

# NETNode2x5W-5RM

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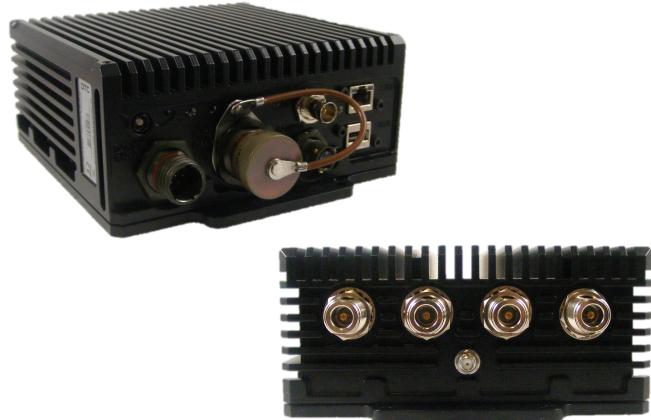
## NETNode IP Mesh Radio 2x5W Robust Mobile

### Overview:

Phase 5 is the latest generation of DTC's NETNode IP Mesh Radio family offering built-in dual HD video encoders and MIMO capability for our highest ever data capacities. IP radios can be combined in a fluid self-forming, self-healing mesh network containing up to 144 nodes depending on operating mode.

The NETNode 5RM 5W variant provides up to 10W total RF power output over two transmit ports. The 5RM is ideal for extended outdoor deployment and feature rich with built in GPS receiver and both composite and SDI video inputs.

Interoperable with DTC's Phase 3 and 4 Mesh allowing simple upgrade in the field, the NETNode-5RM adds flexibility and ease of use as nodes can be integrated into existing infrastructure, reducing cost and making it easy to expand any network.



### Features and Benefits:

- 2x5W RF transmitters (up to 10W total)
- Self-forming, self-healing mesh architecture
- Ideal for use for wide area coverage & multi-hop, mobile applications such as robotics
- Low latency IP communication
- Data capacity up to 90Mbps in 20MHz channel bandwidth
- Built-in composite video encoder
- Built-in GPS receiver
- Software configurable RF bandwidth between 1.25MHz and 20MHz
- Interlink mode for enhanced capability and large scale systems
- 64Gb of on-board storage with store & forward functionality
- Optional AES128/256 encryption (accredited to FIPS140-2 for MeshUltra™ waveforms)
- Mission Commander compatible

### Product Information:

#### Product Codes

NETNode2x5W-5RM -xxxxx	IP Mesh Radio Robust Mobile 2x5W
NETNode2x5W-5RM -xxxxx-NAN	IP Mesh Radio Robust Mobile 2x5W no composite video input
NETNode2x5W-5RM -198255-NAN-NC	IP Mesh Radio Robust Mobile 2x5W, 1.98-2.55GHz no composite video input, no supplied cables

xxxxx denotes frequency (see over)

#### Product Includes

CA2585	Microphone/headphone and control/debug screened cable 1m
CA3229	Screened power/Ethernet cable 5m
CA3256	Short bananas to XLR power cable 250mm

#### Accessory Options (sold separately)

AP009562	Antenna GPS/GLONASS, 1.575-1.6GHz, SMA
CA2534	N-type (m) to N-type (m) RF cable, 1500mm
CA3802	N-type (m) to N-type (f) RF cable, 1500mm
CA0649	12VDC power supply unit for use with CA3229
AP009259	IP55 water resistant enclosure for use with CA0649
CA3254	5m XLR to XLR extension for use with CA3229
CA3255	10m XLR to XLR extension for use with CA3229
CA3259	Video input and DC power output cable
CA3606	Microphone/headphone and RS232/RS485 data cable
MW4045	Pelicase to house NETNode2x5W-5RM kit (contact DTC)
NETR-5W-MB	NETNode Robust 5W mounting bracket and antenna spacers
SOL8SDI	HDMI or composite video to SDI converter

# NETNode2x5W-5RM

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## NETNode IP Mesh Radio 2x5W Robust Mobile

### Technical Specification:

#### Interfaces

COFDM RF interfaces	N-Type x 4 female (2 x Tx/Rx, 2 x Rx)
GPS antenna interface	SMA female
Power and Ethernet (Eth0)	6-way Amphenol 38999 series 3
Ethernet (Eth1)	RJ45
Config & data	22-way Amphenol 38999 series 3
Camera video & power	4-way Amphenol 62GB
SDI/HD-SDI	BNC female 75Ω
USB	Type A

#### IP Interface

Primary and secondary Ethernet	100/1000Base-T
IP address allocation	DHCP dynamic IP addressing/static IP

#### RF Interfaces

Antenna A	Channel 1 receive only
Antenna B	Channel 1 switched transmit/receive
Antenna C	Channel 2 receive only
Antenna D	Channel 2 switched transmit/receive

