CMT153S/CMR153S

160W Mid-distance
Magnetic Resonant Wireless Power
54.6V/3A Output Transceiver Module

CMT153S/CMR153S transceiver module set consists of a transmitter module and a receiver module, carefully tuned to be highly resonant with each other to accomplish efficient wireless power transfer.
The transmitter module transmits "resonant power" from the surface area of its antenna (coil) defined by X & Y = power area and to a Z= height, which is the distance from the antenna surface. The receiver module, when positioned within the space defined by X,Y and Z, receives the resonant power and performs the necessary conversions to supply to a system which can be robot, E-bike, E-scooter…etc.

Key Features:

- Provide typical 160W output power with low frequency magnetic resonant wireless power technology
- Proprietary BLE signaling protocol
- 1.0cm~2.0cm Z-height spatial freedom to keep consistent DC to DC end to end high wireless power transfer efficiency.
- XY freedom=± 1cm while coil to coil distance=1.5cm
- Battery Charger mode to charge the 48V battery directly is configured by firmware.
- Special ferrite (90x90x2mm PMB, manufactured by SK Chemical, Korea) is used with RX coil to avoid crack in vibration condition.
- Extra LED board is attached to the PTU to provide signaling and battery level indication.

Specification:

Power Input Interface	DC jack
Input Power Requirement	DC: 48V 5A
Output Power	160 W typ., up to 54.6V/3A. delivery to the load
Power coil Area (X & Y)	106 mm (l) x 106 mm (w)
Power Distance (Z)	10 mm ~ 20 mm (coil to coil)
Transmitter dimension	***Control board:*** 80 mm (l) x 80 mm (w) x 15 mm (h)
	Coil board: 106 mm (l) x 106 mm (w) x 6 mm (h)
Receiver dimension	***Control Board:*** 80 mm (l) x 80 mm (w) x 15 mm (h)
	Coil Board: 90 mm (l) x 90 mm (w) x 6 mm (h)
Coil Type	Litz-wire wound with ferrite

jPlus CORP.
www.jjplus.com
+886 2 2248-5700 sales@jjplus.com
Model: CMT153S/CMR153S

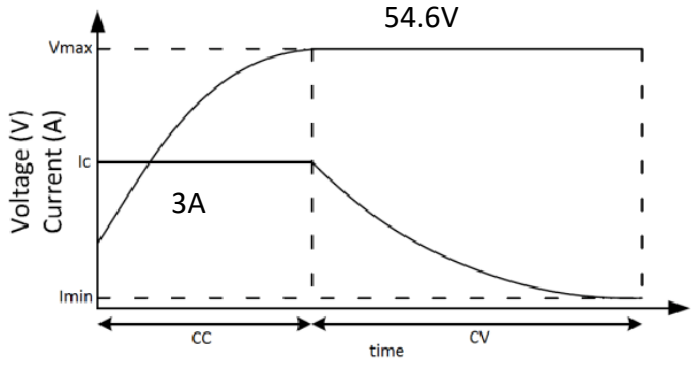
Electrical Specification:

Characteristics	Condition	Min	Typ	Max	Unit
Input Voltage		46	48	50	Volt.
Rated Input Current			5		Amp.
PRU Output Power			160		W
Output Voltage	@Voltage source mode	52	54.6	57	Volt.
Constant Current (CC) Constant Voltage (CV)	@Battery charger mode		3 54.6		Amp. Volt.
Charging Distance (Z)	PTU Coil to PRU coil	10		20	mm
Charging XY freedom	@ Z=15mm	-10		+10	mm
Efficiency	System DC-DC efficiency @ Z=15mm & XY=0mm		85		%
Over Power Protection (OPP)			180		W
Over Temperature Protection (OTP)				90	℃

Environmental Specification:

- **Operating Condition:**
  Temperature range: -20℃ ~ +50℃
  Humidity: 10% ~ 90 %
- **Storage Condition:**
  Temperature range: -40℃ ~ +70℃
  Humidity: 10% ~ 90 %

Battery Charging Profile:



jPlus CORP.
www.jjplus.com
+886 2 2248-5700 sales@jjplus.com
Model: CMT153S/CMR153S

LED Description:

LED Color	Description
RED	ON: power on FLASH: alert. Power off is needed when it occurs to become functional.
Yellow	ON: battery level >= 50% FLASH: battery level <50%
GREEN	ON: battery level = 100% FLASH: 50%<battery level <100%

LED lighting sequence on TX		
No.	Status	LED behavior
1	Power ON	LED 1 RED constant on
2	Error	LED 1 RED flash
3	Charging, battery <50%	LED 1 RED constant on
		LED 2 Yellow flash
4	Charging, battery = 50%	LED 1 RED constant on
		LED 2 Yellow constant on
5	Charing, battery > 50%	LED 1 RED constant on
		LED 2 Yellow constant on
		LED 3 Green flash
6	Charging battery full 100%	LED 1 RED constant on
		LED 2 Yellow constant on
		LED 3 Green constant o n

