

# switch

ALWAYS ON 



## Technical Manual

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## Important Safety Instructions

While every care has been taken to ensure the completeness and accuracy of this manual, Smart Charging Technologies LLC assumes no responsibility or liability for losses or damages resulting from the use of the information contained in this document. Due to technical improvements, some information contained in this manual may change without notice.

Before attempting to install and begin logging data with the Switch Always On unit, please read this manual.

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### WARNING

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RISK OF ELECTRICAL SHOCK. Do not attempt to service the Switch Always On unit. The unit contains potentially hazardous voltages. Do not open the unit, there are no user serviceable parts inside.

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### CAUTION

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RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. Do not connect improperly, charge or dispose of on fire. Do not

disassemble or crush. Battery may explode or leak. DO NOT REPLACE OR TAMPER WITH CELLS

**CAUTION**



Keep the battery cover on at all times.

**CAUTION**



When working with batteries, extreme caution must be exercised. Always follow the manufacturer's instructions for correctly installing batteries.

## Specifications

### INPUT POWER

Input VA Rating	125VA
Input Power	Minimum (no load): 0.85W Maximum (max load): 75W
Input AC Voltage	120–240~, 50/60Hz, 1.2A
Input Internal Fuse Ratings	3.15A / 250V
Input Voltage Protection	TMOV / Varistor, 314V / 6kA

### OUTPUT POWER

Max Output Power	50W
Output Voltages	2 @ +12V 2 @ +5V
Output Currents	+12V: 1.5 nominal, 2.5A max +5V: 2.5A nominal, 3.5A max
Short Circuit Rating	+12V: <3A +5V: <4A
Efficiency	>90% @ ½ load

### BATTERY BACKUP

Battery Chemistry	4S1P Li-Ion Battery
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Nominal Battery Voltage	~14.8V
Battery Capacity	~2600 mAh
Battery Operating Temperature	0°C – 50°C
Backup Time	~2 hours @ 50% load ~1 hour @100% load

#### ENVIRONMENTAL

Operating Temperature	0°C – 50°C
Storage	0°C – 50°C
Humidity	0 to 95% RH, non-condensing

#### COMPLIANCE

UL/cUL	UL 60950-1 “Information Technology Equipment Safety”
FCC	FCC Title 47 CFR 15 Subpart B Emissions Class A
CE	CE listed
ROHS	Compliant

#### MECHANICAL

WxDxH	4.8" x 6.5" x 1.7"
Weight	~2lb

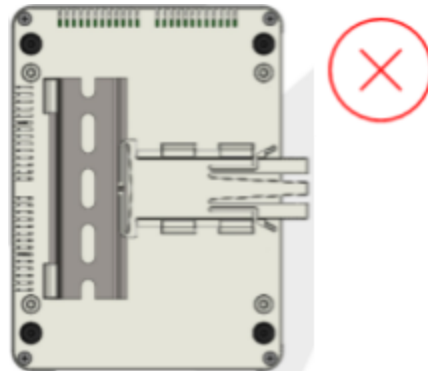
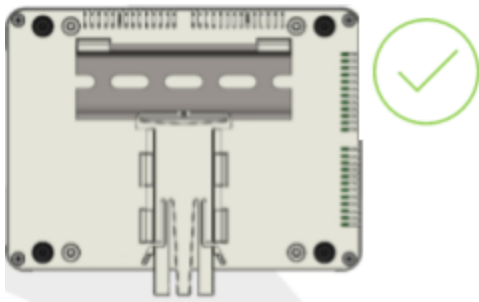
#### CONNECTIVITY

Wired	Ethernet 10/100 Mbps
Wireless	Wi-Fi IEEE 802.11 b/g/n 2.4GHz

## Location & Mounting

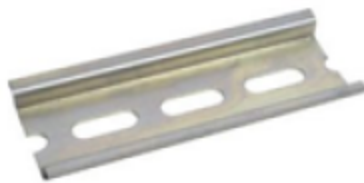
Install the Switch Always On unit in a protected area that is free of excessive dust and has adequate air flow. Do not operate the Switch Always On unit where the temperature or humidity are outside the product’s environmental specifications.

The Switch Always On unit can be mounted (non-fixed) on a wall using the DIN rail latch included in the package. Only horizontal (non-fixed) mounting is supported. The Switch Always On unit can also be fixed-mounted.



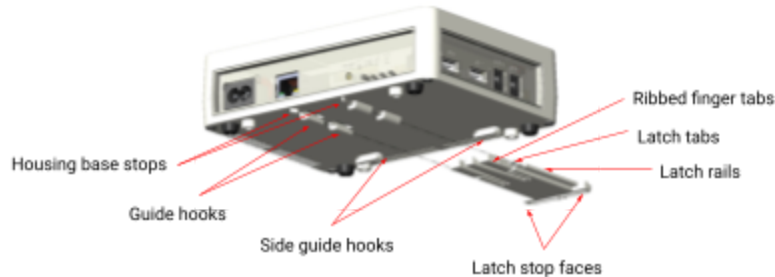
## Non-Fixed Mounting

1. Mount the DIN rail horizontally on the wall. The DIN rail width is ~1.38". Screws and Din Rail are not included in the package.



2. Insert the provided DIN rail latch into the unit's housing base by sliding the latch rails through the four guide hooks on the housing base as shown below. DIN rail latch will hit an initial stop, carefully squeeze together ribbed finger tabs and slide latch all the way to the second stop. When fully seated, latch stop faces will be flush against faces of guide hooks.
3. Hang the Switch Always On unit so that guide hooks on the side of the housing base are fully seated over the edge of the DIN rail. With unit housing base flush against DIN rail, slide DIN rail latch in towards DIN rail until latch is fully seated and secure against DIN rail. When properly installed, latch tabs will be fully seated past housing base stops.





**Caution:**  
Do not mount the unit where any of the cooling slots are positioned downward  
Don't block airflows

## Fixed Mounting

The bosses in the Switch Always On unit for fixed mounting are set up for 4.0mm basic diameter screws, from Screwerk USA, designed to go into plastic. For possible mounting arrangements see the general guideline below;

1. Use the type STP32 in the link above.
2. For alternate mountings of Switch Always On unit for these bosses, use the nominal diameter 4.0mm column.
3. Then find the row for the length needed. To get this value, first find the total thickness of all materials being mounted to, plus any washers used. Then the screw length should be 4.5mm to 6.5mm longer than that total. To go greater than plus 6.5mm, washers need to be used to get that number back to 6.5mm or less. Do not go shorter than plus 4.5mm or the mounting will not be secure.
4. This will cross reference to a cell in the table with the letters "B, E and S". The letter refers to the type of material, we always use "S". Check the color of the letter for availability. If you click on the letter it will open the exact part you have selected and give detailed pricing and availability.

## Connecting the Battery

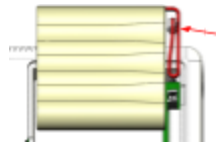
1. Pull the latch to open the battery housing.



2. Pull the battery out of the housing.



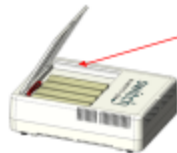
3. Connect the battery to the receptacle.



4. Place the battery back in the housing.



5. Place the cover back over the housing and power the device.



# Connect to AC Power and Charge the Battery

1. Connect the AC power cable to the AC port and plug the Switch Always On unit into an AC power outlet.

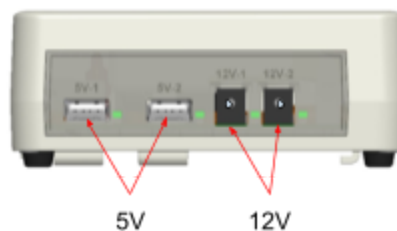


It may take up to 5 hours to fully charge the battery

2. The Switch Always On battery will charge whenever it is connected to utility power and typically requires fewer than five hours to charge fully. The Switch Always On unit capacity is reduced until the battery is fully charged.

## Connecting Equipment to the DC Ports

The Switch Always On unit has two +12V and two +5V output ports. The +12V ports fit a 5.5 x 2.5 mm barrel connector (or tuning fork) while the +5V ports are USB type ports. Each port has its own LED indicator. When the port is enabled by the app, the LED is lit green, otherwise it is not lit.



Since the Switch Always On unit ports are DC, you no longer need to use the AC adapter that comes with your device. Instead, you can connect the DC input of your adapter directly to the respective DC port of the Switch Always On unit using the provided cables.



If your equipment requires a different connector than the ones supported by the Switch Always On unit ports, a connector adapter is required. Connect your equipment to the +12V and +5V output ports.

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**WARNING**

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Make sure to connect your equipment to the right voltage. Check if your equipment uses 5V or 12V and connect it to the right port accordingly.

