

# ALDCBS1X4

## GPS Amplified 1X4 Splitter Technical Product Data

### Features

- Excellent Amplitude Balance
  - Less than 1 dB variation between ports.
- Flat Group Delay
  - Less than 1ns variation between L1 and L2.
- High Output Gain
  - 18.5 dB gain is typical across all operating frequencies.
- Wide Accepted Frequency Range
  - Accepts signals from the entire L-Band, covering all major GNSS constellations.
- Efficiently Blocked Ports
  - Uses 200 $\Omega$  resistors to prevent antenna alarm faults from connected devices.
- Matched Phase Balance
  - Less than 4° of variation between ports.



### Description

This **Amplified Loaded DC Blocked Splitter 1X4 (ALDCBS1X4)** is an active one input, four output RF splitter that splits signals from 1.1 GHz to 1.7 GHz. This equipment is designed to amplify and split signals within the L-band to provide multiple devices with the signal from a single antenna. In the standard configuration, the J1 port will pass DC voltage from a connected device and pass this power to the antenna or other devices upline from the splitter via the antenna port. The other ports (J2-J4) are DC blocked and loaded with 200 $\Omega$  resistors to simulate antenna current draw which prevents antenna alarm faults. Custom gain configuration, DC configuration, and connector configuration are available upon request.

### Use Cases

- Splitting and amplifying a roof antenna signal between 4 GPS/GLONASS/GNSS receivers.
- Splitting and amplifying WAAS antenna between WAAS receiver, ADS-B, and 2 other devices.
- Splitting and amplifying an antenna signal to 4 passive antennas to re-radiate 4 spaces.
- Usable as a small part of a larger signal distribution network.

# ALDCBS1X4

## 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
Current Draw	Typical current consumption.		17	22	mA
Input P1dB	The 1dB compression point.		-20		dBm
Req. DC Input V.	Operating voltage range for non-networked units.	3.3		15	VDC

### GPS L1 & L2 RF Specification <sup>(1)</sup>

Parameter	Notes	Min	Typ	Max	Unit
Gain	The relative increase in signal power provided by the amplifier.	17	18.5	20	dB
Input SWR	Input Standing Wave Ratio: S11		1.4:1	2.0:1	-
Output SWR	Output Standing Wave Ratio: S22		1.3:1	2.0:1	-
Noise Figure	The increase in noise power relative to an ideal amplifier.		L1:2.25 L2:4.5	L1:2.5 L2:5.0	dB
Gain Flatness	The difference in loss or gain between the L1 and L2 frequencies.		0.5	1.0	dB
Amplitude Balance	The difference in gain or loss between each output port.		0.5	1.0	dB
Phase Balance	The difference in phase variation between each output port.			4.0	deg
Isolation	The amount of attenuation between two output ports.	L1:22 L2:12		L1:40 L2:17	dB
Group delay flatness	The difference in signal delay between the L1 and L2 frequencies.		0.25	1.0	ns

