enable Calendar	◯ On ⑧ Off
Graph Enable	Enable Disable Disable
Filter Status	Enable Isable
	Save Cancel

Units: changes units from °C to °F or vice versa.

Rearm: The Rearm parameter is useful for sensors whose values can vary such as the temperature and humidity sensors.

It is used to prevent the sensor from rapidly changing between two states. For example if the **Warning High** threshold for the temperature sensor is set to 80 degrees and the sensor were to vary between 79 and 80 you could be faced with a very large number of emails, traps, and events logged. The Rearm parameter prevents this by forcing the temperature to drop by the Rearm value before changing the state back to normal. In this example, if Rearm is set to 2 then the sensor would have to drop from 80 down to 77 before the status would change from **Warning High** back to normal.

Reading Offset: The Reading Offset feature is a calibration tool. If you wish to calibrate the temperature sensor, for example, you could enter an offset value of 5. This would mean if the sensor reads 20 degrees then it would record as 25 degrees. This figure can also be a minus figure (e.g. -5 would show 15 degrees instead of 20).



Data Collection Type	Average •
Enable Calendar	Average Highest Lowest
Graph Enable	Instantaneous

Data Collection Type: This refers to the data collection from the sensor and how the data is then displayed on the graphs.

There are four options for the collection of data: Average, Highest, Lowest and Instantaneous. The default setting is "Average".

When the data collection type is set to "Average" the averaged value between 2 graph intervals is stored and output graphs for the daily, monthly, and yearly all have the same size on the screen. For the daily graph, each data point on the graph is one data point collected from the sensor. But for the monthly and yearly graph, in order to display more data into the same size as the daily graph, some consolidation on the data is needed. One data point on the monthly and yearly graph is an average of the sensor data in a range.

The maximum and minimum values showing on the monthly and yearly graphs are the value of this consolidated data and not the raw data over that period of that time.

The When the Data Collection Type is set to the Highest setting then you will get the graphing output displaying the sensors highest average readings during sampling. This is the same for the Lowest setting (lowest average).

With the Instantaneous setting you can store the actual value of the sensor at the sampling interval without averaging.

Graph Enable: In order to save the data from the sensors on the unit you will need to enable the Graphing feature on the unit. You need to change the Enable Graph to the On position and click on the Save button to enable the graphing. Note that you could also enable the graphing from the Summary page.

Filter Status: The Sensor Filter Status is a feature that you can Enable or Disable and when enabled will check the sensor status. If the status of the sensor changes very rapidly, then it will report how many times the sensor status changed, instead of having multiple separate entries in the syslog. When enabled, this will report the changes and status of a sensor only once.



Relay Sensor

Click on the sensor port where the sensor is connected to open the sensor's configuration. *Note:* another way of accessing this page is to click on the sensor from the Summary page.

You can directly see the Relay's current status below the sensor port.

	1 Auto Sense	2 Auto Sense	3 Auto Sense	4 Auto Sense
	Temperature Sensor Error	N/C	Relay	N/C
Relay	Advanced			
		Sensor Name	Relay Port 3	
		Sensor Status	Off	
		Sensor Currently	Online	
		Boot Up State	◯ On ⊛ Off	
	Descripti	ion of Status When Off	Off	
	Descripti	ion of Status When On	On	
			Save Cancel	

Boot Up State: You can change the state of the relay when the unit starts. The default is Off.

Description of Status When Relay Off/On: These fields are the custom description, which will be displayed in the Relay Status field when the relay state is off/on. The same text is listed as one of the relay actions used to turn off/on the relay. Examples for this field are Close/Open Door, Turn Pump Off/On, Turn Light Off/On, etc.



Color: You could assign a custom color for the Off/On status: click on the color and the color picker will be shown.



Advanced sensor configuration for Relay sensors

Relay Advanced	
Sensor Control	Action -
Toggle	5 5s
Enable Calendar	◯ On ◉ Off
Graph Enable	Enable Disable
Filter Status	Enable Isable
	Save Cancel

Sensor Control:

Sensor Control	Action -
Toggle	On Off
Enable Calendar	Toggle Off-On Toggle On-Off

This button allows you to manually control the relay by controlling the cycle of the relay in an on-offon or an off-on-off cycle. You can also set the "Toggle" (Cycle Time) here in seconds.

You don't need to change an option to be able to link the relay to an action. The following actions can be chosen in an action: Turn on until sensor normal, turn off until sensor normal, cycle the relay, turn on until acknowledged, and turn off until acknowledged. We'll explain more about these options in the Notifications manual.



Enable Calendar: Allows you to setup a *Calendar Profile* for what days and times you want or do not want the relay to be active.

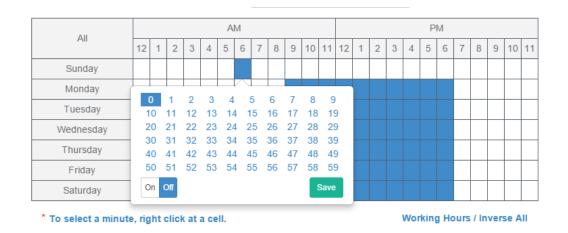
Enable Calendar	🖲 On 🔘 Off		
Calendar Profile	Calendar #1	•	Edit

Click on the Edit button next to a selected calendar to modify it.

		С	aler	ndar	Nai	me		C	ale	nda	ar #	1											
A.II.		AM PN							PM														
All	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Sunday																							
Monday																							
Tuesday																							
Wednesday																							
Thursday																							
Friday																							
Saturday																							

Blue cells means that the notification is on, white cells means it's off.

