

# S12 Splitter

## Features

- ❖ Amplified & Passive Versions Available
- ❖ Passes GPS, Galileo & GLONASS
- ❖ L1/L2 Available
- ❖ Excellent Gain Flatness
- ❖ Gain | L1 - L2 | < 2 dB
- ❖ RoHS/WEEE Compliant
- ❖ Designed to Mil. Std. 810



## Description

The S12 GPS Splitter is a one-input, two-output GPS device. This product typically finds application where an input from an active GPS roof antenna is split evenly between two receiving GPS units. In this scenario, the S12 can be configured to pass DC from an RF output (J1) to the antenna input port in order to power an active GPS antenna on that port. The second RF output would feature a 200 Ohm DC load to simulate an antenna DC current draw for any receiver connected to that port.

The S12 splitter comes with many available options to meet your specific needs. Please call, fax, email ([sales@gpssource.com](mailto:sales@gpssource.com)), or visit our website ([www.gpssource.com](http://www.gpssource.com)) for further information on product options or specifications.

## S12 Splitter

### Electrical Specifications, Operating Temperature -40 to 85<sup>0</sup> C

| Parameter                     |                        | Conditions   | Min              | Typ | Max               | Units |
|-------------------------------|------------------------|--|------------------|-----|-------------------|-------|
| Freq. Range                   |                        | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                                       | 1                |     | 2                 | GHz   |
| In/Out Imped.                 |                        | Ant, J1, J2  |                  | 50  |                   | Ω     |
| Gain <sup>(4)(5)</sup>        |                        | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                                       |                  |     |                   |       |
| -Amplified (Norm)             |                        |  | 23               | 24  | 25                | dB    |
| -Amplified (Cust. Gain)       |                        | As Specified (XdB)   | X-1              | X   | X+1               |       |
| Loss-Passive <sup>(5)</sup>   |                        | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                                       | 4                | 4.5 | 5                 | dB    |
| Input SWR <sup>(5)</sup>      |                        | All Ports 50Ω  |                  |     | 2.0:1             | -     |
| Output SWR <sup>(5)</sup>     |                        | All Ports 50Ω  |                  |     | 2.0:1             | -     |
| 1dB Comp. Pt. (Ampl.)         |                        | All Ports 50Ω  |                  | -32 |                   | dBm   |
| Input IP <sub>3</sub> (Ampl.) |                        | All Ports 50Ω  |                  | -24 |                   | dBm   |
| Noise Figure-Amplified        |                        | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                                       |                  |     | 1.8               | dB    |
| Gain Flatness <sup>(5)</sup>  |                        | L1 - L2 , Ant – J1, J2-50Ω; Ant – J2, J1-50Ω                               |                  |     |                   |       |
| -Amplified:                   |                        |  |                  |     | 2                 | dB    |
| -Passive:                     |                        |  |                  |     | 1                 |       |
| Amp. Balance                  |                        | J1 - J2 , Ant – J1, J2-50Ω; Ant – J2, J1-50Ω                               |                  |     | 0.5               | dB    |
| Phase Balance                 |                        | Phase (J1 - J2), Ant – J1, J2-50Ω; Ant – J2, J1-50Ω                        |                  |     | 1.0               | Deg   |
| Group Delay Flatness          |                        | T <sub>d,max</sub> - T <sub>d,min</sub> , J1 - Ant                         |                  |     | 1                 | ns    |
| Isolation <sup>(4)</sup>      |                        | Adjacent Ports: Ant - 50Ω  |                  |     |                   |       |
| -Amp/Pass(Norm)               |                        |  | 13               |     |                   | dB    |
| -Amplified (Hi Iso.)          |                        |  | 30               |     |                   |       |
| AC IN                         | 110                    | Wall Mount Transformer <sup>(3)</sup>                                      |                  | 110 |                   | VAC   |
|                               | 220/240                | Wall Mount Transformer (Various Intl. plug types available) <sup>(3)</sup> |                  | 230 |                   | VAC   |
| DC IN                         | DC Blk                 | Any DC Blocked Port with a 200 Ω Load                                      |                  |     | 14                | VDC   |
|                               | Pass DC                | Non-Powered Configuration, DC Input on J1                                  |                  |     | 16                | VDC   |
|                               | -Amplified<br>-Passive |  | 3                |     | 16                | VDC   |
|                               | Powered                | Powered, Mil. Conn. or Quick Connect Option                                | 3 <sup>(1)</sup> |     | 28 <sup>(2)</sup> | VDC   |
| Device Current                |                        | Current Consumption of device, excludes Ant. Cur.                          |                  |     | 16                | mA    |
| Ant/Thru Current              | Pass DC                | Non-Powered Configuration, DC Input on J1                                  |                  |     | 250               | mA    |
|                               | Powered                | Powered, Mil. Conn. or Quick Connect Option                                |                  |     | Note 3            | mA    |
| Max RF Input                  |                        | Max RF input without damage  |                  |     |                   |       |
| -Amplified                    |                        |  |                  |     | 0                 | dBm   |
| -Passive                      |                        |  |                  |     | 30                |       |

