

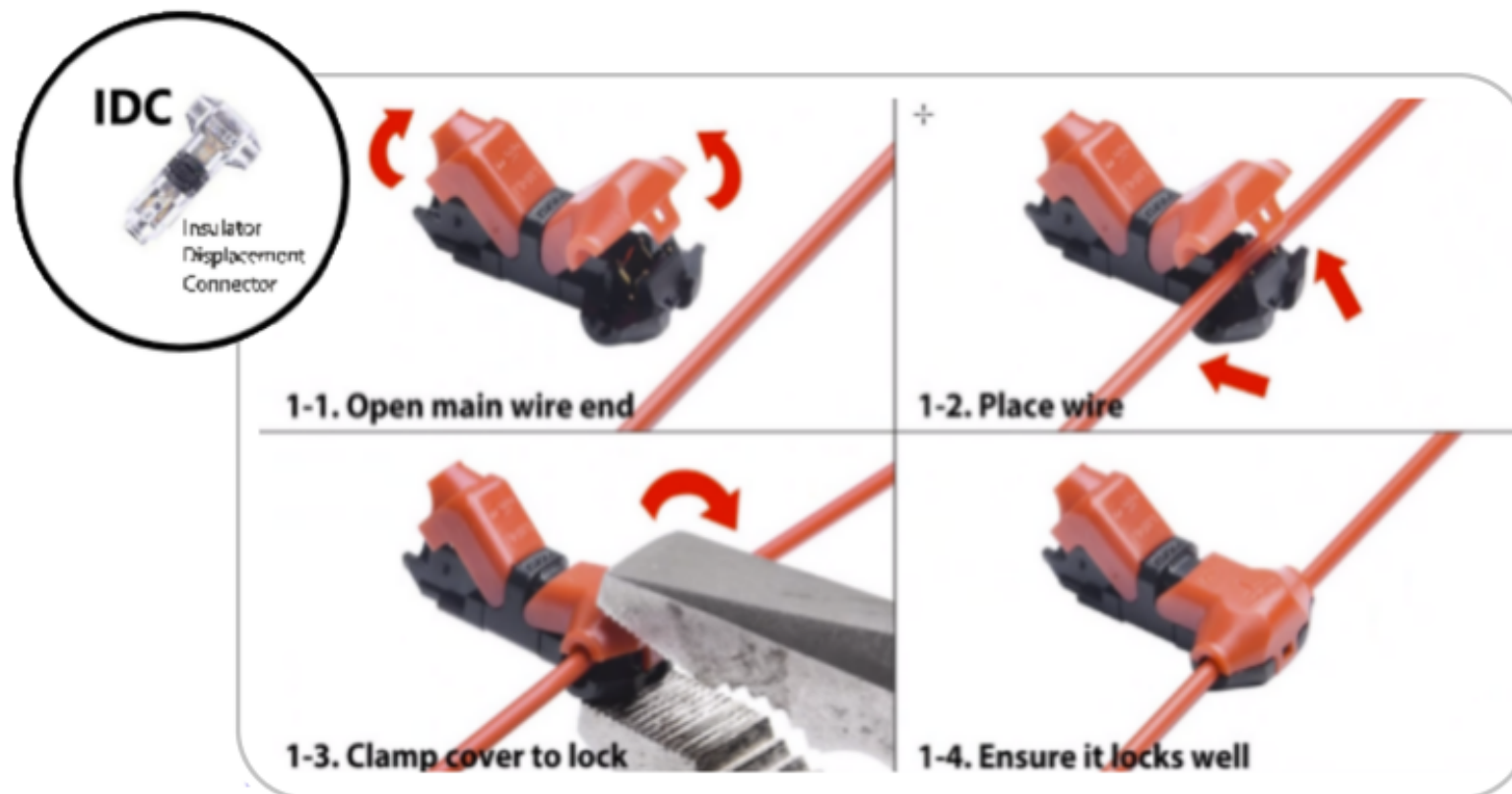
# Zerv

*Zerver B Device Guide*

2. Zerver B Quick Install Prep
3. Zerver B Quick Install Guide
4. Zerver B Wiring Diagram
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6. Zerv Relay Technical Specs / Install
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# Zerver B

Installation Prep.



