



ZRM500 High Performance Rugged Mobile Smart Antenna Platform

ZRM500.A.02
Product Specification & Quick Start Guide



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Product Description:

ZRM500 High Performance Rugged Mobile Smart Antenna Platform

The ZRM500 sets a new bar for performance, level of integration, and ease of installation in the M2M smart antenna platform 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, concurrent GNSS, 1621MHz SatCom Satellite SBD. 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 Smart Antenna 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 Smart Antenna includes:

- 2x2 MIMO 4G LTE and 3G HSPA
- 2x2 MIMO dual band 802.11 a/b/g/n/ac Wi-Fi
- 1621MHz SatCom Satellite SBD (L-band)
- GPS
- Built-in antennas for all radios

The smart antenna 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 smart antenna 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
- 1621MHz SatCom and 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
- 1621MHz SatCom satellite messaging for mission critical location and data reporting



Specifications

System Features

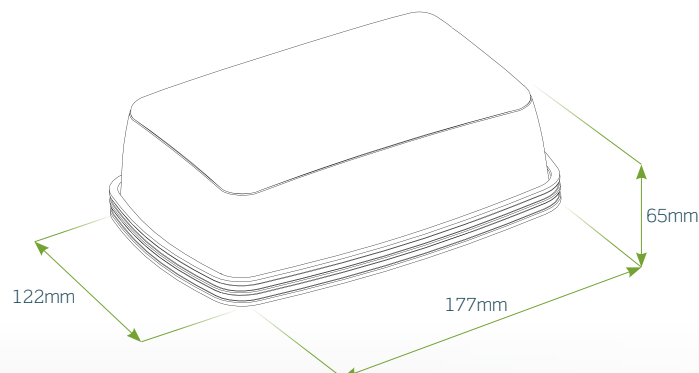
High performance processor system: 800MHz ARM Cortex Dual Core A9 microprocessor with hardware encryption accelerator running embedded Linux	TCP/IP, UDP/IP, DHCP, HTTP, IP Router, PPP, HTTP Web server, Telnet DHCP server, DDNS, DDNS Client, NAT, SNMP, TAIP, TSIP, TFTP, IP port forwarding
VPN support: VPN (SSL v2, TLS v1) SSH server, SCP, SFTP	72-channel GPS receiver, GPS/Glonass support with Assistance Acquisition Sensitivity -148dBm, Tracking Sensitivity -167dBm NMEA output via TCP connection or optional serial interface
2x2 MIMO LTE with fallback to 3G & 2G (EU only)	EU Frequency Bands:
US Frequency Bands: LTE 2,4,5,13 & 17	LTE 1,3,5,7,8,20
UMTS 850, AWS, 1900, 2100	UMTS 850/900/1900/2100
GSM 850, 1900	GSM 850/900/1800/1900
Highly configurable routing of IP traffic	High performance 1621MHz SatCom 9603 satellite modem
Wi-Fi: 802.11a/b/g/n/ac with 2x2 MIMO and speeds up to 866.7Mbps (80MHz channel)	Ability to send GPS position information through the local web UI via a button.
Wi-Fi Access Point or Client mode support	Easy replication of configuration to simplify deployments
2.4GHz or 5.8GHz operation	Power consumption: under 10 Watts in-use

Mechanical

Enclosure: White, toughened ASA, UV stabilized	Connectors: 1-RJ45 10/100/1000Mb Ethernet and power 2-Protected SIM holders
IP67 waterproof and IP69K pressure washer safe	Power break out box allows for using vehicle power
Dimensions: 177mm x 122mm x 65mm	Auto-switched power path and trickle charger for Magnetic-Mount and Pole-Mount options available
Weight: 676g	
Through hole permanent (screw) mount with mounting plate	

Environmental Ratings & Certifications

Temperature: -40° to +70° C (operating) -40° to +85° C (storage)	Device is fully certified including FCC, CE, IC, PTCRB, applicable Carriers including Vodafone, Verizon and AT&T.
Humidity: 95% R.H. @ 50° C non-condensing	EMC/EMI: ISO 16750-2,
Shock and Vibration: ISO 16750-3	



Quick Start Guide

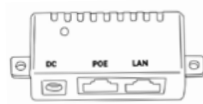
Package Contents:



ZRM500 Device



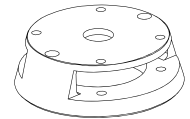
24v Power Supply



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.

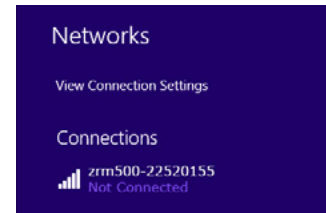


Figure 5

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

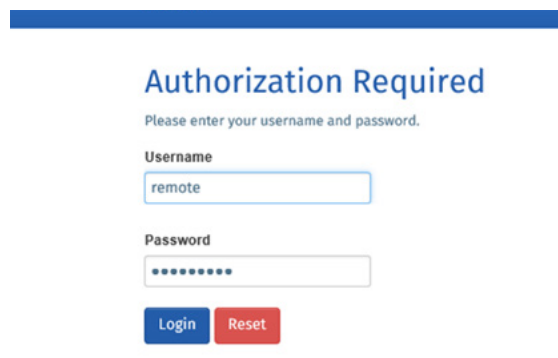


Figure 6

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.

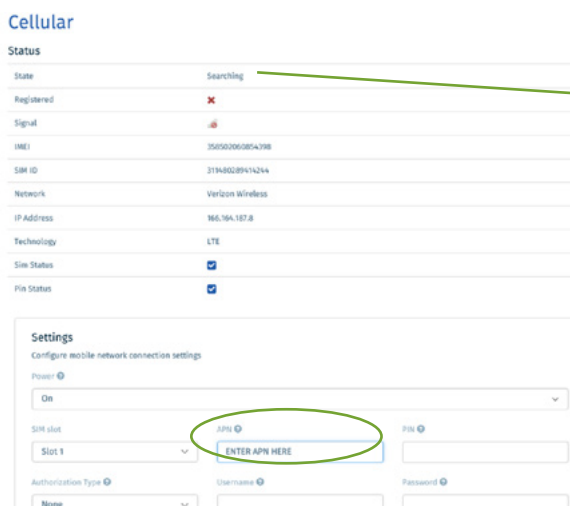


Figure 7

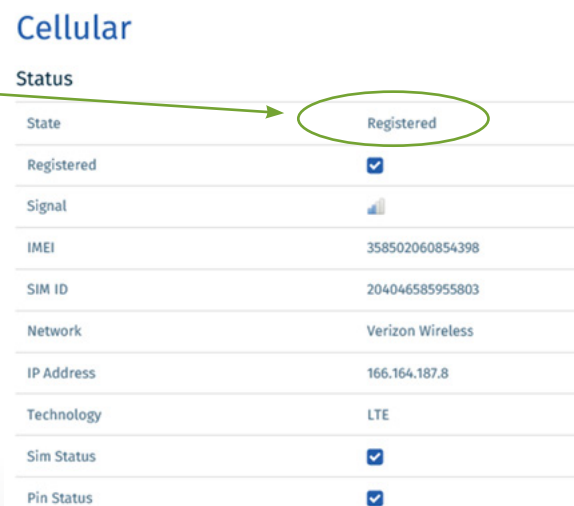


Figure 8



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