

# Spectrum Situational Awareness (SSA) – Datasheet



## Operational Benefits

The SSA is a smart multifunction electronic support measures (ESM) device. In modern congested and contested environments, spectrum dominance is no longer optional—it's decisive. The SSA gives users and their platforms the ability to detect emitters and act on RF signals received in real time to deliver critical spectrum situational awareness where it matters most: at the tactical edge. This multi-function device can provide target detection or target survey modes of operation.

Designed specifically for SWaP constrained applications, the SSA integrates seamlessly onto UAVs, UGVs, covert, unattended or dismounted (body worn) systems without compromising performance.

The SSA provides a ready-to-deploy tactical advantage, enabling rapid entry into RF sensing while providing support to electronic warfare and counter-UAS systems.

With low power consumption (~3W), sub-250g weight, and flexible deployment modes (standalone or networked), the SSA is engineered for scalable deployment—from single platforms to meshed swarms.

## General Description

The SSA is a radio spectrum monitoring module designed for detecting radio signals of interest. Operating in frequencies between 70MHz to 6GHz. The SSA can also run various applications providing a user far greater situational awareness than simply monitoring spectrum. These apps include:

- Spectrum scanning.
- Spectrum capture (high resolution or real-time waterfall plots).
- Target of interest location (trilateration or tracking).
- Signal capture (IQ recording) or triggering on targets of interest.
- Support for collaborative operation (multiple SSA devices).
- Spectrum recording for offline analysis or pattern of life analysis.
- Variable compression waterfall plots, for re-transmission over low bitrate radio communications systems or long-range radio links.

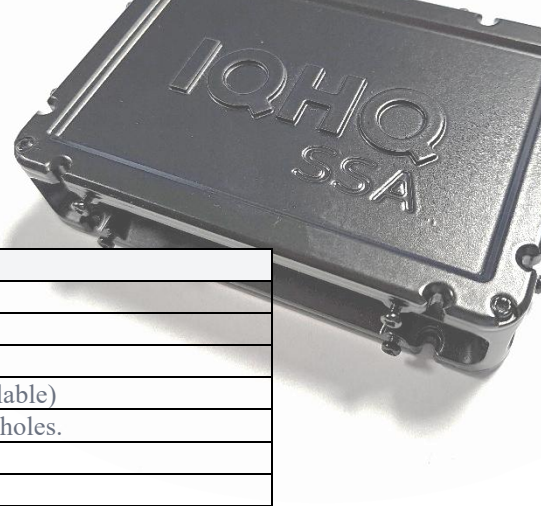
Designed with an IP interface the SSA can be fully controlled either locally or remotely in real time, whilst an integrated SSD Card can be utilised to record IQ data and signals of interest. Each SSA can work as a standalone unit or collaboratively with multiple SSA units to enhance system capability.

## Technical Specifications

| Parameter                       | Value                     |
|---------------------------------|---------------------------|
| Frequency Range                 | 70MHz to 6GHz             |
| Sensitivity                     | -120dBm                   |
| Selectivity                     | 10kHz                     |
| Scan Time (full spectrum)       | 3s                        |
| Sampling Rate                   | 30M/s                     |
| Capture Bandwidth               | 26MHz                     |
| Minimum Detectable Signal (MDS) | -100dBm                   |
| AGC Gain Control                | 0-80dB                    |
| Max RF Input Power              | -11.3dBm                  |
| AGC Modes                       | Fast Attack & Slow Attack |

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## Physical Specifications

| Property                    | Value                                   |
|-----------------------------|-----------------------------------------|
| Dimensions (W×D×H)          | 110 × 75 × 27mm                         |
| Weight                      | 242g                                    |
| Material                    | Aluminium Alloy                         |
| Colour                      | Black (custom colour options available) |
| Mounting                    | M2 Fixing Holes & M2.5 through holes.   |
| Operating Temperature Range | -10°C to +50°C                          |
| Storage Temperature Range   | -20°C to +60°C                          |

## Electrical Specifications

| Parameter         | Min           | Typical | Max  |
|-------------------|---------------|---------|------|
| Power Supply      | 12V           | 12V     | 18V  |
| Power Consumption | 2.5W          | 3W      | 3.5W |
| Current Draw      | 0.5A          | 1A      | 1.5A |
| Interface         | Ethernet, USB | -       | -    |

## Environmental Specifications

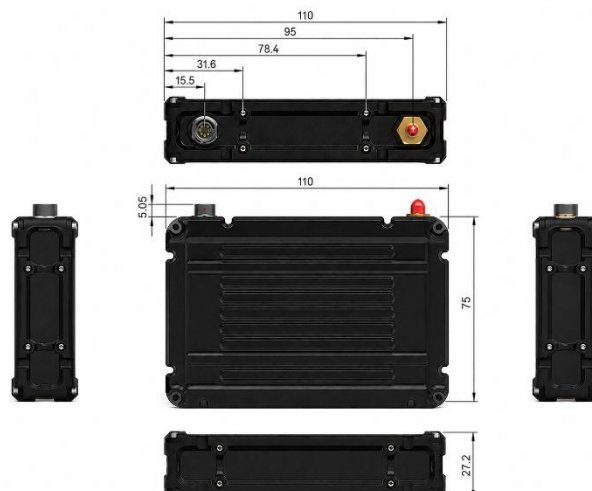
| Condition   | Operating Range    | Storage Range      |
|-------------|--------------------|--------------------|
| Temperature | -10°C to +50°C     | -20°C to +60°C     |
| Humidity    | 10% to 90% RH      | 5% to 95% RH       |
| Altitude    | Sea level to 3000m | Sea level to 5000m |

## Performance Characteristics

| Characteristic          | Value                     | Notes             |
|-------------------------|---------------------------|-------------------|
| Frequency Accuracy      | ±1ppm                     | GPS disciplined   |
| Sensitivity             | -120dBm                   | CW signal         |
| Selectivity             | 10kHz                     | Narrowband signal |
| Scan Speed              | 1s (full spectrum)        | Automated scan    |
| Max Sampling Size (FFT) | 2560                      |                   |
| Noise Floor             | 3dB (at max receive gain) | At 2.4GHz         |

## Ordering Information

| Part Number | Description                                                    | Package          |
|-------------|----------------------------------------------------------------|------------------|
| SSA1000-001 | Spectrum Sensing Analyser (32/64GB)                            | Standard package |
| SSA1000-002 | Spectrum Sensing Analyser with extended storage (1TB)          | Standard package |
| SSA1000-003 | Spectrum Sensing Analyser with custom software                 | Standard package |
| SSA1000-004 | Spectrum Sensing Analyser Options above with unbranded housing | Custom Package   |



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