## TOOLS & SUPPLIES NEEDED:

WIRE STRIPPERS

ELECTRICAL TAPE

WIRE CAPS

NEDDLE NOSE PLIERS

DC MULTIMETER (Incase of troubleshooting)

BE AWARE:

POWER SHOULD BE DISCONNECTED FROM ANY LOCKING SOLUTION BEFORE ANY TERMINATION IS MADE ON THE SYSTEM

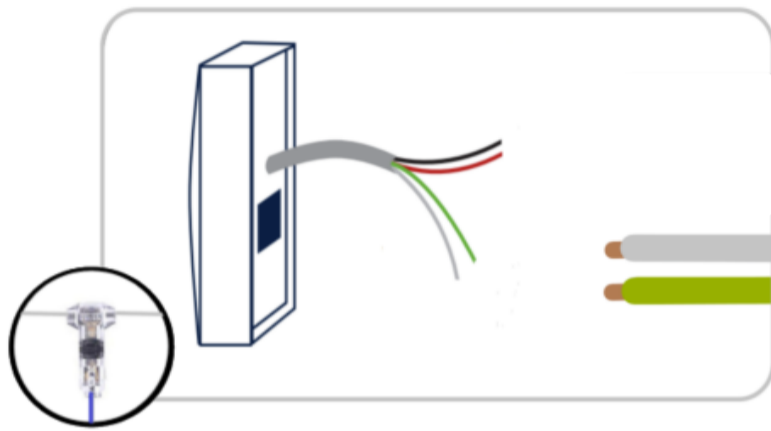
# Zerver B

## Between Installation Guide



**1** Locate the reader's white/Data0 conductor and attach the Isulation Displacement Connector of the blue Zerver B conductor, using a pair of pliers to clamp the IDC securely.

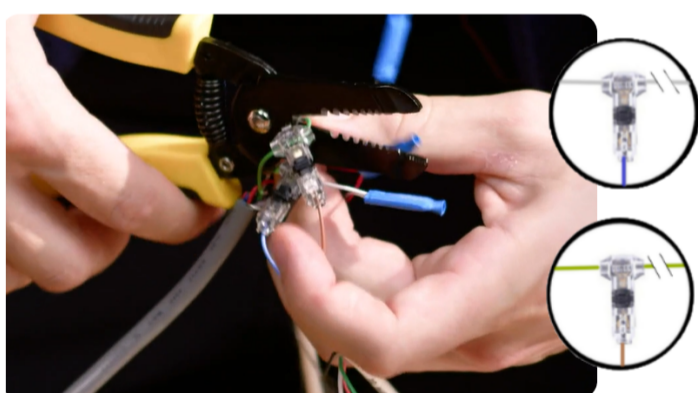
**BE AWARE: NOT ALL READERS WILL USE THE SAME MODE OF COMMUNICATION. IT IS IMPORTANT TO VERIFY WETHER THE READER IS COMMUNICATING VIA WIEGAND .**



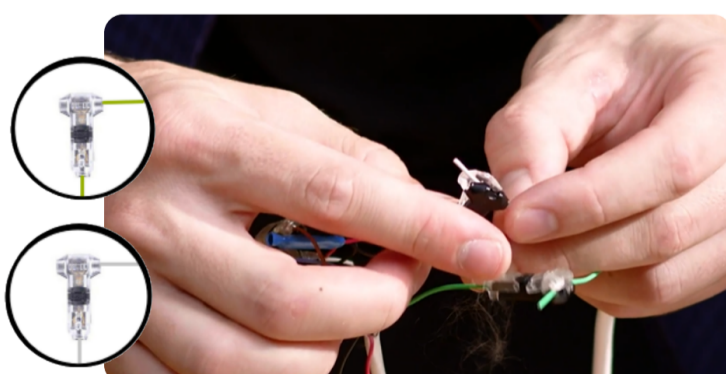
**2** Repeat **Step 1** - connecting the brown conductor from the Zerver B harness to the green Data1 conductor from the reader harness.



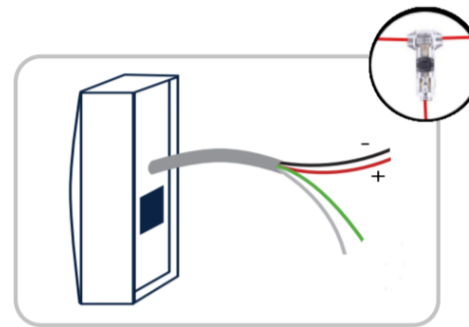
**3** To place the Zerver B between the reader and control panel, cut the white/Data0 and green Data1 conductors on the control panel side of the IDC.



**4** Connect the green and white conductors from the panel side harness to the green and white IDCs of the Zerver B wiring harness. Allow for the the end of the conductor to pass through the IDC with a small amount of excess overhang. This will insure that the splice makes adequate contact between conductors.



**5** Splice the IDC of the red Zerver B conductor inline with the red(+) conductor of the reader wiring harness. Do **NOT** cut the wire on either side of the IDC Splice.



