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SP-WTS QuickStart Guide



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AKCP sensorProbe - Wireless Tunnel™ Server (SP-WTS)

The SP-WTS is a new product based on sensorProbe+ series, and supports up to 30 AKCP [Wireless Tunnel™ Sensors](#).

SP-WTS can collect, store and graph data from all AKCP wireless sensors. It is accessible via Ethernet connectivity to access sensor data via the built-in Web UI, over SNMP, Modbus TCP/IP or MQTT. AKCPro Server provides central monitoring of multiple gateways.

SP-WTS includes 3 wired sensor ports (RJ45).



Options available:

- 4G Cellular Modem and GPS
- Modbus RS485 port
- PoE (planned, not yet available)

Note: SP-WTS does not support Wi-Fi and BEB expansion functionality.

In this QuickStart Guide, we will cover the following:

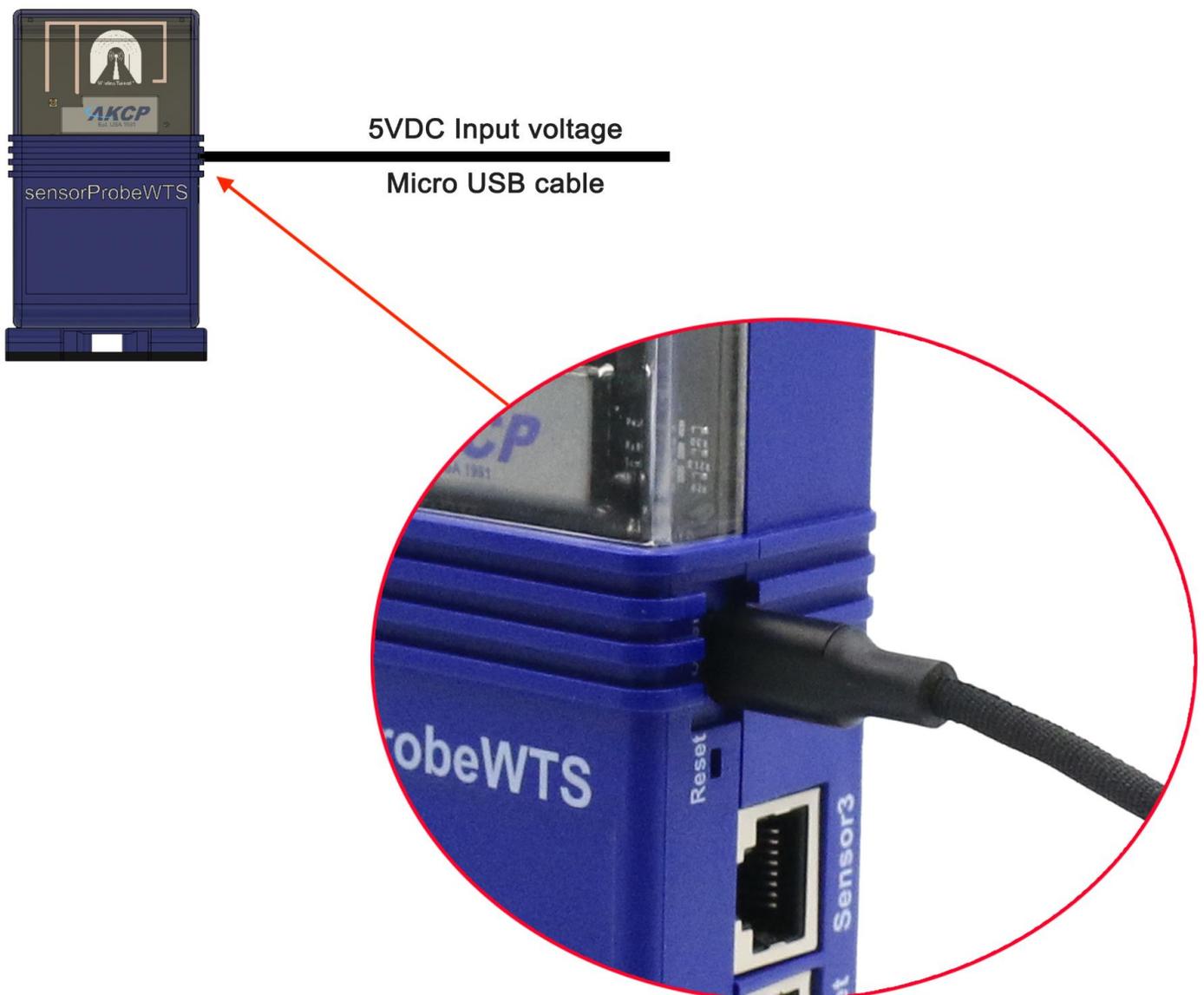
- A) How to first power on the unit and get access to the WebUI
- B) How to add a Wireless Sensor (SP-WT) to the SP-WTS
- C) SP-WTS Network Settings
- D) License Management
- E) Replacing the batteries
- F) Cloud WebUI
- G) Features overview: Virtual Sensors, Graphing
- H) SP-WT 4SP information

A) How to first power on the unit and get access to the WebUI

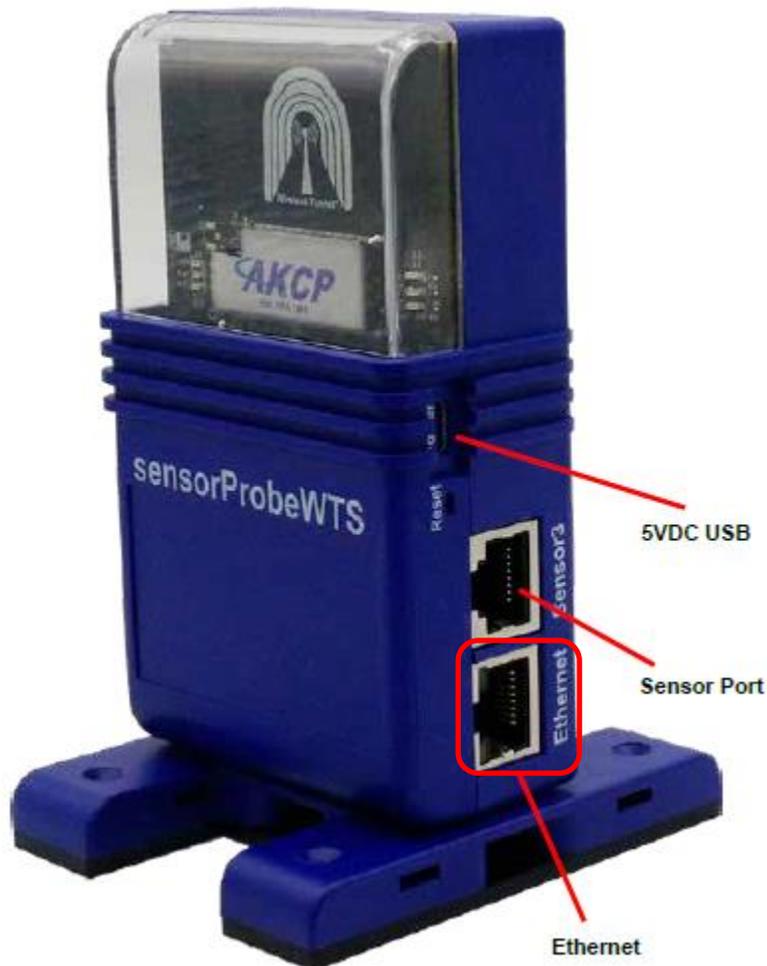
To access and configure your SP-WTS unit:

- connect the 5.5VDC Micro USB power adapter
- connect a network (LAN) cable to the unit's Ethernet port
- power it on
- open a web browser and access the WebUI

Connecting the 5.5V Micro USB cable



Connecting the Ethernet cable



Using a PC or laptop, configure your network card's IP with IPv4 address: **192.168.0.200**
Connect the SP-WTS directly to your PC or laptop's network card with a crossover cable.

First time configuration

After the SP-WTS has boot up, open the WebUI using the unit's default IP **192.168.0.100**
Open <http://192.168.0.100> with a supported browser (Chrome or Firefox).

Note: the units ship with DHCP enabled. If you connect the unit to your local network instead of a direct crossover cable connection, you will need to find its IP address from your router's DHCP IP list.

Note2: the units ship with CloudAPS connection enabled. If you want to use your unit with a local APS, you will have to disable this option first. Please refer to the Cloud APS manual for more information.

Welcome to SP-WTS Setup

In the next few screens, we will help you set up your system information, date/time, network connections, and account security. This process will get your unit fully functional and ready to go.

