

Industrial Renewable Power 5-Port Gigabit Managed Switch/Router with 4-Port 802.3at PoE+



Industry-leading Integration of PoE Technology and Renewable Power System

PLANET's newly-launched Renewable Energy Industrial 802.3at PoE Managed Ethernet Switch, BSP-360, is designed for deploying a surveillance or wireless network and remotely monitoring and managing the IP-based devices. Based on its green technology, the BSP-360 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, especially used for such expansive applications as dams, forests, deserts, national parks, nature/animal protection areas and highways.

PLANET NMS-360 Network Management Controller can centrally manage up to 512 BSP-360 units and 2,048 PLANET IP cameras via MQTT and ONVIF Protocols. (Please regularly check PLANET website for the latest compatibility list of managed devices.)



MPPT (Maximum Power Point Tracking) Charge Controller

An MPPT (Maximum Power Point Tracker) is an electronic DC to DC converter that optimizes the match between the PV solar panels and the battery bank or utility grid. They convert a higher voltage DC output from solar panels (and a few wind generators) to the lower voltage needed to charge the battery effectively. It can support PV module input of up to 400W of power.

Physical Port

- 5-port 10/100/1000BASE-T Gigabit RJ45 copper with 4-port IEEE 802.3at/af PoE injector function (Port 1 to Port 4)
- RJ45 type interface for basic management and setup
- USB type A female for setting file backup and restoration

Power over Ethernet

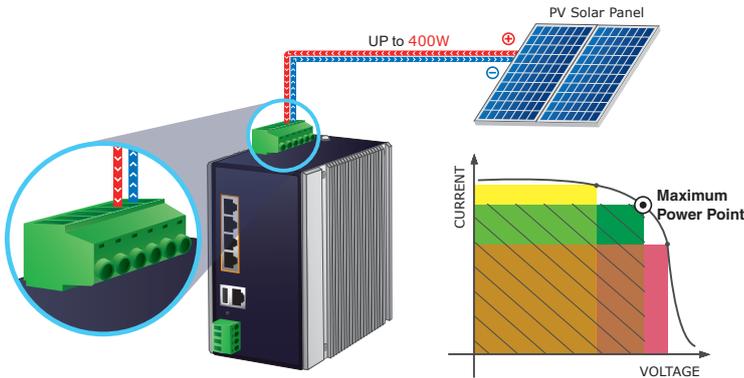
- Complies with IEEE 802.3at Power over Ethernet Plus end-span PSE
- Backward compatible with IEEE 802.3af Power over Ethernet
- Up to 4 ports of IEEE 802.3af/802.3at devices powered
- Supports PoE power up to 36 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters
- PoE management
 - Total PoE power budget control
 - Per port PoE function enable/disable
 - PoE port power feeding priority
 - Per PoE port power limitation
 - PD alive check
 - PoE schedule

Battery Management

- Battery type option: Lithium battery or lead-acid battery
- Easy diagnostic of the system operating status via LED indicator
- Current battery usage status
- Low voltage cut-off protection: Send alert and cut off power when the battery is low
- MPPT (Maximum Power Point Tracking) Charge Controller
 - 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)

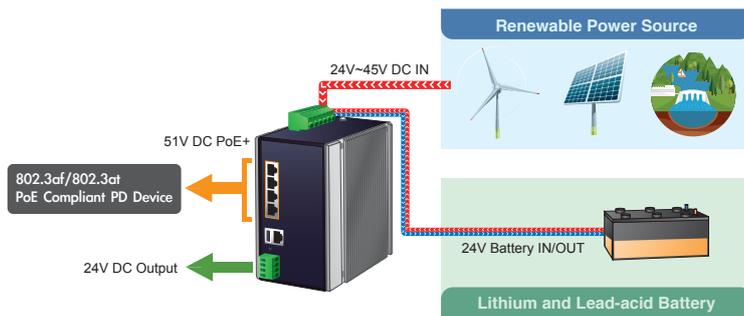
Industrial Case and Installation

- IP30 aluminum case
- DIN-rail and wall-mounted designs
- Supports -10 to 60 degrees C operating temperature
- Supports ESD 6KV DC Ethernet protection



Zero-Carbon and Stable Power Supply

The 24V lithium or lead-acid battery gets recharged by way of the BSP-360 where solar power is sourced. Thus, the BSP-360 will keep powering PD devices without the need of any cabling. 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.



