

# **S18-A STANDARD HOUSING**

# 1x8 GPS Splitter

### **DESCRIPTION**

The S18-A GPS splitter is a one-input, eight-output GPS splitter device. The typical application allows the GPS signal from an active GPS roof antenna to be split evenly between eight GPS receivers. The S18-A can be configured to pass the DC from an RF output (OUT1) to the antenna input port in order to power an active GPS antenna. The DC blocked ports (OUT2 through OUT8) would feature a 200  $\Omega$  DC load to simulate an antenna DC current draw for any receiver connected to those ports.

### **FEATURES**

- Passes GPS, Galileo, and GLONASS L1/L2
- Excellent Gain Flatness
- RoHS/WEEE Compliant
- Designed to MIL-STD-810
- Amplified to Preserve Link Margins
- Available Options:
  - L1/L2
  - Beacon
  - Waterproof
  - EMI Shielding
  - Hermetically Sealed

#### **OPTIONS**

The S18-A GPS Splitter comes with many available options to meet specific needs. Please contact GPS Source via phone, email, or visit the website for further information on product options and specifications.



#### 1. **S18-A Specifications**

#### **Electrical Specifications** 1.1

**Table 1-1.** Operating Temperature -40°C to 85°C

| Parameter                       |              |                   | Conditions   |                                       | Тур | Max    | Units  |  |
|---------------------------------|--------------|-------------------|--|---------------------------------------|-----|--------|--------|--|
| Frequency Range                 |              |                   | Ant: Any Port, Unused Ports 50 $\Omega$  | Ω 1.1                                 |     | 1.7    | GHz    |  |
| In/Out Impedance                |              |                   | Ant: OUT1 through OUT8   |                                       | 50  |        | W      |  |
| Gain <sup>(1)(2)</sup>          | Standard     | Amplified         | Ant: Any Port, Unused Ports 50 $\Omega$  | 16                                    | 18  | 19.5   |        |  |
|                                 | Custom       | Amplified         | Custom Gain XXdB (0-17dB)  | XX - 2                                | XX  | XX + 2 |        |  |
|                                 | As Specified | Amplified by port | OUT1 (J1) through OUT8 (J8) XXdB (0 to 17dB) by port                           | XX - 2                                | XX  | XX + 2 |        |  |
| Input SWR <sup>(2)</sup>        |              |                   | All Ports 50 $\Omega$  |                                       | 2:1 |        | _      |  |
| Output SWR <sup>(2)</sup>       |              |                   | All Ports 50 $\Omega$  |                                       |     | 2:1    | _      |  |
| 1dB Comp. Pt Amplified          |              | Amplified         | All Ports 50 $\Omega$  |                                       | -32 |        | dBm    |  |
| Input IP3 Amplified             |              | Amplified         | All Ports 50 $\Omega$  |                                       | -24 |        | dBm    |  |
| Noise Figure Amplified          |              | Amplified         | Ant: Any Port, Unused Ports 50 $\Omega$  | t: Any Port, Unused Ports 50 $\Omega$ |     | 2.2    | dB     |  |
| Gain<br>Flatness <sup>(2)</sup> |              | Amplified         | [L1 – L2] Ant: Any Port, Unused Ports 50 $\Omega$                              |                                       | 2   |        | dB     |  |
| Amp. Balance                    |              |                   | [OUT1 – OUT8] Ant: Any Port, Unused Ports 50 $\Omega$                          |                                       |     | 1.0    | dB     |  |
| Phase Balance                   |              |                   | Phase (OUT1 – OUT8) Ant: Any Port, Unused Ports 50 $\Omega$                    |                                       |     | 1      | Degree |  |
| Group Delay                     |              |                   | Td,max - Td,min; Ant: Any Port   |                                       |     | 5      | ns     |  |
| Group Delay Flatness            |              |                   | Td,max - Td,min; Ant: Any Port   |                                       |     | <1     | ns     |  |
| Isolation <sup>(1)</sup>        | Standard     | Amp               | Adjacent Ports: Ant 50 Ω   | 13                                    |     |        | dB     |  |
|                                 |              |                   | Opposite Ports: Ant 50 $\Omega$  | 21                                    |     |        |        |  |
|                                 | Hi Isolation | Amplified         | Adjacent Ports: Ant 50 Ω   | 30                                    |     |        |        |  |
|                                 |              |                   | Opposite Ports: Ant 50 $\Omega$  | 40                                    |     |        |        |  |
| Current                         |              |                   | Current Consumption of device (excludes Ant. Cur.)                             |                                       |     | 16     | mA     |  |
| Draw<br>Current                 | Pass DC      |                   | Non-Powered Configuration, DC Input on OUT1  Powered, Military or tinned leads |                                       |     | 250    | mA     |  |
|                                 | Powered      |                   |  |                                       |     |        | III/A  |  |
| Max RF Input                    |              | Amplified         | Max RF Input Without Damage  |                                       |     | 0      | dBm    |  |

- Notes: 1. Decreased custom gain increases port-to-port isolation.
  - Performance guaranteed for N(F) connectors.

