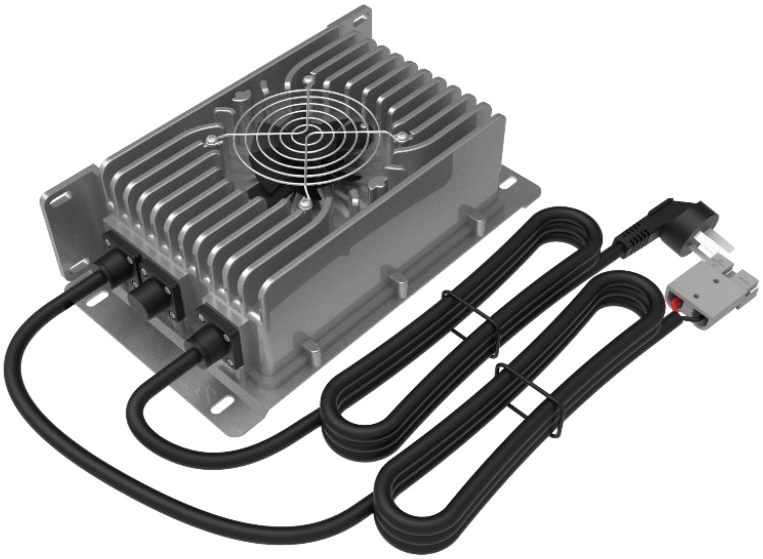


CE

■ Features

- Charger for Lithium batteries (Li-ion,LiFePO4) and Lead-Acid (AGM, GEL, VRLA) batteries
- Built-in 4 stage charging curve (for lithium batteries) and 3 stage charging curve (for lead-acid batteries)
- Universal AC input, world-wide range AC90-264V 50/60Hz
- With active PFC function, CE & FCC certifications
- Optional CAN communication
- Protection: Short circuit / Over voltage / Over temperature / Reverse polarity protection
- Waterproof and dustproof, IP67 class level

■ Applications

- Golf carts / Buggy / Utility EV
- Electric forklift
- AGV / Drone/ Robot
- Electric motorcycle/ tricycle
- Energy storage system
- Marina / Ship / Boat

■ Description

The WP2300 series is an aluminum alloy housing, IP67 waterproof charger with a rated output power of 2300W at 220-240VAC input and 1400W at 100-120VAC input, with programmable 3 and 4 stage charging curves for 48V,60V, 72V and 84V Lead- acid batteries (Gel, AGM, VRLA) and Lithium batteries (Li-ion, LiFePO4). It is widely used in golf carts, utility EVs, AGVs and similar applications.

The part-number naming rule as follows:

WP2300-XXXYYY

- YYY: Output current, range 10A~45A, YYY=260 means 26.0A
- XXX: Output voltage, range 40V~88V, XXX=840 means 84.0V
- WP2300: Series name

