

# S12 Splitter

## Technical Product Data

### Features

- Amplified & Passive Versions Available
- Passes GPS, Galileo & GLONASS L1/L2
- Excellent Gain Flatness  
Gain | L1 - L2 | < 2 dB
- Waterproof / EMI Sealed Option
- Mil Spec 1275B Spike & Surge Protection Option



### 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 and specifications.

**Electrical Specifications, Operating Temperature -40 to 85°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<br>-Amplified (Custom)                          | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                | 0  |                   | 24                | dB    |
| Loss-Passive   | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                | 4  | 4.5               | 5                 | dB    |
| Input SWR  | All Ports 50Ω                                       |  |                   | 2.0:1             | -     |
| Output SWR   | All Ports 50Ω                                       |  |                   | 2.0:1             | -     |
| Noise Figure-<br>Amplified                           | Ant – J1, J2-50Ω or Ant – J2, J1-50Ω                |  |                   | 1.8               | dB    |
| Gain Flatness<br>-Amplified:<br>-Passive:            | [L1 - L2], Ant – J1, J2-50Ω; Ant – J2, J1-50Ω       |  |                   | 2<br>1            | dB    |
| 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<br>Flatness                              | $\tau_{d,max} - \tau_{d,min}$ , J1 - Ant            |  |                   | 1                 | ns    |
| Isolation<br>-Amp/Pass(Norm)<br>-Amplified (Hi Iso.) | Adjacent Ports: Ant - 50Ω                           | 16<br>30   |                   |                   | dB    |
| 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<br>-Amplified<br>-Passive                   | 3  |                   | 16<br>16          | VDC   |
|  | Powered   | 3 <sup>(1)</sup>   | 28 <sup>(2)</sup> | 32 <sup>(2)</sup> | VDC   |
| Current(I <sub>internal</sub> )                      | Current Consumption of device, excludes Ant. Cur.   |  |                   | 14 <sup>(4)</sup> | mA    |
| Ant/Thru<br>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<br>-Amplified<br>-Passive               | Max RF input without damage                         |  |                   | 0<br>30           | dBm   |

**Notes:**




1. DC IN for powered option must be 3V greater than desired DC Voltage Out
2. By design 1275B spike & surge protection assumes a 28 volt system, 33.3 V or greater will trigger over voltage protection circuitry.
3. Maximum DC total current draw out all port[s] of the device is a function of the DC input voltage and the output voltage where the power dissipation must be less than 1 watt @ 25C:

$$(V_{DC\ IN} - V_{DC\ OUT} - 1.2) * (I_{out} + I_{internal}) \leq 1W @ 25C$$

See for more information.

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

4. Amplified version, passive version does not use any internal current
5. Available Powered Connectors

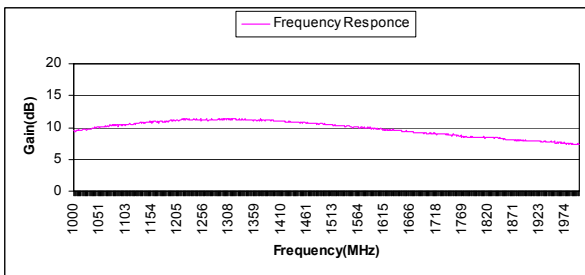
|  |  |  |  |
|--|--|--|--|
| MS3102E10SL-4P                             |  |   |  |
| PM38999<br>PMS38999 (1275B rated)          |  |  |  |
| Quick Connects (Power pole 15Amp contacts) |  |  |  |