Smart Battery Management

The BSP-360 features the following special power management functions:

- Current battery usage status by percentage
- Low voltage cut-off protection
- Fully-charged hold time protection

User-friendly and Secure Management

The administrator can remotely access the BSP-360 to know the power status of the battery and renewable energy, and the estimated time of power consumption.



- Redundant power supply
- 24V~45V DC wide power input

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
- 8K MAC address table size
- Automatic address learning and address aging

Router

- Internet types: Dynamic IP, static IP, PPPoE, L2TP, PPTP
- Static and dynamic (RIP1 and 2) routing
- IP/MAC-based bandwidth control
- Supports Port Forwarding, DMZ, UPnP and Dynamic DNS for various networking applications
- 802.1d STP and IGMP Proxy

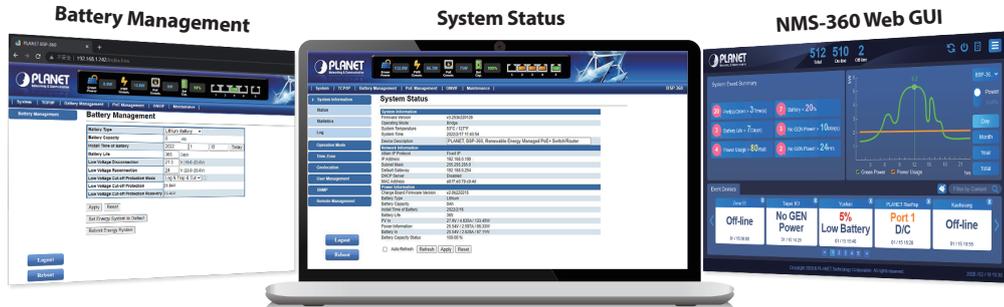
Security

- Port filtering allows which application can access the Internet.
- MAC filtering allows you to include or exclude computers and devices based on their MAC address
- URL filtering allows you to control access to Internet websites in an URL list
- IP source guard prevents IP spoofing attacks
- DoS attack prevention

Management

- Switch Management Interface
 - IPv4 Web switch management
 - SNMP v1, v2c
- Static and DHCP for IP address assignment
- System Maintenance
 - Firmware upload/download via HTTP
 - Configuration upload/download through HTTP
 - Hardware-based reset button for system reboot or reset to factory default
- Network Time Protocol
- SNMP trap for Link Up and Link Down notification
- Event message logging to remote syslog server
- Supports PLANET ONVIF IP camera and snapshot function
- PLANET Smart Discovery Utility
- Supports PLANET NMS-360 Network Management Controller

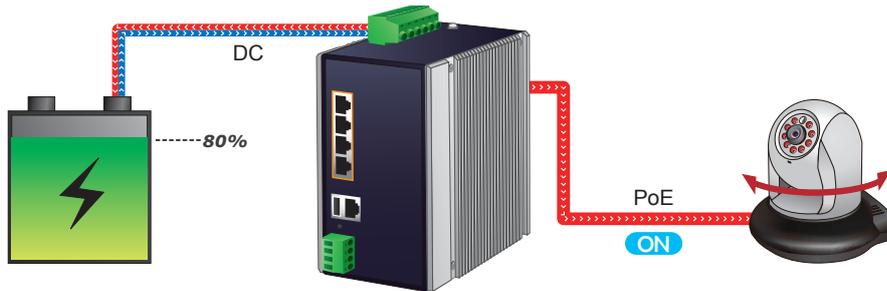
For efficient management, the BSP-360 is equipped with web and SNMP management interfaces. With the built-in web-based management interface, the BSP-360 offers an easy-to-use, platform-independent management and configuration facility. By supporting the standard SNMP, the switch can be managed via any standard management software.



