

G-LNA2 GPS Low Noise Amplifier

Next Generation GPS L1 Preamplifier

The G-LNA2 Low Noise Amplifier provides a cost-effective way to make a significant improvement in the reliability of your GPS signal reception. The G-LNA2 is our next generation, very high-performance inline preamplifier developed specifically for difficult rooftop environments and/or long cable runs. Compared to the first generation Glna, the G-LNA2 offers higher gain while achieving a lower noise figure. The in-band linearity is improved by about 5 dB, but out-of-band linearity is improved by over 10 dB. The group delay is flat across the GPS signal bandwidth, and for each unit it is measured and recorded on the label with 1 ns resolution so that a GPS timing receiver may be adjusted to compensate for the added delay.



Powered by as little as 3.3V on the center conductor of the coaxial cable, the G-LNA2 is installed between the GPS antenna and the receiver. The supply voltage is passed through the preamplifier to power the upstream active antenna and any cascaded preamplifiers. The miniature cylindrical package is weatherproof, rugged and fits neatly inside of the typical 3/4" most used for rooftop GPS antenna mounting.

Weak Signal Strength Environments

In a large class of applications, installation of a rooftop GPS antenna may be possible, but only via a very long cable between the antenna and receiver. In these situations, low noise, inline preamplifiers are often necessary. The Glna preamplifier operates at such low input voltage and uses so little current that up to three of them may be cascaded at the

top of the cable run (nearest to antenna), using small diameter, low cost RG-59 type cable. In this configuration, cable runs of up to 1000' can be accommodated.

Many applications require a window-mounted antenna installation. In these situations, not only might a long cable run be necessary, but satellite visibility is reduced and the possibility of attenuative window coatings also exists. In these situations as well, the difference between a successful installation and one that is marginal can be the addition of a high-performance preamplifier. Due to the very-low-noise figure, the G-LNA2 preamplifier can also improve system performance at the receiver end of the antenna cable run. The typical GPS receiver module has a 10 dB or higher noise figure, so inserting a G-LNA2 preamplifier with its typical 1.2 dB noise figure immediately in front of the receiver can dramatically lower the system noise figure.

High Interference Environments

Interference rejection is crucial in GPS timing receiver applications. GPS antennas are often installed on rooftops near other communications antennas that are radiating out-of-band energy at high levels. In some countries, mobile phones operate in frequency bands quite near the GPS band. Were such signals merely amplified by the preamplifier and passed on, they could saturate the GPS receiver. The G-LNA2 preamplifier incorporates high-linearity semiconductors and a surface acoustic wave (SAW) bandpass filter in a distributed gain architecture. With half of the gain ahead of the filter and half following it, very high out-of-band interference rejection is achieved. This distributed gain architecture achieves the sweet spot in terms of gain, noise figure, input compression levels and current drain.

Reliability

The G-LNA2 series preamplifiers contain Transient Voltage Suppression (TVS) devices to protect against damage due to static discharge or induced voltage surges from nearby lightning strikes.

FEATURES

- Very low noise figure.
- Very high linearity.
- Very high gain.
- Very flat group delay.
- Individually measured group delay.
- Easy to install.
- Compact, weatherproof package.
- One-year warranty.
- Powered via antenna coax from receiver.
- Internal transient voltage spike protection.

KEY BENEFITS

- Improves signal reception.
- Allows for extended cable lengths up to 1000'.
- Avoid the installation of expensive low-loss cable.
- No expensive, unreliable, up/down converters required.

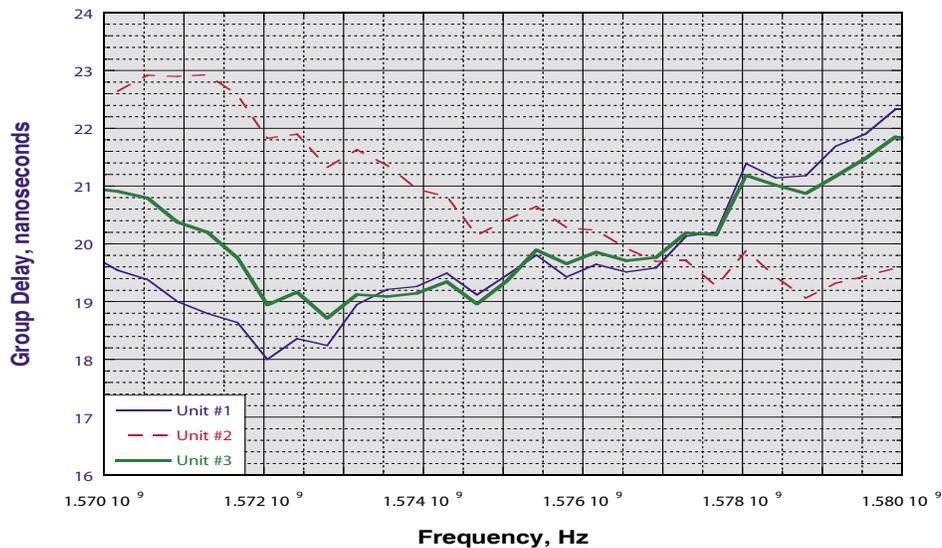


G-LNA2 Low Noise Amplifier Specifications

Gain	+26.5 dB +/-1 dB
Noise Figure	< 1.5 dB
Group Delay, Typical	20 ns
-3 dB Bandwidth, Typical	1555 to 1595 MHz (GPS L1)
Lower Stopband Attenuation	> 30 dB, f < 1520 MHz
Upper Stopband Attenuation	> 40 dB, f > 1620 MHz
Input Return Loss, Z₀ = 50	> 12 dB (1570-1580 MHz)
Output Return Loss, Z₀ = 50	> 9 dB (1570-1580 MHz)
Reverse Isolation	> 35 dB
Input 1 dB Compression Level, In-Band	> -13 dBm
Input 1 dB Compression Level, Out-of-Band	> -1 dBm
Maximum Input Level	-5 dBm
Supply Voltage Range	+3.3 to +12 VDC Nominal (+13 VDC Max)
Supply Current, Typical	15 mA
Connectors	TNC Jack
Size	.730" Dia. x 4.5" L
Housing	Nickel-plated brass
Operating Temp. Range	-40 to +85 °C
Humidity	100% Condensing
RoHS	Compliant

This table summarizes the performance of the G-LNA2 inline preamplifier. For detailed application information or special requirements, please call our toll-free number: **1-877-749-3878**, or email: sales@endruntechnologies.com

Glna2 Group Delay



Glna2 Forward Transmission and Reflection Coefficients

