



## ZRM500 High Performance Rugged Mobile Router Platform

ZRM500.B.02  
Product Specification & Quick Start Guide



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## Product Description:

### ZRM500 High Performance Rugged Mobile Router

The ZRM500 sets a new bar for performance, level of integration, and ease of installation in the M2M router space. It delivers the most advanced communications, networking, and tracking technologies in a waterproof enclosure that can be used in almost any environment.

The ZRM500 is a fully integrated 2\*2 4G LTE, 2\*2 Wi-Fi a/b/g/n/ac and concurrent GNSS. The gigabit ethernet enabled router and power injector architecture provides both data and power on a single cable for ease of installation and keeps power consumption to a minimum.

#### The router is the ideal solution for:

- 4G High Bandwidth Mass Transportation Systems
- Real-time HD Video Broadcasting
- Remote Monitoring
- Broadband Connectivity
- Global Asset Tracking

#### The ZRM500 Multi-Radio Router includes:

- 2x2 MIMO 4G LTE and 3G HSPA
- 2x2 MIMO dual band 802.11 a/b/g/n/ac Wi-Fi
- GPS
- Built-in antennas for all radios

The router is designed to withstand the harshest of environments. It is operational over the entire industrial temperature range -30C to +70C. It is built with toughened, impact resistant ASA and the housing is UV resistant.

Tested to ISO 16750-2,3,4, the device can withstand automotive vibration and electrical transients. The device includes all required antennas enclosed within a single IP69k vandal resistant enclosure.

Designing both the radios and antennas together in a single package removes cable and connector RF loss and reduces installation costs. Just a single CAT5e Ethernet Cable 44, is required to connect the device to the network and power. A separate automotive grade power injector module enables the single cable installation and provides flexibility in running power and data.

The ZRM500 has an extremely simplified installation and mounting procedure. The router sits in a single punched hole made in any rigid sheet surface and is secured with single nut from the bottom side. Once secure, the unit itself and the interface to the mounting surface are fully waterproof and pressure washer safe.

The product runs embedded Linux and features enterprise grade router configurability. The router has a 802.11a/b/g/n/ac client and access point capability, best in class GPS performance, low power sleep modes and an easy to use configuration interface. Configuration is done over a secure web interface or SNMP, locally or remotely.

## Key Benefits

- One enclosure, no RF cables or connectors
- Lower installation costs, less labour, less material to install
- Higher radio performance with direct antenna connection eliminates RF losses from coaxial cables and connectors
- GPS via Ethernet, available to any device on the network simultaneously
- 2x2 MIMO for both Wi-Fi and Cellular for highest speeds in the industry
- Most powerful processor in class
- Most rugged enclosure in class
- Highly adaptable power and network provisioning for any installation scenario
- Electrically isolated power supply



## Specifications

### System Features

High performance processor system: 800MHz ARM Cortex Dual Core A9 microprocessor with hardware encryption accelerator running embedded Linux

VPN support: VPN (SSL v2, TLS v1) SSH server, SCP, SFTP

2x2 MIMO LTE with fallback to 3G & 2G (EU only)

**US Frequency Bands:** LTE 2,4,5,13 & 17

UMTS 850, AWS, 1900, 2100

GSM 850, 1900

Highly configurable routing of IP traffic

Wi-Fi: 802.11a/b/g/n/ac with 2x2 MIMO and speeds up to 866.7Mbps (80MHz channel)

Wi-Fi Access Point or Client mode support

2.4GHz or 5.8GHz operation

TCP/IP, UDP/IP, DHCP, HTTP, IP Router, PPP,

HTTP Web server, Telnet DHCP server,

DDNS, DDNS Client, NAT, SNMP, TAIP, TSIP, TFTP, IP port forwarding

72-channel GPS receiver, GPS/Glonass support with Assistance

Acquisition Sensitivity -148dBm, Tracking Sensitivity -167dBm

NMEA output via TCP connection or optional serial interface

**EU Frequency Bands:**

LTE 1,3,5,7,8,20

UMTS 850/900/1900/2100

GSM 850/900/1800/1900

Easy replication of configuration to simplify deployments

Ability to send GPS position information through the local web UI via a button.

