PLANET
Networking & Communication

Quick Installation Guide

Industrial Renewable Energy

BSP-360

Industrial Solar Power 5-Port Gigabit Managed Switch with 4-Port 802.3at PoE+

30W PoE | 60°C -10°C | PWM | PoE Schedule | WEB Management | Green Networking

Industrial Renewable Energy

4-Port 10/100/1000T 802.3at PoE+

Managed Ethernet Switch

BSP-360

Quick Installation Guide

Safety Precautions

Please read the following before using:

1. All electrical work must be done in accordance with local, and/or international electrical codes.
2. Before installing or using this device, read all instructions and cautionary marking located in (or on) this guide, the controller, the batteries, PV (Photovoltaic) array and any other device used.
3. To reduce the risk of short-circuits, use insulated tools when installing or working with the inverter, the controller, the batteries, or any DC source (e.g., PV).
4. Remove all jewelry. This will greatly reduce the chance of accidental exposure to live circuits.
5. The controller contains more than one live circuit (batteries and PV array). Power may be present at more than one source.
6. This product contains no user serviceable parts. Do not attempt to repair this unit unless fully qualified.

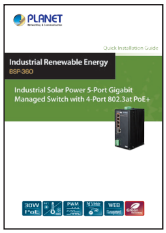
Table of Contents

1. Package Contents

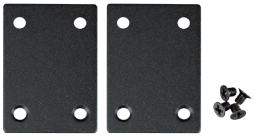
Thank you for purchasing PLANET Industrial Renewable Energy Managed PoE Switch, BSP-360. Open the box of the BSP-360 and carefully unpack it. The box should contain the following items:

1 x BSP-360

1 x Quick Installation Guide



1 x Wall Mounting Kit



1 x DIN Rail Kit

5 x RJ45 Dust Cap

If any of these are missing or damaged, please contact your dealer immediately. If possible, retain the carton including the original packing materials to enable you to repack the product in case there is a need to return it to us for repair.

2. Requirements

PLANET BSP-360 provides a remote login interface for management purposes. The following equipment is necessary for further management:

- Workstation is installed with Ethernet NIC (Network Interface Card)
- Choice of Internet browsers includes Windows XP/2003, Vista, Windows 7, Windows 8, Windows 10, MAC OS X, Linux, Fedora, Ubuntu or other platforms compatible with TCP/IP protocols.
  - The above workstation is installed with Web browser and JAVA runtime environment plug-in.
- Ethernet Port connection
  - Use standard network (UTP) cables with RJ45 connectors.
- PV and battery
  - Two 12V batteries connected in series.
  - The maximum operating voltage of PV is 45V.


Note

It is recommended to use Internet Explorer 8.0 or above to access the BSP-360.

3. Hardware Introduction

3.1 Front Panel

The front panel of the BSP-360 consists of 5 auto-sensing 10/100/1000Mbps Ethernet RJ45 ports and one USB interface. The LED Indicators are also located on the RJ45 ports of the BSP-360.

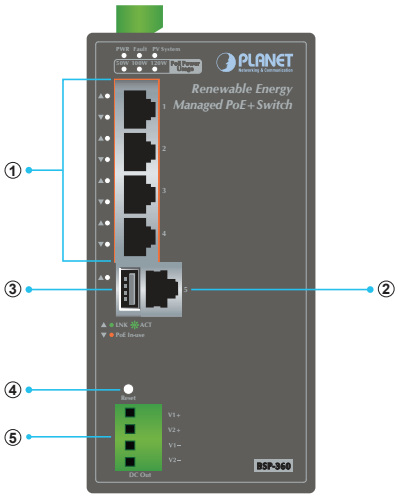


Figure 3-1 shows the front panel of BSP-360

Item	Interface	Description
1	Port-1~Port-4	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports with **802.af/at PoE+** injector function.
2	Port-5	One 10/100/1000BASE-T RJ45 auto-MDI/MDI-X port. Port-5 functions as **WAN** port when the operation mode of BSP-360 is configured to **"Gateway mode"**
3	USB	Connect the USB storage to USB port and back up the configuration file.
4	Reset Button	< 5 seconds: System reboot. > 5 seconds: Factory default.
5	4-pin Terminal Block	**24V DC output** connector. The output voltage is the same as battery voltage. Maximum voltage is clamped at 24V, 1A.