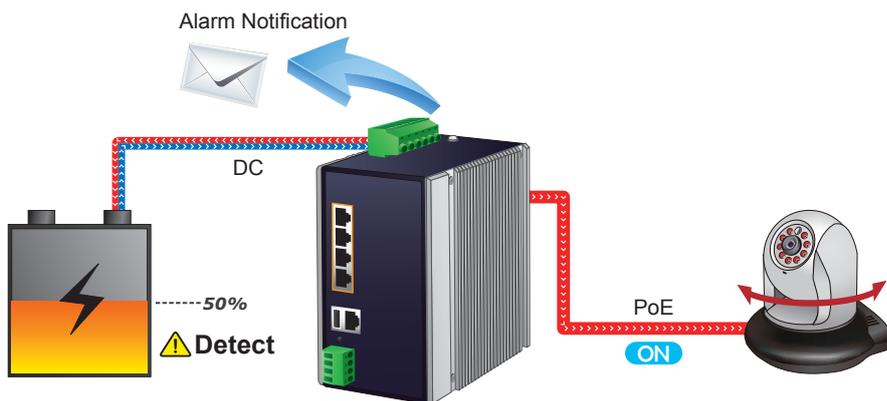
Low Voltage Cut-Off Protection

If the remaining energy is too low to power the network, the system will automatically power off the device to make sure the system works normally, and an alert is then sent to the administrator at the same time.

Status A: Normal Operation



Status B: Middle Battery Capacity



Status C: Low Battery Capacity



Smart PoE PD Management including PLANET ONVIF IP Camera

As it is the managed PoE switch for surveillance, wireless and VoIP networks, the BSP-360 features the following special PoE management functions:

- PD alive check
- Scheduled power recycling
- PoE schedule
- PoE Usage Monitoring

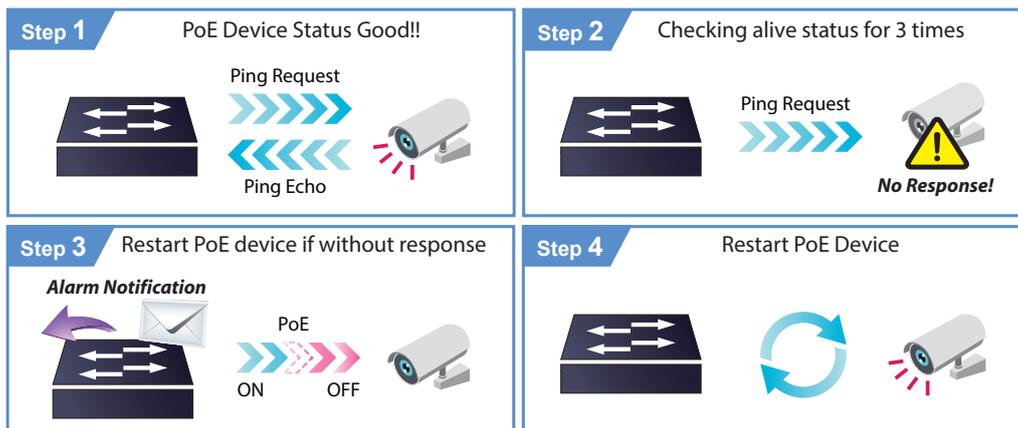
ONVIF management functions:

- Supports PLANET ONVIF IP camera discovery
- A maximum of four PLANET ONVIF IP cameras can be powered by one BSP-360 switch.
- Supports IP camera snapshot function in the LAN.

Intelligent Powered Device Alive Check

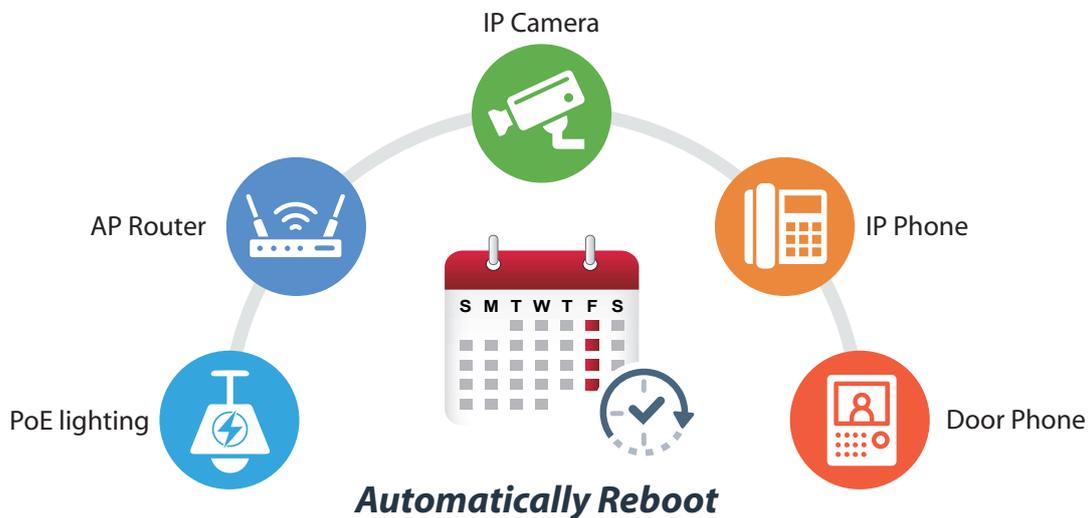
The BSP-360 can be configured to monitor connected PD (powered device) status in real time via ping action. Once the PD stops working and responding, the BSP-360 will resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing administrator management burden.

