

## WIRELESS POWER FOR THE MOON

### ENABLING LONGER MISSIONS

Reliable power transfer represents a massive engineering hurdle in the harsh lunar environment. Dust, cable entanglement, and the excess mass of traditionally powered systems adds risk to mission profiles. Tethered-asset charging requires precise guidance and mating with the power source, while onboard solar charging limits asset capabilities due to increased system mass and requirement to plan mission operations around the Sun.

Astrobotic's wireless charging system, designed in partnership with WiBotic, addresses these concerns through a transmit/receive coil design between the asset and power source. This evolutionary advancement in power distribution ensures there is never a worry that dust, corrosion, wear, or complex mission operations will cause a failed charge cycle.

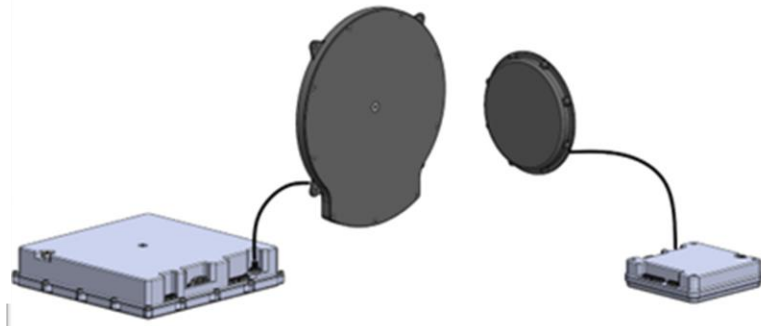
### MEETING POWER DEMANDS IN SPACE

#### LUNAR NIGHT SURVIVAL

Wireless power distribution can enable heater power through the lunar night without the need for excessive battery capacity or complex nuclear solutions.

#### MOBILITY AS A SERVICE

Future missions will involve dozens of assets completing complex exploratory, mining or assembly tasks. Astrobotic's wireless charging solution provides "last-meter" charging to ensure mission success.



### KEY BENEFITS



#### Simple

Tether-free charging ConOps. Standardized form factor for ease of integration.



#### Flexible

Supports up to 40° of angular misalignment  
≤4cm air gap between transmit & receive  
125W, 400W power options.



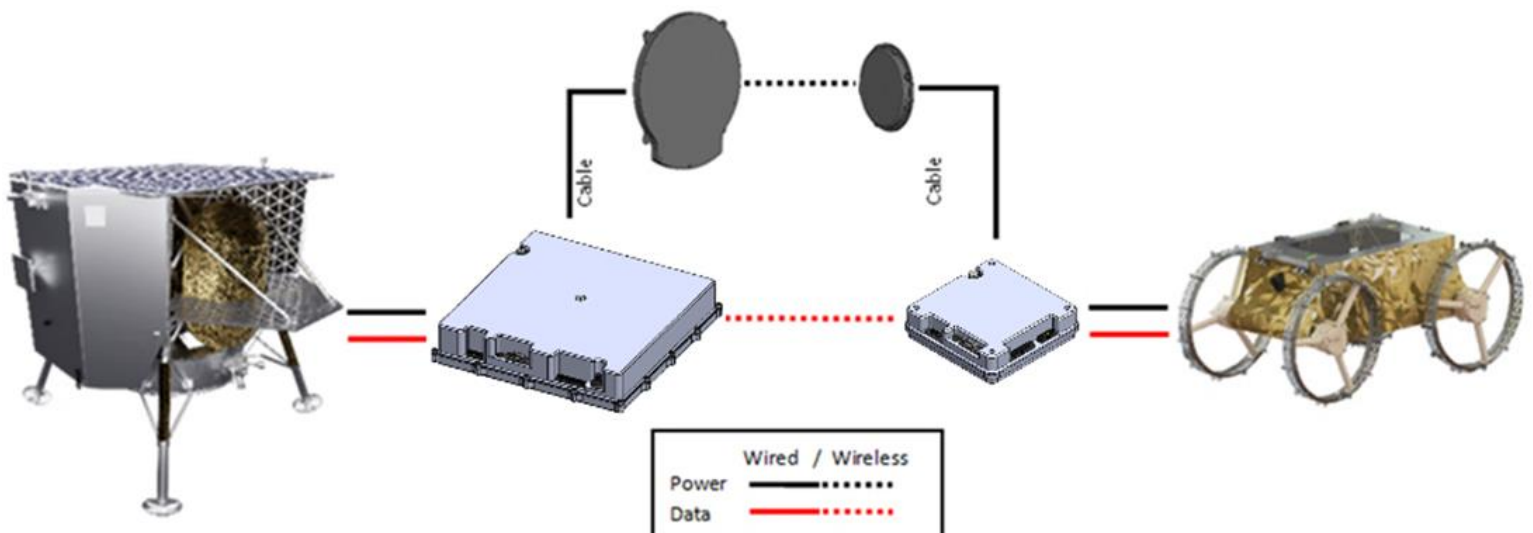
#### Durable

Rugged design and materials that stand up to the harsh dust, and extreme temperature swings of the Lunar environment.



