

# NETNode2x2W-5R

## NETNode IP Mesh Radio Phase 5 (Robust)

### 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.

NETNode IP radios can be combined in a fluid self-forming, self-healing mesh network containing up to 20 nodes. The radios exchange bidirectional IP data in a single RF channel, simplifying frequency management. The entire mesh can operate in a bandwidth between 1.25MHz and 20MHz and employs DTC's unique COFDM modulation scheme offering excellent RF penetration and performance in the presence of multipath. Multiple Input Multiple Output (MIMO) technology transmits two signals in the same channel almost doubling the available data capacity.

The Robust variant is ideal for extended outdoor deployment in harsh environments and features Power over Ethernet (PoE) for increased flexibility and ease of installation.

### 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

Dual HD video encoders

Data capacity of 87Mb/s of IP data possible

Mission Commander compatible

Software configurable RF bandwidth between 1.25MHz and 20MHz

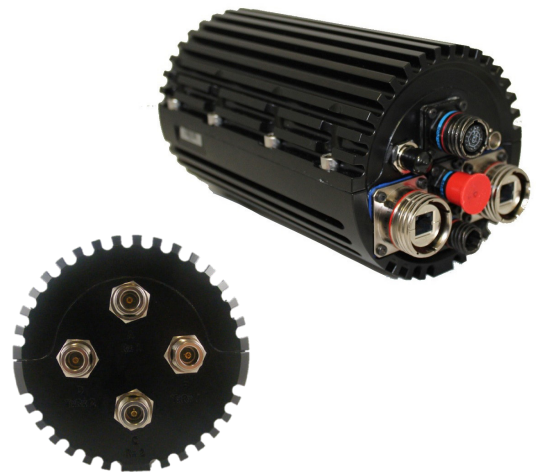
IP backhaul/central receive systems

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)

Power over Ethernet (PoE)



### Product Information:

#### Product Includes

AP008896	Ubiquiti PoE power adapter POE-50-60W - 50V 1.2A (airFiber) with EU and UK AC leads
AP008898 x 2	Cat6 Ethernet cable, 2m straight through
AP008899 x 2	Amphenol RJ45 plug connector gland CAT6
AP004627	US cloverleaf power cable

#### Accessory Options (sold separately)

AP006819	Cavity filter, 2305-2395MHz (Wi-MaxFilter)
AP009178	Pelicase to house NETNode2x2W-5R kit**
CA3146	Phase 5 Rugged 12V power cable 5m CGMSS type
CA3163	Phase 5 Rugged 48V power cable 5m CGMSS type
CA2585	Mic/head audio and control/debug screened cable
CA3185	GPS and talkback cable
MISCDRTAC	Mission Commander Tactical application for desktop or tablet - refer to datasheet
MCS	Mission Commander Strategic advanced client/server application - refer to datasheet
NETR-MB	NETNode Robust mounting bracket
SOL8SDI	HDMI or composite video to SDI converter

\*\* Please contact DTC for more information

#### Related Documents

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

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### Technical Specification:

#### Interfaces

RF interfaces	N-Type x 4 (2 x Tx/Rx, 2 x Rx)
10-18V DC input	6-way Amphenol 38999 series 3
20-52V DC input	3-way Amphenol 38999 series 3
Ethernet 1	RJ45 Amphenol RJ field Cat 6 series
Ethernet 2	RJ45 Amphenol RJ field Cat 6 series
SDI/HD-SDI input 1	BNC 75Ω female
SDI/HD-SDI input 2	BNC 75Ω female
Config & data	22-way Amphenol 38999 series 3

#### IP Interface

Primary and secondary Ethernet	100/1000Base-T (with optional POE)
IP address allocation	DHCP dynamic IP addressing/static IP

#### Data Interface

RS232/RS485 data input (shared with user camera control)	1K2 to 115K2 baud switchable with UDP and TCP routing protocol
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#### 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	+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	FEC1/2, FEC2/3 (adaptive)
Receive diversity	Maximum ratio combining
Receive sensitivity	-98dBm (BW 2.5MHz/BPSK 1/2)

#### Typical Range

NLOS light urban	800-1400m typ.
LOS (e.g. ground to air)	50km+

#### 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 Two HD inputs at half resolution or frame rate
Input format	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
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

Analogue audio input	High gain microphone stereo pair
Digital audio input	SD/HD-SDI 2 digital stereo pairs
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) 64GB SD card built in
Record options	Continuous or triggered (Milestone)
Files download	From web browser interface/RTSP
Video and audio clip size	30 seconds

#### Encryption

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

#### GPS

Dedicated GPS interface	RS232/RS485
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### Technical Specification (con't):

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

Multi-user audio comms channel	Interface microphone level/headphone output
Compression	G.726 32kbit audio 8kHz sampling and mute

#### PTZ Camera Interface

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

#### 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

#### Environment

Temperature range	-20°C to +50°C
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#### Power

DC input (12V)	10-18V
DC input (48V)	20-52V
PoE x 2	50V (nominal) adapter dependent.
Power consumed (non-MIMO)	12W approx.
Power consumed (MIMO)	25W (40W pk) approx.

#### Physical

Sealing	IP66 minimum
Dimensions	H 125mm, W 125mm, D 205mm (245mm including connectors)
Mounting options base unit	Post mounting bracket available
Weight	3.46kg

#### Frequency

032047	320-470MHz
120170	1.20-1.70GHz
165240	1.65-2.40GHz
198255	1.98-2.55GHz
300370*	3.00-3.70GHz
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 regulatory export controls.

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

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