LA25RPDC

GPS 25 dB Line Amplifier Technical Product Data

Features

- Low Noise Figure
  - 1.8 dB NF typical at GPS L1.
- Wide Accepted Frequency Range
  - Accepts signals from the entire L-Band, covering all major GNSS constellations.
- Customizable Fixed Output Gain
  - Customizable from 1 dB to 25 dB.
- High 1 dB compression point and 3rd order intercept point.

Description

This Line Amplifier 25dB Regulated Pass DC (LA25RPDC) is an active one input, one output amplifier optimized for GPS applications. This equipment accepts signals covering all major GNSS constellations with excellent gain flatness. In the standard configuration, the J1 port accepts DC voltage from a connected GPS receiver. This voltage is regulated and used to power the internal amplifiers while unregulated voltage is passed through the antenna port to power a connected active antenna or other upstream devices.

In the Networked (Externally Powered) configuration, the output (**J1**) is DC Blocked, and a customer-defined output voltage is provided via the antenna port. Custom gain, DC power, and connector configurations are available upon request.

Use Cases

- As an in-line amplifier to negate the insertion loss of a long cable run.
- To add amplification to a signal provided by a passive antenna.
- As an amplifier in a re-radiating system.
- In combination with one of our splitter devices to create a GPS distribution network.

LA25RPDC

Electrical Specifications, TA=25°C

General Specification

Parameter	Notes	Min	Typ	Max	Unit
Frequency Range	Covers all major GNSS constellations.	1.1		1.7	GHz
Characteristic Impedance	Unused ports should be terminated with 50Ω loads.		50		Ω
Reverse Isolation	Attenuation applied signals traveling backwards through the amplifier: S12.		-60		dB
Req. DC Input V.	Operating Voltage Range.	3.3		15	VDC
Current Draw	Typical current consumption.		36		mA

GPS L1 & L2 RF Specification (1)

Parameter	Notes	Min	Typ	Max	Unit
Gain	The relative increase in signal power provided by the amplifier.	24	25	26	dB
Input SWR	Input Standing Wave Ratio: S11			2.0:1	-
Output SWR	Output Standing Wave Ratio: S22			2.0:1	-
Noise Figure	The increase in noise power relative to an ideal amplifier.		L1:1.8 L2:4.6		dB
Band Gain Flatness	The difference in loss or gain between the L1 and L2 frequencies.		0.5	1.0	dB
Input P1dB	The 1dB compression point.		-21		dBm
3rd Order Intercept	Third-order intercept point at L1.		-12		dBm