**6** Repeat Step 5 - splicing the black conductors of the Zerver B and reader wiring harness together. Remember to use Pliers to securely clamp the IDCs.

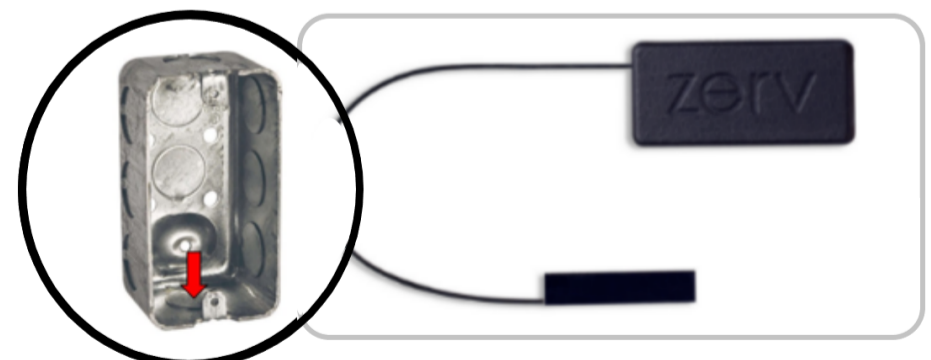


**7** After power is restored to the reader the Zerver B will be powered and will commence a LED flash sequence confirming it was successfully powered on.



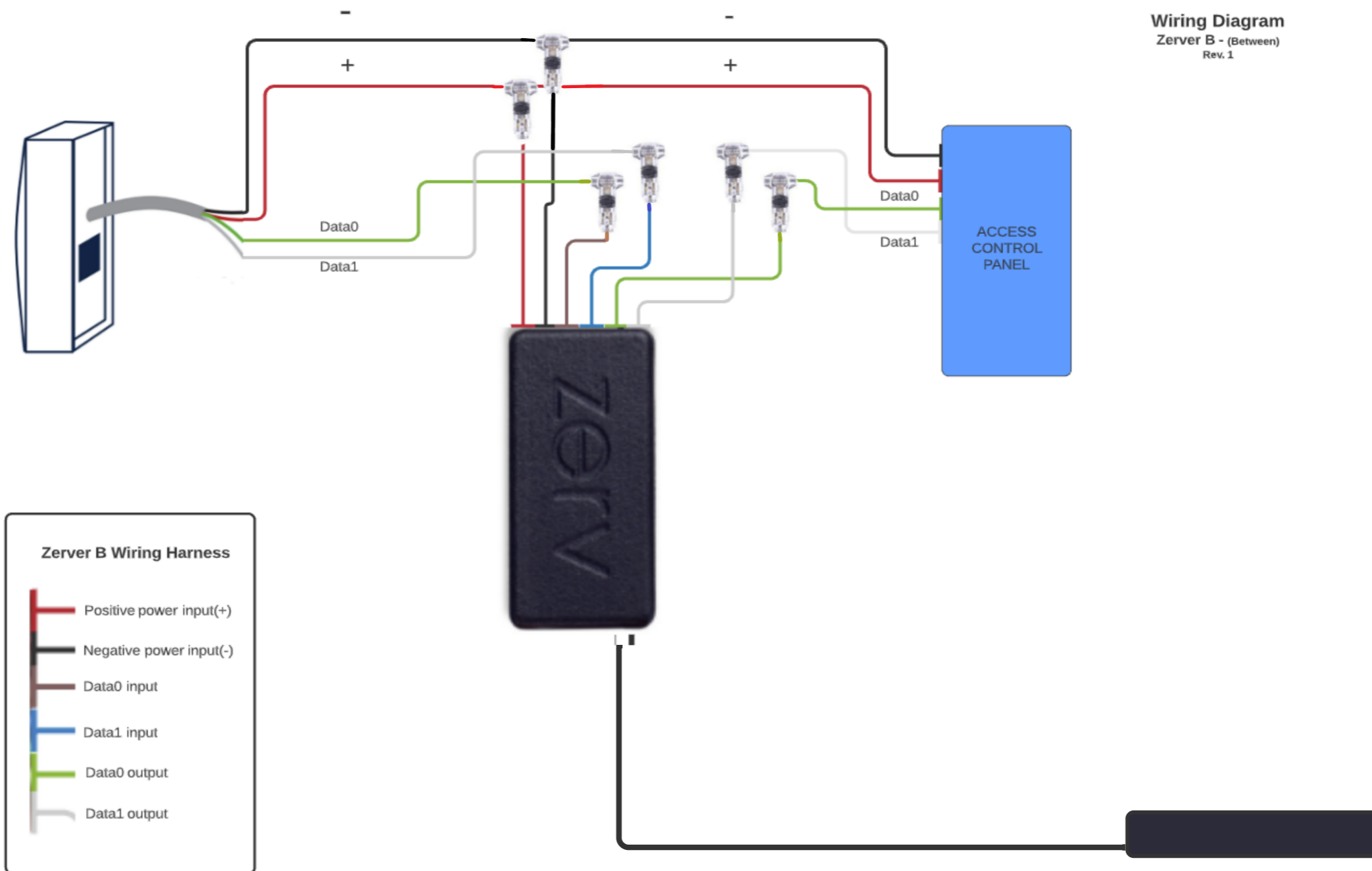
**8** When re-installing the reader with a Zerver B attached: remove the bottom or lower side knockout from reader gang box to allow routing of the LoRa antenna to the outside of the box.