1 System Information ————— 2 Date / Time ————— 3 Account Security

Step 1: Give the unit a system name, system location, and system contact

System Name

System Name

System Location

System Location

System Contact

System Contact

BACK

NEXT

SKIP SETUP

The unit's setup wizard will load.

You can customize the unit's basic parameters now (system name, location, contact, date&time, password checking, etc.), or you can choose "Skip setup" and do it later.

Welcome to SP-WTS Setup

In the next few screens, we will help you set up your system information, date/time, network connections, and account security. This process will get your unit fully functional and ready to go.

✓ System Information ————— 2 Date / Time ————— 3 Account Security

Step 2: Choose the appropriate date/time and time zone



Date

Wednesday 11/10/2023

Time

7:53 am

Timezone

(GMT, DST observed) Dublin, Edinburgh, Lisbon, London

BACK

NEXT

SKIP SETUP

Choose your correct Timezone.

Welcome to SP-WTS Setup

In the next few screens, we will help you set up your system information, date/time, network connections, and account security. This process will get your unit fully functional and ready to go.

✔ System Information ————— ✔ Date / Time ————— 3 Account Security

Step 3: For security purposes, please choose your password carefully

Login Password Checking

Admin Password

Confirm Admin Password

BACK

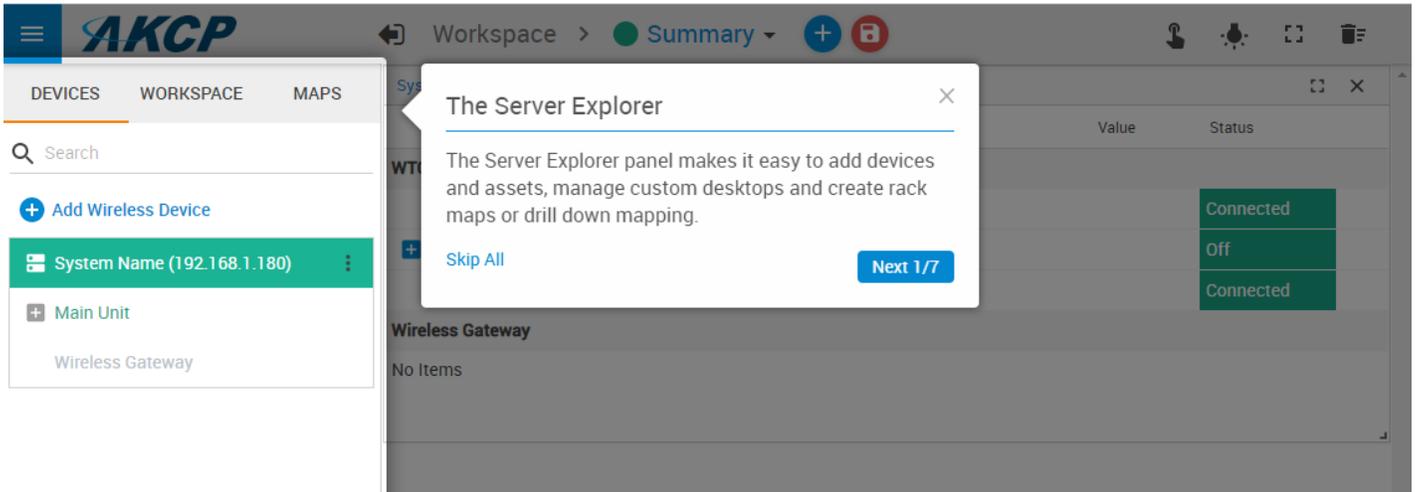
FINISH

SKIP SETUP

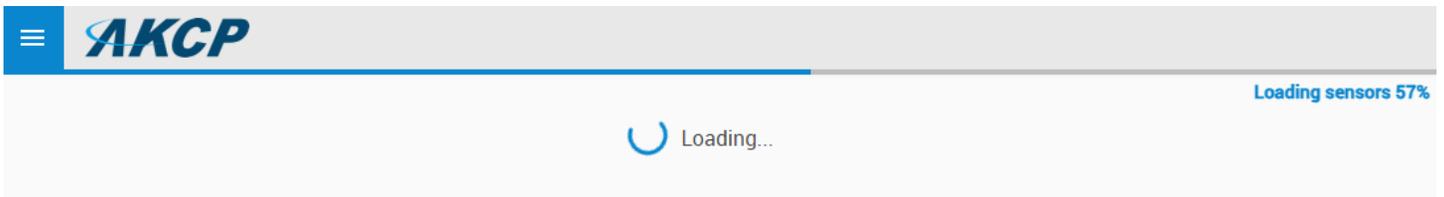
It is recommended to enable WebUI password checking. Here you can set the built-in Admin user's password.

For details about connecting to the cloud APS service, see below in this manual.

A WebUI tutorial will follow, where you can learn the basics of using the interface. You can skip the tutorial any time.



A new feature has been added in firmware 6028: if there are lots of sensors and the WebUI loading is slower than usual, you will see a progress indicator.



B) How to add a Wireless Sensor (SP-WT) to the SP-WTS

Wireless sensors have the advantage of easy installation with no communication cables or power required. These sensors communicate with the SP-WTS using radio frequency signals, and you need to pair them with the SP-WTS to get their data.

Note: SP-WTS still supports adding older wireless sensor types (BOS/WTS).

It is recommended that you first connect the wired sensor to SP-WT prior to adding it to the SP-WTS, in order to avoid detection delays (as shown on the picture below).



Adding a wireless sensor

First open the SP-WTS unit's WebUI. Click on the **Add Wireless Device** icon to begin.

Then make sure that your wireless sensor is in RUN mode in order to complete the sensor pairing: press and hold the sensor's button for 3 seconds (for SP-WT; older sensors just need 1-2 seconds). The wireless sensor's LED will light up briefly.

The screenshot shows the AKCP WebUI interface. The top navigation bar includes 'Workspace' and 'Summary'. The left sidebar has 'DEVICES', 'WORKSPACE', and 'MAPS' tabs. A search bar is present. A red box highlights the '+ Add Wireless Device' button. Below it, a list of devices is shown, including 'System Name (192.168.1.180)', 'Main Unit', and 'Wireless Gateway'. The main content area displays a table with columns for Unit, Name, Value, and Status. The table lists 'WTG' (Main board, Internal Sensors, Virtual Sensors) and 'Wireless Gateway' (No Items). The status for 'Main board' is 'Connected', 'Internal Sensors' is 'Off', and 'Virtual Sensors' is 'Connected'.

| Unit | Name | Value | Status |
|-------------------------|------|-------|-----------|
| WTG | | | |
| Main board | | | Connected |
| + Internal Sensors | | | Off |
| Virtual Sensors | | | Connected |
| Wireless Gateway | | | |
| No Items | | | |

Add New Wireless Device

Device Network Address (Hex)

Network Session Key (Hex)

Application Session Key (Hex)

You may either input the wireless key details manually, or use the automated method detailed below.

Search

Instead of manually entering the HEX keys, you can use the wireless search method to automatically find a wireless sensor. The necessary network keys will be automatically detected.

Click **Add Wireless Device** then click on the **Search** button on the lower left corner. Press and hold the button on the wireless sensor for 3 seconds until the LED begins to blink (SETUP mode).

Add New Wireless Device

Device Network Address (Hex)

Network Session Key (Hex)

Application Session Key (Hex)

 **STOP** **CANCEL** **ADD**

Press 'Mode' button until 2 LED blinks (SETUP Mode) on your wireless sensor and release.

Add New Wireless Device

 **LBTH with address 0x19510317 is detected from the USB port.**

Device Network Address (Hex)

19510317

Network Session Key (Hex)

9AD5A30E94B70CE6DE64396E37472841

Application Session Key (Hex)

926334DC05CA9931FB120EE55AA82E82

 **SEARCH** **CANCEL** **ADD**

After it's detected, click on **Add** to add it to SP-WTS.