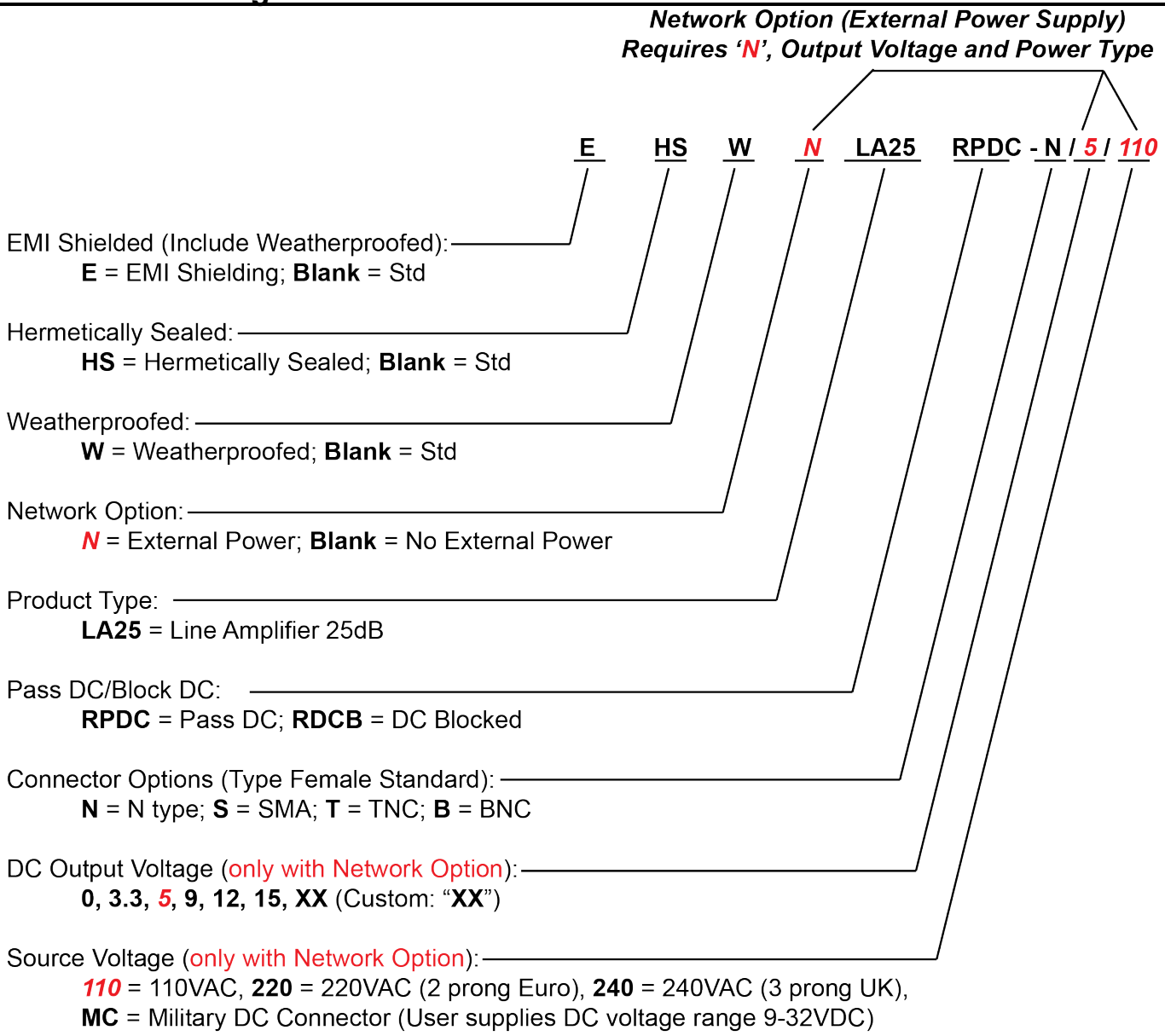
(1): Performance is slightly reduced around GPS L5. If working on sensitive L5 applications, please request performance data.

External Power Options (Networked Option)		
Source Voltage Options	Voltage Input	Style
	110VAC	Transformer (ITA Type A Wall Mount)
	220VAC	Transformer (ITA Type C Wall Mount)
	240VAC (United Kingdom)	Transformer (ITA Type G Wall Mount)
	Customer Supplied DC 9-32 VDC	MIL-DTL-5015 10SL Two-Pin DC Connector (Includes Mate)
Output Voltage Options (2)	**DC Voltage Out**	**Max Current out For Corresponding Vout**
	3.3 V	110mA
	5V	130mA
	9V	140mA
	12V	170mA
	15V	210mA
	Custom	Custom
Standard DC Configuration without External Power Option		
All Ports Pass DC		
Standard DC Configuration with any External Power Option (AC/DC or Military DC)		
J1 Port DC Blocked with 200Ω load standard		
Antenna Port is DC Pass		
Connector Options	**Connector Style**	**Charge**
	Type N-female	No Charge
	Type SMA-female	No Charge
	Type TNC-female	No Charge
	Type BNC-female	No Charge
	Other	Contact GPS Networking

(2): With Network Option, any RF port (input or output) can be specified to Pass DC or Block DC

LA25RPDC

Part Number Configuration



(Military DC Mating Connector is included standard with the MC power option).

When no external power supply option (AC or DC) is selected, Output 1/J1 is Pass DC Standard.
When external power supply option is selected, all outputs are DC blocked standard.