## S12 Splitter

### Notes:

1. DC IN for powered option must be 2V greater than desired DC Voltage Out
2. Maximum DC IN is 35V when 1275B Powered option is included
3. Maximum combined DC current draw out all ports of the device is a function of the DC input voltage and desired DC output voltage , according to the following:

$$I_{out} \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.016 \quad \text{Amps}$$

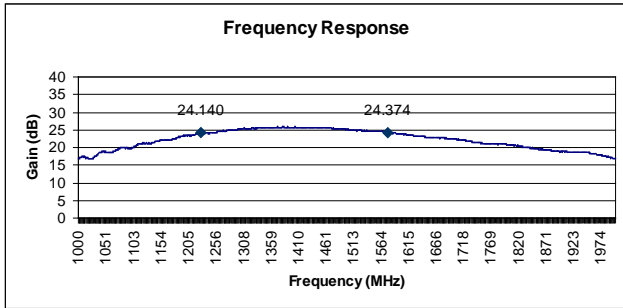
For powered option with a wall mount transformer (Voltage Input = 110/220/240 VAC),  $V_{DC IN}$  is 9V.

4. Choose Custom Gain Option to increase port-to-port isolation
5. Performance guaranteed for N(F) connectors

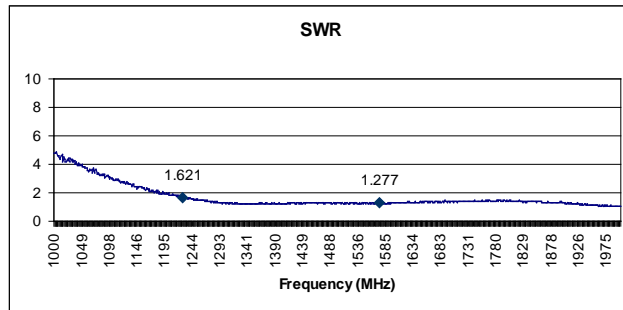
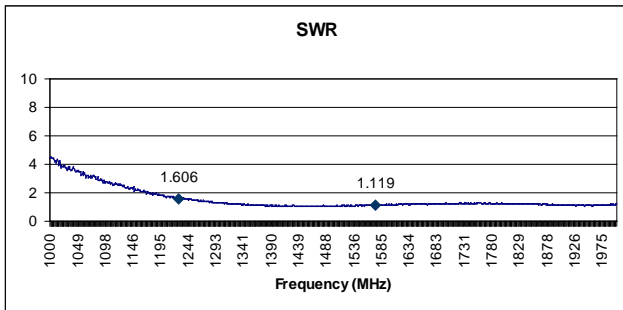
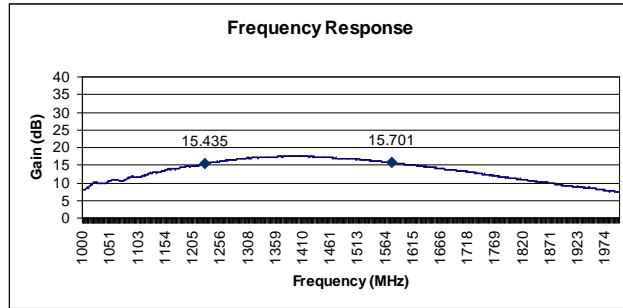
# S12 Splitter

