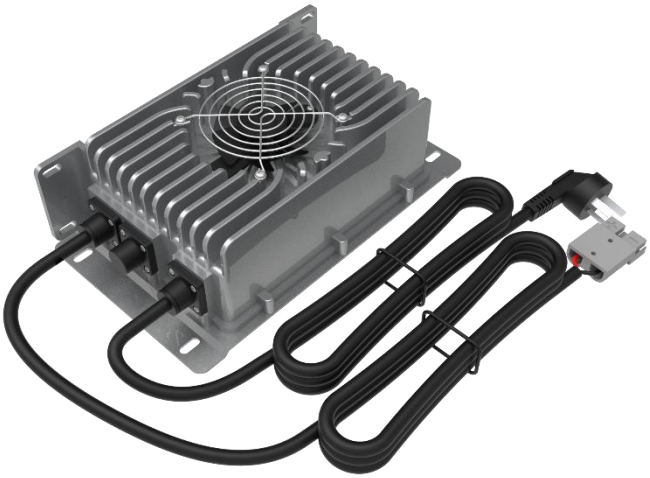


CE

■ Features

- Charger for Lithium-Ion 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 WP2800 series is an aluminum alloy housing waterproof IP67 charger with a rated output power 2800W at 220-240VAC input and 1600W at 100-120VAC input, with programmable 3 and 4 stages charging curves for 48V 60V 72V 84V Lead- acid batteries (Gel, AGM, VRLA) and Lithium batteries (Li-ion,LiFePO4). They are widely used for golf club cart, utility EV, AGV and so on.

The part-number named rule as following:

WP2800-XXXYYY

- YYY: Output current, range 10A~50A, YYY=260 means 26.0A
- XXX: Output voltage, range 40V~88V, XXX=840 means 84.0V
- WP2800: Series name

Li-ion battery charger

MODEL			WP2800-504500	WP2800-588450	WP2800-672400	WP2800-756370	WP2800-840330
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	50.0A±10%	45.0A±10%	40.0A±10%	37.0A±10%	33.0A±10%
		100-120VAC	32.0A±10%	27.0A±10%	23.0A±10%	21.0A±10%	19.0A±10%
	Pre-charge current		20 % of CC (constant current)				
	Charge-end current	200-240VAC	≤5.0A ±10%	≤4.5A ±10%	≤4.0A ±10%	≤3.7A ±10%	≤3.3A ±20%
		100-120VAC	≤3.6A ±10%	≤2.7A ±10%	≤2.3A ±10%	≤2.1A ±10%	≤1.9A ±20%
	Max. output power	200-240VAC	2500W	2800W	2800W	2800W	2800W
		100-120VAC	1600W	1600W	1600W	1600W	1600W
	Recommended battery capacity Note.3		12S LIPO/LI-ION 100 - 500Ah	14S LIPO/LI-ION 90 - 450Ah	16S LIPO/LI-IOM 80 - 400Ah	18S LIPO/LI-ION 75 - 370Ah	20S LIPO/LI-ION 66 - 330Ah
	Leakage current from battery (Typ.)		≤1mA				
CHARGE INDICATOR	LED		Red: Battery capacity is less than 80%. Yellow: Battery capacity is greater than 80%. Green: Standby or battery is full				
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		94%	94%	94%	94%	94%
PROTECTION	Short circuit Note.5		Protection type : Shut down output				
	Over voltage		>4.35V*N				
	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 I Note
			Conducted	EN55032 FCC PART15			Class B
			Radiated	EN55032 FCC PART15			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		30000H				
	Dimension		288*168*89mm (L*W*H)				
	Weight		6000g				

NOTE

1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and 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 Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.
4. Derating may be needed under low input voltages. 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 need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EM I testing of component power supplies."

LiFePO4 battery charger

MODEL			WP2800-504500	WP2800-540500	WP2800-576480	WP2800-720385	WP2800-864350
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	50.0A±10%	50.0A±10%	48A±10%	38A±10%	35.0A±10%
		100-120VAC	30.0A±10%	28.0A±10%	27.0A±10%	22.0A±10%	20.0A±10%
	Pre-charge current		20 % of CC (constant current)				
	Charge-end current	200-240VAC	≤5.0A ±10%	≤5.0A ±10%	≤4.8A ±10%	≤3.8A ±10%	≤3.5A ±10%
		100-120VAC	≤3.0A ±10%	≤2.8A ±10%	≤2.7A ±10%	≤2.2A ±10%	≤2.0A ±10%
	Max. output power	200-240VAC	2500W	2700W	2800W	2800W	2800W
		100-120VAC	1500W	1500W	1600W	1600W	1600W
	Recommended battery capacity Note.3		14S LFP/LiFePO 100 - 500Ah	15S LFP/ LIFEPO4 100 - 500Ah	16S LFP/ LIFEPO490 - 480Ah	20S LFP/LIFEPO4 75 - 380Ah	24S LFP/ LIFEPO4 70 - 350Ah
	Leakage current from battery (Typ.)		≤1mA				
CHARGE INDICATOR	LED		Red: Battery capacity is less than 80%. Yellow: Battery capacity is greater than 80%. Green: Standby or battery is full				
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%	94%	94%
PROTECTION	Short circuit Note.5		Protection type : Shut down output				
	Over voltage		>3.7V*N				
	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 I Note
			Conducted	EN55032 FCC PART15			Class B
			Radiated	EN55032 FCC PART15			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		30000H				
	Dimension		288*168*89mm (L*W*H)				
	Weight		6000g				

NOTE

1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and 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 Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.
4. Derating may be needed under low input voltages. 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 need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EM I testing of component power supplies."

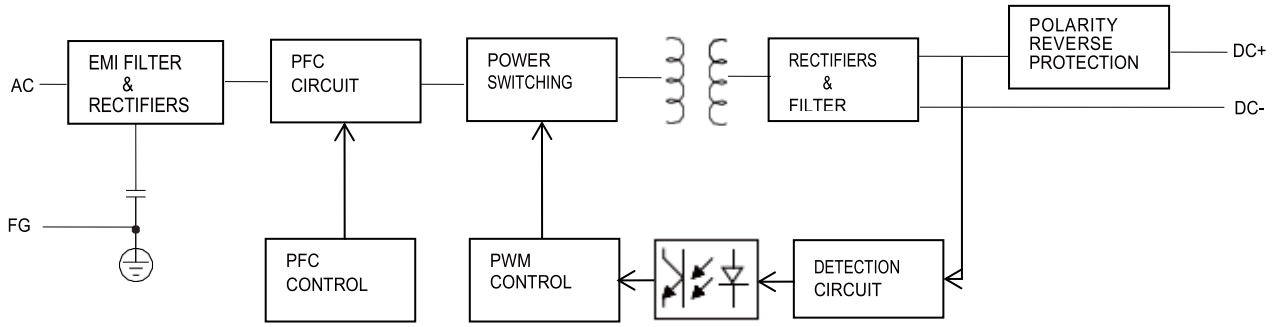
Lead-Acid battery charger

MODEL			WP 2800-59450	WP2800-740400	WP2800-888350
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	45.0A±10%	40.0A±10%	35.0A±10%
		100-120VAC	27.0A±10%	23.0A±10%	20.0A±10%
	Charge-end current	200-240VAC	≤9.0A ±20%	≤8.0A ±20%	≤7.0A ±20%
		100-120VAC	≤5.4A ±20%	≤4.6A ±20%	≤4.0A ±20%
	Max. output power	200-240VAC	2600W	2800W	2800W
		100-120VAC	1500W	1600W	1600W
	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	LED		Red: Battery capacity is less than 80%. Yellow: Battery capacity is greater than 80%. Green: Standby or battery is full		
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*N		
	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 I Note
			Conducted	EN55032 FCC PART15	Class B
			Radiated	EN55032 FCC PART15	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		30000H		
	Dimension		288*168*89mm (L*W*H)		
	Weight		6000g		

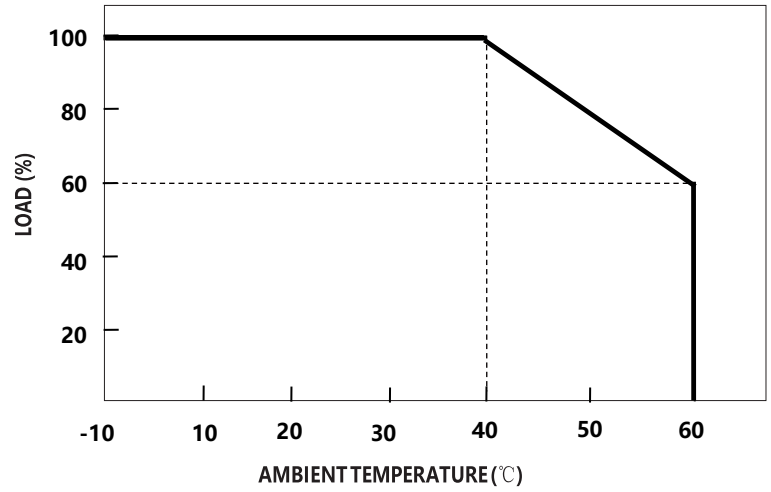
NOTE

1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and 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 Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.
4. Derating may be needed under low input voltages. 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 need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EM I testing of component power supplies."

