



## TT ENT-P SERIES BATTERY CHARGER ENT-P-60V-15A



**PFC $\geq$ 0.98**



**Overvoltage  
protection**



**Over temperature  
protection**



**Short circuit  
protection**



**IP65  
Waterproof**



This series of chargers features a sealed design with an IP67 waterproof rating, ensuring reliable operation in harsh environments without failure. It is suitable for charging lead-acid and lithium battery packs.

- Adjusts voltage and current automatically based on battery and BMS requests for safe charging.
- Offers over-voltage, over-current, over-temperature, and timeout protections.
- Optimized thermal design with efficient ventilation for better stability and performance.
- Durable, sealed metal casing for waterproof, dust-proof, and silent operation.
- The intelligent display screen shows the charging status, real-time voltage, current, capacity, and fault information.

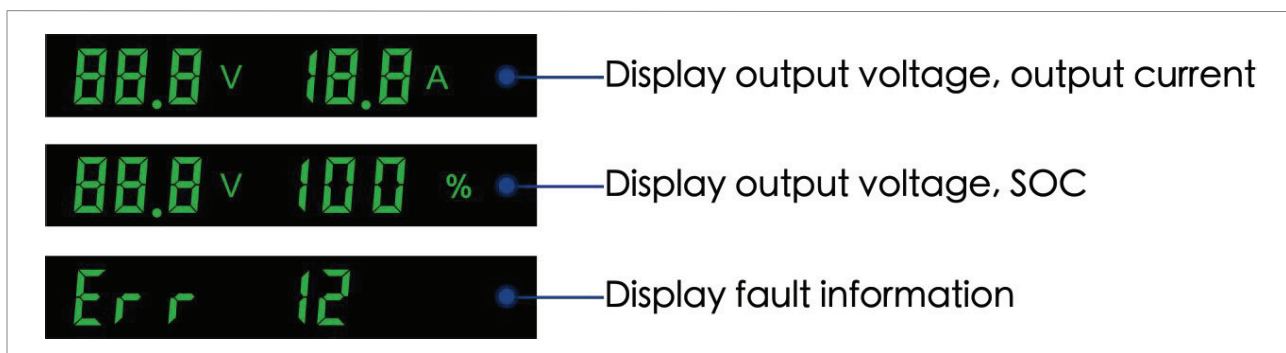
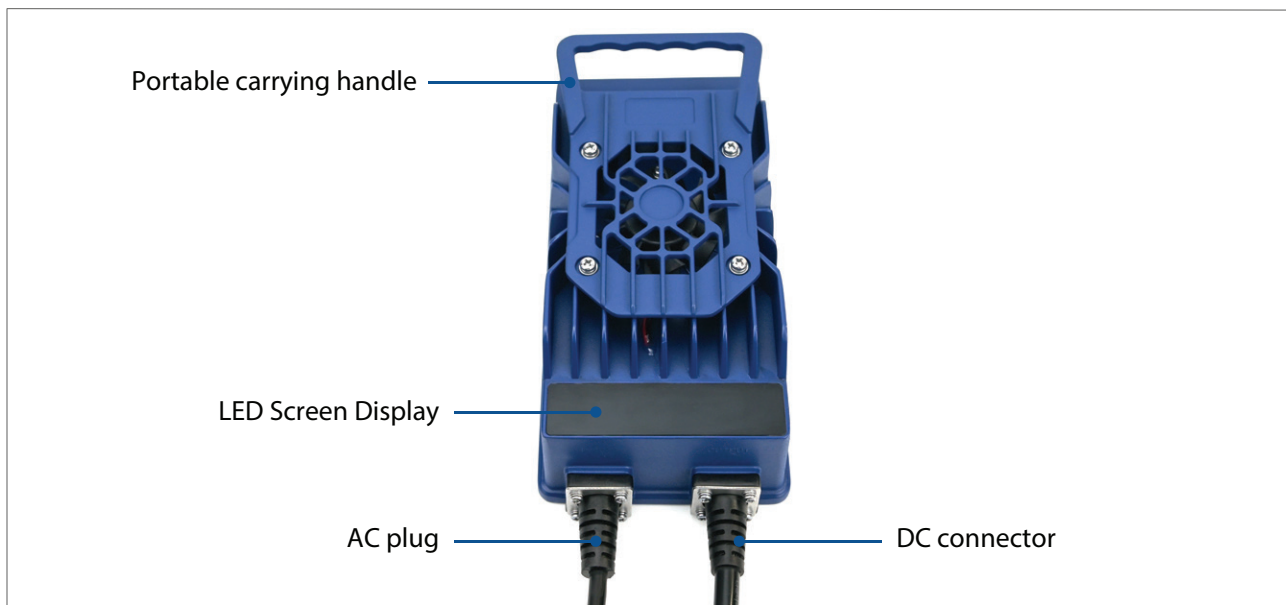
Supports fast charging for fully electric vehicles such as golf carts, electric forklifts, sightseeing vehicles, aerial work platforms, electric lawn mowers, electric boats, and patrol vehicles.