PD Alive Check



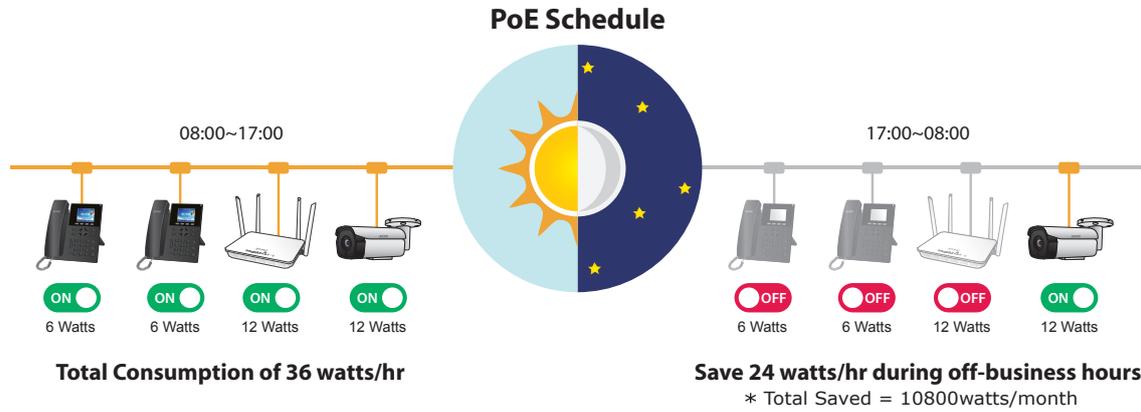
Scheduled Power Recycling

The BSP-360 allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specified time each week. Therefore, it will reduce the chance of IP camera or AP crash resulting from buffer overflow.



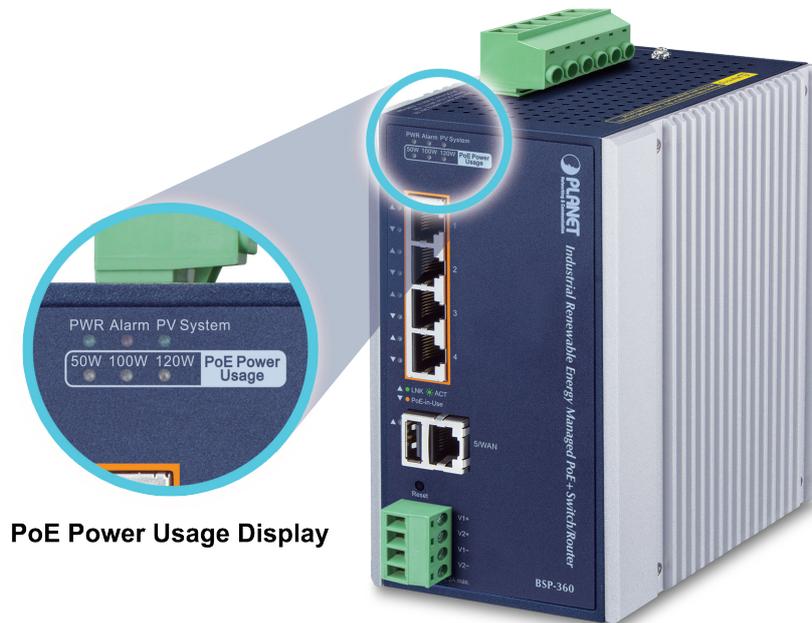
PoE Schedule for Energy Savings

Under the trend of energy savings worldwide and contributing to environmental protection, the BSP-360 can effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs or enterprises save power and budget. It also increases security by powering off PDs that should not be in use during non-business hours.



PoE Usage Monitoring and Intelligent LED Indicator for Real-time PoE Usage

Via the power usage chart in the web management interface, the BSP-360 enables the administrator to monitor the status of the power usage of the connected PDs in real time. Thus, it greatly enhances the management efficiency of the facilities. Moreover, the BSP-360 helps users to monitor the current status of PoE power usage easily and efficiently via its advanced LED indication. Called "PoE Power Usage", the front panel of the BSP-360 has three LED indicators of different power usages.



