CRFS
a Motorola Solutions Company

EXTRAORDINARY
RF TECHNOLOGY

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.

RFEYE NODE PLUS 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, 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 POnE
	1 x 10GigE, SFP
High-speed storage connector	PCIe OCuLink
Universal Serial Bus	2 x USB3.1
2 x expansion ports configurable as:	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 (POnE)	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)

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