Embedded Module

Join the Wave Relay® Ecosystem

The Embedded Module is the most advanced, scalable, and efficient Mobile Ad Hoc Networking (MANET) device in the world, available in an integration-ready, SWaP-timized form factor. Integrate the Embedded Module into your products to unite UAVs, UGVs, and sensors on a single network. Because the Embedded Module features an HD video encoder and onboard Android™ computer, eliminate redundant equipment from your platform. The Embedded Module is compatible with Persistent System’s full line of Interchangeable Frequency Modules, allowing you to change frequencies to ensure compliance, future-proof your design, and protect your product from obsolescence.

Transform Your Systems into Network Devices

- Designed for integration into disparate unmanned systems and sensors
- Communicate further and faster than ever before
- Communication, computing, and video encoding all in a single device

SWaP-timize Your Unmanned Systems

- Consolidate your computing, video encoding, communications, and networking hardware
- Focus on what matters most: the mission, time on station, and payloads
- Streamlined integration

Achieve the Vision

- Bring your unmanned platform into the Wave Relay® Ecosystem
- MPU5 users can now operate your platforms, watch your video feeds, and steer your cameras
- Take your unmanned systems to the next level by adding swarming, autonomy, and collaborative capabilities
## SPECIFICATIONS

### Physical
- **Weight**: 3.38 oz. (average)
- **Main Board Dimensions**: 2.00 x 3.29 x 0.59 in.

### Power
- **Input**: 8 - 30 VDC
- **Power Consumption**: 0.3A & 12V

### Environmental
- **Operating Temperature**: -40°C to +85°C
- **Emissions**: RE102, MIL-STD-810G
- **Vibration**: High Temperature (operational)
- **High Altitude**: (operational)

### I/O
- **Interfaces**:
  - GPS
  - HDMI In
  - 3G-SDI/Composite In
  - Control (Sleep, GPIO, Zeroize, 1PPS, GND)
  - RS-232 Serial
  - USB OTG
  - Ethernet
  - Audio In (Mic)
  - Audio Out (Speaker)

### Video
- **Video Input**:
  - 3G-SDI
  - Composite
  - HDMI
- **Video Compression**:
  - H.264 Encoding and Decoding
  - Native Scaling
- **Bit Rates**:
  - 500 Kbps - 20 Mbps
- **Frame Rates**:
  - 6/10/15/24/29.97/30/59.94/60 fps
  - 59.94/60 fps not available at 1080p
- **Resolutions**:
  - 240p
  - SD 480
  - SD 576 PAL
  - 720p
  - 1080p
- **Network Protocols**:
  - UDP Multicast & Unicast (MPEG-2 Transport Stream)
  - RTP Multicast & Unicast

### Security
- **Crypto Modes**:
  - CTR-AES-256 Encryption
  - SHA-256 HMAC
- **Hardware**:
  - Cryptographic Acceleration
  - Suite-B Algorithms

### Networking
- **Cloud Relay™ compatible**
- **Advanced multicast algorithms**
- **IPv4 and IPv6**
- **Integrated DHCP server**

### RAM
- **2GB**

### Storage
- **128GB Flash**

### Networking
- **Ethernet**
  - 10/100 Mbps
  - Integrated serial-to-Ethernet
  - Integration and Extension
  - Seamless layer 2 network

### Protocols
- **Android™ Computer**
  - Operating System: Android™
  - Processor: 1 GHz Quad Core ARM

### Resolutions
- 240p
- SD 480
- SD 576 PAL
- 720p
- 1080p

### Security
- **Peer-to-Peer**
  - No Master Node
  - Node Entry Time
    - <1 sec.
  - Max. Number of Hops
    - No Limit
  - Max. Number of Nodes
    - No Limit
  - Max. Distance between Nodes
    - 130 mi

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