

## 58534A

### **GPS Timing Antenna**



#### **Key Features**

- Operates on a wide range of input voltages
- Automatically provides 1PPS signal synchronized to the GPS system within 110 ps
- All-in-one antenna, receiver, system interface and power supply

#### **Key Benefits**

- Highly reliable
- Consumes minimal power
- Durable and easy to install

The Symmetricom® 58534A GPS Timing Antenna is a highly reliable, user-friendly, low-cost source of precision GPS time. The fully integrated antenna, GPS receiver, system interface and power supply are all ruggedized, weatherproof, and easy to install. A one-pulse-per second (1 PPS) signal synchronized to the GPS system within 110 ns is automatically provided when the 58534A is locked to the GPS satellites.

# Up to 150-meter Cable Runs with Minimal Power Consumption

The 58534A conveniently operates on a wide range of input voltages. Less than 1.5 watts will power the unit. RS-422 drivers inside the 58534A allow it to operate 150 meters of interconnect cable easily. Please consult Symmetricom for installations requiring longer cable lengths.

# Fast Reacquisition Time Following Power Loss

If power is lost, the Random Access Memory (RAM) which stores the navigation and satellite data continues to be powered by a super-capacitor for up to 2 hours (typical). This lets the 58534A reacquire satellites within 20 seconds after power is restored.

# Excellent Immunity to Noise Interference

The 58534A is engineered for reliable operation in the toughest environments. Outstanding immunity to RF interference is imparted by three robust dielectric bandpass filters incorporated in the design. Furthermore, 2-bit A/D conversion, as opposed to 1-bit in competing products, is used to digitize the GPS signal to reduce noise interference. Corrupt satellite data is rejected and multipath is mitigated by the 58534A's Time Receiver Autonomous Integrity Monitor (T-RAIM) algorithm.

### **Durable and Easy to Install**

The waterproof enclosure includes a high-rise dome constructed of molded, high-impact, UV-stabilized polycarbonate. Snow and debris buildup is minimized by the smooth, sloped dome. The bottom housing is durable cast aluminum treated with a polyester powder coat for corrosion resistance. The cable, composed of bundled twisted pairs, is much more flexible and easier to route than heavy RF coaxial cables. Mounting of the 58534A is easy; a high quality glass-filled nylon clamp built into the mounting hub easily secures the unit to the top of a mast. In addition, the cable connector is sheltered from the environment inside the optional mounting mast 58534A-AUB.

### **Mounting Hardware Kit Available**

58534A-AUB provides a mounting hardware kit, complete with a galvanized stainless steel mounting mast, mounting brackets, and hardware.

