November 2017

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-heading Mesh network containing up to 16 nodes. The radios exchange bidirectional IP data in a single RF channel, simplifying frequency management. The entire Mesh can operate in a bandwidth between 1.25 and 10MHz 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 32Mb/s of IP data possible
- Mission Commander compatible
- Software configurable RF bandwidth between 1.25MHz and 10MHz
- 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	Cat6 Ethernet cable, 2m straight through (2 off)
AP008899	Amphenol RJ45 plug connector gland CAT6, black zinc (2 off)
AP004627	US cloverleaf power cable

Accessory Options (sold separately)

AP006819	S band 3G cavity filter
CA3146	Phase 5 Rugged 12V power cable 5m CGMSS type
CA3163	Phase 5 Rugged 48V power cable 5m CGMSS type
CA2585	Microphone/headphone and control/debug screened cable 1m
MISCDRTAC	Mission Commander Tactical software control application
NETPMK-5R	NETNode post mounting kit, Robust (Phase 5)
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

RF interfaces	N-Types (2 x Tx/Rx, 2 x Rx)
12-18V DC input	Amphenol 38999 series 3 (6-way)
18-48V DC input	Amphenol 38999 series 3 (3-way)
Ethernet 1	RJ45 Amphenol RJ field Cat 6 series
Ethernet 2	RJ45 Amphenol RJ field Cat 6 series
SDI/HD-SDI input 1	BNC (female 75Ω)
SDI/HD-SDI input 2	BNC (female 75Ω)
Config & data	Amphenol 38999 series 3 (22-way)

Typical Range

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

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 1/2)

IP Interface

Primary and secondary Ethernet electrical	100Base-T Ethernet (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

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 dependant)
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

Type	AES128 or AES256 (both optional)

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Technical Specification (con't):

GPS

Dedicated GPS interface	RS232/RS485

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 (with AVI fitted)

User camera type	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	Third party equipment remote trigger (e.g. PIR etc.) 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 125mm, W 125mm, D 205 (245) mm (including connectors)
Mounting options base unit	Post mounting bracket available
Weight	3.46kg

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.

Environment

Temperature range	-10 to 50°C

Frequency

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

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

*Future development

For further information contact your Sales Account Manager, one of our Regional Sales Offices, or email solent.enquiries@domotactical.com

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