#### RF and Modulation

Output frequency	Frequency variant dependent
Tuning step size	125kHz step
Output power	+37dBm per channel in 0.25dB step (10W total)
Bandwidth in MHz (dependent on operating mode)	1.25, 1.5, 1.75, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 7.0, 8.0, 10.0, 12.0, 14.0, 16.0, 20.0
Mesh capacity	Up to 87Mbps MIMO, 17Mbps standard Mesh
Modulation	COFDM 360 carrier modulation
Carrier modulation	BPSK/QPSK/16QAM/64QAM (adaptive)
FEC rate	FEC1/2, FEC2/3 (adaptive)
Receive diversity	Maximum ratio combining
Receive sensitivity	-98dBm (BW 2.5MHz/QPSK 1/2)

#### Typical Range

NLOS light urban	2200m †
LOS (e.g. ground to air)	170km †

† Dependent on antenna height and gain

#### Streaming

Format	UDP multicast/unicast RTSP/RTP/UDP multicast/unicast ONVIF Profile S
MJPEG	TCP/HTTP

#### Video

Video input	Two video streams Max total throughput of 1920x1080p30 Currently both video input resolutions must be identical
SDI input formats	1920x1080i 60/59.94/50Hz 1920x1080p 30/29.97/25/24/23.97Hz 1920x1080psf 30/29.97/25/24/23.97Hz 1280x720p 60/59.94/50Hz 720x576i 50Hz or 720x480i 59.94Hz
Composite input formats	PAL NTSC
H.264 compression	AVC / H.264 / MPEG-4 Part 10 High profile level 4.0
Coding options	Horizontal scaling of 3/4, 2/3, 1/2, 1/4 Vertical scaling of 1/2, 1/4 Sub-frame rate of 1/2, 1/4, 1/8, 1/24
Encoder delay	1s to 10ms (mode dependent)
Encoder bitrates	0.25Mbps to 32Mbps

#### Audio

Talkback audio input	High gain microphone stereo pair or talkback
Digital audio input	SD/HD-SDI digital stereo pair
Sample rate	16kHz-48kHz
Coding modes	4 channels stereo or mono MPEG Audio Layer 1 64-448kbps MPEG Audio Layer 2 32-384kbps MPEG Audio Layer 3 8-256kbps

#### Store and Forward Options

Storage format	SD card interface (Secure Digital card) - not user accessible
Record options	Continuous or triggered (Milestone)
Files download	From web browser interface/RTSP
Video and audio clip size	30 seconds

#### Encryption

Standard	DES
Licensed	AES128/256 (subject to export control)

#### Open Audio Comms Channel (shared voice channel)

Multi-user audio comms channel	Microphone level/headphone interface
Compression	G726 32kbit audio 8kHz sampling and mute

#### GPS

Built in GPS receiver	Garmin GPS-15xH-W
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## NETNode IP Mesh Radio 2x5W Robust Mobile

### Technical Specification (cont.):

#### Data Interface

RS232/RS485 bi-directional data (shared with user camera control)	1k2 to 115k2 baud switchable with UDP and TCP routing protocol
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#### Environment

Sealing	IP66 minimum
Temperature range	-20°C to +50°C

#### Camera Interface

User camera type	One HD-SDI or SD-SDI One PAL or NTSC
User camera control	Mission Commander PC application using VISCA, PELCOD or PELCOP User supplied desk controller (requires RS232/RS485 interface)

#### Frequency

120170	1.20-1.70GHz
165230	1.65-2.30GHz
198255	1.98-2.55GHz
440500	4.40-5.00GHz

#### Triggers

Trigger source	Video motion detection Brightness
Trigger action	Enable Mesh Record

#### Software License Code

Silver (included)	SIMO Mesh, MIMO Mesh, Multi Mesh, Ultra-Low Bandwidth, Recording, Streaming, DES Encryption
Gold	Silver plus SD H.264 Encoder, Interference Avoidance
Platinum	Gold plus HD H.264 Encoder, Low Bitrate Encoding, Point to Multipoint, Ranging
IAS-NETNode2x5W-5RM	Interference Avoidance Scheme
L2BRIDGE-NETNode2x5W-5RM	Transparent L2 Bridging Mode
LOWBIT-NETNode2x5W-5RM	Low Bitrate Video Encoding
P2MP-NETNode2x5W-5RM	Point-to-Multipoint
SNAPSHOTS-NETNode2x5W-5RM	Triggered JPEG stills with timestamps
#AES128	AES128 Cryptography Licence
#AES256	AES256 & AES128 Cryptography Licence

# Accredited to FIPS140-2 for MeshUltra™ waveforms

#### Control

Local control	LEDs power and Mesh status
Remote control	Web user interface Mission Commander

#### Power

DC input (12V)	10-18V
Power consumed (non-MIMO)	30W (at max data rate)
Power consumed (MIMO)	60W (at max data rate)

#### Physical

Dimensions	H 160mm, W 160mm, D 70mm
Weight	2.5kg approx.
Mounting options base unit	Tripod mount and through hole screws
Mounting options adaption plate	Post mounting kit

Encrypted products are subject to regulatory export controls

For further information contact your Sales Account Manager, one of our Regional Sales Offices, or email [solent.info@domotactical.com](mailto:solent.info@domotactical.com)

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