Polara

Wireless Ped System Manual

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1. Safety Information

Caution! The equipment covered in this manual must be installed and operated as specified in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.

WARNING: Risk of electric shock. Be aware of the presence of hazardous voltage levels that might be exposed during the installation of this equipment.

- **To prevent the risk of electric shock, place the intersection in flash before opening the ped head.**
- **Batteries are shipped fully charged. Use extreme caution when handling the batteries as they can generate hazardous short-circuit currents. Remove all jewelry (bracelets, metal-strap watches, etc.) before handling the batteries.**
- **Install APS before connecting the batteries to avoid risk of short circuit.**

2. Wireless Ped System Description

The WPS consists of a Wireless Ped Head Control Unit (WPC) installed in the Ped Head, a solar kit (WPSE-50W) featuring the wireless Ped Relay module (PRM). The WPSE-50W connects to an iNS* APS button (not included). There is also an optional quick install, surface mount ped pole. The WPC receives interval information via the Walk and Don't-Walk wires already present in the Ped Head and relays that information via encrypted wireless connection to the WPSE. The WPSE provides the ped interval information to the iNS APS button. For actuated intersections with ped call wires, the iNS places a ped call to the WPSE. The PRM in the WPSE relays ped calls back to the WPC, which creates a contact closure. For pre-timed intersections, connection of the ped call wires is not required. Configuration of the WPC and WPSE, and their association together, is achieved using the Polara Field Service App.

***NOTE: The WPS works with iNS3/iDS3 and iNS2/iDS2 buttons, operating in 3-wire mode.**

The Wireless Ped System (WPS) can eliminate the need for trenching when installing Accessible Pedestrian Signals (APSs) near existing Pedestrian Signal Heads ("ped heads") that are located too far from crosswalks to comply with newer accessibility regulations.

2.1 Wireless Ped Head Control Unit (WPC)

INSTALLATION NOTE: Installations using the 10-foot Frey pole and base requires drilling 5 inches deep and a minimum of 4 inches of concrete. It is acceptable to go down 1 inch into whatever surface is below the concrete if the concrete is only 4 inches deep.

2.1.1 Description

The WPC acts as a relay between the hard-wired Walk and Don't-Walk signals in the Ped Head, as well as any available ped call wires, and the WPSE mounted on the wireless ped pole.

2.1.2 Technical Specifications

Operating Voltage: 89–135 VAC

Power Consumption: 2W

Contact Closure Voltage: Nominal 24 VDC

External Connections:

- 120 VAC Walk / Don't-Walk / AC Neutral
- Contact Closure (for intersections that allow ped calls to be placed)

Operating Temperature Range: -34 °C to +74 °C, 95% Relative Humidity

Storage Temperature Range: -40 °C to +85 °C

Designed for installation in a Ped Head.

Dimensions W x D x H: 153 x 89 x 32 (mm - Reference Only)

Weight: 0.6 lbs.

2.2 Solar Kit

2.2.1 Description

The WPSE with its included Ped Relay Module (PRM), mounts atop a pole, interfaces with a WPC via secured Bluetooth LE wireless connection, and provides power and signaling to a connected iNS APS.

2.2.2 Technical Specifications

Power Rating: 50W

Environmental: NEMA 250 3R

Temperature Range (System): -34–74 °C (-29–165 °F)

Temperature Range (Battery): -20–49 °C (-4–120 °F)

Dimensions: 26.3” L x 21.2” W

Mounting: 3.5–4.5” round pole

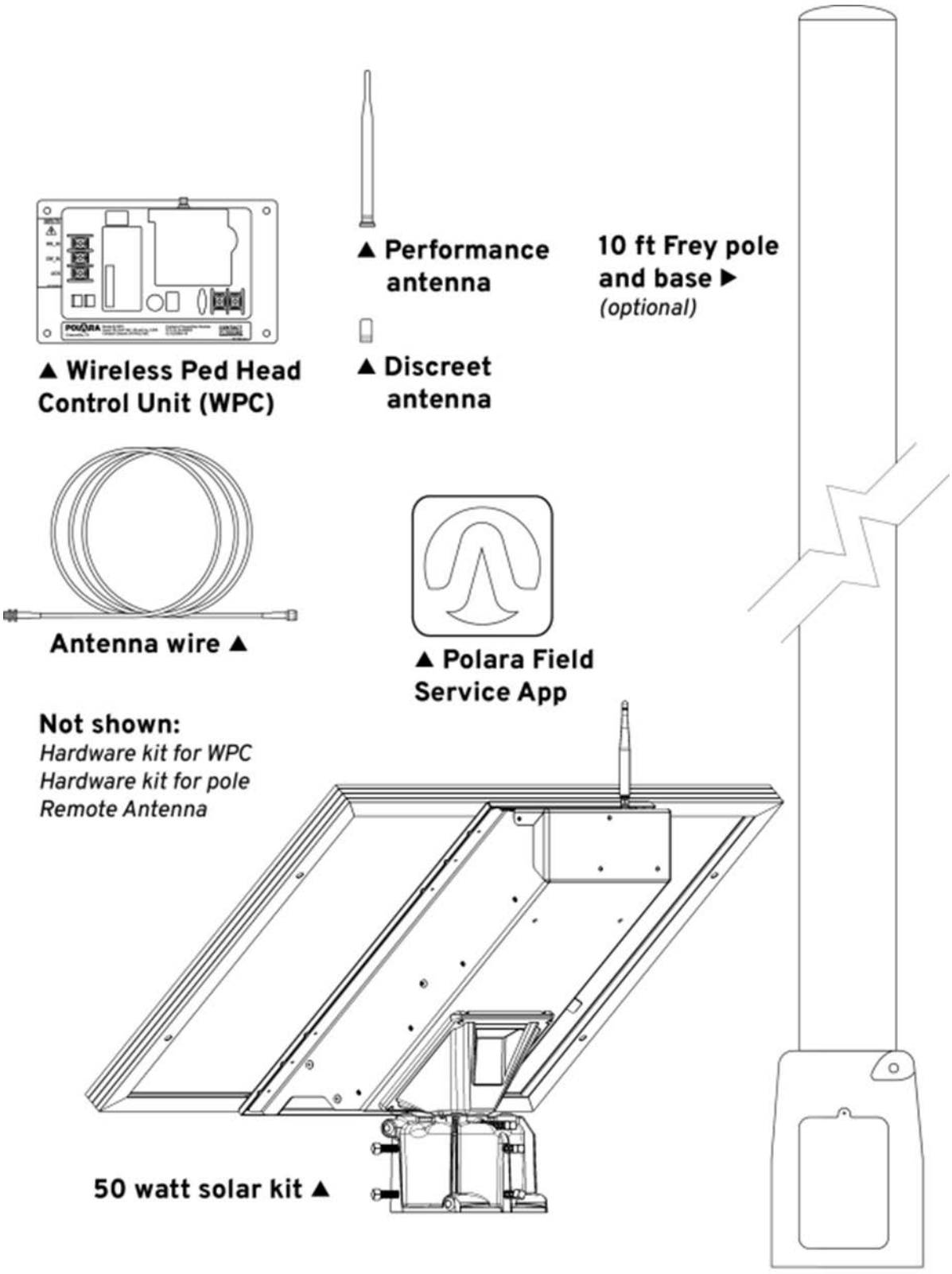


Figure 1: WPS components

3. System Installation

INSTALLATION NOTE: To complete this installation, you must install the most recent version of Polara Field Service App on your iOS or Android device (or IntelligentConfig on a Windows laptop). Older versions of Field Service App and IntelligentConfig do not support WPS configuration.

- All setup and maintenance procedures must be performed using a compatible iOS device or Android device or PC with iN-DGL. Your device must have iOS version 12 or higher or Android 13 or higher.
- The Polara FS App will need to be installed on your device. It is available on the Apple App Store and the Google Play Store. Alternatively, the IntelligentConfig software for Windows can be found on the Polara website.

3.1 WPC Installation

WARNING: To prevent the risk of electric shock, place the intersection in flash before opening the Ped Head.

NOTE: The WPC is intended for use with 120 VAC Ped Heads and will not operate correctly with low-voltage DC signals.

The WPC installs inside the Ped Head and is supplied with a hardware kit that includes a mounting plate and the necessary screws, washers, and nuts.

3.1.1 Preparation

3.1.1.1 Mounting Holes

If the Ped Head does not already have tapped ¼-20 holes, drill and tap a hole to attach the mounting plate. While a single screw is sufficient to secure the WPC bracket to the Ped Head, a second screw may be used for additional stability. If using two screws, they should be spaced 9.3” apart to match the mounting plate.

3.1.1.2 Antenna Hole

The WPC provides for two antenna options:

1. Performance antenna, mounted to the top of the signal head
2. Discreet antenna, mounted to the bottom of the signal head

The performance antenna provides the best signal gain and is the preferred antenna. The Discreet antenna is visually unobtrusive.

Determine which antenna will be used. A ¼" hole is required to mount the antenna. Drill a ¼" hole in either the ceiling of the signal head (for the performance antenna) or the floor of the signal head (for the discreet antenna). The hole should be positioned as far away as possible from any mounting structures (e.g., pole or brackets) and should be positioned on the side of the ped head nearer the ped pole that will have the iNS APS and WPSE solar kit mounted on it. That is, if the ped pole is located to the left of the ped head, the antenna hole should be positioned on the left half of the ped head.

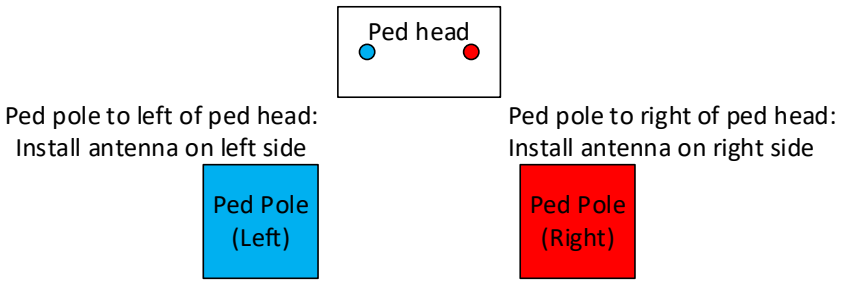


Figure 2: Antenna location

Figure 3: Discreet antenna placement with the ped pole to the left

Figure 4: Performance antenna placement with the ped pole to the right

3.1.1.3 Ped Call Wiring

If the WPC is being installed at an actuated intersection, ped call wiring must be brought into the Ped Head. For pre-timed intersections, ped call wiring is not required.

3.1.2 Mounting

Attach the WPC to the mounting plate with the supplied hardware. Insert the 6-32 screws and secure with the 6-32 nuts. For simpler installation, do this before attaching the mounting plate to the Ped Head.

Fasten the assembly to the Ped Head with the ¼-20 screws and washers. Figure 5 shows an example of a typical installation.

