

# 5-Port Solar PoE Switch with 1-Port 1000X SFP

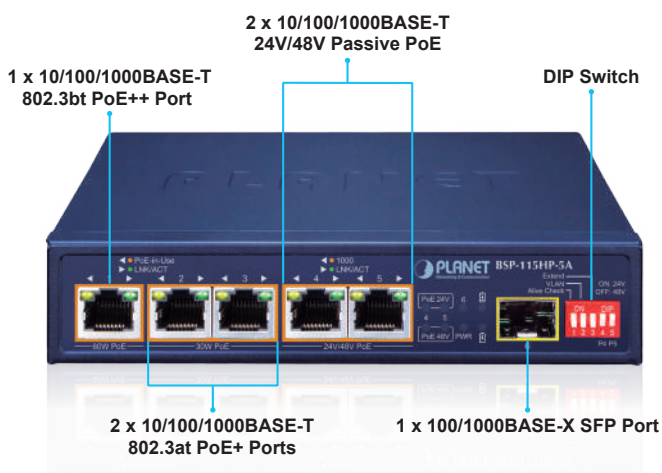


### Industry-leading Integration of PoE Technology and Renewable Power System

PLANET's newly-launched Renewable Energy Industrial PoE Ethernet Switch, the BSP-115 Series, can be charged by the inexhaustible and natural source of energy, such as solar, wind and hydroelectric power to conserve energy so as to economically power these remote IP cameras and wireless APs.

The BSP-115 Series is equipped with 5 10/100/1000BASE-T copper ports supporting PoE injector function, a total PoE power budget of up to 65/120 watts and 1 extra 100/1000BASE-X SFP fiber port especially used for such expansive applications as dams, forests, deserts, national parks, nature/animal protection areas and highways. It is designed to efficiently handle power distribution for a versatile array of connected devices which meet the Environmental, Social, and Governance (ESG) principles. Leveraging cutting-edge IP-based technology, PLANET has transformed conventional Power Over Ethernet (PoE) into genuine networking devices that align with sustainable and responsible business practices.

#### ■ BSP-115HP-5A (65W) Front Panel



### Physical Port

- Five 10/100/1000BASE-T Gigabit RJ45 copper ports
- One 100/1000BASE-X SFP slot for SFP type auto detection

### Power over Ethernet

- **Model: BSP-115HP-5A**
  - Port 1 supports 802.3bt 60-watt PoE++ injector function
  - Ports 2 to 3 support 802.3at 35-watt PoE+ injector function
  - Ports 4 to 5 support 24V (passive)/48V 802.3at PoE+ injector function
  - 65-watt PoE budget
- **Model: BSP-115PV-15A**
  - Up to 5 ports of IEEE 802.3at devices powered
  - Supports PoE power up to 35 watts for each PoE port
  - 120-watt PoE budget
- Complies with IEEE 802.3at Power over Ethernet Plus end-span PSE
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m in standard mode and 250m in extend mode
- PoE management
  - Total PoE power budget control
  - PD alive check

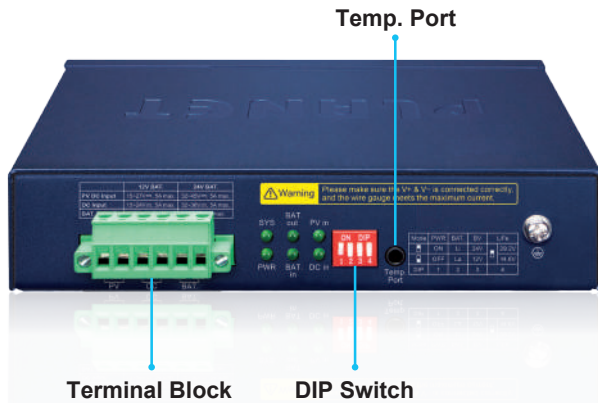
### Smart LCD (For BSP-115PV-15A only)

- Displays solar input voltage and current power
- Displays battery voltage and current power
- Displays PoE current power
- Displays battery remaining and remaining charging time
- Displays temperature and humidity information