Table 1-2. Input Voltage

| Parameter |         |           | Conditions   | Min                                | Тур | Max               | Units |
|-----------|---------|-----------|--|------------------------------------|-----|-------------------|-------|
| AC IN(3)  | 110     |           | Wall Mount Transformer                                     | 110                                |     | VAC               |       |
|           | 230/240 |           | Wall Mount Transformer (Various Intl. Plug Options)        |                                    | 230 |                   | VAC   |
| DC IN     | DC Blk  |           | DC Blocked Output Ports include $200\Omega$ loads standard |                                    |     |                   |       |
|           | Pass DC | Amplified | Non-Powered Configuration, DC Input on OUT1                | 3                                  |     | 16                | VDC   |
|           | Powered |           | Powered, Military or Quick Connect Option                  | 8 <sup>(1)</sup> 28 <sup>(2)</sup> |     | 28 <sup>(2)</sup> |       |

Notes: 1. DC IN for powered option must be 2.5V greater than the desired DC Voltage Out.

2. The maximum DC IN is 35V when the 1275 or 704 MIL Power option is included.



## 2. Performance Data

## 2.1 S18-A Active — Standard

Figure 2-1. Active: Gain vs. Frequency

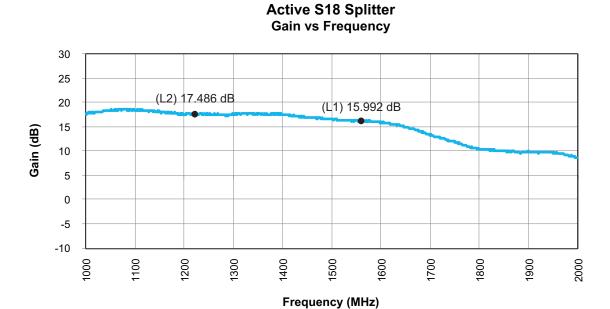
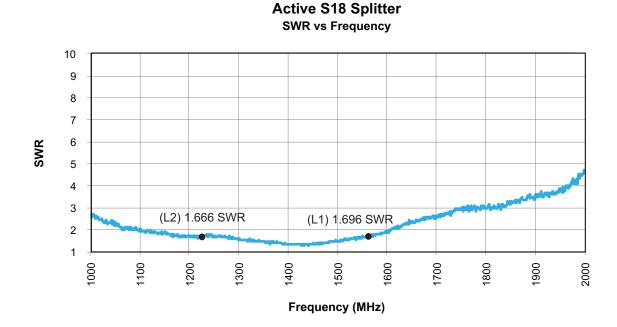


Figure 2-2. Active Input: SWR vs. Frequency



## 2.2 S18-A Active — High Isolation

Figure 2-3. Active: Gain vs. Frequency

# Active High Isolation S18 Splitter Gain vs Frequency

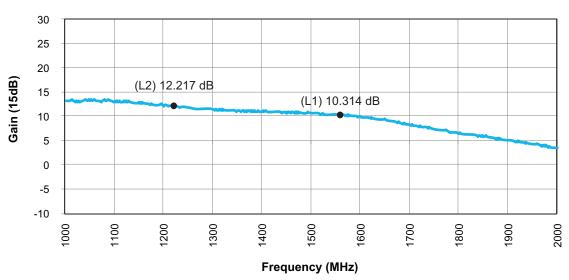
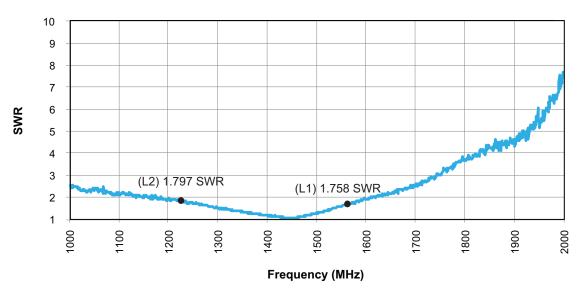