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

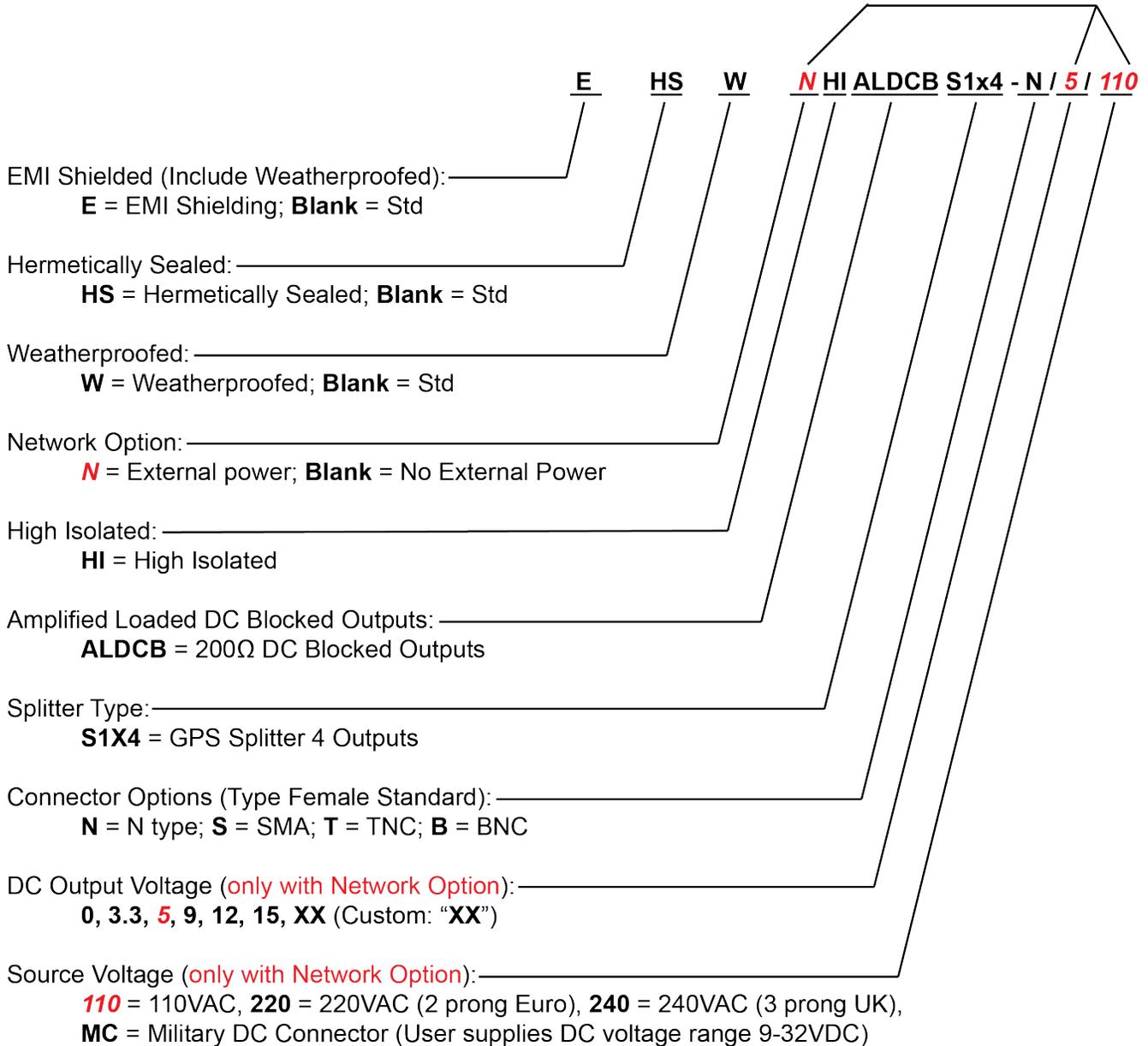
External Power Options (Networked Option)	
Source Voltage Options	Voltage Input
	110VAC
	220VAC
	240VAC (United Kingdom)
Customer Supplied DC 9-32 VDC	MIL-DTL-5015 10SL DC Connector (Includes Mate)
Output Voltage Options <sup>(1)</sup>	DC Voltage Out
	3.3 V
	5V
	9V
	12V
	15V
Custom	Custom
Standard DC Configuration without External Power Option	
J1/Output 1 Pass DC, J2-J4/Output 2-4 Block DC, Input Pass DC	
Standard DC Configuration with any External Power Option (AC/DC or Military DC)	
All Outputs DC Blocked with 200Ω load standard	
Any port can be custom selected to Pass or Block DC	
Connector Options	Connector Style
	Type N-female
	Type SMA-female
	Type TNC-female
	Type BNC-female
Other	Contact GPS Networking

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

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## Part Number Configuration

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



(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](mailto:salestech@gpsnetworking.com) for any questions regarding non-standard configurations and corresponding part numbers.