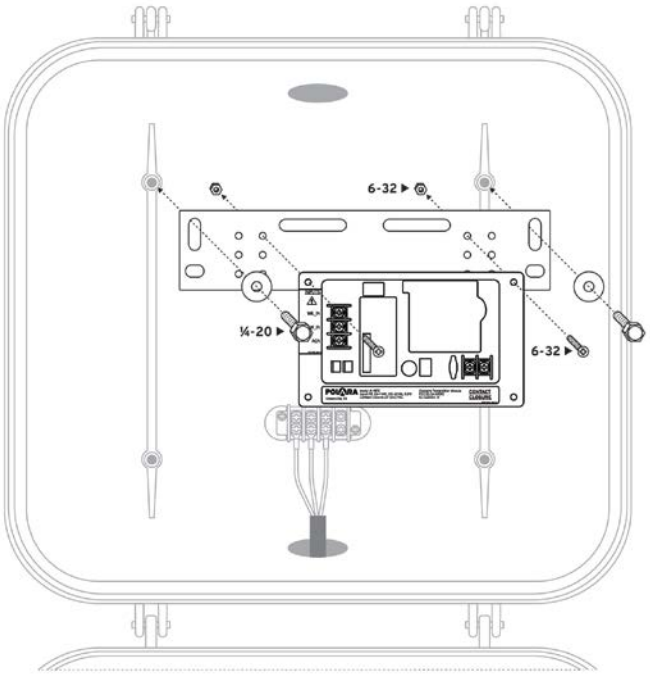


Figure 5: Mounting the WPC

3.1.3 Wiring

3.1.3.1 Signal Wiring

Once the WPC is mounted, install jumper wires to connect the AC Neutral (ACN), Walk (WK), and Don't Walk (DW) signals from the Ped Head's terminal block to the WPC input power terminal block, as shown in figure 6. The jumpers should be 18 AWG or larger and must meet applicable regulatory requirements.

3.1.3.2 Ped Call Wiring

At actuated intersections, connect the ped call wires to the Contact Closure terminals. The polarity of the ped call wires does not matter.

Double-check each wire to ensure it is properly landed and connected to the correct terminal. Ensure the terminal block's screws are tightened securely.

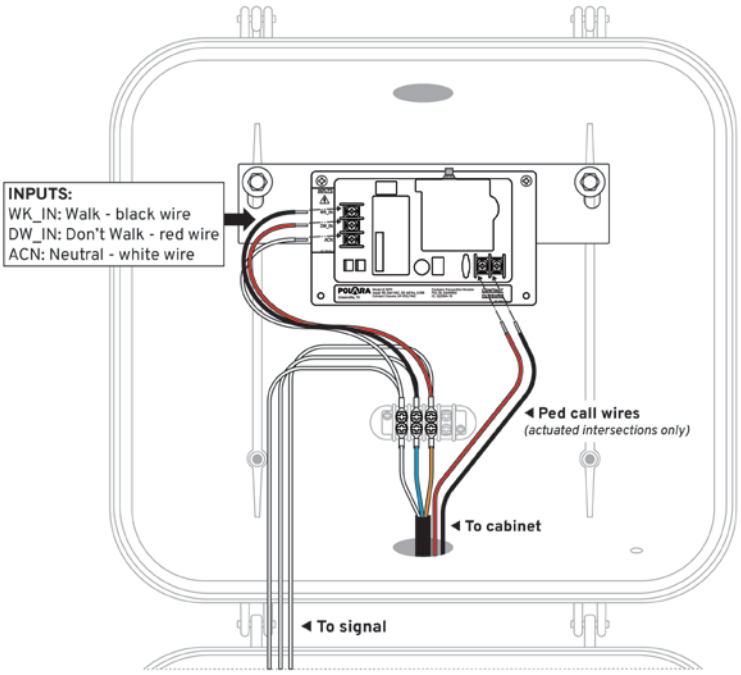


Figure 6: WPC wiring diagram

3.1.3.3 Antenna

Remove the nut and washer from the male end of the antenna cable. Insert the connector through the antenna hole drilled previously, then reinstall the washer and nut and tighten snugly using a 5/16” wrench or socket. **Do not apply excessive force to the nut, or stripping could occur.**

Install the antenna on the male connector with fingers only; **do not use a wrench to tighten the antenna**.

Connect the female end of the antenna cable to the male connector on the WPC cover. Tighten it with fingers only; **do not use a wrench to tighten the WPC antenna cable connection.**

When the antenna is mounted on the top of the ped head, consider adding a bead of silicone around the base of the antenna to prevent water ingress into the ped head through the hole.

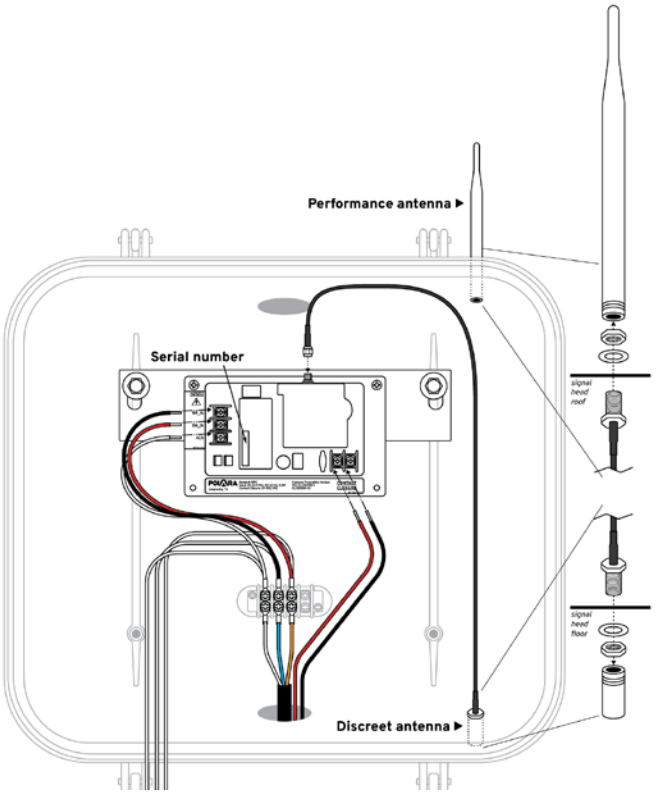


Figure 7: WPC external antenna

3.1.4 Wrap-Up

Record the serial number of the WPC and identify which Ped Head it is installed in. This information will be needed later.

Close the Ped Head and restore power to it.

3.1.5 Configuration

NOTE: It is recommended to power and configure WPCs one-at-a-time to minimize the risk of misidentification.

Apply power to the Ped Head that contains the WPC to be configured. Open Field Service App (FSA) and look for a WPC with a default name (the format of a default name is C#######, that is, the letter 'C' followed by seven digits). If the Field Service App cannot detect the WPC or has trouble connecting to it, try moving closer to the WPC or removing obstacles around it.

Verify that the last three digits of the WPC's name match the last three digits of the serial number recorded in step 3.1.4 and then tap on the WPC in FSA.

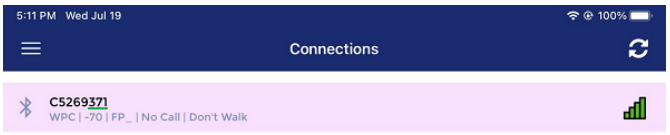


Figure 8: Connecting to the WPC

When prompted to enter a password, enter **1234** and tap Connect. You will be prompted to change the password. Enter the new password and re-enter it in the fields provided and then touch Save. Passwords are required to be 8-17 characters with at least one lowercase letter, one uppercase letter, one number, and one special character. Permitted special characters are (~!@#$%^&*_-+=`|(){}[]:;"'<>,.?/) A "space" character is also considered an acceptable special character.

NOTE: The WPC will not operate until its password is changed to a non-default value.

Tap the WPC's name at the bottom of the screen and enter a new name with a length of up to 24 characters. You will use this name later to associate the WPSE to the WPC, so it is recommended to make this name descriptive, e.g., "WPC SW P6" for the WPC serving phase 6 on the southwest corner of the intersection.

NOTE: The WPC's name and password will be needed in a later step, when associating with a WPSE.

3.2 Wireless Ped Pole Installation

3.2.1 Siting Considerations

The wireless ped pole position must:

- Be close enough to the crosswalk to meet accessibility requirements; and
- Provide adequate sunlight for the WPSE (solar kit) to keep the battery charged.

Frey pole and base installation requirements

Minimum requirements for installation with the 10 ft Frey pole:

- Use a ¾ inch concrete drill bit for the supplied 5/8 inch anchor bolts.
- Drill 5 inches deep. A minimum of 5 inch penetration is required for the anchor bolts.
- A minimum of 4 inches of concrete is needed. It is okay to go down 1 inch into whatever surface is below the concrete if the concrete is only 4 inches deep.

Signal quality requirements

For best signal quality:

- Install the wireless ped pole within 5–20 feet of the Ped Head antenna.
- Ensure an unobstructed line of sight between both antennas.

- Ensure both antennas are at the same height. That is, when the WPSE is installed atop the wireless ped pole, its antenna should be at approximately the same height as the WPC's antenna on the ped head.

NOTE: If line of sight and equal height are not possible, a Remote Antenna Kit is available that allows you to mount the WPSE's antenna along the wireless ped pole to achieve the necessary setup. See Section 6.

For best performance, position the wireless ped pole within the shaded region in fig. 9.

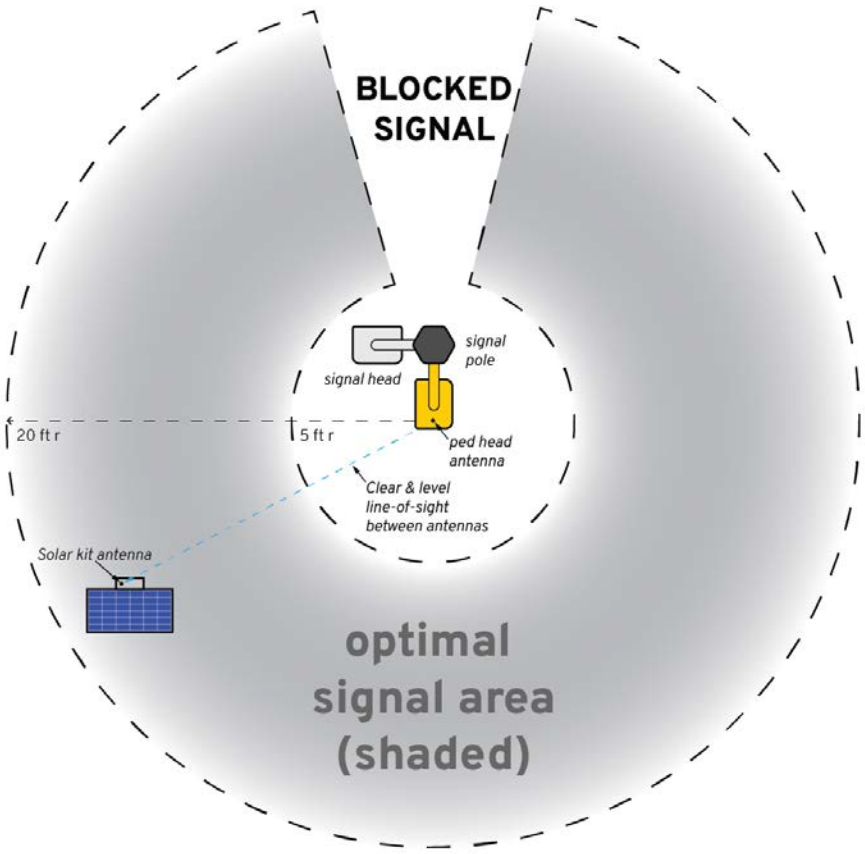


Figure 9: Optimal signal area

It may be necessary to move the wireless ped pole closer to the WPC and/or remove obstacles between the WPC and wireless ped pole if the WPSE atop the wireless ped pole cannot reliably connect to the WPC. If there is any concern about the signal quality requirements listed above, it is strongly recommended to test associating the WPSE atop the wireless ped pole with the WPC before preparing or mounting (permanently installing) the wireless ped pole. The field Service App (FSA) provides a real-time display of Received Signal Strength Indicator (RSSI) values that can aid in positioning the WPSE solar kit and the wireless ped pole. See Section 3.6.