Figure 2-4. Active: SWR vs. Frequency

# Active High Isolation S18 Splitter SWR vs Frequency





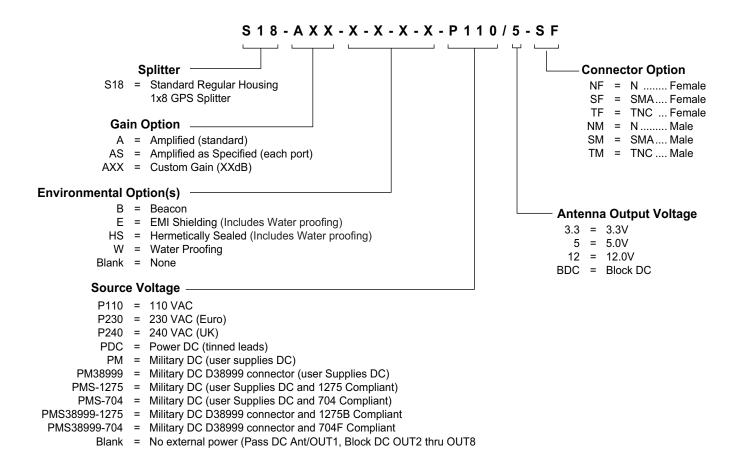
# 3. Product Options

Table 3-1. S18-A Available Options

| Power Supply                  |   |               |  |  |  |  |
|-------------------------------|---|---------------|--|--|--|--|
|                               | V   | oltage Input  | Туре                                   |  |  |  |
|                               |   | 110VAC        | Wall Mount Transformer                 |  |  |  |
| Source Voltage Options        | 23  | 0VAC (Euro)   | Wall Mount Transformer                 |  |  |  |
|                               | 2   | 40VAC (UK)    | Wall Mount Transformer                 |  |  |  |
|                               | DC 8  | SVDC to 28VDC | MIL DC Power Connector or Tinned Leads |  |  |  |
|                               | DC Voltage Out  |               |  |  |  |  |
|                               | 3.3   |               |  |  |  |  |
| Output Voltage <sup>(1)</sup> | 5.0   |               |  |  |  |  |
|                               |   | 12.0          |  |  |  |  |
|                               | BDC (Block DC)  |               |  |  |  |  |
| RF Connector                  |   |               |  |  |  |  |
|                               | Co  | nnector Type  | Limitations                            |  |  |  |
| Connector                     | N   | (Female/Male) | N/A                                    |  |  |  |
| Commector                     | SMA   | (Female/Male) | N/A                                    |  |  |  |
|                               | TNC   | (Female/Male) | N/A                                    |  |  |  |
| Housing                       |   |               |  |  |  |  |
| Housings                      | Housing Type  |               | Limitations                            |  |  |  |
| Tiousings                     |   | Standard      | None                                   |  |  |  |
| Port                          |   |               |  |  |  |  |
| Pass DC <sup>(1)</sup>        | All Ports Pass DC (Special Configuration)               |               |  |  |  |  |
| Standard <sup>(1)</sup>       | Pass DC OUT1, Block DC (OUT2 - OUT8), no external power |               |  |  |  |  |
| Gain Options                  |   |               |  |  |  |  |
|                               | Amplified   |               | Standard amplification is 18dB         |  |  |  |
| Gain                          | Custom Gain   |               | Custom gain range is 0 - 17dB          |  |  |  |
|                               | Amplified as S  | Specified     | Provide gain for each port             |  |  |  |

Notes: 1. Powered option: any or all RF ports (input or output) can be DC Blocked or can pass the powered DC voltage.

## 4. Product Code Decoder

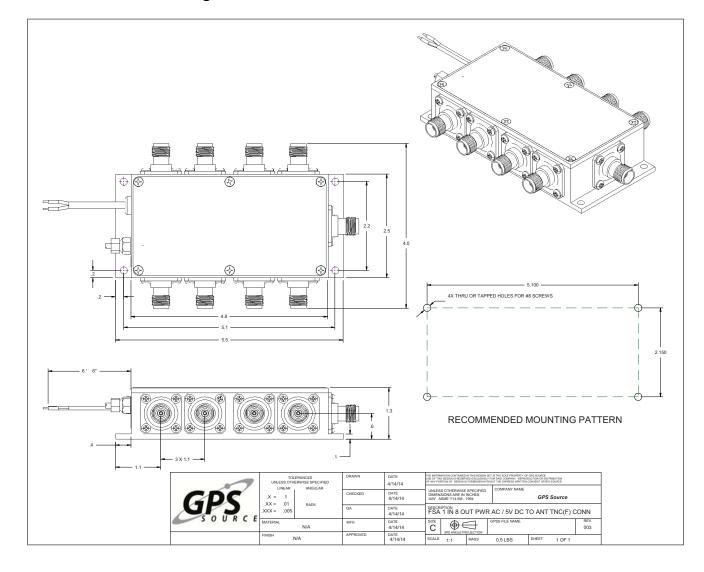


Note: To have product/part codes customized to meet exact needs, contact GPS Source at GPSS-Sales@gd-ms.com or visit the website at www.gpssource.com. Minimum order quantity may apply for custom items.



## 5. Mechanical Drawing

## S18-A Standard Housing — FSA-ABB-AAX-BBZ







#### **S18-A Standard Housing Data Sheet**

059-FSA-ABB-AAX-BBZ-008 Page 10 of 10, 04/17/2020 2121 Executive Cir., Ste 100 Colorado Springs, CO 80906 Phone: (+1)(719) 421-7300 GPSS-Sales@gd-ms.com www.gpssource.com

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