

# NETNode IP Mesh Radio (Robust)

COFDM – Video, Audio Telemetry and IP Products

**COBHAM**

October 2011 Data Sheet

The most important thing we build is trust



Cobham NETNode IP mesh radios are the latest innovations in the expanding range of Cobham Tactical Communications and Surveillance solutions improving surveillance connectivity.

NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to eight radios. The NETNode radios within the mesh exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5MHz of bandwidth (3.0, 3.5 and 5.0MHz also available). The NETNode radios employ the unique Cobham COFDM modulation scheme and therefore offer excellent RF penetration and performance in the presence of multipath.

The NETNode mesh radios can provide up to 5.0Mb/s of IP data (data rate depends on mode, number of nodes and range between nodes). This available bit-rate can be used to exchange IP data traffic between nodes. The highly flexible mesh topology means that data can be exchanged between nodes in a point-to-point or multi-point fashion; range can be extended by using nodes as repeaters. The self-forming, self-healing mesh architecture makes the NETNode product ideal for use in mobile surveillance applications, command and control applications, or advanced robotics.

The NETNode can be connected to third party composite cameras using the NETAV option. Two PTZ control channels are available to enable control of third party PTZ cameras. Alternatively, there are two dedicated PTZ camera solutions available for direct connection to the NETNode: CAMPTZ\* is a high performance, high quality day/night PTZ camera for long range and overt surveillance; CAMuPT is a miniature pan and tilt camera suitable for up-close surveillance. The CAMuPT and CAMPTZ\* options require the NETAV option to be fitted. Third party IP cameras can also be directly connected to the NETNode.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption.

Control of the deployed mesh is achieved using the inbuilt web browser or comprehensive Mission Commander PC application. This software suite, based around a mapping display, is used to configure and monitor the mesh and wider Cobham Surveillance systems, and to control its nodes and cameras. Video can be viewed on the PC device using the Mission Commander software and recorded using Milestone Compatible recorders.

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## Specification:

### Interfaces

RF Interfaces (Antenna 1 and 2)	N-Type
Power and Ethernet	Amphenol 38999 Series 3
Control and misc I/O	Amphenol 38999 Series 3
Camera (A/V)	Amphenol 38999 Series 3

### Typical range

NETNode-R-217250 (1W)	Non Line of Sight Light urban 500-700m Line of Sight 40km+
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### RF Interfaces

Antenna 1	Switched transmit receive antenna
Antenna 2	Receive only antenna

### RF and modulation

Output frequency	220 to 240MHz, 340 to 470MHz, 1150 to 1400MHz, 1650 to 2380MHz*, 2170 to 2500MHz, 4400 to 5000MHz, or 5500 to 6000MHz*
Tuning step size	125kHz step
Output power	+30 to 10dBm in 0.25dB steps C-band 1W +/- 3dB
Bandwidth	2.5, 3.0, 3.5, 5.0MHz
Mesh capacity	Up to 5.0Mb/s
Modulation	COFDM 360 carrier modulation
Carrier Modulation	QPSK/16QAM (adaptive)
FEC rate	FEC1/2
Receive diversity	Maximum Ratio Combining
Receive sensitivity	-98dBm for most robust mode

### IP interface

Primary and secondary ethernet electrical	100BaseT Ethernet
IP address allocation	DHCP dynamic IP addressing/Static IP
Video and audio streaming format	Multicast VLC compatible RTSP Support

### A/V input option

Video input	Composite or SDI (selectable)
Video format	525 or 625 (PAL or NTSC)
Video encoding	MPEG4
Quality	User selectable quality level
Video bit-rate	2.4Mb/s to 50kb/s (variable)
Resolution (Resolution)	704, 576, 480, 352 or SIF (1/4)
Frame rate	Self selecting 30 to 2F/s
Audio input	Line level or microphone level
Audio sample frequency	48KHz
Audio encoding	MPEG audio layer 1
Audio bit-rate	384 to 64kb/s

### Store and Forward options\*

Storage format	SD card interface (Secure Digital card)
Record options	Continuous or triggered (Milestone)
Files download	From web browser interface/RTSP
Video and audio clip size	30 seconds

### Open Audio comms channel (shared voice channel)

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

### Encryption

Type	AES128 or AES256 (both optional)
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### GPS

Dedicated GPS interface	RS232/RS485
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### 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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### PTZ camera interface (with AVI fitted)

User camera type	PAL or NTSC
User camera control	From Mesh Commander PC application using VISCA, PELCOD or PELCOP From any user supplied desk controller Requires RS232/RS485 interface
NETNode camera options	CAMPtz long range Pan Tilt Zoom CAMuPT short range Pan Tilt

### Triggers\*

Trigger source (PIR, etc)	Third party equipment remote trigger (e.g., User pre-set time trigger  Video motion detection (NETAV option)* Audio level*
Trigger action	Start to transmit (silence mode) Activate video stream (NETAV option) Activate audio stream (NETAV option) Move camera to preset 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
Dimensions	H 180mm, W 180mm, D 65mm
Mounting options base unit	Tripod mount and through hole screws
Mounting options adaptation plate	Pole mounting kit
Weight	1.80kg

### Power

DC input	12-14V
Power consumed 1W	14W

### Environment

Temperature range	-20 to 50 deg C
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## Product Code:

NETNode-R-022024	IP Mesh Node 1W 220-240MHz (excl Ants & PSU12/4)
NETNode-R-034047	IP Mesh Node 1W 340-470MHz (excl Ants & PSU12/4)
NETNode-R-115140	IP Mesh Node 1W 1.15-1.40GHz (excl Ants & PSU12/4)
NETNode-R-165238	IP Mesh Node 1W 1.65-2.38GHz (excl Ants & PSU12/4)
NETNode-R-217250	IP Mesh Node 1W 2.17-2.50GHz (excl Ants & PSU12/4)
NETNode-R-440500	IP Mesh Node 1W 4.40-5.00GHz (excl Ants & PSU12/4)
NETNode-R-550600	IP Mesh Node 1W 4.50-5.00GHz (excl Ants & PSU12/4)

PSU12/4	COFDM IP Mesh Node Robust AC Power supply for robust Mesh node
CAMPTZ*	Pan, Tilt and Zoom camera for NETNode
CAMuPT	Micro Pan and Tilt camera for NETNode
NETIPHW	IP in with either 1, 2 or 4 Video and 2, 4 or 8 Audio Out Decoder
Mission Commander	Control system

## Licensing Options:

AES128NN	Adds 128 bit AES Encryption
AES256NN	Adds 256 bit AES Encryption

Note: AES may be subject to export control

## Product Code Includes:

CA403	Power & Ethernet external cable 5m
CA406	Control & Data external cable 2m
CA589	Headset adaptor cable

## Accessory Options:

NETNode-AVI-UP2R	Composite Video and Audio input for
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\* Starred items in italics will be supported in future releases

For further information please contact:

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