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## Connect to Ethernet

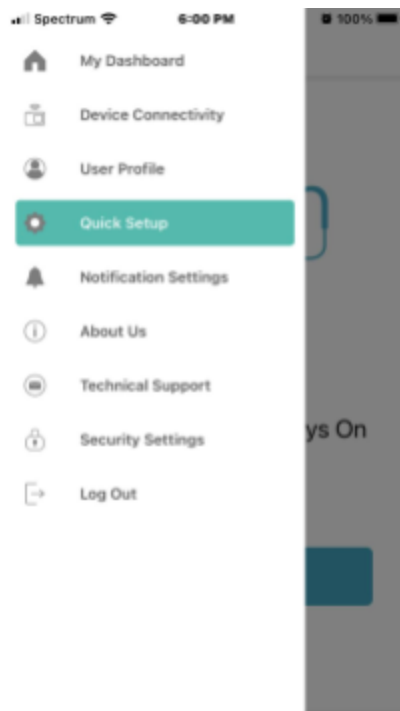
Connect the Switch Always On unit Ethernet port to the respective Router, Modem, Network Switch, etc if a wired router connection is available.



10/100 Ethernet Connection

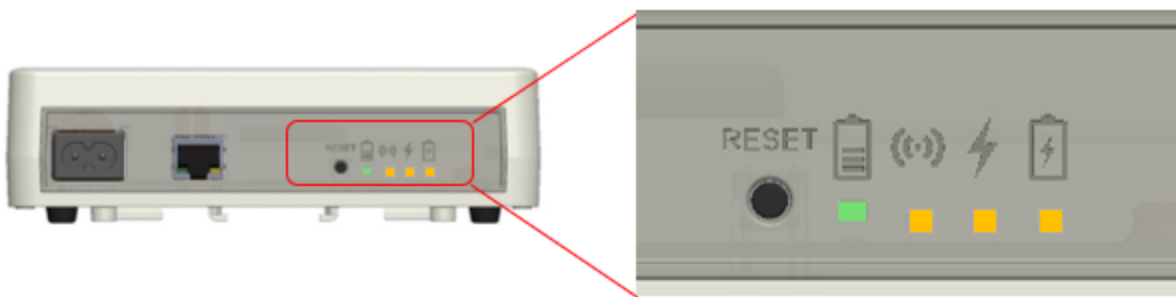
## Connect to Wi-Fi

To connect the Switch Always On unit to Wi-Fi, the user needs to download the Mobile App, complete the registration, and log in to the app. Once logged in, follow the Quick Setup flow to register the device. Once the device is registered and connected online you can set it up using the Mobile or Web App.









# Switch Always On Unit Indicators

The Switch Always On unit has four LED indicators and a reset button. It also has four indicators for its four DC output ports.



The table below lists the various indications of the Switch Always On unit.

	<p>Access button. Pressing the button for xx seconds yields:</p> <ul style="list-style-type: none"> <li>· 10-seconds → Soft restart</li> <li>· 25-seconds → Toggles status of Wi-Fi setup network</li> <li>· 40-seconds → Factory reset</li> </ul>
	<p>Fast Blinking → Battery is charging          Slow Blinking → Battery is discharging          Battery SOC (State of Charge) &gt; 20%</p>
	<p>Fast Blinking → Battery is charging          Slow Blinking → Battery is discharging          Battery SOC (State of Charge) &lt; 20%</p>
	<p>Unit connected ONLINE when indicator is lit, otherwise it is OFFLINE</p>

	AC power is ON when indicator is lit, otherwise it is OFF
	Battery plugged in (detected) when indicator is lit, otherwise it is not plugged in

## Troubleshooting

Use the table below to solve minor Switch Always On unit installation or operational problems. Contact SCT for assistance with more complex issues.

<b>Symptom</b>	<b>Possible Cause</b>	<b>Procedure</b>
No LEDs are lit when unit is plugged in AC outlet	AC cable not fully seated	Verify AC cable is plugged into unit correctly
Battery NOT plugged in, indicator is not lit	Battery connector not fully seated	Open battery compartment and follow "Connecting Battery" procedure to ensure battery connector is fully seated
Switch Always On unit is OFFLINE	Ethernet cable is not fully seated, or Wi-Fi network is not available	Ensure that the Ethernet cable is fully seated and plugged in or the corresponding Wi-Fi network is active

## Storage

Before storing, charge the Switch Always On unit for at least 5 hours. Store the unit covered and upright in a cool, dry location.

<b>Storage Temperature</b>	<b>Recharge Frequency</b>	<b>Charging Duration</b>
23 to 95°F (-5 to 35°C)	Every 6 Months	5 Hours

## User Settings

User Settings contain user Profile information, user Notification Settings, and Change Password.

### Profile Settings

Profile info is shown in the next figure. Other than general user information, this section contains:

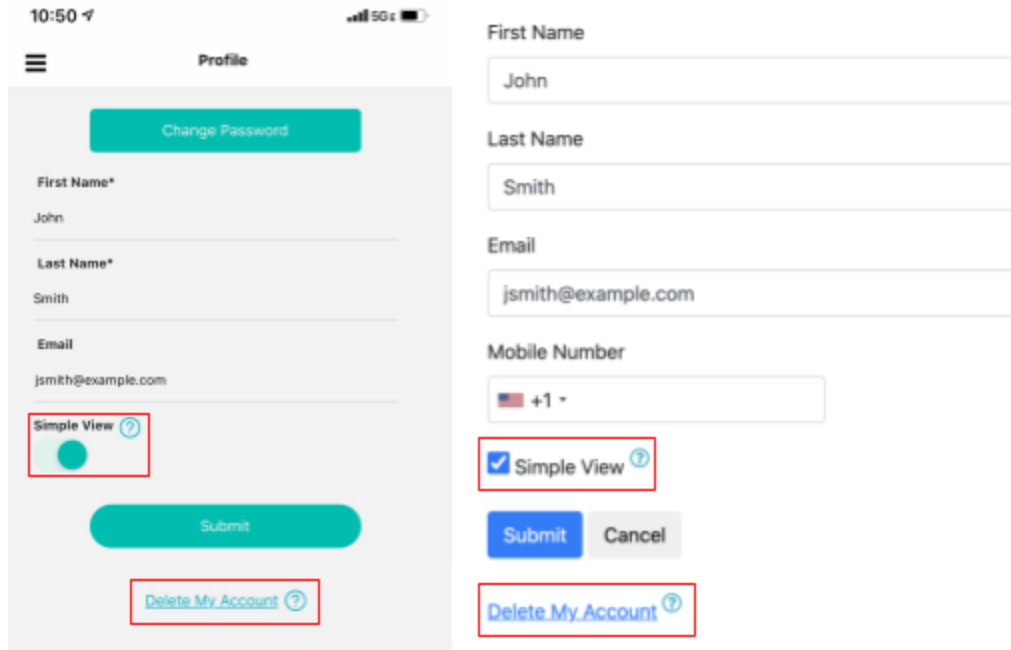
#### **Simple View**

When enabled (by default) all advanced settings will be hidden. Throughout this document, where the text includes (\*), it indicates that the fields/options will be hidden when the Simple view is checked.



## Delete My Account

Allows the user to delete his/her account after confirming the action..



The screenshot shows a mobile application interface for account management. At the top, the time is 10:50 and the battery is at 50%. The page title is 'Profile'. A 'Change Password' button is at the top. Below it, the user's profile information is displayed: First Name (John), Last Name (Smith), and Email (jsmith@example.com). A 'Simple View' toggle is currently turned off. At the bottom, there is a 'Submit' button and a 'Delete My Account' link. To the right of the profile information, there is a form for editing the profile, with fields for First Name (John), Last Name (Smith), Email (jsmith@example.com), and Mobile Number (+1). This form also has a 'Simple View' toggle (checked), 'Submit', and 'Cancel' buttons, and a 'Delete My Account' link. Red boxes highlight the 'Simple View' and 'Delete My Account' elements in both the profile view and the edit form.

## Notification Settings

Allows the user to subscribe to available notifications which are triggered by certain events. It also allows the user to configure how s/he receives these notifications, either through email or text SMS.

## Service

Customers may return their defective unit to Smart Charging Technologies LLC (SCT) for repair or replacement during the standard 1-year warranty period. SCT's standard procedure will be to repair the original unit or replace it with a factory-reconditioned unit. Customers who must have the original unit back due to assigned asset tags and set depreciation schedules must declare such a need at first contact with SCT. SCT will ship out a replacement unit once the defective unit has been received by the repair department. The customer pays for the shipping to SCT; SCT covers ground freight transportation costs back to the customer.

If the Switch Always On unit requires service, the following steps should be taken.

1. Consult the Troubleshooting section to eliminate common problems.
2. If the problem persists, contact SCT and prepare to provide the following: the model number of the unit, the serial number, and the date purchased.
  - Be ready to troubleshoot the problem over the telephone with a technician. If this is not successful, the technician will issue a Return Merchandise Authorization Number (RMA#) and a shipping address.
  - If the Switch Always On unit is under warranty, repairs are free. If not, there is a repair charge.
3. Pack the Switch Always On unit in its original packaging. If the original packaging is not available, ask customer service about obtaining a new package set. Pack the Switch Always On unit properly to avoid damage in transit.

