SEL-9524 GNSS Antenna Data Sheet

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 1 LED Indicator

Color	Description
Green	Antenna voltage is within normal range for operation.
Red	Antenna voltage is within 10% of the lower limit for powering the antenna.
Off	Antenna is not receiving enough voltage to power the unit.

Product Overview

Figure 1 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 or SEL-2407® Satellite-Synchronized Clocks.

Dimensions

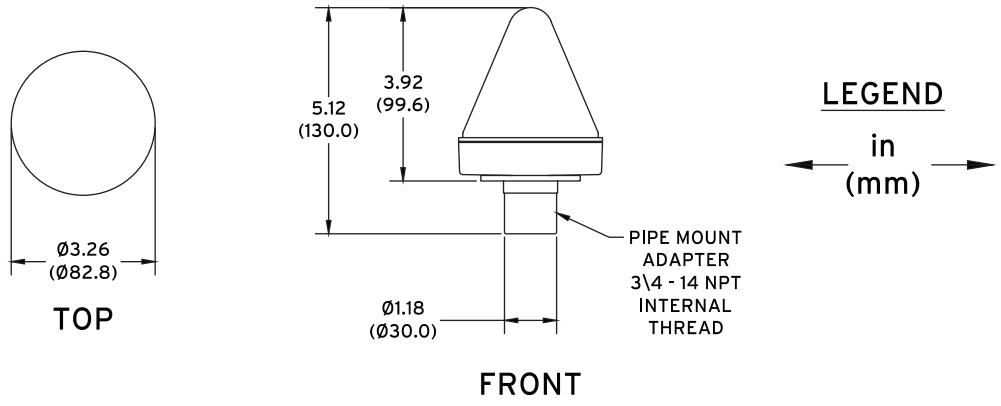

Figure 2 SEL-9524 Dimensions

Specifications

Compliance

Designed and manufactured under an ISO 9001 certified quality management system

47 CFR 15B, Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may be likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by the manufacturer can void the user's authority to operate the equipment.

CE Mark

RCM Mark

UKCA Mark

General

Operating Temperature

–50° to +85°C (–58° to +185°F)

Connector Type

TNC

Dimensions

Height:	130.0 mm (5.12 in)
Base Diameter:	82.8 mm (3.26 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

Current Draw

40 mA max

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

Electromagnetic Compatibility:	IEC 60255-26:2013
Product Safety:	IEC 60255-27:2013

Electromagnetic Compatibility Emissions

IEC 60255-26:2013
CISPR 11:2009 + A1:2010
CISPR 22:2008
Canada ICES-001 (A) / NMB-001 (A)
47 CFR Part 15.107 and 109
Severity Level: Class A

Electromagnetic Compatibility Immunity

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 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
Power Frequency Magnetic Field Immunity:	IEC 61000-4-8:2009 1000 A/m for 3 seconds 100 A/m for 1 minute
Radiated RF Immunity:	IEC 61000-4-3:2006/A1:2007/A2:2010 10 V/m
Surge Immunity:	IEC 61000-4-5:2005 1.2/50 µs Lightning Surge; 4 kV Line to Earth
Surge Withstand Capability:	IEC 61000-4-18:2006/A1:2010 Damped Oscillatory Wave Immunity 2.5 kV common mode, 1 kV on antenna ports 1 kV differential mode

Environmental

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
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

Safety

IEC 60950-1:2005

Ingress Protection

IP68 when connected to a sealed TNC connector

IEC 60529:1989/A1:1999/A2/2013

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