3.2.2 Pole Installation

Verify the absence of any buried utilities at the intended wireless ped pole location.

Follow the instructions in section 14 to install the Polara-supplied pole. If you provided your own pole, refer to the manufacturer's instructions instead.

3.3 WPSE Solar Kit Assembly and Installation

3.3.1.1 Mounting to Pole

1. Install the adhesive gasket on the mount as shown (Figure 10). Ensure it is installed on the upper edge of the wedge mount to prevent water from entering the casting.

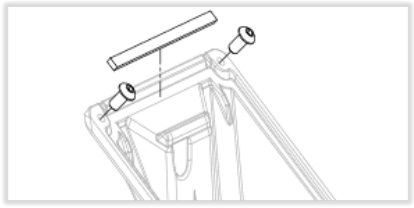


Figure 10: Gasket and Top Screws

Caution! Failure to correctly apply adhesive gasket could result in product damage caused by water entry.

2. Thread the top two screws into wedge mount loosely (Figure 10).
3. Thread supplied bolts partially into the top of pole mount. Note location of longer bolt on top of pole mount (Figure 11).
4. Fully thread the wedge mount into the top of the pole mount and install both mounts onto the pole.
5. Orient front of wedge mount facing south.
6. Tighten all seven bolts on the top of pole mount.
7. Pass the 16-foot cable through the wedge and top of pole mount, then align the top mount screws with keyholes on housing and slide into place (Figure 12).
8. Fully tighten top mount screws, then install the lower mount screws from the hardware kit and fully tighten (Figure 13).
9. Screw the antenna onto the antenna mount. Hand-tighten the antenna until it snugly bottoms out. Apply sealant tape from hardware kit to bottom of antenna.

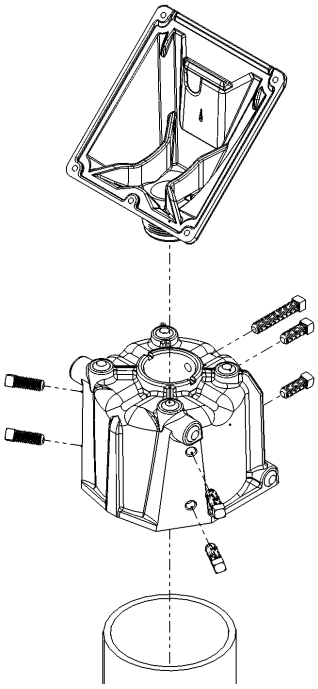


Figure 11: Pole casting

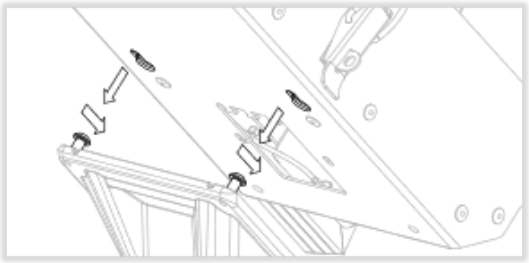


Figure 12: Keyholes

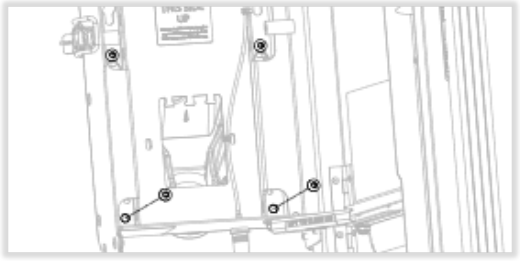


Figure 13: Wedge Mount Screws

3.3.1.2 Cable Preparation for iNS APS Button

1. From the base of the pole, pull the 16-foot cable out through the access hole.
2. Cut approximately 5 feet off the end of the 16-foot cable. Set the 5-foot length aside for later.

NOTE: Leave enough cable in the base of the pole to fasten wire nuts, but ensure that enough cable is cut off to reach from the button into the base of the pole.

3.3.1.3 Installing the Batteries

WARNING: Batteries are shipped fully charged. Use extreme caution when handling the batteries as they can generate hazardous short-circuit currents. Remove all jewelry (bracelets, metal-strap watches, etc.) before handling the batteries.

1. Unpack batteries and terminal hardware (packaged separately) and battery harnesses.

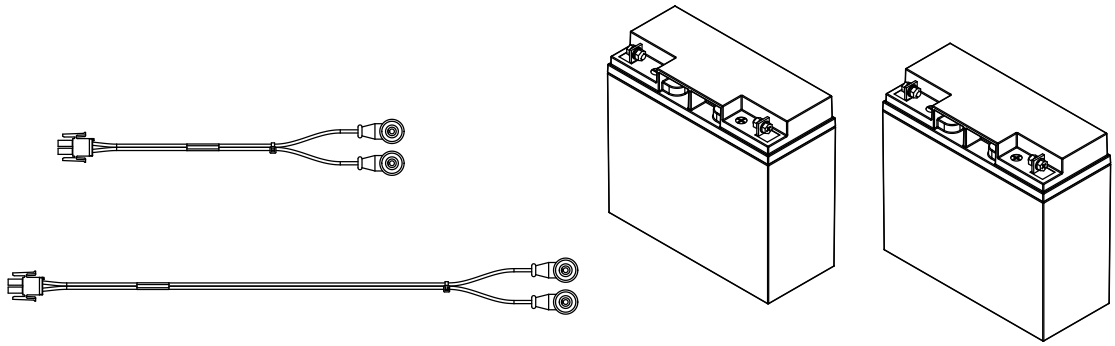


Figure 14: Batteries and harnesses

2. Fasten ring terminals to battery terminals as shown:
    a. Red wire to positive battery terminal, black wire to negative battery terminal.
    b. Install screws, flat washers, lock washers and nuts in order shown below and tighten firmly.
    c. Bend ring terminal over battery terminal and pull boot over bolt.

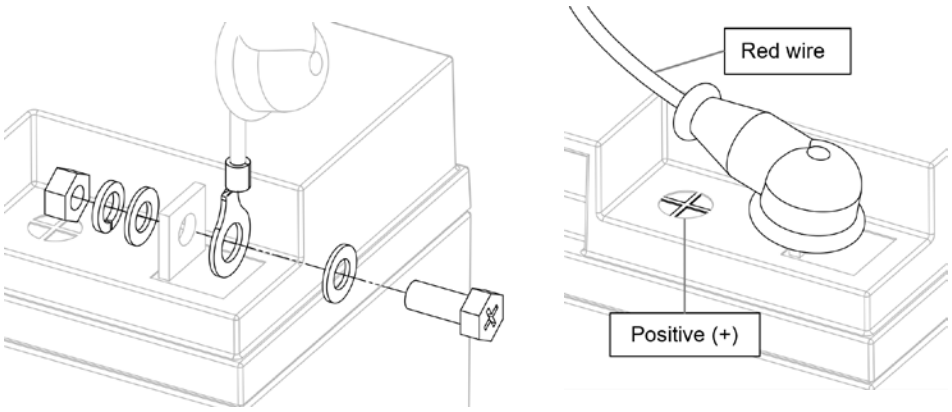
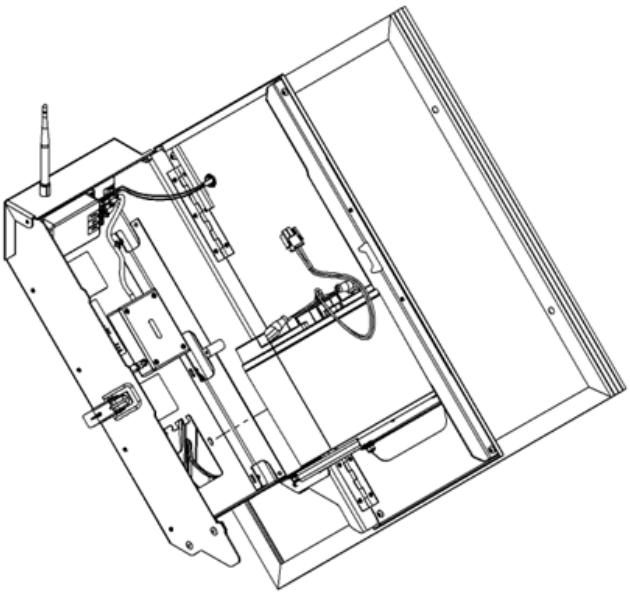


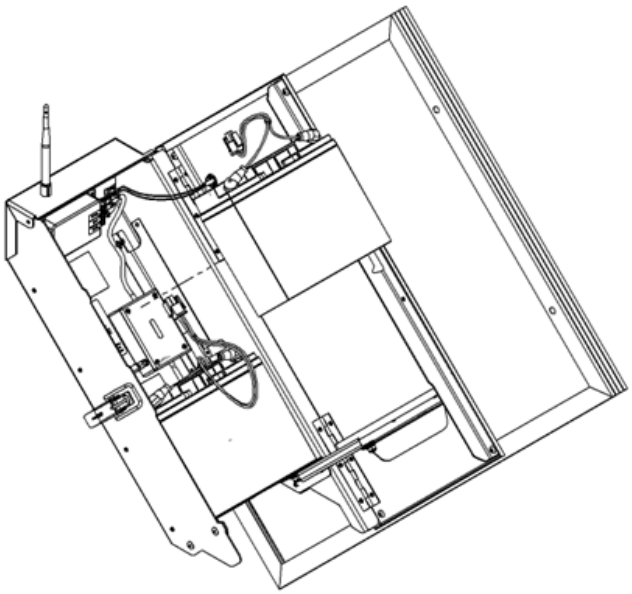
Figure 15: Battery connection to harnesses

NOTE: Install button before powering up the system.