3.2 LED Indicators

■ **System**

LED	Color	Function	
PWR	Green	On	To indicate BSP-360 has power.
Fault	Green	Slow Blinks	To indicate the PV is **disconnected**.
		Fast Blinks	To indicate the battery voltage is less than the value for low voltage disconnection.
		On	To indicate **bad battery, over-current** or **short-circuit**.
PV System	Green	Slow Blinks	To indicate the system is **"on"**.
		Fast Blinks	To indicate the battery is **"charging"**.
50W	Green	On	To indicate the system consumes over **50-watt** PoE power budget.
100W	Green	On	To indicate the system consumes over **100-watt** PoE power budget.
120W	Green	On	To indicate the system consumes the total **120-watt** PoE power budget.

■ **PoE 10/100/1000BASE-T Interfaces (Port-1 to Port-4)**

LED	Color	Function	
LNK/ ACT	Green	Blinks	To indicate the link through that port is successfully established.
PoE	Orange	Lights	To indicate the port is providing DC in-line power.
		Off	To indicate the connected device is not a PoE Powered Device (PD).

■ **10/100/1000BASE-T Interfaces (Port-5)**

LED	Color	Function	
LNK/ ACT	Green	Blinks	To indicate the link through that port is successfully established.

3.3 Upper Panel

The upper panel of the BSP-360 consists of one terminal block connector with PV and battery power inputs.

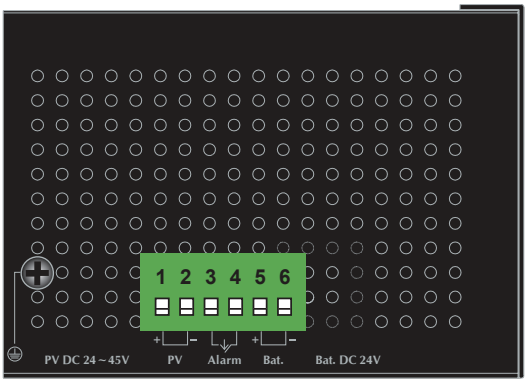


Figure 3-2 Upper Panel

The input voltage range of each interface is shown as follows:

PV In Connector

24~45V DC

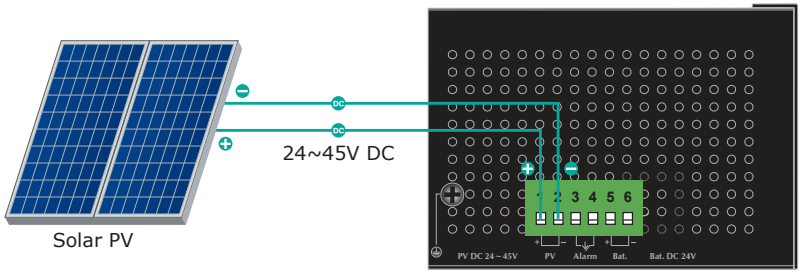


Figure 3-3 PV In Connector

Battery In/Out

24V DC

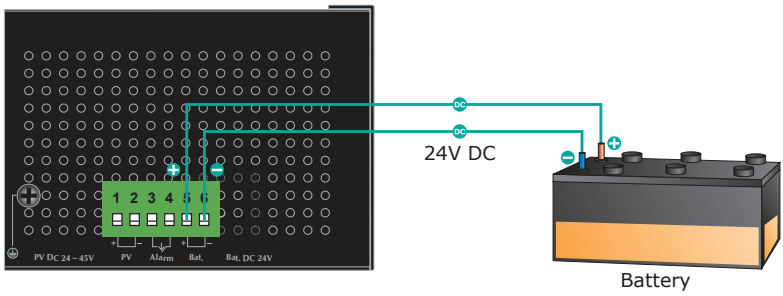


Figure 3-4 Battery In/Out

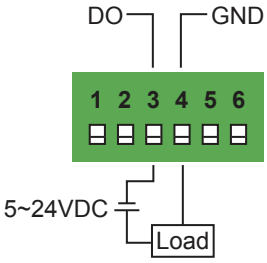
Note

The wire gauge for the terminal block should be in the range from 14 to 24 AWG.

