

Programmable Wireless Charging and Uptime Optimization for Aerial Drones

Autonomous Power Management



Maximize Drone Operations

Base stations can be placed throughout any work site allowing fleets of drones to land and charge quickly for maximum drone uptime.



Enhance Durability

Wireless charging systems can be fully embedded into drone garages or hangars and are impervious to dirty/wet/corrosive environments.



Monitor and Control Remotely

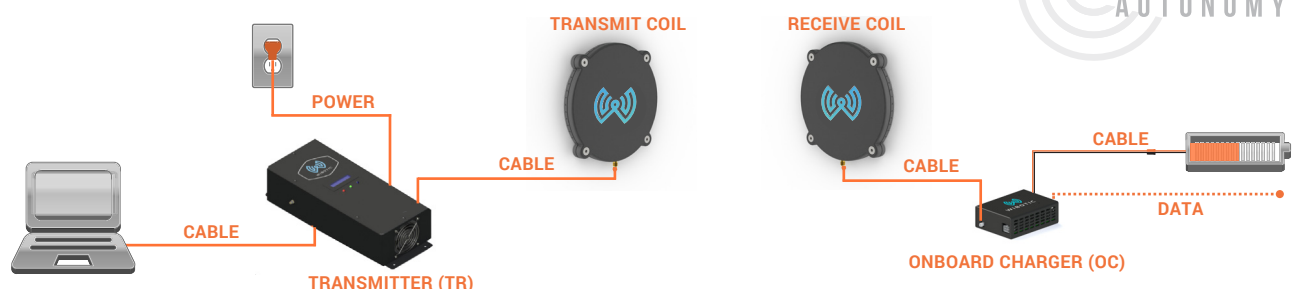
WiBotic's technology enables fleet-wide power management, eliminating the need for constant human monitoring and management of battery charging.

Our Solutions

Autonomous aerial drone applications are changing the way modern industries collect and process information. The adoption of drones for industrial and commercial applications has exploded in recent years - but their full potential simply isn't realized if they must be manually retrieved for battery exchange or charging after every mission. While semi-autonomous, physical-contact chargers and mechanical battery-swap technologies eliminate some of the operator burden, those devices can suffer from dirty, corroded, or worn out contacts with limited operational lifetimes.

WiBotic's wireless charging and software-enabled uptime optimization solutions solve these problems for OEMs, Service Providers, and Operators – allowing true autonomy for applications where drone "readiness-to-fly" is critical. Wireless charging systems can be integrated into existing drone garages or hangars to provide weather-proof power for permanently deployed drones. When located strategically throughout a work site, wireless transmitters also allow fleets of drones to charge whenever and wherever they're stationed – constantly topping off batteries. WiBotic systems also offer flexibility in landing position, so drones don't need to make a perfect landing every time to reliably charge.

How WiBotic Wireless Power Solutions Work



Available Components For Your Specific Application Needs

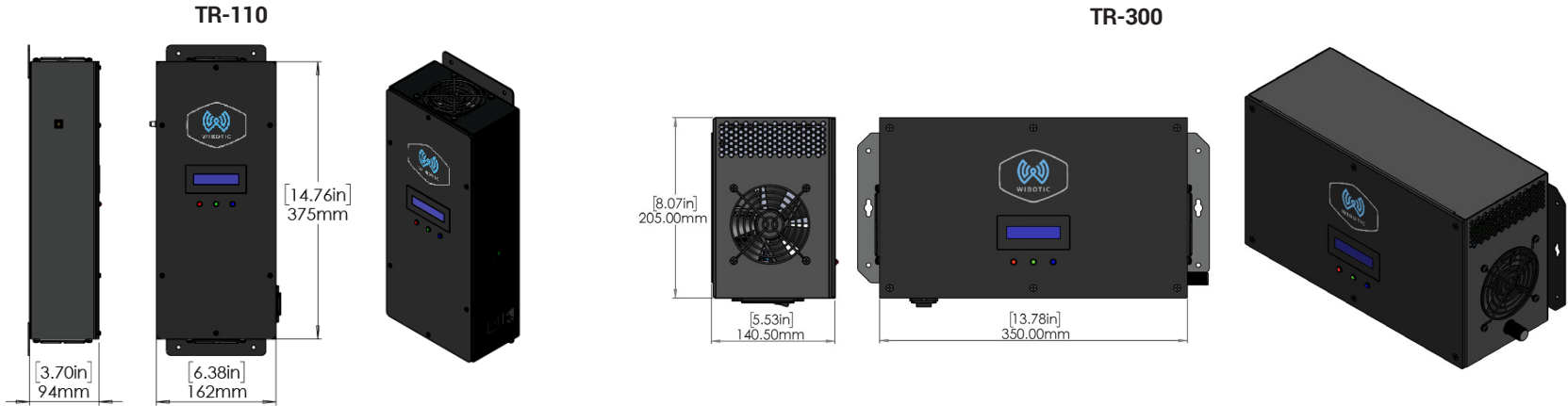
WiBotic offers a range of wireless charging components to accommodate nearly any drone system. Designed for “many-to-many” operation, it allows multiple transmitters to autonomously recharge multiple drones. Drone battery voltage and charge rate is configurable in software, so drones with different battery chemistries and voltages can share the same set of transmitters.