Li-ion battery chargers

MODEL			WP2300-504450	WP2300-588380	WP2300-672330	WP2300-756300	WP2300-840270
OUTPUT	Charge voltage limited		50.4V±1%	58.8V±1%	67.2V±1%	75.6V±1%	84.0V±1%
	Charge voltage range		40-50.4V	48.0-58.8V	57.0~67.2V	60-75.6V	70.0-84.0V
	Max. charge current	200-240VAC	45.0A±10%	38.0A±10%	33.0A±10%	30.0A±10%	27.0A±10%
		100-120VAC	27.0A±10%	23.0A±10%	20.0A±10%	18.0A±10%	16.0A±10%
	Pre-charge current		20 % of CC (constant current)				
	Charge-end current	200-240VAC	≤4.5A ±10%	≤3.8A ±10%	≤3.3A ±10%	≤3.0A ±10%	≤2.7A ±20%
		100-120VAC	≤2.7A ±10%	≤2.3A ±10%	≤2.0A ±10%	≤1.8A ±10%	≤1.6A ±20%
	Max. output power	200-240VAC	2300W	2300W	2300W	2300W	2300W
		100-120VAC	1400W	1400W	1400W	1400W	1400W
	Recommended battery capacity Note 3		12S LIPO/LI-ION 100 - 500Ah	14S LIPO/LI-ION 90 - 400Ah	16S LIPO/LI-IOM 80 - 330Ah	18S LIPO/LI-ION 75 - 300Ah	20S LIPO/LI-ION 66 - 300Ah
	Leakage current from battery (Typ.)		≤1mA				
CHARGE INDICATOR	Multi-color LED or LCD panel		Red LED flashing: Error Red LED on: Charging (battery < 80%) Yellow LED on: Almost full (80%–99%) Green LED on: Fully charged or standby LCD digital panel: Optional accessory				
COMMUNICATION FUNCTION	CAN / 485		Charging voltage, charging current, termination current, battery type, can be set via CAN/RS485 communication				
INPUT	Rated input voltage		100 - 240VAC 50 / 60Hz				
	Input voltage range Note 4		90 - 264VAC				
	Power factor (Typ.)		PF>0. 96 @Full load				
	Input current (Typ.)		14A@100VAC				
	Inrush current (Typ.)		Cold start 75A @230VAC				
	Standby input power		< 6W				
	Efficiency (Typ.) @AC230V		93%	93%	94%	94%	94%
PROTECTION	Short circuit Note 5		Protection type: Shut down output				
	Over voltage		>4.35V (single cell)				
	Reverse polarity		By internal relay				
	Over temperature		Shut down output, recovers automatically after temperature goes down				
ENVIRONMENT	Working temperature		-10 - +40℃ (Refer to " Derating Curve")				
	Working humidity		0 - 90% RH				
	Storage temperature, humidity		-40 - +70℃, 0 - 95% RH				
	Cooling		Fan convection				
	Vibration resistance		10 – 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes				
SAFETY & EMC Note 6	Max. temperature rise		< 30℃ on casing				
	Hi-Pot Insulation		i/p to o/p: 3000V (1 min)				
	Safety standards		IEC62368				
	EMC emission		Parameter	Standard			Test Level / Note
			Conducted	EN55032 FCC Part 15			Class B
			Radiated	EN55032 FCC Part 15			Class B
			Harmonic Current	EN61000-3-2			.....
			Voltage Flicker	EN61000-3-3			.....
	EMC immunity		EN61000-4-2，EN61000-4-3，EN61000-4-4，EN61000-4-5，EN61000-4-6，EN61000-4-8，EN61000-4-11				
OTHERS	MTBF		30,000 h				
	Dimension		288 x 168 x 89 mm (L x W x H)				
	Weight		4800 g				

NOTE

1. vendor or Green digital power for details.
2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
3. This is general suggested. Please consult your battery manufacturer about maximum charging current limitation.
4. Derating is needed at AC100~120V input or above 40℃ ambient. Please check the derating curve for more details.
5. This protection mechanism is specified for the case the short circuit occurs after the charger is turned on.
6. The battery charger is considered as an independent unit, but the final equipment still needs to re-confirm that the whole system complies with the EMC directives.
7. CAN communication protocol is defined by user, or using factory default protocol.
8. LCD display/setting panel is an optional part when place order.

