
Z-Con Station Installation Guide





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Z-CON Fueling Station Installation Process

Pre-Installation

Phase 1:

1. Take a total of four photos capturing the following:
 - a. Photo of entire landscape of fueling area (File Name: Store#-City-State-Direct)
 - b. Photo of landscape from a side view (File Name: Store#-City-State-Side)
 - c. Photo of support beam where pump board enclosure will be installed
(File Name: Store#-City-State-Enclosure)
 - d. Picture of canopy installation location (File Name: Store#-City-State-Canopy)
2. Obtain measurements of the canopy height and distance between IR Antenna and Ultrasonic sensor installation points.
 - a. Record measurement
 - b. Reference table below

Height of Canopy (measured from the underside of the canopy to the ground)	Minimum distance between IR Antenna and Ultrasonic sensor
16'	8'
17'	9'
18'	9' 6"
19'	10'
20'	10' 6"

- c. If mounting the ultrasonic sensor perpendicular to the master fuel pump does not meet the distance specified in the table above, then the ultrasonic sensor will need to be moved backwards until it meets the minimum distance.
3. If moving ultrasonic sensor to meet the specification above results in the sensor being mounted behind the back edge of the fuel pump, note this in the **Pre-Installation Email**

Phase 2:

1. Verify that the on hand quantity at the store matches the quantity on the packing slip and is adequate for station install.
 - a. Refer to packing slip provided with shipment and verify all components have been received in the appropriate quantities.
 - i. Z-Con Pump Board Assembly (Dual and Single)
 - ii. Canopy Kit
 1. Ultrasonic Assembly

2. IR Antenna

2. Email zcon-installation@zonarsystems.com the signed packing slip

Installation:

1. Install hardware per the **Z-Con Canopy Kit & Z-Con Pump Board Installation Guide**
2. Provision pump per the **Z-Con Pump Provisioning Application Guide**
3. Validate pump per the **Z-Con Pump Validation User Tool Guide**
4. Place call to the Pilot Network Team at 865-474-2837; inform the representative Z-Con is currently being installed at the station
 - a. Supply the Pilot representative with the following:
 - *Store number
 - *IP Address of installed pump board
 - b. Ask the representative to verify the pump is on the network
 - c. Ask the representative to verify the data is being sent to "64.14.140.29"
5. Troubleshoot hardware as needed per the **Hardware Troubleshooting Guide**

Post Installation/ Checkout:

1. Place call to Tyler Ferdun or Jacob Thomas at 877-843-3847
 - a. Supply the following:
 - *Store Number
 - *Pump IDs
 - *ZID of Test Board
 - b. Verify all lanes were installed properly with Zonar
2. Handling Remaining Equipment
 - a. Box all equipment up securely
 - b. Apply Zonar supplied ship labels to all boxes
 - c. Ensure equipment ships out
3. Supply **Post Installation Email** to the following:
zcon-installation@zonarsystems.com



Pre-Installation Template for Email

Date of Installation:

Store Number and Location:

Number of Lanes Being Installed:

Pump/Lane numbers:

Installer Name and Phone Number:

1. Attach Photos to email (please see attached file for reference photos) :
 - a. Photo of entire landscape of fueling area (File Name: Store#-City-State-Head on)
 - b. Photo of landscape from a side view (File Name: Store#-City-State-Side View)
 - c. Photo of support beam where pump boards will be installed
(File Name: Store#-City-State-Pump Board)
 - d. Picture of canopy installation location (File Name: Store#-City-State-Canopy)

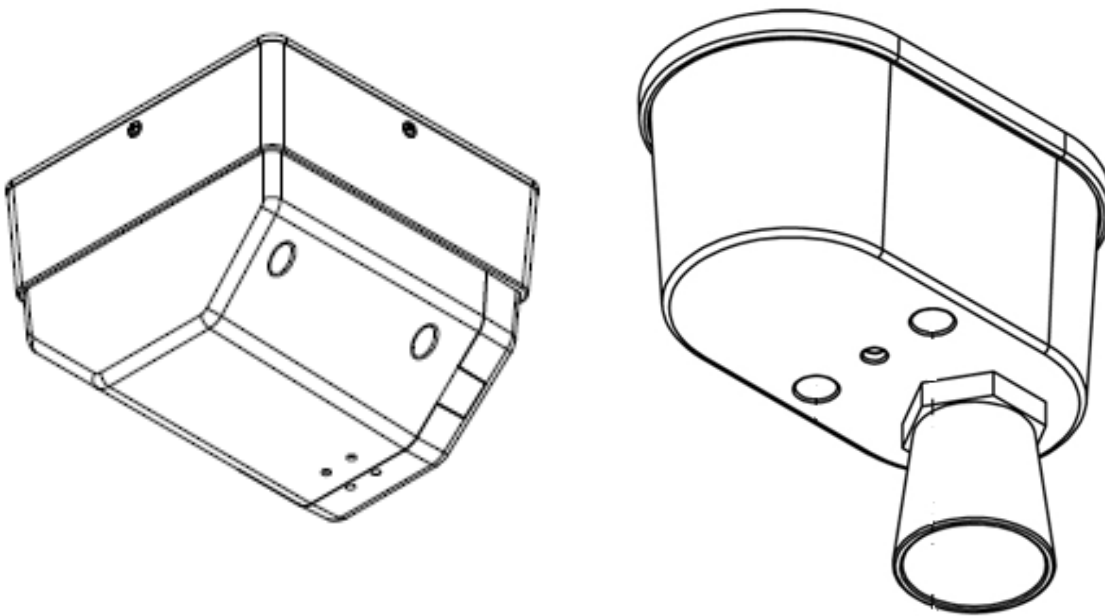
2.

Height of Canopy (measured from the underside of the canopy to the ground)	Distance between Antenna and Ultrasonic sensor installation points

3. Unique situations that have been pridentified during the pre-installation process.



Z-Con Canopy Kit Installation Guide





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Required Parts

1. Canopy Kit (includes the following)
 - a. Z-Con Ultrasonic Sensor Assembly – p/n 80586
 - b. Z- Con Antenna & IR Receiver Assembly – p/n 80585
 - c. L-Com 2.4GHz HG2412P Antenna
2. Z-Con Pump Panel Board Assembly – p/n 80476 (Dual) or 80521 (Single)

Required Tools & Consumables

Tools

1. #2 Phillips Screwdriver
2. 1" NPT Jam Nut tightening tool
3. Calibrated torque wrench
4. Wire cutters
5. Channel locks

Consumables

1. Loctite 425
2. IDC Connectors

Nomenclature

Some items are installed with specific orientations. The Truck Entrance will be the reference point.

The Truck Entrance is defined as the side of the station that trucks enter from. See **Figure 1**.

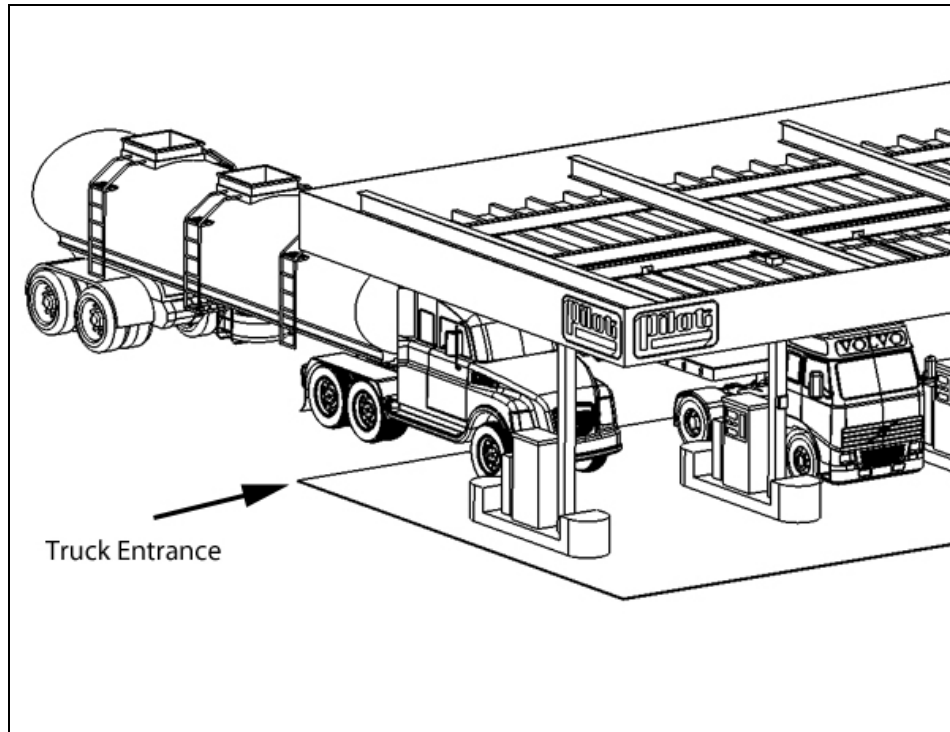


Figure 1 - Truck Entrance

J-Box Installation

1. Install the J-Box with a minimum of 7 threads protruding out from the Jam Nut. See **Figure 2**. The nuts must be standard size 1" NPT (~3/16" tall). See **Figure 3**.