**Note:** Never use Styrofoam™ beads for packaging. Damage sustained in transit is not covered under warranty (ensuring the package for full value is recommended).

1. Write the RMA# on the outside of the package.
2. Return the Switch Always On unit by an insured, prepaid carrier to the address given to you by customer service.

## Connectivity (Mobile App Only)

For Registering the device, please refer to the [Quick Setup Manual](#). To connect the Switch Always On device, the Mobile App offers 2 different methods::

- My Dashboard/Cloud Access : The Mobile App will connect to the Cloud App at <https://www.switchalwayson.com> to access devices that are online and groups.
- Device Connectivity/ Local Access: The Mobile App can access the Switch Always On Device Directly. Some features won't be available using this method.

11:57 5G+

Connectivity

Router/AP

Direct

(\*) The Mobile App will search the local network the Mobile device is connected to for Switch Always On devices.

**Note:** The Mobile App searches for devices by sending multicast packets. It also sends ICMP Ping to find devices that may not respond to multicast packets; this might happen when Switch Always On device is connected to two different networks via Wi-Fi/Ethernet. Communication with the device is over TCP port: 9328.

The Mobile App will connect to the Cloud App at <https://www.switchalwayson.com> to access devices and groups.  
The Mobile App will connect directly to the Switch Always On device. To do so, the device's setup network has to be turned on.

## Device Operations

The accessible operations differ depending on whether the Simple View is selected or not. If the Simple View is selected, then advanced operations will not be presented in the Mobile & Web Apps.

Info

Port Config

Restart Profiles

Custom Restart

Network Settings

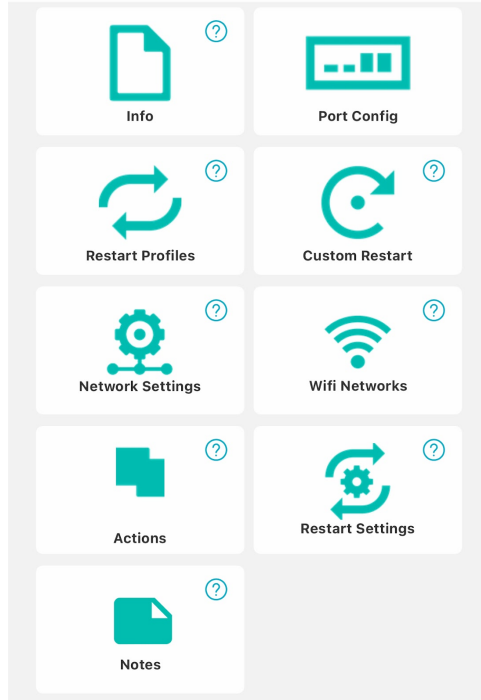
Wi-Fi Networks

Actions

Restart Settings

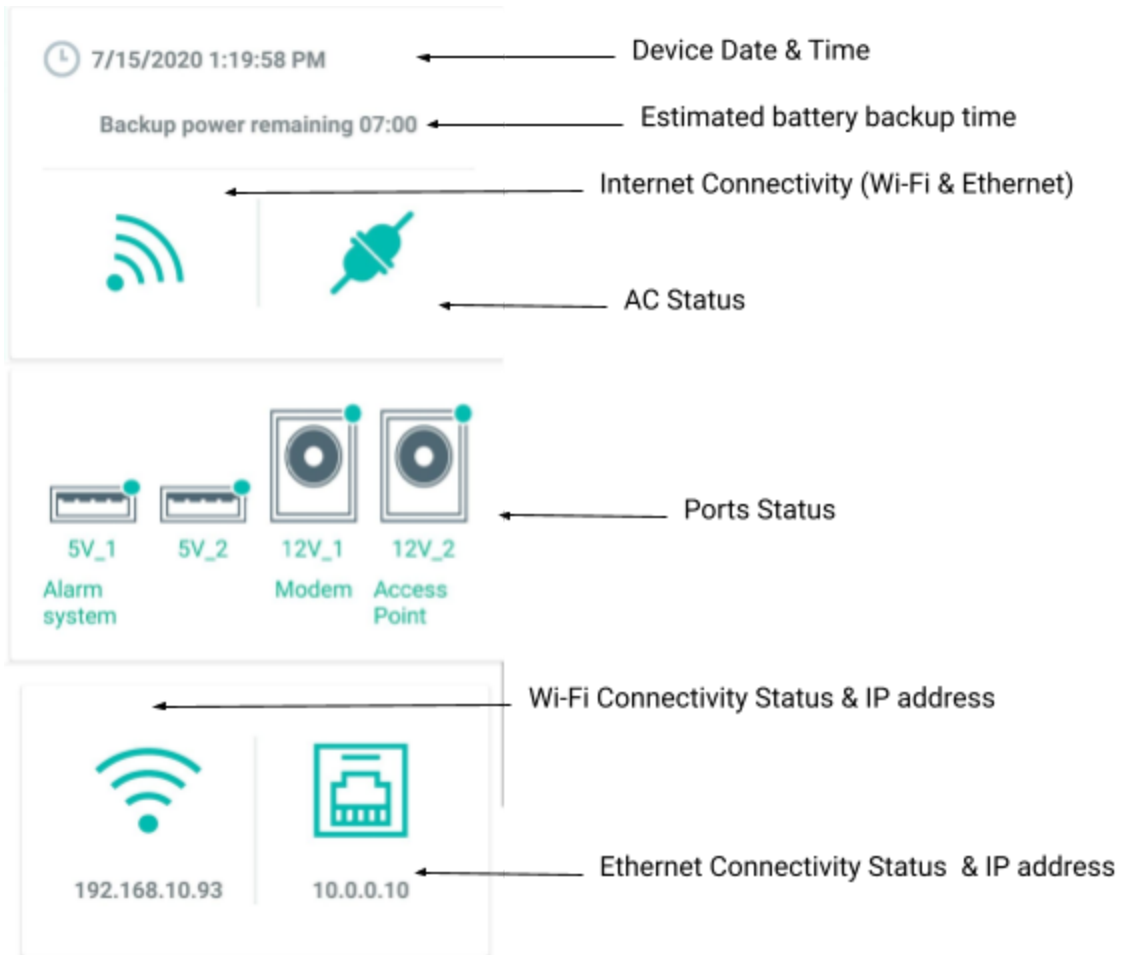
Notes

Quick View



## Quick View

### Device Date & Time and Device Public IP Address (Web Only)



### Port Shut Down



Shows up when a port shuts down due to AC Disconnect or Low Battery (check Port Config for details)

### Restart Profile Status



Shows up when a Restart Profile is getting executed

### Estimated Battery Backup Time

Based on the load on the ports, the Switch Always On device keeps estimating the backup time, should the AC get disconnected or interrupted. The estimation may take some time on first time use.

### Online Status



Indicates the Switch Always On device is connected to cloud application through Wi-Fi or ethernet