3. Install battery with longer harness into lower position in WPSE housing as shown in Figure 16 Install the second

NOTE: To use a padlock to secure the unit, cut the cable tie fastening it to the chassis and remove the lock bar before installing the batteries.





battery with short harness into upper position.

WARNING: Do not connect the batteries until after the button is installed and wiring is complete. Premature conection of the batteries could result in short-circuiting.

3.4 Installing the iNS APS

1. Drill the mounting holes and wire pass-through hole for the backplate per the iNS3 APS installation instructions in the iNS/iDS 3-Wire System Manual available at www.polara.com. Tap the mounting holes.
2. Tie a loose knot approximately 3 inches from the end of the 5-foot piece of cable saved from section 3.3.1.2, to prevent the cable from slipping through the hole.
3. Feed the untied end of the 5-foot cable through the wire pass-through hole and let the cable extend into the base of the pole.
4. Finish installing the iNS per the installation instructions.
5. Connect the wires to the iNS as shown in Figure 17.

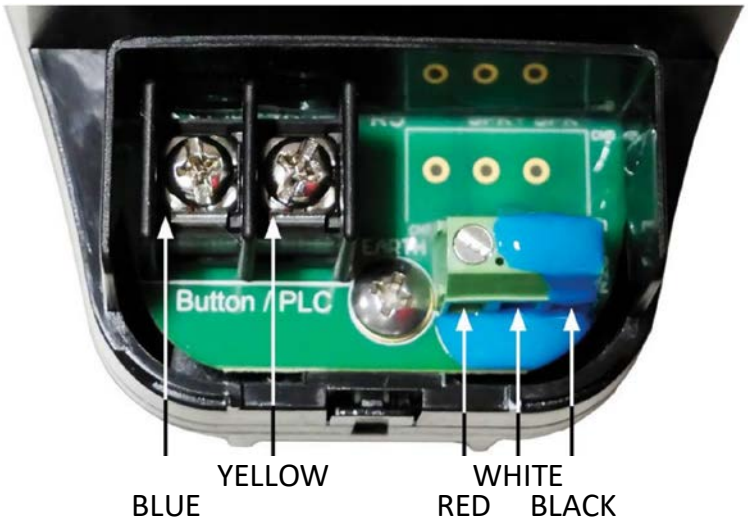


Figure 17: iNS wire connections

3.4.1 Wire Termination

1. Inside the base of the pole, strip the ends of the 11-foot and 5-foot cables.
2. Use the provided weatherproof wire nuts to terminate the wires, making sure to correctly match the colors.

NOTE: Cross-connecting the wires could damage the iNS3 or the WPSE solar kit.

3. Install the cover over the base of the pole.

3.5 Battery Connection and Lid

1. Connect both batteries to the mating connectors (Figure 18) in the solar kit. It does not matter which battery goes to which connector. The system will energize, and the iNS3 will play a double beep.
2. To close the lid, lift strut and lower lid onto housing.
3. Ensure housing is closed and secured, otherwise damage may occur.

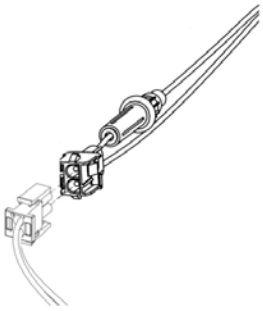
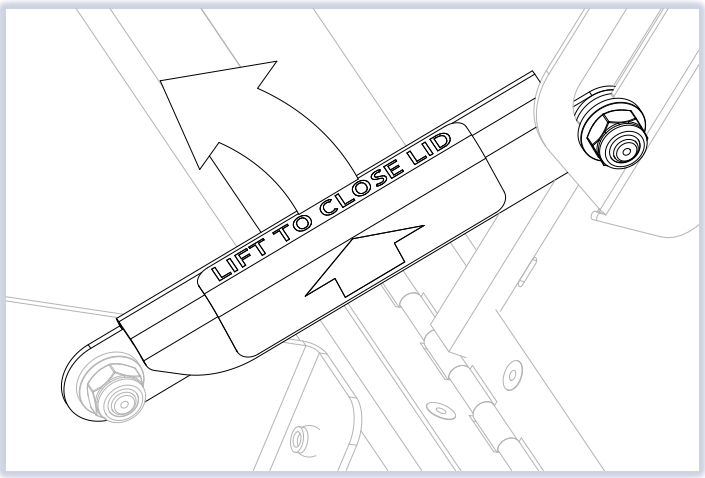


Figure 18: Battery connectors



4. If a higher level of security is desired, install padlock. Pad lock location shown below (Figure 19).

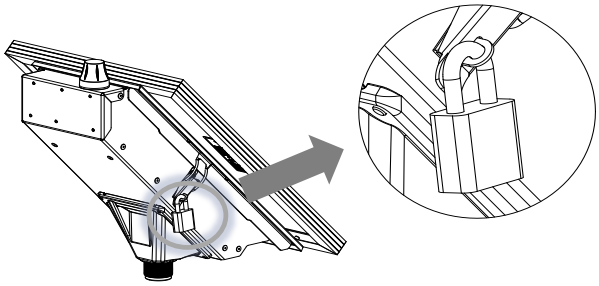


Figure 19: Padlock Location

NOTE: Maximum padlock shackle diameter 1/4".

3.6 Associating the WPSE Solar Kit with the WPC

Note, the following instructions show examples using iOS but the instructions for Android and IntelligentConfig are similar. The remainder of this manual will continue to show the iOS version of the Field Service App (FSA) for illustrative purposes.

Open Field Service App (FSA) and look for a solar kit (shown in Field Service App as WPSE) with a default name (the format of a default name is R#######, that is, the letter 'R' followed by seven digits). If the Field Service App cannot detect the WPSE or has trouble connecting to it, try moving closer to the WPSE.

NOTE: Be sure to connect to the WPSE, not the iNS; the iNS cannot associate with the WPC directly.

Verify that the last three digits of the WPSE's name match the last three digits of the serial number printed on the WPSE's product label and then tap on the button in FSA.

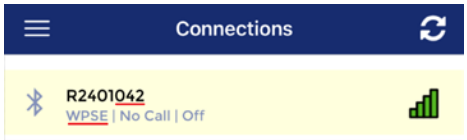


Figure 20: The WPSE (solar kit) displayed in the Field Service App's list of available connections

When prompted to enter a password, enter **1234** and tap Connect.
You will be prompted to change the password. Enter the new password and re-enter it in the fields provided and then touch Save. Passwords are required to be 8-17 characters with at least one lowercase letter, one uppercase letter, one number, and one special character. Permitted special characters are (~!@#$%^&*_-+=`|(){}[]:;"'<>,.?/) A "space" character is also considered an acceptable special character.

Ensure power is applied to the ped head containing the WPC that will be associated with the WPSE.

Tap "Wireless Ped Head Control Unit (WPC)", and then "Scan for WPCs".

Locate and tap on the WPC in the target ped head, referring to the serial number recorded in step 3.1.4. Enter the WPC's password.

After a moment, the WPSE will connect to the WPC. After a successful connection, the WPSE and WPC are now associated and the system will restart, causing a disconnection with the Field Service App. Click ok to continue.

After a brief moment, reconnect to the WPSE as before and tap Wireless Ped Head Control Unit (WPC). This time, a Received Signal Strength Indicator is shown to help check communication and antenna installation. For failure cases, see section 9.2.

3.6.1 Verify the Signal Strength of the Connections

After successfully associating the WPSE and WPC, a signal strength page will be displayed showing the RSSI values of both the WPC and WPSE. The screen will update roughly every second. The page also contains information explaining how to verify the RSSI values.

The graph below shows the quality of the connection between the WPC and the WPSE. Maximizing signal strength will ensure a good connection between the devices so that the iNS continues to receive traffic intervals.

If the signal strength falls into the Unacceptable range, then the antenna should be repositioned to increase signal strength.

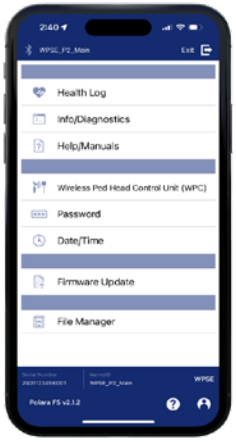
While monitoring, it is important to pay attention to additional items in the environment which may affect the signal strength. The signal is only valid when the following is observed:

- The antennas are not being touched.
- Bucket, Ladder, etc. is down/away from devices.

Verify that the RSSI values meet these criteria for best performance:

- The RSSI value should be above -70 for best connectivity.
- It is preferable to have both RSSI values be -65 or greater.

Connect to



Select Wireless Ped Head Control Unit (WPC)

Scan for

Select WPC from scan results

Successful Association and RSSI

If the RSSI values are below -70, attempt to move the WPSE to improve the connection. Keep in mind that the antenna should be at the same height as the WPC's antenna on the ped head and within 5-20 feet of the WPC's antenna on the ped head. There should be an unobstructed line of sight between the two antennas. If achieving the same height for the WPSE and WPC antennas with an unobstructed line of sight is not possible, the use of the Remote Antenna Kit (WPS-REMOTE) allows for relocation of the WPSE antenna.

3.6.2 Verification

When finished associating and following the automatic system reset, the WPSE will immediately begin receiving ped interval information from the WPC, and the iNS will play its locate tone.

For each WPC/WPSE association:

1. Press the button when the ped head shows the Don't Walk sign and verify the button LED illuminates shortly after pressing the button; and
2. When the ped head transitions to "Walk", verify the button vibrates and plays the rapid tick sound.

3.6.3 Further Configuration

For a description of additional configuration settings, see the iNS/iDS 3-Wire System Manual, available on the Polara website at www.polara.com.

4. Moving or Replacing a WPSE

NOTE: If a WPSE is removed without first disassociating from its WPC, the WPC will place a constant call. Therefore, it is recommended to disassociate the WPSE from the WPC before separating them. This only applies if the WPSE is replaced; replacing the iNS does not have this effect.

To disassociate a WPSE from a WPC, ensure that the power is on to both the WPSE and its associated WPC. Using FSA, connect to the WPSE that is to be disassociated from the WPC. Tap "Wireless Ped Head Control Unit (WPC)", and then tap "Disassociate WPC". When prompted, confirm detachment, then tap "Yes" to confirm disconnecting and restarting the WPSE. Once the WPSE reboots, it is disassociated and ready to be associated with a new WPC per section0.

If the WPSE cannot be disassociated from the WPC prior to separating them (e.g., due to damage), see section 9.2.3 to clear the WPC's constant call.

5. Moving a WPC

Each WPC maintains a list of WPSE allowed to connect to it. This list has a finite number of entries, so repeatedly moving the WPC without periodically clearing the list can cause it to fill up and prevent further associations from being made.