**BE AWARE: The LoRa and BLE antennas should be routed to the outside of any metal containment. If the bottom knockout of the reader's gang box is occupied by wiring conduit DO NOT route the LoRa antenna into the conduit. Find alternate antenna routing.**



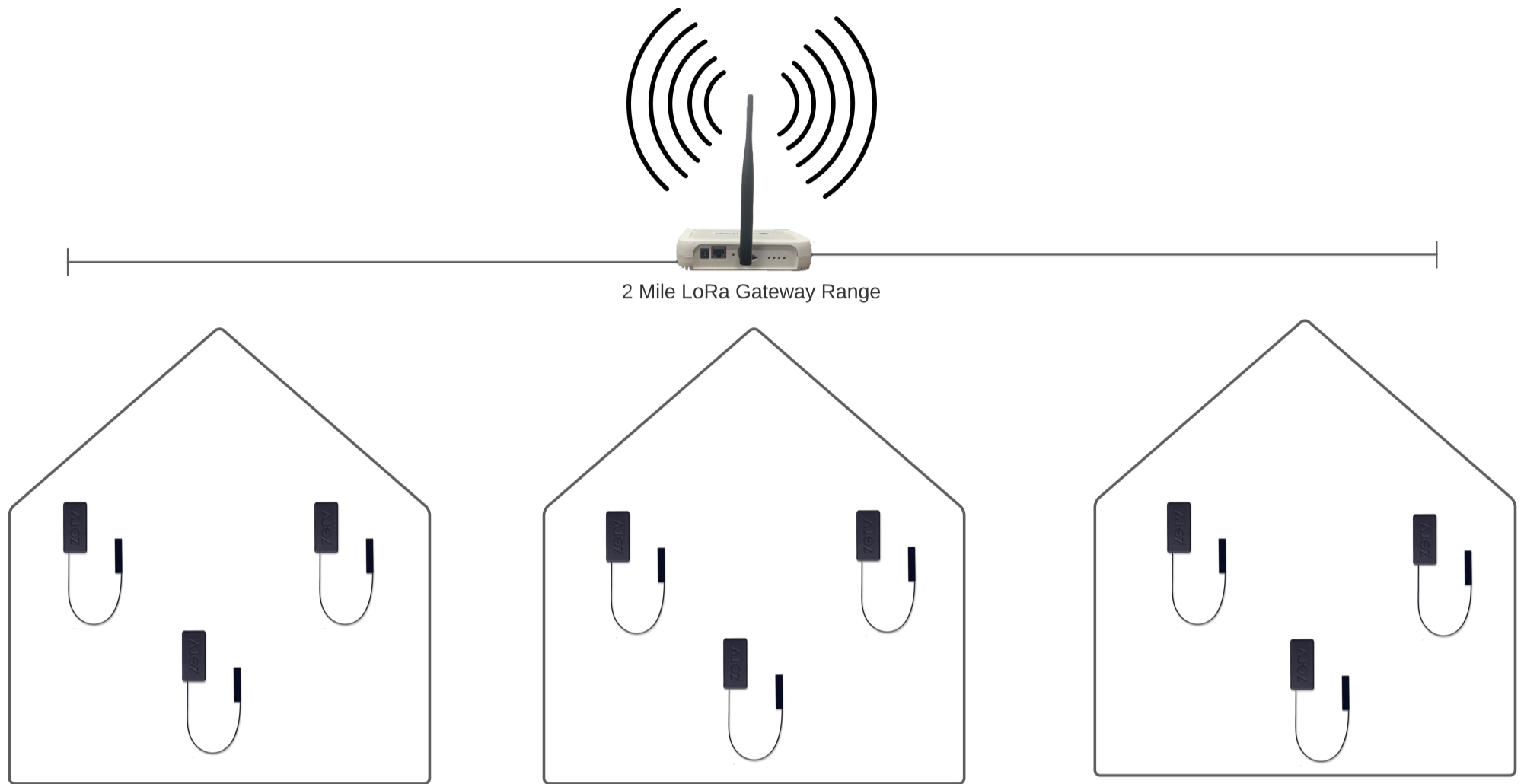
# Zerver B

Between Wiring Guide



# Zerver B

MultiTech LoRa Gateway



To utilize the data-logging and remote device management capabilities of the Zerver B, a LoRa network will need to be implemented. The LoRa Network consists of A single MultiTech gateway that covers up to 2 miles range with minimal obstruction. The gateway is connected to the specified network via ethernet or wireless SIM card based 4G LTE wireless provider.

Models	MTCAP-LNA3-915 / MTCAP2-LNA3-915		MTCAP-915 / MTCAP2-915
Mobile Network Operator	AT&T, T-Mobile**	Verizon	Non-Cellular
Performance	4G-LTE Category 1		
Fallback	3G - HSPA+	No Fallback	
Frequency Band (MHz)	4G: B2(1900), B4(AWS1700), B5(850), B12/B13(700) 3G: B2(1900), B5(850)	4G: B2(1900), B4(AWS1700), B13(700)	N/A
Packet Data (LTE FDD)	Up to 10 Mbps downlink, Up to 5 Mbps uplink		
Input Voltage	5 VDC 2.5A input provided by 100-240 VAC 50/60 Hz 0.4A external adaptor		
Input Voltage (PoE Models)	Ethernet Input Power: 37 - 57 VDC provided by PSE injector with power rating of 25W or greater or 5 VDC 2.5A input provided by 100-240 VAC 50/60 Hz 0.4A external adaptor		
Power over Ethernet Standard (PoE Models)	IEEE 802.3at		
Processor & Memory	ARM9 processor with 32-Bit ARM & 16-Bit Thumb instruction sets • 400 MHz • 16K Instruction Cache • 16K Data Cache • 128X16M DDR RAM • 256 MB Flash Memory		
<b>LoRa Specifications</b>			
LoRa Frequency Band	915 MHz		
LoRa Channel Plan	US915 (US902-928)		