# ALDCBS1X4

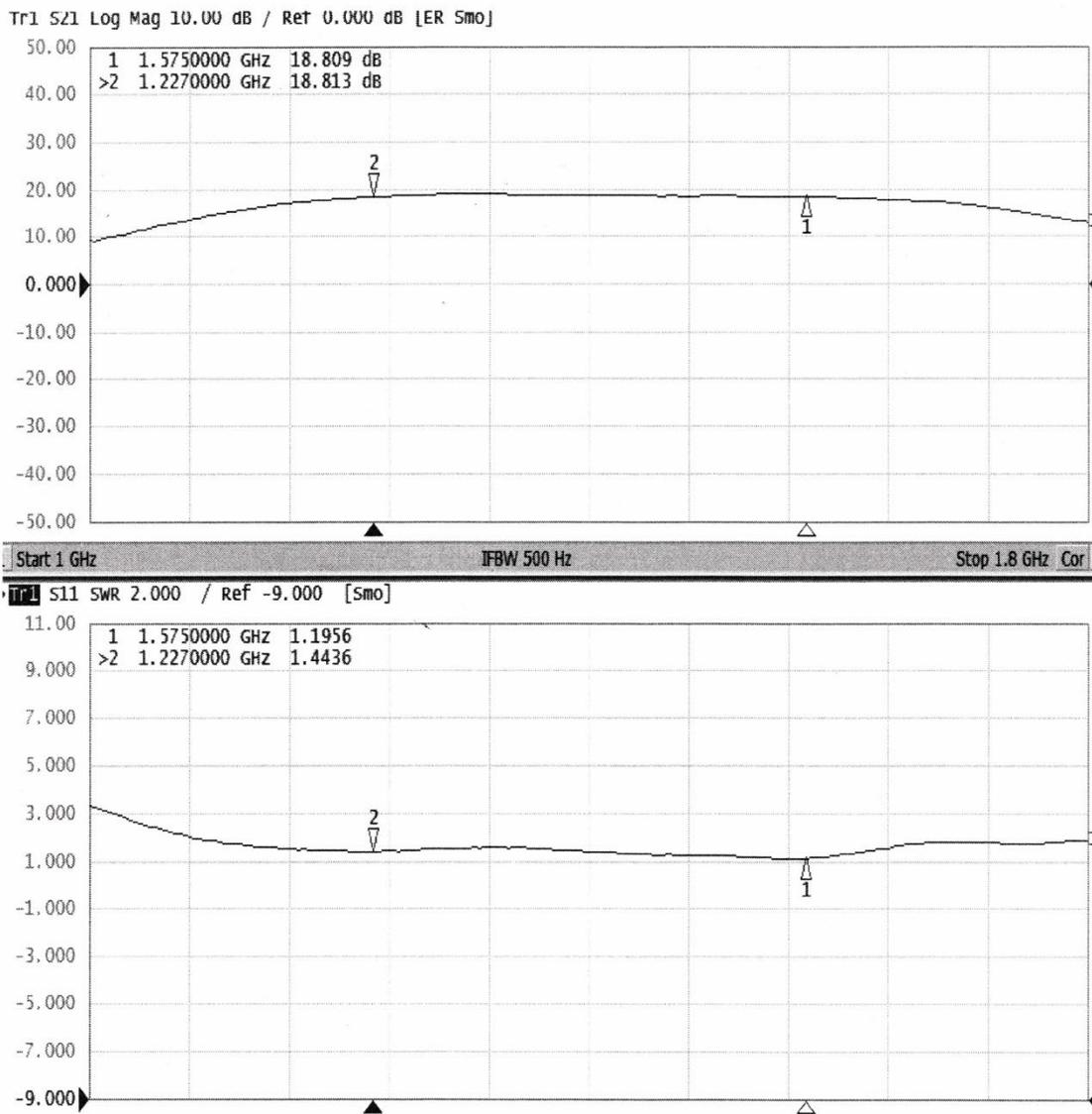
## Performance

ALDCBS1X4 (Standard Gain, typical)

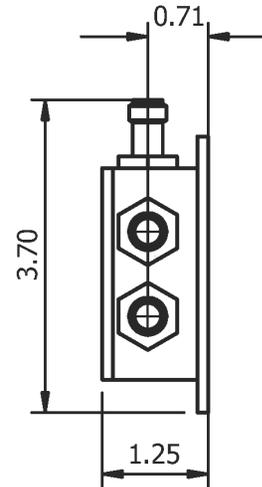
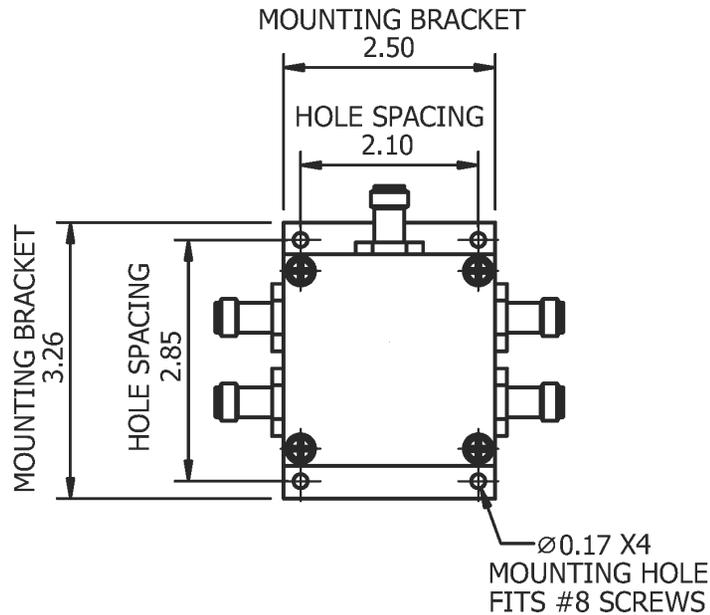
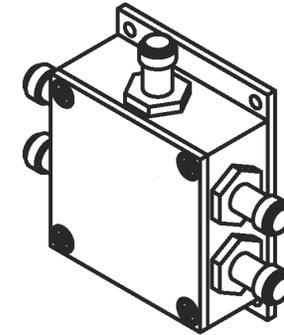
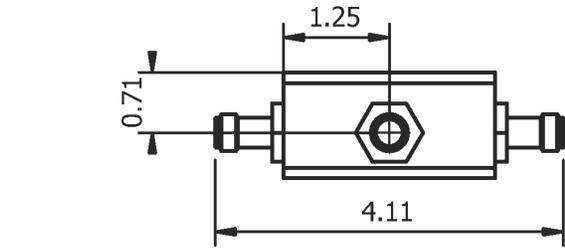
Each ALDCBS1X4 ships with a test sheet that verifies critical performance characteristics, such as gain, input VSWR, and amplitude balance; a typical VNA test sheet is shown below.



### Test Data



# Mechanical



## Mechanical

### Dimensions:

Depth: 1.3"

Height: Body: 2.5"

Baseplate: 3.25"

Width: 2.5"

Dimensions listed above do not include connectors

Weight: 11.7oz (332g) 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



ALDCBS1X4-TNC

Amplified 1X4 GPS Splitter

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

6-9-20

NW

Scale: 1:2

Rev: 1

Sheet 1 of 1

Units are inches and degrees