

PA0053 Technical User Manual

1 Introduction

The Device Solutions PA0053 Transceiver Board is based on a Semtech SX1276 Low Power Long Range Multiband RF Transceiver. The PA0053 card has Modular approval under FCC Part 15, Subpart C and applicable Industry Canada RSSs. This document summarizes the requirements for integrating the PA0053 into additional products.

2 Regulatory Requirements

To conform to the modular approval, the integration must conform to the following:

1. There must be no changes to the antenna system.
2. There must be no changes to the remainder of the module.
3. Unless the product is smaller than palm sized, it shall be labeled "Contains FCC ID: OXW-PA0053" per FCC requirements.
4. Unless the product is smaller than palm sized, it shall be labeled "Contains IC: 10572A-PA0053" per IC requirements.
5. All integrations must conform to applicable RF exposure limits and associated usage conditions for installation type (fixed, portable, mobile).
6. The user manual shall include the following text:

This device uses RF energy to communicate. To reduce RF Exposure, this device must be installed in a manner to ensure a 20cm separation is maintained between the devices antenna and the body of the user or nearby people.

This device complies with Part 15 of the FCC Rules. This device complies with Industry Canada's license-exempt RSSs. Operation of the device is subject to the following two conditions: (1) The device may not cause harmful interference, and (2) The device must accept any interference that may cause undesired operation.

This product has been tested and complies with the specifications 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 according to 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 is found 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 or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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

3 Other Recommendations

1. The PA0053 board shall be installed in such a way as to maximize clearance around the antenna.

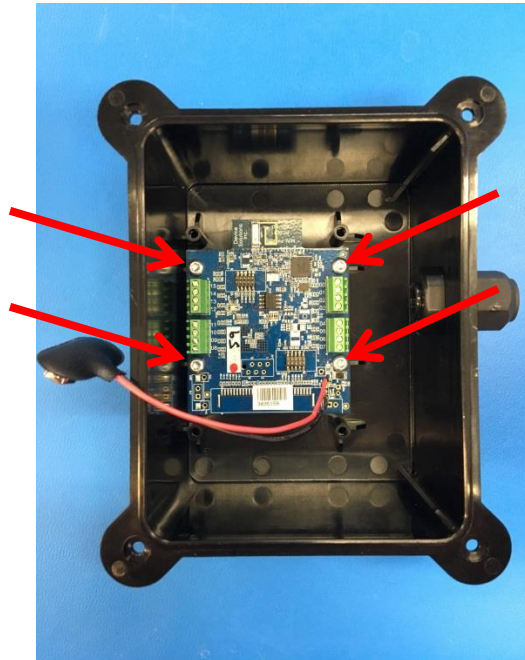
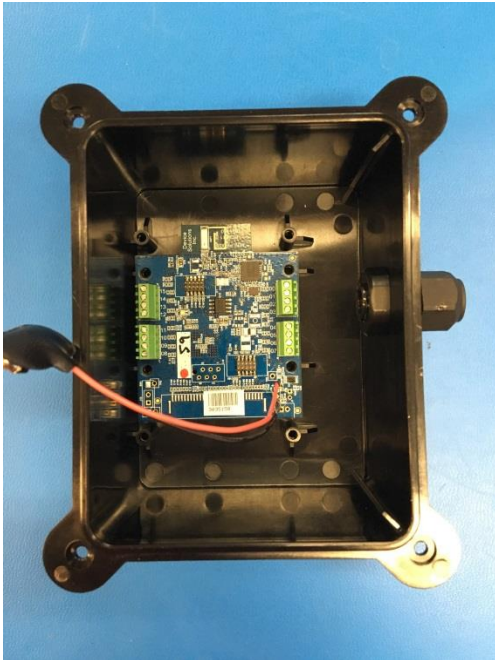
4 Example Host Product Assembly Instructions

4.1 Screw PCB to enclosure

- #4-20 3/10 inch T10 Screws (HW0016)
- PA0053 PCB, Qty. = 1

Be sure to label the PA0053 PCB with the PA level number sticker.

