

GPS30 GPS Antenna Splitter



General Description

The GPS30 is an inline GPS antenna splitter. It allows four 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 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. One to four GPS receivers are connected to the other side of the GPS30. 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 one of the four GPS receivers.

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 at the same time. If all passive GPS receivers are used, option 01 should be ordered, so that the GPS30 can be powered by an external 3-5V power supply. Jumpers are used to change the GPS30 configuration and these jumpers can be accessed by the customer.

Non-Active Antennas

As already mentioned, DC will normally flow from the GPS receiver, through the GPS30 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 utilising 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 with 12 volt antennas.

Option 03 adds an external DC connection allowing an external power supply to feed a DC voltage to the antenna via the inner wire of the antenna cable. The DC voltage can be 0 to 20 VDC, ideal for 12 volt antennas, for example.

Gain and Frequency Response

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

Construction

The GPS30 is made to the highest standards and the case is manufactured out of a solid piece of aluminium. The GPS30 is waterproof (silicon sealant should be used to cover the jumpers after configuration).

GPS30 SPECIFICATIONS

Specification Parameter	Specification	Comments
Frequency Range	1225 to 1576 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	< 3 dB	
1 dB Compression	-25 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 100 - 700 MHz and > 2.15 GHz	
DC Voltage Required	3 V to 5 V	
DC Current	11 mA Max	
Max DC Current to antenna	75 mA (5V to antenna), 30 mA (3V to Antenna)	
Connectors	N type female	Other connectors available
Size and weight	160 mm x 78mm x 26 mm and 440 grams	Including connectors
Environmental	-20 $^{\circ}$ C to +60 $^{\circ}$ C	
Option 01	External DC power connection	+3 to +5 V @ 10 mA
Option 02	External power supply for option 01 or 03	100 to 240 VAC
Option 03	External DC connection for antenna	
Option 04	Gain increased to 10 dB \pm 2 dB	

Specifications subject to change without notice (100706)

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