## Technical specifications

Model name		ENT-P-60V-15A
Input	Voltage range	90~264Vac
	Frequency range	45~65Hz
	Input current (max.)	6.3A
	Power Factor (Typ.)	≥0.98 (Test at half power or above)
	Inrush current (Typ.)	50A/220Vac
	leakage current (Typ.)	<0.75mA/220Vac
Output	Charging phases	Pre-charge + constant current + constant voltage
	Applicable battery	60V
	Max. output power	1024W
	Max. output current	16A
	Output Voltage	35~75V
	Max. current ripple	500mA <sub>p-p</sub> (Above half power)
	Output short circuit protection	Available
	Over temperature protection	Available
System parameter	Display screen functionality	Displays output current, output voltage, charging percentage, fault information, etc.
	Communication mode	Non/RS485/CAN
	Maximum efficiency (Typ.)	93%
	Static power	< 3W
	Output response time	≤3S
	Cooling	Fan cooling
	IP rating	IP67 ((immersion at a depth of 1 meter for 30 minutes))
	Vibration resistant	10 ~ 500HZ, 2G 10minutes/cycle, X, Y, Z axis each 60 minutes
Environment	Working Temp.	-20 ~ 50°C
	Working humidity	10% ~ 90%RH non-condensing
	Storage temp., humidity	-30 ~ 80°C, 10% ~ 90%RH non-condensing
SAFETY & EMC	Safety standards	CB IEC60335-2-29
	Withstand voltage	I/P-O/P : 3KVAC I/P-FG : 1.5KVAC O/P-FG : 0.5KVAC
	Isolation resistance	I/P-O/P, I/P-FG, O/P-FG : 100Mohms/500VDC/25°C/70%RH
	EMC	Standard
		EN55032(CISPR32)
		EN55032(CISPR32)
		EN61000-3-2 : 2019
		EN61000-4-2 : 2009
Others	MTBF	EN61000-4-5: 2014+A1:2017
		1505.4K hrs min.Telcordia TR/SR-332(Bellcore);
	Weight/Dimensions	2.3kg/203mm*108mm*77mm