LiFePO4 battery chargers

MODEL			WP2300-504450	WP2300-540400	WP2300-576380	WP2300-720300	WP2300-864260
OUTPUT	Charge voltage limited		50.4V±1%	54.0V±1%	57.6V±1%	72.0V±1%	86.4V±1%
	Charge voltage range		40.0-51.4V	40.0-54.0V	40.0-57.6V	50.0-72.0V	60.0-86.4V
	Max. charge current	200-240VAC	45.0A±10%	40.0A±10%	38.0A±10%	30.0A±10%	26.0A±10%
		100-120VAC	27.0A±10%	25.0A±10%	23.0A±10%	18.0A±10%	16.0A±10%
	Pre-charge current		20 % of CC (constant current)				
	Charge-end current	200-240VAC	≤4.5A ±10%	≤4.0A ±10%	≤3.8A ±10%	≤3.0A ±10%	≤2.6A ±10%
		100-120VAC	≤2.7A ±10%	≤2.5A ±10%	≤2.3A ±10%	≤1.8A ±10%	≤1.6A ±10%
	Max. output power	200-240VAC	2300W	2300W	2300W	2300W	2300W
		100-120VAC	1400W	1400W	1400W	1400W	1400W
	Recommended battery capacity Note 3		14S LFP/LiFePO4 100 - 450Ah	15S LFP/LiFePO4 100 - 400Ah	16S LFP/ LiFePO4 90 - 380Ah	20S LFP/LiFePO4 75 - 300Ah	24S LFP/LiFePO4 70 - 300Ah
	Leakage current from battery (Typ.)		≤1mA				
CHARGE INDICATOR	Multi-color LED or LCD panel		Red LED flashing: Error Red LED on: Charging (battery < 80%) Yellow LED on: Almost full (80%–99%) Green LED on: Fully charged or standby LCD digital panel: Optional accessory				
COMMUNICATION FUNCTION	CAN / 485		Charging voltage, charging current, termination current, battery type, can be set via CAN/RS485 communication				
INPUT	Rated input voltage		100 - 240VAC 50 / 60Hz				
	Input voltage range Note 4		90 - 264VAC				
	Power factor (Typ.)		PF>0. 96 @full load				
	Input current (Typ.)		14A@100VAC				
	Inrush current (Typ.)		Cold start 75A @230VAC				
	Standby input power		< 6W				
	Efficiency (Typ.)		93%	93%	94%	94%	94%
PROTECTION	Short circuit Note 5		Protection type: Shut down output				
	Over voltage		>3.7V (single cell)				
	Reverse polarity		By internal relay				
	Over temperature		Shut down output, recovers automatically after temperature goes down				
ENVIRONMENT	Working temperature		-10 - +40℃ (Refer to " Derating Curve")				
	Working humidity		0 - 90% RH				
	Storage temperature, humidity		-40 - +70℃, 0 - 95% RH				
	Cooling		Fan convection				
	Vibration resistance		10 – 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes				
SAFETY & EMC Note 6	Max. temperature rise		< 30℃ on casing				
	Hi-Pot Insulation		i/p to o/p: 3000V (1 min)				
	Safety standards		IEC62368				
	EMC emission		**Parameter**	**Standard**			**Test Level / Note**
			Conducted	EN55032 FCC Part 15			Class B
			Radiated	EN55032 FCC Part 15			Class B
			Harmonic Current	EN61000-3-2			.....
			Voltage Flicker	EN61000-3-3			.....
	EMC immunity		EN61000-4-2，EN61000-4-3，EN61000-4-4，EN61000-4-5，EN61000-4-6，EN61000-4-8，EN61000-4-11				
OTHERS	MTBF		30,000 h				
	Dimension		288 x 168 x 89 mm (L x W x H)				
	Weight		4800 g				

NOTE

1. vendor or Green digital power for details.
2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
3. This is general suggested. Please consult your battery manufacturer about maximum charging current limitation.
4. Derating is needed at AC100~120V input or above 40℃ ambient. Please check the derating curve for more details.
5. This protection mechanism is specified for the case the short circuit occurs after the charger is turned on.
6. The battery charger is considered as an independent unit, but the final equipment still needs to re-confirm that the whole system complies with the EMC directives.
7. CAN communication protocol is defined by user, or using factory default protocol.
8. LCD display/setting panel is an optional part when place order.