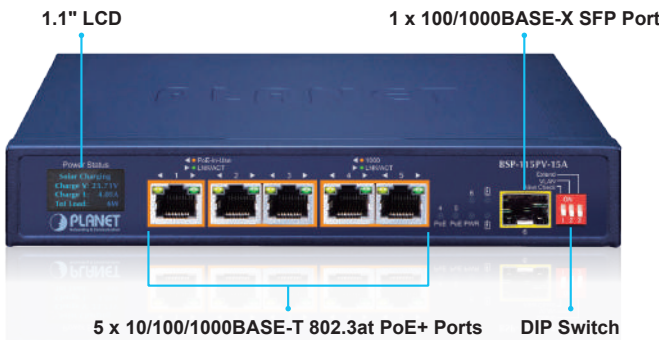
### Battery Management

- Battery type option: Lithium battery, lithium iron battery or lead-acid battery
- Easy diagnostic of the system operating status via LED indicator
- Current battery usage status
- Maximum Power Point Tracking Charge Controller (For BSP-115PV-15A)

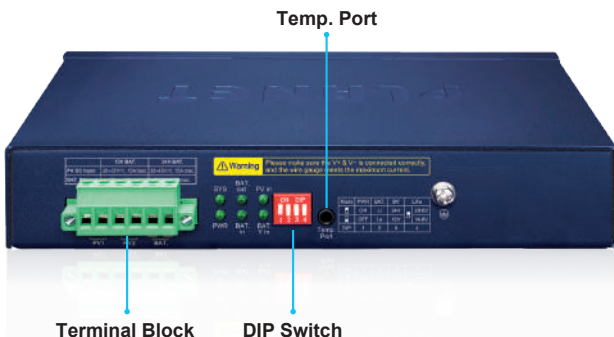
■ BSP-115HP-5A (65W) Rear Panel



■ BSP-115PV-15A (120W) Front Panel



■ BSP-115HP-5A (65W) Rear Panel



- Reverse current protection to prevent the current circuits from flowing back to the PV panel
- Over-current protection
- Reverse polarity protection (for battery and charging electrodes)

Case and Installation

- IP30 metal case
- Desktop and wall-mount designs
- Supports -20 to 65 degrees C operating temperature
- Supports ESD 4KV contact and 8KV air DC Ethernet protection
- Supports surge protection up to 2KV

Power Requirements

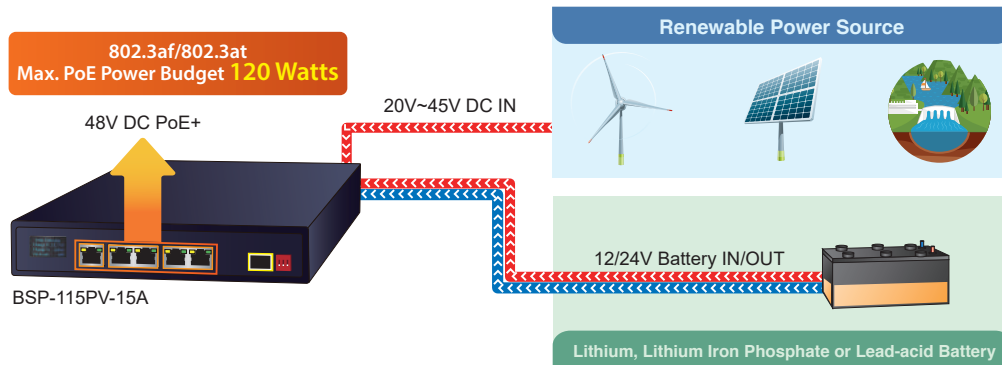
- **For BSP-115HP-5A**
  - Supports 15-27V solar panel input (open circuit voltage) with 12V battery, maximum solar panel input power of 135W, and maximum circuit 5A.
  - Supports 32-45V solar panel input (open circuit voltage) with 24V battery, maximum solar panel input power of 225W, and maximum circuit 5A.
  - Supports 15~24V DC input with 12V battery.
  - Supports 32~36V DC input with 24V battery.
- **For BSP-115PV-15A**
  - Supports 20-27V solar panel input (open circuit voltage) with 12V battery, maximum solar panel input power of 405W, and maximum circuit 15A.
  - Supports 32-45V solar panel input (open circuit voltage) with 24V battery, maximum solar panel input power of 675W, and maximum circuit 15A.

