

DATA SHEET

RFEYE NODE PLUS 100-18

FULL 100 MHz I/Q RECORD, CAPTURE & STREAM WIDEBAND RECEIVER

The RFeye Node Plus 100-18 is an advanced receiver with extra fast processing, enhanced signal capture, detection, POI, and full 100 MHz I/Q recording and streaming over a 10GigE interface.

The RFeye Node Plus 100-18 offers the same exceptional wideband RF sensor capabilities as the RFeye Node 100-18 in the same form factor, with up to 300% faster processing and full-rate 100 MHz I/Q data record and offload.

Edge processing supports missions across EMSO, SIGINT, COMINT, DF, ESM, and ISR by enabling actionable intelligence, not just data. These mission types require robust capabilities in receiving, capturing, processing, identifying, storing, and sharing data. The RFeye Node Plus 100-18 captures long-duration, high-fidelity wideband I/Q recordings, which can be stored or streamed (VITA-49 format) in real-time at 100 MHz, achieving data offload rates of 550 MBps (4 Gbps).

The RFeye Node Plus 100-18 offers exceptional performance in phase noise, noise figure, channel re-tune time, and spurious-free dynamic range, surpassing comparable RF sensors. This allows remote users to perform real-time spectrum monitoring, detection, processing, and geolocation simultaneously.



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, GNSS or external

External input 10 MHz ±10 ppm

GNSS bands L1 / L2 & L1 / L5

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

Processor sub-system

CPU Intel Elkhart Lake

I/O

Network 1 x 2.5 GigE, with PoE
1 x 10GigE, SFP

High-speed storage connector PCIe OCuLink

Universal Serial Bus 2 x USB3.1

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

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

Data storage

External flash disk via PCIe interface

System software

Operating system Linux

Node Apps (optional) EMP, Detectors

I/Q record and stream

I/Q record to local SSD 100 MHz

I/Q stream over 10 GigE 100 MHz

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)

Weight (Node with heatsinks) 4.2 kg (9.3 lbs)

DC power 24 VDC (limits 24-30V)

Power On Ethernet (PoE) 56 VDC

Power consumption

Typical 50 W

Maximum 60 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)