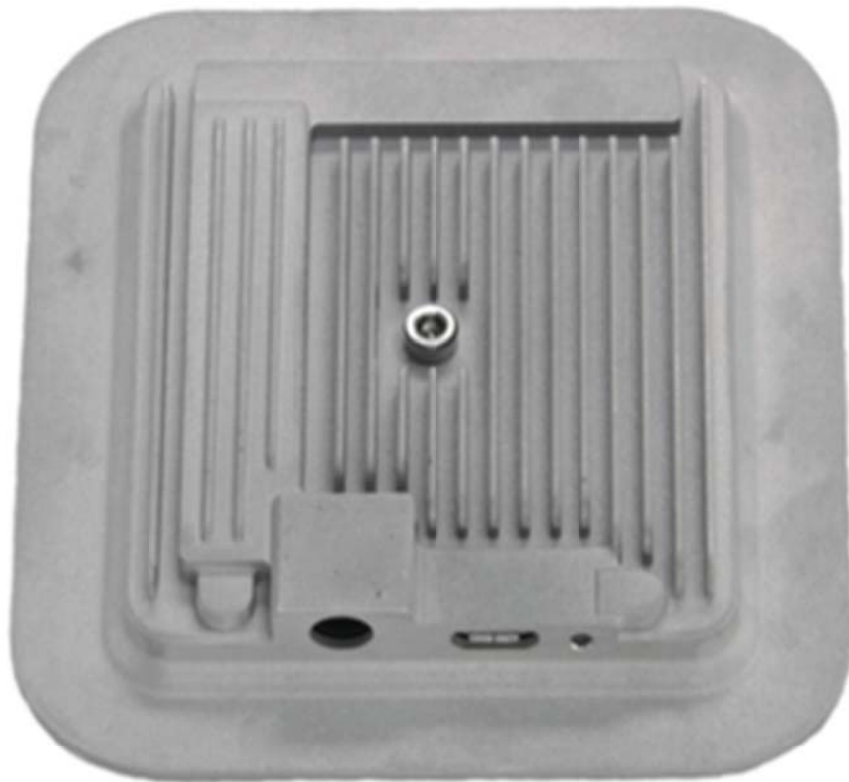


# OEM Module ( Wireless Charging ) INSTALLATION

## INTRODUCTION

This bulletin discusses the installation procedure for the OEM Module(Wireless Charging) – Individual wireless charging transmitter.



**Figure A-1: Transmitter**

## OVERVIEW

The OEM Module(Wireless Charging) – Individual dual-mode transmitter is compliant with PMA and WPC Qi standards.

The transmitter is tuned for best performance through 8 mm (0.315") of Corian® solid surface. Instructions for optimum placement and installation are in this bulletin. Due to the precise routing required the installation should be done in the fabrication shop prior to sheet installation.

The OEM Module(Wireless Charging) – Individual package consists of the transmitter, power cord and transformer. PMA-compliant charging rings are available separately in packs of three: one ring each of micro USB, Apple 30-pin and Apple Lightning® PMA compatible receivers.

The transmitter has a micro USB port for updating the firmware if necessary.

The USB port can't be used by consumer, is manufacturer for updating the firmware only.

Do not use the OEM Module(Wireless Charging) in the environment at too high or too low temperature, never expose the device under strong sunshine or too wet environment. The suitable temperature for the phone and accessories is -10°C-40°C.

## A. PREPLANNING

### A.1. Box Contents

The box will come with the transmitter and the power supply (not pictured here).

### A.3. Placement

There are several considerations regarding proper placement of the transmitter:

- Avoid putting in proximity to locations where the device being charged may get wet, exposed to excessive heat or any other conditions which may damage the device being charged.
- Do not install next to heat sources (such as stoves) or where heat sources are commonly used (toasters, hot plates, etc.).
- Stay away from edges where charging devices can be easily knocked off the surface.

Work with the customer to determine convenient locations. Page 1 of 4

The transmitter requires a rectangular space of 82 mm x 92 mm (3.23"x 3.60") below the surface counter. Allow an extra 25 mm (1") distance to any support structure. No metal should be between the transmitter and the surface. The transmitter also requires 36 mm (1 7/16") vertical clearance measured from the top surface (24 mm (0.94") from bottom surface). Avoid placement above heat- or moisture-generating appliances such as dishwashers, warming drawers, wine refrigerators, etc. Verify cabinet/support measurements before cutting the top. There should be a support strip between the transmitter and any cutouts or the edge of the top.