Switching

- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 2K MAC address table size
- 10K jumbo frame
- SFP slot supports dual speed, 100BASE-FX and 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules.
- The distance can be extended to 2km (multi-mode fiber) and to 120 kilometers (single-mode fiber or WDM fiber).

**Zero-Carbon and Stable Power Supply**

The 12V/24V lithium, lead-acid or lithium iron battery gets recharged by way of the BSP-115 Series where solar power is sourced. Thus, the BSP-115 Series will keep powering PDs like wireless PoE AP without a cable and a wired camera connected to its port with a UTP cable. Its zero-carbon feature is made possible as the energy the unit gets is renewable. Most importantly, the operation of outdoor wireless IP-based surveillance can be continued into the night as the battery is charged during the day.



**Multi-functional Solar PoE Switch that Supports PV, DC, and Battery Simultaneously**

The Solar PoE Switch is a versatile device that supports simultaneous applications of solar (PV), DC (For BSP-115HP-5A only), and battery power. It utilizes advanced solar charging control technology, even the voltage is different from DC input. It efficiently converts solar energy into power and provides stable and reliable DC power supply. It is ideal for applications requiring eco-friendly and energy-efficient solutions, such as remote communication base stations, surveillance systems, and network cameras. Its flexible design not only reduces operational costs but also diminishes reliance on traditional energy sources, thereby reducing environmental impact. The Solar PoE Switch represents not just technological innovation but also a substantial contribution to sustainable development, offering the applications a more stable and dependable energy solution.



**Smart Battery Management**

The BSP-115 Series features the following special power management functions:


- Current battery usage status by percentage
- Over budget PoE port disconnection protection

*Smart and Intuitive LCD Monitoring*

(For BSP-115PV-15A only)

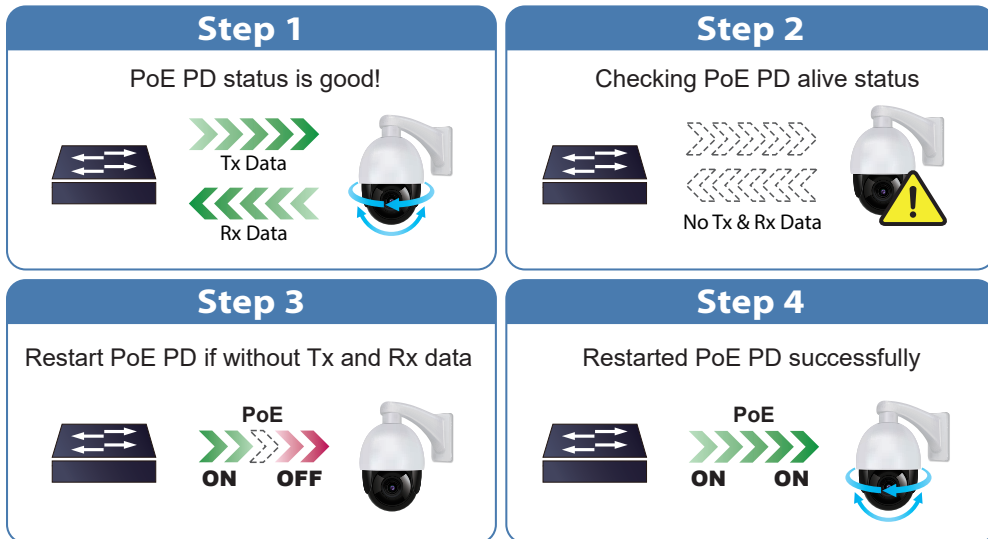
As the front panel of the BSP-115PV-15A provides an intuitive panel, the current solar energy and battery statuses can be checked on the BSP-115PV-15A LCD screen. This easy operation can enhance the energy management efficiency of renewable PoE switches as the following special status functions are included:

- Displays solar input voltage and current power
- Displays battery voltage and current power
- Displays PoE current power
- Displays battery remaining and remaining charging time
- Displays temperature and humidity information

<b>Discharging</b> Battery V:24.09V Battery%: 87% Tot Load: 89W	<b>Solar Starting</b> Activate: 1.09V Solar V:25.80V 4 LiB Register	 <b>BSP-115PV-15A</b>
<b>Solar Charging</b> Charge V: 23.71V Charge I: 4.5A Tot Load: 6W	<b>Sync Discharge</b> Solar V:13.93V Battery V:13.03V Battery%: 37%	