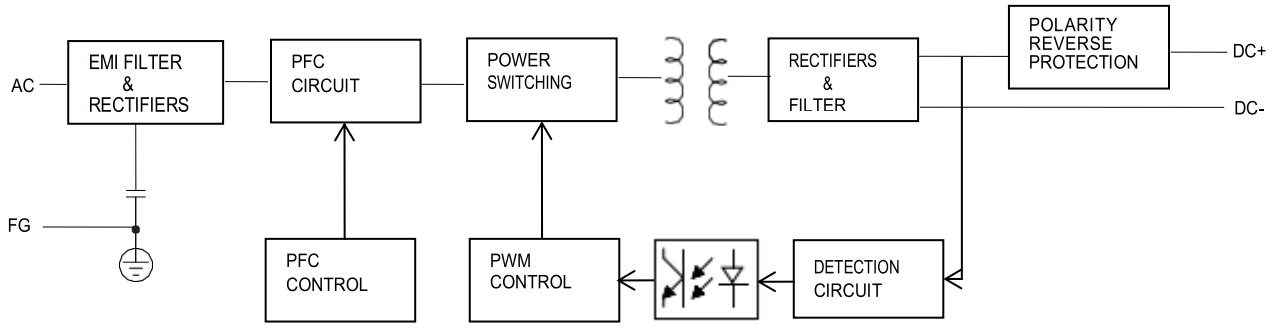
Lead-Acid battery chargers

MODEL			WP 2300-594380	WP2300-740300	WP2300-888250
OUTPUT	Charge voltage limited		59.2V±1%	74.0V±1%	88.8V±1%
	Charge voltage range		40.0-59.2V	50.0-74.0V	60.0-88.8V
	Float charge（low voltage）		55.2V±1%	69.0V±1%	82.8V±1%
	Max. charge current	200-240VAC	38.0A±10%	30.0A±10%	25.0A±10%
		100-120VAC	23.0A±10%	18.0A±10%	15.0A±10%
	Charge-end current	200-240VAC	≤7.6A ±20%	≤6.0A ±20%	≤5.0A ±20%
		100-120VAC	≤4.6A ±20%	≤3.6A ±20%	≤3.0A ±20%
	Max. output power	200-240VAC	2300W	2300W	2300W
		100-120VAC	1400W	1400W	1400W
	Recommended battery capacity Note 3		48V PB-ACID/GEL/AGM/VRLA 180 - 450Ah	60V PB-ACID/GEL/AGM/VRLA 160 - 400Ah	72V PB-ACID/GEL/AGM/VRLA 140 - 350Ah
	Leakage current from battery (Typ.)		≤1mA		
CHARGE INDICATOR	Multi-color LED or LCD panel		Red LED flashing: Error Red LED on: Charging (battery < 80%) Yellow LED on: Almost full (80%–99%) Green LED on: Fully charged or standby LCD digital panel: Optional accessory		
COMMUNICATION FUNCTION	CAN / 485		Charging voltage, charging current, termination current, battery type, can be set via CAN/RS485 communication		
INPUT	Rated input voltage		100 - 240VAC 50 / 60Hz		
	Input voltage range Note 4		90 - 264VAC		
	Power factor (Typ.)		PF>0. 96 @full load		
	Input current (Typ.)		14A@100VAC		
	Inrush current (Typ.)		Cold start 75A @230VAC		
	Standby input power		< 6W		
	Efficiency (Typ.)		93	94%	94%
PROTECTION	Short circuit Note 5		Protection type: Shut down output		
	Over voltage		>15.5V (single cell)		
	Reverse polarity		By internal relay		
	Over temperature		Shut down output, recovers automatically after temperature goes down		
ENVIRONMENT	Working temperature		-10 - +40℃ (Refer to " Derating Curve")		
	Working humidity		0 - 90% RH		
	Storage temperature, humidity		-40 - +70℃, 0 - 95% RH		
	Cooling		Fan convection		
	Vibration resistance		10 – 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes		
SAFETY & EMC Note 6	Max. temperature rise		< 30℃ on casing		
	Hi-Pot Insulation		i/p to o/p: 3000V (1 min)		
	Safety standards		IEC62368		
	EMC emission		Parameter	Standard	Test Level / Note
			Conducted	EN55032 FCC Part 15	Class B
			Radiated	EN55032 FCC Part 15	Class B
			Harmonic Current	EN61000-3-2	.....
			Voltage Flicker	EN61000-3-	.....
	EMC immunity		EN61000-4-2，EN61000-4-3，EN61000-4-4，EN61000-4-5，EN61000-4-6，EN61000-4-8，EN61000-4-11		
OTHERS	MTBF		30,000 h		
	Dimension		288 x 168 x 89 mm (L x W x H)		
	Weight		4800 g		

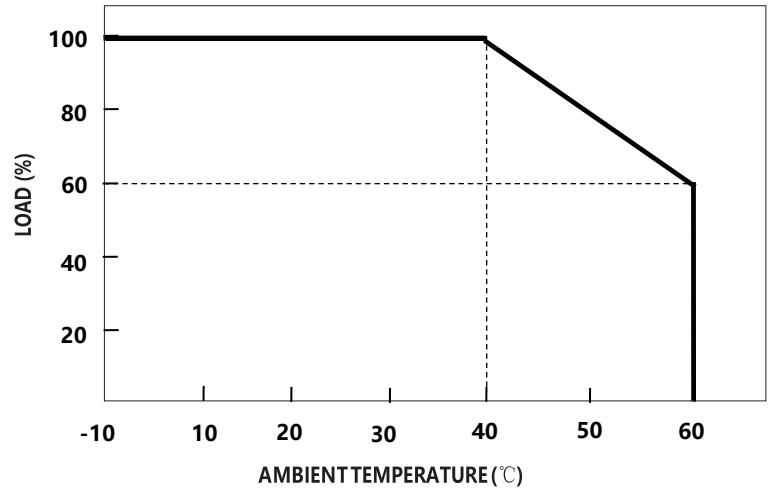
NOTE

1. vendor or Green digital power for details.
2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
3. This is general suggested. Please consult your battery manufacturer about maximum charging current limitation.
4. Derating is needed at AC100~120V input or above 40℃ ambient. Please check the derating curve for more details.
5. This protection mechanism is specified for the case the short circuit occurs after the charger is turned on.
6. The battery charger is considered as an independent unit, but the final equipment still needs to re-confirm that the whole system complies with the EMC directives.
7. CAN communication protocol is defined by user, or using factory default protocol.
8. LCD display/setting panel is an optional part when place order.

