

# S18 REGULAR HOUSING

## 1x8 GPS Splitter

### DESCRIPTION

The S18 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 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
  - Waterproof
  - EMI Shielding
  - Hermetically Sealed

### OPTIONS

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



# 1. S18 Specifications

## 1.1 Electrical Specifications

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

Parameter			Conditions	Min	Typ	Max	Units
Frequency Range			Ant: Any Port, Unused Ports 50Ω	1		2	GHz
In/Out Impedance			Ant: J1 through J8		50		Ω
Gain <sup>(1)(2)</sup>	Standard	Amplified	Ant: Any Port, Unused Ports 50Ω	16.5	18	19.5	dB
	Custom	Amplified	As Specified (xdB)	X - 1	X	X + 1	
Loss-Passive <sup>(2)</sup>			Ant: Any Port, Unused Ports 50Ω	6.5	7.5	8.5	dB
Input SWR <sup>(2)</sup>			All Ports 50Ω			2:1	—
Output SWR <sup>(2)</sup>			All Ports 50Ω			2:1	—
1dB Comp. Pt		Amplified	All Ports 50Ω		-32		dBm
Input IP <sub>3</sub>		Amplified	All Ports 50Ω		-24		dBm
Noise Figure		Amplified	Ant: Any Port, Unused Ports 50Ω			2.2	dB
Gain Flatness <sup>(2)</sup>		Amplified	[L1 – L2] Ant: Any Port, Unused Ports 50Ω		2	2	dB
		Passive					
Amp. Balance			[J1 – J8] Ant: Any Port, Unused Ports 50Ω			0.5	dB
Phase Balance			Phase (J1 – J8) Ant: Any Port, Unused Ports 50Ω			1	Degree
Group Delay Flatness			T <sub>d,max</sub> - T <sub>d,min</sub> ; Ant: Any Port			<1	ns
Isolation <sup>(1)</sup>	Standard	Amp/Pass	Adjacent Ports: Ant 50Ω	13			dB
			Opposite Ports: Ant 50Ω	21			
	Hi Isolation	Amplified	Adjacent Ports: Ant 50Ω	30			
			Opposite Ports: Ant 50Ω	40			
Current			Current Consumption of device (excludes Ant. Cur.)			16	mA
Draw Current	Pass DC		Non-Powered Configuration, DC Input on J1			250	mA
	Powered		Powered, Military or Quick Connect Option			Note 3	
Max RF Input		Amplified	Max RF Input Without Damage			0	dBm
		Passive				30	

- Notes:
1. Choose custom gain option for improved port-to-port isolation.
  2. Performance guaranteed for N(F) connectors.
  3. The 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:  $|out| \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.016A$ .  
For the powered option with a wall mount transformer: (Voltage Input = 110/220/240VAC), V<sub>DC IN</sub> is 9V.

**Table 1-2. Input Voltage**

Parameter		Conditions	Min	Typ	Max	Units	
<b>AC IN</b> <sup>(3)</sup>	110	Wall Mount Transformer		110		VAC	
	220/240	Wall Mount Transformer (Various Intl. Plug Options)		230			
<b>DC IN</b>	DC Blk		Any DC Blocked Port with a 200Ω Load			VDC	
	Pass DC	Amplified	Non-Powered Configuration, DC Input on J1		3		16
	Powered		Powered, Military or Quick Connect Option		3 <sup>(1)</sup>		28 <sup>(2)</sup>

- Notes:
1. DC IN for powered option must be 2V greater than the desired DC Voltage Out.
  2. The maximum DC IN is 35V when the 1275B powered option is included.
  3. The 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:  $I_{out} \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.016A$ .  
For the powered option with a wall mount transformer: (Voltage Input = 110/220/240VAC),  $V_{DC IN}$  is 9V.