Channel Capacity	8-channels (half-duplex)		
LoRa Maximum Output Power (MTCAP Models)	Maximum EIRP (includes external LoRa antenna): 25.7 dBm		
LoRa Maximum Output Power (MTCAP2 Models)	Maximum EIRP (includes external LoRa antenna): 27.8 dBm		
<b>Connectors</b>			
Power	2.5mm, 5 Volt power jack		
Ethernet	RJ45 Ethernet jack (10/100 port)		
SIM	3FF Micro SIM	N/A	
Antennas (-041A & 042A Models)	LoRa: reverse polarity female SMA / Cellular: No external antenna connection. Internal only		
<b>Physical Description</b>			
Dimensions (L x W x H)	165 (6.5) x 135 (5.3) x 36 (1.4) mm (in)		
Weight	1.5 kg (3.3 lbs)		
Chassis Type	PC-ABS (polycarbonate-ABS)		
<b>Environmental</b>			
Operating Temperature	0° C to +70° C		
Storage Temperature	-40° C to +85° C		
Relative Humidity	20% to 90%, non-condensing		
<b>Certifications</b>			
EMC Compliance	United States: FCC Part 15 Class B / Canada: ICES-003 Class B		
Radio Compliance	United States: FCC Part 22H, Part 24E, Part 27. FCC Part 15B / Canada: ISED. RSS-247 Issue 2 (Canada). ICES-003 Issue 6		
Safety	UL/cUL 60950-1 / UL/cUL 62368-1		
Mobile Network Operator Approvals	PTCRB, AT&T, T-Mobile**	Verizon	N/A
Additional Mobile Network Operator Certifications Available (Contact MultiTech for Details)	Canada: Rogers, Bell Mobility, Telus		N/A
Quality	MIL-STD-810G: High Temp, Low Temp, Random Vibration. SAE J1455: Transit Drop & Handling Drop. Random Vibration, Swept-Sine Vibration. IEC68-2-1: Cold Temp. IEC68-2-2: Dry Heat		
Warranty	2-Years - <a href="http://www.multitech.com/legal/warranty">www.multitech.com/legal/warranty</a>		

\* Operating temperature excluding power supply. Power supply UL listed at 40C.  
\*\* T-Mobile approval on MTCAP-LNA3-915 only