DO Connectors

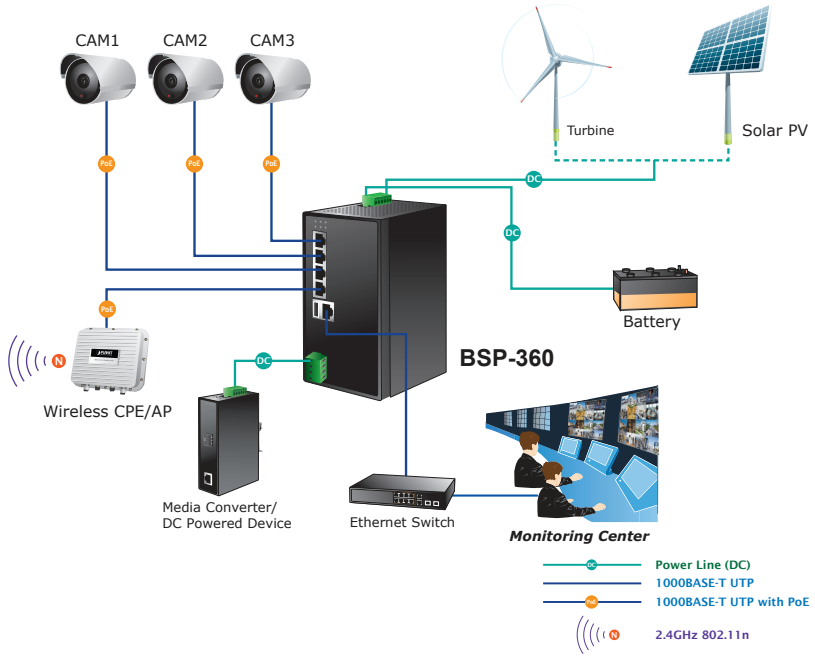
Level 0: -24V~2.1V (±0.1V)

Level 1: 2.1V~24V (±0.1V)



4. Hardware Installation

The following section describes the hardware installation of the BSP-360. Before connecting any network device to the BSP-360, read this chapter carefully.



Please follow the following steps to install the system:

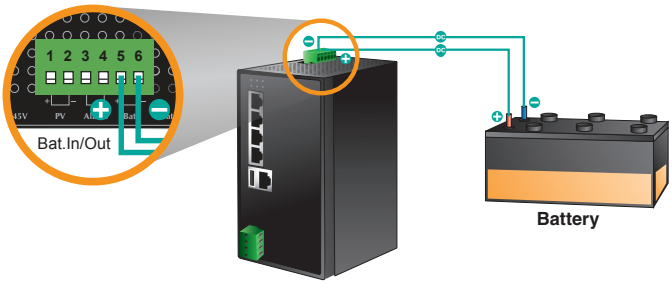
Step 1. Install BSP-360

Place the BSP-360 in a desired location using the wall-mount fixtures.

Note

a. Please install the BSP-360 in a proper enclosure or shelter.
b. The BSP-360 must be grounded.

Step 2. Install battery



1. Connect the negative electrode of the battery to the terminal for the negative electrode of the battery on the BSP-360.
2. Connect the positive electrode of the battery to the terminal for the positive electrode of the battery on the BSP-360.
3. After the battery is well connected to the BSP-360, the **PWR LED will be ON and System LED will slowly blink**, and **Fault LED will slowly blink** for PV not connected.

The BSP-360 accepts the **24V DC** battery system. Please pay attention to the battery characteristics and also refer to the section -- **Recommended Settings for Different Batteries** in the Quick Installation Guide.

Note

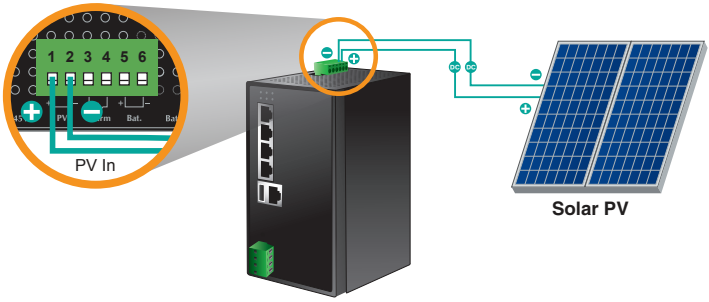
- Be noted for the thickness of electric wire and please refer to the section -- **Recommended Use of the Connected Wires** in the Quick Installation Guide.
- The default **LVD (Low Voltage Disconnection)** is set at **22.2V DC**; we suggest charge the voltage of battery to **23.5V DC or above** for the BSP-360.

Check the total power consumption of your connected network device before installation. Improper battery capacity could shorten the battery life or make your network device lack of power supply.