## 2. Performance Data

### 2.1 S18 Active — Standard

Figure 2-1. Active: Gain vs. Frequency

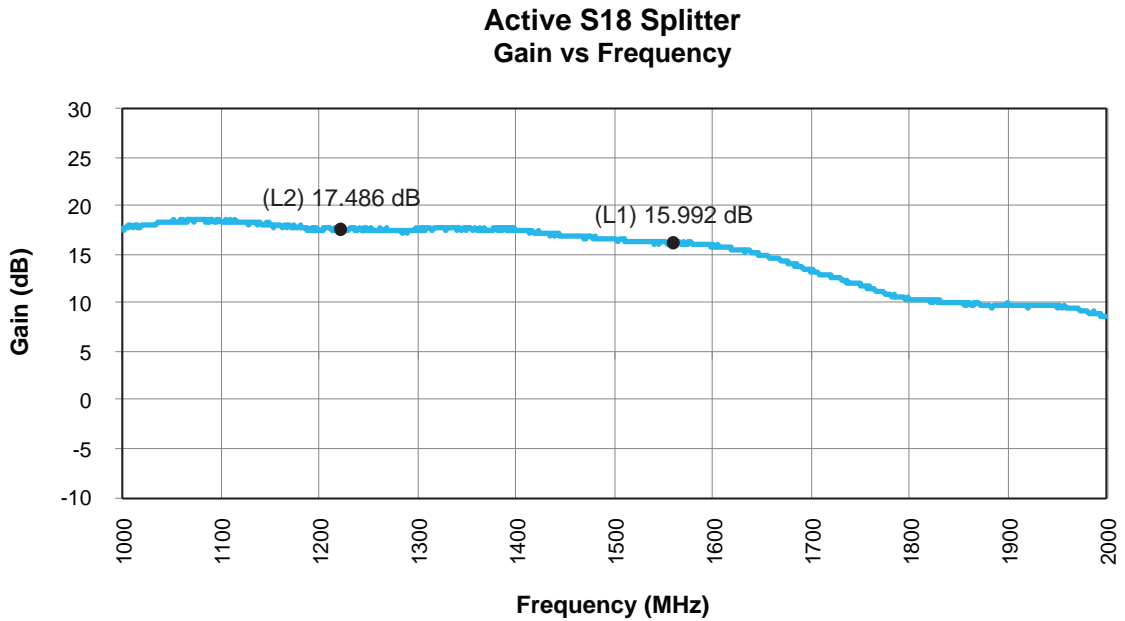
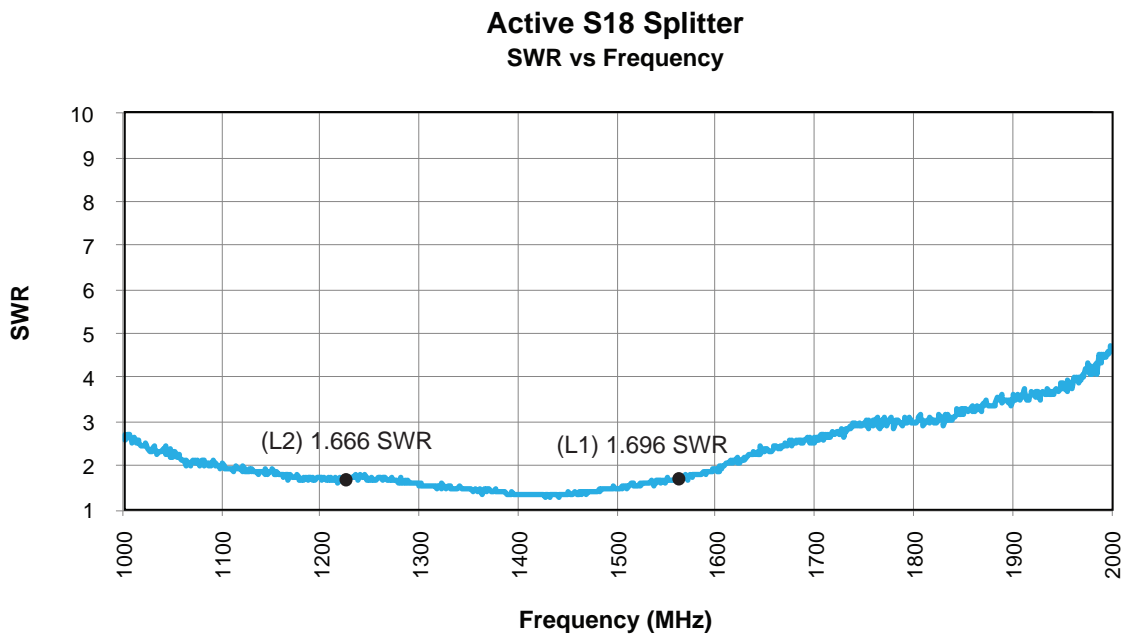