TRANSMITTER UNITS

WiBotic transmitters (TRs) convert AC power to a high frequency wireless power signal for transmission to the robot fleet. (DC powered models also available)

| TRANSMITTER UNIT (in enclosure) | TR-110 | TR-300 |
|------------------------------------|-------------------|-------------------|
| Input Voltage (AC*) | 90-264v | 90-264v |
| Input Receptacle | IEC320-C14 | IEC320-C14 |
| Input Frequency | 50-60 Hz | 50-60 Hz |
| Enclosure Type | ABS Plastic/Metal | ABS Plastic/Metal |
| Data Port | Ethernet (RJ45) | Ethernet (RJ45) |

*DC powered configurations available

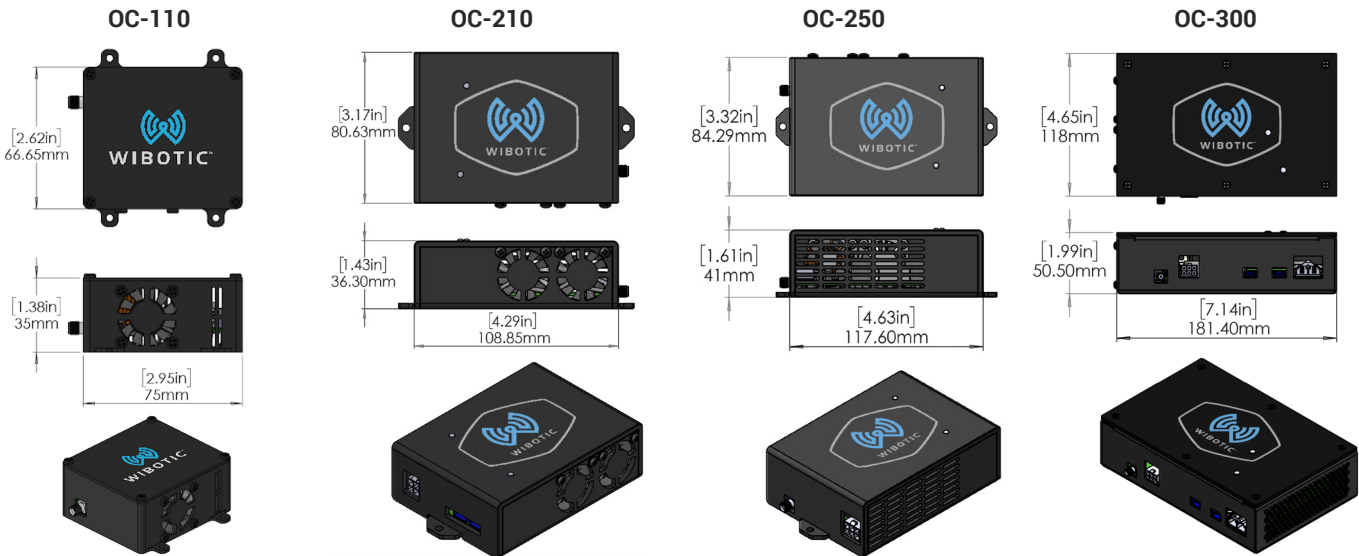


ONBOARD CHARGERS

Onboard Chargers (OC's) are receiver circuit boards that convert incoming wireless power to a usable DC voltage. They're also smart battery chargers, with the ability to safely charge a wide range of battery types at adjustable charge rates.