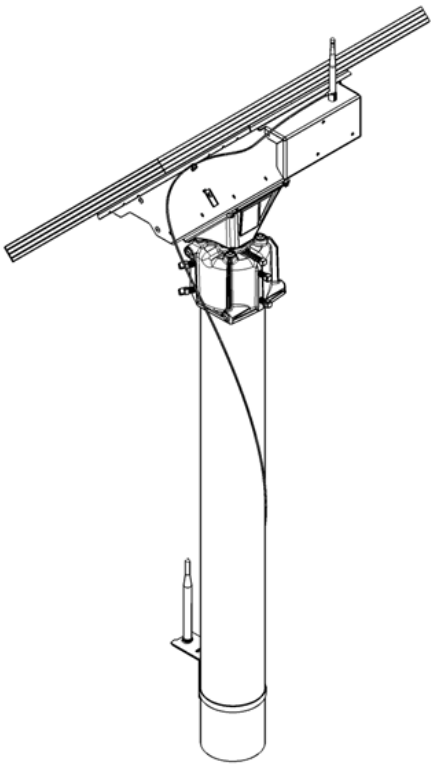
NOTE: Clearing the WPC list will require reassociating all WPSEs currently associated with it; therefore, only clear the list when moving a WPC or if unable to associate a WPSE.

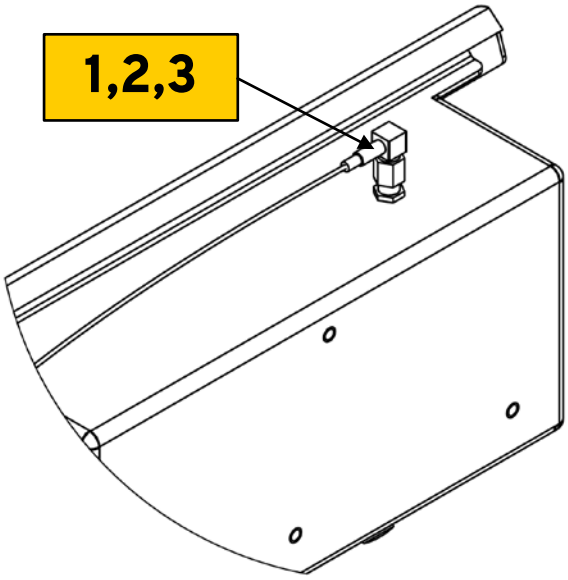
Therefore, if a WPC is to be moved to a new location, the installer should clear the WPC's list. Under normal circumstances, there will only be a single WPSE associated with a WPC.

To clear the WPC's list, connect to the WPC using Field Service App. Tap the "Info/Diagnostics" button, and then tap "Clear WPSE Authentications" and confirm. Field Service App will display a status message. If successful, the WPC's list is now cleared, and new WPSEs can now be associated.

6. Remote Antenna Kit

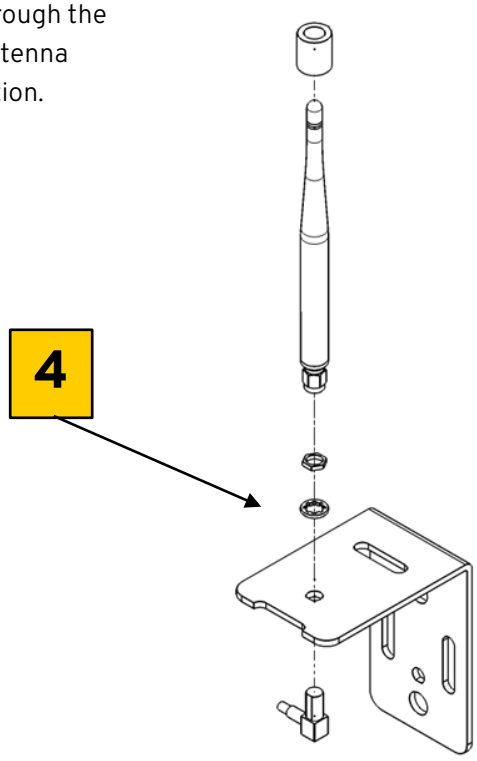
As stated earlier under 'Siting Considerations', it is necessary to ensure the WPSE's antenna has an unobstructed line of site with the WPC's antenna and that both antennas are at approximately the same height. In some instances, it may be difficult to achieve this setup. For example, if the WPS' antenna on the ped head is mounted at 10' and the WPSE is mounted atop a 17' pole, the two antennas will not be approximately the same height. A Remote Antenna Kit (PN: WPS-REMOTE) is available that allows the WPSE's antenna to be relocated elsewhere along the pole, rather than its normal location atop the WPSE.

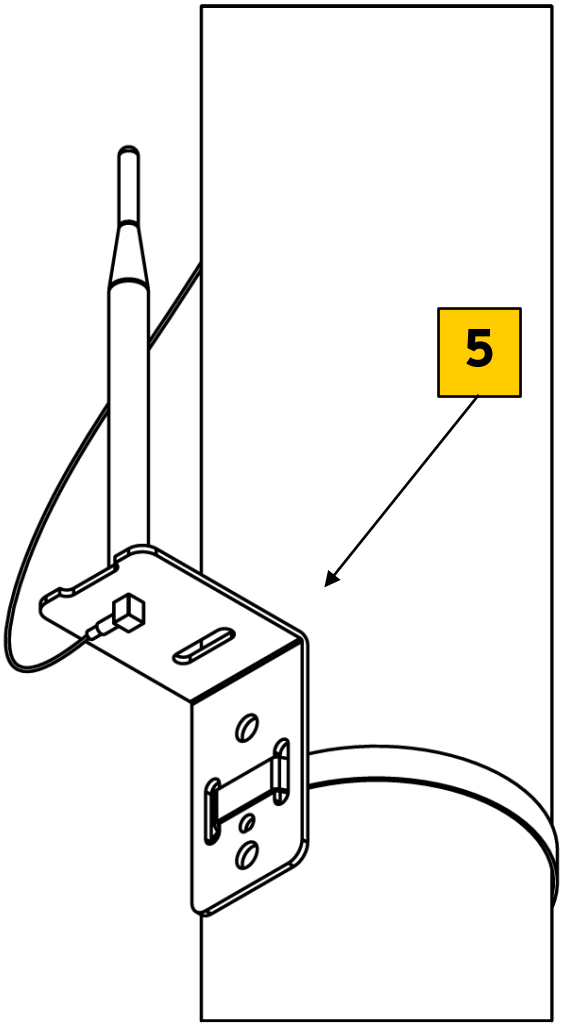




1. Unscrew the existing antenna atop the WPSE and set it aside. In place of the antenna, screw the antenna extension cable onto the antenna mount atop the WPSE.
2. Hand-tighten the antenna until it snugly bottoms out.
3. Apply sealing tape to base of antenna cable connection.

4. Feed the connector at the opposite end of the antenna extension cable through the mounting bracket, followed by the o-ring and washer. Hand-tighten the antenna onto the mount/connector. Apply sealant tape to base of antenna connection.





5. Mount the bracket along the pole at a height and orientation that provides line of site with the antenna of the WPC on the ped head, using banding straps or screws. Be careful to ensure there are no hard bends/kinks in the antenna extension cable, then dress appropriately (e.g. create a coil from excess cable near the WPSE/top of the pole, to eliminate slack, use suitable cable ties to secure to pole, ...etc.).

7. Firmware Upgrades

7.1 Checking for the Latest Firmware

Firmware files are automatically bundled with the Polara Field Service App (FSA). The latest firmware at the time of FSA release is ready and pre-installed for updating.

The FSA can also connect to polara.com to check for new updates directly from within the App. Your device must be connected to the internet to perform the check. While disconnected from all devices, tap the menu icon on the upper left of the Connections screen. Tap on the File Browser option to browse all firmware files on your device. Tap the folder icon in the upper right corner of the File Browser screen. Tap the Check For Updates button. The device will connect to the Internet and check for the latest firmware files from polara.com and provide them for download. You can tap on View Release Notes to see what the changes are from the previous version or tap the Download button to download the file to your device.

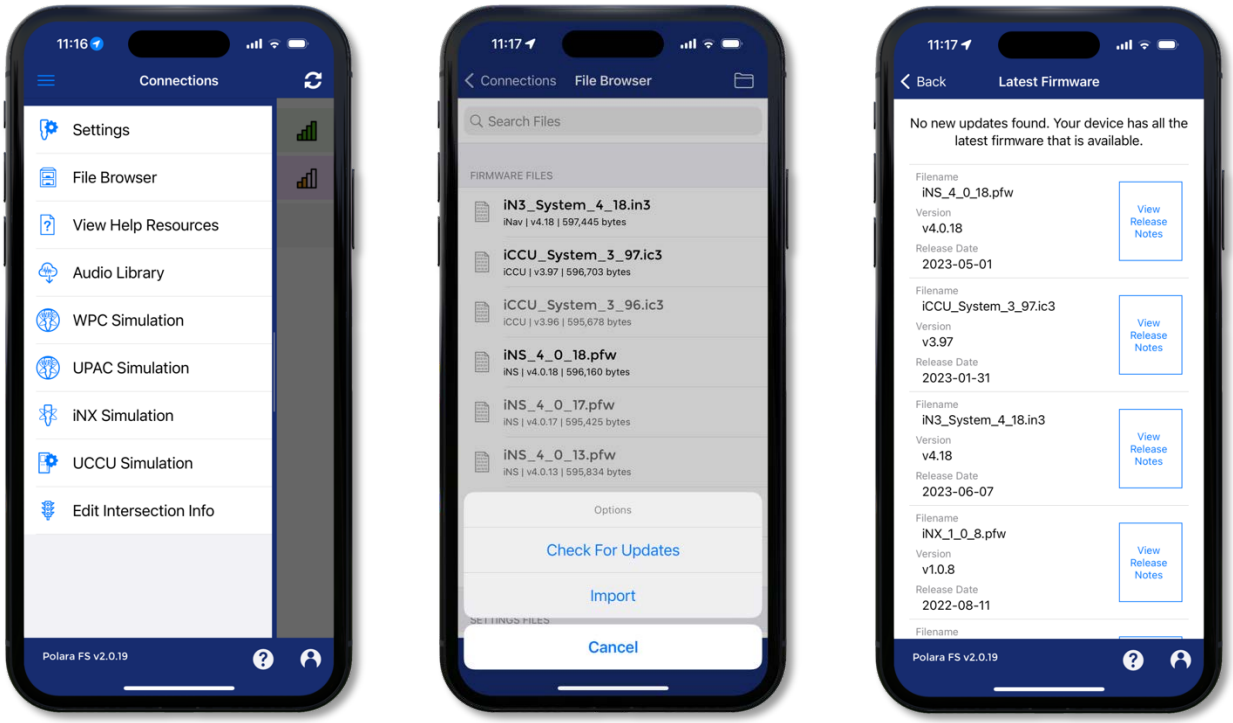


Figure 21: Downloading firmware updates in the Field Service App

Firmware files to be uploaded can also be received as an email attachment on your device. With the email app open and the message displayed, tap on the attachment, then tap “Open in Polara”.

