

# RFeye Node

20-6

## Intelligent Wideband Receiver



The original RFeye Node is still the benchmark for cost-effective real-time 24/7 ITU-compliant spectrum monitoring and radio geolocation.

The RFeye Node 20-6 is a complete spectrum monitoring system designed for remote deployment in distributed networks both indoors and outdoors, including in hostile environments. Packaged in a compact, rugged and a weatherproof housing, it has been optimized for size, weight and power (SWaP) and is simple to connect to power and network.

The Node's unique architecture is capable of supporting multiple concurrent tasks and missions, including ITU-compliant measurements. Timing and synchronization features allow correlation of data between multiple Nodes for accurate DF and geolocation of target signals using AOA, TDOA and POA techniques. The Node 20-6 is available with optional on-board SSD for logging of very large data sets.

# RFeye Node

## 20-6 Specifications

### Single channel receiver

Switchable RF inputs 4 x SMA connectors

### Frequency

Range 10 MHz to 6 GHz

### Noise figures at maximum sensitivity

10 MHz to 3 GHz 8 dB typical

3 GHz to 6 GHz 11 dB typical

### Phase noise

Receiver input at 2 GHz -91 dBc/Hz at 20 kHz offset, typ.

### Signal analysis

Instantaneous bandwidth 20 MHz

Tuning resolution 1 Hz

### Internal frequency reference (pre-calibration)

Initial accuracy better than  $\pm 2$  ppm typ.

Stability better than  $\pm 1$  ppm typ.

Ageing better than  $\pm 2$  ppm per year

### Programmable sweep modes

Sweep speed - fast synth 45 GHz/s @ 1.2 MHz RBW

Sweep speed - high quality synth 18 GHz/s @ 1.2 MHz RBW

User programmable modes free run continuous, single timed, user trigger and adaptive

Trigger-on-event modes user defined masks, actions and alarms

### Sampling

Resolution 12 bits per channel (I&Q)

Rate 40 MS/s I&Q

### Third order intercept points with AGC

< 1 GHz +21 dBm typical

1 GHz to 6 GHz +22 dBm typical

### Local oscillator

Re-radiation -90 dBm typical

### Frequency references

Selectable Internal, GPS or external

External input 10 MHz  $\pm 1$  kHz

Output 10 MHz

### Processor sub-system

CPU Marvell 88F6281 @ 1 GHz

Main memory 512 MB DDR2

System disk 512 MB

### I/O

Network 1 x 1 GigE, with PoE

Universal Serial Bus 2 x USB 2.0

2 x IEEE1394 expansion ports 2 x SynLinc, trigger input, external peripheral control

GPS antenna input 1 x SMA passive or active (3.3 VDC)

Cellular modem antenna 1 x SMA

Cellular modem (internal) LTE\*/HSPA+/GSM

\* region variants, consult CRFS (MIMO not supported)

### Data storage

External flash disk via USB interfaces

Optional internal storage 512 GB SSD option

### System software

Boot firmware U-Boot

Operating system Linux, kernel v 2.6

RFeye Node Control Protocol NCP Server (NCPd)

Node Apps (optional) Logger, Recorder, Threshold, Stations, Survey

### Size, weight and power

Dimensions (w, h, d) 170 x 60 x 125 mm (6.7 x 2.4 x 4.9 inches) without IP67 rated end plate

Weight 1.4 kg (3.1 lbs) with IP67 rated end plate or 2 kg (4.4 lbs)

DC power or PoE 10 to 48 VDC

### Power consumption

Typical 15 W

Maximum 25 W

### Environmental

Operating temperature -30 to +55 °C (-22 to 131 °F)

Storage temperature -40 to +70 °C (-40 to 158 °F)

Ingress protection IP67 (with optional end plate)



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