WARNING: Using nuts that are taller than 3/16" may damage the plastic housings.

NOTE: A seal must be installed between the J-Box and the roof and between the J-Box Cover and the J-Box.

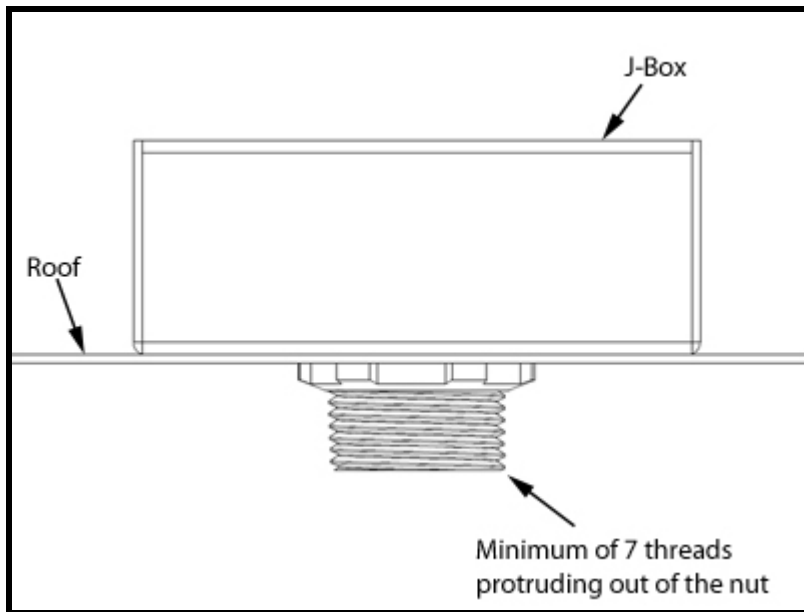


Figure 2 - J-Box Installation

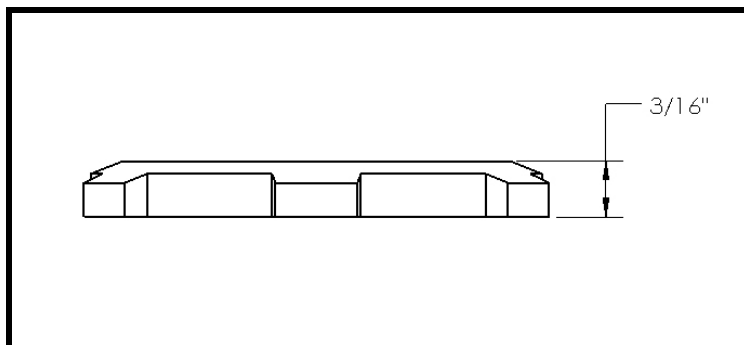


Figure 3 - Nut Height

Z-Con Ultrasonic Sensor Assembly

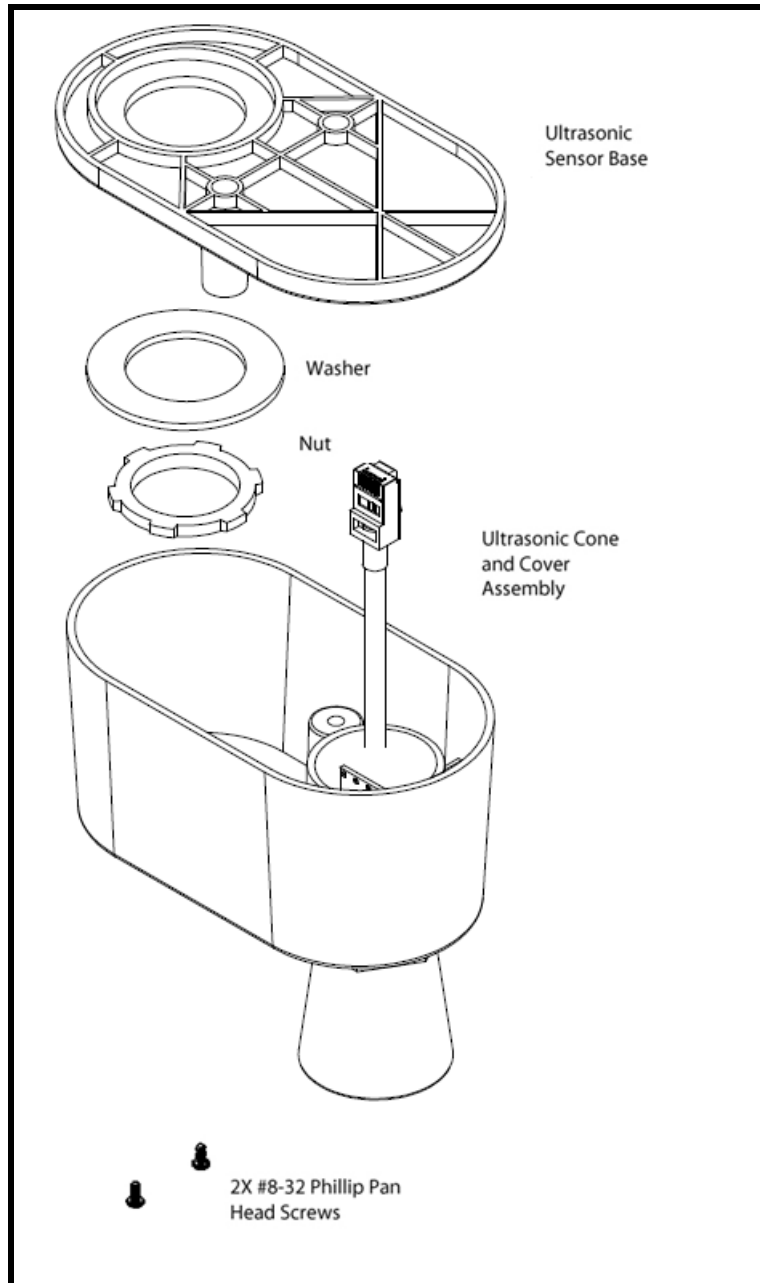


Figure 4 - Ultrasonic Sensor Assembly Components

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1. Install the Ultrasonic Sensor Base to the underside of the canopy where the conduit has been run for that lane and device. See **Figure 5**. Add washer and nut. Torque the nut to approximately 10 in-lbs.

NOTE: See **Figure 6** for washer orientation.

NOTE: Ensure that the washer is centered on the pipe.

