



# MMCU

## Mountable Mobile Communications Unit

### Overview

Powered by Wave Relay®, the MMCU is a mast mountable communications unit designed for mass scalability. With interchangeable RF modules the MMCU allows you to adapt and select an operational band best suited to your environment and application without replacing your entire radio inventory or redesigning your embedded radio integration.

### A solution for your all your maritime needs

Designed specifically to cater for the demands of maritime applications, the MMCU is the ideal solution for:

#### Autonomous vehicle control

Mount an MMCU on your remotely operated vessel to control it from a mothership, or from the shore. Precisely designed with ASV applications in mind, the MMCU is a tried and tested solution proven in the real world to meet the demands of autonomous vessel control.

#### Ship security

The weather-resistant MMCU is designed to survive the harsh conditions of a permanent outdoor installation in a maritime environment. Securely positioned around a large vessel, the MMCU provides the perfect perimeter system for communication and video.

#### Boarding operations

Installing the MMCU onto a boarding craft provides a reliable communications backbone between your boarding party and the platform vessel. Wave Relay propagates throughout the pathways of a ship's interior better than any other radio system, making it ideal for VBSS and ship-boarding operations.

#### Boarder security

Protect your assets with the MMCU rapid deployment radio. Designed for static deployments, strategically positioned MMCU nodes provide round-the-clock coverage.

## A reliable strategic reach-back

The MMCU is designed to provide a dependable, resilient strategic reach-back solution from a tactical RHIB or team boat to a platform vessel. It also serves to provide a central communications relay for any maritime intercom system. No more hand signals!

Equip your team with Wave Relay MPU5 radios and use the MMCU as the comms reference point through which reach back communication can be transmitted and received.

## Simple pole clamp design

The MMCU features a simple adjustable pole clasp design for mounting on masts of varying size.

This two-piece solution positions either side of the mast, securely clamping the MMCU to any suitable mounting pole.



## Salt water protection

Salt water is harmful to electronics. As salt water comes into contact with electronic circuitry that isn't designed for such an environment, it will corrode any protection applied to those circuits. Electrical connections will corrode and result in faulty equipment.

The MMCU has been specifically designed from the ground up to operate in a maritime environment.

Anti-corrosive connectors and specialized marine paint ensure that the MMCU can withstand prolonged use in a salt-water environment.

## Tamper protection

Protect your unmanned asset and your network from unwanted connections. A single IP-rated connection provides power and Ethernet over a single cable, providing an additional layer of security.

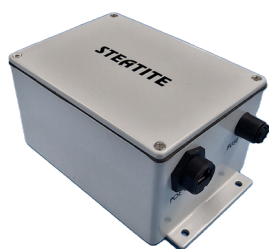
Connecting an illegitimate piece of equipment to your MMCU means disconnecting the power, ensuring unauthorized access to your MANET network is impossible.

In the event that an attempt is made to connect an unauthorized piece of equipment to the MMCU, the power must be disconnected.



# Specifications

<b>Supported Data Rate</b>	Up to 100+ Mbps.	<b>External Connectors (I/O)</b>	1 x Power / Ethernet ODU connector. 1 x RS232 Serial ODU connector. 1 x USB ODU connector. 1 x TNC video connector. 3 x N-Type radio chain connectors. 1 x SMA GPS connector.
<b>Waveform</b>	Advanced Wave Relay® multicast algorithms. Seamless layer 2 network connectivity. Cloud Relay™. DLEP certified. IPv4 and IPv6 compatible. Integrated DHCP server.	<b>Dimensions</b>	<b>Without sunshield:</b> (W) 183 mm x (H) 183 mm x (D) 58 mm.  <b>With sunshield:</b> (W) 183 mm x (H) 183 mm x (D) 74.2 mm.
<b>GPS - Built In</b>	3.3V Active. Situational awareness. Cursor-on-target compliant. 1 second updates ( <b>Can also be set to Dynamic</b> ).	<b>Weight</b>	1.9kg.
<b>Security Encryption</b>	CTR-AES-256 encryption. HMAC-SHA-256 authentication & integrity. Integrated hardware cryptographic acceleration. Utilises suite-B algorithms. Cryptographically authenticated over-the-air rekey and key zero. FIPS 140-2 level 2. Rechargeable 30 day hold up for keys and configuration settings.	<b>Supported RF Modules</b>	Interchangeable frequency module ( <b>Ordered separately</b> ).  Higher Power L-Band: <b>1350 - 1390 MHz**</b> High Power S-Band: <b>2200 - 2507MHz**</b> Lower C-Band: <b>4400 - 5000MHz</b> Upper C-Band: <b>5000 - 6000MHz</b>  10W Transmit power** ( <b>3.3W Per RF Chain</b> ).
<b>3 x 3 MIMO Technology (RF Module Dependant)</b>	Extended range. 100+ Mbps of throughput. Maximal ratio combining. Spatial multiplexing. Antenna detection.	<b>Configurable Bandwidth</b>	5MHz, 10MHz & 20MHz TX/RX ( <b>RF Module Dependant</b> ).
<b>Modular Radio (RF Module Dependant)</b>	RF modulations: OFDM ( <b>64-QAM, 16-QAM, QPSK, BPSK</b> ). Swappable radio modules / radio boards. Software configurable bandwidths ( <b>5 MHz, 10 MHz &amp; 20 MHz</b> ). TX/RX operating modes ( <b>All modes from SISO to 3x3 MIMO</b> ).	<b>Environmental Protection</b>	<b>IP Rating:</b> IP66 ( <b>Tested</b> ).  <b>Designed to meet:</b> Mil-Std-810G ( <b>altitude, temperature, humidity, salt mist, vibration, mechanical shock</b> ).  <b>Tested to:</b> CE. Mil Std 461G ( <b>RE102</b> ). Def Stan 00-35 Environmental.  <b>Temperature:</b> -20°C to +70°C ( <b>up to 95% RH</b> ) Storage temperature. -20°C to +50°C ( <b>up to 95% RH</b> ) Operating temperature.
<b>Input Power</b>	8-28 VDC.		
<b>Mounting</b>	Pole / Wall.		



## PoE Injector

Part Code	Description
100440-0-000	Steatite MMCU DC PoE Injector which Powers the MMCU.



## Wall Mount Plate

Part Code	Description
100343-1-301-01	Steatite MMCU Wall Mount Plate, sits between the MMCU and a pole mount.

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Technical specifications are subject to change without notice.