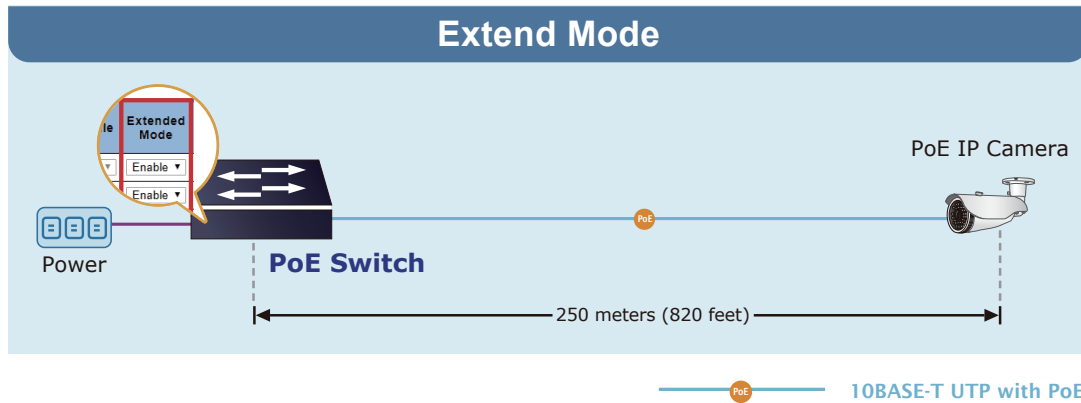
*Intelligent Powered Device Alive Check*

The BSP-115 Series can monitor connected PD status in real time via PD alive check function. Once the PD stops working and responding, the BSP-115 Series will resume the PoE power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing administrator management burden.



### 802.3at PoE+ Power and Ethernet Data Transmission Distance Extension

Its DIP switch can set the system to extend mode. In addition, the BSP-115 Series is equipped with VLAN technology and operates on a per-port basis at 10Mbps duplex operation. It can also support 21.2-watt PoE power output over a distance of up to 250 meters overcoming the 100m limit on Ethernet UTP cable. With this brand-new feature, the BSP-115 series provides an additional solution for 802.3at PoE distance extension, thus saving the cost of Ethernet cable installation.



### Multiple Battery Options for All Market Requirements

The BSP-115 Series features a variety of battery options, including lead-acid, lithium, and **lithium iron** batteries. Lead-acid battery offers a cost-effective option while lithium battery offers higher energy density and lightweight design, and lithium-iron battery combines high energy efficiency with durability. The renewable PoE switch provides a flexible, reliable solution that ensures all applications can continue to run without a glitch.

### Temperature Sensor for Battery Protection

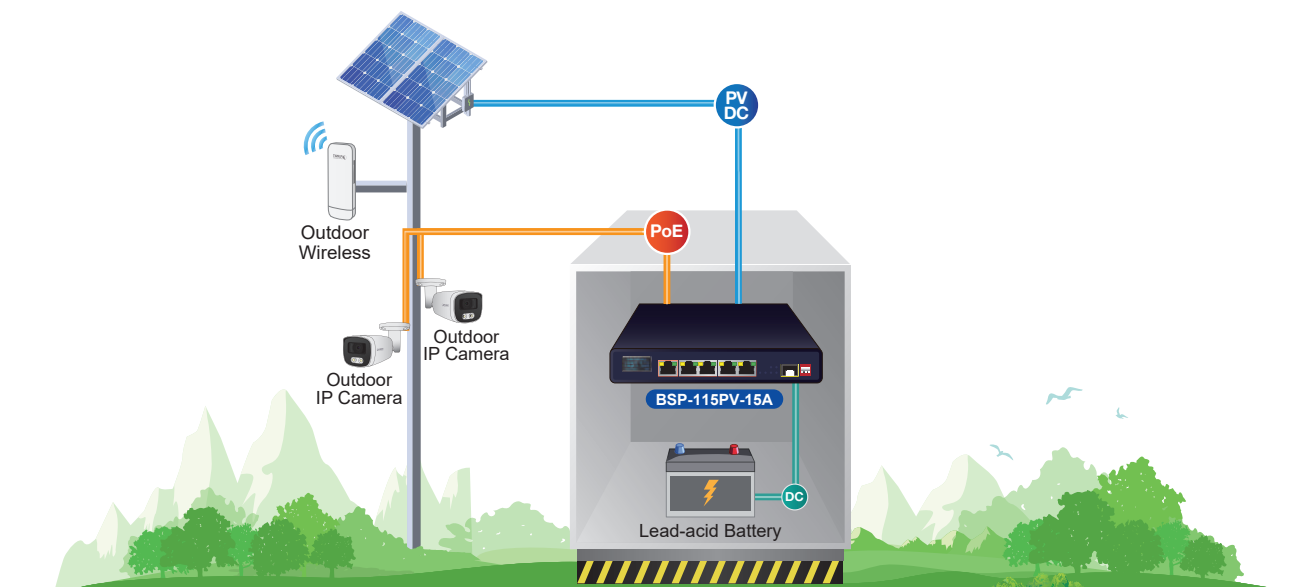
The BSP-115 series is equipped with a temperature sensor for battery protection. When the sensor detects the battery temperature reaching above 70~75 degrees C, the PoE high-current power supply will be stopped to cool down and protect the battery.

