



# GPS Active Splitters

## KEY FEATURES

### 58535A & 58536A Active Splitters

- Multiple Ports
- High Isolation
- Waterproof
- Base Station Applications

### 58517A Active Splitter

- High Isolation
- Three Ports
- Manufacturing Applications

### 090-58537-01 Active SmartSplitter

- Proven Design
- Micro-controlled
- Meets E911 Requirements
- Senses BIAS Voltage on Each Output Port

## INTRODUCTION

Symmetricom's Active Splitters allow multiple GPS receivers to share a single antenna. Designed for both manufacturing and position/timing redundancy applications, GPS L1 Active Splitters provide dependable signals for two, four or eight GPS receivers.

For large manufacturing facilities, Symmetricom Active Splitters can provide as many GPS-L1 (1575.42 MHz) signals as your manufacturing floor requires. With built-in amplification to overcome splitter losses, the Active Splitters can be conveniently cascaded without adding separate amplifiers and bias-tees between splitters.

## HIGH ISOLATION ELIMINATES RECEIVER INTERACTIONS

Symmetricom GPS Active Splitters have the essential port-to-port isolation required to eliminate interaction between multiple GPS receivers. Without such isolation, local oscillator (LO) leakage from one GPS receiver can prevent other receivers from acquiring time and position signals and maintaining lock. In wireless base station applications, poor isolation can disable cell sites. In GPS manufacturing tests, poor isolation causes repeatability problems which can reduce yields and cause false rework.

Symmetricom Active Splitters have a minimum of 40 dB isolation at common GPS LO frequencies between every combination of output ports. Extensive field testing by GPS and cellular base station manufacturers has demonstrated suitability for use and the long-term dependability of Symmetricom GPS L1 Active Splitters.

## CONVENIENT DC POWER SIMPLIFIES YOUR INSTALLATION

Power is conveniently obtained from the GPS receiver(s) connected to the amplifier. This eliminates the need for a separate dc power supply and wiring. DC power applied to the splitter is also passed on for use by an active antenna, further simplifying your installation. The 58535A (2 outputs), 58536A (4 outputs), and 090-58537-01 (4 outputs) obtain power from a GPS receiver connected to any port. The 58517A (8 outputs) receives power from the GPS receiver connected to port 1, and has an optional external DC connection if needed.



58535A and 58536A GPS Active Splitters

1:4 Active SmartSplitter

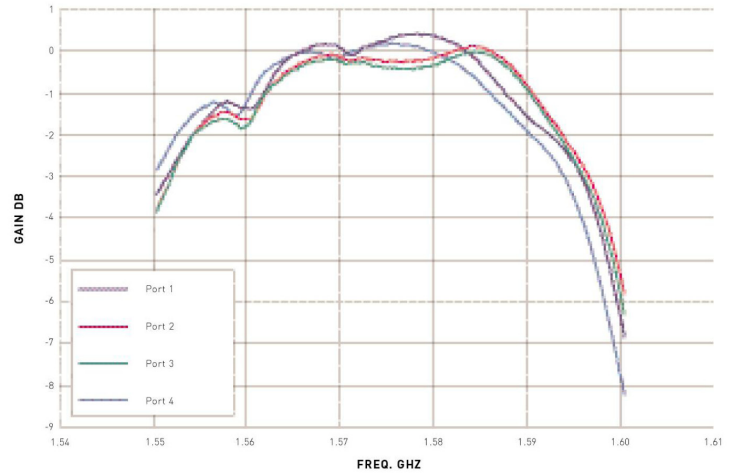
## 1:4 ACTIVE SMARTSPLITTER

The 1:4 Active SmartSplitter is based on Symmetricom's proven design of our 58536A 1:4 Active Splitter. This new splitter has been designed to meet the requirements of implementation of wireless enhanced 911 (E911) emergency location services in new and existing wireless base stations. Its input port is located on one side of the unit and its 4 output ports are located on the opposite side of the unit. This arrangement makes cable installation and hook-up simple and easy.

## 1:4 ACTIVE SMARTSPLITTER'S MICROCONTROLLER

The purpose of the micro-controller is to sense the bias voltage present on each of the output ports, and it always selects the lowest numbered port (1, 2, 3 or 4) to supply power to the splitter and to the GPS antenna. Each of the three remaining ports is configured by the micro-controller to sink a "standby" current of 25mA @5V.

