

IP MESH

NETNode2x2W-5RM -175500T



Phase 5 is the latest generation of DTC's NETNode IP Mesh Radio family, offering built-in dual HD video encoders and MIMO capability, providing our highest ever data capacities and maximum frequency flexibility. The latest tri-band product offers increased frequency agility with support for high L-band, S-band and C-band, provided by one physical unit.

IP radios can be combined in a fluid self-forming, self-healing mesh network containing up to 144 nodes depending on operating mode. The tri-band radios exchange bidirectional IP data in a single RF channel, or can utilise different frequency channels for the uplink and downlink traffic, thereby, simplifying frequency management in a complex network.

The entire mesh can operate in bandwidths from 1.25MHz to 20MHz, employing DTC's unique COFDM modulation scheme. Multiple Input Multiple Output (MIMO) technology transmits two signals in the same channel, almost doubling the available data capacity, can also be configured in standard Mesh.

KEY FEATURES

- Self-forming, self-healing Mesh architecture
- Ideal for use for wide area coverage & multi-hop, mobile applications such as robotics and city wide infrastructure
- Tri-band capability in L-band (1.7-1.85GHz), S-band (2.2- 2.5GHz) and C-band (4.4-4.9GHz)
- 4G IP connectivity for additional backhaul offering beyond mesh
- Low latency IP communication
- Data capacity up to 90Mbps in 20MHz channel bandwidth
- Composite video encoder with 12V external power
- GPS receiver (antenna required)
- Configurable RF bandwidth from 1.25MHz to 20MHz
- 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 subject to export control)
- Mission Commander compatibility

PRODUCT INFORMATION

NETNode2x2W-5RM -175500T	IP Mesh Phase 5 Robust Mobile L/S/C Triband 2x2W
NETNode2x2W-5RM -175500T-NAN	IP Mesh Phase 5 Robust Mobile L/S/C Triband 2x2W no composite video input

PRODUCT INCLUDES

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

ACCESSORY OPTIONS (SOLD SEPARATELY)

AP000481	UK IEC power supply cable for use with CA0649	CA3259	Video input and DC power output cable
AP001483	US IEC power supply cable for use with CA0649	CA3606	Mic/headphone and RS232/RS485 data cable
AP004634	EU IEC power supply cable for use with CA0649	MW4044	Pelicanase to house NETNode2x2W-5RMT kit (contact DTC)
AP007192	AU IEC power supply cable for use with CA0649	*MISCDRTAC	Mission Commander Tactical application for desktop or tablet
AP009259	IP55 water resistant enclosure for use with CA0649	*MCS	Mission Commander Strategic advanced client/server application
AP009562	Antenna GPS/GLONASS, 1.575-1.6GHz, SMA	NETR-MB	NETNode Robust mounting bracket kit
CA0649	12VDC power supply unit for use with CA3229	SOL8SDI	HDMI or composite video to SDI converter
CA3254	5m XLR to XLR extension for use with CA3229		
CA3255	10m XLR to XLR extension for use with CA3229		

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TECHNICAL SPECIFICATIONS

IO

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

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

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 (video and IP Mesh) 12.0, 14.0, 16.0, 20.0MHz (IP Mesh only)
Mesh Capacity	Up to 87Mbps MIMO, 17Mbps standard Mesh
Modulation	COFDM 360 carrier modulation
Carrier Modulation	BPSK/QPSK/16QAM/64QAM (adaptive)
FEC rate	FEC 1/2, FEC 2/3 (adaptive)
Receive diversity	Maximum ratio combining
Receive sensitivity	-98dBm (BW 2.5MHz / QPSK 1/2)

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

DIGITAL AUDIO

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

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OPEN AUDIO COMMS CHANNEL (SHARED VOICED CHANNEL)

Talkback audio input	High gain microphone stereo pair or talkback
Multi-user audio comms channel	Interface microphone level/headphone o/p
Compression	G726 32kbit audio 8kHz sampling and mute

POWER

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

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

PHYSICAL

Sealing	IP66 minimum
Dimensions	H 160mm, W 160mm, D 70mm
Weight	2.5kg approx.
Mounting options base unit	Through hole screws
Mounting options base plate	Post mounting kit

ENCRYPTION

Standard	DES
Licensed	AES128/AES256 (subject to export control)

ENVIRONMENT

Temperature range	-10°C to +50°C
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GPS

Built in GPS receiver	Garmin GPS-15xH-W
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FREQUENCIES

175500	L-band (1.70-1.85GHz), S-band (2.20-2.50GHz), C-band (4.40-4.90GHz)
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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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TRIGGERS

Trigger source	Video motion detection Brightness
Trigger action	Enable Mesh Record

CONTROL

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

SOFTWARE LICENSE CODE

Silver (included)	Standard Mesh, MIMO/SIMO Mesh, DES encryption, recording and streaming
Gold	Silver plus SD H.264 encoder
Platinum	Gold plus HD H.264 encoder
IAS-NETNode2x2W-5RMT	Interference Avoidance Scheme
L2BRIDGE-NETNode2x2W-5RMT	Transparent Layer 2 Bridging Mode
AES128NN	AES 128-Bit Encryption
AES256NN	AES 256-Bit and 128-Bit Encryption