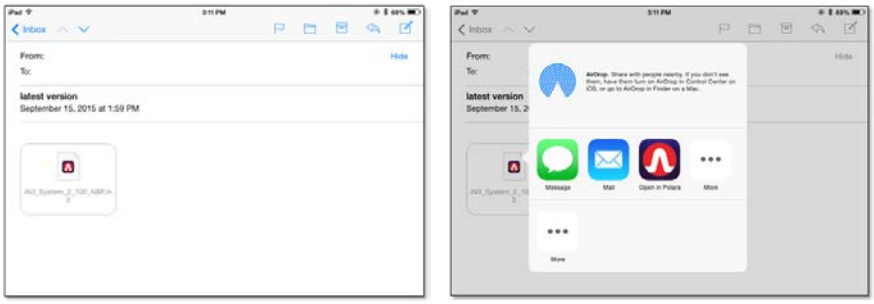


Figure 22: Downloading firmware updates by email

7.2 Performing a Firmware Update

To perform a firmware update, connect to the device you wish to update, and then tap the box for “Firmware Update” from the device’s main menu. On the firmware update page, you can view the current firmware version of the WPC or WPSE. Tap the “Manually Select Firmware File” button. The list of available firmware update files will appear. Tap the file you wish to upload and tap Select File to begin the firmware update process. When the process is complete, a message is displayed confirming the success.

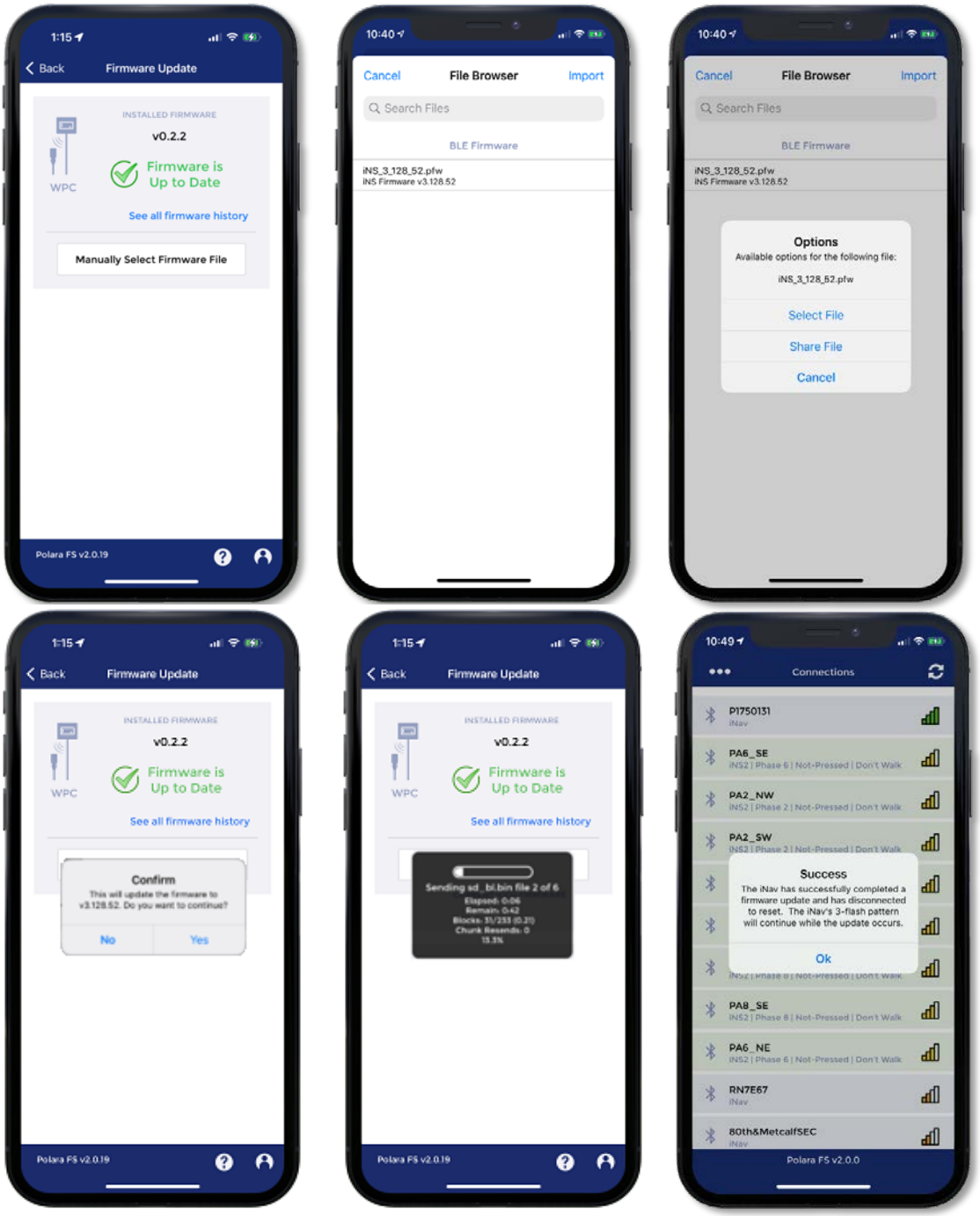


Figure 23: Updating firmware

7.3 Deleting Firmware Update Files

To delete unwanted firmware files, tap the Update Firmware button to display the File Browser, and then swipe on the unwanted item from the right to the left to show the delete button. Tap the Delete button.

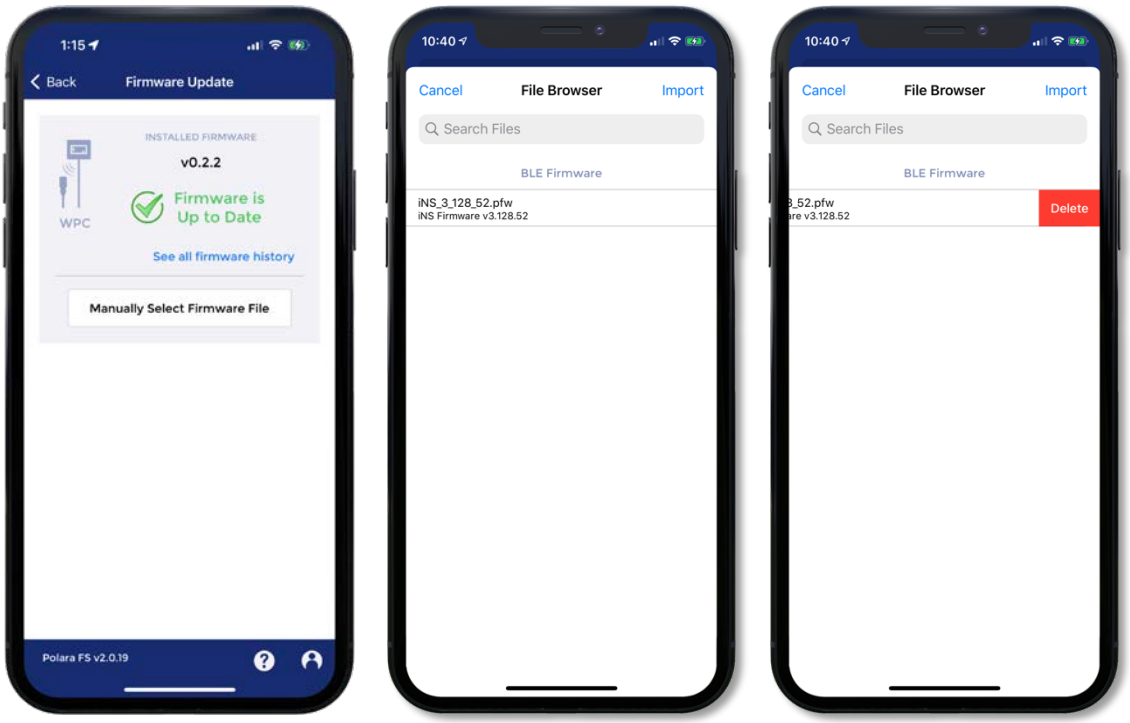


Figure 24: Deleting firmware update files

8. Disabling Bluetooth Access

As a security measure, Bluetooth access to the WPC and the WPSE may be disabled to prevent connection to and changing of device settings and operation by the Field Service App (FSA). Other Bluetooth access necessary for the device's operation continues to function normally.

8.1 Disabling Access for WPSE or WPC

To disable Bluetooth access:

1. Connect to the WPSE or WPC using the FSA.
2. Navigate to the "Info/Diagnostics" screen.
3. Tap on the "Disable BLE User Access" button. The FSA will be immediately disconnected.

8.2 Enabling Access for WPC

To temporarily enable Bluetooth FSA Access, power cycle the WPC. Bluetooth access will be restored for 5 minutes.

Using the FSA, connect to the WPC within 5 minutes. Navigate to the "Info/Diagnostics" screen. A health status warning will be displayed providing the option to enable Bluetooth Access. Tap the "Enable BLE user Access" button to turn on Bluetooth access to the WPC.

8.3 Enabling Access for WPSE

There are 2 ways to temporarily enable Bluetooth FSA Access for the WPSE: (1) hold down the button on a connected iNS 3-wire for 15 seconds or (2) power cycle the WPSE. Either method will enable Bluetooth FSA access for 5 minutes.

Using the FSA, connect to the WPSE within 5 minutes. Navigate to the "Info/Diagnostics" screen. A health status warning will be displayed providing the option to enable Bluetooth Access. Tap the "Enable BLE user Access" button to turn on Bluetooth access to the WPSE.

9. Troubleshooting

9.1 Accessing the Health Log

The Health Log contains a list of events, including both normal conditions and error conditions. Each WPC and WPSE maintains a separate log. These can be very useful for troubleshooting.

After connecting to a device, select “Health Log” in the FSA main menu. The Name / ID of the currently connected device is visible at the top. To read the Health Log from this device tap “Read”. The current log is downloaded and displayed. Swipe the screen to browse through the log. Tap the menu symbol at the top right to access a list of actions. The menu symbol is shown as three dots. You can choose to clear the log, export the log to an email address, or access diagnostics. For help with a particular issue, or a message of concern, contact Polara Tech Support. You may be asked to provide a health log via email. Note: You must tap the Read button prior to exporting the health log, otherwise the health log export will only include device information and not the entire health log of the unit.