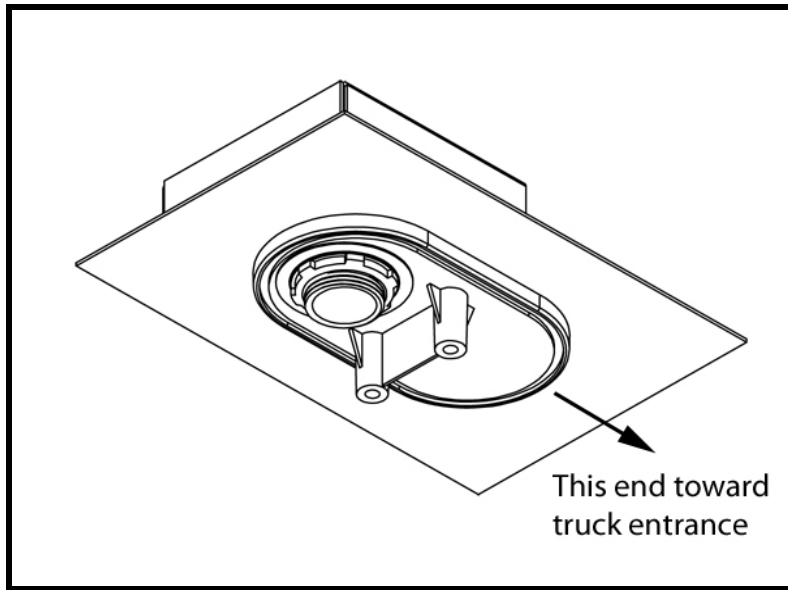


Figure 5 - Ultrasonic Sensor Base Installation

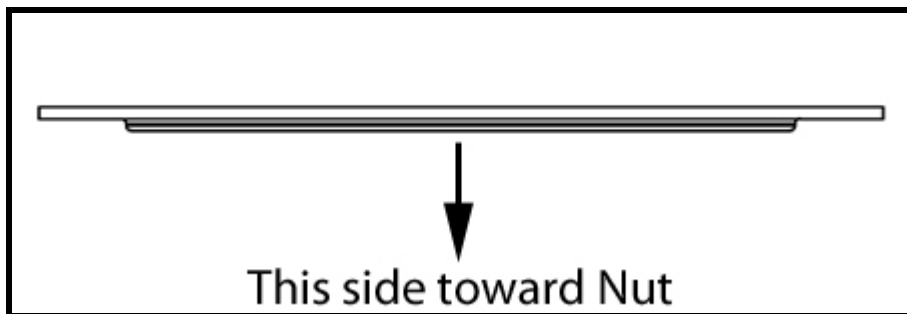


Figure 6 - Washer Orientation

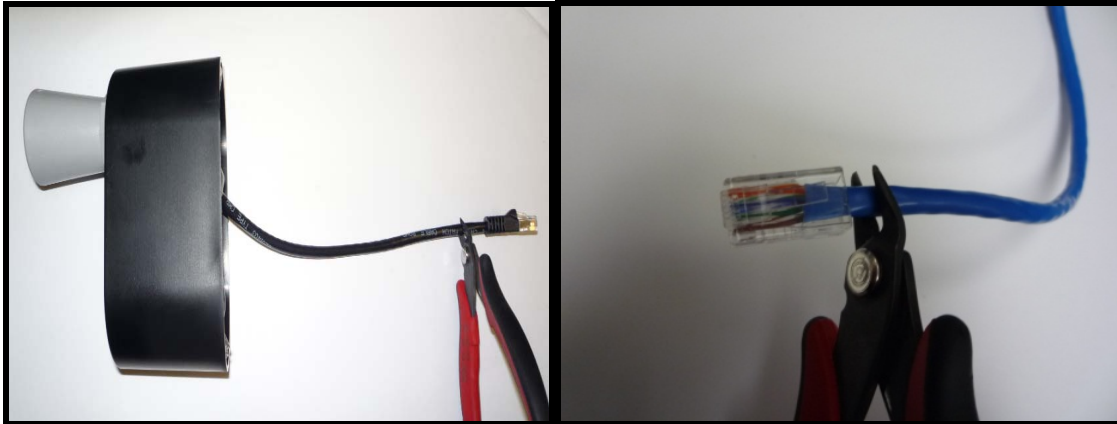
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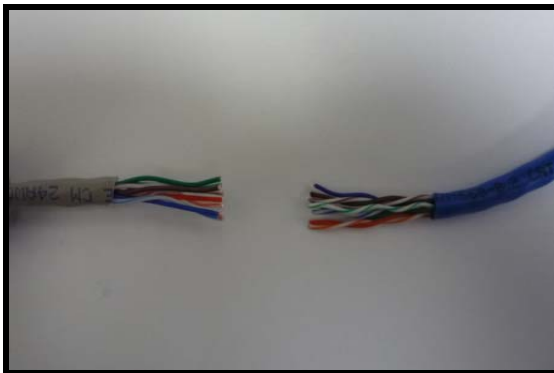
- Using wire cutters, cut off the **Male** RJ45 connector from the CAT5 cable attached to the Ultrasonic Sensor (Image A). Also, cut off the **Male** RJ45 connector from the end of the CAT5 cable that is used to connect to the Ultrasonic Sensor (Image B).

(A)

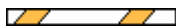
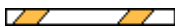




(B)



- Strip back 1"-1.5" of the CAT5 insulation ONLY on both cables. Do NOT strip individual colored wires within CAT5 cables.













- Use the IDC connectors to splice the CAT5 cable from the Ultrasonic Sensor to the CAT5 cable from the pump board. Match each wire with corresponding colors as follows:

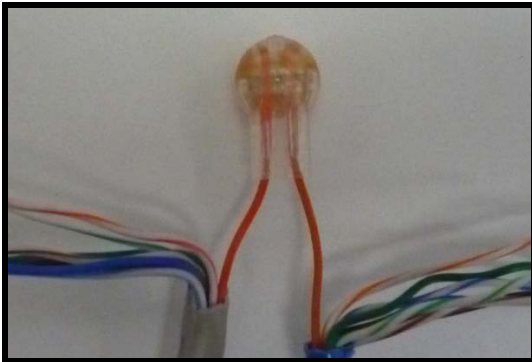
CAT5 (From Ultrasonic Sensor)	To: CAT5 (From Pump Board)
Orange/White 	Orange/White 
Orange 	Orange 
Green/White 	Green/White 

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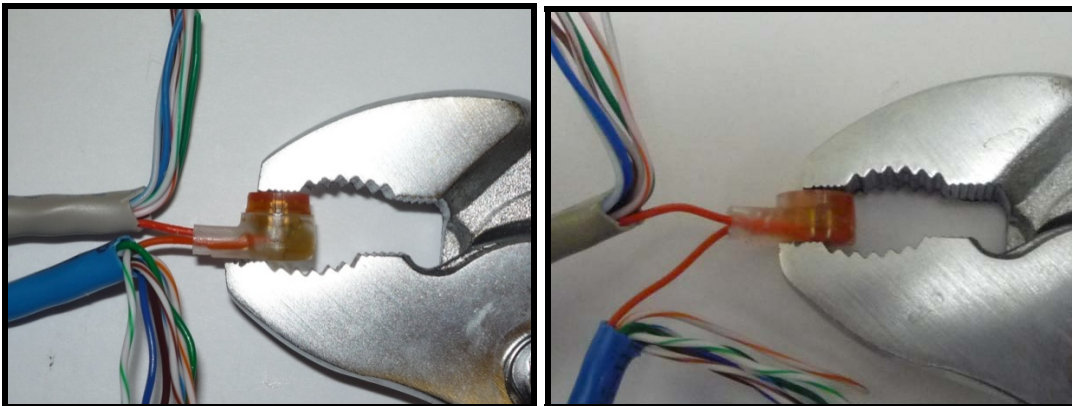
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Blue		Blue	
Blue/White		Blue/White	
Green		Green	
Brown/White		Brown/White	
Brown		Brown	

5. Hold the IDC connector with button side down. Insert same colored wires (see above chart) all the way into the IDC connector ports until they reach the top of the IDC connector (Again, Do Not Strip Insulation on Individual Wires).



6. Using channel locks or other tool, crimp button down so that it sits flush in the base of the IDC connector.



7. When finished with all wires, tuck exposed IDC connectors into the base of the Ultrasonic Sensor and finish securing installation.

8. Install the Ultrasonic Sensor Cover with the cone on the opposite side of the Nut & Washer. See **Figure 4** for orientation.

NOTE: Ensure that the Receptacle does not get pinched between the rib between the two mount posts in the base and the cover.

9. Apply Loctite 425 to the 2, #8-32 X 3/8 Phillip Pan Head Screws and install as shown in **Figure 7**. Torque to 4 in-lbs.

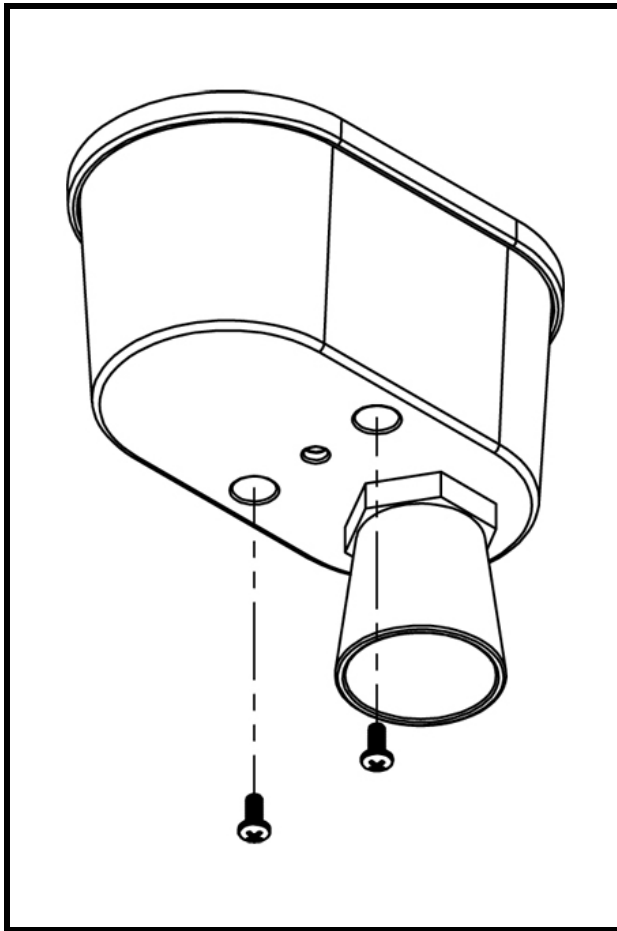


Figure 7 – Ultrasonic Sensor Cover and Fasteners

Z-Con Antenna & IR Receiver

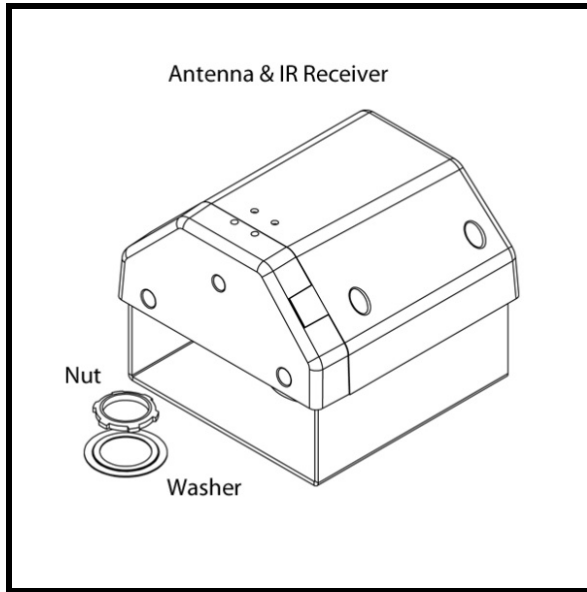


Figure 8 - Antenna & IR Receiver Assembly

1. Install mount plate to the underside of the canopy where the conduit has been run for that specific lane and device. See **Figure 9 & 10**. Add washer and nut. See **Figure 11** for washer orientation.