The 1:4 Active SmartSplitter can be used with the new 093-58536-10 Universal Mounting Bracket. Both the splitter and mounting bracket can be ordered together as a kit (990-58537-01).



**FIG 1.** The 0 +1dB Pass Band Gain Performance of the four ports of a typical splitter at L1 (1575.42MHz) +10 MHz.

## GPS Active Splitters Specifications

### NUMBER OF OUTPUT PORTS

- 58535A: 2
- 58536A: 4
- 58517A: 8
- 090-58537-01: 4

### ELECTRICAL SPECIFICATIONS

- Input/output impedance: 50Ω
- VSWR (typical) 

Input	Output
58535A: 1.2	1.6
58536A: 1.2	1.6
58517A: 1.5	1.5
090-58537-01: 2.1	2.1
- Bandwidth [-3 dB]: L1 (1575.42 MHz) ±20 MHz
- Gain [antenna input to any output at L1]
  - 58535A: 3dB ±3dB
  - 58536A: 0dB ±3dB
  - 58517A: 0dB ±4dB
  - 090-58537-01: 0dB ±3dB
- Noise figure: 5dB typical, all models
- Port-to-port isolation L1 +/-40 MHz
  - 58535A: 54dB typical
  - 58536A: 50dB typical
  - 58517A: 40dB typical
  - 090-58537-01: 50dBc typical
- AC input level
- Maximum input level: -25dBm, all models
- Damage threshold 58535A, 58536A, and 090-58537-01: +17dBm  
58517A: +13dBm
- DC power (Operating voltage)
  - 58535A, 58536A, and 090-58537-01: +4.5 to +13 V\* dc
  - 58517A: 4.5 to +30 V dc

\*Caution: Operating voltage is passed through to the antenna. The 58532A Antenna operates on +5 Vdc nominal. Applying more than +5 Vdc may damage the 58532A.

- Damage threshold
  - 58535A, 58536A, and 090-58537-01: 18 V dc either polarity
  - 58517A: 30 V dc either polarity
- Operating current
  - 58535A and 58536A: 23 to 48 mA depending on voltage
  - 58517A: 10 mA
  - 090-58537-01: 13 mA typical
- Passthrough current: 450 mA, all models
- Group delay: 40 ns typical, all models

### PHYSICAL SPECIFICATIONS

- RF connectors: Female N-type, all models
- DC power connector: Female SMC (optional only on 58517A)
- Dimensions (including RF connectors)
  - 58535A and 58535B: 95 mm W x 130 mm L x 35 mm H (3.75 in. x 5.12 in. x 1.38 in.)
  - 58517A: 100 mm W x 160 mm L x 31 mm H (4 in. x 6.3 in. x 1.25 in.)  
Includes optional external dc power connector
  - 090-58537-01: 185 mm W x 101.6 mm L x 44.4 mm to 76.2 mm H (7.3 in. x 4.0 in. x 1.75 to 3.0 in.)
- Weight
  - 58535A and 58536A: 0.5 kg
  - 58517A: 0.75 kg
- RF connectors: N-Type
- Dimensions: 185 mm W x 64 mm L x 34.5 mm H (7.3 in. x 2.5 in. x 1.4 in.)
- Operating temperature
  - 58535A and 58536A: -35°C to +75°C
  - 58517A: 0°C to 55°C

## Additional 1:4 Active SmartSplitter Specifications

### PHYSICAL SPECIFICATIONS

- Weight: 1.5 Lbs /0.68 kg

### ENVIRONMENTAL SPECIFICATIONS

- Operating temperature: -35°C to +75°C, Meets EN 300 019-2-4 test per IEC 60068-2-1, 2, 14
- Waterproof: Meets MIL-STD-810E, Method 512.3, Procedure 1
- Corrosion protected: Meets Telcordia GR-487-CORE, Salt Fog R3-203
- Vibration: Meets IEC 60721-3-4 Class 4M5

### UNIVERSAL MOUNTING BRACKET

The 093-58536-10 Universal Mounting Bracket allows the flexibility of mounting the 090-58537-01 1:4 Active SmartSplitter on a pole, flat rack, or to a roof surface. It is easily disassembled and reassembled into the configuration needed at the time of installation.

### PRODUCT SPECIFICATIONS

- Corrosion protected: Zinc plated

### SMARTSPLITTER KIT

The 990-58537-01 1:4 SmartSplitter Kit enables one to order both the splitter and the universal mounting bracket in one combined package.