

# LA20FPDC



## Line Amplifier 20dB Gain L1/L2 Filtered Technical Product Data

### Features

- Amplifier Gain: 20dB typical
- Passes L1/L2 GPS, Galileo & BEIDOU
- High Rejection outside L1 and L2
- Excellent Passband Ripple
  - L1/L2 Ripple <2.0dB
- Very Low Noise Figure
  - 1.4 dB NF typical at GPS L1.
- High 1 dB compression point and 3<sup>rd</sup> order intercept point.



### Description

This **Line Amplifier 20dB Filtered Pass DC (LA20FPDC)** 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 and a very low noise figure. 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.

The frequency response covers both GPS L1 & L2 bands in addition to passing GNSS frequencies. There is greater than 20dB rejection minimum +/- 100MHz relative to the passband. In the standard configuration, the RF output (J1) passes DC from the connected GPS receiver through the amplifier to the antenna, allowing the GPS receiver to power both the antenna and the amplifier. Custom gain between 3-25dB may be ordered as well. Please contact GPS Networking Technical Support for any questions regarding the standard or special configurations at [salestech@gpsnetworking.com](mailto:salestech@gpsnetworking.com) or 1-800-463-3063.

### 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.

# LA20FPDC



## Electrical Specifications, TA=25°C

Parameter	Notes	Min	Typ	Max	Unit
L1 Frequency Range	Covers GPS, GALILEO, BeiDou, and QZSS L1 GNSS constellations.	1.541		1.596	GHz
L2 Frequency Range	Covers all major L2 GNSS constellations.	1.200		1.252	GHz
Characteristic Impedance	Unused ports should be terminated with 50Ω loads.		50		Ω
Gain	The relative increase in signal power provided by the amplifier. S21 at the L1 & L2 center frequencies.	19	20	21	dB
Input SWR	Input Standing Wave Ratio: S11			2.0:1	-
Output SWR	Output Standing Wave Ratio: S22			2.0:1	-
L1 Bandwidth	The 3dB bandwidth of the filter for the L1 band.		55		MHz
L1 Rejection	Rejection at L1 ± 100 MHz	20	27	>40	dB
L2 Bandwidth	The 3dB bandwidth of the filter for the L1 band.		52		MHz
L2 Rejection	Rejection at L2 ± 100 MHz	25	30	>40	dB
Ripple	Passband Amplitude Ripple at L1 & L2 ± 10 MHz		1.25	2.0	dB
Reverse Isolation	Attenuation applied signals traveling backwards through the amplifier: S12.	-50			dB
Input P1dB	The 1dB compression point.		L1: -24 L2: -29		dBm
Req. DC Input V.	Operating Voltage Range.	3.3		15	VDC
Current Draw	Typical current consumption.		26	30	mA

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 <sup>(2)</sup>	DC Voltage Out	Max Current out For Corresponding Vout
	3.3 V	110mA
	5V	130mA
	9V	140mA
	12V	180mA
	15V	220mA
	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) (1)		
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

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

# LA20FPDC

## Part Number Configuration

Network Option (External Power Supply)  
Requires 'N', Output Voltage and Power Type

**HS E W N LA20F PDC - N / 5 / 110**

Hermetically Sealed:

**HS** = Hermetically Sealed; **Blank**=Std

EMI Shielded (Include Weatherproofed):

**E** = EMI Shielding; **Blank** = Std

Weatherproofed:

**W** = Weatherproofed; **Blank** = Std

Network Option:

**N** = External Power; **Blank** = No External Power

Product Type

**LA20F** = Line Amplifier 20dB, L1/L2 Filtered

Pass DC/Block DC:

**PDC** = Pass DC; **DCB** = DC Blocked

Connector Options (Type Female Standard):

**N** = N type; **S** = SMA; **T** = TNC; **B** = BNC

DC Output Voltage (**only with Network Option**):

**3.3, 5, 7.5, 9, 12, 15**

Source Voltage (**only with Network Option**):