The BSP-115PV-15A also provides humidity sensing function, allowing users to easily grasp environmental humidity information.

## Applications

### Off-grid Solar-based Power Supply for Wireless & Wired PDs

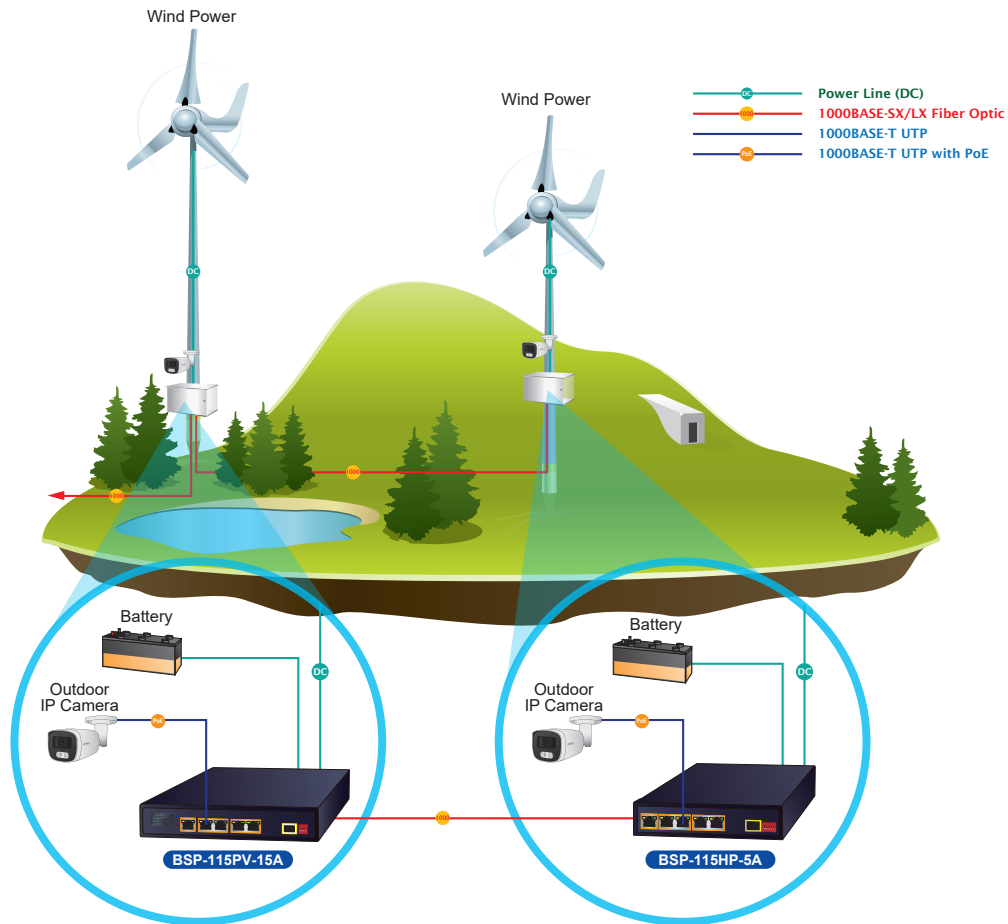
During the day, solar energy can power the communication system and charge the battery, and at night, the battery uses the excess electricity generated by solar energy during the day to power the communication system, which builds a zero-carbon, green and stable communication system without any external energy.