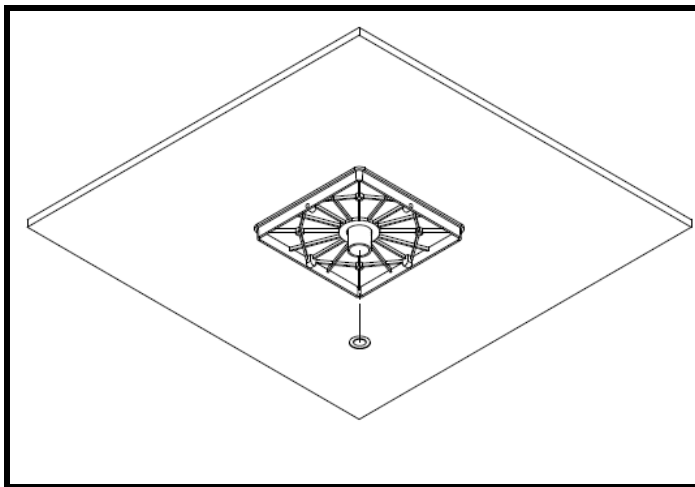


Figure 9 – Mount Plate

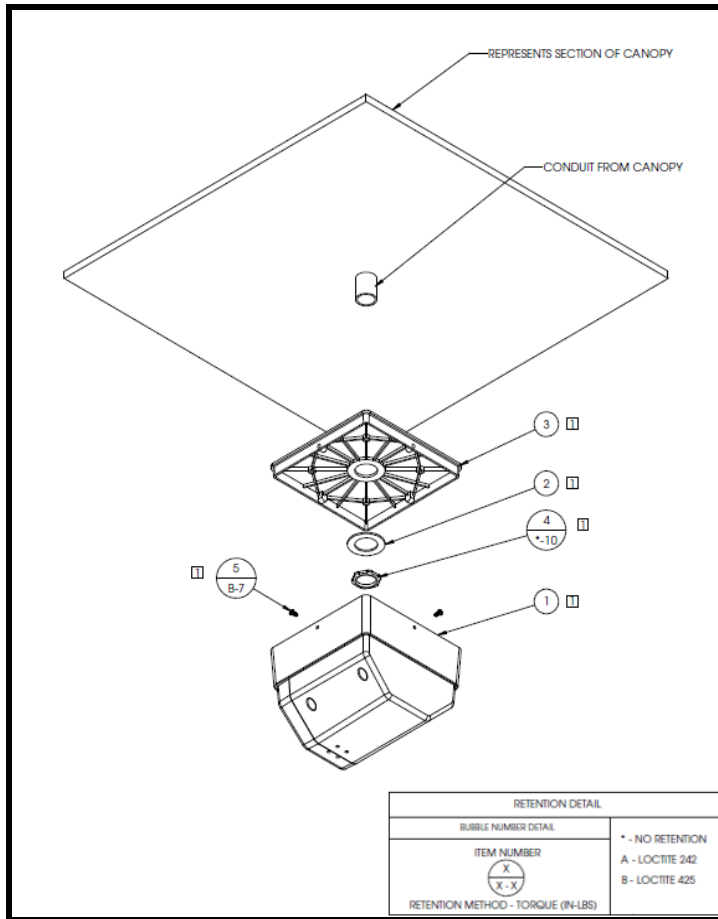


Figure 10 – Antenna & IR Receiver Assembly Components

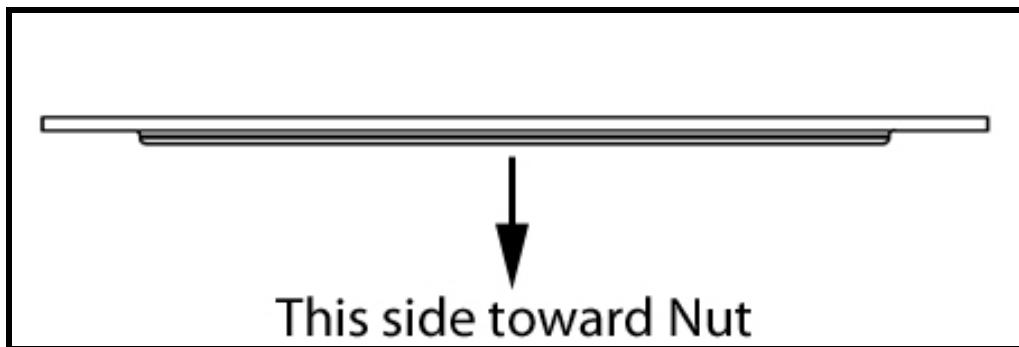


Figure 11 - Washer Orientation

2. Install the N-Type Connector from the LMR-200 coax cable on to the HG2412P Antenna and tighten to torque spec of 7 inch/oz.

3. Attach the Antenna & IR Receiver Base (with cover) to the mount plate using four screws as shown below. See **Figure 12**.

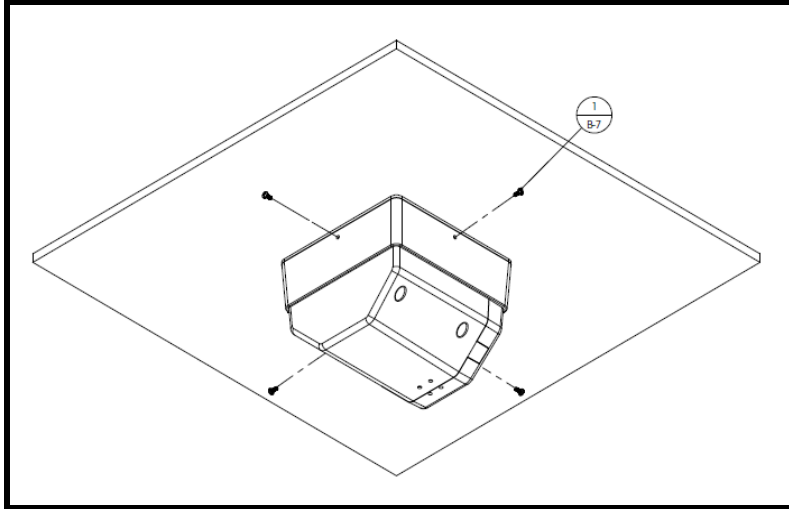
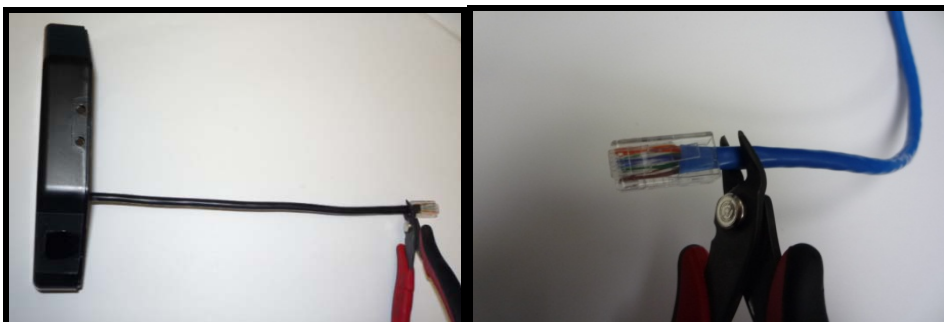


Figure 12 – Antenna & IR Receiver Base Screw Locations

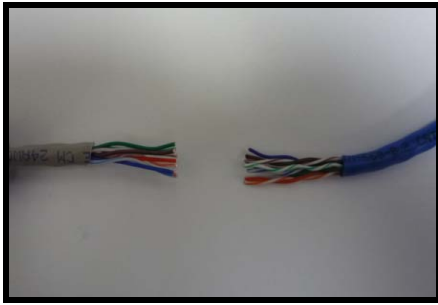
4. Remove the Antenna & IR Receiver Cover from the Base by removing four top screws and pulling down on the cover.
5. Using wire cutters, cut off the **Male** RJ45 connector from the CAT5 cable attached to the IR Receiver (Image A). Also, cut off the **Male** RJ45 connector from the end of the CAT5 cable that is used to connect to the IR Receiver (Image B).