Indicates the Switch Always On device is NOT connected to cloud application

### AC Status



AC Connected

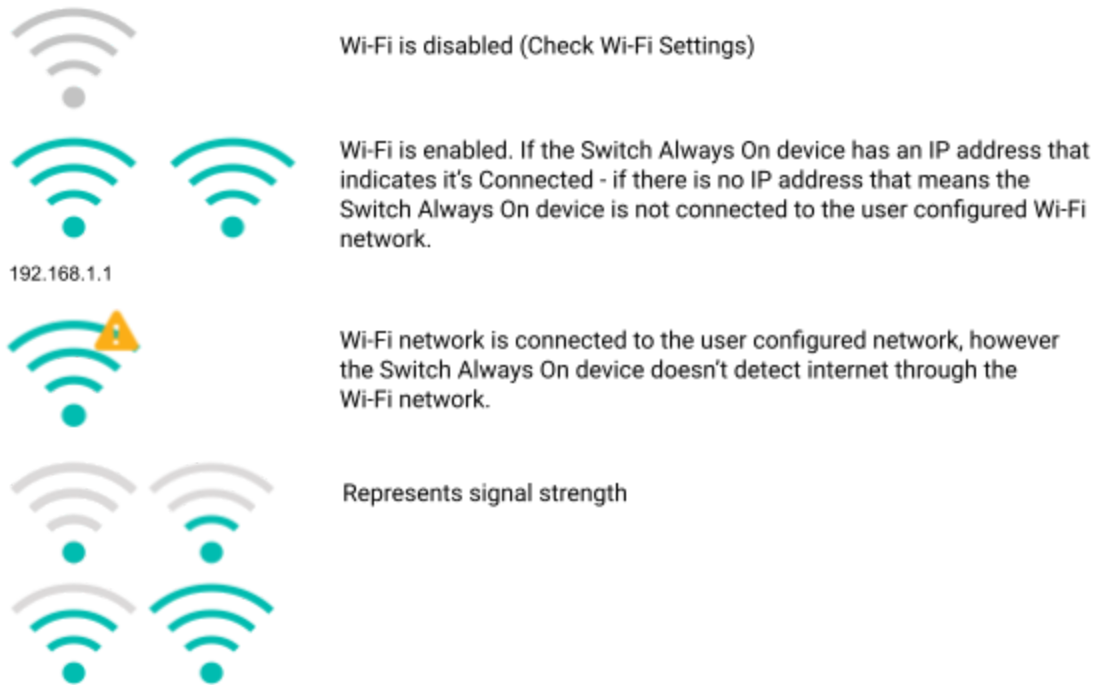


AC Disconnected

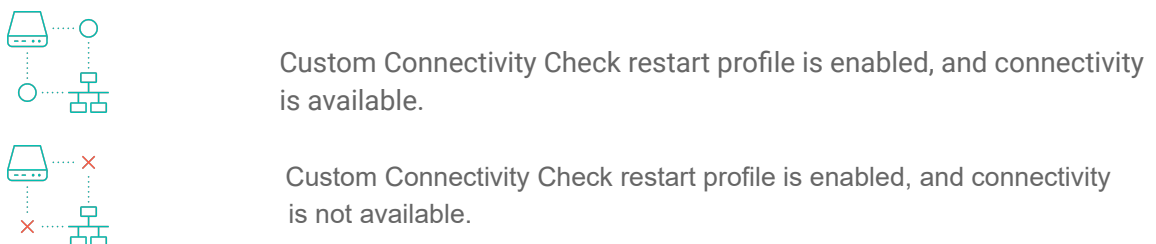
### Ports Status



### Wi-Fi Connectivity Status & IP Address



### (\*) Custom Connectivity Check 1 & 2



## Ethernet Connectivity Status & IP Address



Ethernet is disabled (Check Network Settings)



Ethernet is enabled. If the Switch Always On device has an IP Address that indicates it's Connected - if there is no IP address that means the Switch Always On device is not connected through an ethernet cable.

192.168.1.1



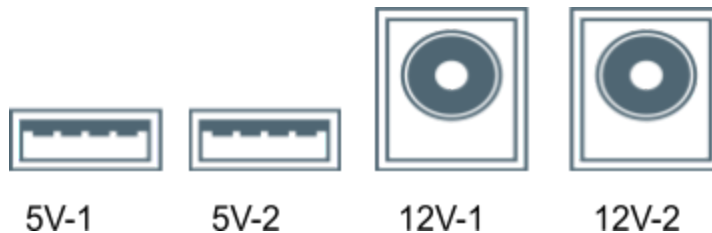
Ethernet is connected, however the Switch Always On device doesn't detect internet through the ethernet Cable

## Info (Device Information)

- **Device Name:** A user friendly name for the Switch Always On device.
- **Device Location:** Optional field to set the device geo location. This can be set to view all devices on the Switch Always On Web application overlaid on a map.
- **MAC Address:** Switch Always On device unique mac address. The Switch Always On device has 2 mac addresses, one for Ethernet, and one for Wi-Fi. Only the Wi-Fi address is displayed.
- **Serial Number:** Switch Always On device serial number.
- **Firmware Version:** The firmware version of the current Switch Always On device.
- **(\* HW Version):** The hardware version of the current Switch Always On device.
- **IP Address:** The device IP address (Web Only)
- **Last Connect Time:** Time of most recent device connection to the Cloud (Web Only)



## Port Config (Port Configuration)



- **(\*) Enable:** Allows users to enable/disable DC Port.
- **Port Name:** User friendly name of the port.
- **(\*) Disable when Remaining Battery Percentage Reaches %:** When the backup battery reaches below the set value, the port will be auto disabled. This will cause the warning sign to show on the Quick View.
- **(\*) Disable when AC is Disconnected:** When AC is interrupted the port will be auto disabled. This will cause the warning sign to show on the Quick View.

(\*) The Disable ability (based on Battery % or on AC Disconnect), allows optimization of the backup power for the most critical devices. As an example, if the Switch Always On device has 2 APs (Wi-Fi Access Points) connected to it and one of them is for Guest Users, on power loss, to keep the critical network running as long as possible, the Guest Network AP port can be configured to shut down on power loss.

## Manual Restart

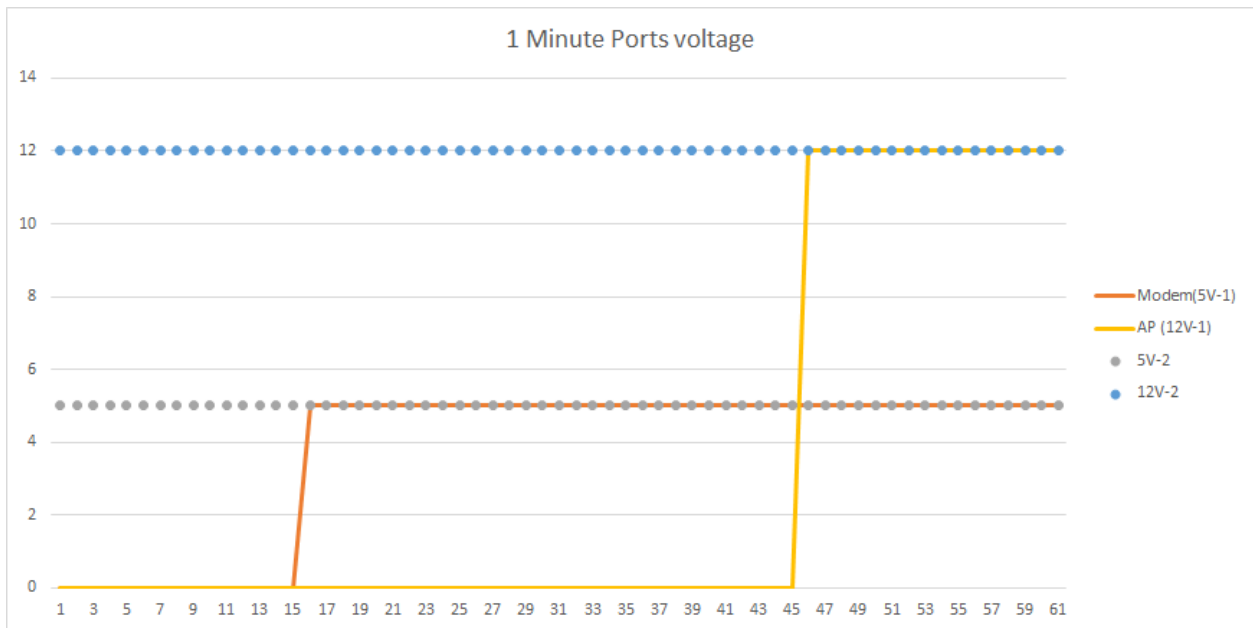
Manual Restart is a way to do a forced (immediate) customized restart for DC ports. Additionally, power up sequencing may be required for some IT equipment. For example, turning on controllers and after 30 seconds connect/turn on APs. Also in some equipment, the power down needs to be more than a few seconds to insure the equipment is off (internal equipment capacitance).

The Manual Restart functionality is enabled by two types of configurations:

(1) what port needs to be restarted and (2) the duration a port is off before it is restarted. These two configurations cover power up sequencing and required shut down time.

As an example, in a setup that has a modem powered by 5V-1 port and an access point (AP) that is powered by 12V-1, the AP needs to be powered up/connected 30 seconds after the modem is powered up. The modem needs to be off for 15 seconds to restart it. The full restart shall take 45 seconds (15 seconds to ensure the modem is Off and an additional 30 seconds after the modem is on to connect the AP).

<b>Modem (5V_1) Port Delay</b>	<input type="text" value="15"/>	Seconds <input checked="" type="checkbox"/>
<b>5V_2 Port Delay</b>	<input type="text" value="1"/>	Seconds <input type="checkbox"/>
<b>AP (12V_1) Port Delay</b>	<input type="text" value="45"/>	Seconds <input checked="" type="checkbox"/>
<b>12V_2 Port Delay</b>	<input type="text" value="1"/>	Seconds <input type="checkbox"/>



## Restart Profiles

Restart Profiles is a tool to run a customized restart automatically based on specific events. In case of more than one event happening around the same time, the Switch Always On device will first run the profile triggered by the first detected event. Once the restart action is completed, it will run the other restart profiles if the triggering event condition is still persisting.

### No Wi-Fi Connectivity

If Wi-Fi is enabled, the Switch Always On device can monitor the IT equipment, such as routers and Wi-Fi Access Points (APs), by connecting to it through Wi-Fi and verifying connectivity. It assumes the connectivity is active when it can connect to the AP using the provided Wi-Fi Access Password, receives an IP address through the IT equipment DHCP and can access Switch Always On Cloud via UDP messages (if Check End-to-End Connectivity is enabled).

Switch Always On, can connect to Open networks as well as secure networks. The Switch Always On device is 802.11 b/g/n compatible.

