CRFS | EXTRAORDINARY RF TECHNOLOGY

DATA SHEET

RFEYE NODE 100-8

INTELLIGENT WIDEBAND RECEIVER

The RFeye Node 100-8 offers class-leading RF performance and extended instantaneous bandwidth for 24/7 ITU-compliant spectrum monitoring and radio geolocation.

The RFeye Node 100-8 uses the latest superheterodyne receiver technology to provide outstanding quality and performance at a highly competitive price. 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 a weatherproof housing, it has been optimized for size, weight and power (SWaP) and is simple to connect to power and network.

The Node 100-8 is characterized by outstanding phase noise, noise figure, channel retune time and spurious free dynamic range parameters, well above any other product in its class. It also offers all of the multi-mission capability of the RFeye product range allowing multiple concurrent measurements and geolocations to be performed and multiple users to connect simultaneously from remote locations.

100-8 SPECIFICATIONS

Single channel receiver

Switchable RF inputs	3 x SMA connectors

Frequency

Range	9 kHz to 8 GHz

Noise figures at maximum sensitivity

9 kHz to 0.1 GHz	10 dB typical
0.1 GHz to 2.4 GHz	6 dB typical
2.4 GHz to 6 GHz	7 dB typical
6 GHz to 8 GHz	8 dB typical

Phase noise

Receiver input at 1 GHz	-130 dBc/Hz at 20 kHz offset, typ.
Receiver input at 8 GHz	-121 dBc/Hz at 20 kHz offset, typ.

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	280 GHz/s @ 2 MHz RBW 245 GHz/s @ 61 kHz 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	16 bits per channel (I&Q)
Rate	125 MS/s I&Q

Third order intercept points with AGC

0.1 GHz to 8 GHz	+35 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)*	Synchronisation Backup Module ±1.5 µs / 8 hrs

Processor sub-system

CPU	Intel E3845 quad core

I/O

Network	1 x 1 GigE, with POnE
Universal Serial Bus	1 x USB 3.0, 1 x USB 2.0
2 x IEEE1394 expansion ports configurable as:	2 x SyncLinc with <10ns 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, 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) without end plate or heat sink	200 x 50 x 192 mm (7.9 x 2.0 x 7.6 inches)
Weight (Node only)	2.9 kg (6.4 lbs)
Weight with end plates and heat sinks	5.6 kg (12.3 lbs)
DC power or POnE	10 to 48 VDC

Power consumption

Typical	35 W
Maximum	40 W

Environmental

Operating temperature	-30 to +55 °C (-22 to 131 °F)
Storage temperature	-40 to +71 °C (-40 to 160 °F)
Ingress protection	IP67 (with optional end plate)

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