(A)

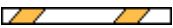
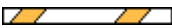


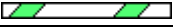
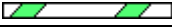


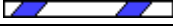
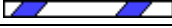


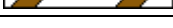
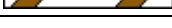


(B)



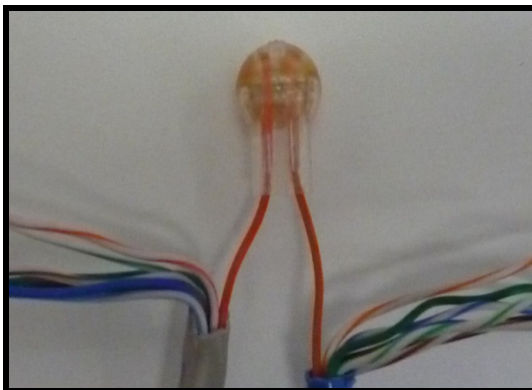
6. Strip back 1"-1.5" of the CAT5 insulation **ONLY** on both cables. Do **NOT** strip individual colored wires within CAT5 cables.



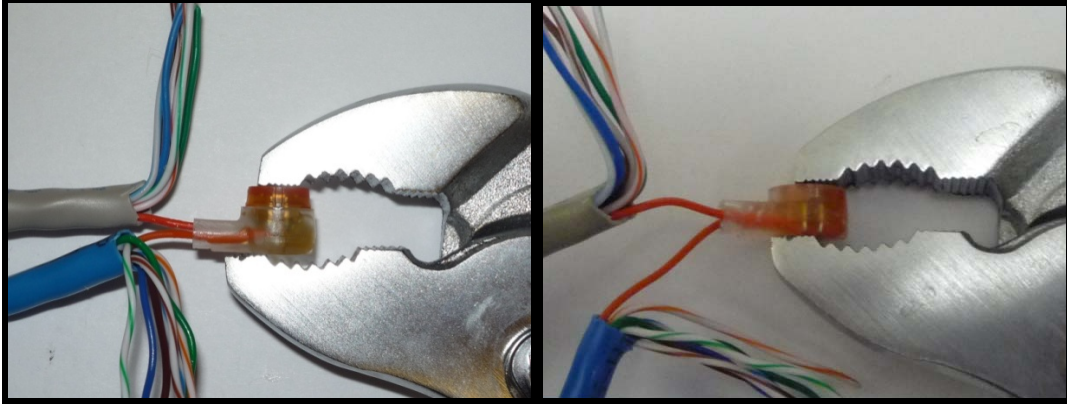
- Use the IDC connectors to splice the CAT5 cable coming from the IR Receiver to the CAT5 cable ran from the pump board location. Match each wire with corresponding colors as follows:

CAT5 (From Ultrasonic Sensor)	To: CAT5 (From Pump Board)
Orange/White 	Orange/White 
Orange 	Orange 
Green/White 	Green/White 
Blue 	Blue 
Blue/White 	Blue/White 
Green 	Green 
Brown/White 	Brown/White 
Brown 	Brown 

- Hold the IDC connector with button side down. Insert same colored wires (see above chart) all the way into the IDC connector ports until they reach the top of the IDC connector (Again, Do Not Strip Insulation on Individual Wires).



- Using channel locks or other tool, crimp button down so that it sits flush in the base of the IDC connector.



- When finished with all wires, tuck exposed IDC connectors into the base of the IR Receiver and secure the Antenna & IR Receiver Cover to the Base using the four top screws.

- Remove the tape covering the IR Lens. See **Figure 13**.

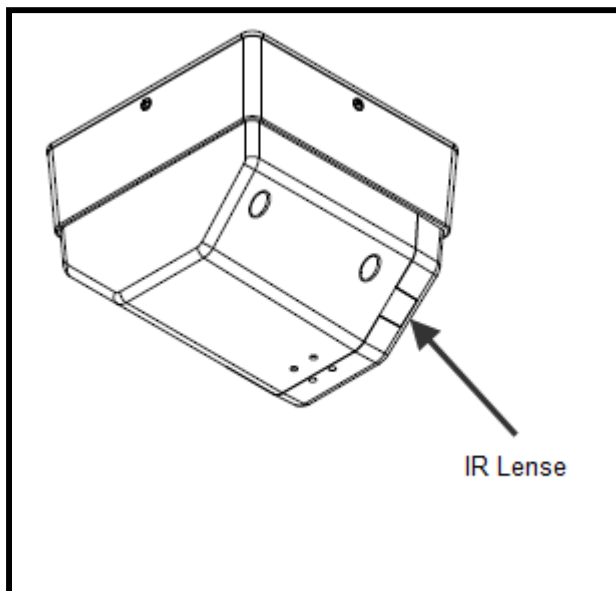


Figure 13 – IR Lens Location

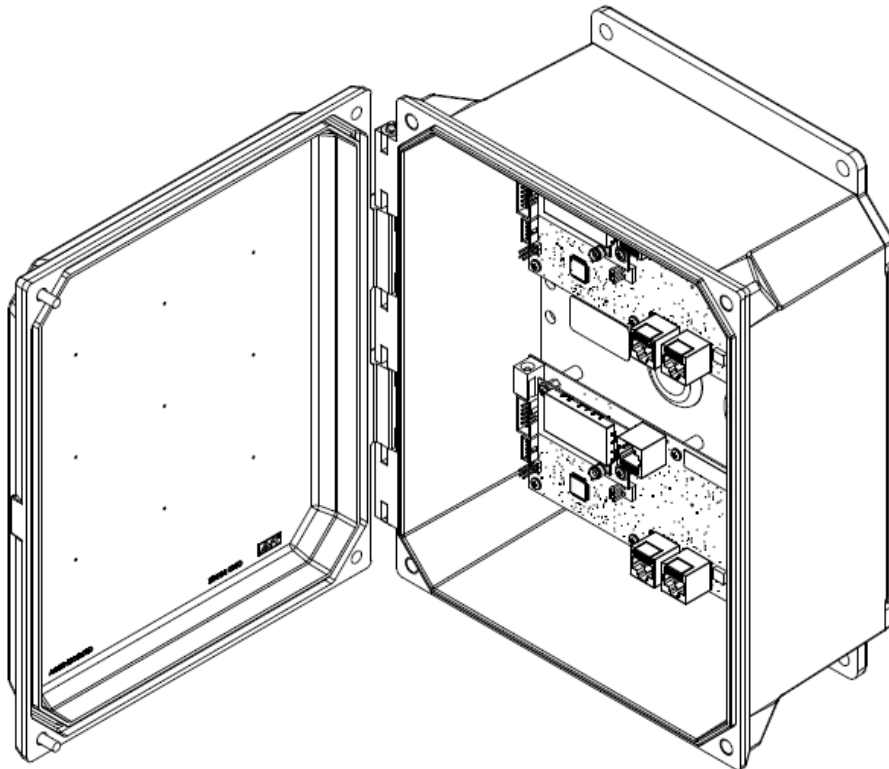
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Z-Con Pump Board Installation Guide



Limited Warranty

LIMITED WARRANTY: Zonar® warrants that the Hardware provided under Zonar's Subscription Agreement is free from material defects in workmanship for a period of one year for hardware purchased by customer. THIS LIMITED WARRANTY IS MADE TO CUSTOMER ONLY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. Zonar EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WHICH MAY ARISE FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE

CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND ZONAR'S ENTIRE OBLIGATION UNDER THESE LIMITED WARRANTIES for defective equipment is the repair and replacement of the equipment free of charge by Zonar. Zonar shall not be liable to Customer or any third party for any general, special, punitive, incidental, indirect or consequential damages, or any lost profits or business, arising out of Zonar's Subscription Agreement.