After a new sensor has been added, you will notice a warning triangle next to it:

The screenshot shows the AKCP interface with a 'Summary' view. On the left, a sidebar lists system components under 'System Name (192.168.1.180)'. The 'Wireless Gateway' section is expanded, showing 'Wireless Device 19510317' with a warning triangle icon. The main panel displays a table of sensor statuses:

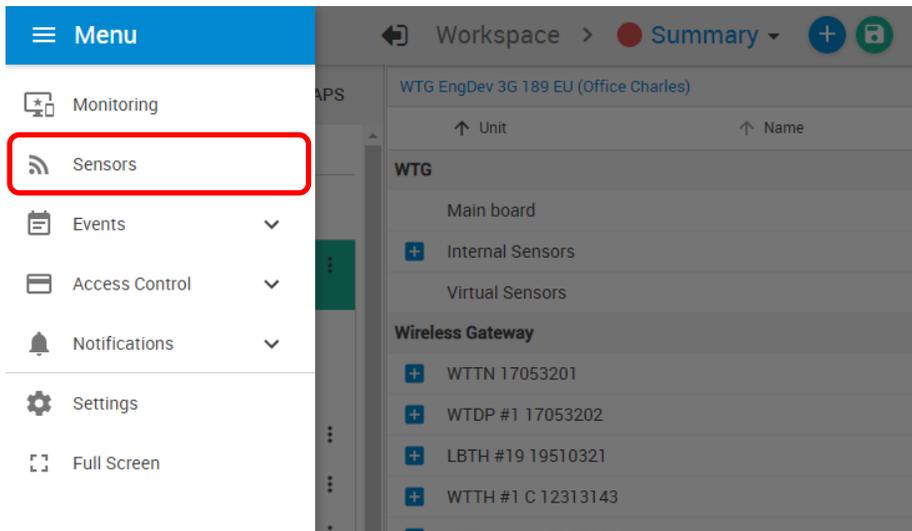
| Unit | Name | Value | Status |
|--------------------------|------|-------|---------------|
| WTG | | | |
| Main board | | | Connected |
| Internal Sensors | | | Off |
| Virtual Sensors | | | Connected |
| Wireless Gateway | | | |
| Wireless Device 19510317 | | | Not Connected |

This indicates that the sensor still requires sync (pairing) with the SP-WTS. Normally the sync will be done automatically, and after that the sensor readings should display correctly:

The screenshot shows the AKCP interface with the same 'Summary' view. The 'Wireless Gateway' section is expanded, showing 'Wireless Device 19510317' with a warning triangle icon. The main panel displays a table of sensor readings and statuses:

| Unit | Name | Value | Status |
|--------------------------|--------------------|------------|--------------|
| WTG | | | |
| Main board | | | Connected |
| Internal Sensors | | | Off |
| Virtual Sensors | | | Connected |
| Wireless Gateway | | | |
| Wireless Device 19510317 | Battery | 2.91 Volts | Normal |
| Wireless Device 19510317 | Humidity Port 2 | 54.94 % | Normal |
| Wireless Device 19510317 | RSSI Upstream | -30 dBm | Normal |
| Wireless Device 19510317 | SNR Upstream | 5 | Normal |
| Wireless Device 19510317 | Temperature Port 1 | 32.09 °C | High Warning |

Further sensor configuration



Access the menu on the top left corner and go to the **Sensors** page. The wireless sensors can be managed from this menu.

The screenshot displays the AKCP Sensors configuration page for a wireless device. The left sidebar shows the navigation menu with 'Sensors' selected. The main content area shows the following details:

- System Name (192.168.1.180)**
- System Location**
- Device Type:** LBTH v3.48
- Status:** Reachable
- Signal to Noise Ratio (SNR):** 5
- Received Signal Strength Indicator (RSSI):** -30 dBm
- Power Source:** USB
- Device Network Address (Hex):** 19510317
- Network Session Key (Hex):** 9AD5A30E94B70CE6DE64396E37472841
- Application Session Key (Hex):** 926334DC05CA9931FB120EE55AA82E82
- MCU Voltage:** 2.91 Volts

A blue button labeled 'REQUEST SENSOR DATA' is located below the device details. At the bottom, two sensor status cards are displayed:

- Temperature Port 1:** 32.09 °C, High Warning
- Humidity Port 2:** 54.94 %, Normal

REQUEST SENSOR DATA

Note that the “Request Sensor Data” button is only available when the SP-WT is not powered by batteries (uses USB power).

On the Device tab you can rename the sensor for easier identification:

The screenshot shows the AKCP web interface. On the left is a navigation menu with categories: Monitoring, WTG, Main board, Internal Sensors, Virtual Sensors, and Wireless Gateway. Under Wireless Gateway, the selected sensor is 'LBTH #19 19510321'. Below this are icons for Overview, Device (selected), Sensors, Network, and Synchronization. A list of other sensors is shown at the bottom of the menu.

The main content area is titled 'Device' and shows 'Settings / Device'. It displays the following device information:

| | |
|---|------------|
| Device Type | LBTH v3.49 |
| Status | Reachable |
| Signal to Noise Ratio (SNR) | 5 |
| Received Signal Strength Indicator (RSSI) | -65 dBm |
| Power Source | Battery |

Below this is the 'Settings' section with three input fields:

- System Name: LBTH #19 19510321
- Device Network Address (Hex): 19510321
- Network Session Key (Hex): 14E6E8E7EACC134F827B89E634467E24
- Application Session Key (Hex): EA496B2235DE69A51B809C1B84CCFA86

At the bottom of the settings section are 'SAVE' and 'CANCEL' buttons.

Footer information: Monday, 2 November 2020 12:42:37 | Copyright 2020 | AKCP | All Rights Reserved | Version: 1.0.778

Adjust the sensor reading thresholds:

The screenshot shows the AKCP monitoring interface. On the left is a navigation menu with categories: Monitoring, WTG, Main board, Internal Sensors, Virtual Sensors, Wireless Gateway, and a list of WSSI devices. The main area displays a dashboard with five sensor cards: Dual Temperature (Normal), Dual Humidity (Normal), MCU Voltage (Low Critical), SNR (Normal), and RSSI (Normal). The 'Dual Temperature' card is selected, opening a configuration window. This window has tabs for 'Dual Temperature', 'Advanced', 'Status Text', and 'Continuous Time'. The 'Dual Temperature' tab is active, showing the sensor name 'Temp LBTH', a reading of 28.17 °C, and a status of 'Normal'. Below this is a threshold scale from -55 to 75 with markers at -55, 10, 20, 30, 40, and 75. The status 'Normal' is positioned between 20 and 30. At the bottom of the configuration window are 'SAVE' and 'CANCEL' buttons.

Access further fine-tuning of the readings:

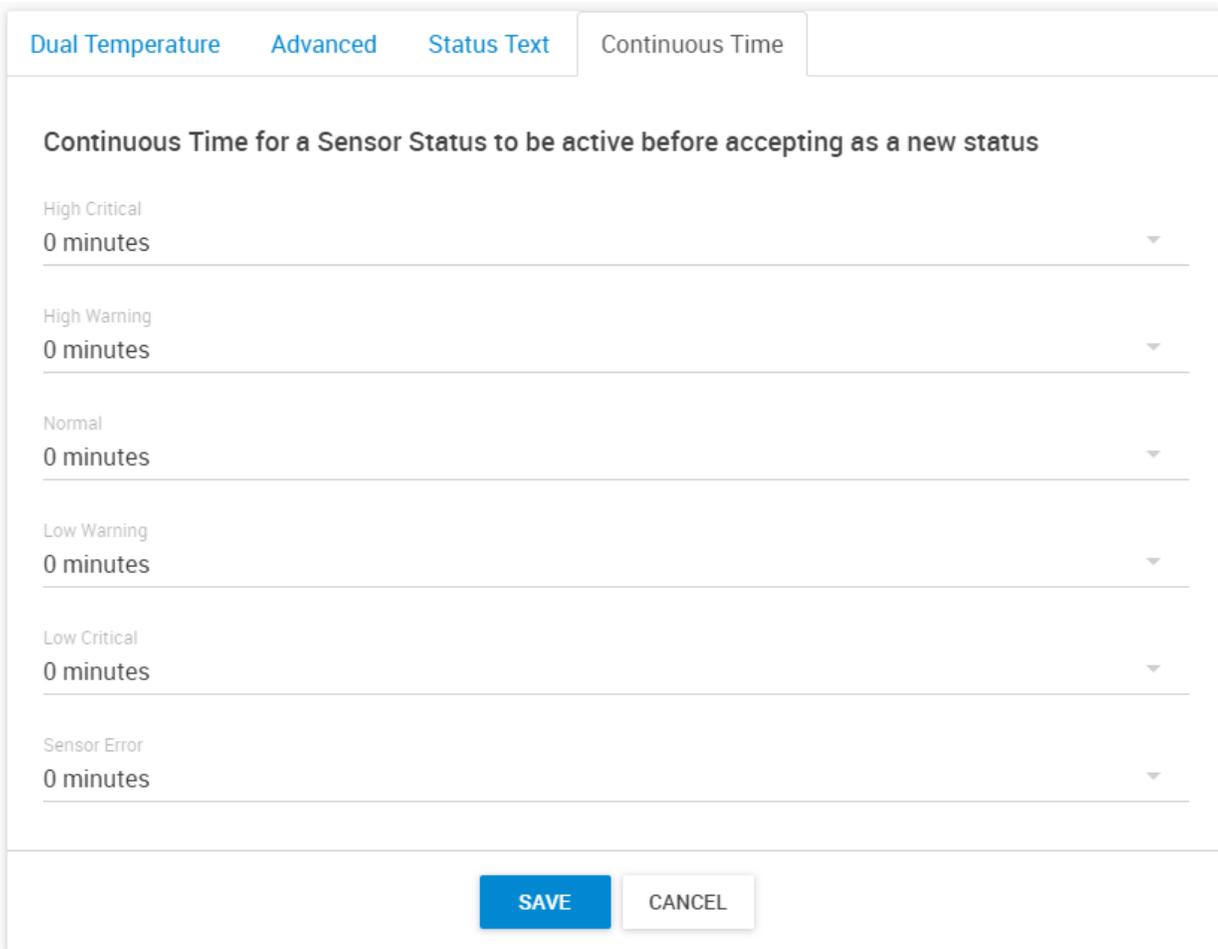
| | | | |
|---|---------------|-------------|-----------------|
| Dual Temperature | Advanced | Status Text | Continuous Time |
| Unit | Celsius | | |
| Rearm | 1 | | |
| Graph Enable | Enable | | |
| Data Collection Type | Instantaneous | | |
| <input type="button" value="SAVE"/> <input type="button" value="CANCEL"/> | | | |

