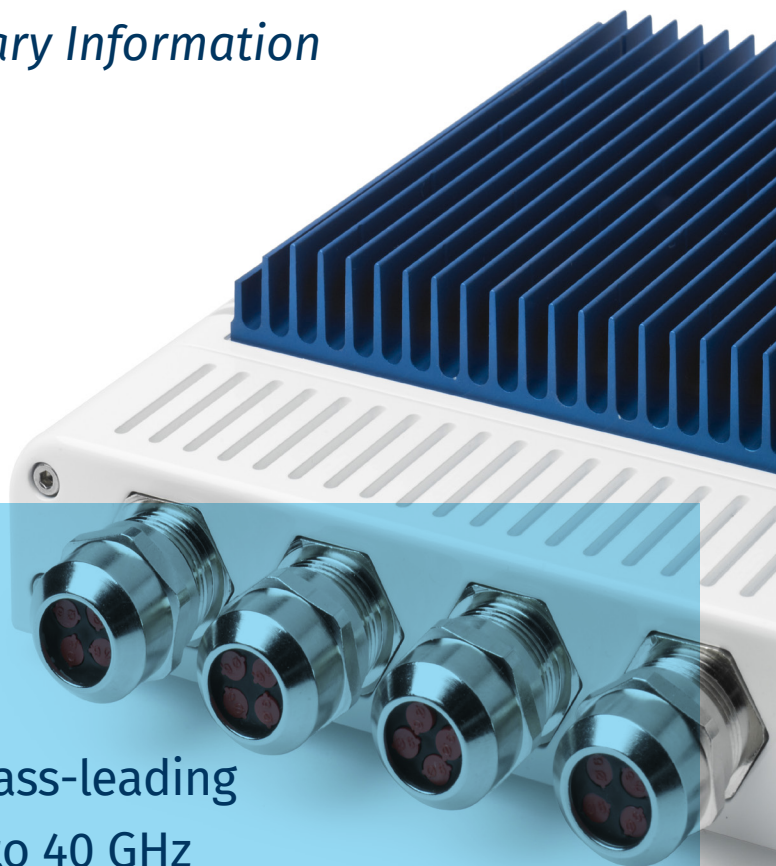# RF**eye** Node

## 100-40

*Preliminary Information*

# 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.

# RF**eye** Node

## *Preliminary Information*

## 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 120 MHz | 12 dB typical |
| 120 MHz to 6 GHz | 8.5 dB typical |
| 6 GHz to 10 GHz | 10.5 dB typical |
| 10 GHz to 18 GHz | 13 dB typical |
| 18 GHz to 40 GHz | 16 dB typical * |

### Phase noise

| | |
|---|---|
| Receiver input at 1 GHz | -126 dBc/Hz at 20 kHz offset, typ. |
| Receiver input at 5 GHz | -121 dBc/Hz at 20 kHz offset, typ. |
| Receiver input at 18 GHz | -110 dBc/Hz at 20 kHz offset, typ. |
| Receiver input at 40 GHz | -104 dBc/Hz at 20 kHz offset, typ. * |

### Signal analysis

| | |
|---|---|
| Instantaneous bandwidth | 100 MHz |
| Tuning resolution | 1 Hz (re-tune time 0.2 msec) |

### 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. |
| 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

| | |
|---|---|
| ≤ 1 GHz | +20 dBm typical |
| > 1 GHz to ≤ 6 GHz | +15 dBm typical |
| > 6 GHz to ≤ 18 GHz | +20 dBm typical |
| > 18 GHz to ≤ 40 GHz | +20 dBm typical * |

### Local oscillator

| | |
|---|---|
| Re-radiation | ≤ -90 dBm typical |

### Frequency references

| | |
|---|---|
| Selectable | Internal, GPS or external |

### 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

| | |
|---|---|
| Boot firmware | BIOS |
| Operating system | Linux, kernel v 2.6 |
| RFeye Node Control Protocol | NCP Server (NCPd) |

### 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 or POnE | 10 to 48 VDC |

### 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)* |

# CRFS

\* Preliminary spcifications subject to change

CRFS Ltd
Cambridge, UK.
+44 1223 859 500
crfs.com
enquiries@crfs.com

CRFS Inc
Chantilly, VA, USA
Tel: +1 571 321 5470
crfs.com
enquiries@crfs.com

bsi. ISO 9001:2015 Quality Management

FS 576625

ES France - Département Tests & Mesures - 127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 45 - Fax. 01 47 01 16 22 - e-mail: tem@es-france.com - Site Web: www.es-france.com