

EverSale PB-600-12

Mean Well PB-600 Series Battery Charger User Manual

Model: PB-600-12

1. INTRODUCTION

The Mean Well PB-600-12 is a high-performance single output power supply battery charger designed for various lead-acid and Li-ion battery types. This microprocessor-controlled unit offers advanced power management features, ensuring efficient and safe charging.

Key features include:

- 2/3/8 stage smart charging for lead-acid and Li-ion batteries.
- Universal AC input with full range compatibility.
- Built-in active Power Factor Correction (PFC) function.
- Integrated battery rescue function for deeply discharged batteries.
- Comprehensive protections: reverse polarity, short circuit, over voltage, and over temperature.
- Built-in temperature compensation function for optimized charging.
- 3-color LED loading indicator for charging status.
- Built-in remote ON-OFF control.
- Fan ON/OFF control for efficient cooling.



Figure 1: Mean Well PB-600-12 Single Output Battery Charger. This image shows the compact design of the charger with its robust casing and connection terminals.

2. SETUP AND INSTALLATION

Proper setup is crucial for the safe and efficient operation of your PB-600-12 battery charger. Please follow these steps carefully:

1. **Unpacking:** Carefully remove the charger from its packaging. Inspect for any visible damage.
2. **Ventilation:** Ensure the installation location provides adequate ventilation. The charger requires proper airflow for cooling. Avoid enclosed spaces or areas with high ambient temperatures. Refer to the mechanical specifications for air flow direction.
3. **Mounting:** The unit can be mounted horizontally or vertically. Secure the charger using appropriate fasteners through the mounting holes.
4. **Battery Connection:**
 - Connect the positive (+) terminal of the charger to the positive (+) terminal of the battery.
 - Connect the negative (-) terminal of the charger to the negative (-) terminal of the battery.
 - Ensure connections are secure and free from corrosion.
 - **Important:** Observe correct polarity to prevent damage to the charger and battery. The unit has reverse polarity protection, but incorrect connection should still be avoided.
5. **AC Input Connection:** Connect the AC input cable to a suitable power outlet (90-264 VAC, full range). Ensure the power outlet is grounded.
6. **Temperature Sensor (Optional):** If using the external temperature compensation function, connect the temperature sensor to the designated NTC/GND terminals (CN100, pins 7 and 8). This optimizes charging based on battery temperature.

7. **Remote ON-OFF Control (Optional):** For remote control functionality, connect to the RC+/RC- terminals (CN100, pins 9 and 10).

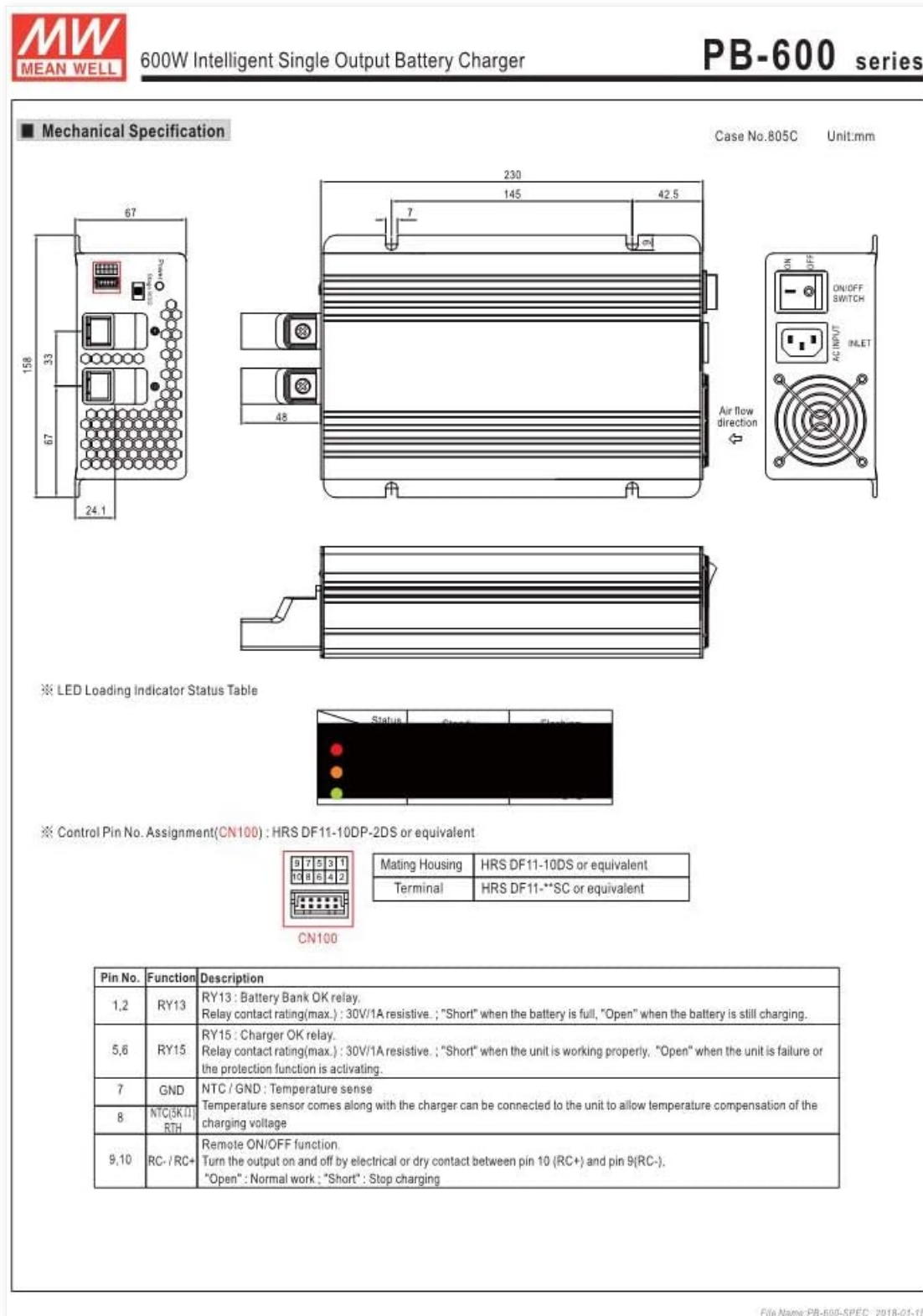


Figure 2: Mechanical Specifications and Connection Diagram. This diagram illustrates the physical dimensions, mounting points, air flow direction, and pin assignments for the control and sensor connections (CN100).

3. OPERATING INSTRUCTIONS

The PB-600-12 charger features intelligent charging stages and indicators for easy operation.

3.1. Charging Process

The charger employs a multi-stage charging algorithm (2, 3, or 8 stages selectable) to optimize battery life and

performance. The specific stages depend on the battery type and selected charging curve.

- **Stage 1 (Constant Current - CC):** The charger delivers a constant maximum current until the battery voltage reaches a preset level.
- **Stage 2 (Constant Voltage - CV):** The charger maintains a constant voltage while the current gradually decreases.
- **Stage 3 (Float/Maintenance):** Once the battery is fully charged, the charger switches to a lower float voltage to maintain the charge without overcharging.
- For 8-stage charging, additional stages like desulfation, soft start, absorption, and equalization may be included depending on the battery type and charger settings.

3.2. LED Indicators

The 3-color LED indicator provides real-time status of the charging process:

- **Orange:** Charging (Stage 1 or 2).
- **Green:** Charging complete / Battery full (Stage 3).
- **Red:** Error or fault condition (e.g., reverse polarity, short circuit). Refer to the Troubleshooting section.

3.3. Charging Curve Selection

The PB-600-12 allows selection of different charging curves suitable for various battery chemistries (e.g., flooded, Gel, AGM lead-acid, and Li-ion). Refer to the product's technical specifications or the switch settings on the unit to select the appropriate curve for your battery type.