| ONBOARD CHARGERS | OC-110 | OC-210 | OC-250 | OC-300 |
|------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Battery Compatibility | LiPO, Lilon, SLA LiFePO4,NMH | LiPO, Lilon, SLA LiFePO4,NMH | LiPO, Lilon, SLA LiFePO4,NMH | LiPO, Lilon, SLA LiFePO4,NMH |
| Battery Voltage Range | 7.92-30.1v DC | 12.03-36v DC | 12.03-36v DC | 0-58.4v DC |
| Max Charging Current | 5A* | 10A* | 10A* | 30A* |
| Max Charging Power | 90w* | 125w* | 250w* | >300w* |
| Weight (PCB & Fan) | 46g | 82g | 100g | 220g |
| Total Weight (w/enclosure) | 74g | 154g | 200g | 413g |
| Operating Temperature | -20 to 45C | -20 to 45C | -20 to 45C | -20 to 45C |
| Transmitter/Receiver Communication | UAVCAN API over CAN-bus | UAVCAN API over CAN-bus | UAVCAN API over CAN-bus | UAVCAN API over CAN-bus |
| Aux Wired Charging Input Voltage | 18-50v DC | 18-50v DC | 18-50v DC | 18-50v DC |

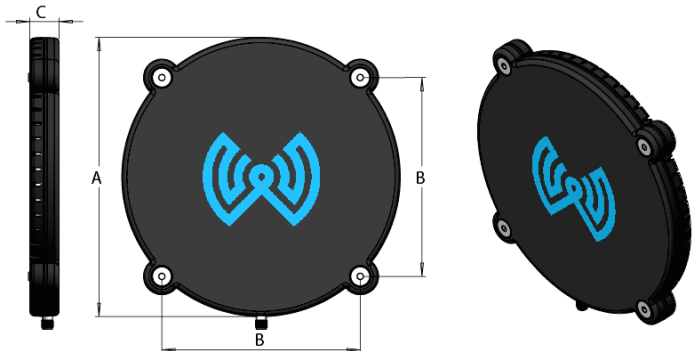
*Must be paired with properly sized transmitter to achieve max value



TRANSMITTER AND RECEIVER COILS

Transmitter (Tc) and receiver (Rc) coils are specialized antennas that transmit and receive wireless power at specific frequencies. The standard WiBotic coil set is shown, but custom coil configurations, offered through our Professional Services, are also available.

| TRANSMITTER/RECEIVER COILS (in enclosure) | TC-200 | RC-100 |
|--|-----------------|-----------------|
| Total Width (A) | [8.1in] 205.5mm | [4.1in] 104.5mm |
| Mounting Hole Distance - Max (B) | [5.7in] 145mm | [3.3in] 85mm |
| Thickness (C) | [0.6in] 15.5mm | [0.3in] 7.6mm |
| Enclosed Coil Diameter | [7.9in] 200mm | [3.9in] 100mm |
| Total Weight (w/enclosure) | 180g | 35g |



WiBotic's API allows drone scheduling systems to optimize charge rate (amps) for every charge cycle. The result is not only maximum uptime for entire drone fleets, but superior management of battery health and longevity for reduced operating costs and preventative maintenance.

OPTIONAL COMPONENTS

WiBotic's standard configurations can be mixed and matched to build the system that best suits your needs. However, if you're interested in ready-to-deploy simplicity, our optional embodiments may be of interest.

THE WIBOTIC POWERPAD: The WiBotic PowerPad is a fully integrated industrial-ready landing pad containing a transmitter circuit board with internal power supply*, a transmitting antenna* and a visible indicator light. The PowerPad can be used as-is for indoor or outdoor applications, and as a standalone landing pad or placed within a drone garage or hangar for maximum environmental protection.



*Items sold separately



Construction



Inspection



Agriculture



Defense/Security



Logistics/Delivery



Mining

How To Get Started

WiBotic wireless charging and software enabled uptime optimization solutions are extremely flexible across a wide range of applications and power levels. We offer standard off-the-shelf systems for quick installation and evaluation, but also recognize that many robot applications are specific and unique. For these applications, we provide Professional Services toward a customized solution to meet your needs. Depending upon the design of your robot, the service may include:

- Analysis and testing of component positioning
- Final performance verification testing
- Installation support of a standard set of components
- Customization of component sizes and shapes

Contact Us To Learn More

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