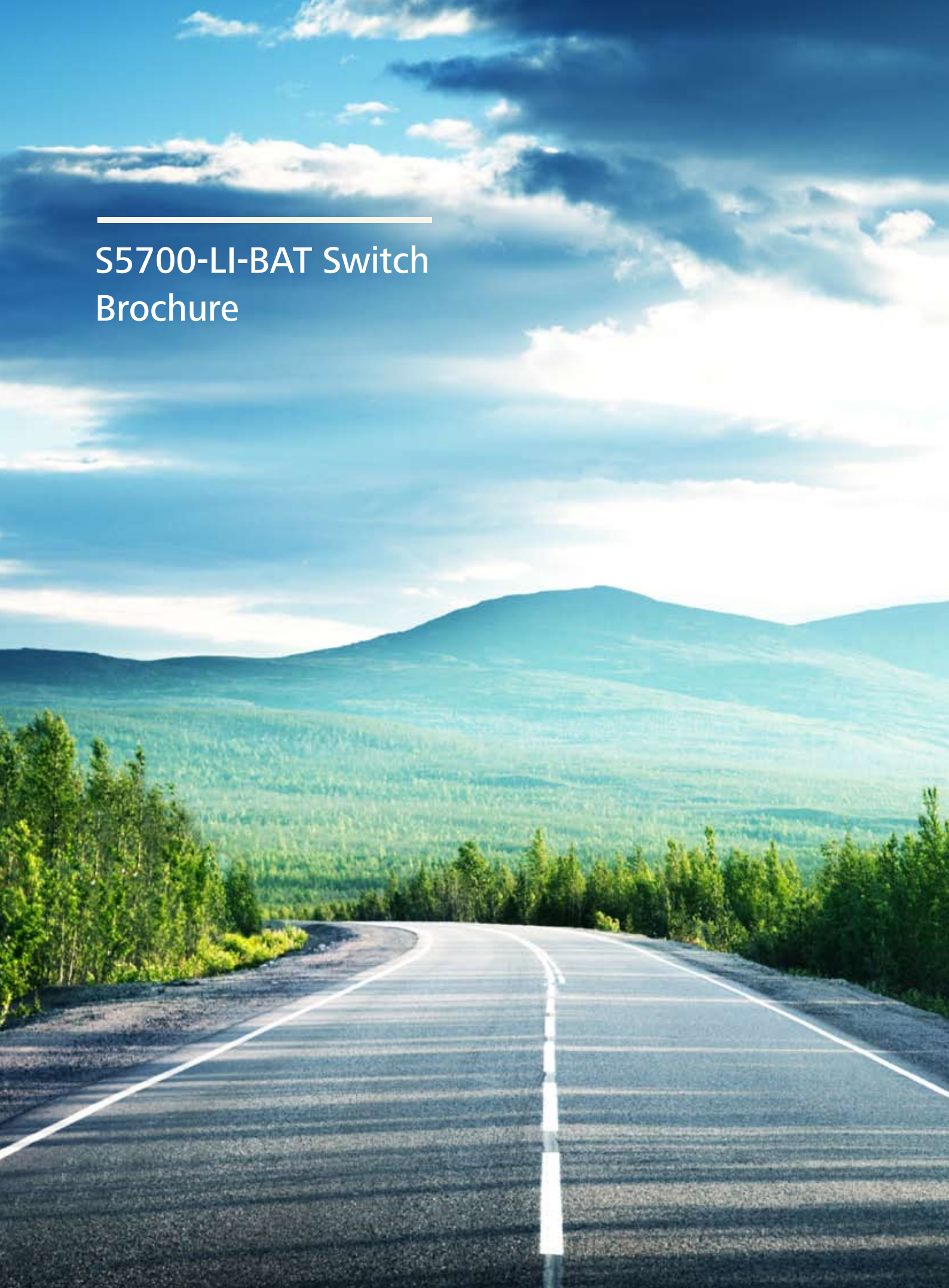


S5700-LI-BAT Switch Brochure



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Product Overview

Huawei S5700-LI-BAT series battery LAN switches (S5700-LI-BAT for short) are the industry's first switch series to support internal batteries, and can ensure uninterrupted services in an environment with frequent mains power failures.

The S5700-LI-BAT has the following advantages:

- The switch can be powered by the battery in case of a mains power failure, so the services will not be interrupted.
- Compared with switches using external power supply units, the S5700-LI-BAT occupies less space and is easier to install.
- The battery has a long power supply time and can be managed in an intelligent way.
- Battery LAN switches on the entire network can be managed centrally using a web system, facilitating network operation and maintenance. As the battery life time is predictable, you do not need to replace all batteries periodically, reducing hardware costs.
- The internal battery provides multiple alarm and voltage/current protection functions as well as overtemperature protection, which enhance reliability.