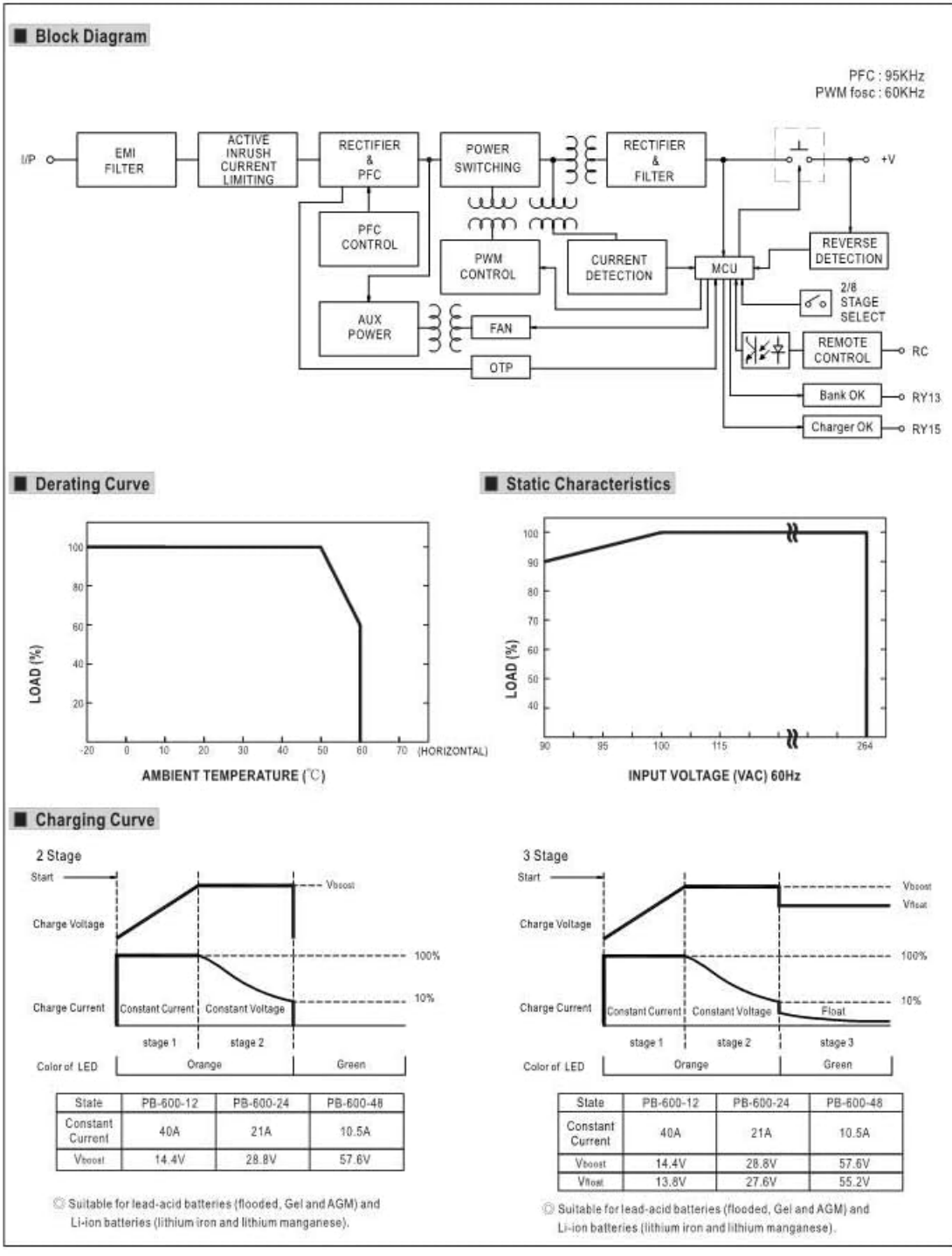


Figure 3: Block Diagram and Charging Curves. This image displays the internal block diagram of the charger and examples of 2-stage and 3-stage charging curves, illustrating voltage and current behavior during charging.

4. MAINTENANCE

To ensure the longevity and optimal performance of your Mean Well PB-600-12 battery charger, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the exterior of the charger with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure ventilation openings are free from dust and debris.
- **Connections:** Periodically check all electrical connections (AC input, battery terminals, sensor connections) to ensure they are secure and free from corrosion. Loose connections can lead to overheating or inefficient

charging.

- **Storage:** When not in use for extended periods, store the charger in a cool, dry, and well-ventilated area, away from direct sunlight and extreme temperatures.
- **Battery Health:** While the charger manages the charging process, regularly inspect your batteries for signs of damage, swelling, or leakage. Replace damaged batteries immediately.
- **Firmware:** There are no user-serviceable firmware updates. Any internal servicing should only be performed by qualified personnel.

5. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your PB-600-12 battery charger. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
Charger not turning on / No LED indication	No AC input power; Loose AC connection; Internal fault.	Check AC power outlet and cable connection. Ensure the power switch is ON. If problem persists, contact support.
Red LED indicator is on	Reverse polarity connection; Short circuit at output; Over voltage; Over temperature.	Disconnect from AC and battery. Verify battery polarity and reconnect correctly. Check for any short circuits in the battery cables or terminals. Ensure the battery voltage is within the charger's supported range. Allow the unit to cool down if it's in a hot environment or has been running for a long time. Ensure proper ventilation.
Battery not charging or charging slowly	Incorrect battery type selection; Battery deeply discharged; Battery faulty; Loose connections.	Verify the correct charging curve is selected for your battery type. The built-in battery rescue function may take time for deeply discharged batteries. Test the battery with another charger or a battery tester to confirm its health. Check all connections for tightness.
Fan not operating	Fan ON/OFF control setting; Low load/temperature; Fan fault.	The fan is temperature-controlled and may not operate under low load or cool conditions. If the unit is hot and the fan is still not operating, contact support.

6. SPECIFICATIONS

Detailed technical specifications for the Mean Well PB-600-12 battery charger:

Parameter	Value
Model Number	PB-600-12
Product Dimensions	9.06 x 6.22 x 2.64 inches
Item Weight	5.2 pounds
Input Voltage	90 to 264 VAC (Full Range)
Output Power	600 W
Output Type	Single Output

Parameter	Value
Charger Type	2/3/8 Stage Smart Charger
Battery Types Supported	Lead-acid batteries (Flooded, Gel, AGM) and Li-ion batteries
Manufacturer	MEAN WELL
Brand	EverSale
Color	Red
UPC	829207693361



600W Intelligent Single Output Battery Charger

PB-600 series



■ Features :

- Charger for lead-acid batteries (flooded, Gel and AGM) and Li-ion batteries (lithium iron and lithium manganese) (Note.1)
- 2/3/8 stage charging (Note 5)
- Built-in battery rescue function
- Controlled by microprocessor
- Universal AC input / Full range
- Built-in active PFC function PF>0.95
- Protection: Reverse polarity / Short circuit / Over voltage / Over temperature
- 3 color LED loading indicator
- Built-in remote ON-OFF control
- Built-in temperature compensation function
- Built-in fan speed control (depends on charging current)
- 3 years warranty



SPECIFICATION

MODEL	PB-600-12	PB-600-24	PB-600-48	
OUTPUT	BOOST CHARGE VOLTAGE V_{boost}	14.4V	28.8V	57.6V
	FLOAT CHARGE VOLTAGE V_{float}	13.8V	27.6V	55.2V
	RECOMMENDED BATTERY CAPACITY(AMP HOURS)(Note 4)	135 ~ 400AH	70 ~ 210AH	35 ~ 105AH
	BATTERY TYPE	Open & Sealed Lead Acid		
	OUTPUT CURRENT	40A	21A	10.5A
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR (Typ.)	0.95/230VAC 0.98/115VAC at full load		
	EFFICIENCY (Typ.)	86%	87%	89%
	AC CURRENT (Typ.)	6.8A/115VAC	3.4A/230VAC	
	INRUSH CURRENT (Typ.)	25A/115VAC	50A/230VAC	
	LEAKAGE CURRENT	<3.5mA/240VAC		
PROTECTION	OVER VOLTAGE	16 ~ 18V	32 ~ 35V	64.5 ~ 69.5V
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover		
	REMOTE CONTROL	Open: Normal work Short: Stop Charging		
FUNCTION	LEAKAGE CURRENT FROM BATTERY (Typ.)	1mA		
	FAST CHARGE	2 / 3 / 8 stage selectable		
	CHARGER OK	Relay contact (RY15)		
	OUTPUT OK	Relay contact (RY13)		
	TEMPERATURE SENSE	By NTC		
ENVIRONMENT	WORKING TEMP.	-20 ~ +60°C (Refer to "Derating Curve")		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	±0.05%/°C (0 ~ 50°C)		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min, each along X, Y, Z axes		
SAFETY & EMC (Note 3)	SAFETY STANDARDS	UL1012, TUV EN60335-1, EN60335-2-29 (except for 48V), EN60950-1(48V only), EAC TP TC 004 approved		
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH		
	EMC EMISSION	Compliance to EN55032 class B (CISPR32), EN61000-3-2,-3, EAC TP TC 020		
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, light industry level, criteria A, EAC TP TC 020		
	MTBF	135.6K hrs min. MIL-HDBK-217F (25°C)		
	DIMENSION	230*158*67mm(L*W*H)		
	PACKING	2.2Kg, 6pcs/14.2Kg/1.76CUFT		
NOTE	<ol style="list-style-type: none"> 1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and MEAN WELL for details. 2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 3. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 4. This is Mean Well's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 5. Please choose the "3 stage" selection when the charger is used to charge the batteries and power the loads in the same time. 6. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 			

Figure 4: Detailed Specifications Sheet. This image provides a comprehensive table of electrical, environmental, and safety specifications for the PB-600 series, including specific values for PB-600-12, PB-600-24, and PB-600-48 models.

7. WARRANTY INFORMATION

The Mean Well PB-600-12 battery charger comes with a **3-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use and service conditions.

The warranty does not cover:

- Damage caused by improper installation, misuse, abuse, or neglect.
- Damage caused by unauthorized repairs or modifications.
- Damage due to natural disasters, power surges, or other external causes.
- Normal wear and tear.

To make a warranty claim, please retain your proof of purchase and contact customer support as detailed in the Support section.

8. SUPPORT AND CONTACT INFORMATION

For technical assistance, warranty claims, or any other inquiries regarding your Mean Well PB-600-12 battery charger, please contact the manufacturer or authorized distributor.

Please have your product model number (PB-600-12) and proof of purchase ready when contacting support.

Note: Specific contact details for EverSale (the brand) or MEAN WELL (the manufacturer) are not provided in this manual. Please refer to the product packaging or the retailer's website for the most current support information.