

# Zerver B Device Guide



- 1. Index Page
- 2. Zerver B Installation Preparation
- 3. Zerver B Installation Instructions
- 4. Zerver B Wiring Diagram
- 5. MultiTech LoRa Gateway
- 6. Zerver B External Bluetooth Antenna Installation

1

- 7. Zerv Relay Specifications and Installation
- 8. Zerv Relay- Wiring Instructions W/O ACS
- 9. Zerver B Technical Specifications





# **REQUIRED TOOLS & SUPPLIES:**

- WIRE STRIPPERS
- ELECTRICAL TAPE
  - WIRE CAPS
- NEDDLE NOSE PLIERS
- DC MULTIMETER (In the even of troubleshooting)

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

2

# Zerver B Between Installation Instructions



- **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 condcutors on the control panel side of the IDC.



**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 anteena into the conduirt. Find alternate antenna routing.



**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.





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.



Wiring Diagram Zerver B - (Between) Rev. 1





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	MICAP-LNA3-915/	MTCAP2-LNA3-915	MICAP-915 / MICAP2-915	
Mobile Network Operater	AT&T, T-Mobile**	Verizon	Nen-Cellular	
Performance	4G-LTE Category 1			
Fallback	3G - HSPA+	Ne Fallback		
Frequency Band (MHz)	4G: B2(1900), B4(AW\$1700), B5(850), B12/B13(700) 3G: B2(1900), B5(850)	4 G: B2(1900), B4(AW\$1700), 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 Data Cache - 256 MB Flash Memory - 16K Instruction Cache - 128/16M DDR RAM			
LoRa Specifications				
LoRa Frequency Band	915 MHz			
LoRa Channel Plan	U\$915 (U\$902-928)			
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			
Connectors				
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 fer	nale SMA / Cellular: No external anter	nna connection. Internal only	
Physical Description				
Dimensions (L x W x H)	165 (6.5) × 135 (5.3) × 36 (1.4) mm (in)			
Weight	1.5 kg (3.3 lbs)			
Chassis Type	PC-ABS (polycarbonate-ABS)			
Environmental				
Operating Temperature	0° C to +70° C			
Sterage Temperature	-40° C to +85° C			
Relative Humidity	20% to 90%, non-condensing			
Certifications				
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 - www.multitech.com/legal/warranty			
* Operating temperature excludin ** T-Mobile approval on MTCAP-L	g power supply. Power supply UL listed at 4 NA3-915 only	oc.		



# **Zerv Relay**

## **Zerv Relay Specifications**

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



### FCC

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Zerv

# **Zerv Relay** Wiring Instructions W/O ACS (Intelligent Readers)

In locking solutions where the reader servers as the control panel , the reader does not send any data. The Relay connection is made by cutting the main relay lead from the reader, and connecting the common (white) lead and the black or red wires from the realy's 3-wire harness into the lead. In solutions where a normally open(N.O.=Fail Safe) circuit is to be used the black wire should be tied into the relay lead. If Normally Closed(N.C.=Fail Secure) use the red wire from the 3-wire harness as detailed in **relay installation guide.** 



Only the positive and negative leads of the zerver b 6-wire harness are used in this solution. The Data1/Data 0 wires of the 6 wire harness are not used.



#### 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.



### **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 (FCC ID 2A2BQ-ZERV0001)

Bluetooth Distance: Up to 50 ft (15 meters)

LoRa LoRaWAN Specification: v1.3

LoRa Frequency Range: 902 MHz - 928 MHz

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.