- **Check End-to-End Connectivity:** When enabled, the Switch Always On device assumes the connectivity is good if and only if it can communicate with Switch Always On Cloud or (Smart Charging Technologies Cloud infrastructure) over UDP on port 24719. The reason for sending UDP packets is to detect the health of the network. If UDP packets can't reach the Cloud for more than 15 seconds, it means there are issues in the internal network and a restart would be recommended.
- **Wait Time Before Restart:** The wait period before the auto restart will run after the Wi-Fi connectivity is lost. The allowed value is between 1 minute and 12 hours.
- **Restart Frequency:** In case the Wi-Fi is not recovered after the first restart, how often should the auto restart be executed. The allowed value is between the minimum of 10 minutes and the maximum of port delays and up to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).
- **Port Delays:** Similar to Manual [Restart](#).
- **Enable Profile:** To enable the auto restart functionality.
- **(\* Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile

## No Ethernet Connectivity

If the Ethernet is enabled, the Switch Always On device can monitor the IT equipment such as routers, modems, APs, firewalls, load balancers, etc. by connecting to it through ethernet and verifying connectivity. It assumes the connectivity is active when it receives an IP address through the IT equipment DHCP and can access Switch Always On Cloud via UDP packets (if Check End-to-End Connectivity is enabled).

- **Check End-to-End Connectivity:** When enabled, the Switch Always On device assumes the connectivity is active if and only if it can communicate with Switch Always On Cloud or (Smart Charging Technologies Cloud infrastructure) over UDP on port 24719. The reason for sending UDP packets is to detect the health of the network. If UDP packets can't reach the Cloud for more than 15 seconds, it means there are issues in the internal network and a restart would be recommended.
- **Wait Time Before Restart:** The wait period before the auto restart will run after the Ethernet connectivity is lost. The allowed value is between 1 minute and 12 hours.
- **Restart Frequency:** In case Ethernet connection is not recovered after the first restart, how often should the auto restart be executed? The allowed value is between the minimum of 10 minutes and the maximum of port delays and up to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).
- **(\*) Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile

The following example has the Restart Frequency as 10 minutes and Wait Time Before Restart as one minute.



- **Port Delays:** Similar to Manual Restart.
- **Enable Profile:** To enable the auto restart functionality

### (\*) Total Power Loss

This Restart Profile is always enabled. It's triggered by having the Switch Always On device start after total power loss (AC was disconnected and backup battery was completely depleted)

- **Port Delays:** Similar to Manual Restart.
- **If a port faults, execute "Total Power Loss" Restart Profile:** When enabled, if a port fault is detected (load short/failure), the Switch Always On device will execute the Total Power Loss Restart Profile
- **If AC is restored & one or more DC output ports are shut off, run Restart Profile:** When enabled, If any of the ports are turned off due to an AC Interruption, at the moment the AC is restored, an "Total Power Loss" Restart Profile will be executed.

### (\*) Day & Time

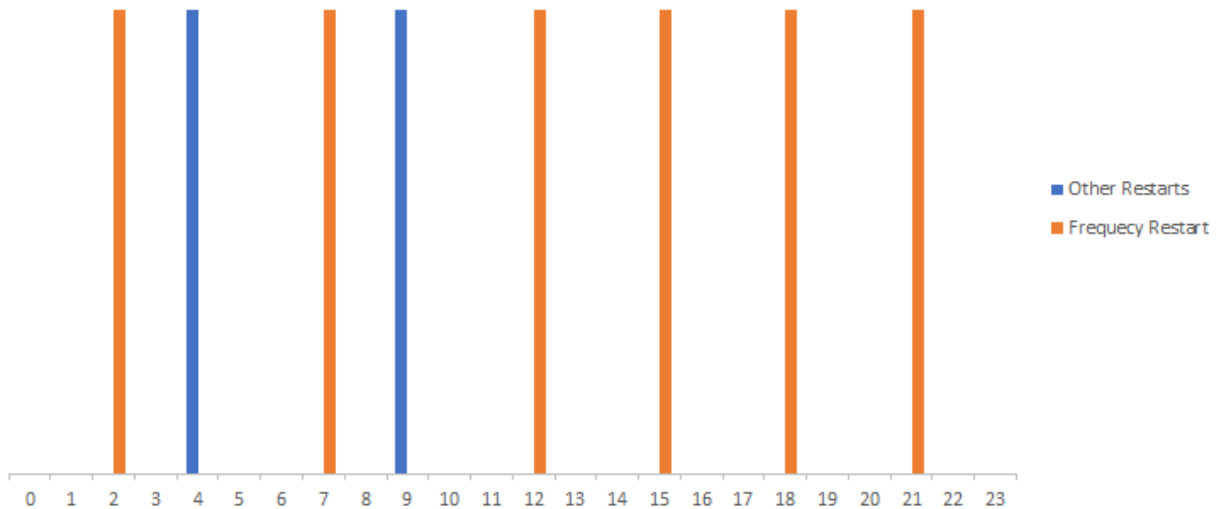
The Switch Always On device can do a restart on the exact Day and Time of the week needed. If the day and time occurs while the Switch Always On device is performing a restart caused by other events, the Day & Time restart won't take place.

- **Time:** Time of day
- **Day of week:** The day(s) where the restart profile will get executed.
- **Port Delays:** Similar to Manual Restart.
- **(\*) Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile

### (\*) Time Interval

The Switch Always On can restart on a specific interval. The allowed value of this interval ranges between 10 minutes to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).

The Time Interval restart profile will count from the last execution of ANY profile. The below example is for a device that is configured to restart every 3 hours, and has other Restarts in between which will delay the frequency restarts.



- **Restart Frequency:** The max time between Switch Always On restarts using this restart profile. The allowed value is between the minimum of 10 minutes and max port delay up to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).
- **Port Delays:** Similar to Manual Restart.
- **Enable Profile:** To enable the auto restart functionality.
- **(\*) Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile

**(\*) No Wi-Fi Available**

If Wi-Fi is enabled, the Switch Always On device can monitor IT equipment, such as routers and access points, verifying the existence of the Wi-Fi network to which these devices are configured. Switch Always On will passively scan the available Wi-Fi networks verifying the existence of a

network without the need to connect. The Switch Always On device supports 802.11 b / g / n. When enabled, this profile triggers when the monitored Wi-Fi network goes down.

By default, the Wi-Fi network monitored is the configured Wi-Fi network under Wi-Fi Network Settings. It's possible to monitor a different network by checking the option "Use a different network than the default".

**Use a different network than the default**

**SSID**

**BSSID**

As a common use case, when the Switch Always On device powers two APs, one for Guest and another for Business, the Switch Always On device can be configured to connect to the critical network (Business), however it can monitor the Guest Network if it stops.

- **Wait Time Before Restart:** The wait period before the auto restart will run after the monitored Wi-Fi network has failed the probe request. The allowed value is between 2 minutes and 12 hours.
- **Restart Frequency:** In case the Wi-Fi is not recovered after the first restart, how often should the auto restart be executed? The allowed value is between the minimum of 10 minutes and max port delay up to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).
- **Port Delays:** similar to Manual Restart.
- **Use a different network than the default:** When enabled, Switch Always On will monitor the Wi-Fi network configured.
- **SSID:** User defined network name (Service Set Identifier)
- **BSSID:** (Optional) In case the same network name (SSID) for other access points are available, BSSID (Basic service set identifiers) can be set to let Switch Always On monitor that specific AP.
- **(\* Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile

## (\*) Custom Connectivity Check 1 & 2

If a network/web service endpoint can not be reached for more than a set period, a power cycle is repeated every set period until the host becomes accessible.

- **Wait Time Before Restart:** The wait period before the auto restart will run after the endpoint is not reachable. The allowed value is between 1 minute and 12 hours.
- **Restart Frequency:** In case the endpoint is not reachable after the first restart, how often the auto restart should be executed. The allowed value is between the minimum of 10 minutes and the maximum of port delays and up to 24 hours. It is important to note that the value has to be greater than (the max of the port delays + 1 minute).
- **Port Delays:** Similar to Manual [Restart](#).
- **Enable Profile:** To enable the auto restart functionality. The Device Wi-Fi or Ethernet has to be enabled to enable this profile.
- **Restart behavior upon AC power loss:** the following options are available in case of AC Power Loss
  - Keep Restart Profile enabled
  - Keep Restart Profile enabled while none of the ports shut off. If any of the ports shut off because the remaining battery % reached a set value, or AC Power is lost (configured in [Port Config](#)), the Restart Profile will be disabled.
  - Disable Restart Profile
- **Disable when Wi-Fi and Ethernet are down:** This restart profile can be disabled when Wi-Fi and Ethernet are down.
- **Check Frequency:** How often the network check will be applied.
- **Check Method:** Choose a method (protocol) to check the accessibility of a host on the IP network. The methods (protocols) available are:
  - ICMP ECHO: performing a network ping to a specific endpoint to check reachability to it.
  - HTTP: Performing HTTP GET , the device can be configured to consider the endpoint reachable if the HTTP code 200 (OK) is received or with any HTTP code response.
  - TCP: performing a TCP connection, if the end point accepts the connection it's considered reachable, the device can be configured to connect to a specific port.
  - SNTP: performing Simple Network Time Protocol on a specific endpoint to check reachability.
- **IP Address:** the endpoint IP4 address or url.