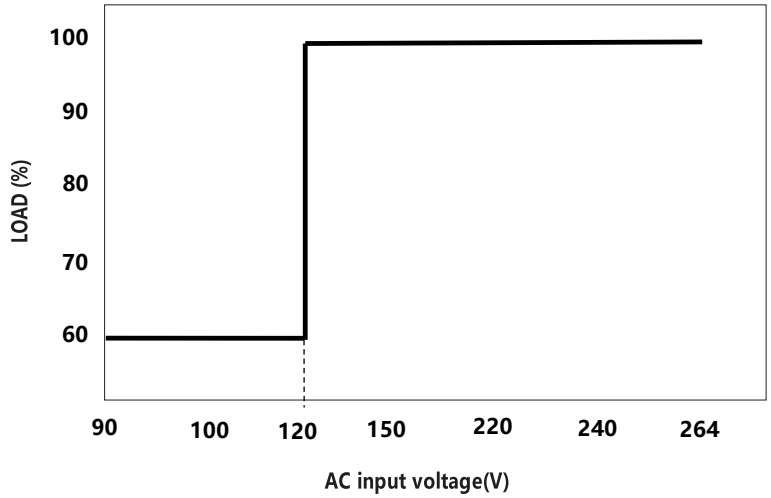
Block Diagram



Derating Curve for Ambient Temperature

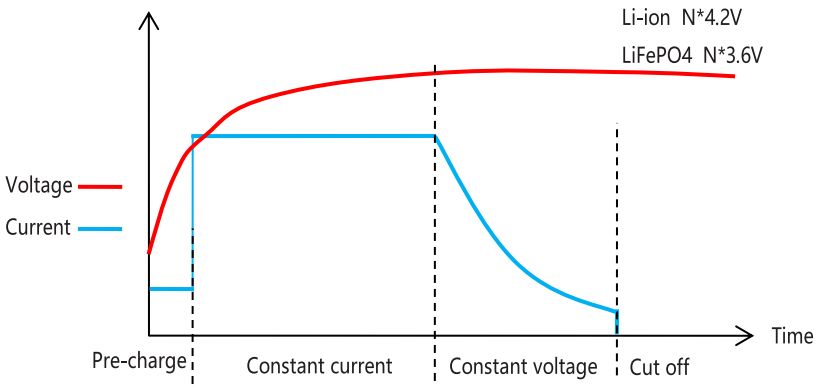


Derating Curve for AC Input Voltage

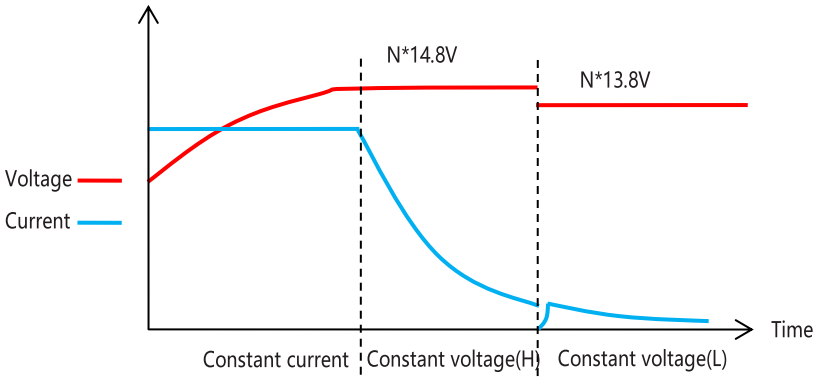


■ Charging Curve

