CRFS | EXTRAORDINARY RF TECHNOLOGY

VDK TELECOMMUNICATIONS

DATA SHEET

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 POnE
Universal Serial Bus	1 x USB3.0, 1 x USB2.0
2 x expansion ports configurable as:	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 (inc heatsink)	4.2 kg (9.3 lbs)
Weight (inc noses / end plates)	6.6 kg (14.5 lbs)
DC power	12 VDC (limits 10-30V)
Power On Ethernet (POnE)	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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