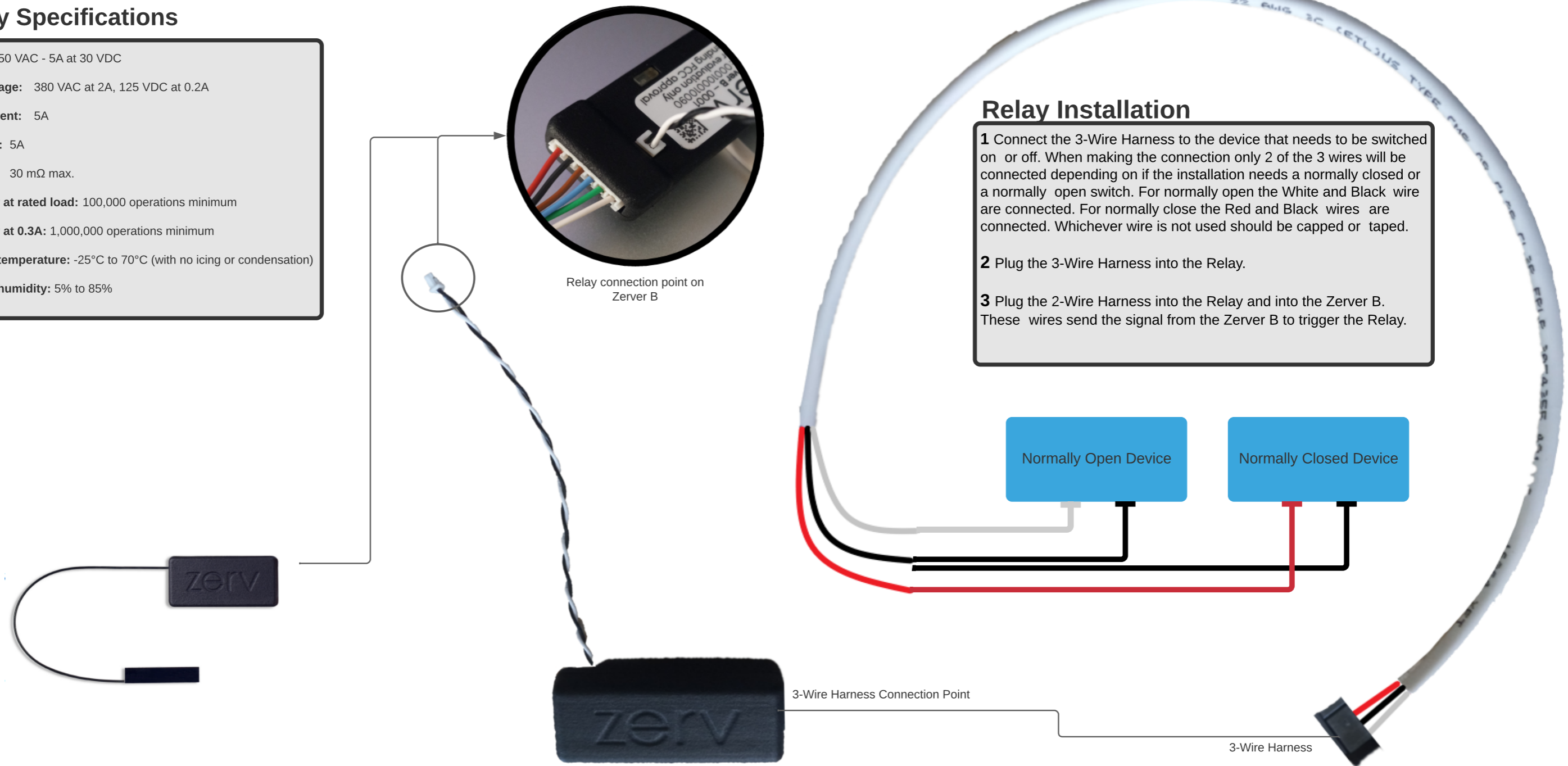
# Zerver Br

## Relay Installation Guide



### Zerv Relay Specifications

<b>Rated Load:</b> 5A at 250 VAC - 5A at 30 VDC
<b>Max. switching voltage:</b> 380 VAC at 2A, 125 VDC at 0.2A
<b>Max. switching current:</b> 5A
<b>Rated carry current:</b> 5A
<b>Contact resistance:</b> 30 mΩ max.
<b>Electrical Durability at rated load:</b> 100,000 operations minimum
<b>Electrical Durability at 0.3A:</b> 1,000,000 operations minimum
<b>Ambient operating temperature:</b> -25°C to 70°C (with no icing or condensation)
<b>Ambient operating humidity:</b> 5% to 85%



- ### Relay Installation
- 1 Connect the 3-Wire Harness to the device that needs to be switched on or off. When making the connection only 2 of the 3 wires will be connected depending on if the installation needs a normally closed or a normally open switch. For normally open the White and Black wire are connected. For normally close the Red and Black wires are connected. Whichever wire is not used should be capped or taped.
  - 2 Plug the 3-Wire Harness into the Relay.
  - 3 Plug the 2-Wire Harness into the Relay and into the Zerver B. These wires send the signal from the Zerver B to trigger the Relay.