Note

Please link PLANET download center and download **BSP-360-PV&BAT_calculation**. The calculation list can help you to select solar panel and battery.

Step 3. Install PV Panel



1. Connect the negative electrode of the PV panel to the terminal for the negative electrode of the PV panel on the BSP-360.
2. Connect the positive electrode of the PV panel to the terminal for the positive electrode of the PV panel on the BSP-360.
3. After the PV is well connected to the BSP-360 and providing 24V or above voltage, the **System LED will blink fast** for battery charge if the battery is not full. And Fault LED will turn off.

Note

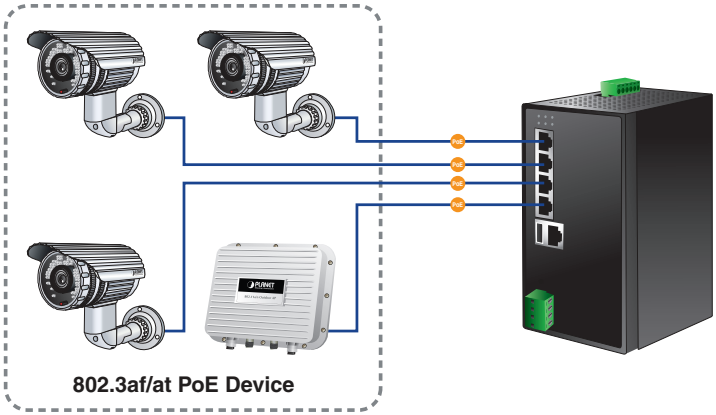
- Be noted for the thickness of electric wire and please refer to the section -- **Recommended Use of the Connected Wires** in the Quick Installation Guide.
- Check the total power consumption of your device and the sunshine duration of your area from the weather bureau for a proper PV. Improper PV could shorten the battery life or provide insufficient power to the BSP-360.

The BSP-360 supports a maximum of **45V DC input**.

Note

Please link PLANET download center and download **BSP-360-PV&BAT_calculation**. The calculation list can help you to select solar panel and battery.

Step 4. Connect 802.3af/802.3at PoE Device



1. Connect the PoE devices to ports 1~4 on the BSP-360.
2. Check the PoE-in-Use LED. If the network devices such as PoE camera and PoE wireless AP are powered, the **PoE-in-use LED will turn ON** and **Link/Act LED will blink** for a successful connection or data receiving.

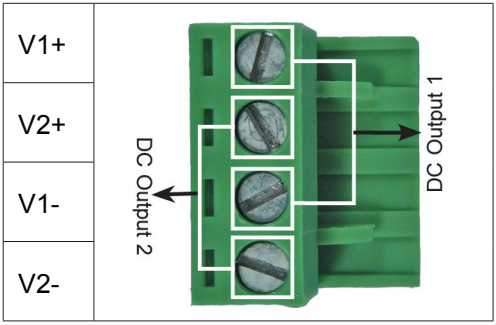
Note

- Please use **Cat5/5e or above cable** and the maximum distance should within **100 meters**.
- If the Network devices are installed outdoors, please consider to install a lightening arrestor to protect the network device and the BSP-360.

Step 5. Wiring the DC Outputs

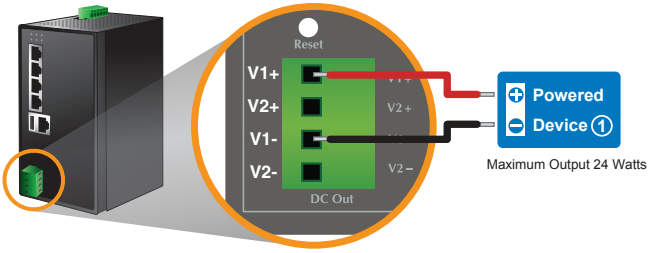
Please follow the steps below to insert the power wires for DC power required equipment.

1. Please find the terminal block connector with two DC power outputs shown below:

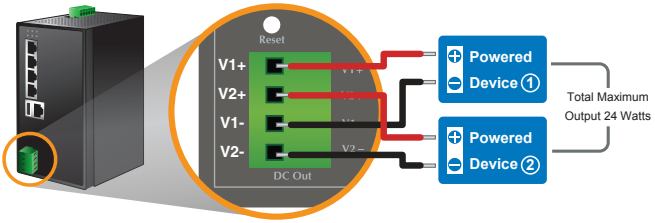


2. Insert the Positive and Negative DC wires into the V+ and V- terminals, respectively; Terminals 1 and 3 for Power 1, and Terminals 2 and 4 for Power 2.

