



GPS30-20 GPS Antenna Splitter

General Description

The GPS30-20 is an inline GPS antenna splitter for the L1 and L2 frequencies of the GPS, GLOSNASS and Galileo Satellite systems. It allows up to twenty GPS receivers to operate from one GPS antenna. The GPS antenna can either be an active type or passive type. GPS receivers can be 3V, 5V or passive types. The GPS30-20 has a nominal gain of 0 dB and incorporates filters that reject unwanted signals. The gain can be optionally increased to 10 dB.

Cable Configuration

The GPS Antenna is connected to one side of the GPS30-20. One to twenty GPS receivers are connected to the other side of the GPS30-20. Each GPS receiver port is isolated from the antenna and from each other. Normally, GPS antennas are active types that need 3 or 5-volt DC to power them. This DC is supplied by the internal AC power supply.

Combining Active and Non-Active GPS Receivers

Active GPS Receivers have 3 or 5 volts DC present on their antenna inner wire to power the antenna. Passive GPS receivers do not have any DC present, and thus DC should not be applied to the inner wire of passive type receivers.

Active and passive GPS receivers can be used with the GPS30-20 at the same time. Jumpers are used to change the GPS30-20 configuration and these jumpers can be accessed by the customer by removing the top lid.

Non-Active Antennas

As already mentioned, DC will normally flow from the GPS receiver, through the GPS30-20 to the active antenna. If a non-active antenna is being used, DC should not flow to the antenna and this can be achieved by removing an internal jumper.

Combining 3V and 5V GPS Receivers

Some GPS receivers operate at 3 volts, others at 5 volts. Thus, the DC on the antenna inner wire could be 3-5 volts. If the user wishes to use 3 volt and 5 volt GPS receivers together, internal jumpers can be configured to select what GPS receiver powers the antenna (and the splitter). Thus, a 3 V GPS receiver could be used with a 3V antenna, a 5V receiver could be used with a 5V antenna and a 5V receiver can even be used with a 3V antenna by utilizing the internal 3V voltage regulator.

Receiver Load Resistors

If necessary, jumpers can be selected to connect load resistors to each receiver port simulating an active antenna.

Using the GPS30-20 with >12 volt antennas.

It is possible for the GPS30-20 to operate with antennas of voltages up to 30 VDC. This should be mentioned at time of ordering.

Gain and Frequency Response

The GPS30-20 has a gain of 0 dB and operates on both the L1 and L2 frequencies. Option 04 increases the gain to 10 dB.

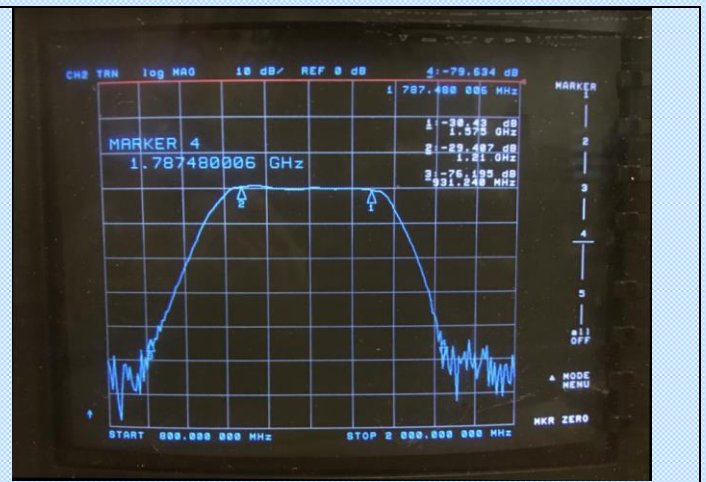
Band Pass Filters

The GPS30-20 incorporates band pass filters to actively reject unwanted signals outside the GPS satellite band. Examples are cellular and microwave signals.

The plot to the right shows the typical frequency response of the GPS30-20 from input to output.

The 3rd line down represents 0 dB gain. Thus, it can be seen that the GPS30-20 rejects out of band signals by > 50 dB.

The two markers in the middle represent the GLONASS and GPS/Galileo satellite signals respectively.



Construction

The GPS30-20 is housed in a 19" 1U rack mount case.

GPS30-20 SPECIFICATIONS

Specification Parameter	Specification	Comments
Frequency Range	1200 to 1610 MHz.	
Input and Output Impedance	50 Ω	
Input and Output return loss	> 10 dB	
Gain	0 \pm 3 dB	+10 dB option 04
Noise Figure / 1 dB Compression	< 3 dB / -45 dBm	
Receiver port to port isolation	20 dB typical at the L1 and L2 frequencies	
Reverse Isolation	> 60dB at the L1 and L2 frequencies	
Out of band filter rejection	> 50 dB rejection < 1000 and > 1800 MHz	
Power Supply Required	90 – 260 VAC	
Max DC Current to antenna	100 mA (5V to antenna), 50 mA (3V to Antenna)	
Connectors	BNC or SMA	Other connectors available
Size and weight	480 mm x 300mm x 44 mm and 2 kg	Including connectors

Environmental	-20 °C to +60 °C	
Option 04	Gain increased to 10 dB ± 3 dB	
-TNC	TNC Connectors.	

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Specifications subject to change without notice (211216)