Packaging

330mm\*180mm\*155mm



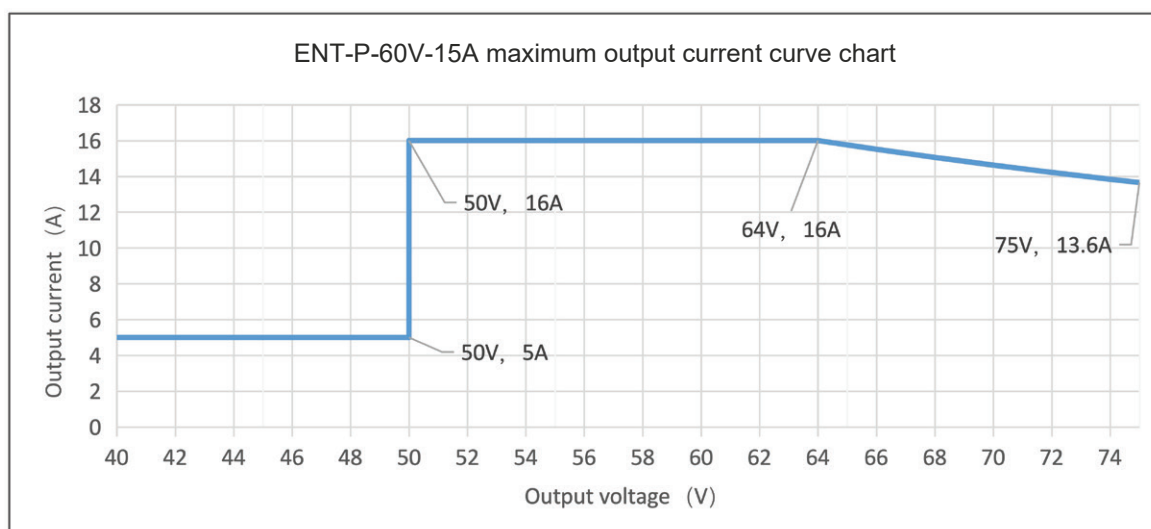
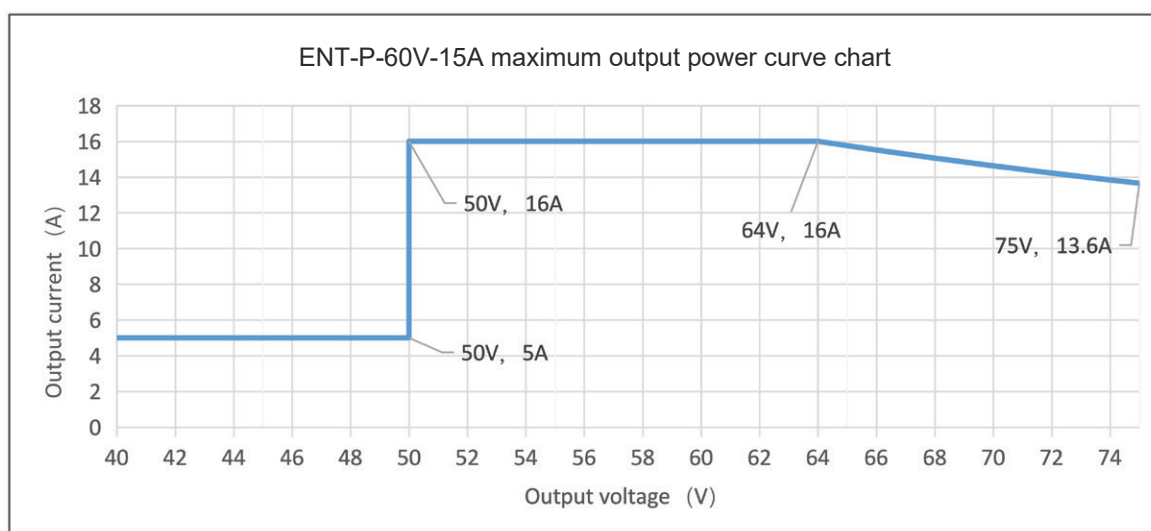
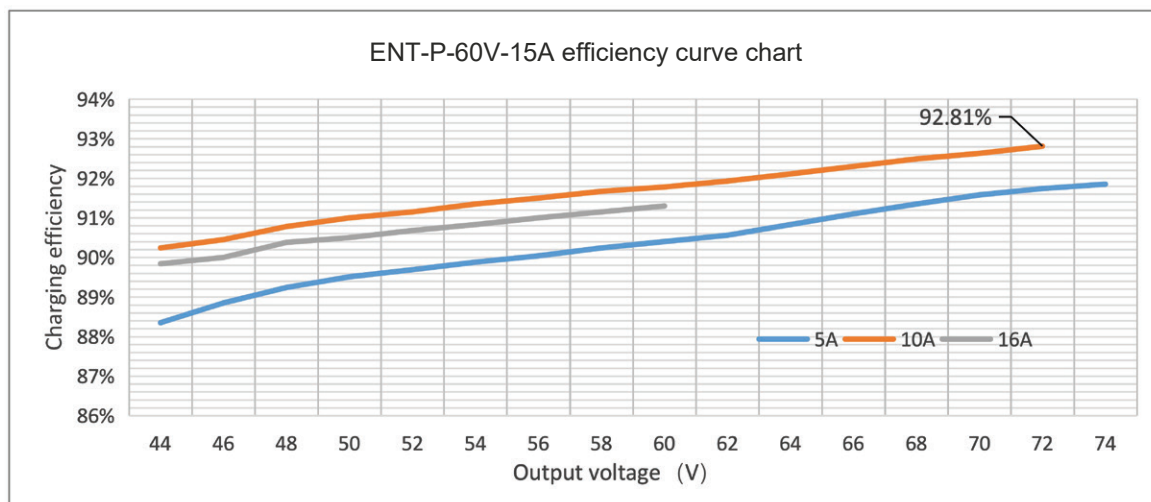
Troubleshooting of LED Display					
Number	Display	Status	Number	Display	Status
1	Err 1	Output Overvoltage	8	Err 8	Output Short Circuit
2	Err 2	Battery Voltage High	9	Err 9	Input Overvoltage
3	Err 3	Battery Voltage Low	10	Err 10	Input Undervoltage
4	Err 4	Battery Reverse Connection	11	Err 11	Relay Sticking
5	Err 5	Abnormal Battery Voltage	12	Err 12	Battery Not Connected
6	Err 6	Output Overcurrent	13	Err 13	Communication Error
7	Err 7	Overtemperature	14	Err 14	



