

CMT050A-LEF/CMR050A-LEF

100W Mid-distance
Magnetic Resonant Wireless Power
48V Vout Transceiver Module

CMT050A-LEF/CMR050A-LEF 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 UGV, E-bike, Lawn mower...etc.

Key Features:

- Provide typical 100W output power with low frequency magnetic resonant wireless power technology
- Proprietary BLE signaling protocol
- Z height spatial freedom from 2cm ~ 3.5cm to keep consistent DC to DC end to end wireless power transfer efficiency higher than 86%.
- XY freedom= \pm 2cm while coil to coil distance=3cm
- Self-protection while Z height is lower than 2cm
- Passed FCC Part.15B and EN55032 EMC pre-scan

Specification:

Power Input Interface	DC jack
Input Power Requirement	DC: 48V 2.7A
Output Power	100.0 W typ., up to 48V/2.3A. delivery to the load
Power coil Area (X & Y)	106.4 mm (l) x 106.4 mm (w)
Power Distance (Z)	20mm~35mm (coil to coil)
Transmitter dimension	Control board: 80 mm (l) x 80 mm (w) x 14.9 mm (h) Coil board: 106.4 mm (l) x 106.4 mm (w) x 4.1 mm (h)
Receiver dimension	Control Board: 80 mm (l) x 80 mm (w) x 14.9 mm (h) Coil Board: 106.4 mm (l) x 106.4 mm (w) x 4.1 mm (h)
Coil Type	Litz-wire wound with ferrite

Electrical Specification:

Characteristics	Condition	Min.	Typ.	Max.	Units
Input voltage		46	48	50	Volt
Rated input current				2.7	Amp
PRU Output			100	110	Watt
Operating Frequency			125		KHz
(Centered)	System DC-DC efficiency (PTU & PRU)		87		%
	PRU efficiency		90		%
Over Power Protection			TBD		Watt
Over Temperature protection				90	°C

Environmental Specification:

- **Operating Condition:**

Temperature range: -20°C ~ +50°C

Humidity: 10% ~ 90 %

- **Storage Condition:**

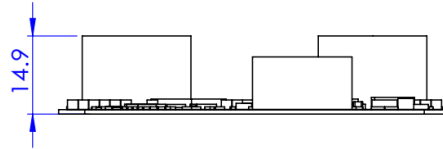
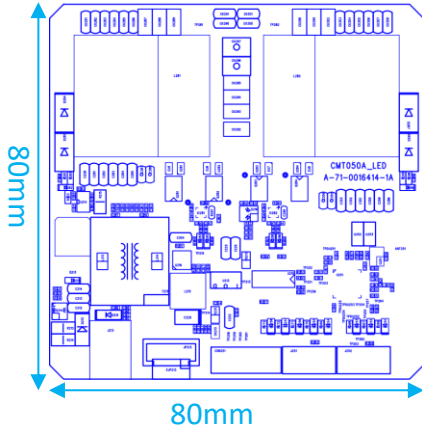
Temperature range: -40°C ~ +70°C

Humidity: 10% ~ 90 %

Mechanical Specification:

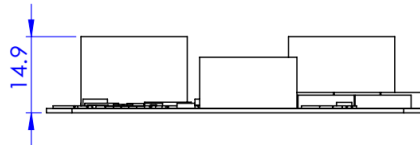
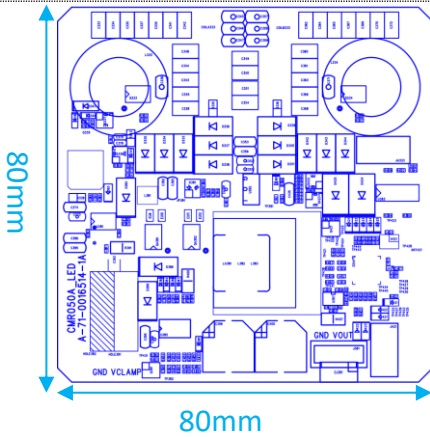
PTU Control Board Dimension

80 mm (l) x 80 mm (w) x 14.9 mm (h)



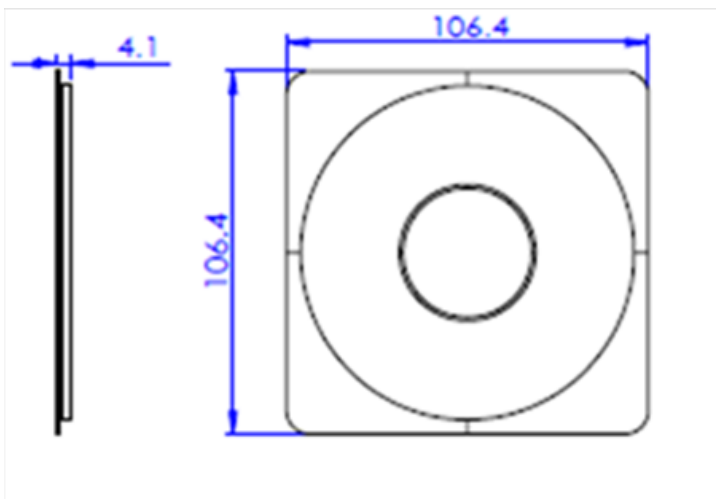
PRU Control Board Dimension

80 mm (l) x 80 mm (w) x 14.9 mm (h)