### 1275B Spike and Surge Power Option

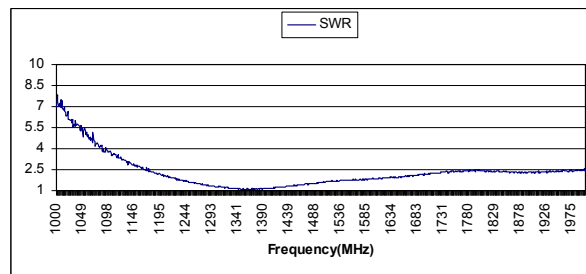
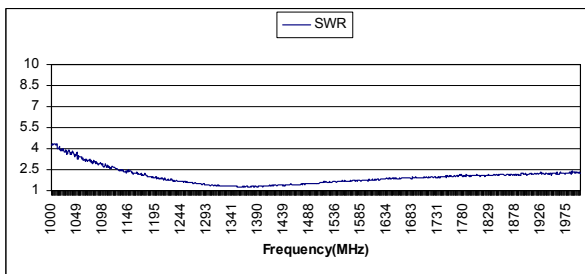
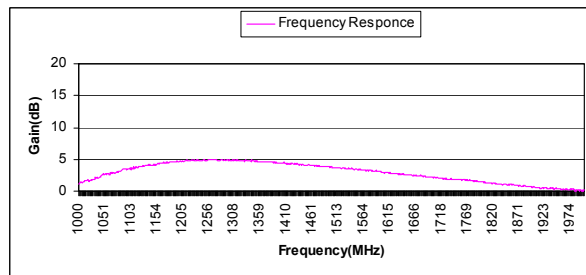
The Mil-Standard 1275 is a specification that defines the conditioning of 28VDC power in military vehicles. Obviously a splitter is not designed to condition the power for a vehicle. The 1275B spike and surge option will protect the internal circuits of our device from the same spikes and surges called out in the specification but this is not to be confused with a power conditioning circuit that conditions power for a whole vehicle.

**Performance Data:**

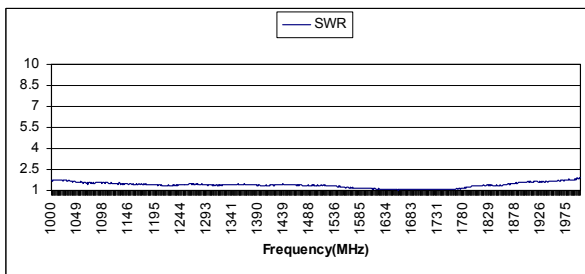
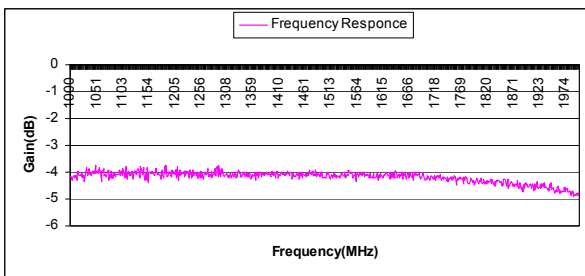
**S12 Active - Normal**



**S12 Active - Hi Isolation**



**S12 Active - Passive**



**Available Options:**

| <b>Power Supply Options:</b>                |  |   |
|---|--|---|
| <b>Source Voltage Options</b>               | <b>Voltage Input</b>                                 | <b>Type</b>   |
|   | 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                        |
| <b>Output Voltage Options<sup>(1)</sup></b> | <b>DC Voltage Out</b>                                |   |
|   | 3.3  |   |
|   | 5  |   |
|   | 7.5  |   |
|   | 9  |   |
|   | 12   |   |
|   | Variable (3-12V)                                     |   |
| Custom                                      |  |   |
| <b>RF Connector Options:</b>                |  |   |
| <b>Connector Options</b>                    | <b>Connector Type</b>                                | <b>Limitations</b>  |
|   | N (Male & Female)                                    |   |
|   | SMA (Male & Female)                                  |   |
|   | TNC (Male & Female)                                  |   |
|   | SMB (Female)   |   |
|   | SMC (Female)   |   |
|   | MCX (Female)   |   |
|   | BNC (Male & Female)                                  | Performance Not Guaranteed  |
| <b>Housing Options:</b>                     |  |   |
| <b>Housings</b>                             | <b>Housing Type</b>                                  | <b>Limitations</b>  |
|   | Standard   | None  |
|   | Slimline   | Powered Option Not Ava.<br>Connectors Not Available:<br>N, TNC, BNC |
| <b>Port Options:</b>                        |  |   |
| 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 |   |

**More Notes:**

1. With Source voltage option, any or all RF ports (input or output) can be DC Blocked or can pass the powered DC voltage

**Part Number:**

**S12 - A - E - P110 / 5 - SF**

Product:

Standard 1x2 Splitter  
(Pass DC J1-Ant, J2 Blk.)  
S12S (Slim Line housing)

Gain Option:

**A** – Amplified  
**AS** – Amplified Custom Gain  
**Blank** – Passive

Housing Option:

**E** – EMI Shielding  
**HS** – Hermetically Sealed  
**W** – Water Proof

Source Voltage:

**P110** – Transformer,  
**P220** – Transformer,  
**P240** – Transformer,  
**PDC** – DC w/Quick Connects  
**PM** – Military Connector (User supplies DC)  
**PMS** – Military Connector (User supplies DC  
& 1275B Compliant)