Figure 2-2. Active Input: SWR vs. Frequency



## 2.2 S18 Active or Passive — High Isolation

Figure 2-3. Active or Passive: Gain vs. Frequency

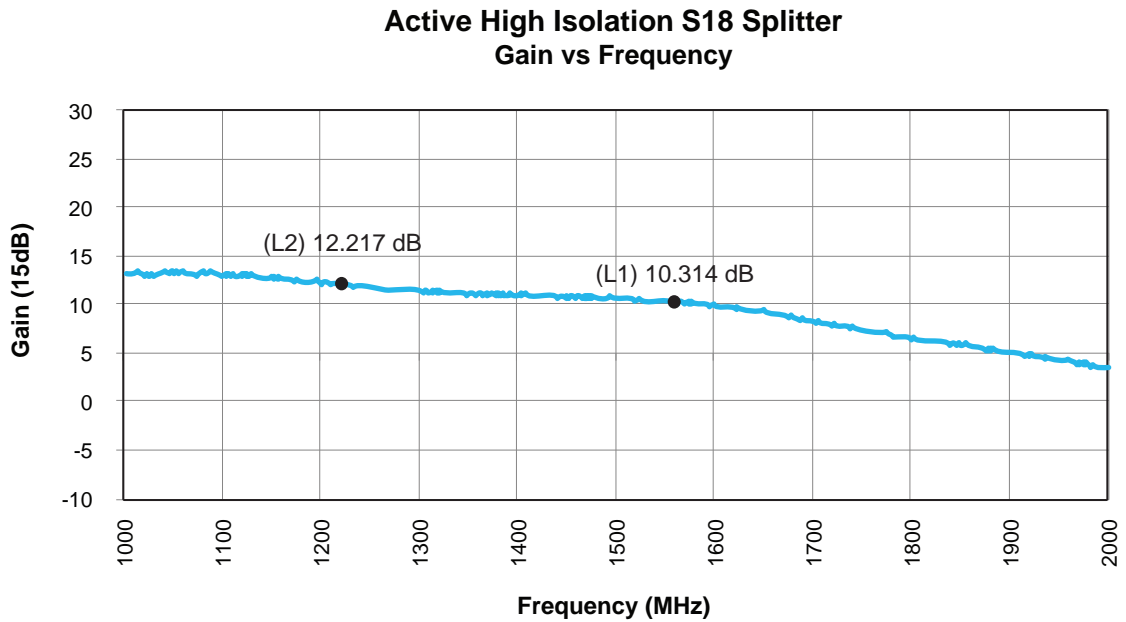
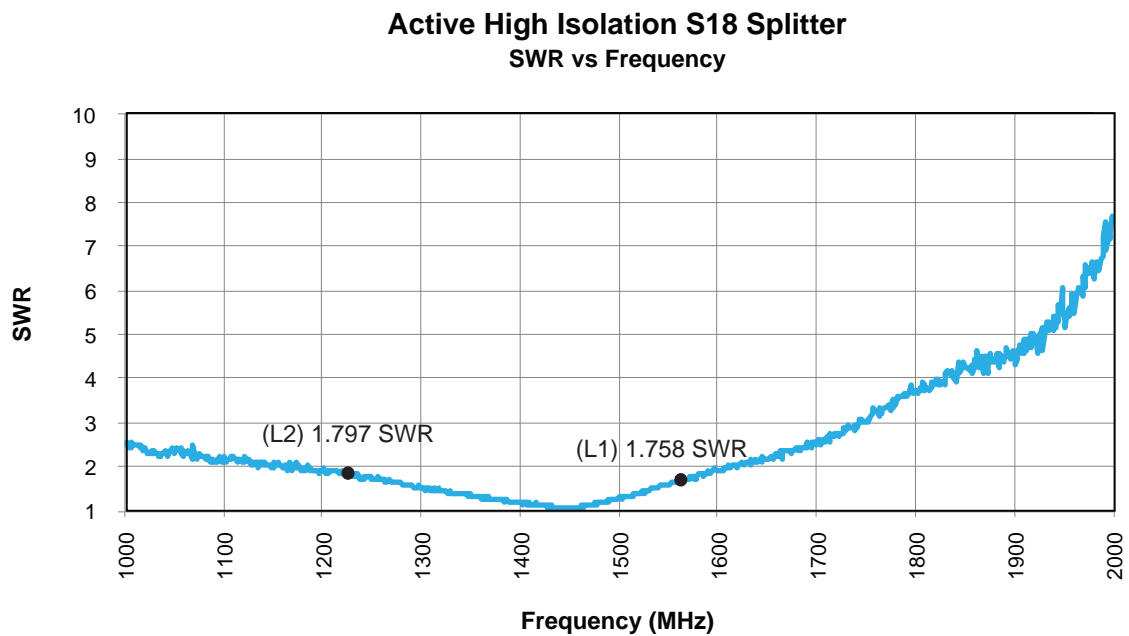