Using four #4 screws that are 3/10 inch long T10 screws, secure the PA0053 PCB to the lower four screw mounts in the enclosure (shown below). The PCB should be placed in the enclosure with the wire gland pointing to the right and the PCB antenna pointed north (shown below). Be sure to tighten the screws so that the PCB cannot move freely.



4.2 Install Battery Holder

4.2.1 Add double sided tape to battery holder

- Battery Holder (HW0054)
- Double sided tape (HW0056)

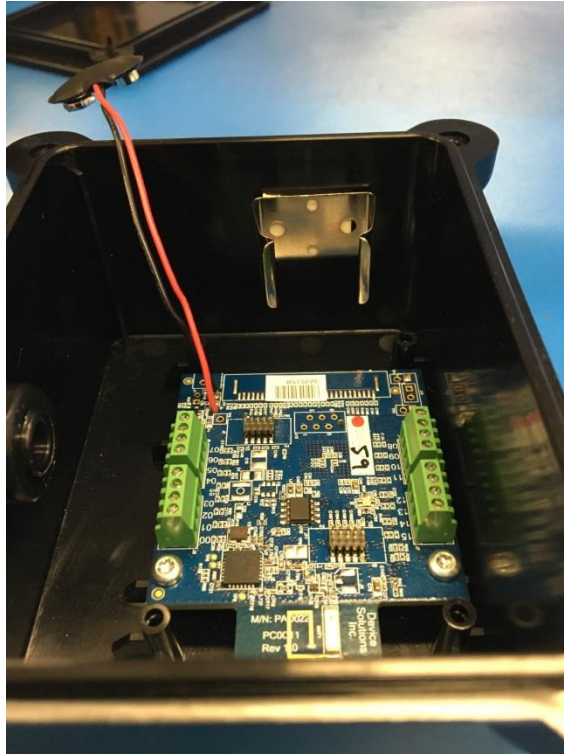
Cut the double sided tape to be 0.5 inches by 1 inch. Wipe the back of the battery holder bracket with an isopropyl alcohol wipe. Once the bracket is dry, apply the double sided tape to the bracket. Press firmly on the tape to ensure a strong adhesion to the bracket.



4.2.2 Place battery Holder in enclosure

- Battery Holder (HW0054)

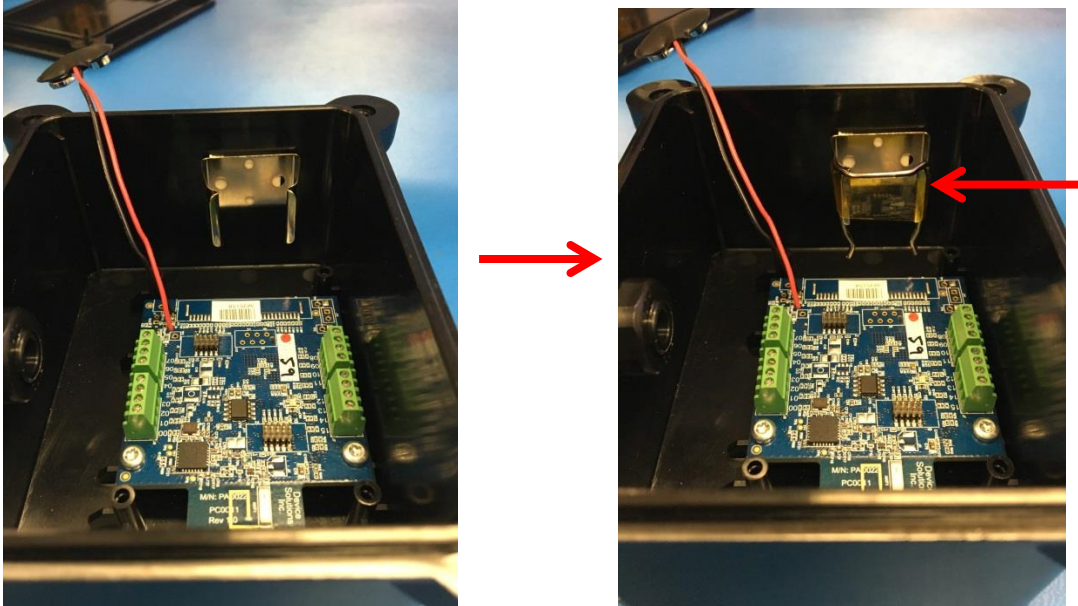
The battery holder should be placed as shown in the picture below. The enclosure should be placed with the wire gland pointed to the left. In this orientation the battery holder will be placed on the north enclosure wall. The battery holder should be approximately 0.5 inches down from the top edge of the enclosure wall and centered between the screw mounts.