1. Install Pump Board enclosure to face out bound to traffic
 - a. Enclosure is not be installed towards a lane
 - b. This limits possible customer interaction with hardware



FCC Compliance Statement (Part 15.19)

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

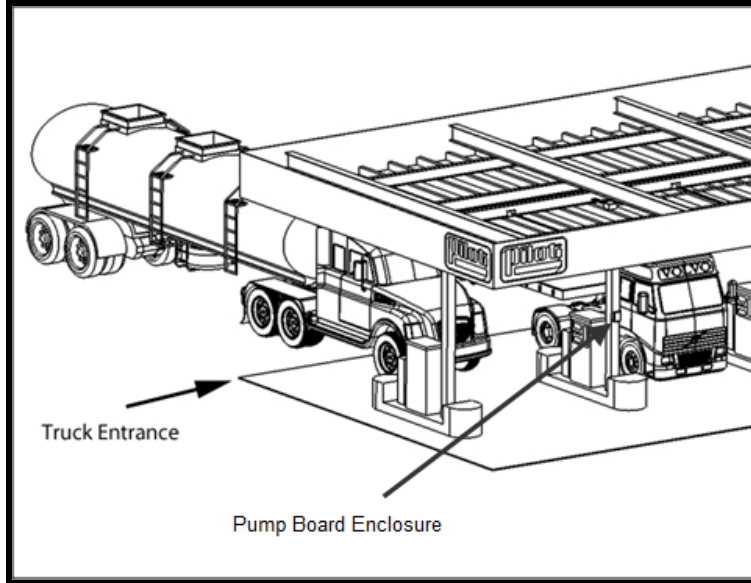


Warning: (Part 15.21)

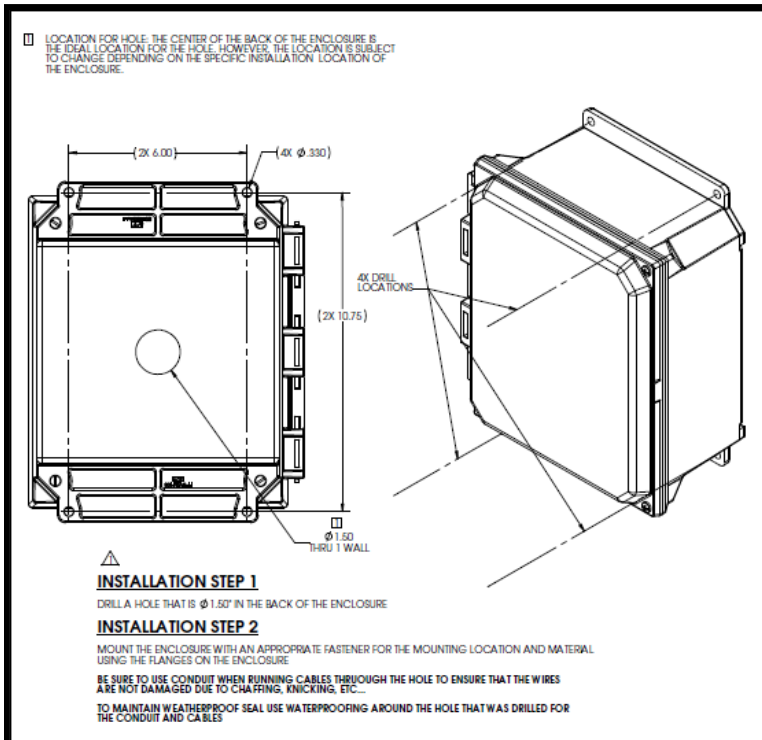
Changes or modifications not expressly approved by Zonar Systems could void the user's authority to operate the equipment.

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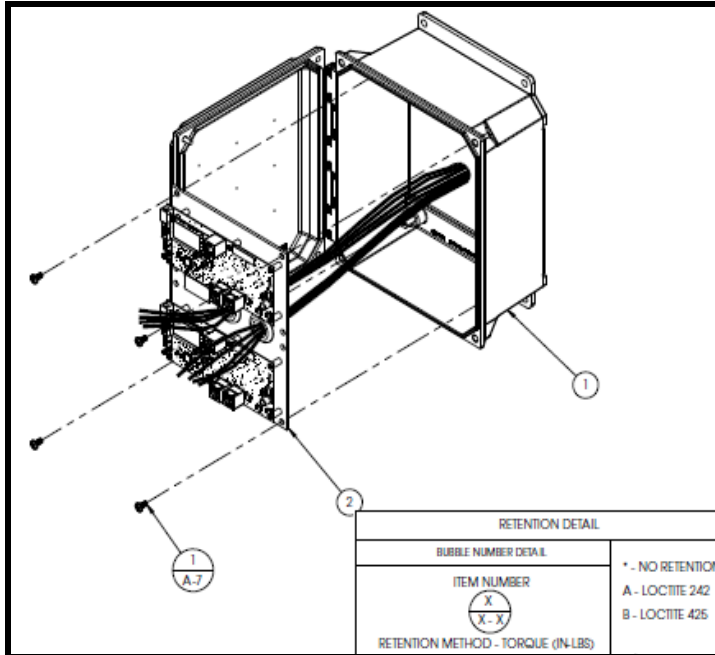
2. See enclosure installation reference below



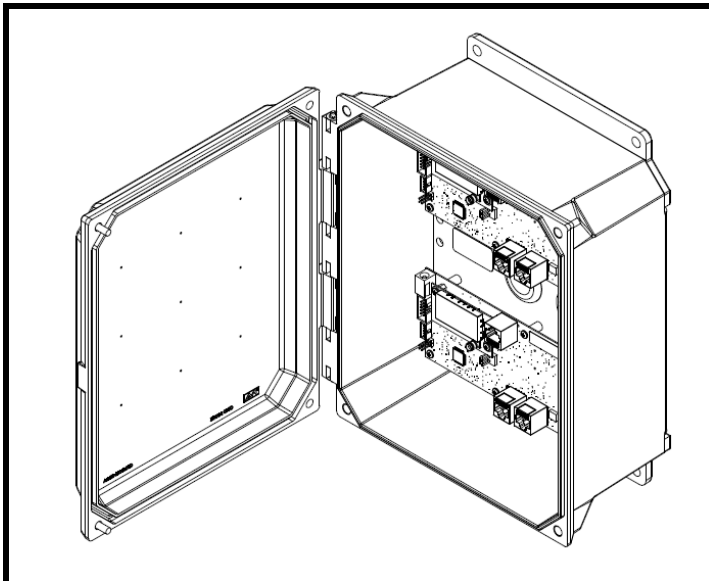
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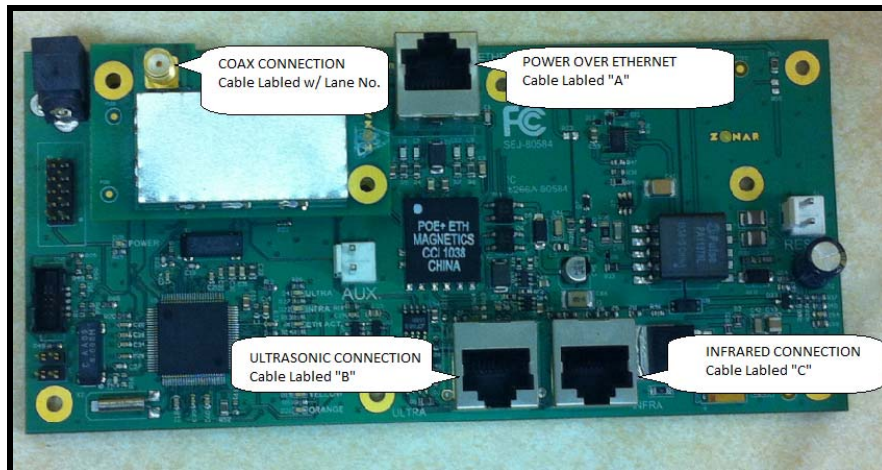
3. Prior to mounting the Pump Panel Board, route each lane's cables through their respective grommet holes



4. Secure Pump Panel Board to the mounting posts within the enclosure



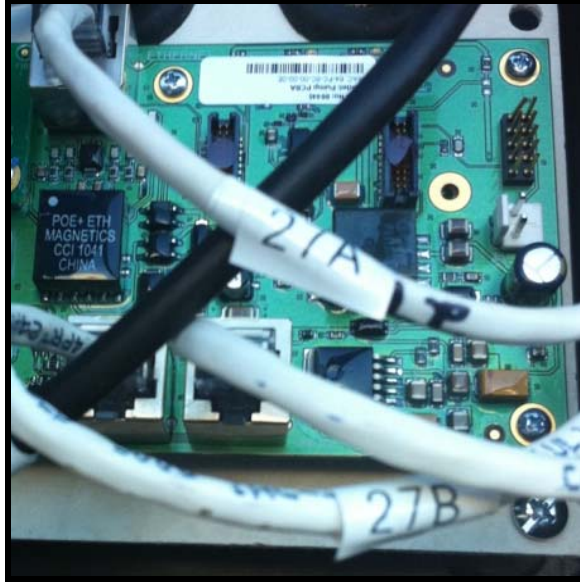
5. Once the Pump Panel Board is mounted, connect the appropriate cables to the appropriate connectors (see reference below)
 - a. Power over Ethernet (Top of Board Labeled “A”)
 - b. Ultrasonic Sensor (Bottom Left Labeled “B”)
 - c. Infrared Receiver Interface (Bottom Right Labeled “C”)
 - d. 2.4 GHz RF Coax Connection (Top Left on the Radio Board) – tighten connection to torque spec of 7 inch/oz



6. Verify that all cables have been labeled appropriately (A,B,C)
 - a. Label all cables with printed (not hand written) identifiers

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7. Once hardware has been installed, provision each lane per the **Zcon Pump Provisioning Application Guide**

Z-Con Pump Provisioning Application Guide

Function:

This application is required to apply network settings to the pump board and to calibrate the distance to ground for each lane. It provides a quick and easy way to view and edit the settings of a pump board.