The transmitter does generate some heat and ideally is installed such that it shares airspace with the cabinet interior.

If placing above a drawer, make sure there is sufficient clearance, including drawer contents.

Install so that the transmitter will be accessible by the customer. If there is a warranty replacement the customer will need to be able to remove and replace the transmitter. Make sure the power and micro USB ports will be accessible after installation. Plan for power cable routing and mounting of the transformer. The power supply has a 1.2 m (47") DC cable, 111 mm x 51 mm x 36 mm (4.4" x 2.0" x 1.4") transformer and 1.2 m (47") AC cable. A four-unit power supply is available separately.

If more than one transmitter is installed they should be at least 150 mm (6") from each other.



**Figure A-3: Left - Power, Center - Micro USB, Right - LED**

#### A.4. Marking Charging Location

Discuss the options for marking the charging spot with the customer. Some may prefer a permanent mark, either a highly visible mark or a subtle mark that blends with the background. A highly visible mark may be preferred in environments where multiple users will be using the device and aren't familiar

with the area. Subtle or temporary markings may be more appropriate where there are a limited number of users that will become familiar with the location over time.

Marking options include laser engraving or inlays for permanent marks, and stickers for temporary marks. Laser engraving will leave a slight depression and may be more difficult to clean. For high visibility markings choose a contrasting color. In commercial environments this may incorporate corporate color logos. For subtle markings a complementary color should be used. Translucent White DuPont™ Joint Adhesive or DuPont™ Joint Adhesive 2.0 is often a good choice for subtle inlays. For particulate colors matching one of the particulates may work well. The uniform shape of the mark will help it stand out when viewed at close distances, but it will blend into the background at greater distances.

#### A.5. Additional Materials and Equipment

In addition to the transmitter, fabrication will require 100% silicone adhesive, denatured alcohol and a clean cloth. Using a CNC with a flat-tipped end mill bit is highly recommended for accurately cutting the cavity.

Some form of cable management (conduit, clips, etc.) will be necessary.

### B. VERIFY TRANSMITTER OPERATION

#### B.1. Important Testing Guidance

Verify the transmitter is operational before installing by plugging it in. A green LED should blink once.

### **DO NOT TEST BY PLACING A RECEIVER IN CONTACT WITH THE TRANSMITTER.**

**The transmitter is optimized for the installation distance, bringing the transmitter and receiver in direct contact may damage the devices. Always test with something nonmetallic of 8 mm (0.315") thickness in between the transmitter and receiver.**

#### B.2. Firmware Updates

When there is a firmware update, Neosen Energy LLC will make the update available for download. The transmitter is updated by connecting the device to a computer using a USB 2.0 Micro Type-B to USB Standard Type-A cable.

### C. SHEET PREPARATION

### C.1. Optional Inlay/Laser Engraving

Charging location marking methods that require fabrication should be performed before milling the pocket for the transmitter. Standard techniques for engraving or creating inlays may be used to identify the charging location.

If the customer does not desire a permanent indicator a temporary sticker may be used and may be applied when fabrication is complete.

### C.2. Milling Pocket

The wireless power transmitter is optimized for a surface thickness of 8 mm (0.315"). A CNC is highly recommended for pocket milling as the distance is registered from the face of the sheet, whereas a hand router distance is registered off the back of the sheet, which may induce more variability in remaining sheet thickness.

The pocket should be milled as a circle of 63.5 mm (2.5") with remaining material thickness of 8 mm (0.315"). Use a flat-tipped end mill bit with a 3 mm (0.118") radius on the tip for a uniform surface in the cavity.

Make sure that once the transmitter is installed there will be clearance for attaching the power plug and that there is access to the micro USB port for potential firmware updates.



