

NETNode2x2W-5RM

NETNode IP Mesh Radio Phase 5 (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. The NETNode 5RM is a Robust Mobile variant which offers an alternative form factor to its sister, the NETNode Phase 5 Robust, but being smaller allows a wider variety of applications. The 5RM is ideal for extended outdoor deployment and feature rich with new additions including built in GPS receiver and both composite and SDI video inputs comparable to the previous Phase 3 and 4 Robust products. Interoperable with DTC's Phase 3, 4 and 5 Mesh allowing simple upgrade in the field, while adding 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:

Self-forming, self-healing mesh architecture

Ideal for use for wide area coverage & multi-hop, mobile applications such as robotics

Low latency IP communication

HD video encoder - data capacity of greater than 32Mbps of IP data possible

Built in composite video encoder

Built in GPS receiver

Software configurable RF bandwidth between 1.25MHz and 10MHz

Interlink mode for enhanced capability and large scale systems

64Gb of on-board storage with store & forward functionality

Built in encryption (DES as standard, AES128/256 available subject to export control)

Mission Commander compatible

Product information:

Product Includes

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

Accessory Options (sold separately)

CA0649	12VDC power supply unit for use with CA3229
AP000481	UK IEC power supply cable for use with CA0649
AP001483	US IEC power supply cable for use with CA0649
AP004634	EU IEC power supply cable for use with CA0649
AP007192	AU IEC power supply cable for use with CA0649
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
NETPMK-3R	NETNode Robust post mounting kit
MISCDRTAC	Mission Commander Tactical software control application
SOL8SDI	HDMI or composite video to SDI converter

Related Documents

High Bandwidth Mesh – P5	Phase 4 and 5 Mesh Comparison
Resource ID 100232	NETNode Phase 5 Hardware Guide

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Technical Specification:

Interfaces

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

Typical Range

NLOS light urban	1400m †
LOS (e.g. ground to air)	106km †

† Dependent on antenna height and gain

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 dependant
Tuning step size	125kHz step
Output power	+33dBm per channel in 0.25dB step (4W total)
Bandwidth	1.25, 1.5, 1.75, 2.5, 3.0, 3.5, 5.0, 6.0, 7.0, 8.0, 10.0MHz
Mesh capacity	Up to 32Mbps MIMO, 17Mbps standard Mesh
Modulation	COFDM 360 carrier modulation
Carrier modulation	BPSK/QPSK/16QAM (adaptive)
FEC rate	FEC1/2, FEC2/3 (adaptive)
Receive diversity	Maximum ratio combining
Receive sensitivity	-98dBm (BW 2.5MHz / BPSK ½)

IP Interface

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

Streaming

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

Video

Video input	2 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 dependant)
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

Type	DES as standard, AES128 or AES256 (both optional)
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Technical Specification (con't):

Open Audio Comms Channel (shared voice channel)

Multi-user audio comms channel	Interface microphone level/headphone o/p
Compression	G726 32kbit audio 8kHz sampling and mute

GPS

Built in GPS receiver	Garmin GPS-15xH-W
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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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Camera Interface

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

Triggers*

Trigger source	User pre-set time trigger* Video motion detection* Audio level*
Trigger action	Start to transmit (silence mode) Activate video stream Activate audio stream Move camera to pre-set position Activate local store feature

Control

Local control	LEDs power and Mesh status
Remote control	Mission Commander PC application full control of all parameters in a map based application Web browser control

Physical

Sealing	IP66 minimum
Dimensions	H 160mm, W 160mm, D 70mm
Mounting options base unit	Tripod mount and through hole screws
Mounting options adaption plate	Post mounting kit
Weight	<2.0kg

Power

DC input (12V)	10-18V
Power consumed (non-MIMO)	12W approx.
Power consumed (MIMO)	25W (40W pk) approx.

Environment

Temperature range	-10 to +50°C
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Frequencies

032047*	320-470MHz
120170	1.20-1.70GHz
165240*	1.65-2.40GHz
198255	1.98-2.55GHz
440500*	4.40-5.00GHz

Software License Code

Silver (included)	Standard Mesh, MIMO Mesh, DES Encryption, Recording and Streaming
Gold	Silver plus SD H.264 Encoder
Platinum	Gold plus HD H.264 Encoder
AES128NN	AES NETNode 128 bit decryption
AES256NN	AES NETNode 256 bit decryption

* Future development

Export of encrypted products is subject to United Kingdom regulatory export controls.

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