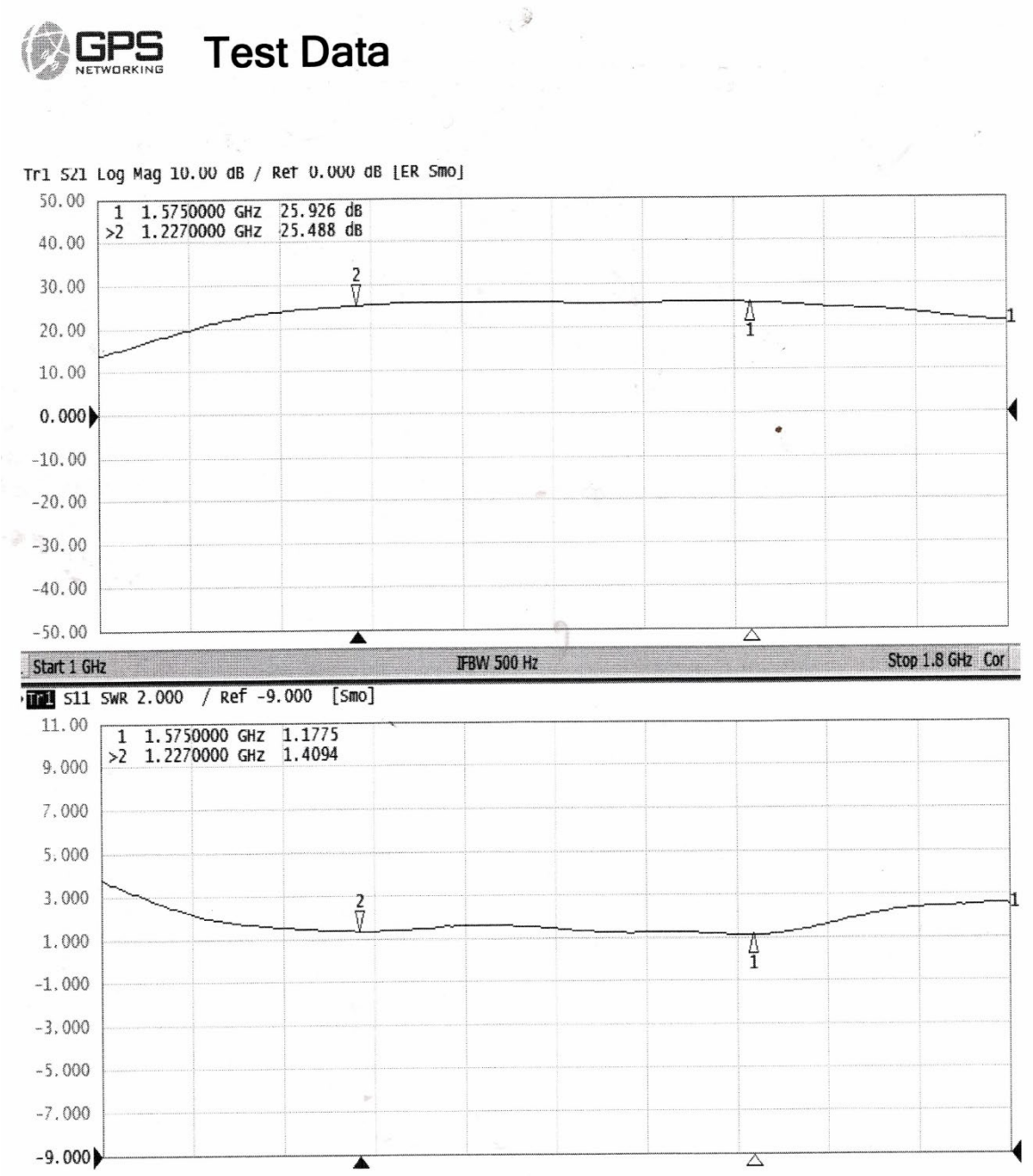
Contact GPS Networking Technical Support at 1-800-463-3063 or salestech@gpsnetworking.com for any questions regarding non-standard configurations and corresponding part numbers.