Change the sensor reading status texts for each status:

| Dual Temperature | Advanced | Status Text | Continuous Time |
|------------------|----------|---------------|----------------------|
| | | High Critical | High Critical |
| | | High Warning | High Warning |
| | | Normal | Normal |
| | | Low Warning | Low Warning |
| | | Low Critical | Low Critical |
| | | Sensor Error | Sensor Error |

SAVE **CANCEL**

Adjust continuous time for each sensor status:



The screenshot shows a configuration interface with four tabs: 'Dual Temperature', 'Advanced', 'Status Text', and 'Continuous Time'. The 'Continuous Time' tab is active. Below the tabs, the heading reads 'Continuous Time for a Sensor Status to be active before accepting as a new status'. There are six rows, each representing a sensor status: 'High Critical', 'High Warning', 'Normal', 'Low Warning', 'Low Critical', and 'Sensor Error'. Each row has a dropdown menu currently set to '0 minutes'. At the bottom of the form are two buttons: a blue 'SAVE' button and a white 'CANCEL' button with a grey border.

For switch type sensor, it's working the same as the feature we have on the wired AKCP sensors.

For analog sensor type, you can set the number of polling (we display in time, polling number * polling interval) before accepting the status.

Adjust wireless network settings per sensor (take note of the warnings regarding battery life):

Network
Settings / Network

Sensor value collection period (Period of how often sensor values are collected and checked against thresholds. Values are used for events and graphing)
1 Minute

Sensor data broadcast period (Transmit sensor values and counters)
1 Minute

**Warning: when device is on battery, the minimum period is 1 minute.
Warning: selected interval of 1 Minute will have battery live estimation of 1 year.**

Timeout, period of delay since last received packet from sensor before 'Unreachable' status is reported (Minutes)
35

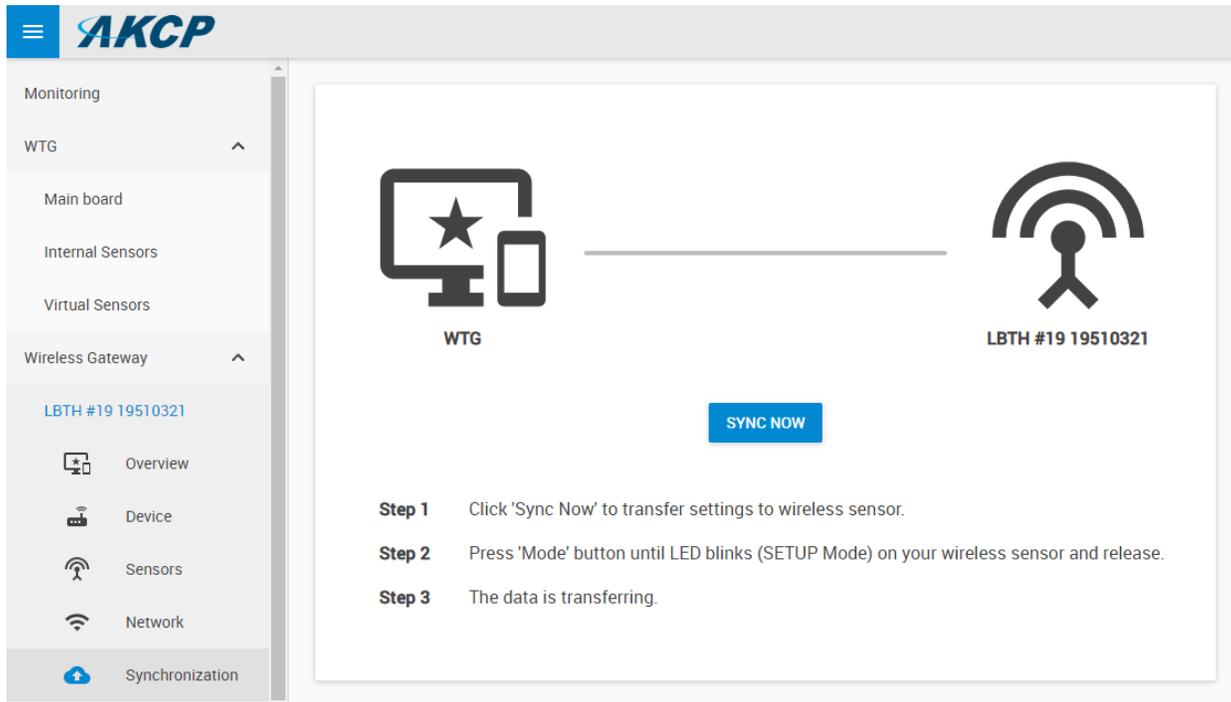
SAVE CANCEL

Important: the graph sampling period will use the “sensor value collection period” parameter. See details below in the Graphing feature overview.

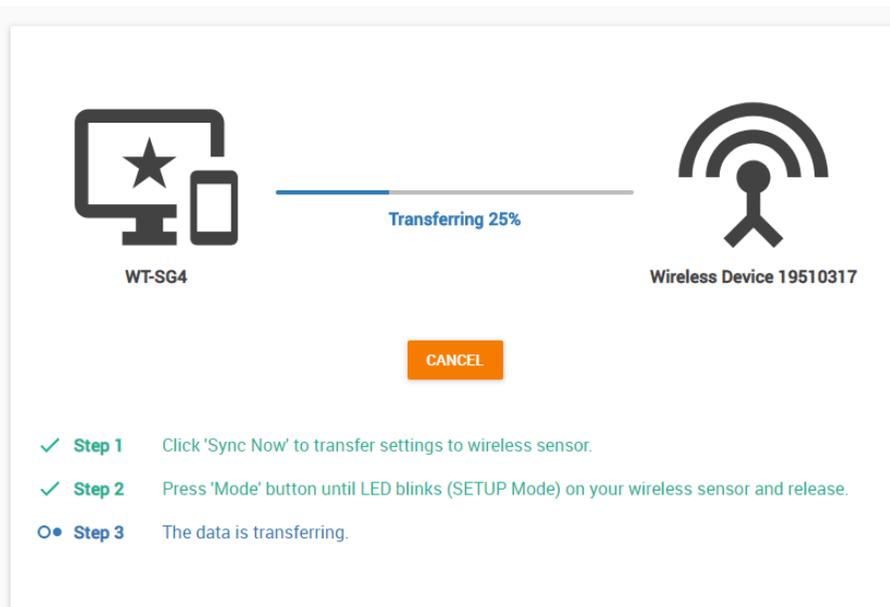
After making any changes, you would need to re-sync the sensor.

This ensures that all configured settings will be sent to the sensor. Without sync, your new thresholds won't be applied.

Note: the sensor settings can also be synced automatically the next time that the sensor broadcast a packet, but doing a manual sync is a faster way when the sensor is close at hands.



Click **Sync Now** button and follow the instructions on screen (switch the sensor to SETUP mode).



We recommend to change the used LoRa wireless channel, if you are in an environment with high radio traffic that affects sensor reading.

Go to **Settings menu / Wireless / Wireless Settings:**

- Channel #3 (865.30 MHz DR13)
- Channel #4 (866.10 MHz DR13)
- Channel #5 (866.90 MHz DR13)**
- Channel #6 (867.70 MHz DR13)

Choose a different channel which has less radio traffic. The available list of channels will depend on your country's radio frequency regulations.