Necessary Equipment:

1. Laptop equipped with Z-Con Pump Provisioning Tool
2. Provisioning Cable #80582 RJ45 to Serial RS-422 (Provided)
3. Internet Connection (on older installations)

	From board		To submit	
<input checked="" type="checkbox"/> Pump ID	17	->	17	Station #: 00100
<input checked="" type="checkbox"/> IP Address	10.0.0.10	->	10.182.1.167	Reset Fields to Defaults
<input checked="" type="checkbox"/> NexGen IP Address	10.0.0.20	->	10.192.1.30	Get Current Values
<input checked="" type="checkbox"/> NexGen Port	6627	->	6627	Calibrate Distance To Ground
<input checked="" type="checkbox"/> Default Gateway	10.0.0.1	->	10.182.0.1	Submit
<input checked="" type="checkbox"/> Network Mask	255.255.255.0	->	255.255.255.0	Increment IP and Pump ID
Datalog Server IP	64.14.140.29		64.14.140.29	Save settings to EEPROM
Datalog Server Port	9829		9829	Reset the Pump Board
TFTP IP Address	10.129.8.70		10.129.8.70	
Listen Port	7879		7879	
MAC Address	64-FC-8C-10-00-03			
Distance to Ground (in.)	74		Current Transducer Value (in.)	0

Yellow - The value in this text field deviates from the recommended default settings, or may not be valid.
Red - You tried to Submit, and an error in the settings was found. A red background identifies which field has an invalid value.

For further help, hover your mouse over any GUI item for 2 seconds to display tooltip help.

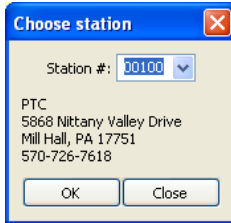
Attempting to open port to pump board...
Reading data...
Done!

Port: COM6 Showing active ports

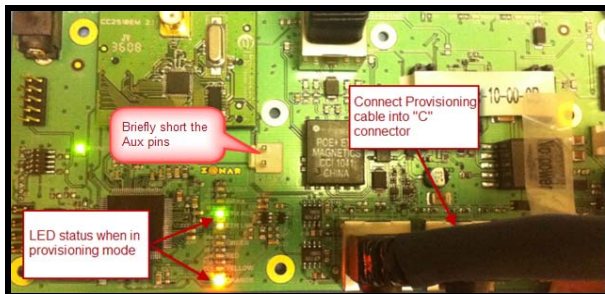
*Default settings for the pump board are in the left column and the default store settings are in the right, in this example, store 00100.

Provisioning Tool Steps:

1. Start at lowest numbered lane
2. Launch the Provisioning Application (from Start Menu or Desktop Icon).
3. Once started, the application attempts to connect to the update server and download a new flatfile. This flatfile will contain the information for every station supported by Z-Con. You will need an internet connection.
 - o The application is installed with the most recent flatfile already provided, so the above step is only necessary on older installations.
4. Go to 'Station → Choose from station list'. Enter the store number or select from the drop down, once selected or entered click OK.



5. Connect serial end of the provisioning cable to your computer and the other to the bottom right RJ45 port on the pump board (pictured below).
6. Choose the proper COM port that corresponds to the proper serial port.
7. On the pump board, briefly short the AUX pins by tapping lightly with a screwdriver to enter the board into Provisioning Mode. To verify provisioning mode look for bottom LED to be flashing



8. Adjust the values in the right hand column (see picture on page 1 for reference) to fit the individual pump
9. Click 'Write Settings to Board'. Once the output text box says 'Done!', provisioning is finished.
10. Next, verify an ultrasonic transducer is connected to the pump board, click 'Calibrate Distance to Ground'. Make sure that there is NOT a vehicle in the lane when calibrating the distance to ground
11. Click 'Get Current Values' to verify correct values have been set. The values will appear in the left column.
 - o If the values you submitted differ at all from the ones that are returned, the button in between the fields will turn red. Repeat steps 7 and 8 until the values are accurate.
12. Check that the value for distance to ground is similar to the chart below, distance is displayed in inches. Please note that this may take several attempts to attain an accurate reading.

DISTANCE FROM SENSOR TO GROUND (FT.)	DISTANCE FROM SENSOR TO GROUND (IN.)
16'	192"
17'	204"
18'	216"

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19'	228"
20'	240"

- Reset the board by either tapping the AUX pins on the pump board, or clicking the 'Reset the Pump Board' button in the application.

Application Functions:

Menu Items	Options	Description
File	Save	Saves the current, enabled values to a .prov file for later use or sharing between laptops.
	Load	Loads a saved .prov file, overwriting any text fields with the values that were saved.
Station	Chose from Station List	Displays a dialog box with a dropdown of all store numbers and addresses of the currently selected store. Click 'OK' to load the selected store's default network settings to the main app. Click 'Cancel' to return without making any changes.
	Update Stations File	Attempts to connect to the server and download a new flatfile with information for every station supported by Z-Con. (Internet connection is required).

Errors	Description
Please Set a Valid Com Port Number	Reselect a port from the COM Port dropdown
Failed to Retrieve Settings	Commonly triggered when the provisioning cable is not connected to the pump board or the pump board is not in 'provisioning mode'. If the problem persists, the pump board is either not receiving the request for its settings, or the computer is not receiving the pump board's response. The provisioning cable or the pump board may be faulty, test a known functioning pump board to determine which is malfunctioning.
Board Not Provisioned. Found Some Fields With Invalid Values	If you see this error, one or more of the fields will be colored red. These fields have invalid values in them and need to be changed before you can Submit. See the output text box for more information.
X Value Couldn't Be Retrieved: Invalid Data	Stored Values in the EEPROM are either invalid or there was an error when retrieving the values from the board. Try 'Get Current Values' again, submit a new value to the board and try to 'Get Current Values' again. If the

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problem persists, the ARM or the EEPROM may be faulty.

'X' Could Not Be Opened. Please Double-Check That You've Chosen the Right COM Port

Occurs when the serial port connection is not made properly. Most common causes are either choosing a serial port from the dropdown currently inactive or choosing a serial port that is currently claimed by another program or device. Check your connections and Device Manager, and shut down any other telnet/terminal programs that may be open on your laptop.

GUI Objects	Function
Checkboxes	Used to enable or disable specific text fields. When 'submit' is clicked, only the enabled fields will be programmed onto the pump board. When saving a .prov file, only the enabled fields will be saved. The very top checkbox can be used to enable or disable all fields with a single click.
Arrow Buttons	These buttons turn red if the text in the field to their immediate left does not match the one to their immediate right. Click the button to copy the text from the left to the right. The very top button functions the same as if all the arrow buttons below were pressed.
COM Port Selector	Select the COM port that the provisioning cable is connected to. If 'Auto-Detect Ports' is checked, the program will scan for available ports each time the dropdown is selected. This may cause a slight delay in response. Unchecking that box will list all COM ports from 1 to 128.
Reset All Values	Resets all the text fields back to some null value. It does not automatically reset the provisions on the pump board.
Get Current Values	Resets the current provisions from the pump board, displaying them in the text fields.
Recall Last Submitted Values	Displays the values that were last submitted to a pump board. This is useful for comparing the values you attempted to store in a pump board with the actual values retrieved with 'Get Current Values'.
Calibrate Distance to Ground	Sets the pump board to read the current value of the distance from the ultrasonic sensor in the canopy to the ground. During 'Default Mode', if the current transducer value is significantly below the saved Distance to Ground Value, the pump board registers that a truck has arrived and attempts to connect to the truck via radio. Otherwise, it assumes that that the 'truck' as left and shuts off any radio connections.
Submit	Checks all of the current settings in the text fields, returning with errors if any are not valid. If there are no errors, it attempts to set any checked text fields onto the board and save those values to local memory. These values can be recalled with 'Recall Last Submitted Values'.
Save	Saves the current, enabled values to a .prov file for later use or to share between PCs.
Load	Loads a saved .prov file, overwriting any text fields with the values that were last saved.
Save Settings to EEPROM	Saves the settings to the EEPROM, allowing them to be saved without having to tap the AUX pins.
Reset the Pump Board	Resets the board. This is the equivalent to tapping the AUX pins.
Output Text Box	Most extra output goes into this text box, including details about the performance of the application as well as any errors that may come up.

