CRFS | EXTRAORDINARY RF TECHNOLOGY

DATA SHEET

RFEYE NODE 100-40

40GHZ INTELLIGENT WIDEBAND RECEIVER

The RFeye Node 100-40 offers class-leading RF performance all the way up to 40 GHz for advanced capability, real-time spectrum operations or deployment on any spectrum critical site.

The RFeye Node 100-40 uses the latest superheterodyne receiver technology to offer the capabilities of Node 100-18 with extended frequency range up to 40 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 a weatherproof housing, it has been optimized for size, weight and power (SWaP) and is simple to connect to power and network.

The Node 100-40 is characterized by outstanding noise figure, channel re-tune 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.

100-40 SPECIFICATIONS

Single channel receiver

Switchable RF inputs	2 x SMA (9 kHz - 18 GHz)
	1 x K 2.92 (16 kHz - 40 GHz)

Frequency

Range	9 kHz to 40 GHz

Noise figures at maximum sensitivity

9 kHz to 85 MHz	14 dB typical
85 MHz to 2.9 GHz	9.5 dB typical
2.9 GHz to 6.1 GHz	11.5 dB typical
6.1 GHz to 12 GHz	7.5 dB typical
12 GHz to 16 GHz	10 dB typical
16 GHz to 32 GHz	12 dB typical
32 GHz to 40 GHz	18 dB typical

Phase noise

Receiver input at 1 GHz	-129 dBc/Hz, typ.
Receiver input at 5 GHz	-123 dBc/Hz, typ.
Receiver input at 18 GHz	-112 dBc/Hz, typ.
Receiver input at 40 GHz	-101 dBc/Hz, 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 at 2 MHz RBW	269 GHz/s typ. up to 18 GHz
	232 GHz/s typ. above 18 GHz
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

Local oscillator

Re-radiation	≤ -90 dBm typical

Frequency references

Selectable	Internal, GPS or external
External input	10 MHz ± 10ppm

Location & Timing

GNSS device (standard)	GPS, GLONASS, Galileo
GNSS timing accuracy	< 20 ns typ.

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 IEEE1394 expansion ports configurable as:	2 x SyncLinc ext peripheral control
GPS / GNSS antenna input	1 x SMA passive or active (3.3 VDC)

Data storage

External SSD *(optional)*	via USB interfaces

System software

Operating system	Linux, kernel v 2.6
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)
Weight *(Node only)*	3.5 kg (5 lbs)
Weight *(with end plates & heat sinks)*	6.2 kg (13.7 lbs)
DC power	12 VDC (max limit 30V)
POnE power	56 VDC (48 VDC nominal)

Power consumption

Typical	50 W
Maximum	57 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 *(w. optional end plate)*

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