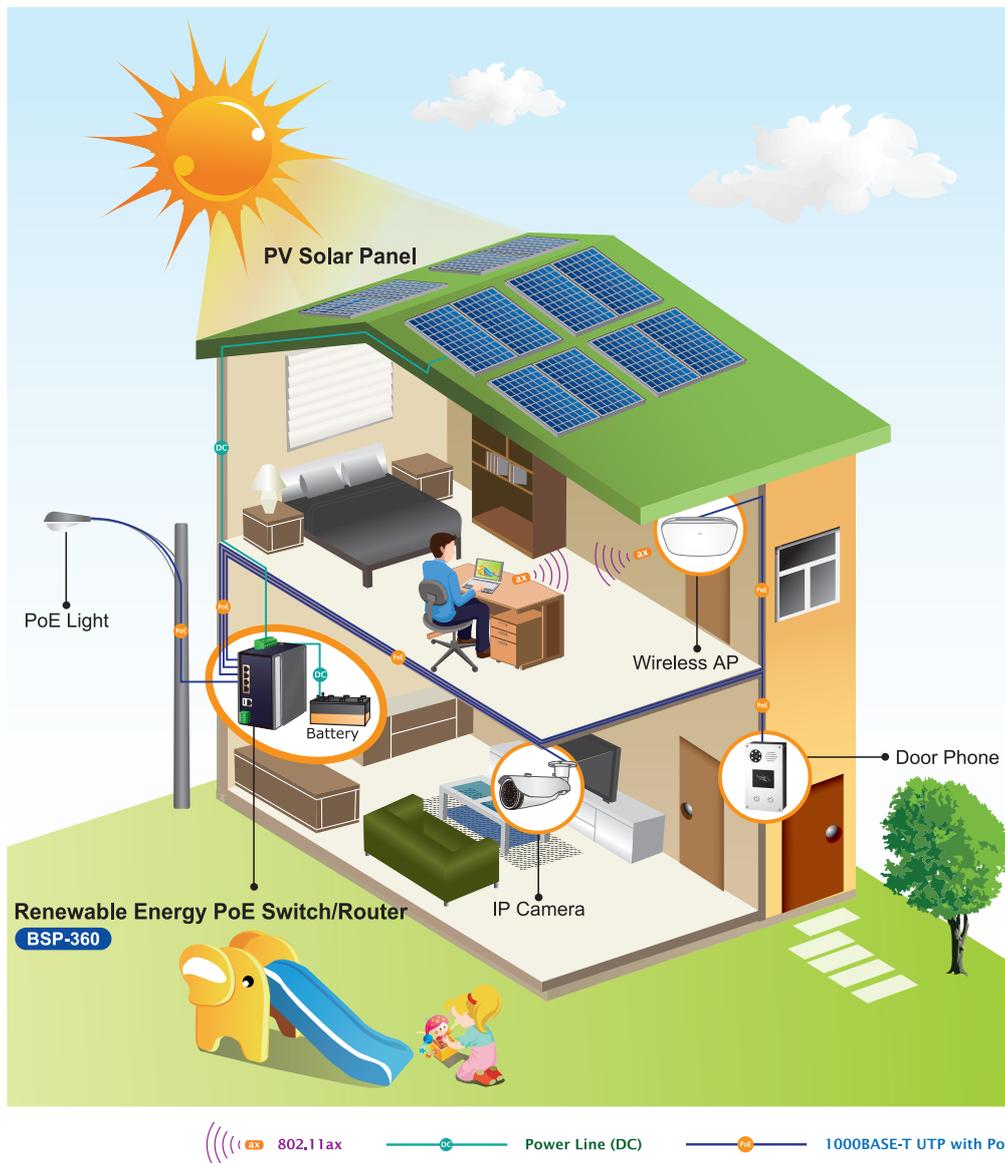
Applications

Solar PoE Power Supply for Long Distance Wireless Surveillance Solution

The BSP-360 PoE Managed Switch can be deployed anywhere in the city where there is no direct AC electricity. With PoE over the Cat5 cable, wireless AP and SFP media converter, you can check the current energy consumption and battery status in your office within the configuration interface of the BSP-360.