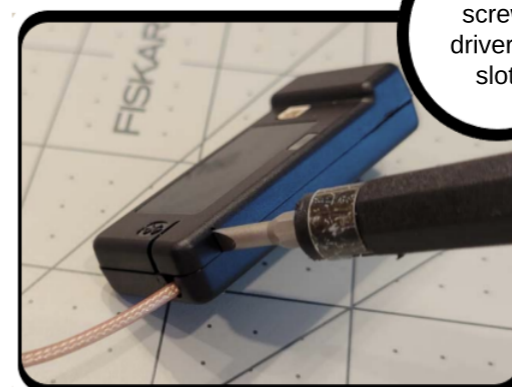


# Zerver B

## External Bluetooth Antenna Installation



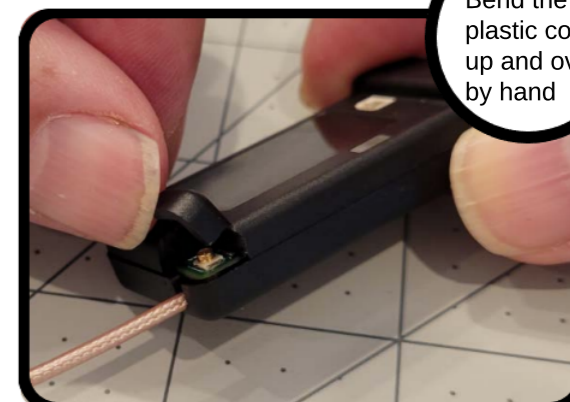
Use a small flat blade screw driver that fits in the top slot



Insert screw driver in slot



Turn the screw driver clockwise



Bend the plastic cover up and over by hand

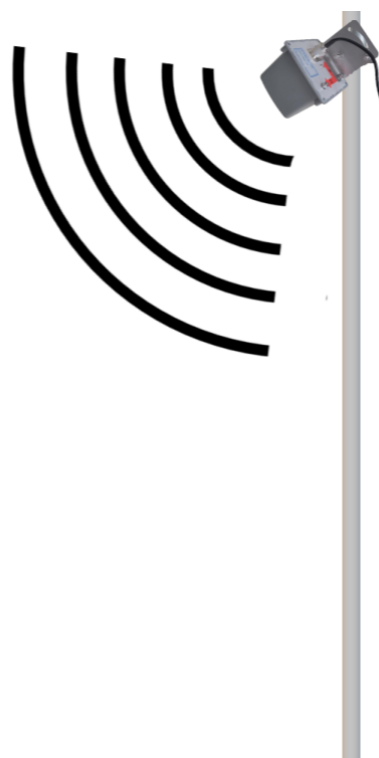
External Bluetooth Coaxial Connection

Once the cover is rotated 180 degrees it will break off. This exposes the Bluetooth coax connector. The External Bluetooth Antenna is plugged into the coax connector by carefully pressing straight down until it snaps on. For signal quality it is important that the external Bluetooth antenna is routed to the outside of any metal containment.

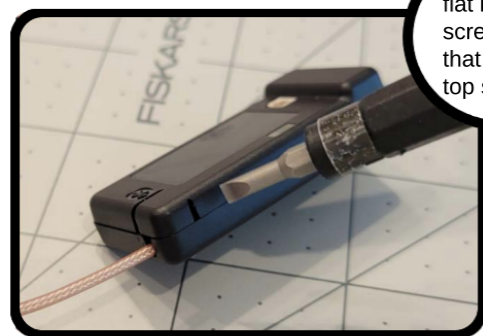


# Zerver B

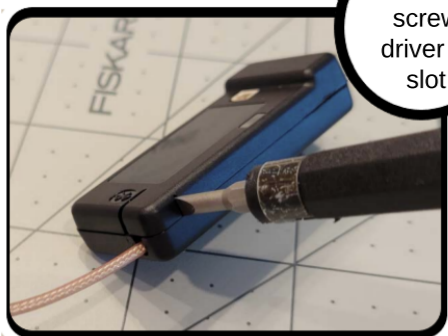
## Directional Bluetooth Antenna Installation