Important: after changing the channel, you will need to manually re-sync your wireless sensors!

The Wireless Settings page also provides a packet logger feature for troubleshooting:

The screenshot shows the AKCP web interface. On the left is a navigation menu with options: General, Language, Date / Time, Network, Wi-Fi, Wireless, Wireless Settings (selected), Wireless Upgrade, USB Upgrade, Modem, VPN, Cloud Server, SMTP, SNMP, Server Integration, Services, Modbus, and Password Checking. The main content area is titled "Last received Wireless packets". It features a "Status: Stopped" indicator, a "START" button, and a "STOP" button. Below this is a search bar and a "Raw Packets" toggle switch which is currently turned on. A scrollable list of log entries is displayed, showing timestamps, packet types (Received data, Transmit data, Payload), and technical details like length, SNR, and RSSI. Below the log list is a section for "Pending Wireless TX Packets" with another search bar and a scrollable area that currently displays "No Logs".

Press **Start** to begin logging of the wireless packets; it will show the received and transmitted packets. The logging will stop automatically, or you can stop it manually.

C) SP-WTS Network Settings

Ethernet

You can change the SP-WTS unit's Ethernet network settings under **Settings menu / Network**:

Network
System / Network

IPv4

Use DHCP Enable Disable

IP Address

Subnet Mask

Gateway

DNS Source

Domain Name Server #1

Domain Name Server #2

Domain Name Server #3

Network Hostname

Ethernet MAC ID 00:0B:DC:00:18:89

IPv6

IPv6 Address Assignment DHCPv6 Static

These settings will affect the Ethernet interface only (wired connection). IPv6 is also supported on the SP-WTS.

Press **Save** after making any changes.

D) License Management

You can review the current license under **Settings menu / License Management**:

System / License Management

Our Plans

You are now using **Pro** version. You can upgrade with the plans below as per your needs. Need help choosing the right plan? [Contact us](#) and we will help you.

Pro

Additional Features

[REQUEST LICENSE](#)

| Feature | Pro | Additional Features |
|---------------------|-----|---------------------|
| 5 Dry Contact | — | Up to 4 |
| Virtual Sensors | 5 | Up to 80 |
| Events Log | ✓ | — |
| Notifications | ✓ | — |
| MQTT | ✓ | — |
| Graphs | ✓ | — |
| Maps | ✓ | — |
| 3rd Party Modbus | ✓ | — |
| IPv6 | ✓ | — |
| SNMPv3 | ✓ | — |
| VPN | ✓ | — |
| Access Control User | ✓ | — |
| RADIUS | — | ✓ |
| TACACS | — | ✓ |
| Heartbeats | ✓ | — |
| Modbus | ✓ | — |
| Cloud | ✓ | — |
| Authentication | ✓ | — |

This page will show the current state of licensed features.

Scroll down to view any License Keys that are installed for your SP-WTS.

All units are shipped with the default license. This has some restrictions on product usage - most features will be disabled, such as virtual sensors, graphing, notifications (see details below).

License Key

Search License Key

| License Key ▲ | 5 Dry Contact ▼ | Access Control User ▼▲ | Virtual Sensors ▼▲ | 3rd Party Modbus ▼▲ | SNMPv3 ▼▲ | VPN ▼▲ | IPv6 ▼▲ | RADIUS ▼▲ | Notifications ▼▲ | Heartbeats ▼▲ | Maps ▼▲ | Graphs ▼▲ | Status ▲ |
|-----------------|-----------------|------------------------|--------------------|---------------------|-----------|--------|---------|-----------|------------------|---------------|---------|-----------|-----------|
| Default License | 0 | 1 | 5 | 0 | × | × | × | × | × | × | × | × | Activated |

When you attempt to use a feature that requires a license, you will see a notification:

Request License

License Management



License is required

Buy a license to unlock this feature. By buying a license, these features will unlock

- ✓ 5 Dry Contact
- ✓ SNMPv3
- ✓ VPN
- ✓ 3rd Party Modbus
- ✓ Virtual Sensors
- ✓ Access Control User
- ✓ Notifications
- ✓ Heartbeats
- ✓ Cloud
- ✓ Maps
- ✓ Graphs

Contact Sales for a quotation for your required licensed features by clicking **Request License**.

When you receive the license key, click on **Add** and copy-paste the key:

Add License ✕

Enter License Key

Add Cancel

License Key

Search License Key 🔍 **+ Add** 🔄 Refresh

| License Key ▲ | 5 Dry Contact ▼ | Access Control User ▼ | Virtual Sensors ▼ | 3rd Party Modbus ▼ | SNMPv3 ▼ | VPN ▼ | IPv6 ▼ | RADIUS ▼ | Notifications ▼ | Heartbeats ▼ | Maps ▼ | Graphs ▼ | Status ▲ |
|---|------------------------------|------------------------------------|--------------------------------|---------------------------------|-----------------------|--------------------|---------------------|-----------------------|------------------------------|---------------------------|---------------------|-----------------------|---------------------------|
| Default License | 0 | 1 | 5 | 0 | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | Activated |
|  | ∞ | ∞ | ∞ | ∞ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Activated 🗑️ |

You will see a green tick-mark for the enabled features, and the number of Virtual Sensors, Access Control Users etc. that your license allows to use.

Note: the entered license will remain in effect even if your unit is returned to factory defaults.

You must reboot the device after making any changes.

Hint: when prompted for reboot, the default Admin user password is “public”.

E) Replacing the batteries

Please follow this procedure to replace the batteries.

When reassembling, make sure that the plastic cover is orientated correctly (note the TOP marking).



F) Cloud WebUI

The AKCP Cloud service is used for WebUI forwarding of supported devices using VPN, and is a licensed feature. The forwarding will enable accessing the unit's WebUI from anywhere in the world by logging in to the AKCP Cloud dashboard with the unit's MAC ID.

Because the Cloud service will enable world-wide access to the unit's WebUI by using the MAC ID, the unit's owner has to set up and enable the additional WebUI password protection to prevent unauthorized access.

Connecting your device to cloud.akcp.com

1. Copy the device MAC ID from the unit's **About** page, for example: 00:0B:DC:01:47:A4

The screenshot displays the 'About' page of the AKCP WebUI. The left sidebar contains a menu with various system settings. The main content area shows the following information:

- System Description:** SP-WTS H7 1.0.6028 Sep 25 2023 12:29:00
- Manufacturing Date:** Tuesday, 7 March 2023
- Manufacturer Name:** AKCP
- Product Name:** SP-WTS
- Product Code:** -
- Ethernet MAC ID:** 00:0B:DC:00:01:05 (highlighted in blue)
- Modem IMEI Number:** -
- Modem Version:** -
- Total Number of Sensors:** 600

2. Send a request email to AKCP Sales sales@akcp.com to add your unit to AKCP Cloud

You will get a reply with the Cloud VPN password, which you will need to enter manually on your unit to connect.

3. Check that your unit can **resolve hostnames** with DNS server correctly (contact your network administrator, if you are not sure)

The screenshot displays the AKCP web interface for network configuration. On the left is a navigation menu with options: General, Language, Date / Time, Network (selected), Wireless, VPN, Cloud Server, SMTP, SNMP, Server Integration, and Services. The main content area is titled 'Network' and shows the path 'System / Network'. Under the 'IPv4' section, the following settings are visible:

- Use DHCP:** Radio buttons for 'Enable' and 'Disable', with 'Disable' selected.
- IP Address:** Text input field containing '192.168.1.180'.
- Subnet Mask:** Text input field containing '255.255.255.0'.
- Gateway:** Text input field containing '192.168.1.1'.
- DNS Source:** Dropdown menu set to 'Static'.
- Domain Name Server #1:** Text input field containing '8.8.8.8'.

4. Go to **Cloud Server page** on the unit and fill out the **password** which was set up for your unit at the AKCP Cloud dashboard, click **Enable** and then **Save**.

Cloud Server
System / Cloud Server

Cloud Server Enable Disable

Status Not Connected

IP Address N/A

Cloud Server Password

Confirm Cloud Password

Save **Cancel**

Important: The unit will need to be rebooted after the changes.

Note: the **VPN** and **Server Integration** pages will be automatically hidden if the Cloud Server settings are set up. This is because Cloud server uses VPN, and Server Integration needs to be disabled when using Cloud service.

5. **Reboot** the unit and wait for the device to be connected.