SOHO/Home-use Gigabit Ethernet PoE Network Deployment

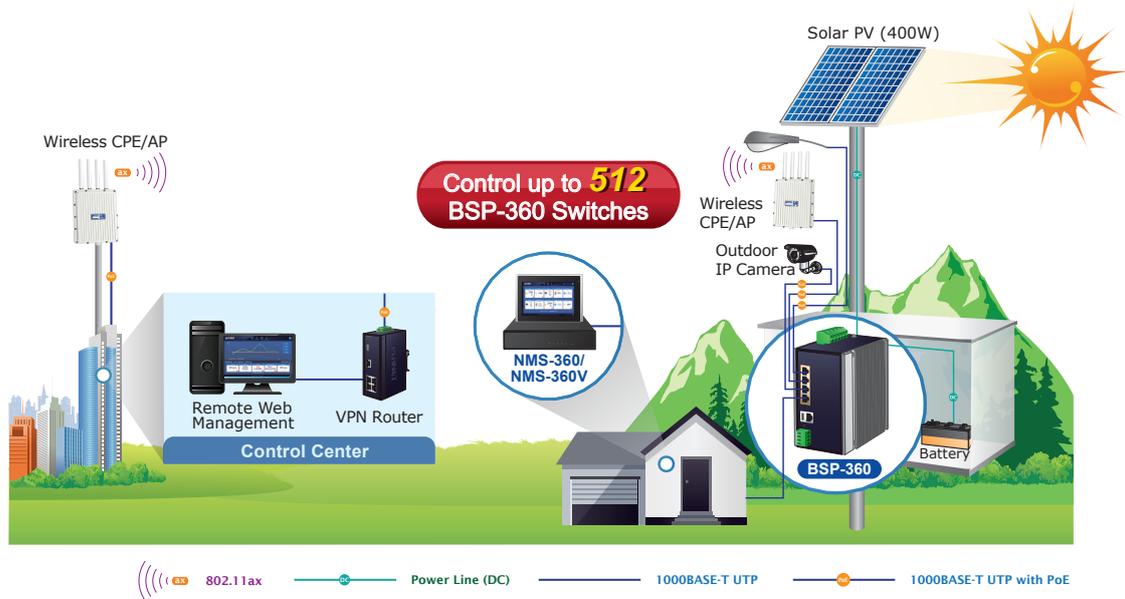
With its expanded home-use feature, the BSP-360 Renewable Energy PoE Switch helps SOHO/home users to create an integrated network where power is so easily utilized for transmission of data and video. It integrates IEEE 802.3at PoE technology and renewable power system. The wireless AP and PoE IP camera devices work perfectly with the BSP-360, which injects power through the Ethernet cables, thus helping SOHO/home users to build a cost-effective and reliable PoE network environment easily.



Economical Central Energy Management Solution for SMBs

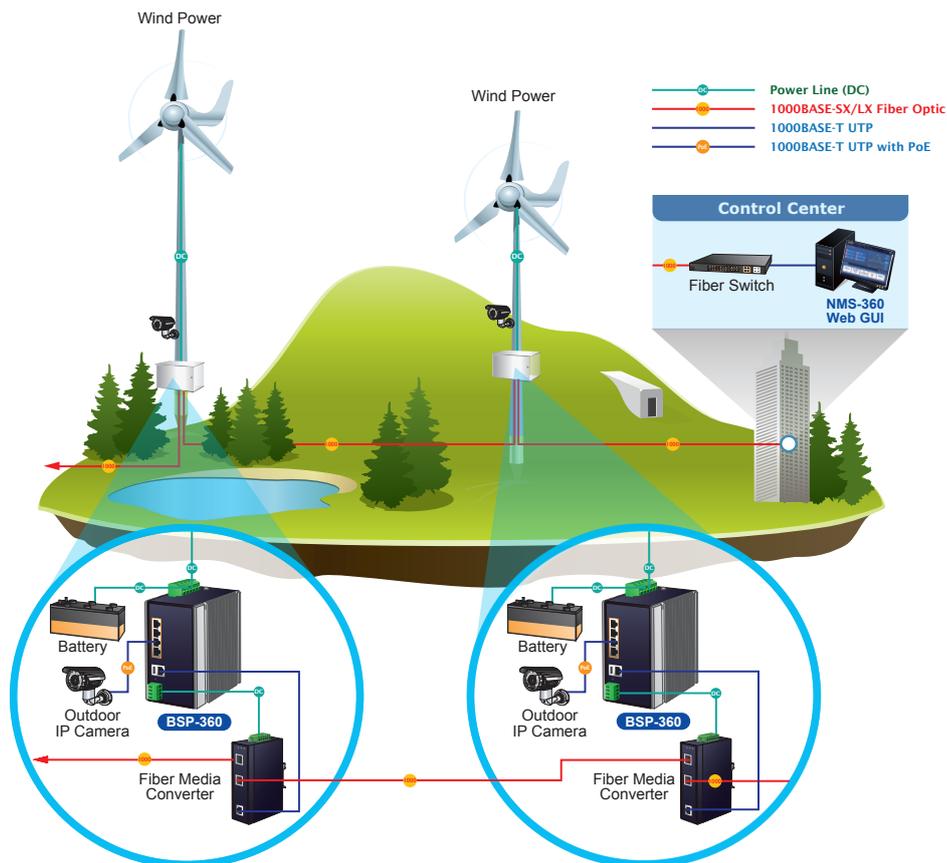
PLANET NMS-360 Renewable Energy Management Controller allows users to remotely monitor the statuses of the BSP-360-powered devices in real time, including green power status, average power usage, instant PoE usage, and so on. Through the remote web management, the administrator at the headquarters is able to monitor and control those remote powered devices powered by the BSP-360. This allows the administrator to flexibly install APs in remote areas, without worrying about locating extra electric outlets.

