



GPS L1 Inline Amplifier with 26dB Gain



zLNIA

GPS receiver performance can be degraded by using antenna cables that are too long or by exposure to electromagnetic interference (EMI). Inline amplifiers are a convenient way to boost and filter GPS signals before they reach the receiver. They are easy to install and are designed to be rugged and waterproof, for effective use anywhere.

Revision 3

Introduction

Did you know the size (amplitude) of the radio signal transmitted from the GPS satellite is actually smaller than the electrical noise found everyday in our atmosphere? So how do GPS receivers separate the desired signal from all the other unwanted signals? They do it by matching their self-generated signal code with that of the satellite's code. Easier said than done.

In order for a GPS receiver to continually track satellites and operate at peak performance it must be able to receive the GPS signal clearly. Two of the most common sources of signal degradation that impede receiver performance are (1) excessively long antenna cables and (2) electromagnetic interference (EMI).

As with any electromagnetic radio wave, GPS signals become attenuated as they are passed through electrical cable. The amount of signal loss depends on the type and length of the cable used. ZTI inline amplifiers eliminate this problem by amplifying the GPS signal.

With the proper amplifier, you can extend your antenna cable runs to hundreds of meters.

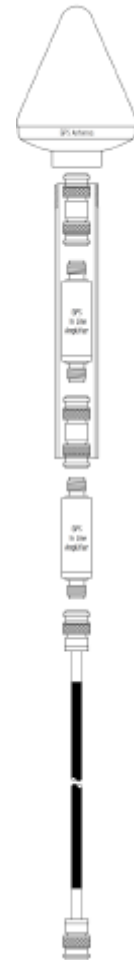
GPS receivers also suffer from the effects of EMI. Electromagnetic interference can originate from an external source or even from within the receiver itself. ZTI inline amplifier filters and rejects unwanted interference and pass GPS signals through.

ZTI GPS Low Noise in-line amplifier zLNIA series with L1 band pass filter provides high gain (26db typical) in cases where GPS and antenna are separated by large distances. Long cables runs require the use of low loss cable, heavy and costly. zLLNIA will allow increasing from 60 meters to more than 210 meters between the GPS antenna and a timing receiver. Two amplifiers may be chained to reach a distance up to 365 meters (by using CNT400 cable).

zLNIA is available in two versions, one DC PASS powered by GPS receiver through antenna coaxial cable which accepts power from 3VDC up to 16VDC, the other in DC BLOCK which blocks DC from the GPS receiver and amplify the signal from the GPS passive antenna (railways applications).

With little dimensions (75mm L x 18mm D), zLNIA is cylindrical and can be installed inside most of antenna pipe mount and integrated with cables inline.

zLNIA is rugged and weatherproof (IP67), corrosion resistant (inox housing), and can be used also with a surge arrester.



Applications	Benefits
Timing and Synchronization	Reduce overall cost using cheaper cable
Railways (DC BLOCK for passive antenna)	Compensating losses
Telematics Systems	Improves signal reception
Timing for Telecom and Base Stations	No external voltage required
For long cable or when splitters are used	Fits inside antenna mounting pipe

Specifications

Gain	26dB (typical)
Input/Output Impedance	50Ω
Filter Attenuation	>35dB@L1±75MHz >40dB@L1±140MHz
Reverse Isolation	>35dB
Noise Figure	2.5dB (filter in front-end for High Level Immunity)
VSWR	Input <1.5 Output <2.0
RF Input Level	-10dBm maximum
DC Power	+3VDC to +16VDC
Current	<10mA

Mechanical and Environmental

Dimensions (including connectors)	75mm L x 18mm D
Connectors	2 Type-TNC Female
Housing	Inox
Operating Temperature	-40°C / +85°C
Weight	90 g
Warranty	1-Year
Environmental	RoHS (PCB UL94V-0) Weatherproof (IP67)

CABLE TYPE	Max Length (Meter) No Amplifier	Max Length (Meter) Single Amplifier	Max Length (Meter) Single Amplifier + 4 way GPS Signal Splitter	Max Length (Meter) Single Amplifier + 8 way GPS Signal Splitter	Max Length (Meter) Single Amplifier + 16 way GPS Signal Splitter
LMR/CNT195	20	73	60	52	45
LMR/CNT240	30	109	89	78	67
LMR/CNT400	59	212	173	151	130
LMR/CNT600	91	327	267	233	201
RG59	21	75	61	53	46
RG213	32	116	95	83	71
RG214	32	116	95	83	71

Calculation is based using 35dB GPS antenna (Receiver Minimum Input Level = 20dB)

Ordering Information

zLNIA-DCP (DC PASS) with TNC connectors

zLNIA-DCB (DC BLOCK) with TNC connectors

Product designed and manufactured in France