AKCP

General
Language
Date / Time
Network
Wireless
Cloud Server
SMTP
SNMP
Services
Modbus
Password Checking

Cloud Server

System / Cloud Server

Cloud Server Enable Disable

Status Connected

IP Address 10.240.0.3

Cloud URL <https://00-0b-dc-46-43-06.cloud.akcp.com>

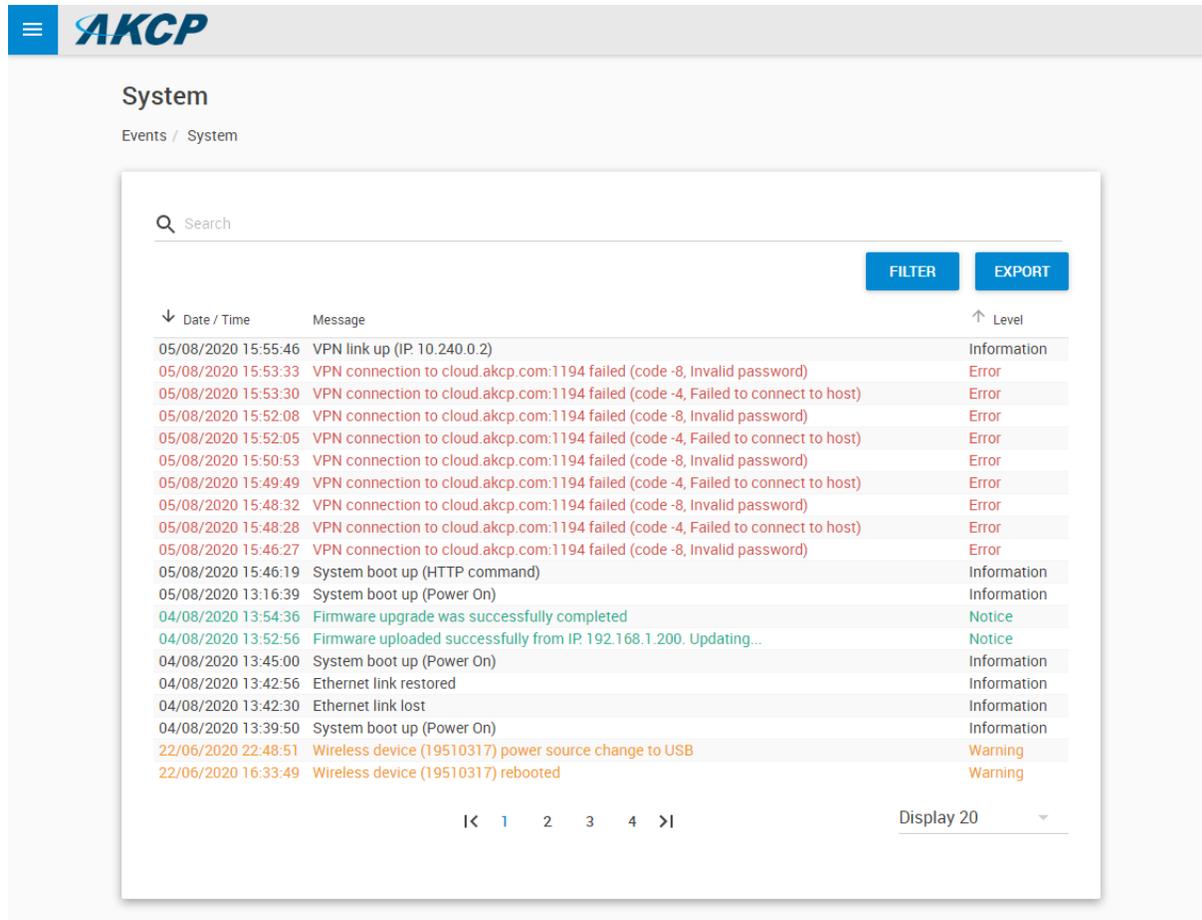
Cloud Server Password

Confirm Cloud Password

Save **Cancel**

The Cloud URL will also be displayed for quick access.

If there's any connection issues (password, cannot resolve name etc.), it will be logged in the Event Log:



The screenshot shows the AKCP System Event Log interface. At the top, there is a search bar and two buttons: 'FILTER' and 'EXPORT'. Below these is a table with three columns: 'Date / Time', 'Message', and 'Level'. The table contains 20 entries, with the most recent ones showing VPN connection failures. The interface also includes a pagination bar at the bottom with 'Display 20' and navigation arrows.

| Date / Time | Message | Level |
|---------------------|---|-------------|
| 05/08/2020 15:55:46 | VPN link up (IP: 10.240.0.2) | Information |
| 05/08/2020 15:53:33 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:53:30 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:52:08 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:52:05 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:50:53 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:49:49 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:48:32 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:48:28 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:46:27 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:46:19 | System boot up (HTTP command) | Information |
| 05/08/2020 13:16:39 | System boot up (Power On) | Information |
| 04/08/2020 13:54:36 | Firmware upgrade was successfully completed | Notice |
| 04/08/2020 13:52:56 | Firmware uploaded successfully from IP 192.168.1.200. Updating... | Notice |
| 04/08/2020 13:45:00 | System boot up (Power On) | Information |
| 04/08/2020 13:42:56 | Ethernet link restored | Information |
| 04/08/2020 13:42:30 | Ethernet link lost | Information |
| 04/08/2020 13:39:50 | System boot up (Power On) | Information |
| 22/06/2020 22:48:51 | Wireless device (19510317) power source change to USB | Warning |
| 22/06/2020 16:33:49 | Wireless device (19510317) rebooted | Warning |

6. Go to <http://cloud.akcp.com>, and log in with the Device MAC ID, e.g. 00:0B:DC:01:47:A4

AKCPro Cloud

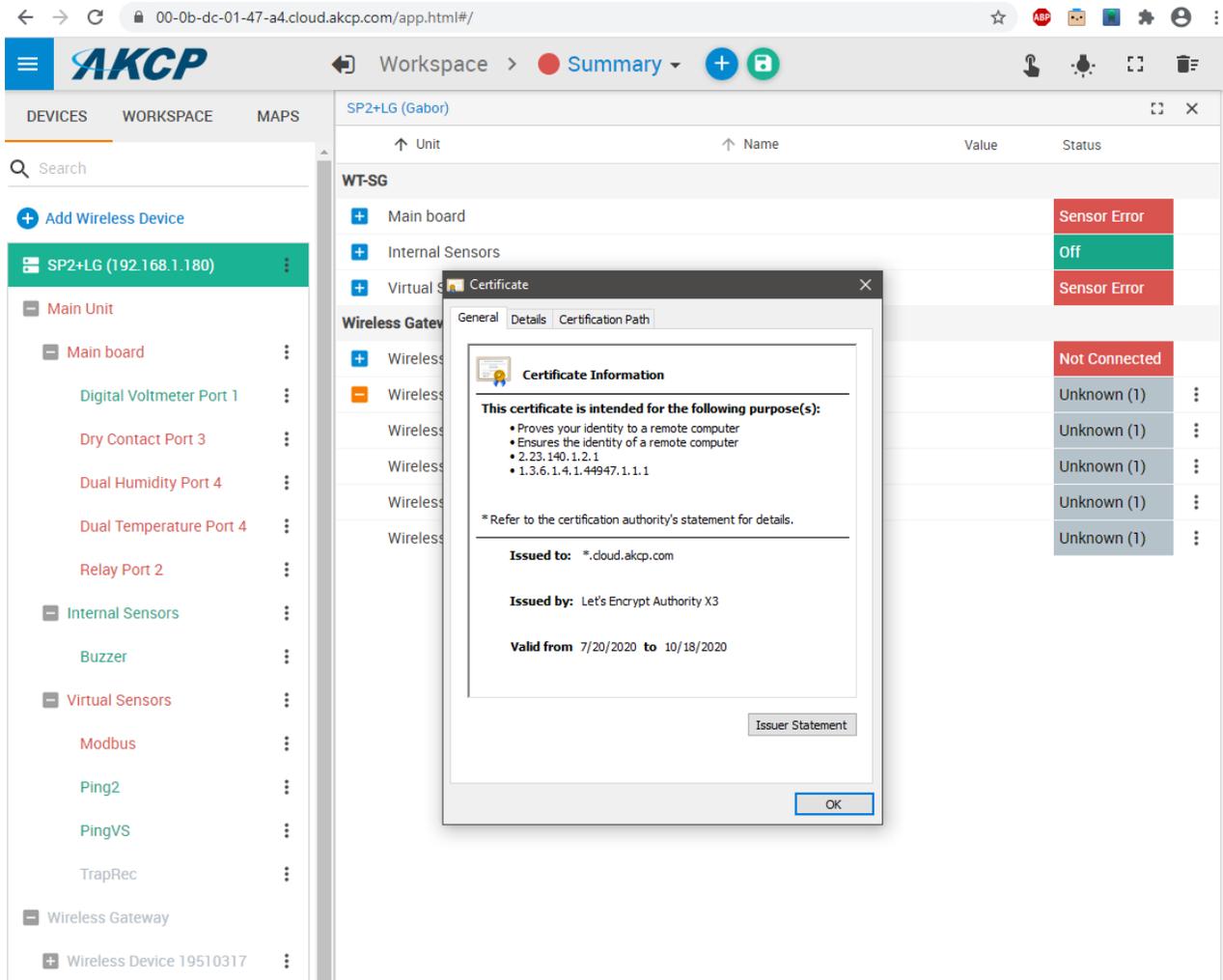
Device ID

00:0B:DC:01:47:A4

LOG IN

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7. The WebUI of the connected device will load (first time loading could be slow), and the HTTPS certificate should show as valid from LetsEncrypt:



Cloud Troubleshooting

1. First check for common connection issues:

- Wrong password
- Unit cannot resolve DNS name or no Internet access
- Unit's cloud license expired
- Unit disabled in Cloud console

Check the unit's Event Log for problems:

The screenshot shows the AKCP System Event Log interface. It features a search bar at the top, followed by 'FILTER' and 'EXPORT' buttons. The event log is presented as a table with three columns: Date / Time, Message, and Level. The events include VPN connection failures, system boot ups, and firmware upgrades.

| ↓ Date / Time | Message | ↑ Level |
|---------------------|---|-------------|
| 05/08/2020 15:55:46 | VPN link up (IP: 10.240.0.2) | Information |
| 05/08/2020 15:53:33 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:53:30 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:52:08 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:52:05 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:50:53 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:49:49 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:48:32 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:48:28 | VPN connection to cloud.akcp.com:1194 failed (code -4, Failed to connect to host) | Error |
| 05/08/2020 15:46:27 | VPN connection to cloud.akcp.com:1194 failed (code -8, Invalid password) | Error |
| 05/08/2020 15:46:19 | System boot up (HTTP command) | Information |
| 05/08/2020 13:16:39 | System boot up (Power On) | Information |
| 04/08/2020 13:54:36 | Firmware upgrade was successfully completed | Notice |
| 04/08/2020 13:52:56 | Firmware uploaded successfully from IP: 192.168.1.200. Updating... | Notice |
| 04/08/2020 13:45:00 | System boot up (Power On) | Information |
| 04/08/2020 13:42:56 | Ethernet link restored | Information |
| 04/08/2020 13:42:30 | Ethernet link lost | Information |
| 04/08/2020 13:39:50 | System boot up (Power On) | Information |
| 22/06/2020 22:48:51 | Wireless device (19510317) power source change to USB | Warning |
| 22/06/2020 16:33:49 | Wireless device (19510317) rebooted | Warning |

At the bottom of the log, there are navigation arrows and a 'Display 20' dropdown menu.

2. Contact Support and ask for help resolving the issue: support@akcp.com

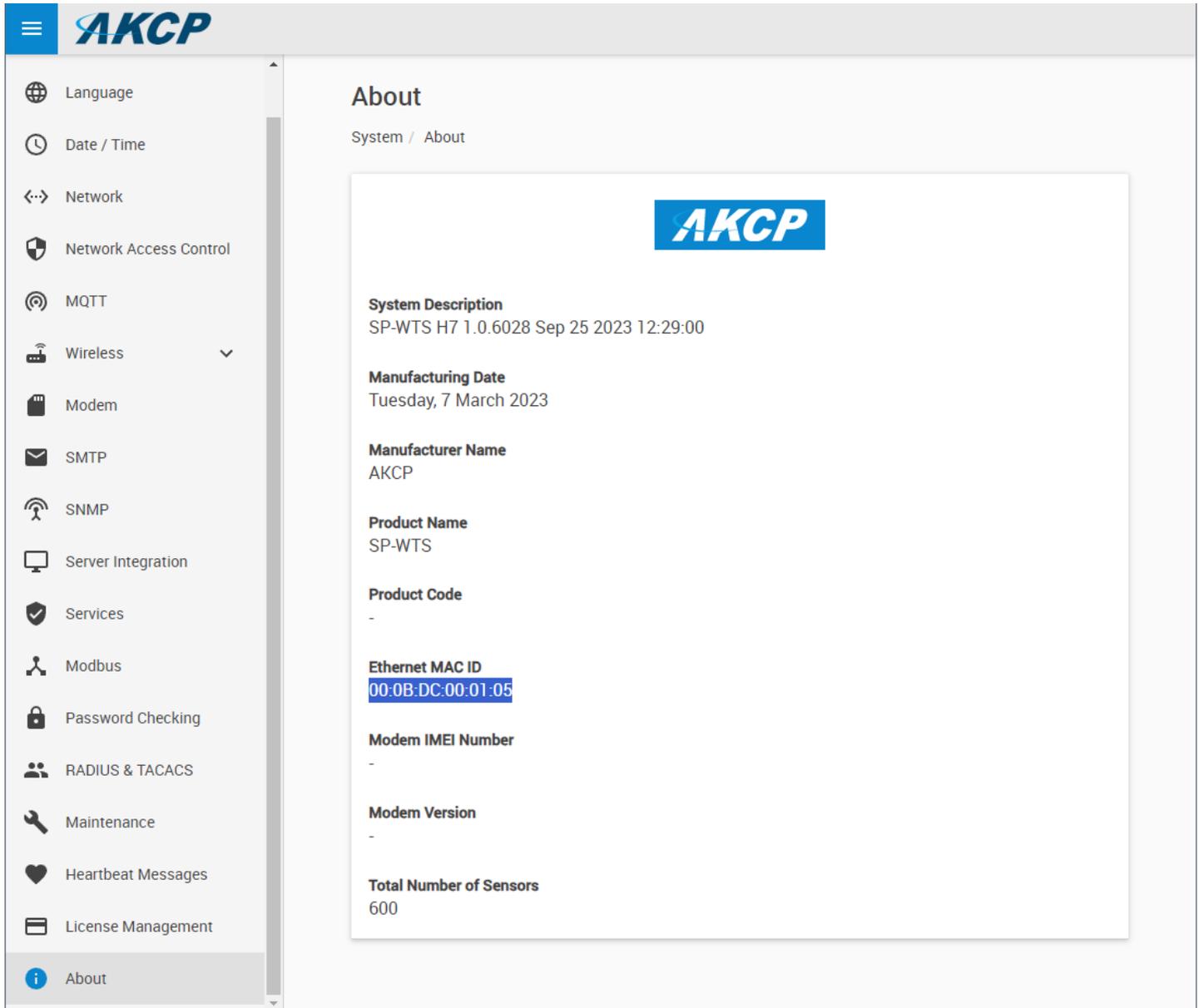
The screenshot shows the AKCP web interface. On the left is a navigation sidebar with icons and labels for various system settings: Language, Date / Time, Network, Network Access Control, MQTT, Wireless, Modem, SMTP, SNMP, Server Integration, Services, Modbus, Password Checking, RADIUS & TACACS, Maintenance, Heartbeat Messages, License Management, and About. The main content area is titled 'About' and shows system information. At the top of this area is the AKCP logo. Below it, the 'System Description' is 'SP-WTS H7 1.0.6028 Sep 25 2023 12:29:00'. The 'Manufacturing Date' is 'Tuesday, 7 March 2023'. The 'Manufacturer Name' is 'AKCP'. The 'Product Name' is 'SP-WTS'. The 'Product Code' is '-'. The 'Ethernet MAC ID' is '00:0B:DC:00:01:05', which is highlighted with a blue background. The 'Modem IMEI Number' is '-'. The 'Modem Version' is '-'. The 'Total Number of Sensors' is '600'.

Note your device's MAC ID and System Description.

G) Features overview

About device

In **Settings menu / About** you can review the details of your device:



The screenshot shows the AKCP web interface. On the left is a navigation menu with the following items: Language, Date / Time, Network, Network Access Control, MQTT, Wireless, Modem, SMTP, SNMP, Server Integration, Services, Modbus, Password Checking, RADIUS & TACACS, Maintenance, Heartbeat Messages, License Management, and About. The 'About' page is selected. The main content area is titled 'About' and includes a breadcrumb 'System / About'. A large AKCP logo is displayed at the top of the content area. Below the logo, the following information is listed:

- System Description**: SP-WTS H7 1.0.6028 Sep 25 2023 12:29:00
- Manufacturing Date**: Tuesday, 7 March 2023
- Manufacturer Name**: AKCP
- Product Name**: SP-WTS
- Product Code**: -
- Ethernet MAC ID**: 00:0B:DC:00:01:05
- Modem IMEI Number**: -
- Modem Version**: -
- Total Number of Sensors**: 600

It contains important information such as the firmware version, product type, MAC ID and the total number of sensors.