Product Models

The following table lists the S5700-LI-BAT models.

S5700-28P-LI-BAT



- 24x10/100/1000Base-T Ethernet ports, 4xGE SFP ports
- One battery slot available for an internal 4AH/8AH lithium battery or external lead-acid battery, AC power supply
- Forwarding performance: 42 Mpps

S5700-28P-LI-4AH



- 24x10/100/1000Base-T Ethernet ports, 4xGE SFP ports
- One battery slot with a pluggable 4AH lithium battery installed, AC power supply
- Forwarding performance: 42 Mpps

S5700-28P-LI-24S-BAT



- 28xGE SFP ports, 4xCombo 10/100/1000Base-T Ethernet ports
- One battery slot available for an internal 4AH/8AH lithium battery or external lead-acid battery, AC power supply
- Forwarding performance: 42 Mpps

S5700-28P-LI-24S-4AH



- 28xGE SFP ports, 4xCombo 10/100/1000Base-T Ethernet ports
- One battery slot with a pluggable 4AH lithium battery installed, AC power supply
- Forwarding performance: 42 Mpps

Product Features

Innovative internal battery design: high integration, space-saving, easy installation

- Employing internal battery management technology, the S5700-LI-BAT provides a battery slot, in which a lithium battery can be installed as a backup power supply. This unique internal battery design implements power redundancy without any external power supply. The highly integrated lithium battery helps saving space, and can be easily installed and replaced without affecting running services.

Intelligent power management, long power supply time

- Based on intelligent power management technology and advanced energy-saving technology, a lithium battery provides a power supply time as long as 11 hours.

Visualized, unified battery management, predictable life time, lower cost

- Batteries of all battery LAN switches on the entire network can be managed on a web system, and faulty batteries can be easily identified, facilitating battery management and maintenance. The advanced battery management algorithm guarantees an over 4 years of battery life time. The battery life time is predictable, and an alarm will be reported when the battery power supply time is shorter than the power supply time required by the live network. Then you can replace the battery before the life time ends to ensure normal operation of services. This eliminates the need for batch replacement of batteries on the entire network. Compared with external lead-acid batteries, internal lithium batteries can save more than 50% of cost. Additionally, each lithium battery has an indicator on the panel to show the battery status, helping you maintain the battery efficiently.

High reliability

- The lithium battery provides protection against charge overvoltage, charge overcurrent, discharge overcurrent, undervoltage, and short-circuit conditions. It can also report alarms in the case of charge overvoltage, charge overcurrent, discharge overcurrent, undervoltage, battery failure, and insufficient power supply time. Besides, the battery enters the overtemperature protection state when the temperature exceeds its operating temperature range, preventing battery damages caused by high temperature. These protection and alarm functions ensure a high reliability of the battery.

Product Specifications

Model Item	S5700-28P-LI-BAT S5700-28P-LI-4AH	S5700-28P-LI-24S-BAT S5700-28P-LI-24S-4AH
Fixed port	S5700-28P-LI-BAT/S5700-28P-LI-4AH: 24 10/100/1000Base-T Ethernet ports, 4 GE SFP ports S5700-28P-LI-24S-BAT/S5700-28P-LI-24S-4AH: 28 GE SFP ports, 4 Combo 10/100/1000Base-T Ethernet ports	
MAC address table	automatic MAC address learning and aging, and MAC address learning limitation on interfaces	
VLAN	Supports 4K VLANs, Guest VLAN, Voice VLAN, GVRP, MUX VLAN, VLAN Central Management Protocol (VCMP), and VLAN-Based Spanning Tree (VBST) protocol.	
Reliability	Supports RRPP, SmartLink, SEP, and ERPS (G.8032); supports STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)	
IP routing	Static route	
IPv6	Supports ND, PMTU, and MLD v1/v2 snooping (Multicast Listener Discovery snooping)	
Multicast	Supports IGMP v1/v2/v3 Snooping and fast leave, intra-VLAN multicast forwarding and multi-VLAN multicast replication, port binding and multicast load balancing, controllable multicast, and port-based multicast traffic statistics.	
QoS/ACL	Supports 8 queues per port, packet redirection, and interface rate limiting.	

