



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, SEL-2404, or SEL-2407[®] Satellite-Synchronized Clocks.

Dimensions

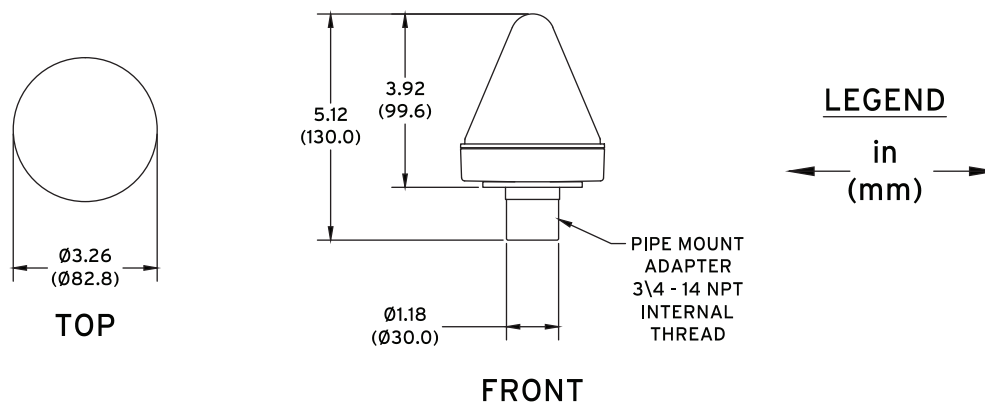


Figure 2 SEL-9524 Dimensions

Specifications

Compliance

Designed and manufactured under an ISO 9001 certified quality management system

CE EMC Directive, Low-Voltage Directive

General

Operating Temperature

-50° to +85°C (-58° to +185°F)

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 @ $f \leq 1520$ MHz

> 40 dB @ $f \geq 1660$ 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
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 μ s 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

Safety

EN 60950-1:2006

IEC 60950-1:2005

Ingress Protection

IP68 when connected to a sealed TNC connector

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

© 2015–2016 by Schweitzer Engineering Laboratories, Inc. All rights reserved.

All brand or product names appearing in this document are the trademark or registered trademark of their respective holders. No SEL trademarks may be used without written permission. SEL products appearing in this document may be covered by U.S. and Foreign patents.

Schweitzer Engineering Laboratories, Inc. reserves all rights and benefits afforded under federal and international copyright and patent laws in its products, including without limitation software, firmware, and documentation.

The information in this document is provided for informational use only and is subject to change without notice. Schweitzer Engineering Laboratories, Inc. has approved only the English language document.

This product is covered by the standard SEL 10-year warranty. For warranty details, visit www.selinc.com or contact your customer service representative.

SCHWEITZER ENGINEERING LABORATORIES, INC.

2350 NE Hopkins Court • Pullman, WA 99163-5603 U.S.A.

Tel: +1.509.332.1890 • Fax: +1.509.332.7990

www.selinc.com • info@selinc.com



* P D S 9 5 2 4 - 0 1 *