## Network Settings

### (\*) Setup Network SSID

It shows Switch Always On Setup Network name (SSID). In case the setup network is “on” and the setup is completed --> turn off the setup network either by SW/Web or by pushing the access button for 25 seconds.

### (\*) Enable Ethernet

Ethernet connection will be enabled by default, if the Switch Always On doesn't need to access the Ethernet Network it can be disabled.

### (\*) IP Settings

Usually a device obtains IP addresses from router/Access Point using the DHCP protocol. A Switch Always On device user can also assign the device a fixed IP address (Static IP).

- **Ethernet IP Assignment:** After clicking the **Edit** button, select the **Manual** IP assignment method from the drop-down list. The user also needs to specify the following static IP Address, the Netmask, and the Gateway.
- **IP Address:** the static IP address.
- **Netmask:** the local network mask.
- **Gateway:** the local network gateway IP address.

#### **Additional notes:**

- Ethernet IP Assignment is available if:
  - The Switch Always On device is connected and online.
  - The Enable Ethernet toggle is **on**, and the user has write access to it.
- The values of the IP Address, Netmask, and Gateway are subject to applicable validation rules.

Upon saving the above fields, a device restart is required for the changes to take effect.

## Wi-Fi Networks

### **Enable Wi-Fi**

If the Switch Always On device doesn't need to access a Wi-Fi network, the Wi-Fi can be disabled.

### **Available Networks**

Scan available Wi-Fi networks. A list of available networks will be listed by order of signal strength.

### **Wi-Fi Access SSID**

The network name (Service Set Identifier) the Switch Always On device connects to.

### **Wi-Fi Access Password**

The network password the Switch Always On device connects to. In case of an open network, leave this field empty.

### **(\* Wi-Fi Access BSSID (Optional))**

In case the same network name (SSID) for other access points is available, a BSSID (Basic Service Set Identifiers) can be set to let the Switch Always On device connect to that specific AP.

### **(\* IP Settings)**

Usually a device obtains IP addresses from router/Access Point using the DHCP protocol. A Switch Always On device user can also assign the device a fixed IP address (Static IP).

- **IP Assignment:** After clicking the **Edit** button, select the **Manual** IP assignment method from the drop down list. The user also needs to specify the following static IP Address, the Netmask, and the Gateway.
- **IP Address:** the static IP address.
- **Netmask:** the local network mask.
- **Gateway:** the local network gateway IP address.

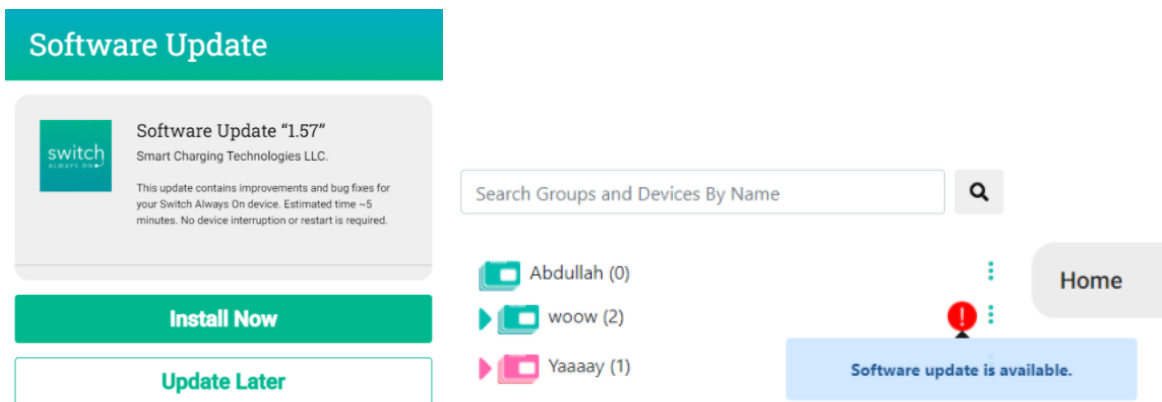
### **Additional notes:**

- IP Assignment is available if:
  - The Switch Always On device is connected and online.
  - The Enable Wi-Fi toggle is **on**, and the user has write access to it.
- The values of the IP Address, Netmask, and Gateway are subject to applicable validation rules.
- Upon saving the above fields, a device restart is required for the changes to take effect.
- In case the user changed the Wi-Fi network (new network SSID, or BSSID), and the IP Assignment was Manual, i.e. Static IP:
  - The IP Assignment is reset to Automatic(DHCP).
  - The user is offered to change the IP Assignment to Manual and restart the device.

## Actions

### Update Firmware

The Switch Always On team is always adding new features, enhancing and fixing bugs. If the Switch Always On device is connected to the Switch Always On Cloud, the firmware updates will be automatically offered, once on login, to the device owner or to a user with proper shared permission, for application to the device once they become available. The user may choose to apply the update immediately or later. In case the user chooses to update the device at a later time, an alert will be placed next to the device's group. When the alert is clicked, the user will be offered to apply the upgrade.



However, if the user is eager to get the new features or your Switch Always On device is used only for offline application, pressing the Update Firmware will update the Switch Always On device firmware to the latest version. If the button is not visible, it means that either you don't have the latest Mobile App version or your Switch Always On device does have the latest version.

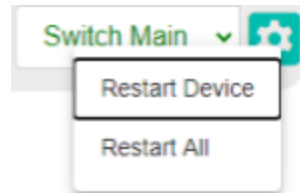
### Restart Device

Triggers a full power cycle of the Switch Always On device without any port sequencing preferences.

### Restart All

Triggers a full power cycle of the Switch Always On device with port sequencing preferences set in the Total Power Loss Restart Profile.

**Note:** In the Web Application, restart actions are located on the device gear option next to device name.



### Update Password

The Switch Always On device can be protected with a password to prevent unauthorized access. Even though Switch Always On and its cloud communication software are secured with various encryption mechanisms, any user using the same network as the Switch Always On device can access it. It's highly recommended to set up a device password to prevent unauthorized access.

### Event History

Lists all events for a Switch Always On device. The history events include:

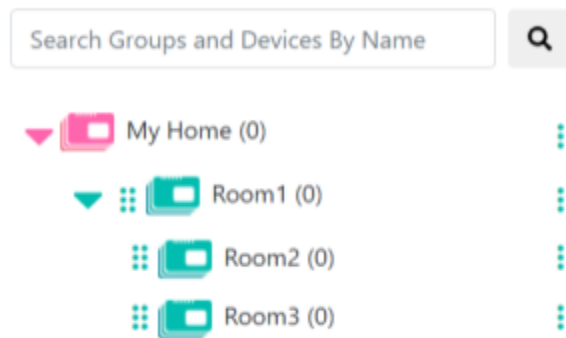
- **System Start:** Indicates that the Switch Always On device starts monitoring. This happens after a restart action, firmware update, full power loss and recovery, and factory reset.
- **Port Restart:** Indicates a Restart Profile has been executed.
- **Port On/Off:** Indicates a port has been turned On or Off. This happens when the AC Interrupted or Low Battery if configured under Port Config.
- **Connectivity Status:** Indicates if both Wi-Fi and Ethernet connection has been lost or recovered access to the internet.
- **AC Status:** Indicates if AC has been interrupted or recovered.
- **Port Fault:** Indicates if one of the ports has shorted/failed.
- **(\*) Restart Device:** Indicates that the Switch Always On device was restarted without running the Total Power Loss Restart Profile.
- **(\*) Factory Reset:** Reset Switch Always On device to the factory settings.
- **Restart All:** Indicates that a full power cycle of the Switch Always On device was executed, with port sequencing preferences set in the Total Power Loss Restart Profile.
- **Battery Drop:**
  - *Detected:* Indicates that the Switch Always On device backup battery went below ~20% of its capacity.
  - *Recovered:* Indicates that the Switch Always On device backup battery went above ~20% of its capacity.

### Notes

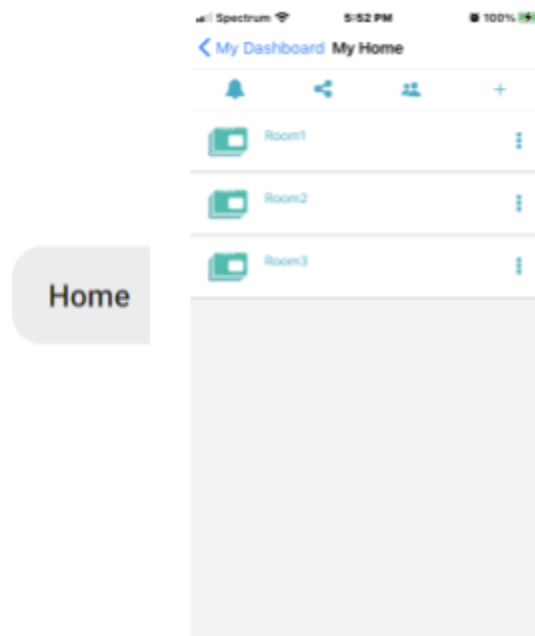
(\*) User notes can be added on each device through the Mobile and Web Applications.