Power consumption: under 10 Watts in-use

### Mechanical

Enclosure: White, toughened ASA, UV stabilized

IP67 waterproof and IP69K pressure washer safe

Dimensions: 177mm x 122mm x 65mm

Weight: 676g

Through hole permanent (screw) mount with mounting plate

Connectors: 1-RJ45 10/100/1000Mb Ethernet and power

2-Protected SIM holders

Power break out box allows for using vehicle power

Auto-switched power path and trickle charger for

Magnetic-Mount and Pole-Mount options available

### Environmental Ratings & Certifications

Temperature: -40° to +70° C (operating)

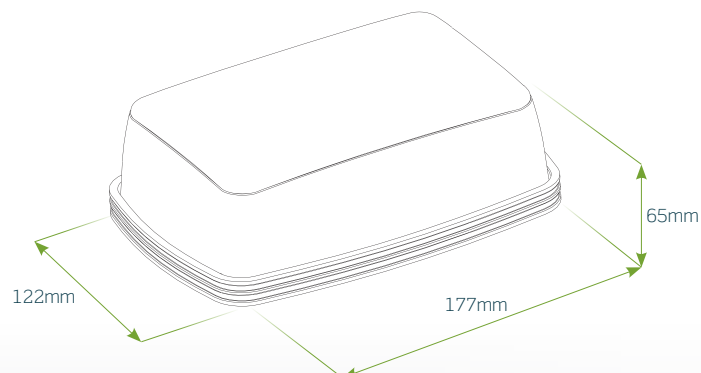
-40° to +85° C (storage)

Humidity: 95% R.H. @ 50° C non-condensing

Shock and Vibration: ISO 16750-3

Device is fully certified including FCC, CE, IC, PTCRB, applicable Carriers including Vodafone, Verizon and AT&T.

EMC/EMI: ISO 16750-2,



## Quick Start Guide

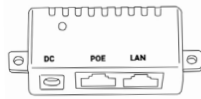
### Package Contents:



ZRM500 Device



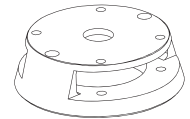
24v Power Supply



PoE Unit



Ethernet Cable



Benchtop Bracket

The following list of items are required to get the ZRM500 configured prior to bench testing:

- (1) ZRM500 Unit
- (1) Power Over Ethernet (PoE) switch.  
We recommend the 'WS-GPOE-1-24v30w', which includes a 24-volt power supply.  
This can be purchased here: <https://find-a-poe.com/product/WS-GPOE-1-WM-24v30w/>
- (1) Ethernet cable
- (1) Phillips head screwdriver for an M2 screw
- (1) Active LTE / 4G cellular account with 2FF SIM Card
- (1) Network APN
- (1) Benchtop mounting bracket

### Step 1: Install Sim Card

Please ensure your SIM card is installed before powering the device. Peel back the insulation covering the screw holes on the bottom of the ZRM500 and remove the SIM card cover, see Figure 1. The default SIM tray is 'SIM 1'. Insert your 2FF SIM and ensure the SIM tray cover slides and locks into place, see Figure 2. Reattached the SIM card cover.



Figure 1

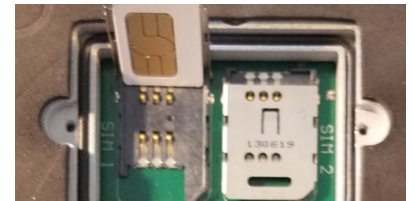


Figure 2

### Step 2: Attach the Desk Mount

Using your desktop mounting bracket, feed the ZRM500 cables through the top hole and out the side of the mounting bracket as shown in Figure 3. Use the nut to firmly tighten the ZRM500 to the mounting bracket



Figure 3

### Step 3: Connect Power Over Ethernet (PoE)

Connect your ethernet cable and power supply cable to the PoE unit. Then connect the opposite end of your ethernet cable to the ethernet port on the ZRM500. Plug in your power supply and ensure the LED on the PoE unit illuminates green.