Figure D-2: 100% Silicone applied to transmitter

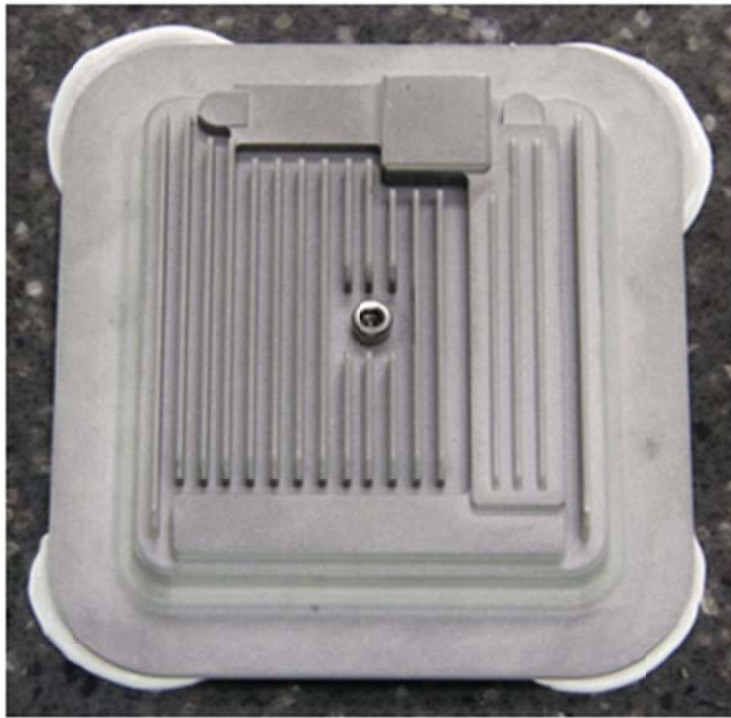
## D. TRANSMITTER INSTALLATION

### D.1. Adhering transmitter to sheet

Remove all dust and shavings. Clean the sheet and flange of the transmitter with a clean cloth dampened with denatured alcohol<sup>1</sup>. Verify the desired orientation of the transmitter so that the power and USB ports will be accessible after installation. The flange will sit slightly above the surface when the coil is in contact with the cavity surface.



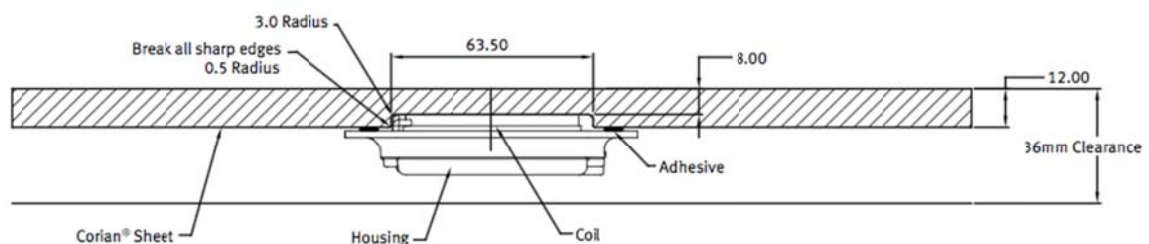
The transmitter is attached to the sheet with a 100% silicone adhesive. Place dabs of silicone at each of the four corners. Clear or translucent adhesive is recommended, white is shown here for visibility. Avoid highly contrasting colors, particularly dark adhesive with more translucent, lighter- colored sheets. There needs to be enough silicone to fill the gap between the flange and the surface. Keep the silicone away from the coil. If for some reason the transmitter will be replaced, removal will be easier if the adhesive is only on the flange and not in the cavity. If desired, small amounts of hot melt adhesive may be placed



**Figure D-3: Transmitter adhered to surface**

along opposite sides to hold the transmitter in place while the silicone adhesive cures. The hot melt can be applied at the edges of the flange after the transmitter is placed in the pocket. The transmitter may be held in place with tape or a weight while the silicone cures.

**Hot melt adhesive is for temporary bonding only. It is not suitable for long term mounting.**



**Figure D-4: Installation Summary Schematic (all measurements in mm)**

## D.2. Wiring

The transmitter is supplied with a power cord consisting of DC and AC wiring connected with a transformer. In many cases an AC power outlet may need to be installed in the cabinetry where the transmitter is to be installed. Local codes must be followed and the AC outlet often must be installed by a licensed electrician.

The adapter shall be installed near the equipment and shall be easily accessible.

#### E. LED INDICATOR

The LED will indicate the current transmitter status.

#### F. TRANSPORTATION

The greatest risk of physical damage to the transmitter will be between transmitter installation and fabricated top installation in the facility. Protect the transmitter during storage and transportation. One option for protecting the transmitter is to cut a cavity large enough to contain the transmitter in a piece of stiff foam. This foam can then be taped over the transmitter for protection.

#### G. REFERENCES

Off	No power/inactive
Power On	One green flash
Charging	Continuous flashing green
End-of-charge	Solid green
Foreign object detected	Flashing red
Error condition	Solid red



Hereby, Neosen Energy LLC declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

C € 0700

Notice: Observe the national local regulations in the location where the device is to be used. This device may be restricted for use in some or all member states of the European Union (EU)

#### **FCC STATEMENT**

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

#### **FCC Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body