Model Item	S5700-28P-LI-BAT S5700-28P-LI-4AH	S5700-28P-LI-24S-BAT S5700-28P-LI-24S-4AH
Security	Supports level-based user management and password protection; prevents DoS, ARP, and ICMP attacks. Supports IEEE 802.1x authentication and CPU protection. Supports 802.1x authentication, MAC address authentication, and combined authentication on a per port basis, as well as Portal authentication on a per VLANIF interface basis.	
Access Security	Supports DHCP relay, DHCP server, DHCP snooping, and DHCP security.	
Lightning protection	Service port: 6 kV	
Management and operation	Supports automatic configuration, SNMPv1/v2/v3, eSight, and web-based NMS; Supports Virtual Cable Test (VCT) and 802.3az EEE.	
Operating environment	Long-term operating temperature: 0°C to 45°C Relative humidity: 5% to 95% (noncondensing)	
Input voltage	AC: Rated voltage range: 100 V to 240V AC, 50/60Hz Maximum voltage range: 90 V to -264V AC, 47/63Hz	
Battery slot	One slot for lithium battery or lead-acid battery charger module	
Battery type	Supports internal BAT-4AHA and BAT-8AHA lithium batteries and external lead-acid batteries (connected to the lead-acid battery charger module in the battery slot).	
Battery management	Displays and manages battery status through the web network management system	
Battery protection	Protects the batteries that are charging against overtemperature when operating temperature is lower than -5°C or higher than 55°C; protects the batteries that are discharging against overtemperature when operating temperature is lower than -10°C or higher than 65°C; provides protection against charge overvoltage, charge overcurrent, discharge overcurrent, undervoltage, and short-circuit.	
Battery alarm	Provides alarms for charge overvoltage, charge overcurrent, discharge overcurrent, undervoltage, battery faults, and battery insufficient power supply time.	
Dimensions (WxDxH)	442mm x 310mm x 43.6mm	
Power consumption	S5700-28P-LI-BAT/S5700-28P-LI-4AH: <23W S5700-28P-LI-24S-BAT/S5700-28P-LI-24S-4AH: <34.1W	

Lithium Battery Specifications

Model Item	BAT-4AHA	BAT-8AHA
Power redundancy	The batteries are installed in the switches to provide power redundancy. When the mains power supply fails, the batteries power the switches to ensure uninterrupted services.	
Typical power supply time ^{Note 1}	S5700-28P-LI-BAT: 4.1 hours S5700-28P-LI-24S-BAT: 2.1 hours	S5700-28P-LI-BAT: 8.2 hours S5700-28P-LI-24S-BAT: 4.2 hours
Hot swapping	Support	
Life time ^{Note 2}	> 4 years	
Dimensions (WxDxH)	100mm x 205mm x 40mm	

Item \ Model	BAT-4AHA	BAT-8AHA
Weight	0.8 kg	
Maximum discharge power	50W; typical value: 40 W	80W; typical value: 45 W
Charge environment temperature	0°C to 45°C	
Discharge environment temperature	-5°C to 50°C	
Storage temperature	-20°C to 60°C Recommended: 20°C to 30°C	
Relative humidity	5% to 95%, noncondensing	
Operating altitude	0m to 5000m	
Max storage time	6 months (< 40°C). When the maximum storage time expires, the battery needs to be charged.	

Note 1:

1. The maximum power supply time is tested when 70% ports are Up, each port carries 10% traffic load, and EEE is enabled on electrical ports.
2. Power supply time of BAT-4AHA with minimum power consumption: S5700-28P-LI-BAT > 5.6 hours, S5700-28P-LI-24S-BAT > 4.1 hours. Power supply time of BAT-8AHA with minimum power consumption: S5700-28P-LI-BAT > 11.2 hours, S5700-28P-LI-24S-BAT > 8.3 hours.
3. The power supply time will be reduced when a battery is used for a long time.

Note 2:

The life time is tested when the ambient temperature is between 20°C and 30°C, and the battery discharge capacity exceeds 50% no more than 2 times each day.

Precautions

The following are the requirements for battery use, replacement, storage and transportation.

Use and Replacement:

- Turn off a lithium battery: When a switch has a lithium battery installed, the lithium battery can supply power to the switch if the power supply is turned off. To power off the switch, turn off the lithium battery after turning off the power supply.
- Each lithium battery and lead-acid battery has a specific service life. Before the service life of a battery expires, replace the battery to ensure normal operation of the switch.
- For a lithium battery, if the time of consuming 90% electric quantity is shorter than the power supply time alarm threshold, the battery cannot meet power supply requirements. The switch generates an alarm so that customers can replace the battery timely.
- Before replacing a battery, ensure that the switch is not powered by this battery. Otherwise, services on the switch will be interrupted by a power failure when the battery is removed.

Storage:

- The maximum storage time of a fully charged lithium battery is 6 months ($< 40^{\circ}\text{C}$). When the maximum storage time expires, the battery must be charged.
- The storage environment must be free from acidic, alkaline, or other corrosive gases.
- The storage temperature for lithium batteries must be in the range of -20°C to $+60^{\circ}\text{C}$, and the recommended range is 20°C to 30°C .
- Keep the batteries away from direct sunlight and more than 2 m from heat sources.
- Do not place a battery upside down and avoid collision or stress on the battery.

Transportation:

- Batteries must be securely packaged during transportation.
- The packages must be protected against rain, snow, and crashes during transportation.