When functioning with a pair of the wireless transmission units, the BSP-360 Renewable Energy PoE Switch/Router can be efficiently managed from a remote control center.



Extension of Network Deployment with Fiber Media Converter

With the 24VDC out interface, the BSP-360 enables you to supply power to other devices, such as PLANET IGT-905A fiber media converter 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-360 and control center via fiber-optic link.



Specifications

Product	BSP-360
Hardware Specifications	
Copper Ports	LAN: 5 10/100/1000Mbps auto MDI/MDI-X RJ45 port (Port 1 to Port 5, bridge mode) WAN: 1 10/100/1000Mbps auto MDI/MDI-X RJ45 port (Port 5, gateway mode)
PoE Injector Port	4 ports with 802.3af/802.3at PoE injector function (Port 1 to Port 4)
USB	1 USB Type A female for setting backup
Power Output	4 PoE out 51VDC; max. 36 watts per PoE port 2 DC out 24@ 2A maximum (four-pin terminal block) * The voltage of DC out is based on the battery.
Switch Architecture	Store-and-Forward
Switch Fabric	10Gbps/non-blocking
Switch Throughput@64 bytes	5.95Mpps@64 bytes
MAC Address Table	8K entries
Shared Data Buffer	512Kbit
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Reset Button	< 5 sec: System reboot > 10 sec: Factory default
LED Indicators	3 LEDs for System and Power: - Green : Power - Red : Alarm - Green : PV System 4 LEDs for PoE Copper Ports (Port 1~Port 4): - Green : LNK/ACT - Amber : PoE-in-use 1 LED for 10/100/1000T Copper Port (Port 5): - Green : LNK/ACT 3 LEDs for PoE Power Usage (W) - Amber : 50, 100 and 120W
Connector	Removable 6-pin terminal block Pin 1/2 for PV panel; Pin 3/4 for alarm; Pin 5/6 for battery
Alarm	1 digital output (DO): Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Open collector to 24V DC, 100mA max.
Power Requirements	PV in: 24~45V DC Battery in/out: 24V DC
Power Consumption/ Dissipation	5.04 watts, 17.1BTU (Standby without PoE function) 6.96 watts, 23.7 BTU (Full loading without PoE function) 135.36 watts, 461.5 BTU (Full loading with PoE function)
Dimensions (W x D x H)	89 x 107 x 152 mm
Weight	1251g
ESD Protection	6KV DC
Enclosure	IP30 aluminum case
Installation	DIN-rail kit and wall-mount ear
Power over Ethernet	
PoE Standard	IEEE 802.3af/802.3at Power over Ethernet PSE
PoE Power Supply Type	End-span
PoE Power Output	Per port 51V DC, 275mA. Max. 15.4 watts (IEEE 802.3af) Per port 51V DC, 535mA. Max. 36 watts (IEEE 802.3at)
Power Pin Assignment	1/2 (+), 3/6 (-)
PoE Power Budget	120 watts (PoE consumption + DC out and depending on power input)
Max. Number of Class 2 PDs	4
Max. Number of Class 3 PDs	4
Max. Number of Class 4 PDs	4
Renewable Power Input (PV IN)	
Min. Voltage	24V (Suggest > 30V for fully charge to battery)
Max. Voltage	45V
Max. Current	< 8.8A
Max. Power	< 400W