Output Voltage:

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

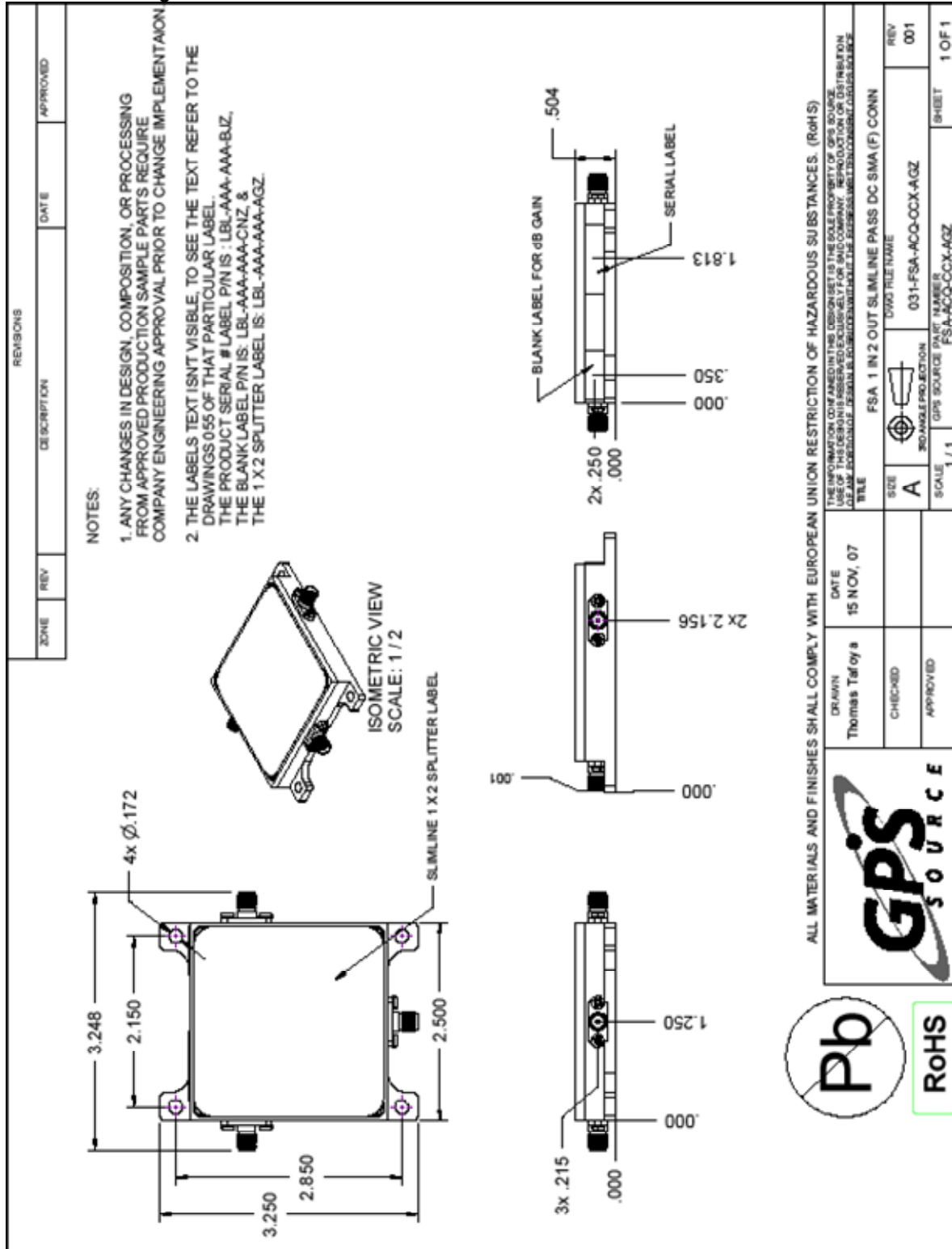
Connector Options:

**NM** – N, Male  
**NF** – N, Female  
**SM** – SMA, Male  
**SF** – SMA, Female  
**TM** – TNC, Male  
**TF** – TNC, Female  
**BM** – BNC, Male  
**BF** – BNC, Female  
**SB** – SMB Jack, Female  
**SC** – SMC Jack, Female  
**MX** – MCX Jack, Female

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).



Slimline Housing:



Standard Housing Military 38999 Connector:

