MIL-HIALDCBS1X2

Military High Isolated Amplified 1X2 GPS Splitter Technical Product Data

Features

- Precise Amplitude Balance
  - Less than 1 dB variation between ports.
- Flat Group Delay
  - Less than 1ns variation between L1 and L2.
- High Isolation
  - 50 dB of port-to-port isolation 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 200Ω resistors to prevent antenna alarm faults from connected devices.
- Matched Phase Balance
  - Less than 1° of variation between ports.
- Qualification and Test Reports Available

Description

This **Mil**itary Qualified **H**igh **I**solated **A**mplified **L**oaded **DC B**locked **S**plitter **1X2 (MIL-HIALDCBS1X2)** is a high isolated, active, one input to two 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. Each output port (J1/J2) is isolated from external signals to prevent interference. 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 port (J2) is DC blocked and loaded with 200Ω resistors to simulate antenna current draw which prevents antenna alarm faults. All MIL-Spec splitters are qualified to the rigorous MIL-STD 810F environmental & MIL-STD-461F EMI standards. Custom gain, DC, and connector configurations available upon request.

Use Cases

- Splitting and amplifying a roof antenna signal between 2 GPS/GLONASS/GNSS receivers.
- Splitting and amplifying WAAS antenna between WAAS receiver and ADS-B.
- Splitting and amplifying an antenna signal to 2 passive antennas to re-radiate 2 spaces.
- Splitting the signal while preventing interference from exterior signals and other ports.
- Usable as a small part of a larger signal distribution network.
- Can be customized to have per port custom gain or unity gain (0 dB gain).

MIL-HIALDCBS1X2

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
Req. DC Input V.	Operating voltage range for non-networked units.	3.3		15	VDC
Current Draw	Typical current consumption.		17	20	mA

GPS L1 & L2 RF Specification (1)

Parameter	Notes	Min	Typ	Max	Unit
Gain	The relative increase in signal power provided by the amplifier.	5.0	6.5	8.0	dB
Isolation	The amount of attenuation between two output ports.	50		56	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.		L1:2.8 L2:5.15		dB
Gain Flatness	The difference in loss or gain between the L1 and L2 frequencies.		0.5	1.5	dB
Amplitude Balance	The difference in gain or loss between each output port.			1.0	dB
Phase Balance	The difference in phase variation between each output port.		0.5	1.0	deg
Group delay flatness	The difference in signal delay between the L1 and L2 frequencies.		0.73	1.0	ns
Input P1dB	The 1dB compression point.		-25		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 (1)	**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		
J1/Output 1 Pass DC, J2/Output 2 Block DC, Antenna 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**	**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

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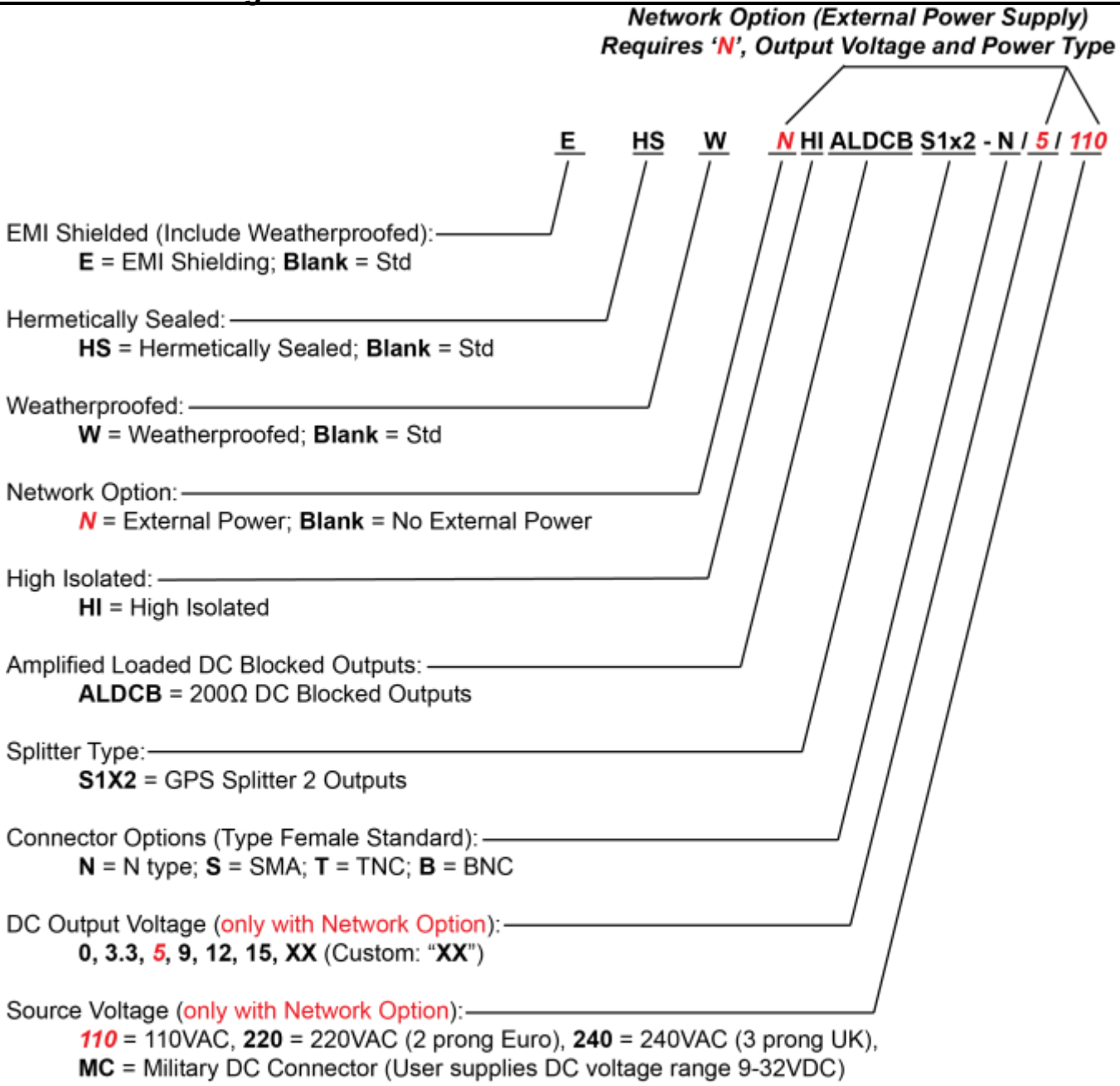
Part Number Configuration



(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.

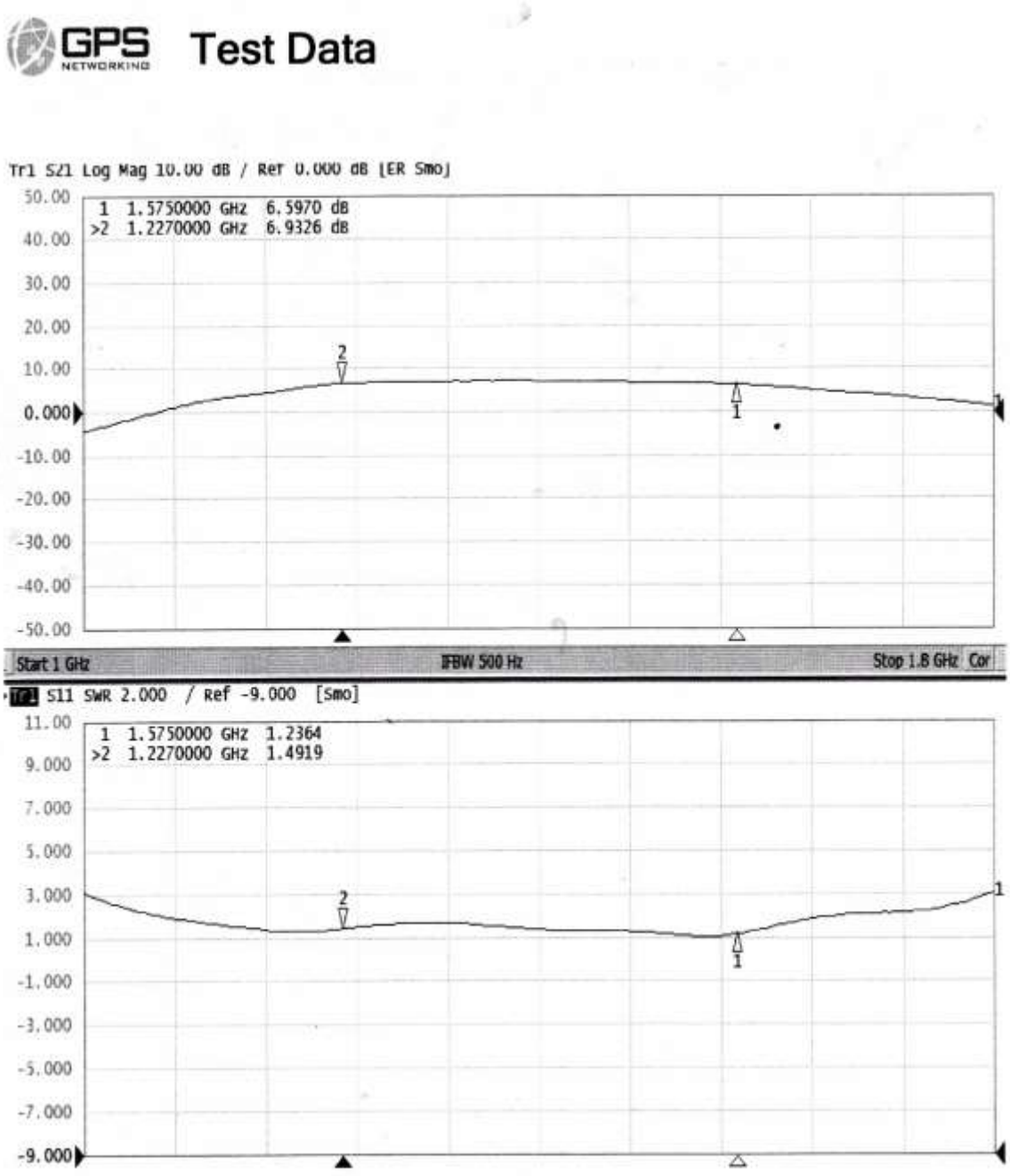
Contact GPS Networking Technical Support at 1-800-463-3063 or salestech@gpsnetworking.com for any questions regarding non-standard configurations and corresponding part numbers.

MIL-HIALDCBS1X2

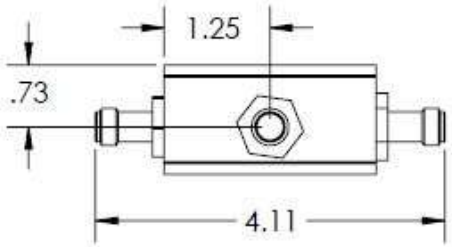
Performance

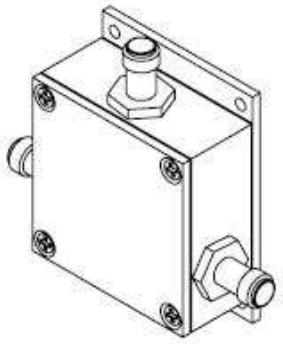
MIL-HIALDCBS1X2 (High Isolation Gain, typical)

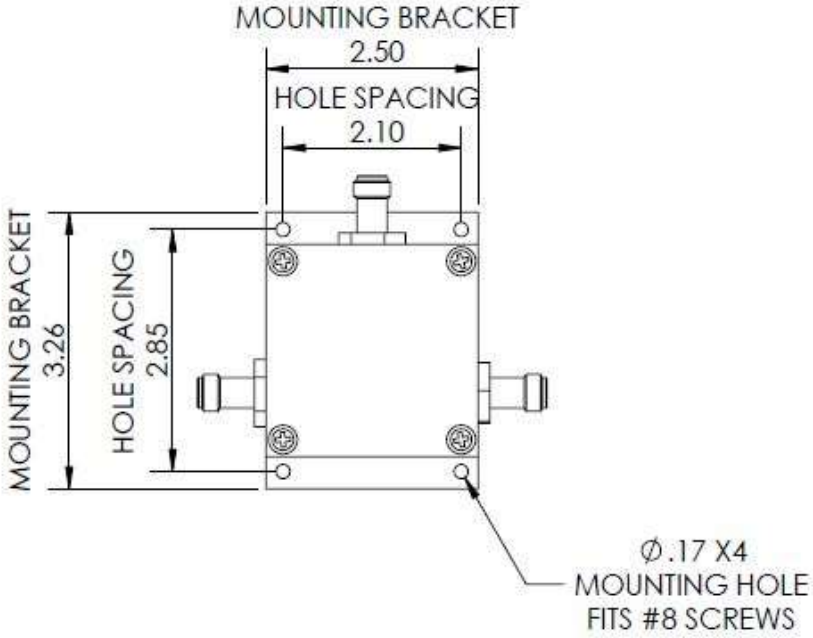
Each MIL-HIALDCBS1X2 ships with a test sheet that verifies critical performance characteristics, such as gain, input VSWR, and amplitude balance; a typical VNA test sheet is shown below.

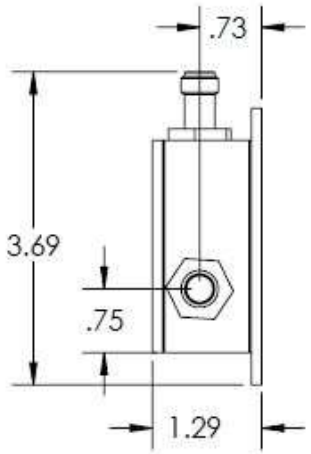


Mechanical









Mechanical
Dimensions:
Depth: 1.29"
Height: Body: 2.5"
Baseplate: 3.26"
Width: Body: 2.5"
Dimensions listed above
do not include connectors
Weight: 11.7oz (332g) MAX
Operating Temperature Range:
-57°C to +87
Baseplate Finish:
Electroless Nickel Plated
(MIL-C-26074C, Class 1
0.0001-0.0003 MAX)
Lid Finish: Anodize, Type III,
Class 2, Black, per MIL-A-8625

Female TNC connectors shown, other options available

GPS TECHNOLOGY 373 E. Industrial Blvd. Pueblo West, CO 81007	MIL-HIALDCBS1X2-TNC				Tolerances: X ± 0.030 XX ± 0.015 XXX ± 0.005 Angle ± 1°
	Military High Isolated Amplified 1X2 GPS Splitter				
08-16-22	MM	Scale:1:2	Rev: 1	Sheet 1 of 1	Units are inches and degrees

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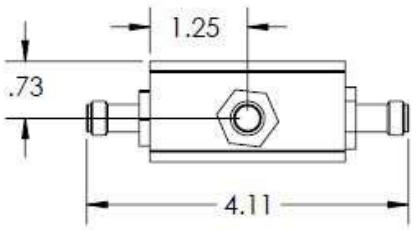

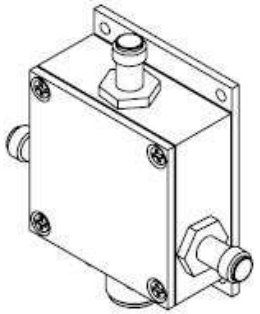

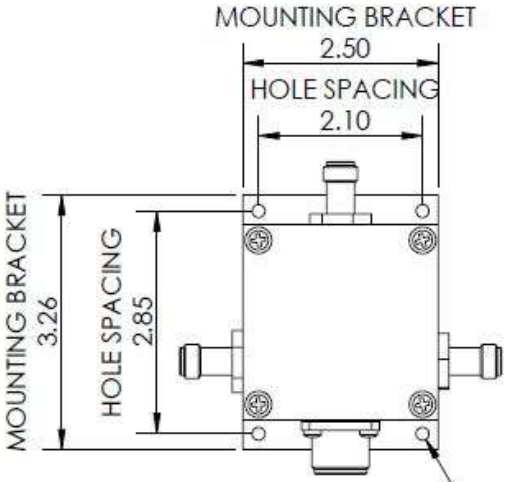

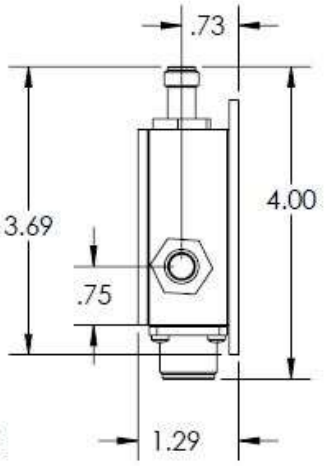

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GPS NETWORKING
373 E. Industrial Blvd.
Pueblo West, CO 81007

MIL-NHIALDCBS1X2-TNC/XX/MC

Military Networked High Isolated Amplified 1X2 GPS Splitter

08-16-22	MM	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°