Reliable Signal Acquisition for Critical Infrastructure

Features and Benefits

➤ **Operates in Harsh Environments.** The SEL-9524 GNSS Antenna operates reliably between –50˚ and 85˚C (–58˚ to 185˚F) and in the presence of electrical surges, while meeting or exceeding IEC 60255, 60068, and 61000 standards.

➤ **Weather Proof Enclosure Prevents Damage.** The SEL-9524 meets IP68 standards for weather proofing and water resistance.

➤ **SEL Provides World-Class Manufacturing and Quality.** The SEL-9524 conforms to SEL’s stringent standards for quality, reliability, and performance, and is manufactured in SEL’s state-of-the-art facility in Pullman, WA.

➤ **Rejects Interfering Signals While Maintaining High Gain.** The SEL-9524 maintains excellent gain (> 40 dB) while simultaneously providing strong rejection for signals outside of the nominal frequency band.

➤ **Supports Long Cable Runs.** The SEL-9524 wide-input voltage range supports cable runs as long as 500 feet.


- **Dual Satellite Constellation Support Provides Reliability.** The SEL-9524B receives signals from both GPS and GLONASS satellite constellations for added reliability. Customers can also select the SEL-9524A to receive only GPS signals.

- **LEDs Provide Diagnostic Information.** LEDs provide visual indication for the antenna supply voltage.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
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<tbody>
<tr>
<td>Green</td>
<td>Antenna voltage is within normal range for operation.</td>
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<td>Red</td>
<td>Antenna voltage is within 10% of the lower limit for powering the antenna.</td>
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<td>Antenna is not receiving enough voltage to power the unit.</td>
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**Product Overview**

The SEL-9524 is a rugged and reliable antenna designed for GNSS devices for critical infrastructure applications. It was designed, tested, and manufactured to the same standards as other SEL products intended for critical infrastructure. The antenna is IP68 rated, making it suitable for harsh environments. Industry-leading surge immunity allows this antenna to perform better in the presence of lightning and other surge events.

Choose the SEL-9524B to receive GPS and GLONASS signals, or opt for the SEL-9524A for GPS-only applications. The SEL-9524B is recommended for use with the SEL-2488 Satellite-Synchronized Network Clock, and the SEL-9524A is recommended for use with either the SEL-2401, SEL-2404, or SEL-2407® Satellite-Synchronized Clocks.

**Dimensions**

![SEL-9524 Dimensions](image)

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**Table 1 LED Indicator**

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## Specifications

### Compliance

- Designed and manufactured under an ISO 9001 certified quality management system

### General

#### Operating Temperature

- 

#### Connector Type

- TNC

#### Dimensions

- **Height:** 0.13 m (5.074 in)
- **Base Diameter:** 0.08 m (3.253 in)

#### Tightening Torque

- **Surface Mounting Nuts:** 6.77 Nm (60 in-lb)

#### Weatherproofing

- IP68 (with sealed TNC connector)

### Antenna

#### Operating Frequency

- **GPS:** 1575.42 ± 2 MHz
- **GPS/GLONASS:** 1570–1606 MHz

#### Gain

- > 40 dB

#### Noise Figure

- < 2 dB @ 25°C

#### DC Voltage Range

- Operating: 3.5–6 V

#### Nominal System Impedance

- 50 ohms

#### VSWR

- < 1.5:1

#### Out of Band Rejection

- > 40 dB @ f ≤ 1520 MHz
- > 40 dB @ f ≥ 1660 MHz

### Type Tests

#### Product Family Standards

- EN 60255-26:2013
- IEC 60255-26:2013
- EN 60255-27:2014
- IEC 60255-27:2013

#### Vibration Tests

- **Vibration Resistance:** IEC 60255-21-1:1998
  - Class 2 vibration response
- **Shock Resistance:** IEC 60255-21-2:1998
  - Class 1 shock withstand, bump
  - Class 2 shock response
- **Seismic:** IEC 60255-21-3:1993
  - Class 2 quake response

#### Environmental Tests

- **Cold:** IEC 60068-2-1:2007
  - 16 hours @ –50°C
- **Damp Heat, Cyclic:** IEC 60068-2-30:2005
  - 95% RH, 25–55°C, 6 cycles,
- **Dry Heat:** IEC 60068-2-2: 2007
  - 16 hours @ +85°C

#### EMC Immunity Tests

- **Conducted RFI Immunity:** IEC 61000-4-6:2008
  - 10 Vrms
- **Electrostatic Discharge Immunity:** IEC 61000-4-2:2008
  - 8 kV contact discharge;
  - 15 kV air discharge
- **Power Frequency Magnetic Field Immunity:**
  - IEEE C37.90.3-2001
  - 8 kV contact discharge;
  - 15 kV air discharge
- **Fast Transient, Burst Immunity:** IEC 61000-4-4:2012
  - 2 kV @ 5 kHz for antenna ports
- **Surge Immunity:** IEC 61000-4-5:2005
  - Class 2.5 kV common mode, 1 kV on antenna ports
  - 1 kV differential mode

### Safety

- EN 60950-1:2006
- IEC 60950-1:2005

### Ingress Protection

- IP68 when connected to a sealed TNC connector