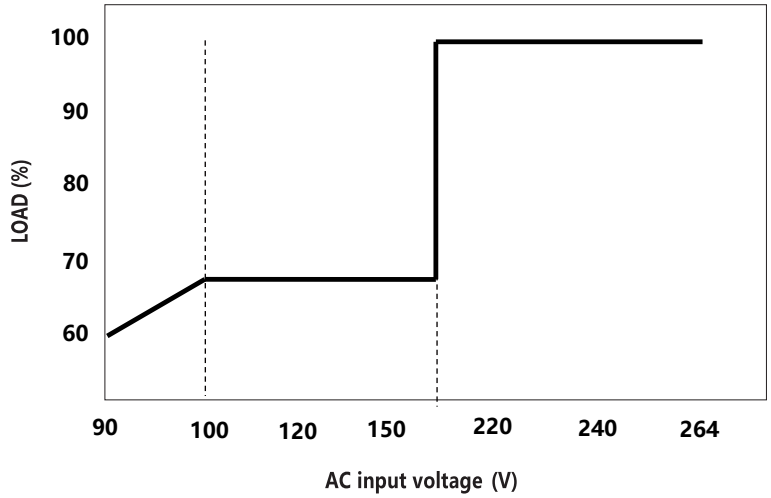
Block Diagram



Derating Curve

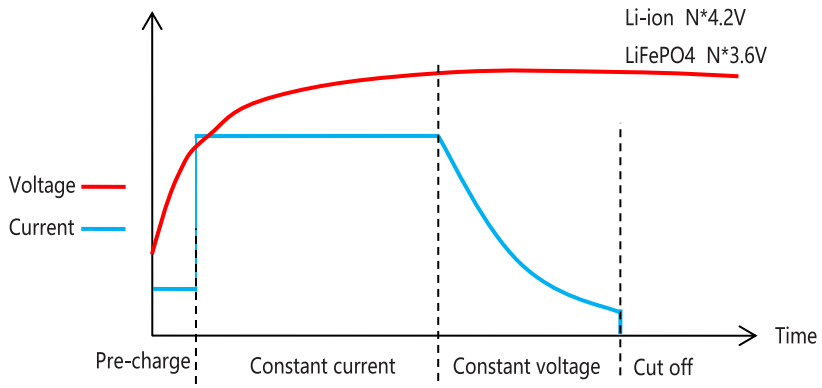


Static Characteristics

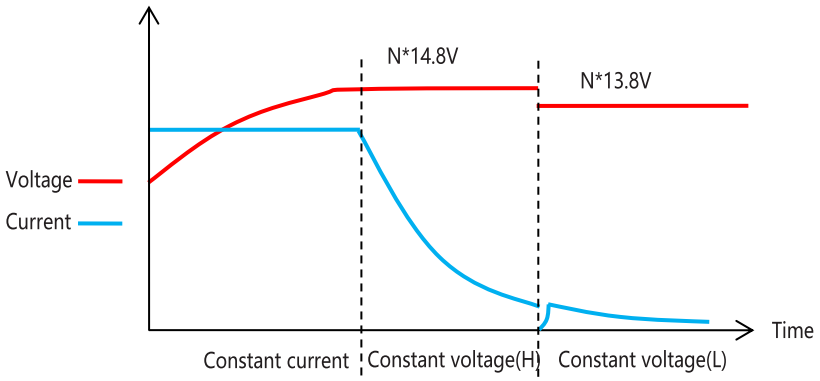


1.Charging Curve

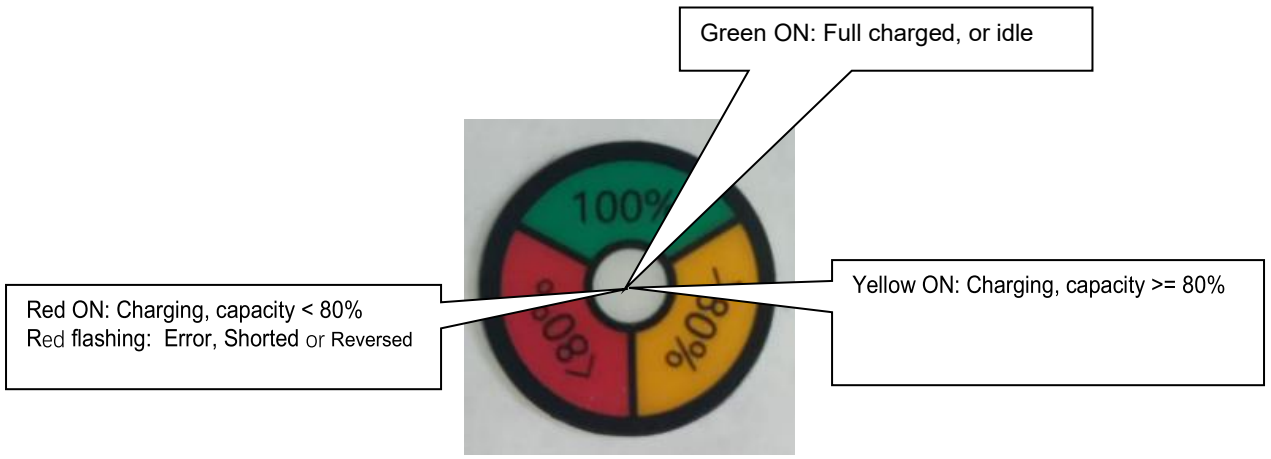