TROUBLESHOOTING

<p>RECEIVED ECHO REQUEST LIGHT</p>	<p>– solid red</p>	<p>COM port is inactive. Verify that the tool is properly plugged into your computer and you’ve chosen the correct COM port in the Pump Validation App. Try toggling the “show active ports” checkbox to refresh the ports drop down box</p>
	<p>– does not light up</p>	<p>The tool did not receive a radio echo request from the pump board. Check the RAD1-A and RAD1-B LEDs on the pump board. RAD1-A should be solid. RAD1-B should flash every few seconds. If RAD1-a and RAD1-B are:</p> <ul style="list-style-type: none"> • Both solid, the radio board may not have firmware installed. See pump installation instructions for help • Both off, radio board is likely missing power, verify that the pump board is powering up and the radio board is properly seated in its slot. • Behaving normally, there is likely a faulty antenna connection. Verify that the COAX is connected properly to the radio board and the radio antenna is installed correctly
<p>SENDING ZID LIGHT & BACKGROUND OF ZID INPUT BOX</p>	<p>– solid red & solid yellow</p>	<p>The ZID value in the text input box is invalid. Adjust the ZID to a valid one* and try again.</p> <p>*(note a valid ZID consists of 17 alphanumeric characters)</p>
<p>RADIO CONNECTION MADE LIGHT</p>	<p>– does not illuminate</p>	<p>The tool is not making a radio connection with the pump board. Check the INFRA LED on the front of the pump board. If the LED is:</p> <ul style="list-style-type: none"> • Not flashing green every few seconds then the pump is not receiving the ZID over IR from the tool. Verify that the IR LED is pointed directly at the canopy, free of any obstructions. • Flashing green every few seconds, then there is likely a faulty antenna connection. Verify that the coax is connected properly to the radio board and the radio antenna is properly installed. Also, try moving closer to the antenna, if possible.



Pump Validation Tool User Guide

FUNCTION:

The Pump Validation Tool ensures that the pumpside hardware has been properly installed and provisioned by testing the connectivity in each lane.

NECESSARY EQUIPMENT:

1. Laptop equipped with the Z-Con Pump Validation Application (supplied on CD)
2. USB cable (provided)
3. Validation Tool (provided)

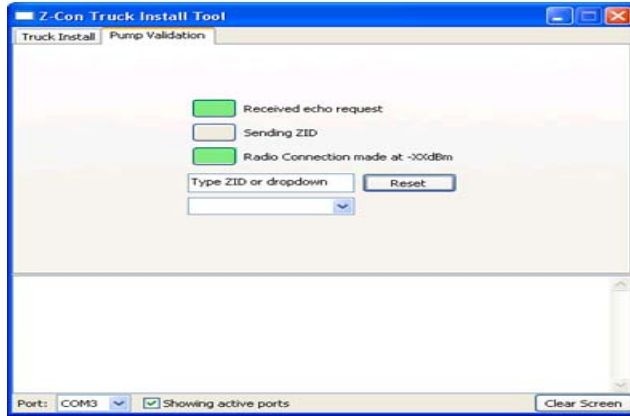


STANDARD USE (Following Installation of the Pump Board)

1. Connect the Pump Validation Tool to your laptop via the USB cable
2. Launch the Pump Validation Application on your laptop from the start menu or desktop icon
3. Click on the Pump Validation tab in the Pump Validation Application
4. Set the active COM port (to determine port click-Start Menu-Control Panel-Hardware and Sound-Device Manager-Ports) the tool will display a COM port next to it
5. Pull vehicle (or man-lift) into fueling lane as if attempting to purchase diesel
6. Point the IR transmitter (Pump Validation Label) at the IR Receiver/radio antenna enclosure installed in the canopy
7. Click the 'Start' button
8. Observe the Pump Validation Application. The pump will attempt to make a connection with the tool.
 - FIRST, the "Received Echo Request" indicator will light up green (see below)
 - NEXT the "Sending ZID" will flash yellow
 - Finally, once a connection has been made, the "Radio Connection made" indicator will turn solid green or flash red. If flashing red, investigate ways to improve signal strength (**see Troubleshooting section on the next page**).

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9. Drive on to the next lane.
10. Reset the application by clicking 'Stop' then 'Start' again.

TROUBLESHOOTING

<p>RECEIVED ECHO REQUEST LIGHT</p>	<p>– solid red</p>	<p>COM port is inactive. Verify that the tool is properly plugged into your computer and you’ve chosen the correct COM port in the Pump Validation App. Try toggling the “show active ports” checkbox to refresh the ports drop down box</p>
	<p>– does not light up</p>	<p>The tool did not receive a radio echo request from the pump board. Check the RAD1-A and RAD1-B LEDs on the pump board. RAD1-A should be solid. RAD1-B should flash every few seconds. If RAD1-a and RAD1-B are:</p> <ul style="list-style-type: none"> • Both solid, the radio board may not have firmware installed. See pump installation instructions for help • Both off, radio board is likely missing power, verify that the pump board is powering up and the radio board is properly seated in its slot. • Behaving normally, there is likely a faulty antenna connection. Verify that the COAX is connected properly to the radio board and the radio antenna is installed correctly
<p>SENDING ZID LIGHT & BACKGROUND OF ZID INPUT BOX</p>	<p>– solid red & solid yellow</p>	<p>The ZID value in the text input box is invalid. Adjust the ZID to a valid one* and try again.</p> <p>*(note a valid ZID consists of 17 alphanumeric characters)</p>
<p>RADIO CONNECTION MADE LIGHT</p>	<p>– does not illuminate</p>	<p>The tool is not making a radio connection with the pump board. Check the INFRA LED on the front of the pump board. If the LED is:</p> <ul style="list-style-type: none"> • Not flashing green every few seconds then the pump is not receiving the ZID over IR from the tool. Verify that the IR LED is pointed directly at the canopy, free of any obstructions. • Flashing green every few seconds, then there is likely a faulty antenna connection. Verify that the coax is connected properly to the radio board and the radio antenna is properly installed. Also, try moving closer to the antenna, if possible.



Hardware Troubleshooting Guide

The Z-Con Canopy Kit is composed of two devices: an ultrasonic sensor and the Antenna & IR Receiver. These devices are installed on the underside of the canopy in each fuel lane.

If validation of the pump hardware is not successful, please refer to the troubleshooting sections below for each device.

Ultrasonic Sensor

The ultrasonic sensor receives power from the pump board over the CAT5 cable which is also used to transmit data from the ultrasonic sensor to the pump board.

- To verify the ultrasonic sensor is working, verify the pump board is powered up (Illuminated LEDs indicate the board is receiving power). Attach the ultrasonic sensor to the CAT5 cable in the canopy and listen for a faint "ticking" noise. If you hear a "ticking" noise the sensor is receiving power and should be working.
- If you do not hear a ticking noise use a short CAT5 patch cable to attach an ultrasonic sensor to the pump board. If you hear ticking, the cabling between the pump board and canopy is faulty.
- If you do not hear ticking then either the pump board or sensor is bad. Use a known good sensor to verify the problem is with the pump board or the sensor.
- If the sensor is "clicking" when installed then you should see "valid" data on the Z-Con Pump Provisioning Tool. Valid Data would be around 200" depending on the height of the canopy.
- If the data in the Z-Con Pump Provisioning Tool does not look reasonable try swapping the ultrasonic sensor with a known good sensor.

Infrared Receiver (IR Receiver)

The IR receiver receives power from the pump board over the CAT5 cable which is also used to transmit data from the IR receiver to the pump board.

- To verify the cabling to the IR receiver is working, you can use an ultrasonic sensor to verify power is getting to the IR receiver. Attach an ultrasonic sensor to the IR receiver cable, make sure the other end is attached to the IR receiver port on the pump board and listen for "ticking". This will verify that power is getting to the IR receiver.
- If there is no ticking then use a short CAT5 patch cable to attach an ultrasonic sensor to the IR receiver port on the pump board. You should hear ticking, if not, the pump board is bad.
- If there is ticking then you can attach the IR receiver to the pump board using the short CAT5 patch cable and point the Pump Validation Tool directly at the IR receiver.

Post Installation Template for Email Response to Zonar

Prior to finalizing a sites installation the follow steps must be taken:

1. Date and time call was placed to Zonar Systems Customer Care to verify station
2. Name of representatives from Zonar Systems that verified installation
3. Outstanding issues on site (IE: enclosure issues, power issues etc.)
 - a. Detail outstanding issue and resolution
4. Extra material on site if applicable
 - a. Provide Zonar with the following information

Component	Qty	Location/Store #	Mac Address (if Pump board)
Ultrasonic Sensor Assembly			
Pump Board Enclosure			
Pump Board Assembly Single			Mac address here
Pump Board Assembly Dual			Mac address here
Antenna & IR Receiver Assembly			

5. Provide pictures of unique situation work around

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