*Extension of Network Deployment with Gigabit Fiber port*

With the 802.3bt PoE++ injector and 1000BASE-X SFP fiber ports, the BSP-115 Series supplies power to other devices, such as IP cameras where high-speed and stable data transmission can be made to a remote core network. It can extend the distance to a maximum of 120 kilometers between the BSP-115 Series and control center via fiber-optic link.



## Specifications

Product	BSP-115HP-5A	BSP-115PV-15A
<b>Hardware Specifications</b>		
Copper Ports	5 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
SFP Port	1 100/1000BASE-X SFP port	
Connector	Removable 6-pin terminal block Pin 1/2(+/-) for PV panel Pin 3/4(+/-) for DC power Pin 5/6(-/+) for battery charging and discharging	Removable 6-pin terminal block Pin 1/2(+/-) , 3/4(+/-) for PV panel (in parallel); Pin 5/6(-/+) for battery charging and discharging The PV input is compliant with DC input but cannot be connected simultaneously with solar input to prevent damage to the device.
DIP Switch	<b>Front Panel:</b> <ul style="list-style-type: none"> <li>■ <b>Alive Check:</b> All PoE ports enable PD Alive check function.</li> <li>■ <b>VLAN:</b> Port isolation</li> <li>■ <b>Extend:</b> Long distance PoE switch.</li> <li>■ <b>P4:</b> PoE 24V/48V switch</li> <li>■ <b>P5:</b> PoE 24V/48V switch</li> </ul> <b>Rear Panel:</b> <ul style="list-style-type: none"> <li>■ <b>PWR:</b> Equipment power switch</li> <li>■ <b>BAT:</b> Battery type switch</li> <li>■ <b>BV:</b> Battery voltage switch</li> <li>■ <b>LiFe:</b> Lithium iron phosphate switch</li> </ul>	<b>Front Panel:</b> <ul style="list-style-type: none"> <li>■ <b>Alive Check:</b> All PoE ports enable PD Alive check function.</li> <li>■ <b>VLAN:</b> Port isolation</li> <li>■ <b>Extend:</b> Long distance PoE switch.</li> </ul> <b>Rear Panel:</b> <ul style="list-style-type: none"> <li>■ <b>PWR:</b> Equipment power switch</li> <li>■ <b>BAT:</b> Battery type switch</li> <li>■ <b>BV:</b> Battery voltage switch</li> <li>■ <b>LiFe:</b> Lithium iron phosphate switch</li> </ul>