4.2.3 Add battery retention clip

- Battery Holder Retention clip (HW0055) top

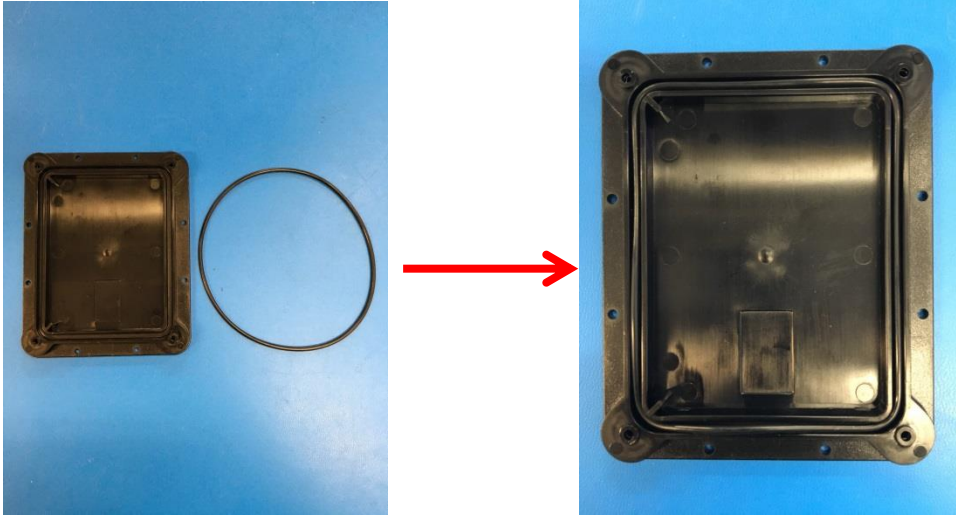
To prevent the retention clip from rattling around enclosure during shipping, the retention clip should be placed on the main bracket of the battery holder and taped as shown below.



4.3 Insert O-ring into enclosure base

- O-ring (HW0002)
- Enclosure base (refer to section 3 for enclosure part number), Qty. = 1