3. Connect the other points of DC power wires to the power devices. Tighten the wire-clamp screws for preventing the wires from loosening.



One Powered Device



Two Powered Devices

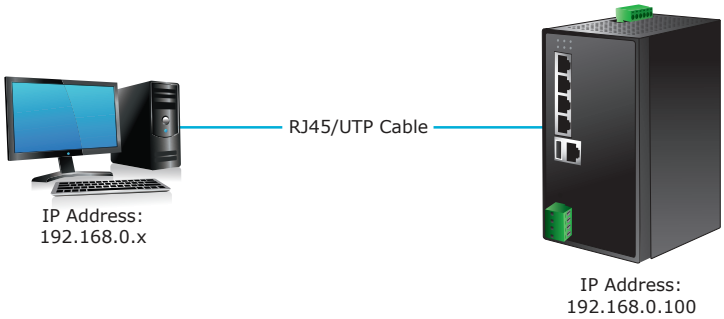
4. Install the terminal block on the BSP-360.

Note

- The voltage of DC out is based on the battery voltage and the maximum DC out from the BSP-360 is **24VDC, 1A**.
- The wire gauge for the terminal block should be in the range from **14 to 24 AWG**.
- The external device should also be grounded properly.

Please ensure the output voltage is correct for remote device. Otherwise, it will damage your remote device.

Step 6. Connect to PC

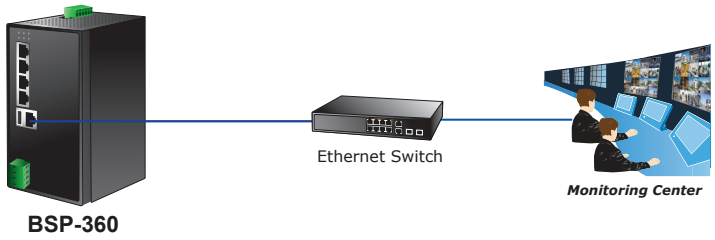


After completing the above 6 steps, the BSP-360 is ready for service.

5. Web Management

The following shows how to start up the **Web Management** of the BSP-360. Note the BSP-360 is configured through an Ethernet connection. Please make sure the manager PC must be set to the same **IP subnet address**.

For example, the default IP address of the BSP-360 is ***192.168.0.100***, then the manager PC should be set to **192.168.0.x** (where x is a number between 1 and 254, except 100), and the default subnet mask is 255.255.255.0.

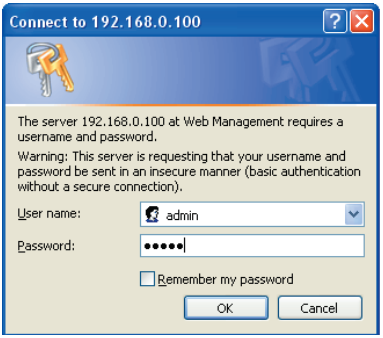


Logging in to the BSP-360

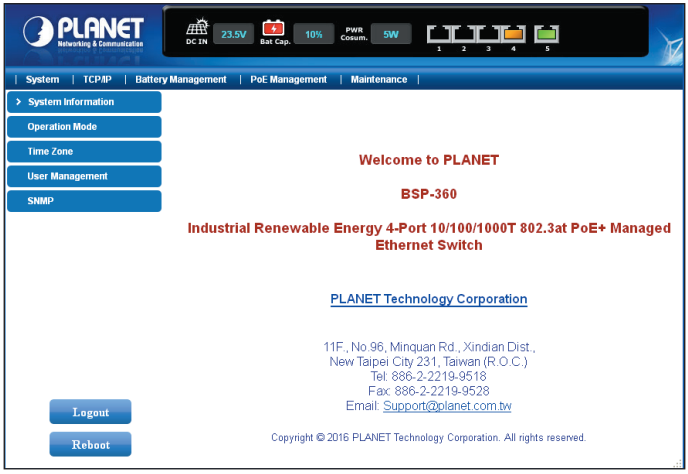
Step 1. Use Internet Explorer 8.0 or above for Web browser and enter IP address ***http://192.168.0.100*** (the factory-default IP address) to access the Web **interface.**

Step 2. When the following dialog box appears, please enter the default user name **"admin"** and password **"admin"** (or the password you have changed before).