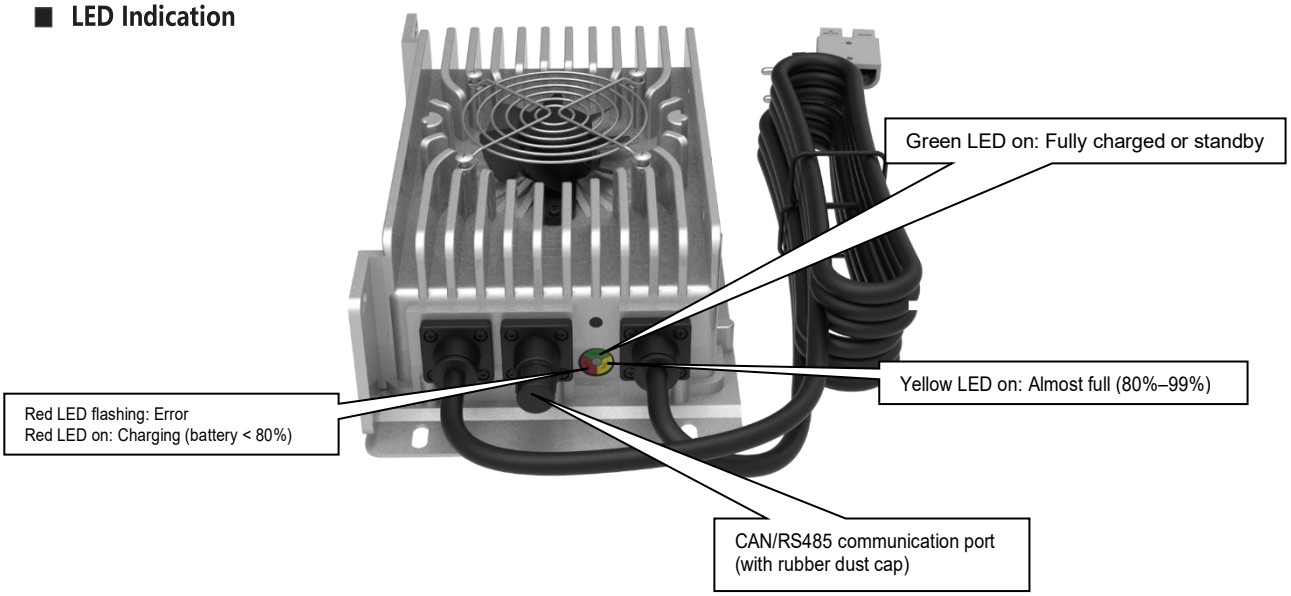
◎ 4 stage charging curve (Li-ion & LiFePO4 battery charger)



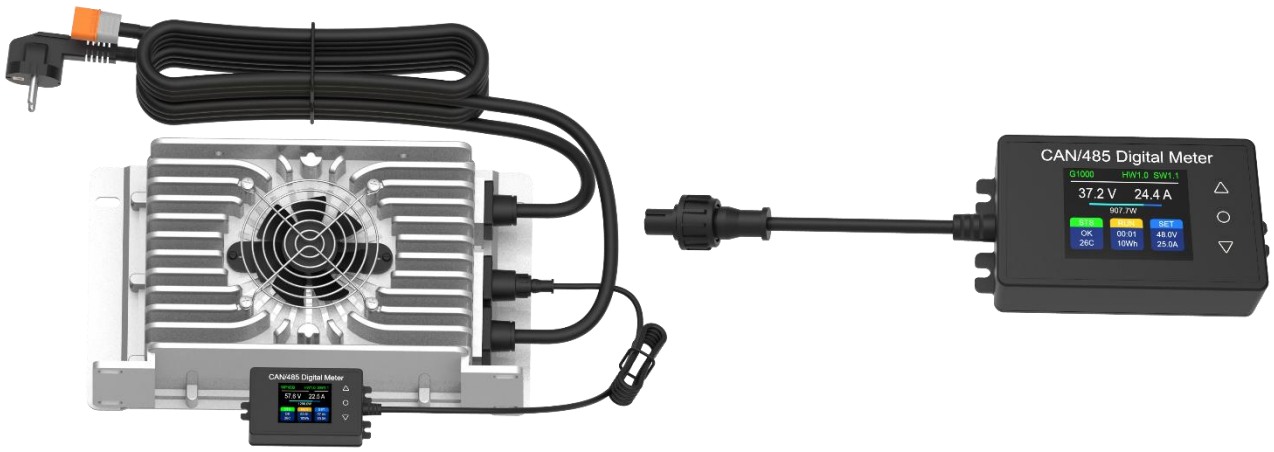
◎ 3 stage charging curve (Lead-Acid battery charger)



■ LED Indication



Product & Optional CAN Meter



Mechanical Specification

