

RFEYE ARRAY 125

DF & SPECTRUM MONITORING SYSTEM

Transportable direction finding system combining broadband monitoring and DF on wideband signals to 8 GHz.

The RFeye Array 125 is a portable system designed for vehicle mounted, transportable or ground-fixed installations. It is a fully integrated plug-and-play system containing a high performance RFeye Node 100-8 (100MHz IBW, 8GHz frequency range), spiral antenna modules and high speed switch within an IP55 radome. It is also available with a mounting kit. The RFeye receiver commutates at very high speed around the antennas to make near-simultaneous AOA measurements in multiple directions.

In addition, timing and synchronization features allow correlation of data between multiple Arrays or between Arrays and Nodes for accurate geolocation of target signals using combined AOA, TDOA and POA techniques. Measurements can be overlaid onto a wide variety of maps, satellite images and 2D / 3D GIS datasets, to give a unique positional display showing source geolocation probabilities. All signal types in the range can be mapped, irrespective of signal power, bandwidth or frequency.



ARRAY 125 SPECIFICATIONS



Receiver

Channels

| | |
|--------|----------------|
| Single | 1 x Node 100-8 |
|--------|----------------|

Frequency

| | |
|-------|---------------|
| Range | 9 kHz – 8 GHz |
|-------|---------------|

Programmable sweep modes

| | |
|---------------------------|----------------|
| Sweep speed at 2 MHz RBW | 390 GHz/s typ. |
| Sweep speed at 61 kHz RBW | 320 GHz/s typ. |

Noise figures at maximum sensitivity (typical)

| | |
|--------------------|--------|
| 9 kHz to 83 MHz | 11 dB |
| 83 MHz to 1 GHz | 9 dB |
| 1 GHz to 2.9 GHz | 8 dB |
| 2.9 GHz to 5.9 GHz | 7 dB |
| 5.9 GHz to 8 GHz | 9.5 dB |

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 |

Sampling

| | |
|------------|---------------------------|
| Resolution | 16 bits per channel (I&Q) |
| Rate | 125 MS/s I&Q |

DF and Geolocation

Direction finding method

| | |
|------------------------|----------------------|
| Angle of Arrival (AOA) | 6-way switched array |
|------------------------|----------------------|

Geolocation frequency range

| | |
|--------|-----------------|
| AOA DF | 500 MHz – 8 GHz |
|--------|-----------------|

| | |
|-----------------------------------|--|
| Time Difference of Arrival (TDOA) | 9 kHz – 8 GHz (optional omni antenna) |
|-----------------------------------|--|

| | |
|------------------------|--|
| Power on Arrival (POA) | 9 kHz – 8 GHz (optional omni antenna) |
|------------------------|--|

DF coverage and accuracy

| | |
|--------------------------|---|
| Polarization sensitivity | All linear (circular polarized Rx antennas) |
| Azimuth coverage | 360° |

Array 125 System

I/O

| | |
|------------------------|--|
| Auxiliary RF inputs | 2 x N-type |
| Omni antennas (option) | 2 x external and/or 1 x internal (factory option) |
| Network | 1 x 1 GigE, with POnE |
| USB | 1 x USB 3.0, 1 x USB 2.0 |
| GPS antenna input | 1 x SMA passive or active (+3.3 VDC) |
| Location | Internal GNSS module & antenna (standard) |
| Heading | GNSS compass (opt.) |

Data storage

| | |
|----------------------------|-----------------------------|
| External SSD | via external USB interfaces |
| Internal SSD inside radome | 1 TB SSD |

Size, weight and power

| | |
|-------------------|---------------------------------------|
| Dimensions (Ø, h) | 650 mm x 420 mm (25.59 x 16.53 in) |
| Weight | 28 kg (61.7 lbs) |
| DC power | 12V DC (limit +30V DC max) |
| POnE | 56V DC |

Power consumption

| | |
|---------|------|
| Typical | 30 W |
| Maximum | 50 W |

Environmental

| | |
|-----------------------|---------------------------|
| Operating temperature | -30 – +55°C (-22 – 131°F) |
| Storage temperature | -40 – +71°C (-40 – 160°F) |
| Ingress protection | IP55 Nominal |



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