# Dashboard Home Page

The main dashboard page contains the user home group and any groups shared with the user.



Web View



Mobile App

# Group Management

The user can manage Switch Always On devices in Groups. Groups are like desktop folders where other folders and files can be created. Switch Always On folders are called Groups and files are the Switch Always On devices.

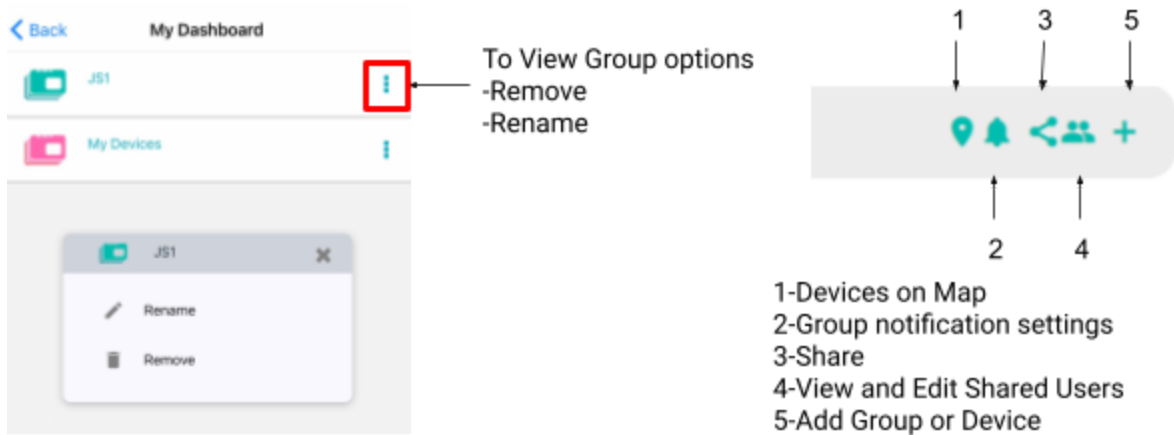
Groups can be added, moved, renamed, deleted, removed/rejected, viewed on a map, have specific notification settings, and shared with other users.

The Group Management capability makes the Switch Always On, device and application, ideal for managing Switch Always On devices on remote sites. A hierarchy of remote sites can be mapped and grouped into regions, where each region has multiple sites, each site has multiple Switch Always On devices, and each device is providing the Smart UPS capability to IT Equipment.

Assuming the presence of a Network Operation Center (NOC), the application allows you to monitor, manage, and control AC power, provided to IT equipment at remote sites, from the NOC.

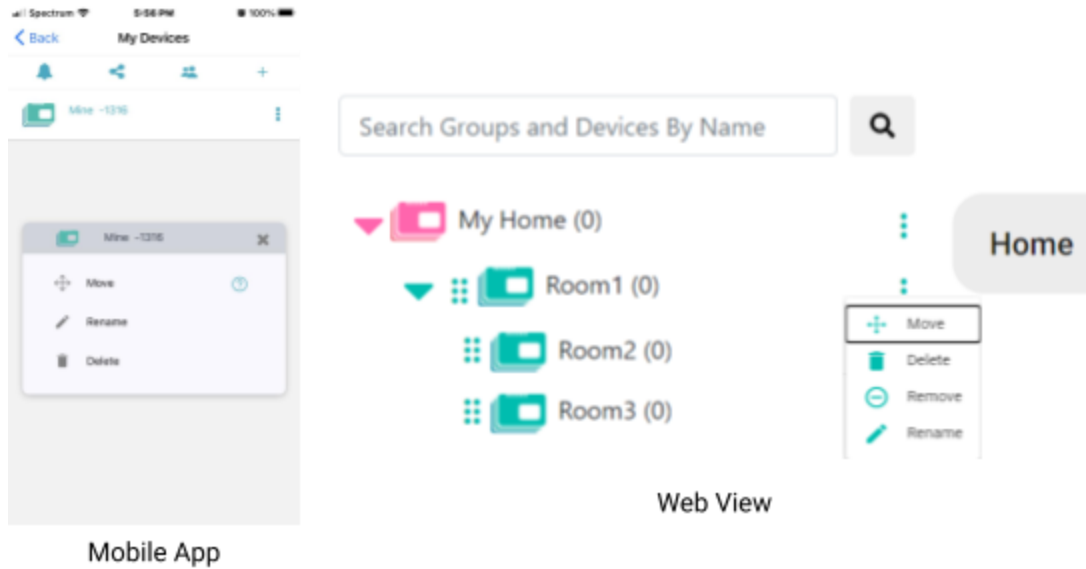
## Group Operations

Group Operations are divided between two locations. One selection is adjacent to the group name, to the right, affecting that particular group (:). The other selection is to the right of the Group path panel, affecting specific group(s) in a selected path.



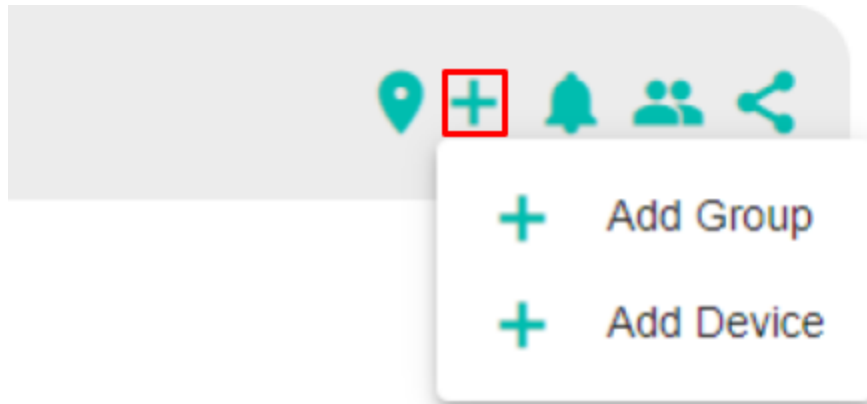
### Operations Accessed by (:)

- **Move:** The user can move a group for organizing purposes, unless it is the Home Group. A top level shared group can not be moved, however, its shared subgroups can be moved if access permissions allow it. A "Move" is allowed provided that the resulting number of nested group levels does not exceed three.
- **Remove:** Use "Remove" to reject a shared Group. The operation "Remove" is available only with shared groups.
- **Rename:** The user can rename the Group. If it is a shared group, the user can rename it if access permissions allow it. Renaming a group or a subgroup to the name "My Devices" is not allowed; the name is reserved for application use.
- **Delete:** The user can delete a group, unless it is the Home group. If it is a shared group, the user can delete it if access permissions allow it.

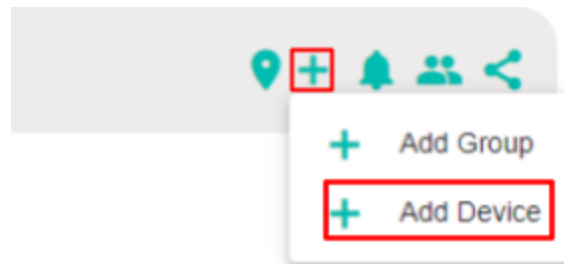


### Operations by a Specified Group Path

- **Devices On Map:** Group devices can be viewed on a map by clicking the location icon.
- **Add Group:** The user can add a new Group by clicking on the add icon (+). A new Group can be added to a shared group, if the user's access permissions allow it. An "Add" is allowed provided that the resulting number of nested group levels does not exceed three. An "Add" is also allowed provided that the resulting number of groups does not exceed one hundred. Adding a group or a subgroup with the name "My Devices" is not allowed; the name is reserved for application use..Note: It's not allowed to add groups directly on the Dashboard.



- Add Device:** There are two ways to add a device. One, from the Mobile App using the Quick Setup procedure, which is highly recommended, and the other being the Add Device operation in the Web App. In this case, the user gets the MAC Address and the Device Token printed on the Switch Always On device label and enters them manually.



### Add Device

MAC Address

Device Token

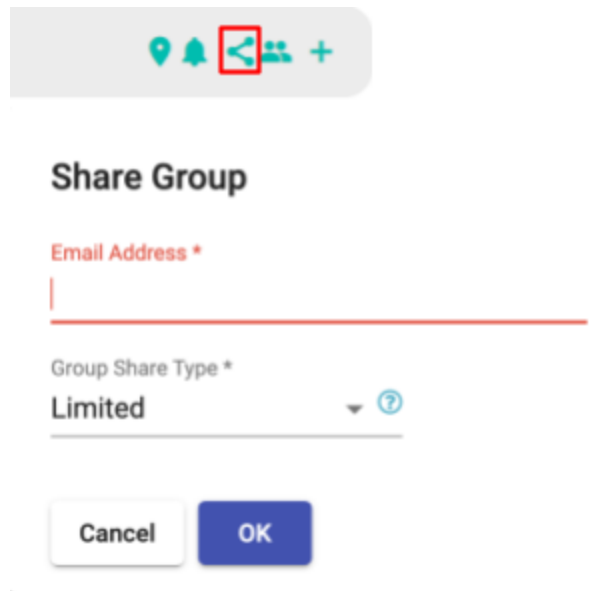
Device Name

Cancel

OK



- Share Group:** To share a Group with a user, you need to have the user's email address used in Switch Always On Cloud. If the user is not registered, an email invitation will be sent.