## Performance Data

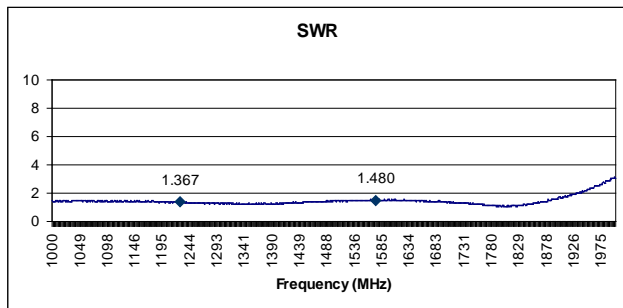
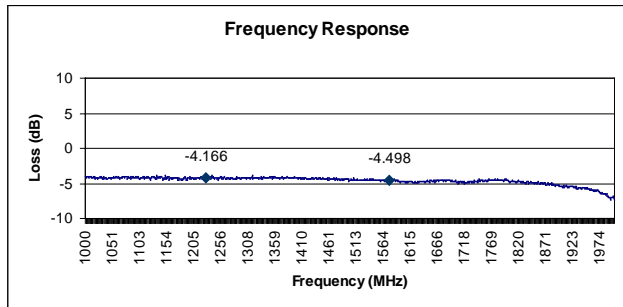
S12 Active – Normal



S12 Active – Cust. Gain (15dB)



S12 – Passive



## S12 Splitter

### Available Options:

| Power Supply Options:                 |  |  |
|---------------------------------------|--|--|
| Source Voltage Options                | Voltage Input  | Type   |
|                                       | 110 VAC  | Wall Mount Transformer   |
|                                       | 220 VAC  | Wall Mount Transformer   |
|                                       | 240 VAC (U.K.)                                       | Wall Mount Transformer   |
|                                       | DC 5-28 VDC  | Military Style Connector or w/Quick Connects                   |
| Output Voltage Options <sup>(1)</sup> | DC Voltage Out <sup>(2)</sup>                        |  |
|                                       | 3.3  |  |
|                                       | 5  |  |
|                                       | 7.5  |  |
|                                       | 9  |  |
|                                       | 12   |  |
|                                       | Variable (3-12V)                                     |  |
|                                       | Custom   |  |
| RF Connector Options:                 |  |  |
| Connector Options                     | Connector Type                                       | Limitations  |
|                                       | N (Male & Female)                                    |  |
|                                       | SMA (Male & Female)                                  |  |
|                                       | TNC (Male & Female)                                  |  |
| Housing Options:                      |  |  |
| Housings                              | Housing Type   | Limitations  |
|                                       | Standard   | None   |
|                                       | Slimline   | Powered Option Not Ava.<br>Connectors Not Available:<br>N, TNC |
| Port Options:                         |  |  |
| Pass DC <sup>(1)</sup>                | All Ports Pass DC                                    |  |
| DC Blocked <sup>(1)</sup>             | J2 is DC Blocked & 200Ω Load, DC is passed J1 to ANT |  |

#### Notes:

1. With Powered Option, any or all RF ports (input or output) can be DC Blocked or can pass the powered DC voltage
2. Maximum combined DC current draw out all ports of the device is a function of the DC input voltage and desired DC output voltage, according to the following:

$$I_{out} \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.016 \text{ Amps (or 250mA max)}$$

For powered option with a wall mount transformer (Voltage Input = 110/220/240 VAC),  $V_{DC IN}$  is 9V.

## S12 Splitter

**Part Number: S12 – A – X-X-X-X - P110 / 5 – SF**

**Product:**

Standard 1x2 Splitter  
(Pass DC J1-Ant, J2 Blk.)

**Gain Option:**

A – Amplified  
Blank – Passive  
AXX – Custom Gain, XXdB

**Environmental Option(s):**

X = (Any or All of Following):  
B - Beacon  
E - EMI Shielding (includes waterproofing)  
HS - Hermetically Sealed  
W - Waterproof

**Source Voltage:**

P110 – Transformer  
P220 – Transformer  
P240 – Transformer  
PDC – DC w/Quick Connects  
PM – Military Connector (User supplies DC)  
PM38999 - Military Connector (User supplies DC)  
PMS-1275 – Military Connector (User supplies DC & 1275B Compliant)  
PMS-704 – Military Connector (User supplies DC & 704F Compliant)  
PMS38999-1275 - Military 38999 Connector & 1275B Compliant  
PMS38999-704 – Military 38999 Connector & 704F Compliant  
Blank – No External Power

**Output Voltage:**

3.3, 5, 7.5, 9, 12, XX, V – Denotes Output Voltage  
(XX – custom output voltage, V – variable)

**Connector Options:**

NF – N, Female  
NM – N, Male  
SF – SMA, Female  
SM – SMA, Male  
TF – TNC, Female  
TM – TNC, Male

For help in creating the part number to meet your exact needs, contact us at [Sales@gpssource.com](mailto:Sales@gpssource.com) or visit our website at [www.gpssource.com](http://www.gpssource.com).



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