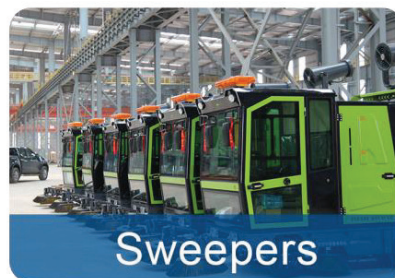
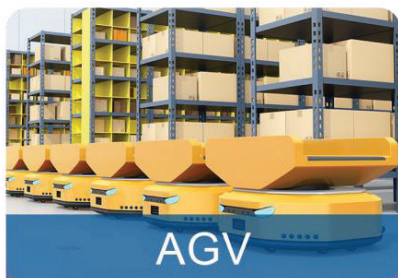
Note: During charging, the output voltage and output current will be displayed (if SOC is available, the current and SOC will alternate on the display every 3 seconds)

## Charging curve

### Charging efficiency curve chart

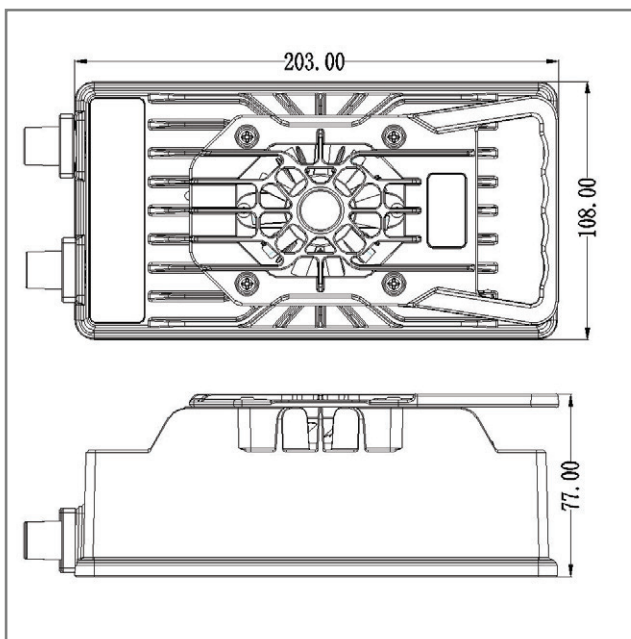


## Application fields



## Product Dimension

Dimensions (Unit: mm)



Portable type(Drawing 1)