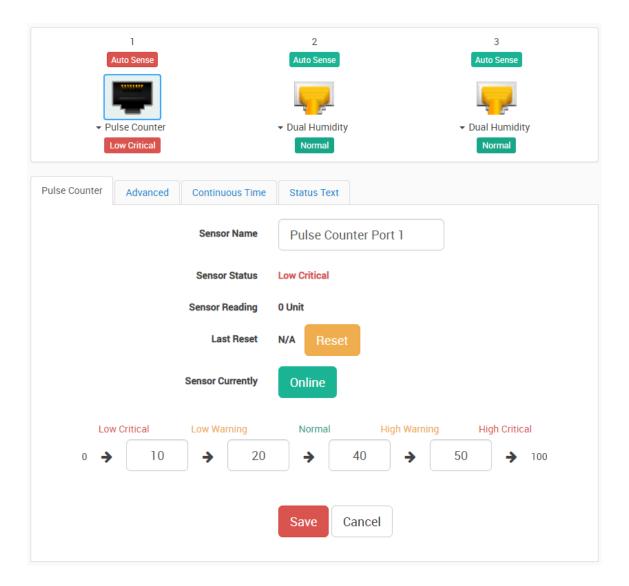




You can quickly select the Working Hours only, and specify a custom schedule down to minutes by right clicking on a cell.



Pulse Counter sensor



The pulse counter is available on the SP+ platform, as of firmware version 1.0.4967. It provides:

- accumulated pulse count
- flow conversion of the pulse count

It can measure up to 1000 pulses / sec (1 Kilohertz). Normally this sensor should be used with some external sensor which outputs pulses.

Sensors that could work: basically any switch type sensor, and any custom sensor that could generate a pulse signal. For example Wind speed sensor, Electricity meter etc.



For example, you can connect the output of a third-party water flow sensor in the market to our sensor port.

The specs of those sensors will indicate how many pulses equal to, for example 1 liter: 100 pulses = 1 Liter.

Then you can set the "Number of Pulses per Unit" to 100, and change the unit to L.

Then the sensor value will be changed according to the output of the water flow sensor which is connected to the sensor port.

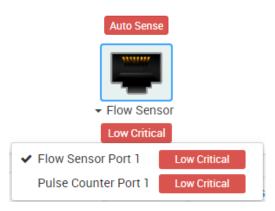
How to use the pulse counter?

1 Auto Sense	2 Auto Sense	3 Auto Sense
N/C	← Dual Humidity	↓ Dual Humidity
Sensor Type	Pulse Counter	v
	Save Cancel	

The sensor is designed to be used by disabling the Autosense and connecting an external sensor to the sensor port. This sensor will detect changes on the Data pin (Pin 1 of Sensor Port).

If there's changes:

- Flow Sensor value will show rate of the change in Unit / Second
- Pulse Counter will accumulate the pulses since the sensor is set to online



To set it up, disable Auto Sense on a sensor port and select the Pulse Counter sensor type from the list. This will give a dual sensor with Flow Sensor and Pulse Counter.



Flow Sensor	Advanced	Continuous Time	Status Text						
	E	dge Detection Mode	Rising Edge						
		Unit	Unit						
	Numi	ber of Pulse per Unit	1						
		Time Period	second						
		Rearm	0						
		Calibration Factor	0						
		Min Value	0						
		Max Value	100						
		Enable Calendar	◯ On ◉ Off						
		Graph Enable	Enable Isable						
		Filter Status	Enable Isable						
			Save Cancel						

In the Flow Sensor there is "Number of Pulse per Unit" in the config.

You can use this value to adjust the sensor reading to match the real-world value.

Dry contact will also work but only to count the pulses. If you want to test for the rate accuracy, you'd have to test with something that can generate a wave signal, like using an oscilloscope to generate wave form and plug it to the sensor port.

But the general idea of this sensor is that it will show the rate of received pulses and also count it.



Firmware upgrade through the Web UI

The firmware upgrade process is very simple and straight-forward.

B Maintenance	Send Configuration To Support	support@akcp.com
Heartbeat Messages		Send
License Management		Download
	System Firmware Upgrade	Upgrade

Open the **System/Maintenance** page and click on the **Upgrade** button at the System Firmware Upgrade section.

= AKCP SP2+			
Upgrade			
Firmware	spplus-1.0.4307.bin	Choose file	
	Upgrade Cancel		

This will load the Upgrade page. Choose the firmware file from your PC and click on **Upgrade** to start the process.

Important: There are two separate .bin files included in a firmware update package. One for the F4 units and one for the F7 units. The .bin file for the F4 units is named spplus-1.0.xxxx.bin and the .bin file for the F7 units is named spplus_f7-1.0.xxxx.bin. If you try to upgrade your unit with the wrong .bin file, the firmware upgrade will fail, so please make sure you use the correct file for your unit type.





Uploading	
77%	

First the file will be uploaded to the unit...

Upgrading			
11%			

...then the upgrade process will run. The whole process can be done in a few minutes. The Power/Ethernet LED will be red during the upgrade.

Upgrade Completed	
100%	
Refresh	

The unit will reboot at the end of the upgrade. Click on the **Refresh** button to reload the Web UI.



Network ports used by SP+ units

Below we list the ports used by our SP+ units. Most of them are needed for external communications with APS, and to use network features.

Most ports are user configurable, these are the default ports.

Main ports:

- 5000 TCP for RPC with APS note: not fully user configurable
- 161 TCP/UDP for SNMP
- 80 TCP for HTTP of Web UI

Other ports:

- 123 TCP for NTP (Network Time Protocol) note: port is not user configurable
- 162 TCP/UDP for SNMP Trap
- 25 TCP for Email SMTP (if used)
- 1194 TCP/UDP for VPN (if used)
- 443 TCP for HTTPS of Web UI
- 502 TCP for Modbus TCP (if used)



FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



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

Thanks for Choosing AKCP!