Battery Information		
Type	Lithium Battery (Default)	Lead-acid Battery
FCV	fixed 26.6V	27.2V (26.0~30.0V)
ACV	fixed 28.7V	29.2V (28.0~32.0V)
LVD (Low Voltage Disconnection)	21.3V (19.6~23.0V)	22.2V (21.0~23.0V)
LVR (Low Voltage Reconnection)	24.0V (23.5~25.0V)	23.5V (23.5~27.0V)
Router Features		
Internet Connection Type	Shares data and Internet access with users, supporting the following internet accesses: - PPPoE - Dynamic IP - Static IP - PPTP - L2TP	
Firewall	NAT firewall with SPI (Stateful Packet Inspection) Built-in NAT server supporting Port Forwarding, and DMZ Built-in firewall with IP address/MAC address/Port/ URL filtering Supports ICMP-FLOOD, UDP-FLOOD, TCP-SYN-FLOOD filter, DoS protection	
Routing Protocol	Static/Dynamic (RIP1 and 2) routing	
VPN Pass-through	PPTP, L2TP, IPSec, IPv6	
LAN	Built-in DHCP server supporting static IP address distribution Supports UPnP, Dynamic DNS Supports IGMP Proxy Supports 802.1d STP (Spanning Tree) IP/MAC-based bandwidth control	
Management		
Management Interface	Setting up of system/management functions Web firmware upgrade SNMP trap for alarm notification of events	
PoE Management	Power limit by consumption and allocation PoE admin mode Per port power schedule Per port power enable/disable Power feeding priority Current per port usage and status Total power consumption PD alive check Scheduled power recycling	
Battery Management	Current battery usage status Low voltage cut-off protection Fully-charged hold time protection	
PLANET ONVIF IP Camera Management	Supports PLANET ONVIF IP camera discovery A maximum of four PLANET ONVIF IP cameras can be powered by one BSP-360 switch. Supports IP camera snapshot function in the LAN.	
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 802.3x Flow Control and Back Pressure IEEE 802.1D Spanning Tree Protocol IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus RFC 768: UDP RFC 791: IP RFC 2068 HTTP RFC 1157: SNMP v1 RFC 1902: SNMP v2c RFC 5424: Syslog	
Environment		
Operating	Temperature: -10 ~ 60 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	

Ordering Information

BSP-360 Industrial Renewable Power 5-Port Gigabit Managed Switch with 4-Port 802.3at PoE+

Related PoE Products

ICA-3280	H.265 1080p Smart IR Dome IP Camera
ICA-4280	H.265 1080p Smart IR Dome IP Camera
ICA-A3280	H.265 1080p Smart IR Bullet IP Camera with Artificial Intelligence
ICA-A4280	H.265 1080p Smart IR Dome IP Camera with Artificial Intelligence
ICA-M3580P	H.265 5 Mega-pixel Smart IR Bullet IP Camera with Remote Focus and Zoom
ICA-M4580P	H.265 5 Mega-pixel Smart IR Dome IP Camera with Remote Focus and Zoom
WBS-502N	5GHz 802.11n 300Mbps Outdoor Wireless CPE
WBS-512AC	5GHz 802.11ac 900Mbps Outdoor Wireless CPE
WDAP-1800AX	Dual Band 802.11ax 1800Mbps Outdoor
WDAP-850AC	Dual Band 802.11ac 1200Mbps Wave 2 Outdoor Wireless AP
NMS-360	Renewable Energy Management Controller -- 512 nodes, 5 10/100/1000T LAN Ports
NMS-360V-10	Renewable Energy Management Controller with 10" LCD Touch Screen -- 512 nodes, 2 10/100/1000T LAN Ports
NMS-360V-12	Renewable Energy Management Controller with 12" LCD Touch Screen -- 512 nodes, 2 10/100/1000T LAN Ports
NMS-500	Enterprise-class Universal Network Management Controller -- 500 nodes, 5 10/100/1000T LAN Ports
NMS-1000-10	Universal Network Management Controller with 10" LCD Touch Screen -- 1024 nodes, 2 10/100/1000T LAN Ports
NMS-1000-12	Universal Network Management Controller with 12" LCD Touch Screen -- 1024 nodes, 2 10/100/1000T LAN Ports