It is a good practice to make a screenshot of this page when you contact Support.

Virtual Sensors

You can access the Virtual Sensor configuration under **Sensors menu / Virtual Sensors**:

| Sensor ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | N/C |
| 2 | N/C |
| 3 | N/C |
| 4 | N/C |
| 5 | N/C |
| 6 | N/C |
| 7 | N/C |
| 8 | N/C |
| 9 | N/C |
| 10 | N/C |
| 11 | N/C |
| 12 | N/C |
| 13 | N/C |
| 14 | N/C |
| 15 | N/C |
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| 45 | N/C |
| 46 | N/C |
| 47 | N/C |
| 48 | N/C |
| 49 | N/C |
| 50 | N/C |
| 51 | N/C |
| 52 | N/C |
| 53 | N/C |
| 54 | N/C |
| 55 | N/C |
| 56 | N/C |

The configuration and supported features are the same as on our sensorProbe+ family units. Contact Support for the sensorProbe+ manual that contains the Virtual Sensor configuration details.

Note: you will need virtual sensor license to be able to use this feature.

Graphing

You will need to manually enable graphing collection for any virtual sensors one by one. For wireless sensors, the graphing is automatically enabled – but to be able to see the collected graph data, you will need graph license.

The supported graph features are the same as on our sensorProbe+ family units.

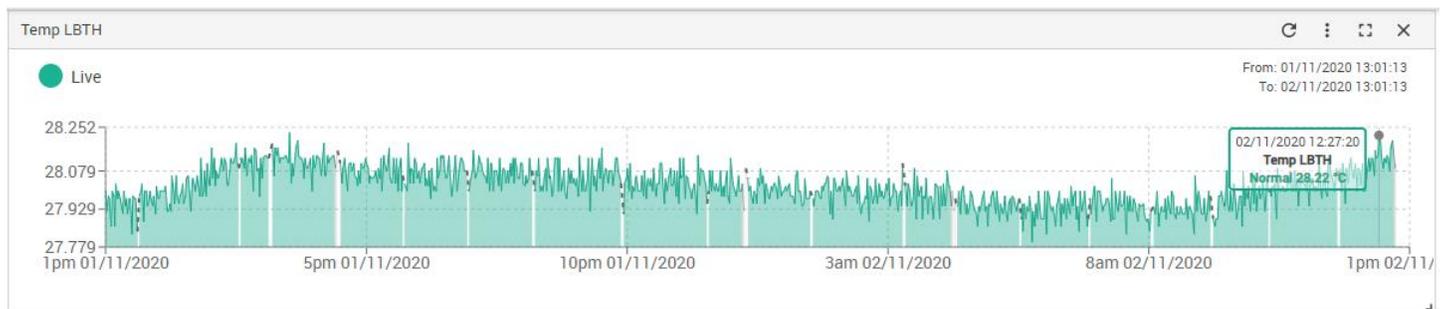
The wireless sensor graph collection period settings are set on each sensor’s settings page (sensor value collection period):

The screenshot shows the 'Network' settings page for a wireless device (19510317). The settings are as follows:

- Sensor value collection period (Period of how often sensor values are collected and checked against thresholds. Values are used for events and graphing): **1 Minute**
- Sensor data broadcast period (Transmit sensor values and counters): **15 Minutes**
- Timeout, period of delay since last received packet from sensor before 'Unreachable' status is reported (Minutes): **35**

Buttons: **SAVE** and **CANCEL**

Note: after making changes, you will need to re-sync the wireless sensor and any existing graph data will be deleted!



Important: SP-WTS supports up to 32 WTS sensors graph, including multi-sensor WTS. For example, on WTS-TH there are both Temperature & Humidity sensors.

The virtual sensor graph collection period is set on the General page under the Settings menu:

General
System / General

System Description WT-SG4 F7 1.0.315 Oct 12 2020 07:06:30

System Name

System Location

System Contact

System URL

GPS Latitude

GPS Longitude

Sensor Notification On System Boot Up On Off

Graph Data Collection Period 5m 0s
Graph data can be stored for 106 days 15h 10m 0s.

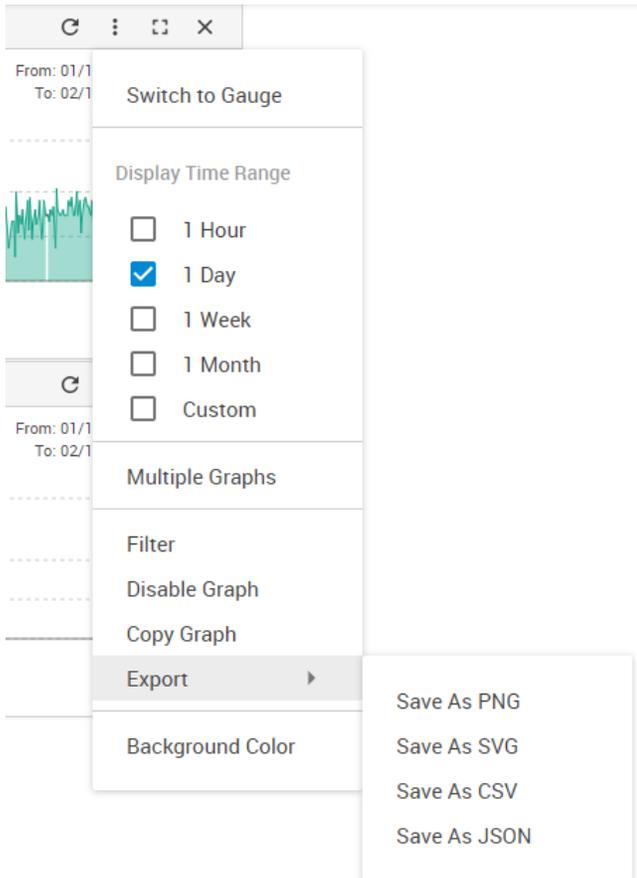
Language English

Note: after making changes, any existing graph data will be deleted!

Important: SP-WTS supports up to 14 virtual and wired sensors graph.

You can set further graph options for a sensor after opening the graph gauge and clicking the 3-dot menu in the top right corner.

Remember to export your graph data as it is not included in the backup.



H) SP-WT 4SP information

Please note the following important limitations for this wireless sensor type.

The total sensors count is 32x on the SPWT-4SP.

If you connect multiple sensors (such as CTHMSv2 Thermal Maps) to all 4x ports, you would see only 32x sensors in total.

Also note that the 3 SP-WT-4SP battery sensors will also count towards the 32 sensors limit.

**Because of the battery sensors, the actual useable sensors for the 4 sensors ports will be:
32 - 3 = 29**

Example: if you attempt to connect 4 CTHMSv2 Thermal Maps (4x11 parameters), that will be $4 \times 11 = 44$ sensors.

The SPWT-4SP's limit is 32, so only 2x CTHMS strings will show the complete list of its sensors. The 3rd one will be incomplete, and the 4th will not show at all.

There are 2 ways to circumvent this limitation:

1. You can split the Thermal Maps into another SP-WT-4SP (2x on each)
2. You can disconnect the rear Thermal Map string, keeping only the front (on the splitter box), which will effectively turn a CTHMS into THMS and free up the sensor count

See the image and step-by-step instructions below how to do the second method.



You can disconnect this Rear Thermal Map string on the Splitter Box

Example: if you only need the temp sensors on the Thermal Map strings, do the following:

1. Unplug all sensors from all ports on the SP-WT-4SP.
2. Disconnect the rear thermal map string, keeping only the front (turning the CTHMSv2 sensor into THMSv2).
3. Offline all current sensors on all ports, press the SP-WT-4SP button once each time after pressing offline on Web UI (to force sync the setting changes).
4. Plug in 1st Thermal Map to port 1 and press the SP-WT-4SP button once then wait for it to online all sensors. There should be only 4 sensors online (3 Temperatures, 1 Humidity, 7 Total).
5. Plug in 2nd Thermal Map to port 2 and press the SP-WT-4SP button once then wait for it to online all sensors (6 Temperatures, 2 Humidity, 11 Total).
6. Plug in 3rd Thermal Map to port 3 and press the SP-WT-4SP button once then wait for it to online all sensors (9 Temperatures, 3 Humidity, 15 Total).
7. Plug in 4nd Thermal Map to port 4 and press the SP-WT-4SP button once then wait for it to online all sensors (12 Temperatures, 4 Humidity, 19 Total).



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

Thanks for Choosing AKCP!