



Intelligent, Cost Effective Solution for Distributed Spectrum Monitoring Networks

- **Cost effective**
- **Rugged, compact, fixed or mobile installation**
- **10 MHz to 6 GHz**
- **Fast FFT real-time spectrum analyser: 20 MHz instantaneous bandwidth**
- **Multiple RF ports for multi-antenna operation**
- **Support for AOA and TDOA direction finding**
- **Designed for unattended operation**
- **High-accuracy GPS for location tracking and precise time synchronisation**
- **Bulk local data storage via USB memory**
- **Flexible remote interfacing**
- **Fully Programmable with C and Python scripting**





Capable of sweeping from 10 MHz to 6 GHz in less than 100 ms, and housed in a compact lightweight housing suitable for use in both indoor and outdoor environments, the RFeye nodes may be deployed in both fixed or mobile applications. A built-in Linux PC permits fully programmable autonomous operation, and high-accuracy GPS provides accurate position and time stamping to allow correlation of data between different RFeye nodes. Data may either be stored locally, transmitted over the air via the built-in GPRS/HSPA modem, or downloaded via standard wired interfaces to a centralised database. The RFeye node also supports direction finding (DF) using both AOA (angle of arrival) and TDOA (time difference of arrival) techniques. The capabilities of the RFeye node are key to providing a cost-effective system that can provide continuous, 24/7 monitoring of the radio spectrum.

Features





- Rugged, lightweight, compact, low power, fixed or mobile installation
- Wide frequency range: 10 MHz to 6 GHz
- Multiple RF ports to support multi-antenna operation
- Fast digital sweep captures transient signals more effectively than swept analysers or scanning receivers
- Built-in Linux PC supports user-programmable scan sequences and selective, intelligent (/adaptive) data acquisition
- DF antenna array options
- High-accuracy GPS for location identification and inter-device time synchronisation
- Flexible network connectivity: data download via built-in GPRS/HSPA modem, fixed-line interfaces, or local data storage
- Secure network connectivity using SSL technology
- System architecture optimised for flexible real-time signal acquisition and data processing
- Seamless integration with RFeye Spectrum Management System

Flexible Deployment Options

Fixed

-  Indoor or outdoor
-  Full environmental protection
-  Installation kits for easy installation
-  Power on Ethernet option for easy remote deployment

Mobile

-  Vehicle-based or man-portable (pre-integrated systems available)
-  Ruggedised
-  Low power consumption
-  Local data storage or wireless backhaul



Technical Specification

Frequency

Range	10 MHz to 6 GHz
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Internal Frequency Reference

Initial accuracy	better than ± 2 ppm at 20°C
Stability	better than ± 1 ppm (10°C to 30°C)
Ageing	better than ± 2 ppm per year

Sweep and Triggering

Sweep time	10 MHz - 6 GHz: less than 100ms*
Sweep mode	Fully programmable: Free run continuous, single, timed, delay timed, user trigger, adaptive (if-then-else)
Trigger on event	Fully programmable: user-definable masks, user-definable action when mask exceeded

Signal Analysis

Real-time analysis bandwidth	20 MHz maximum
Equivalent resolution bandwidth	20 kHz min. (max. analysis b/w)
	2 kHz min. (reduced analysis b/w)

Operating System and Software Development Options

Linux OS version	2.6
Python version	2.6
Development environments	Full SDK C and Python development environment available

*: Fast sweep mode

For more information

Sensitivity (equivalent noise figures at maximum sensitivity)

10 MHz - 4 GHz	8 dB typical
4 GHz - 6 GHz	11 dB typical

Signal Input

Input connector	Four switchable signal inputs
Maximum input level	+15 dBm; 15 VDC

Interfaces

RF input	SMA (X 4)
DC power	10 - 48 VDC
Power consumption	12 - 18 W, radio operational 6 W typical, radio idle
GPS antenna	SMA
UMTS/HSPA modem antenna	SMA
100 Base T Ethernet	1
USB	2
RFeyeSPI (expansion port)	2

Mechanical

Dimensions (w h d)	170 mm x 60 mm x 125 mm (6.7 in x 2.4 in x 4.9 in)
Weight	1.4 kg (3.1 lb) [Node only] 2.0 kg (4.4 lb) [with environmental protection cover]

Environmental

Operating temperature	-30 to +55°C (-22 to 131 °F)
Storage temperature	-40 to +70°C (-40 to 158 °F)