Power Requirements	Supports 15-27V solar panel input (open circuit voltage) with 12V battery, maximum solar panel input power of 135W, and maximum circuit 5A. Supports 32-45V solar panel input (open circuit voltage) with 24V battery, maximum solar panel input power of 225W, and maximum circuit 5A. Supports 15~24V DC input with 12V battery. Supports 32~36V DC input with 24V battery.	Supports 20-27V solar panel input (open circuit voltage) with 12V battery, maximum solar panel input power of 405W, and maximum circuit 15A. Supports 32-45V solar panel input (open circuit voltage) with 24V battery, maximum solar panel input power of 675W, and maximum circuit 15A.
Charging Function	Integrated automatic charging and discharging, maximum efficiency 98%, maximum charging current 5A Integrated battery protection function Integrated battery float charging function Supports over-temperature protection function	Integrated automatic charging and discharging, maximum efficiency 98%, maximum charging current 15A Integrated battery protection function Integrated battery float charging function Supports over-temperature protection function
Battery Type	Based on Full Loading power consumption: ■ 12V / 24V <b>lead-acid</b> battery, maximum charging current 5A ■ 12.6V/25. 2V <b>lithium</b> battery, maximum charging current 5A ■ 14.6V/29.2V <b>lithium iron</b> battery, maximum charging current 5A Note: Recommended capacity 290AH in fully power 65W usage	Based on Full Loading power consumption: ■ 12V / 24V <b>lead-acid</b> battery, maximum charging current 15A ■ 12.6V/25. 2V <b>lithium</b> battery, maximum charging current 15A ■ 14.6V/29.2V <b>lithium iron</b> battery, maximum charging current 15A Note: Recommended capacity 500AH in fully power 120W usage
Power Consumption/ Dissipation	3.36 watts, 11.5BTU (Standby without PoE function) 75.6 watts, 257.8 BTU (Full loading with PoE function)	3 watts, 10.2BTU (Standby without PoE function) 140 watts, 477 BTU (Full loading with PoE function)
Dimensions (W x D x H)	142 x 159 x 34 mm	142 x 197 x 34mm
Weight	690g	820g
LCD Monitor (W x D)	--	26.77 x 16 mm, 1.1-inch
Temperature Sensor	Temperature Detector -20 ~ 100 degrees C	Temperature Detector -20 ~ 120 degrees C Humidity Detector 0 ~ 100 % RH
ESD Protection	±8KV air gap discharge ±4KV contact discharge	
Surge Immunity	2KV	
Enclosure	IP30 metal case	
Installation	Desktop/Wall-mount ear	
LED Indicators	<b>Front Panel:</b> System: - Green: PWR , BAT. out, BAT. in Per 10/100/1000T RJ45 Port: (Port 1~Port 3): - Green: LNK/ACT (10/100/1000Mbps) - Amber: PoE-in-use Per 10/100/1000T RJ45 Port: (Port 4~Port 5): - Green: LNK/ACT (10/100/1000Mbps) - Amber: 1000Mbps - Green: 24V PoE-in-use - Green: 48V PoE-in-use Per SFP Port: (Port 6): - Green: LNK/ACT (100/1000Mbps)	<b>Front Panel:</b> System: - Green: PWR , BAT. out, BAT. in Per 10/100/1000T RJ45 Port: (Port 1~Port 3): - Green: LNK/ACT (10/100/1000Mbps) - Amber: PoE-in-use Per 10/100/1000T RJ45 Port: (Port 4~Port 5): - Green: LNK/ACT (10/100/1000Mbps) - Amber: 1000Mbps - Green: PoE-in-use Per SFP Port: (Port 6): - Green: LNK/ACT (100/1000Mbps)
	<b>Rear Panel:</b> System: - Green: SYS, PWR, PV in Battery: - Green: BAT. out, BAT. in, DC in	<b>Rear Panel:</b> System: - Green: SYS, PWR, PV in Battery: - Green: BAT. out, BAT. in, BAT. V in
<b>Switching Specifications</b>		
Switch Architecture	Store-and-Forward	
Switch Fabric	12Gbps/non-blocking	
Switch Throughput	8.92Mpps@64 bytes	
MAC Address Table	2K entries	
Shared Data Buffer	2.5Mb	
Jumbo Frame	10K bytes	

Power over Ethernet		
PoE Standard	IEEE 802.3at/802.3bt Power over Ethernet PSE	IEEE 802.3at Power over Ethernet PSE
PoE Power Supply Type	End-span	End-span
PoE Power Output	Port 1 48V DC, max. 60 watts Ports 2-3 48V DC, max. 35 watts Ports 4-5 24V DC, max. 25 watts or 48V DC, max. 35 watts	Per port 48V DC, max. 35 watts
Power Pin Assignment	Port 1: 1/2 (+), 3/6 (-), 4/5(+), 7/8(-) Ports 2~5: 1/2 (+), 3/6 (-) Ports 4~5 24V: Passive 4/5(+), 7/8(-)	Port 1: 1/2 (+), 3/6 (-), 4/5(+), 7/8(-) Ports 2~5: 1/2 (+), 3/6 (-)
PoE Power Budget	Maximum 65W (depending on power input)	Maximum 120W (depending on power input)
Standards Conformance		
Regulatory Compliance	FCC Part 15 Class A, CE	
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3z Gigabit SX/LX IEEE 802.3x Flow Control and Back Pressure IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt Power over Ethernet Plus Plus IEEE 802.3az Energy-Efficient Ethernet	
Environment		
Operating	Temperature: -20 ~ 65 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	
Storage	Temperature: -40 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	

## Ordering Information

BSP-115HP-5A	5-Port 802.3at PoE+ Solar PoE Switch with 1-Port 1000X SFP
BSP-115PV-15A	5-Port 802.3at PoE+ Solar PoE Switch with 1-Port 1000X SFP and LCD Display