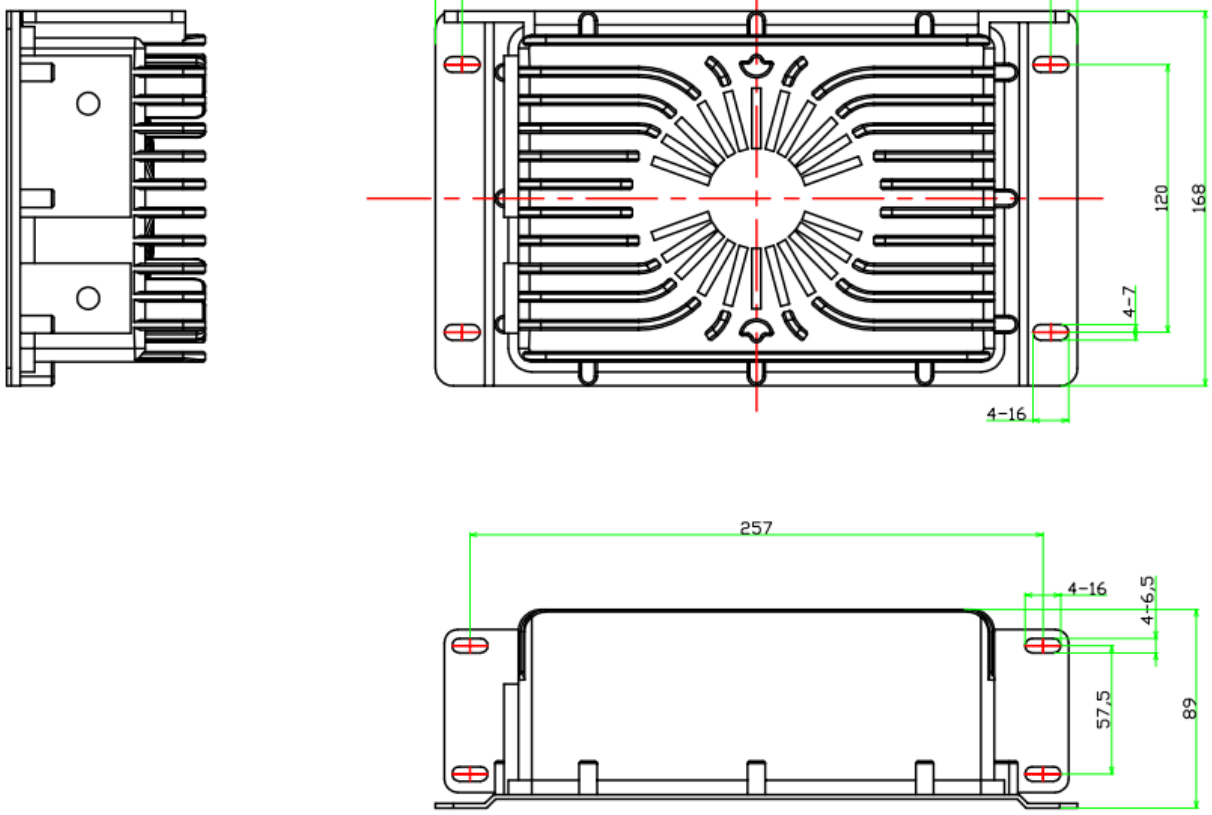
◎ 4 stage charging curve(Li-ion & LiFePO4 battery charger)



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



2.LED indication



■ Mechanical specification