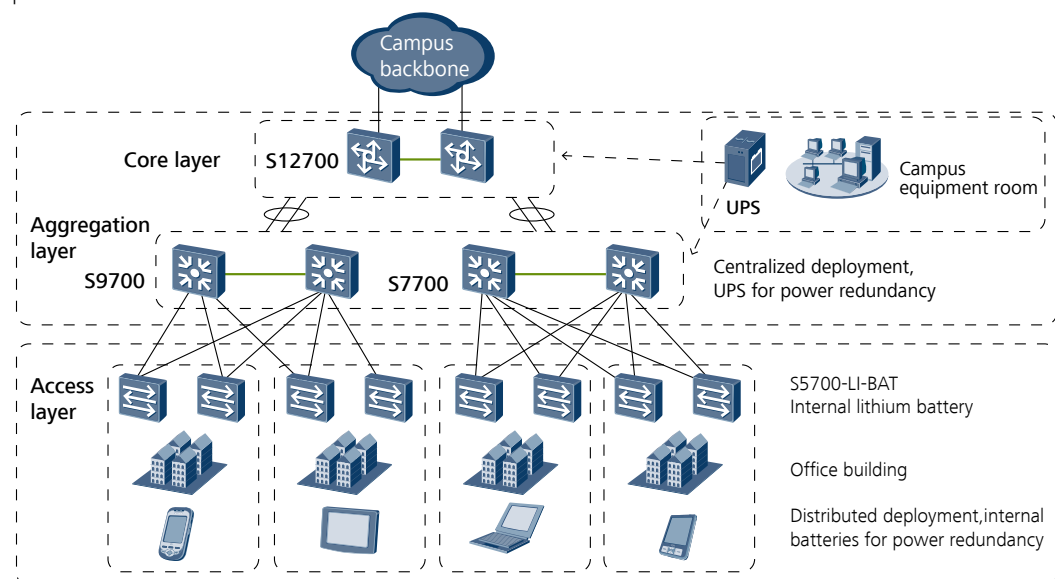
Note: When the battery life time ends, do not toss the battery together with household garbage. Dispose the old batteries according to the local laws and regulations.

Application Scenario

If the mains power grid in an area is unstable, a network will experience frequent power failures. Generally, the core and aggregation layers of a campus network are deployed in an equipment room. Uninterruptible Power Supplies (UPSs) can be deployed in the equipment room to provide power redundancy for the switches and servers. User terminals like laptops, mobile phones, and tablets have batteries and can work in a power failure situation.

However, power redundancy for access switches is a challenge. Access switches are usually distributed on different buildings and floors; therefore, it is costly and space-consuming to deploy high-quality UPSs for the access switches. Low-end UPSs or external lead-acid batteries can provide power redundancy at lower costs, but they have low reliability and security, short life time, and also occupy much space.

Huawei battery LAN switches solve this problem. Battery LAN switches use an internal lithium battery as the backup power supply. When a mains power failure occurs, the lithium battery automatically starts to power the switch. When the mains power supply recovers, the mains power supply automatically charges the lithium battery on the switch. The use of internal batteries ensures stable operation of the access layer upon power failures.



Ordering Information

Ordering information of S5700-LI-BAT:

Model	Description	Remarks
S5700-28P-LI-BAT	24x10/100/1000Base-T Ethernet ports, 4xGE SFP ports, 1 battery slot, AC power supply	
S5700-28P-LI-4AH	24x10/100/1000Base-T Ethernet ports, 4xGE SFP ports, 1 internal 4AH lithium battery, AC power supply	S5700-28P-LI-BAT has an internal 4AH lithium battery bundle.
S5700-28P-LI-24S-BAT	28xGE SFP ports, 4xCombo 10/100/1000Base-T Ethernet ports, 1 battery slot, AC power supply	
S5700-28P-LI-24S-4AH	28xGE SFP ports, 4xCombo 10/100/1000Base-T Ethernet ports, 1 internal 4AH lithium battery, AC power supply	S5700-28P-LI-24S-BAT has an internal 4AH lithium battery bundle.
BAT-4AHA	4AH (chargeable lithium battery)	
BAT-8AHA	8AH (chargeable lithium battery)	
PBB-12AHA	12AH lead-acid battery charger module	Installed in the battery slot, and used together with an external lead-acid battery (separately purchased).
CBTS3400	Battery temperature sensor	Used for temperature compensation when the lead-acid battery is charged.
ES0W2PSA0150	150W AC power module	If the battery LAN switch does not use the battery as the backup for the mains power supply, this AC power module can be installed in the battery slot for power redundancy.
ES0W2PSD0150	150W DC power module	If the battery LAN switch does not use the battery as the backup for the mains power supply, this DC power module can be installed in the battery slot for power redundancy.

For more information, visit <http://enterprise.huawei.com> or contact the local Huawei sales office.

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