## Related PoE Products

BSP-360	Industrial Renewable Power 5-Port Gigabit Managed Switch with 4-Port 802.3at PoE+
ICA-3480	H.265+ 4MP Smart IR Bullet IP Camera
ICA-3480F	H.265+ 4MP Full Color Bullet IP Camera
ICA-4480	H.265+ 4MP Smart IR Dome IP Camera
ICA-M3580P	H.265 5 Mega-pixel Smart IR Bullet IP Camera with Remote Focus and Zoom
WBS-512AC	5GHz 802.11ac 900Mbps Outdoor Wireless CPE
WDAP-C3000AX	Dual Band 802.11ax 3000Mbps Ceiling-mount Wireless Access Point w/802.3at PoE+ and 2 10/100/1000T LAN Ports
WDAP-3000AX	Dual Band 802.11ax 3000Mbps Outdoor Wireless AP
WDAP-850AC	Dual Band 802.11ac 1200Mbps Wave 2 Outdoor Wireless AP
WBS-900AC	5GHz 802.11ac 900Mbps TDMA Outdoor Long Range Wireless CPE (IP65, 802.3af/at PoE, including 259dBi Antenna)



## Available SFP/SFP+ Modules

Gigabit Ethernet Transceiver (1000BASE-X SFP)

MGB-TSX	SFP-Port 1000BASE-SX mini-GBIC module - 550m (-40~85 degrees C)
MGB-TSX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km (-40~85 degrees C)
MGB-TLX	SFP-Port 1000BASE-LX mini-GBIC module - 20km (-40~85 degrees C)
MGB-TL40	SFP-Port 1000BASE-LX mini-GBIC module - 40km (-40~85 degrees C)
MGB-TL80	SFP-Port 1000BASE-LX mini-GBIC module - 80km (-40~85 degrees C)
MGB-TLA10	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km (-40~85 degrees C)
MGB-TLB10	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km (-40~85 degrees C)
MGB-TLA20	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km (-40~85 degrees C)
MGB-TLB20	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km (-40~85 degrees C)
MGB-TLA40	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km (-40~85 degrees C)
MGB-TLB40	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km (-40~85 degrees C)
MGB-TLA80	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km (-40~85 degrees C)
MGB-TLB80	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km (-40~85 degrees C)
MGB-TSA	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 2km (-40~85 degrees C)
MGB-TSB	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 2km (-40~85 degrees C)
MGB-TGT	SFP-Port 1000BASE-T Module - 100m (-40~85 degrees C)
MGB-TLA120	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 120km (-40~85 degrees C)
MGB-TLB120	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 120km (-40~85 degrees C)

## Available Fast Ethernet SFP Modules

Fast Ethernet Transceiver (100BASE-X SFP)

MFB-TFX	SFP-Port 100BASE-FX Transceiver (1310nm) -2km (-40~85 degrees C)
MFB-TF20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km (-40~85 degrees C)
MFB-TFA20	SFP-Port 100BASE-BX (WDM, TX:1310nm) mini-GBIC module-20km (-40~85 degrees C)
MFB-TFB20	SFP-Port 100BASE-BX (WDM, TX:1550nm) mini-GBIC module-20km (-40~85 degrees C)
MFB-TFA40	SFP-Port 100BASE-BX (WDM, TX:1310nm) mini-GBIC module-40km (-40~85 degrees C)
MFB-TFB40	SFP-Port 100BASE-BX (WDM, TX:1550nm) mini-GBIC module-40km (-40~85 degrees C)
MFB-TSB	SFP-Port 100BASE-BX Transceiver (Multi-mode/WDM, TX:1550nm RX:1310nm / DDM) - 2km (-40~85 degrees C)
MFB-TF120	SFP-Port 100BASE -FX Transceiver (1550nm) - 120km (-40~85 degrees C)
MFB-TSA	SFP-Port 100BASE-BX (Multi-mode/WDM,TX:1310nm) mini-GBIC module-2km (-40~85 degrees C)
MFB-TFB60	MFB-TFB60 SFP-Port 100BASE-BX (WDM, TX:1550nm) mini-GBIC module-60km (-40~85 degrees C)
MFB-TFA60	SFP-Port 100BASE-BX (WDM, TX:1310nm) mini-GBIC module-60km (-40~85 degrees C)