

RFEYE NODE 100-18

INTELLIGENT WIDEBAND RECEIVER

The RFeye Node 100-18 offers class-leading RF performance for advanced capability, real-time spectrum operations or deployment on any spectrum critical site.

The RFeye Node 100-18 offers the capabilities of the Node 100-8 but with extended frequency range up to 18 GHz. Like the other RFeye Nodes in the family, it is a complete spectrum monitoring and geolocation system designed for remote deployment in distributed networks both indoors and outdoors, including in hostile environments. Packaged in a compact, rugged and weatherproof housing, it has been optimized for size, weight and power (SWaP) and is simple to connect to power and network.

The Node 100-18 is characterized by outstanding phase noise, noise figure, channel re-tune time and spurious free dynamic range parameters, well above any other product in its class. Its multi-mission capability allows multiple concurrent measurements and geolocations to be performed and multiple users to connect simultaneously from remote locations.



100-18 SPECIFICATIONS

Single channel receiver

Switchable RF inputs 3 x SMA connectors

Frequency

Range 9 kHz to 18 GHz

Noise figures at maximum sensitivity (typical)

9 kHz to 83 MHz 11 dB

83 MHz to 1 GHz 9 dB

1 GHz to 2.9 GHz 8 dB

2.9 GHz to 5.9 GHz 7 dB

5.9 GHz to 10 GHz 9.5 dB

10 GHz to 15 GHz 12 dB

15 GHz to 16 GHz 13 dB

16 GHz to 17 GHz 18 dB

17 GHz to 18 GHz 21 dB

Phase noise at 20kHz offset (typical)

Receiver input at 1 GHz -126 dBc/Hz.

Receiver input at 5 GHz -121 dBc/Hz.

Receiver input at 18 GHz -110 dBc/Hz.

Signal analysis

Instantaneous bandwidth 100 MHz

Tuning resolution 1 Hz

Internal frequency reference

Initial accuracy @20°C ±0.1 ppm typ.

Stability over temperature ±0.3 ppm

Ageing over 1 day ±0.04 ppm

Programmable sweep modes

Sweep speed at 2 MHz RBW 390 GHz/s typ.

Sweep speed at 61 kHz RBW 320 GHz/s typ.

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

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

Sampling

Resolution 16 bits per channel (I&Q)

Rate 125 MS/s I&Q

Third order intercept points with AGC

≤ 1 GHz +20 dBm typical

> 1 GHz to ≤ 6 GHz +15 dBm typical

> 6 GHz to ≤ 18 GHz +20 dBm typical

Local oscillator

Re-radiation ≤ -90 dBm typical

Frequency references

Selectable Internal, GPS or external

External input 10 MHz ±10 ppm

GPS holdover (option) Sync Backup Module
± 1.5µs / 8hrs.

Processor sub-system

CPU Intel E3845 quad core

I/O

Network 1 x 1 GigE, with PoE

Universal Serial Bus 1 x USB3.0, 1 x USB2.0

2 x expansion ports 2 x SyncLinc with < 10 ns RMS accuracy typical, trigger input, external peripheral control

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

Data storage

External flash disk via USB interfaces

System software

Boot firmware BIOS

Operating system Linux

RFeye Node Control Protocol NCP Server (NCPd)

Node Apps (optional) Logger, EMP, Detectors

Size, weight and power

Dimensions (w, h, d) (Node only) 200 x 50 x 192 mm
(7.9 x 2.0 x 7.6 inches)

Dimensions (w, h, d) (with end plates & heat sinks) 200 x 98 x 395 mm
(7.9 x 3.9 x 15.6 inches)

Weight (Node only) 2.9 kg (6.4 lbs)

(with end plates & heatsinks) 5.8 kg (12.8 lbs)

DC power 12 VDC (limits 10-30V)

Power On Ethernet (PoE) 56 VDC

Power consumption

Typical 40 W

Maximum 55 W

Environmental

Operating temperature -30 to +50 °C (-22 to 122 °F)

Storage temperature -40 to +71 °C (-40 to 160 °F)

Ingress protection IP67 (with optional end plates)



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