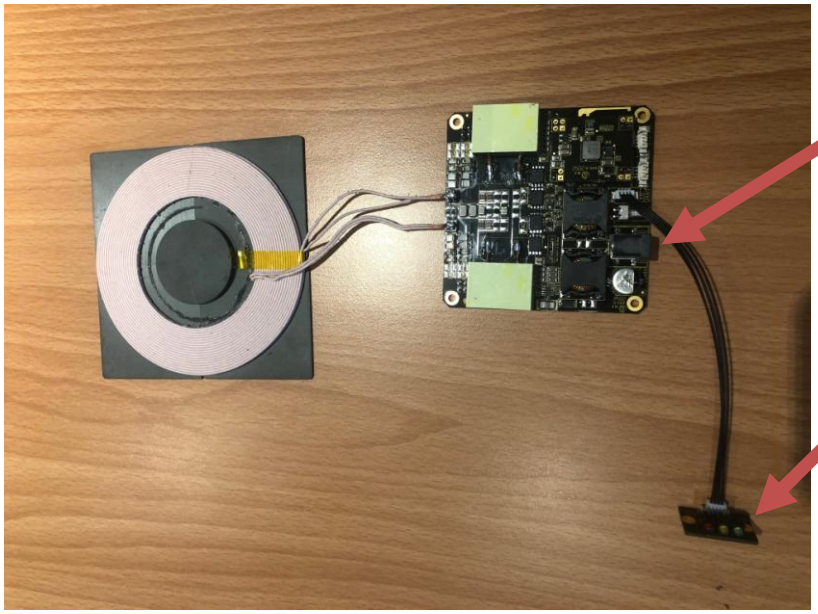
Examples:

1. If charging around 40% , it's No. 3. User can know this e-scooter's battery is less than 50%
2. If charing around 50%, it's No. 5.
3. If charging full 100%, it's No. 6

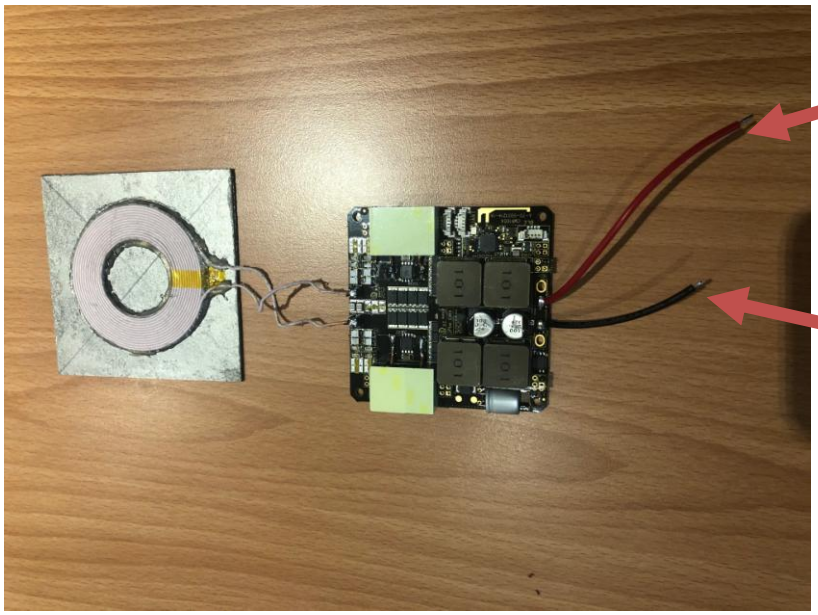
jPlus CORP.
www.jjplus.com
+886 2 2248-5700 sales@jjplus.com

Top View

CMT153S



CMR153S



jPlus CORP.
www.jjplus.com
+886 2 2248-5700 sales@jjplus.com

Important Notice:

(1) Coil-to-coil distance (i.e., Z-height or charging distance) should be kept within the specification to avoid board damage.

(2) Keep PTU coil away from the large metal area

Please keep any large metal area at least 10cm away from the PTU coil board at all directions. It's suggested NOT to put the PTU coil board on the metallic desk surface, or please lift the PTU coil board 10cm away from the metallic desk surface without any metal object in between.

(3) Keep PTU coil away from each other if multiple PTUs are turned on

Please ensure the edge to edge distance between any two PTU coil boards on the same surface is longer than 30cm. And DON'T overlap any two PTU coil boards at the vertical direction.

(4) Don't put foreign objects on top of the PTU coil area

Please keep the foreign objects away from the top of the PTU coil area or they can be heated to quite high temperature. The foreign objects include metallic objects, ID cards, credit cards, deposit cards, security badges, passports, and key fobs. However, the glass with low-E coatings are not foreign objects and won't be heated.