Figure 4



#### Step 4: Connect to ZRM500 Wi-Fi

Open your computer's Wi-Fi Network List and connect to your ZRM500 router. It may take about one minute for the ZRM500 to fully power up and broadcast its Wi-Fi ID. The ZRM500 Wi-Fi ID will look similar to Figure 5.

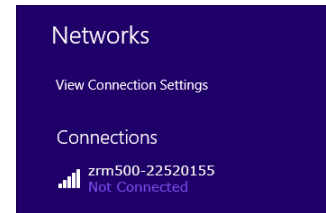


Figure 5

Connect to "zrm500-xxxxxxx". Please note that no password is set by default.

#### Step 5: Connect to ZRM500 Login Page

Open your web browser and type <http://192.168.1.1> which should bring you to the ZRM500 login page.

Enter the default username and password, see below and then click the "Login" button. See Figure 6.

**Username:** remote

**Password:** zrmea7nd4

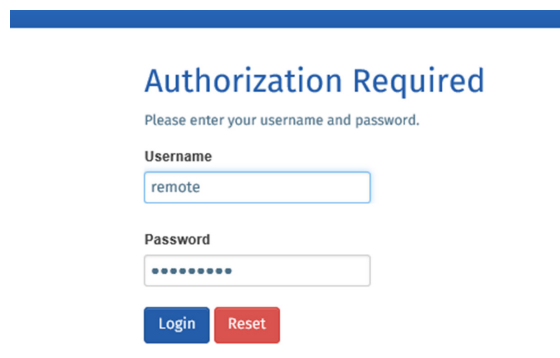


Figure 6

You will now see the 'Status' webpage. Click on the word "Cellular" then locate the APN field and enter your APN (APN is provided by your service provider). Click on the "Save and Apply" button. See Figure 7. Your ZRM500 is now provisioning on the cellular network. This will take about 2 minutes. Once it has fully provisioned, you will see the State field change to Registered. Once it is registered you have successfully established a cellular network connection. See Figure 8.

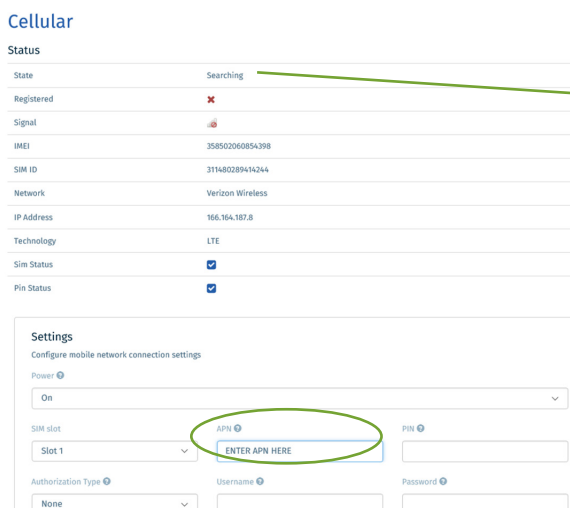


Figure 7

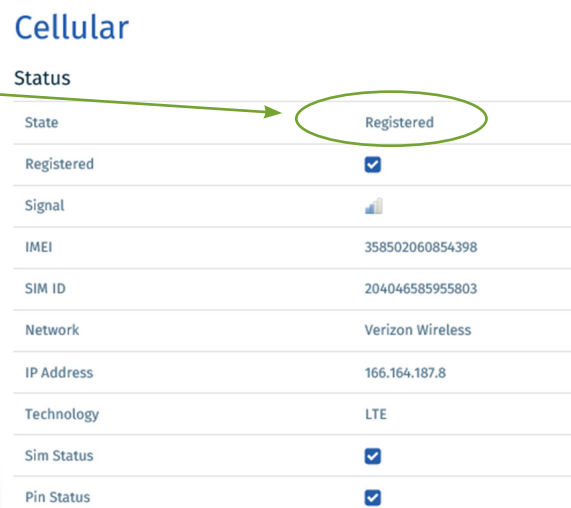


Figure 8



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