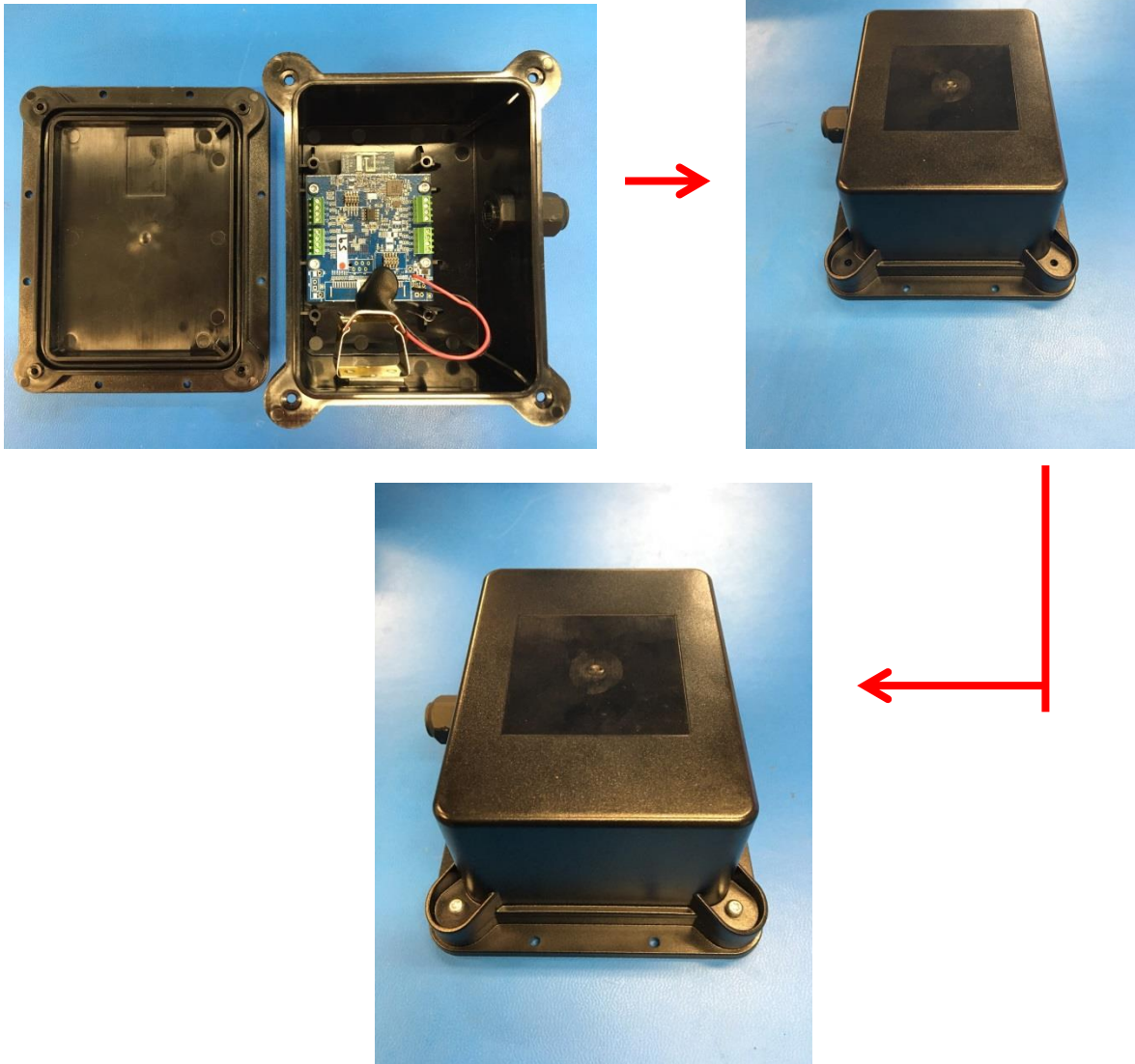
The O-ring should be placed within the groove of the enclosure base. Be sure to press the O-ring completely into place to ensure a good seal when closing the enclosure.



4.4 Secure enclosure base to enclosure

- #4-20, 3/8 T10 screws (HW0006)

Place the enclosure base on the table (shown below), while ensuring the O-ring is still in place turn the enclosure top over and set in place. There are tabs in corners of the enclosure top and bottom, be sure to line these up properly for a good fit. Using the #4 screws that are 3/8 inch long T10 screws, secure the enclosure base to the enclosure top (tighten the screws to 7-8 inch-pounds of torque).



4.5 Add FCC label to enclosure base

- FCC label

With the enclosure base facing up and oriented as shown below, place the FCC label within the recessed square. Be sure to smooth the FCC label to ensure readability. Please refer to the FCC Label pdf that outlines the format and information requirements for FCC Labels (P18-20-0001-1).



4.6 Add Cellio label to enclosure top

- Cellio logo label (DO0067)

With the enclosure base facing down and oriented as shown below, place the Cellio label within the recessed square. Be sure to smooth the Cellio label to avoid any wrinkles or air bubbles.