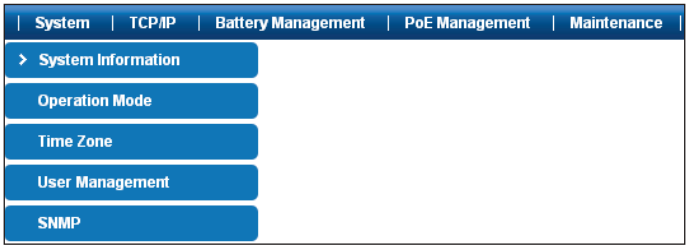
Default IP Address: **192.168.0.100**
Default User Name: **admin**
Default Password: **admin**



Step 3. After entering the password, the main screen appears. The above banner shows the information of DC IN, Battery and Power Consumption.



Step 4. The Switch Menu on the left of the Web page lets you access all the functions and status the BSP-360 provides.



Now, you can use the Web management interface to continue the Switch management. Please refer to the user manual for more understanding.

Note

For security reason, please change and memorize the new password after this first setup.

6. Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource on PLANET web site first to check if it could solve your issue. If you need more support information, please contact PLANET switch support team.

Switch support team mail address:
support_switch@planet.com.tw

BSP-360 User's Manual:
http://www.planet.com.tw/en/support/download.php?type1=22153&model=48944&type=3

BSP-360 PV&BAT Calculation:
http://www.planet.com.tw/en/support/faq.php?key=%5BBSP-360%5D%20PV%26BAT-Calculation

Appendix A: Recommended Use of the Connected Wires

(Applicable to the system with voltage attenuation less than 3%) The following table is applicable to the applications in the system.

Distance in feet (meters)						
Amps	24 AWG	22 AWG	20 AWG	18 AWG	16 AWG	14 AWG
2.5	5.6 ft (1.95m)	8.8 ft (2.70m)	14.12 ft (4.30m)	22.50 ft (6.86 m)	36.0 ft (11.0m)	56.4 ft (17.22m)
5.0	2.80 ft (0.86m)	4.4 ft (1.36m)	7.06 ft (2.16m)	11.26 ft (3.42m)	18.0 ft (5.48m)	28.2 ft (8.6m)
7.5	1.86 ft (0.56m)	2.96 ft (0.90m)	4.70 ft (1.44m)	7.50 ft (2.28m)	12.0 ft (3.66m)	18.82 ft (5.74m)
10	1.40 ft (0.42m)	2.22ft (0.68m)	3.52 ft (1.08m)	5.62 ft (1.72m)	9.0 ft (2.74m)	14.12 ft (4.30m)
12.5	1.12 ft (0.34m)	1.78ft (0.54m)	2.82 ft (0.86m)	4.50 ft (1.38m)	7.20 ft (2.20m)	11.30 ft (3.44m)
15	0.94 ft (0.28m)	1.48 ft (0.46m)	2.36 ft (0.72m)	3.76 ft (1.14m)	6.0 ft (1.82m)	9.42 ft (2.86m)

Appendix B: Recommended Settings for Different Batteries

We suggest Nickel-cadmium battery and Lead-acid battery for BSP-360. You could set the Battery type at Battery Management on the web.

Description	Specifications
Battery type	Nickel-cadmium Battery
System voltage	24V
Maximum input voltage	45V DC
Output voltage for load	Equal to battery's voltage
Float charge voltage	27.2V DC (26.0~30.0V)
Absorption charge voltage	29.2V DC (28.0~32.0V)
LVD (Low Voltage Disconnection)	22.2V DC (21.0~25.0V)
LVR (Low Voltage Reconnection)	24.8V DC (23.0~27.0V)
Temperature compensation Baseline@25°C	±40 mV/°C for NiCad type batteries, Charge cut-off @ 55°C
Battery type	Lead-acid Battery (Default Setting)
System voltage	24V
Maximum input voltage	45V DC
Output voltage for load	Equal to battery's voltage
Float charge voltage	27.2V DC (26.0~30.0V)
Absorption charge voltage	29.2V DC (28.0~32.0V)
LVD (Low Voltage Disconnection)	22.2V DC (21.0~25.0V)
LVR (Low Voltage Reconnection)	24.8V DC (23.0~27.0V)
Temperature compensation Baseline@25°C	±60 mV/°C for lead acid type batteries, Charge cut-off @ 55°C

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2010-AH4050-000