Figure 2-4. Active or Passive: SWR vs. Frequency



### 3. Product Options

Table 3-1. S18 Available Options

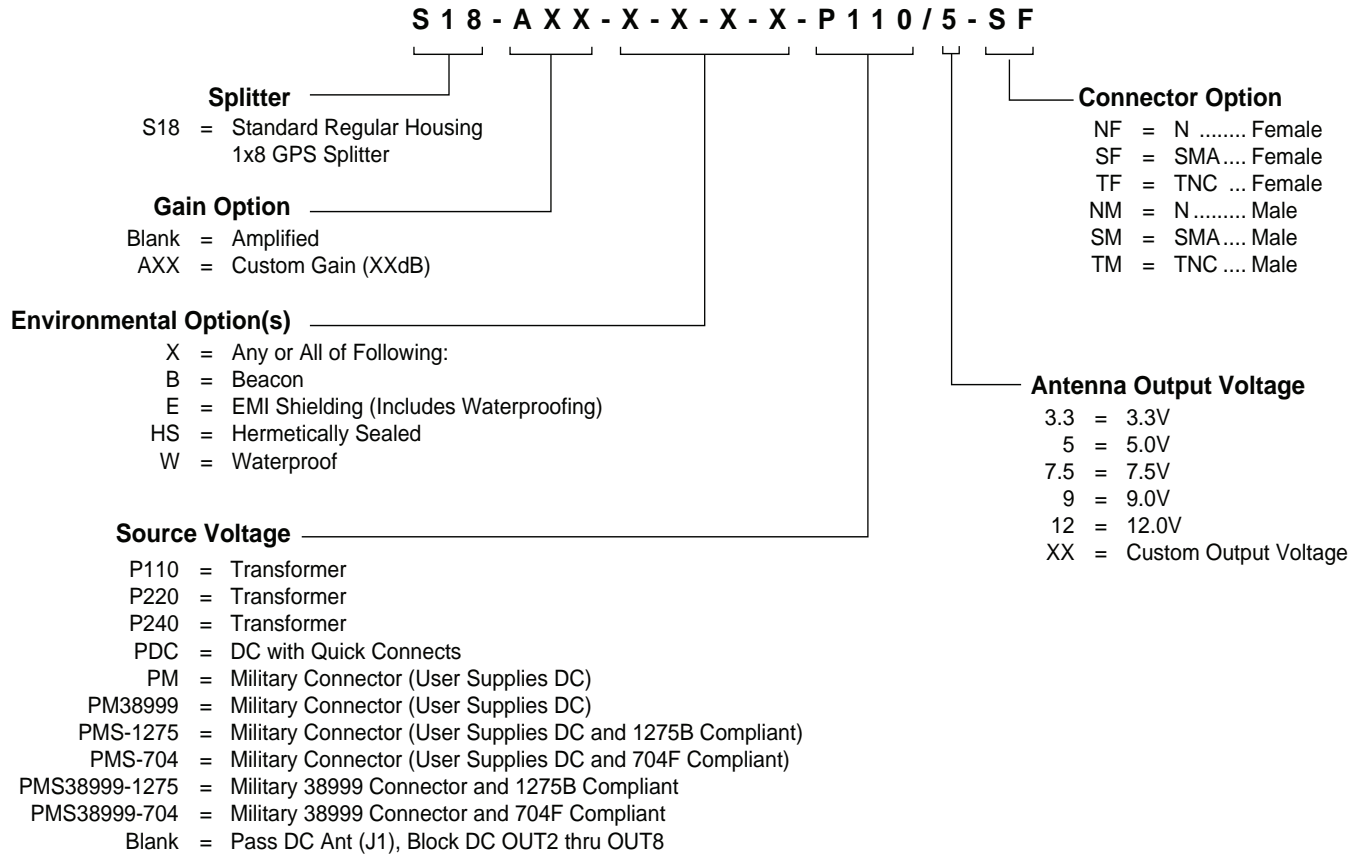
Power Supply			
Source Voltage Options	Voltage Input	Type	
	110VAC	Wall Mount Transformer	
	220VAC	Wall Mount Transformer	
	240VAC (U.K.)	Wall Mount Transformer	
	DC 5VDC to 28VDC	Military Style or Quick Connect	
Output Voltage <sup>(1)</sup>	DC Voltage Out <sup>(2)</sup>		
	3.3		
	5.0		
	7.5		
	9.0		
	12.0		
	Custom		
RF Connector			
Connector	Connector Type		Limitations
	N	(Female/Male)	N/A
	SMA	(Female/Male)	N/A
	TNC	(Female/Male)	N/A
Housing			
Housings	Housing Type		Limitations
	Standard		None
	Slimline		Powered Option Not Available SMA Only
Port			
Pass DC <sup>(1)</sup>	All Ports Pass DC (Special Configuration)		
DC Blocked <sup>(1)</sup>	Pass DC OUT1, Block DC (OUT2 - OUT8, Standard Configuration)		

- Notes: 1. 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:

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

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

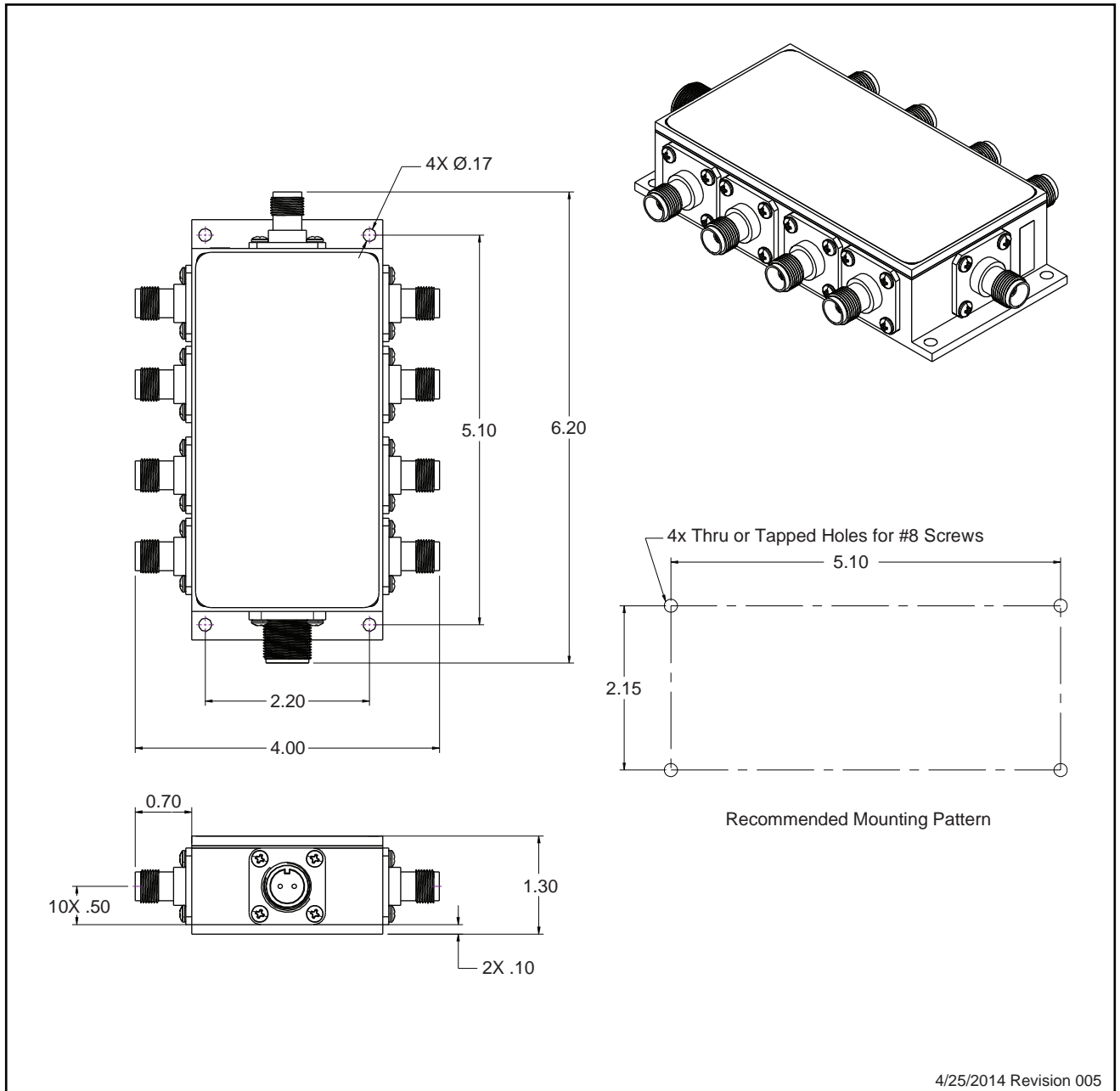
## 4. Product Code Decoder



Note: To have product/part codes customized to meet exact needs, contact GPS Source at [techsales@gpssource.com](mailto:techsales@gpssource.com) or visit the website at [www.gpssource.com](http://www.gpssource.com).

## 5. Mechanical Drawing

### S18 Regular Housing — FSA-ABB-AAX-BBZ



4/25/2014 Revision 005

GPS Source Part No. <b>FSA-ACA-EEY-AG</b>	Finish <b>N/A</b>	Size <b>C</b>	Mass	Tolerances	
Description <b>S18 GPS Splitter MIL SPEC, FSA 1 IN 8 OUT N(F)</b>	Material <b>N/A</b>	3 <sup>rd</sup> Angle Projection 		Linear	Angular
				<b>.X = ±0.100 .XX = ±0.010 .XXX = ±0.005</b>	<b>±1° RADII See Linear</b>

All materials and finishes shall comply with European Union RoHS and are lead free. Dimensions are in inches unless otherwise specified.





**gps LIVE INSIDE**

## **S18 Regular Housing Data Sheet**

059-FSA-ABB-AAX-BBZ-006

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AS9100C:2009 and ISO 9001:2008 Compliant Company



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