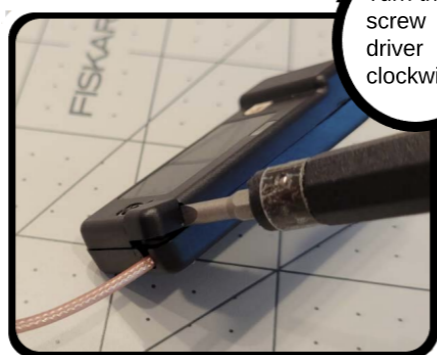
Attach the RP-SMA connector to the RP-SMA to N-Type Cable Assembly. The Zerver B needs to be mounted inside the cabinet to protect it from the environmental elements. The cable then runs out of the cabinet to the externally mounted Directional BT Antenna. The N-Type connector screws into the back of the Directional BT Antenna. The antenna should be low and pointed down at where the car will be. It can be pole mounted as shown below.



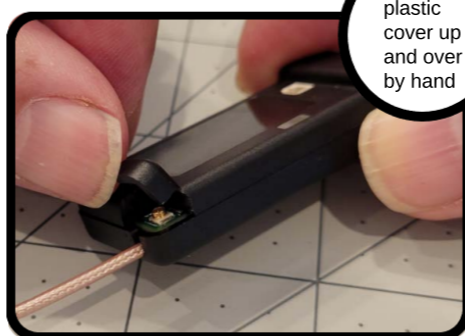
Use a small flat blade screw driver that fits in the top slot



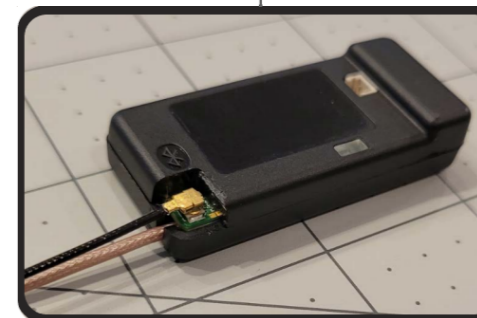
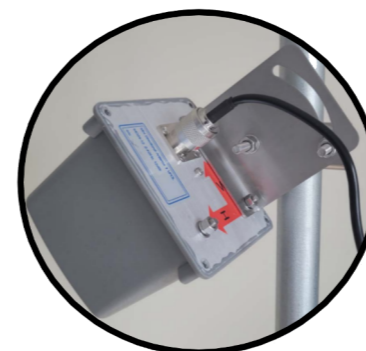
Insert screw driver in slot



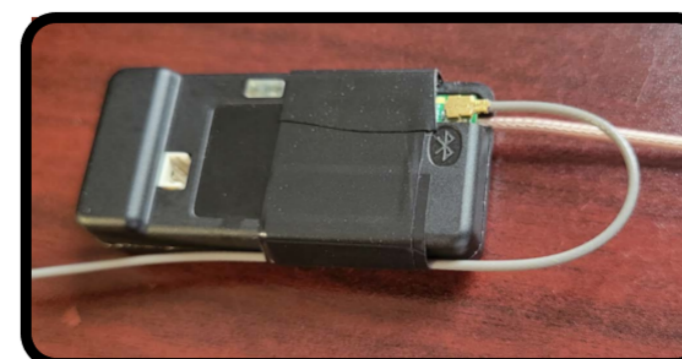
Turn the screw driver clockwise



Bend the plastic cover up and over by hand



Strain relief the BT cable by bending it along the side of the Zerver B and then wrapping a piece of electrical tape around it as shown below.





# Zerver B

## Technical Specifications



### Technical Specifications

**Description:** A mobile access control solution that enables support for digital credentials and easily integrates into your current access control system.

**Dimensions:** 49.6 mm x 22.8 mm x 11.4 mm

**Power Requirements:** 5 – 24 V DC

**Power Consumption:** Bluetooth 15mA, LoRa 50 mA

**Wired Interface:** Wiegand

**Bluetooth Version:** Bluetooth 5.0

**Bluetooth Frequency Range:** 2.400 GHz – 2.4835 GHz

**Bluetooth Distance:** Up to 50 ft (15 meters)

**LoRa LoRaWAN Specification:** v1.3

**LoRa Frequency Range:** 902 MHz – 928 MHz

#### FCC

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.

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

#### ISED

Notes This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1) L'appareil ne doit pas produire de brouillage;
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