#### Efficient

Rapid charging provides up to 85% power transfer efficiency, putting precious time and power back into your budget.

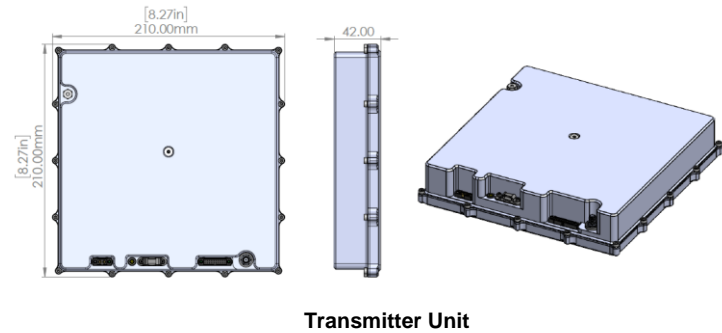


## TRANSMITTER UNITS

Astrobotic transmitters convert DC power to a high frequency wireless power signal for transmission to onboard chargers on your device.

Transmitter Unit	125W TR-125-DC-SPC	400W TR-400-DC-SPC
Input Voltage	26.6 to 29.4VDC	
Mass	2.5 kg	
Operating Baseplate Temperature Range	-20C to 60C	
Survival Baseplate Temperature Range	-40C to 75C	
Serial Interface	RS-422	
Enclosure Type	Aluminum	

TR-125-DC-SPC and TR-400-DC-SPC dimensions below



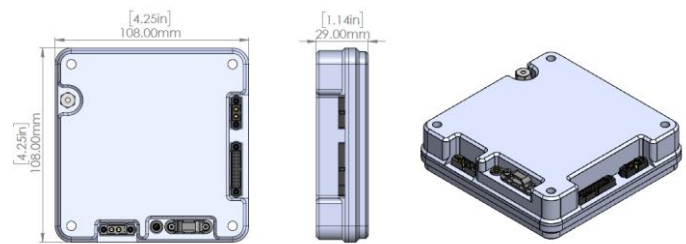
Transmitter Unit

## ONBOARD CHARGERS

Onboard Chargers convert the incoming wireless power signal to a usable DC voltage to charge a wide variety of on-board batteries at adjustable charge rates.

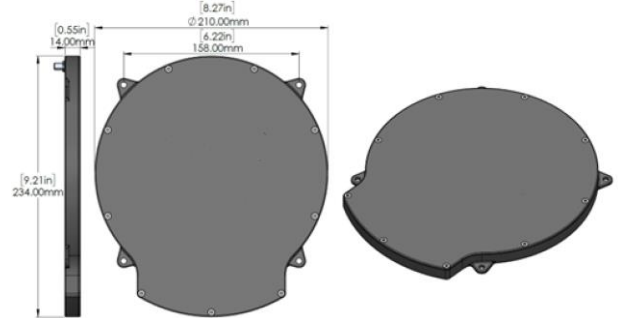
Onboard Chargers	125W OC-125-08-SPC	400W OC-400-15-SPC
Battery Compatibility	LiPO, Lilon, Lead Acid/SLA, LiFePO4, NiMH, NiCAD	
Nominal Output Voltage	Fixed voltage between 12-36VDC	
Max Charging Current	8A	15A
Max Charging Power	125W	400W
Mass	500g	
Operating Baseplate Temperature Range	-20C to 65C	
Survival Baseplate Temperature Range	-45C to 75C	
Serial Interface	RS-422	
Transmitter/Receiver Communication	2.4 GHz	
Enclosure Type	Aluminum	

OC-125-08-SPC and OC-400-15-SPC dimensions below

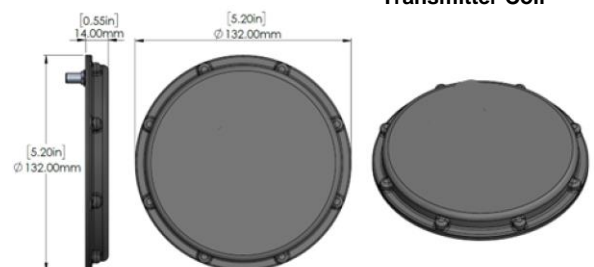


Onboard Charger

125W and 400W transmitter/receiver coil dimensions below



Transmitter Coil



Receiver Coil

## TRANSMITTER AND RECEIVER COILS

The transmitter and receiver coils are the specialized antennas that transmit and receive wireless power and specified frequencies. Coils are designed to operate in dust and extreme temperatures, including the frigid lunar night.

Transmitter/Receiver Coils	125W	400W
Transmitter Coil Mass (PCB only)	120g	
Receiver Coil Mass (PCB only)	20g	
Transmitter Coil Mass (w/Enclosure)	420g	
Receiver Coil Mass (w/Enclosure)	90g	
Operating PCB Temperature Range	-200C to 175C	
Survival PCB Temperature Range	-200C to 175C	
Enclosure Material	ULTEM	