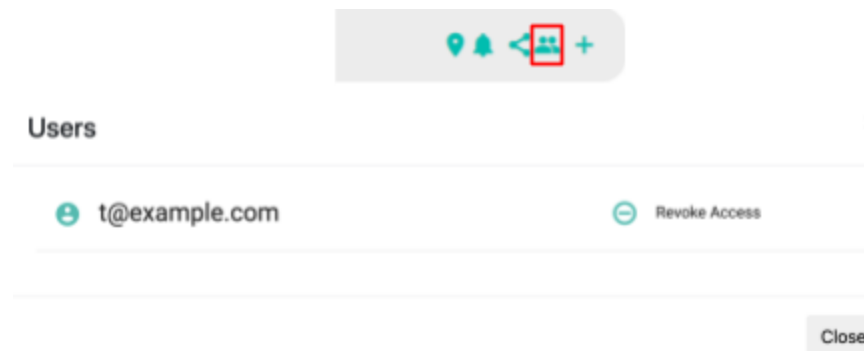
Also, to share a group with a user, the resulting number of groups that user has access to, can not exceed 100 groups.

There are 4 types of Group Sharing: Limited, Basic, Advanced, Full. The following matrix defines the permissions of each type.

Group Sharing Type	Info	Quick View	View device settings	edit Wi-Fi Networks	Receive notifications	Configure Group notifications	Add devices	Move-out device	Add/delete groups	Edit device settings, except PWD	Update Firmware	Edit PWD	Perform all actions	Remove group owner
Limited	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Basic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Full	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- **View and Edit Shared Users:** By clicking on the “View and Edit Shared Users” icon, the user will be able to remove users who have been shared with previously or edit the type of sharing.

**Note:** When sharing with non registered users, the invitee email address will be shown without the ability to change permissions until the user registers.



- **Notification Settings:** The Group’s Notification Settings allow the user to customize their notifications for that specific group and any child group and devices it contains. The group Notification Settings along with user Notification Settings will control what notifications will be received. Check user Notification Settings for more details.

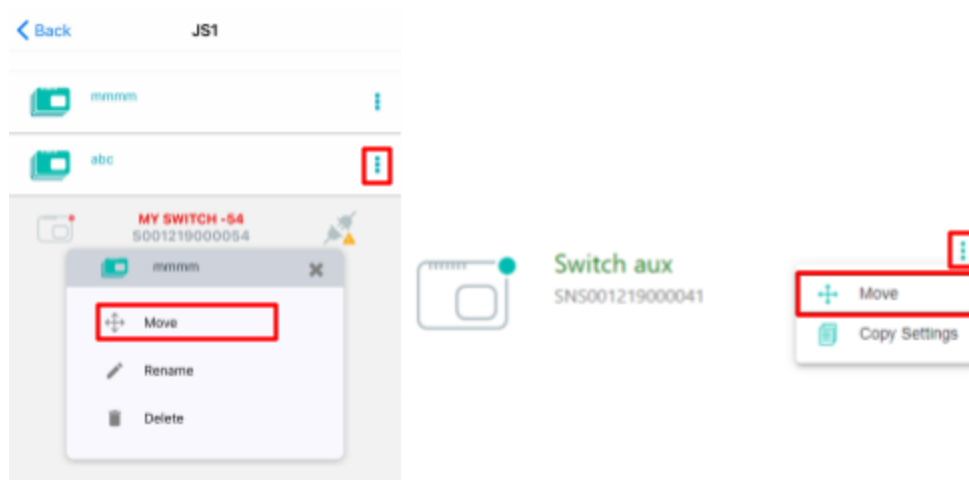


## Device Operations

There are few operations that can be used to manage devices in the Cloud.

### Move Devices Between Groups

The user can Move Devices between Groups or Shared Groups (if assigned Group Share type allows it).

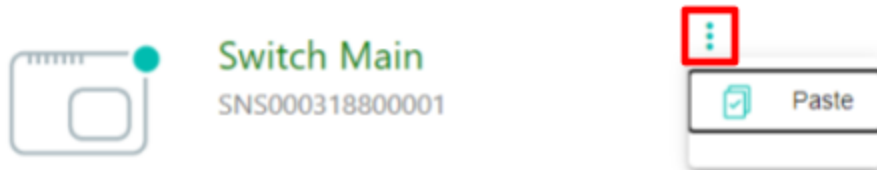


### Copy Settings

This operation allows the user to copy one device setting to another device, in case there are multiple devices.



To paste the settings click on the 3 dots (:.) on the target device:



The following Device Settings will be copied:

- Device Password
- Wi-Fi Network
- Restart Profiles
- Port Configuration
- Enable/disable Wi-Fi and Ethernet

## Search Group & Devices by Name

This operation allows the user to search for groups and devices by name. In case there is a large number of items resulting from the search, the result is broken into multiple pages, with a limit of 20 items per page. The user can move back and forth between the resulting pages.

## Notification Settings

These are settings that control what notifications are sent to the user given certain events. Except for Connectivity Lost notification, a notification will only be sent when the device is connected to Switch Always On Web App.

### User Notifications and Group Notifications

For any device, the notification settings are inherited from both user and group settings. The user notifications can be accessed from Notification Settings. The group notifications can be accessed from Group Operations/Notification Settings. To receive a notification, both the user and group notification settings have to be enabled. By default, all notifications are disabled.

[Profile ?](#)

[Notification Settings ?](#)

## Notification Settings

AC Interrupted ?	<input checked="" type="checkbox"/>	
AC Restored ?	<input type="checkbox"/>	
Connectivity Lost ?	<input checked="" type="checkbox"/>	
Connectivity Recovered ?	<input type="checkbox"/>	
Battery Drop ?	<input checked="" type="checkbox"/>	
Port Fault ?	<input type="checkbox"/>	
Restart Profiles ?	<input checked="" type="checkbox"/>	
Send to ?		<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No

## Notification Types/Events

### AC Interrupted

Whenever the Switch Always On Device detects an AC Interruption.

### AC Restored

Whenever the Switch Always On Device detects an AC Interruption and it's Restored.

### Connectivity Lost

Whenever the Switch Always On Cloud loses communication with the device more than Offline Wait Time (default of 2 minutes).

### Connectivity Recovered

Whenever the Switch Always On Cloud connects back after it loses communication with the device.

### Low Battery

Whenever the Switch Always On device backup battery goes below ~20% of its capacity

### **Port Fault**

Whenever the Switch Always On device detects a short on one of the DC outputs.

### **Restart Profiles**

Whenever the Switch Always On executes a restart profile.

## Settings

### Offline Wait Time

This setting defines the period of time, where the device is not connected to the Switch Always On Cloud, after which a “Connectivity Lost” notification can be sent. This setting is available by accessing the Group Notification Settings but not the user Notification Settings.

### Notification On (Mobile App only)

When enabled, the Mobile App can receive notifications, otherwise it won't.

### Send to (Web App only)

The user can choose a channel to receive notifications. Available options are Email and SMS. If the email or user phone number is not verified, the notification won't be sent. In addition to notifying the user of a certain event, the Email and SMS notifications contain a link through which the user can manage notifications. The SMS notification allows the user to stop receiving specific/all SMS notifications.

# Smart Charging Technologies LLC

## Limited Warranty

Smart Charging Technologies LLC (SCT) warrants the Switch Always On unit, when properly used and operated within specified conditions, against faulty materials or workmanship for a period of 1-year from the date of purchase. SCT further warrants internal Li-Ion batteries for a period of 1-year from the date of purchase. The warranty covers repair or replacement of the unit at the sole discretion of SCT. The customer is responsible for shipping costs associated with the defective product to SCT while SCT will pay for ground shipment of the repaired or replacement unit. This warranty applies only to the original purchaser.

This warranty shall be void if (a) the Switch Always On unit is repaired or modified by anyone other than SCT; or (b) the Switch Always On unit is damaged by the customer, subjected to adverse operating conditions, operated outside the electrical specification limits, or improperly used or stored (i.e. the unit has been used or stored in a manner contrary to the equipment's operating manual intended use or other written instructions).

EXCEPT AS STATED ABOVE, IN NO EVENT SHALL SCT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF SCT EQUIPMENT, including but not limited to, any costs, lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, or claims by third parties. Purchaser's sole and exclusive remedy for breach of any warranty, expressed or implied, concerning SCT equipment, and the only obligation of SCT under this warranty, shall be the repair or replacement of defective Switch Always On unit, components, or parts; or, at SCT's sole discretion, refund of the purchase price.