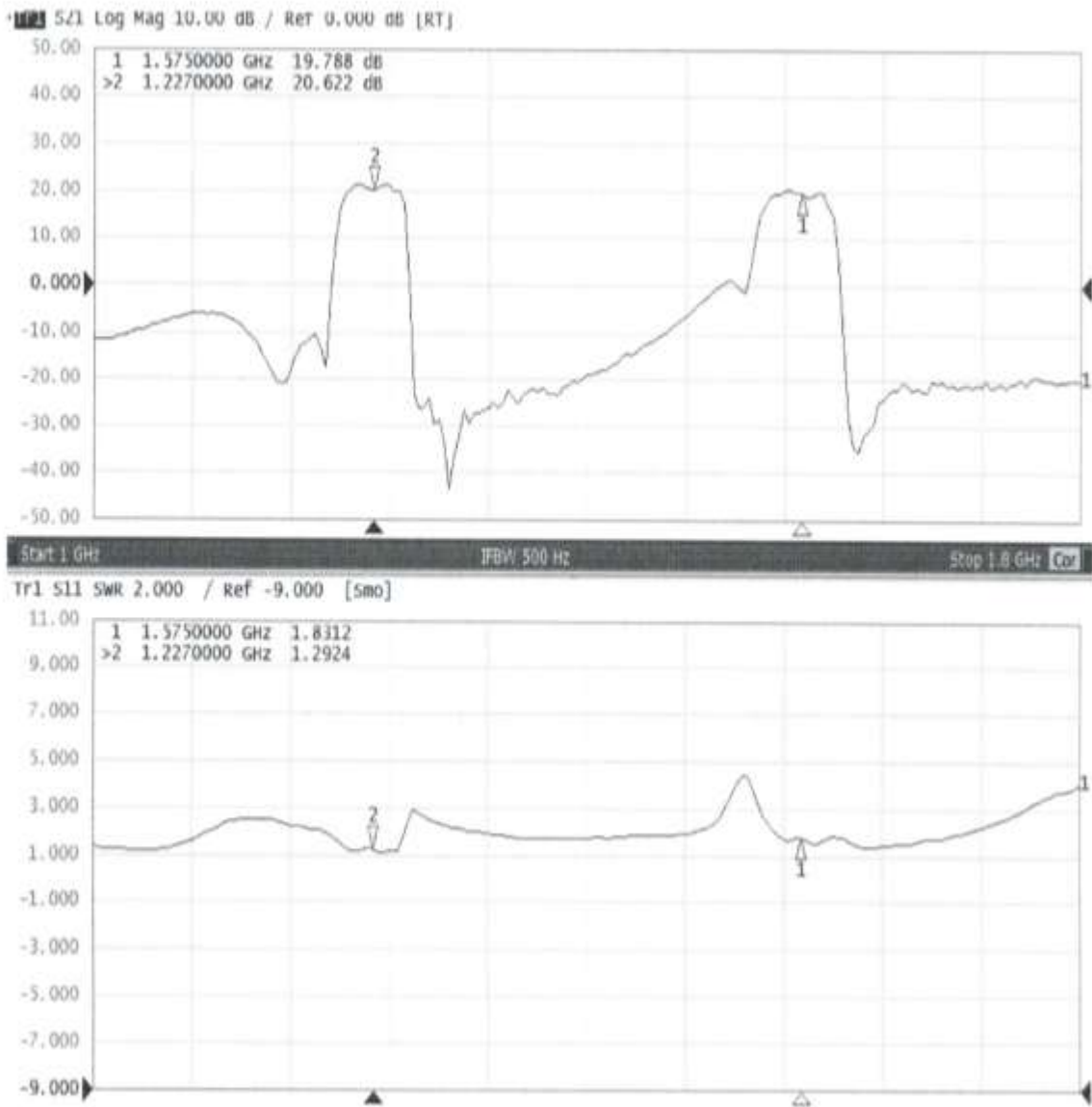
**110**=110VAC, **220**=220VAC (2 prong Euro), **240**=240VAC (3 prong UK), **MC** – Military DC Connector (User supplies DC voltage range 9-32VDC)

# LA20FPDC

## Performance

### LA20FPDC (Standard Gain)

Each LA20FPDC 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. Noise figure test data is available upon request.

# Mechanical