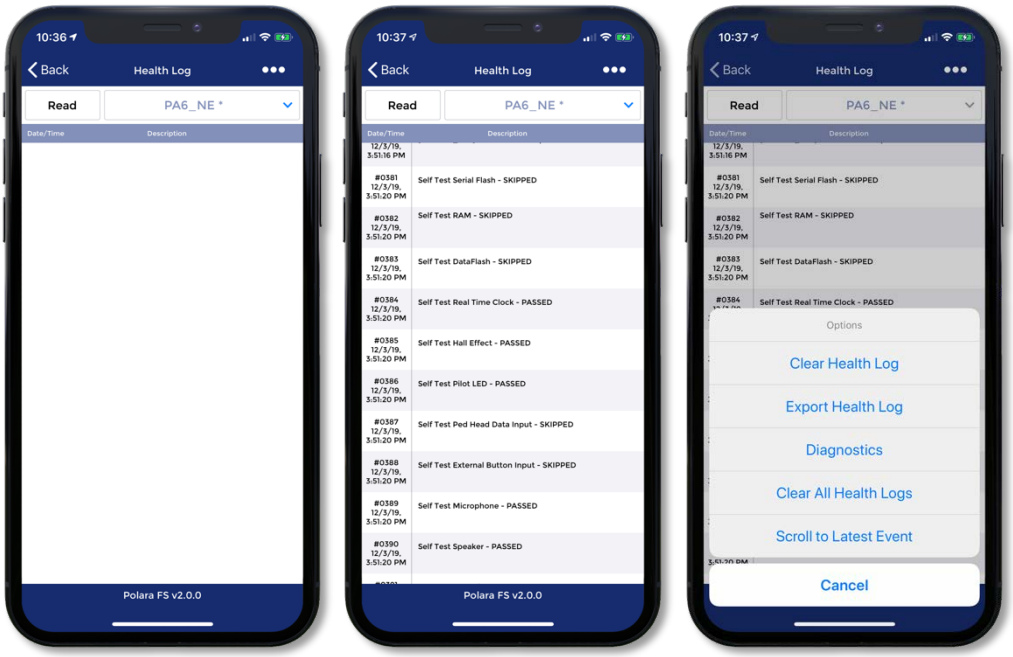


Figure 25: Health log

9.1.1 Advanced Logging

An Advanced Logging mode may be activated which provides additional information for troubleshooting. Generally, the Advanced Logging should remain disabled. Polara Tech Support may ask that Advanced Logging be enabled.

To enable advanced logging:

1. Navigate to the “Health Log” screen.
2. On the “Health Log” screen, tap on the 3 dots at the upper right corner to find the extra options drop-down menu. Tap on the option: “Enable Advanced Logging”

To disable advanced logging:

1. Navigate to the “Health Log” screen.

2. On the “Health Log” screen, tap on the 3 dots at the upper right corner to find the extra options drop-down menu. Select the option: “Disable Advanced Logging”

9.2 Common Problems and Solutions

9.2.1 Whitelist Full

If the Field Service App displays an error indicating that the WPC’s whitelist is full, the WPC’s whitelist must be cleared prior to trying to associate a WPSE. See section 5 for instructions.

9.2.2 Lockout

Repeated entry of an incorrect password during association will cause the WPC to go into lockout mode. This lockout must be cleared before the WPC will accept association requests. To clear the lockout, connect to the WPC from Field Service App and tap the “Info/Diagnostics” button, then tap the “Clear Lockout” button and confirm the lockout is now cleared.

9.2.3 Constant Call after Replacing WPSE

The WPC locks in a constant call when it loses communication with a WPSE associated with it. If a WPSE is deliberately moved or replaced, the installer needs to tell the WPC not to look for that WPSE anymore. To do this, navigate to the “Info/Diagnostics” screen and touch the “Reset Ped Calls” button.

9.2.4 Failure to Complete Firmware Upgrade on Older Android Devices

Some older Android devices (prior to Android 13) might experience problems reconnecting to the WPC or WPSE during firmware upgrade. If this occurs:

1. Try connecting to the device manually and restarting the firmware upgrade.
2. If that doesn’t work, try using a newer Android device or an iOS device instead.

9.2.5 Password Reset

To reset the password:

1. When presented with the Login/Password dialog, tap the Reset button to enter the password reset screen.
2. Follow the instructions on screen to contact technical support, provide the challenge code and obtain a new code to enter.
3. After entering the correct code, the Password will be reset to the default password.

As a security measure, only 2 attempts to enter the correct code are allowed. After 2 failed attempts, Bluetooth access to the WPC or WPSE will be disabled for 24 hours. To restore access, follow the steps in section 8.2 Enabling Access for WPC or section 8.3 Enabling Access for WPSE.

10. Fail Safety

The WPC includes fail safety operation that will automatically lock in a call when the following conditions arise:

1. Loss of connection to an associated WPSE lasting longer than 5 seconds.
2. Detection of a conflict interval condition on the ped head (e.g., walk and don’t-walk both on at the same time).

11. Disconnect Events in the Health Log

The WPSE will add an entry to the health log after a disconnect from the WPC for more than 30 seconds.

The WPSE will add an entry for a subsequent reconnect when it occurs.

The WPC will add an entry to the health log after a disconnect from an associated WPSE for more than 5 seconds and the WPC will lock in a constant call.

The WPC will add an entry for a reconnect to the WPSE when the connection is restored. The constant call is ended.

Note: If Advanced Logging has been enabled (see Section 9.1.1) all disconnects and reconnects are immediately logged.

12. Regulatory Notice

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.

To ensure continued FCC compliance, do not modify any component of the Wireless Ped System.

13. Technical Support Contact

Polara @ 903-366-0300 EXT 4 or 888-340-4872 EXT 4

Polara Enterprises, LLC
1497 CR 2178
Greenville, TX 75402

The latest version of this manual is available in PDF format at support.polara.com.

14. Appendix A – Pole Installation Instructions

Signal Pole, AASHTO MASH CP6 Series

Assembly Number: CP6ACT12040TCSS-NF

Installation Instructions

Supplied Hardware

- **Base *(Parts Kit: CP6PK)***
  - (1) Base Casting
  - (1) Door Casting
  - (2) 1/4” x 1/2" Hex Head Bolt
  - (1) 14-4 Copper Ground Lug
  - (1) 1/4" Internal Lock Washer
- **Cable Tether (Parts Kit: CTPK)**
  - (1) 5/16” x 7” Hex Head Bolt
  - (1) 18” Cable Looped Assembly
  - (1) 5/16” Spring Lock Washer
  - (1) 5/16” Galvanized Hex Nut
  - (2) 5/16” Flat Washer
  - (1) 5/8” Galvanized Jam Nut
  - (2) 5/8” Flat Washer
- **Anchor Bolt Kit *(Parts Kit: 25ABPK)***
  - (4) 5/8” x 7-1/2” Stainless Steel Rod
  - (4) 5/8” Galvanized Hex Nut
  - (4) 5/8” Flat Washer
- **Pipe & Top Cap (Parts Kit: 4840TCSSPK)**
  - (1) 4” x 120” Schedule 40 Aluminum Pipe
  - (1) Top Cap Casting
  - (3) 1/4" x 3/8” Set Screws
  - (1) 1/2" Insulating Sleeve
  - (2) IN1/420 1/4" Insert Nuts

Installation Notes

- **Wear approved and specified protective gear during the installation process.**
- **Apply anti-seize lubricant on all threaded surfaces during the installation process.**
- **Use specified epoxy for anchor bolt installation.**
- **Use appropriate tool for insert nut installation.**
- **Feed wire and connect mounted devices as needed throughout the installation process.**
- **TORQUE WRENCH VALUES:**
  - **1/4" Bolt:** **Seven ft-lbs. (7 ft-lbs.)**
  - **5/16” Bolt:** **Eleven ft-lbs. (11 ft-lbs.)**
  - **5/8” Anchor Bolt:** **Ninety-Four ft-lbs. (94 ft-lbs.)**
  - **5/8” Cable Tether Jam Nut:** **Twenty-Five ft-lbs. (25 ft-lbs.)**
- **Assembly Questions? Call 952-467-4402 or email freymfg@freymfgcorp.com**

Installation

- **Install Anchor Rods into Concrete**
  - Use template to mark locations of anchor bolts.
  - Using a 3/4" Concrete Drill Bit, drill 5” deep holes into the concrete on the marked locations.
  - Clear hole of debris and dust for optimal application.
  - Apply specified epoxy into the holes.
  - Insert the anchor rods with a twisting motion until 2-1/2” of anchor rod is protruding from the hole.
  - Let epoxy cure per epoxy manufacturer’s recommendations.

- **Fasten Copper Ground Lug on Base**

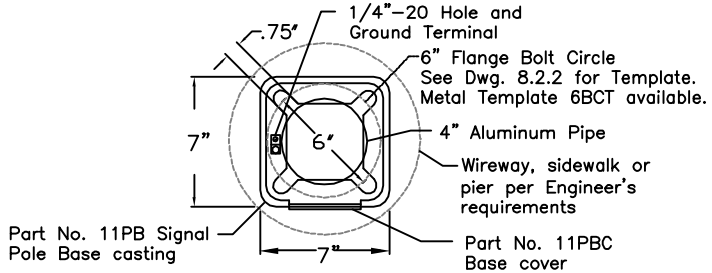
- **Fasten Base to Anchor Rods**
  - Please the base casting over the anchor rods.
  - Use a level and leveling shim(s) (if needed) to plumb the base.
  - Place one 5/8” Flat Washer over each anchor rod.
  - Fasten with 5/8” Galvanized Nut on each anchor rod.

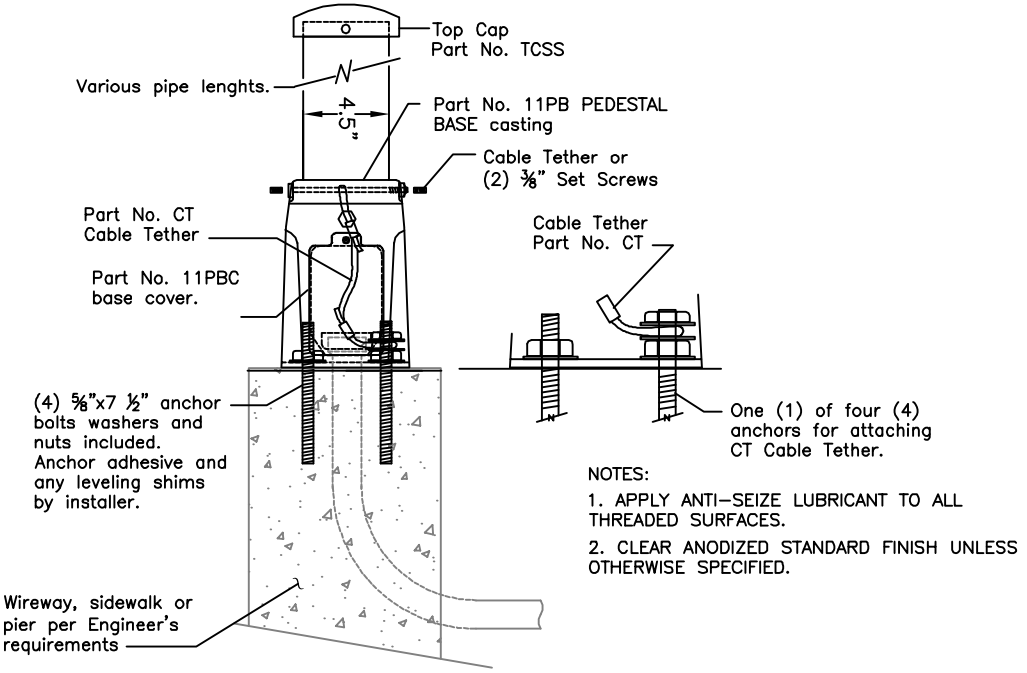
- **Install Cable Tether on Anchor Rod**
  - Looking through the door opening, the cable tether shall be installed on the back-left anchor rod.
  - Place one 5/8” Flat Washer over the anchor rod.
  - Place one end of the looped cable assembly over the anchor rod.
  - Place a second 5/8” Flat Washer over the anchor rod.
  - Fasten using the 5/8” Galvanized Jam Nut.