LA25RPDC

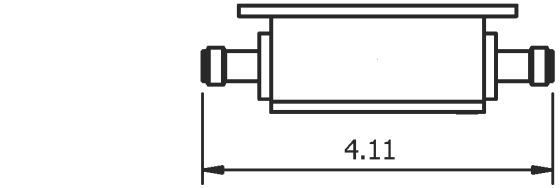
Performance

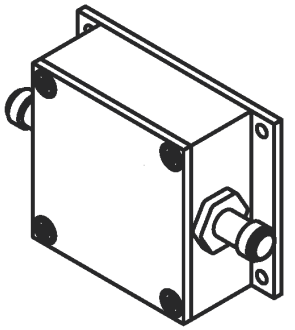
LA25RPDC (Standard Gain)

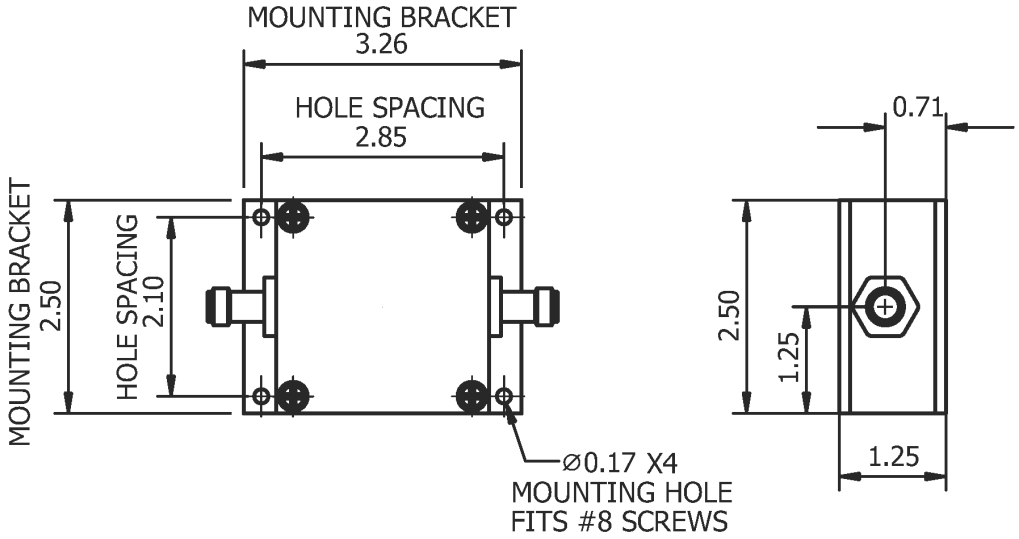
Each LA25RPDC ships with a test sheet that verifies critical performance characteristics, such as gain, input VSWR, and amplitude balance; a typical VNA test sheet is shown below.



Mechanical







Mechanical
Dimensions:
Depth: 1.3"
Height: Body: 2.5"
Baseplate: 3.25"
Width: 2.5"
Dimensions listed above do not include connectors
Weight: 9.2oz (260g) MAX
Maximum weight is with female N-connector option
Weight will vary by connector type
Operating Temperature Range:
-57°C to +87°C
Housing and Baseplate Finish:
Electroless Nickel Plated
(MIL-C-26074C, Class 1
0.0001-0.0003 MAX)
Lid Finish: Anodize, Type II,
Class 2, Black, per MIL-A-8625

Female TNC connectors shown, other options available
EMI shielding may increase dimension by 0.02 inches per axis

GPS NETWORKING
373 E. Industrial Blvd.
Pueblo West, CO 81007

LA25RPDC-TNC
Line Amplifier 25dB Gain

7-31-20	NW	Scale: 1:2	Rev: 1	Sheet 1 of 1	Units are inches and degrees

Tolerances:
X±0.030
XX±0.015
XXX±0.005
Angle±1°

Contact us at salestech@gpsnetworking.com for 3D models or CAD drawings.