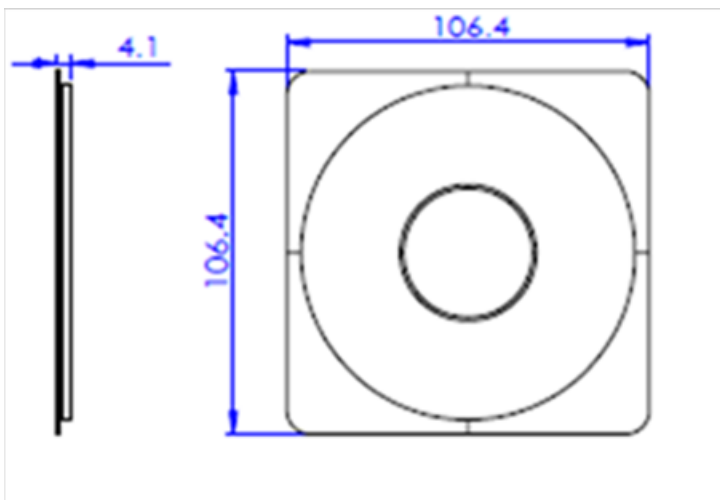


PTU Coil Board Dimension

106.4 mm (l) x 106.4 mm (w) x 4.1 mm (h)



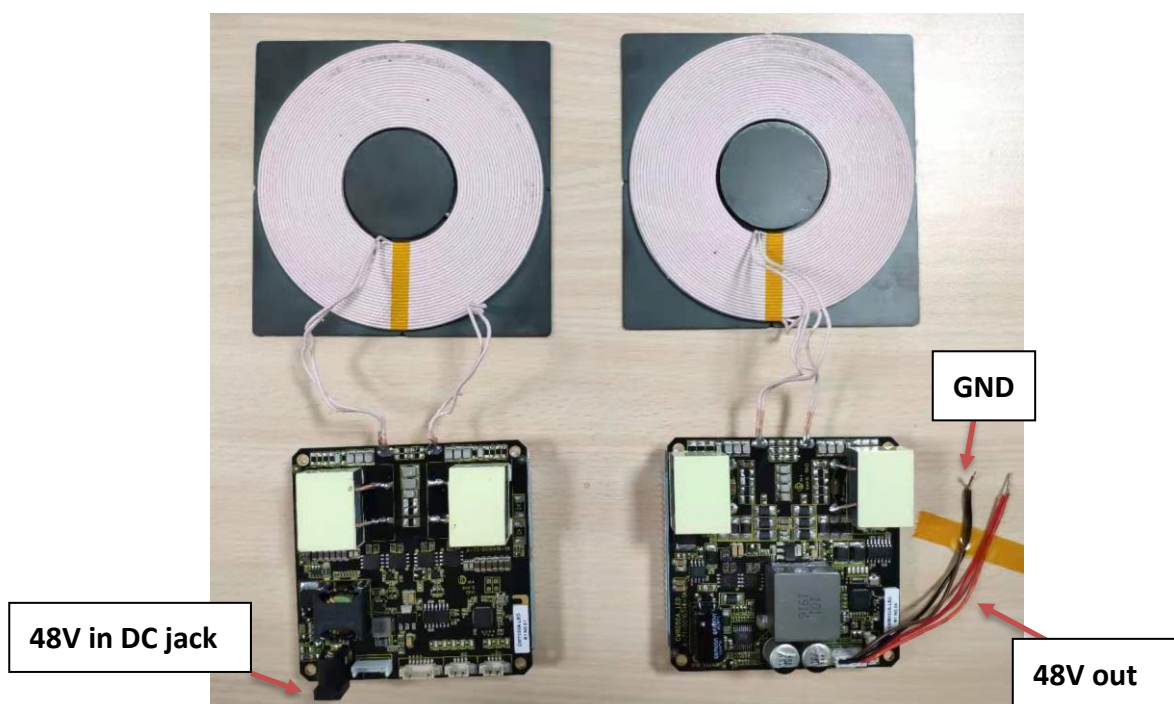
PRU Coil Board Dimension 106.4 mm (l) x 106.4 mm (w) x 4.1 mm (h)



Top View

CMT050A-LEF

CMR050A-LEF



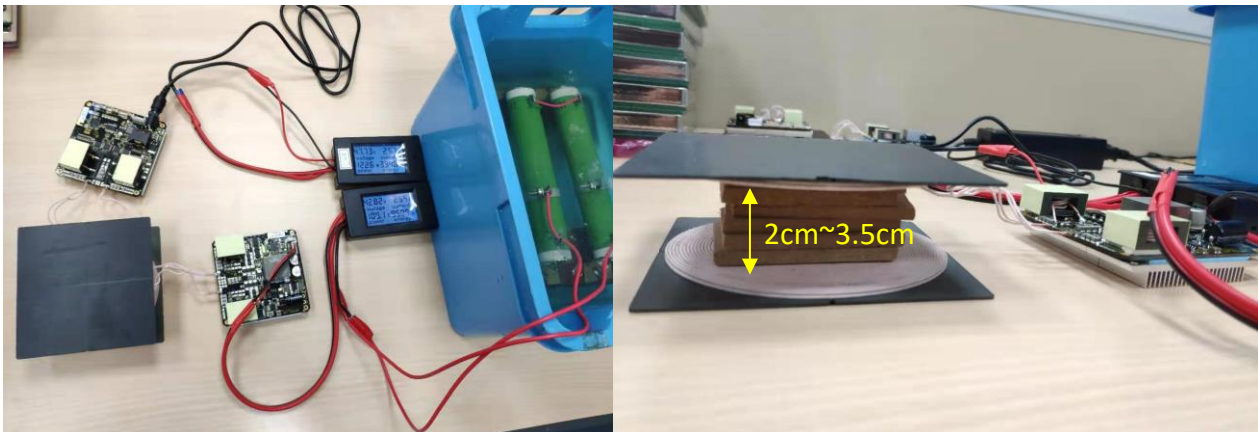
Bottom View

CMT050A-LEF

CMR050A-LEF



Operating scenario (Coil to coil distance = 2cm~3.5cm)



**(1) 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.

(2) 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.

(3) 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