- **Secure Top Cap on Pipe**

- **Fasten Pipe on Base**
  - Thread the pipe into the base. Ensure there is no wobble or movement between the pipe and base. *Do not use pipe threads for directional adjustment of signals.*
  - Drill holes into the holes at the top of the base and through the pipe on each side.
  - Install the 5/16” x 7” thru-bolt through the base and pipe making sure to pass through the remaining end of the looped cable tether assembly inside the base.
  - Fasten with supplied hardware.

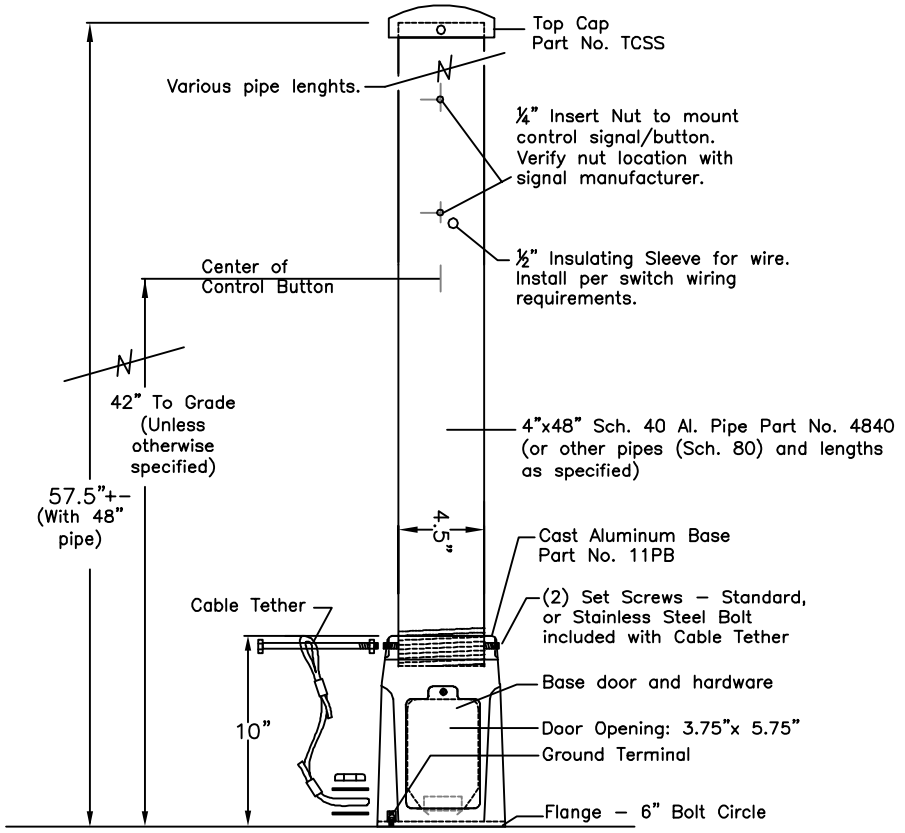
- **Install Base Door on Base.**





NOTES:

1. APPLY ANTI–SEIZE LUBRICANT TO ALL THREADED SURFACES.
2. CLEAR ANODIZED STANDARD FINISH UNLESS OTHERWISE SPECIFIED.



CP6A (See "Finish") SIGNAL POLE BASE ASSEMBLY & ANCHORS INCLUDED PARTS:
(1) 11PB ALUMINUM BASE
(1) 11PBC BASE COVER, & HARDWARE
(2) 3/8" SS SET SCREWS
(1) 14–4 CU GROUND LUG
(1) 1/4" SS GROUND LUG BOLT
(1) 25ABPK ANCHOR BOLT KIT: (4) 5/8"X7½" SS FT BOLTS, 5/8" FLAT WASHERS & NUTS (Others available) (ANCHOR ADHESIVE AND ANY REQUIRED LEVELING SHIMS BY INSTALLER)

4840 – (See "Finish") ALUMINUM PIPE ASSEMBLY INCLUDED PARTS:
(1) 48" SCHEDULE 40 ALUMINUM PIPE ONE END THREADED (Other pipes & lengths available)
(2) IN¼20 ¼" INSERT NUTS FOR 4" SCHEDULE 40 PIPE (Install with a setting tool)
(1) 12IS ½" INSULATING SLEEVE

TCSS (See "Finish") DOMED TOP CAP ASSEMBLY INCLUDED PARTS:
(1) 11TCSS TOP CAP
(3) ¼" SS SET SCREW

CT CABLE TETHER INCLUDED PARTS:
(1) 5/16"BOLT
(1) 18" WIRE CABLE ASSEMBLY
(1) 5/8" JAM NUT.
(1) 5/16" LOCK WASHER & NUT
(2) 5/8" FLAT WASHER

BUILD CATALOG NUMBER FROM BELOW CP6 SERIES ASSEMBLIES

Signal pole base w/ 6" Bolt Circle, Cover – Anchors – Cable Tether – 48" Schedule 40 Aluminum Pipe – Top Cap w/Set Screws – Vandal Resistant – Finish

CP6	A	CT	4840	TCSS	V	(Blank) Clear Anodized standard
	Other styles of anchors available		"48" Represents inches of pipe, i.e. a 10' schedule 40 pipe would be 12040. Schedule 80 available.		Vandal resistant hardware option	NF (No Finish) (Other finishes & colors available, insert powder coat RAL number or Anodize number) See Note 2.

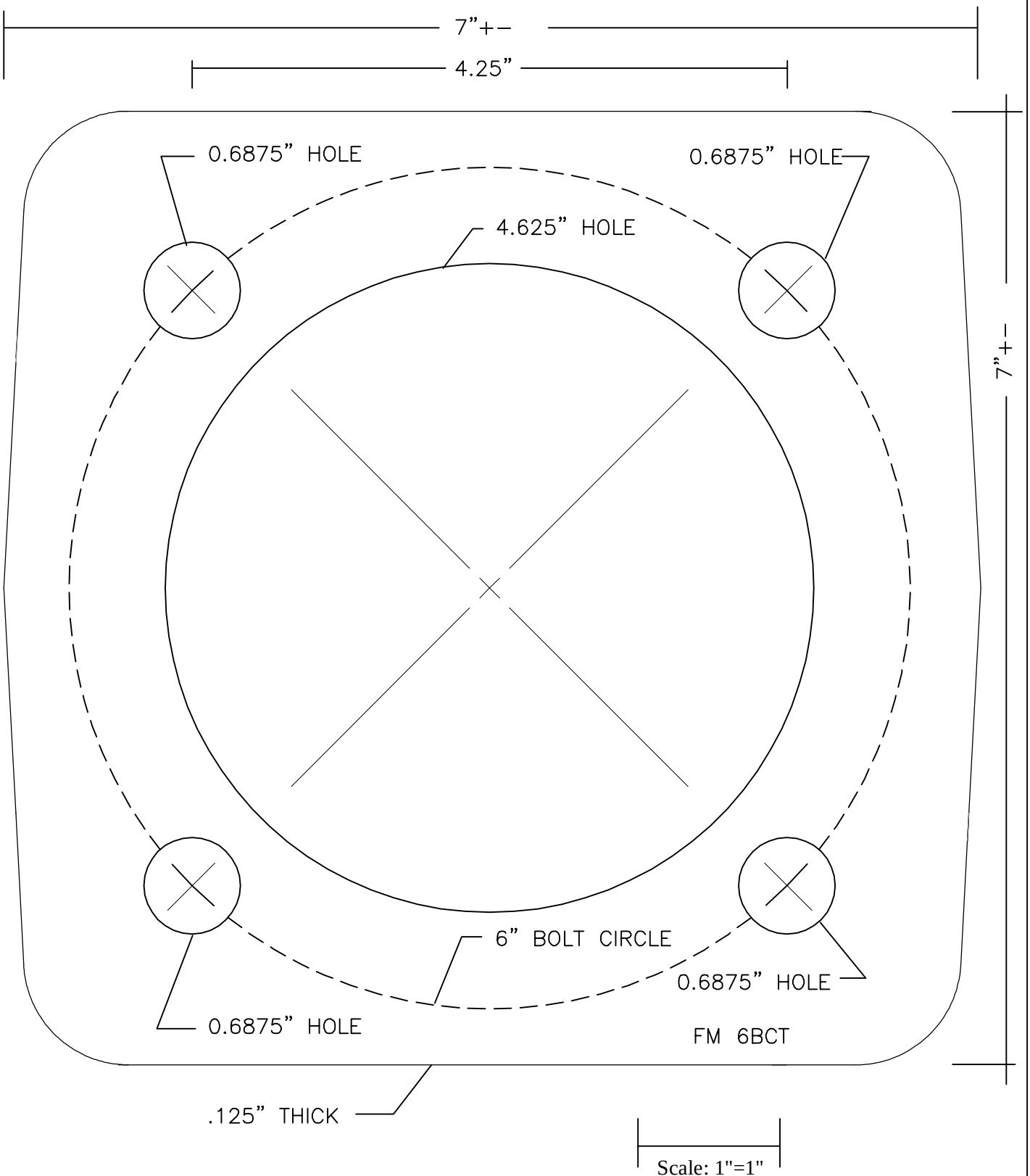
NOT TO SCALE HARDWARE MEETS OR EXCEEDS STATE SPECIFICATIONS

FREY Manufacturing Corp.
www.FreyMfgCorp.com
Made in USA
Phone: 952-467-4402

CP6 SERIES SIGNAL POLE

AASHTO MASH BREAKAWAY TESTED & FHWA ELIGIBLE FOR FEDERAL-AID REIMBURSEMENT PROGRAM

DATE	DWG. NO.	REV.
5-17-19	8.1.1	R2



Scale: 1"=1"

DRAWING CAN BE PRINTED FULL SCALE.
IF THIS LINE IS NOT 1 INCH LONG,
ADJUST MEASUREMENTS ACCORDINGLY.
DO NOT PHOTOCOPY ORIGINAL.

FREY Manufacturing Corp.
www.FreyMfgCorp.com
Made in USA
Patent No.

6BCT
6" BOLT CIRCLE TEMPLATE
FOR SIGNAL POLE BASE ANCHORS

DATE	DWG. NO.	REV.
5-8-19	**8.2.3**	-