

RFeyeSystem

Backpack

Man-portable spectrum monitoring system



Mission-ready integrated solution for discreet spectrum surveillance in urban or security-critical locations.

The RFeye Backpack is a man-portable integrated system designed for easy spectrum surveying on foot. Built into a standard commercial backpack, the system includes a ruggedized RFeye Node 20-6, internal and external antenna mounting, high performance rechargeable battery and integrated SSD memory for high volume data collection during mobile field operations.

Embedded data logging software applications are typically pre-programmed with the required measurement profile prior to deployment, allowing autonomous spectrum surveillance and surveying operations to be performed by non-technical personnel. Data is visualized and analyzed post-survey using RFeye application software. In addition, any mobile computing device with a web browser can be connected for real-time monitoring of signals during the survey using embedded RFeye Web Apps software.



Backpack Specifications

Receiver

Integrated receiver	1 x Node 20-6
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Frequency

Range	10 MHz to 6 GHz
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Noise figures at maximum sensitivity

10 MHz to 3 GHz	8 dB typical
3 GHz to 6 GHz	11 dB typical

Phase noise

Receiver input at 2 GHz	-91 dBc/Hz at 20 kHz offset, typ.
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Signal analysis

Instantaneous bandwidth	20 MHz
Tuning resolution	1 Hz

Internal frequency reference (pre-calibration)

Initial accuracy	better than ± 2 ppm typ.
Stability	better than ± 1 ppm typ.
Ageing	better than ± 2 ppm per year

Programmable sweep modes

Sweep speed - fast synth	45 GHz/s @ 1.2 MHz RBW
Sweep speed - high quality synth	18 GHz/s @ 1.2 MHz 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	12 bits per channel (I&Q)
Rate	40 MS/s I&Q

Third order intercept points with AGC

< 1 GHz	+21 dBm typical
1 GHz to 6 GHz	+22 dBm typical

Local oscillator

Re-radiation	-90 dBm typical
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Frequency references

Selectable	Internal, GPS or external
External input	10 MHz ± 1 kHz
Output	10 MHz

Processor sub-system

CPU	Marvell 88F6281 @ 1 GHz
Main memory	512 MB DDR2
System disk	512 MB

System software

Boot firmware	U-Boot
Operating system	Linux, kernel v 2.6
RFeye Node Control Protocol	NCP Server (NCPd)
Node Apps (optional)	Logger, Recorder, Threshold, Stations, Survey

Backpack System

I/O

RF input	2 x N-type, 10 MHz - 6 GHz
Network	1 x 1 GigE, with PoE
Universal Serial Bus	1 x USB 2.0
1 x IEEE1394 expansion port	SynLinc, trigger input, external peripheral control
GPS	Pre-integrated antenna

Data storage

External flash disk	via USB interfaces
Internal storage	512 GB SSD

Size, weight and power

Dimensions (w, h, d) without IP67 rated end plate	343 x 508 x 229 mm (13.5 x 20x 9 inches)
Weight	7.0 kg (15.4 lbs)
Battery	4.4 Ah lithium-ion, rechargeable, 3hrs nominal operation
Charger	Universal, 100-240 VAC
Charge time	2 hrs typical
DC power or PoE	10 to 48 VDC

Power consumption

Typical	15 W
Maximum	25 W

Environmental

Operating temperature	-30 to +55 °C (-22 to 131 °F)
Storage temperature	-40 to +70 °C (-40 to 158 °F)
Ingress protection	IP67 (RFeye Node)