# **58534A GPS Timing Antenna**

### **Specifications**

Receiver Architecture   16 parallel channels   48 Wct to +36 Wc   4.15 Watts   5.15 Watts   5.15 Yat 2 Mt   2.15 Yat 2 Mt   5.15 Watts   5.15 Wat	ELECTRICAL SPECIFICATIONS		POWER		ENVIRONMENTAL SPECIFICATIONS	
C/A code (carrier aided tracking) 2-bit A/D conversion SAW filtering Active micro strip patch High jamming immunity: dielectric bandpass filtering CUpdate Rate Absolute Timing Accuracy (1 PPS) Accuracy (1 PPS) Jitter Accuracy (1 PPS) Jitter An In n is the specified mode First Fix (TTFF) Position Accuracy Position Accuracy Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Acquisition Time to First Fix (TTFF) Reacquisition Rotes: 1. Spherical error probable  C/A code (carrier aided tracking) Active micro strip patch Advisor (and a connector) Active micro strip patch High jamming immunity: dielectric bandpass filter and locked to 6PS Firming output valid with one sate little acquired in Position Hold mode  Jitter Acquisition Time to First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Reacquisition Cold Start: 42 minutes typical First Fix (TTFF) Cold Start:	<ul> <li>Receiver Architecture</li> </ul>	16 parallel channels		+8 Vdc to +36 Vdc	Operating Temperature	Standard: -40°C to +80°C
trackingl 2-bit A/D conversion 5AW filtering Active micro strip patch High jamming immunity: dielectric bandpass filtering  Update Rate Absolute Timing Accuracy (1 PPS) Timing output valid with one stelltie acquired in Position Hold mode  Jitter  Jitter  Jitter  A latin micro  Jitter  A caquisition Time to First Fix (TTFF) Reacquisition  Reacquisition  A capus before  Reacquisition  Votes:  1. Spherical error probable  Raky 2 bours provided by super-capacitor to GPS data RAW. 2 hours (typical)  Raky 2 back power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Backup power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Backup power provided by super-capacitor to GPS data RAW. 2 hours (typical)  RAM. 2 hours (typical)  RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  RAM. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacitor to GPS data RAW. 2 hours (typical)  Power provided by super-capacity (		L1 1575.42 MHz		<1.5 Watts	Storage Temperature	-40°C to +85°C
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Active micro strip patch High jamming immunity: dielectric bandpass filtering  Update Rate  1 Hz  Absolute Timing Accuracy (1 PPS) Accuracy (1 PPS)  Accuracy (1 PPS)  Finding output valid with one satellite acquired in Position Hold mode  Jitter  Position Accuracy Position Accuracy Position Accuracy Position Accuracy Position Time to First Fix (TTFF) Reacquisition Reacquisition Reacquisition  Acquisition Time to First Fix (TTFF) Reacquisition Rotes:  1. Spherical error probable  Active micro strip patch High jamming immunity: dielectric bandpass filtering SERIAL COMMUNICATIONS  • Attitude  Position Accuracy Position Accuracy Researcy (1 PPS)  Active micro strip patch High jamming immunity: dielectric bandpass filtering RAM, 2 hours (typical) Reserved Position Accuracy Position Accuracy Rote Reserved R		•			· · · · · · · · · · · · · · · · · · ·	
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High jamming immunity: dielectric bandpass filtering  Update Rate  1 Hz Absolute Timing Accuracy (1 PPS)    Accuracy (1 PPS)	<ul> <li>Antenna</li> </ul>		•	ran, 2 nours (typicat)	•	
• Update Rate  • Update Rate  • Update Rate  • Absolute Timing Accuracy (1 PPS)  Acc			SERIAL COMMUNICATIONS		: • Altitude	
Absolute Timing Accuracy (1 PPS)  Accuracy (1 PPS)  Accuracy (1 PPS)  (USN MC)  -95% probability when unit is properly installed and locked to GPS  Timing output valid with one satellite acquired in Position Hold mode  1 Jitter  Jitter  All 10 is 1's typical in Position Hold mode  110 is 1's typical in Survey Mode  Position Accuracy  Position Accuracy  Acquisition Time to First Fix (TTFF)  Reacquisition  Reacquisition  Nates:  1. Spherical error probable  Acturacy (1 PPS)  Acquisition  Accuracy (1 PPS)  Acquisition  Accuracy (1 PPS)  Acquisition Time to First Fix (TTFF)  Notes:  1. Spherical error probable  Accuracy (1 PPS)  Accuracy (1 PPS)  Accuracy (1 PPS)  Accuracy (1 PPS)  Acquisition Time to First Fix (TTFF)  Acquisition  Accuracy (2 PPS)  Acquisition Time to First Fix (TTFF)  Acquisition  Accuracy (2 PPS)  Acquisition Time to First Fix (TTFF)  Acquisition  Acquisition  Accuracy (2 Seconds typical after loss of power (See Note 2.))  Acquisition  A			• Interface	9600 Baud		
Accuracy (1 PPS)    Cusno MC    -95% probability when unit is property installed and locked to GPS	Update Rate	•		RS-422 Input/Output		Non-Operating: 4.6 km @
- 95% probability when unit is properly installed and locked to GPS Timing output valid with one satellite acquired in Position Hold mode 110 ns [1 s typical] in Position Hold mode 110 ns [1 s typical] in Survey Mode  - Position Accuracy	Absolute Timing	<110 ns with respect to UTC	· ·		•	
is properly installed and locked to GPS Timing output valid with one satellite acquired in Position Hold mode  • Jitter  • Jitter  • Position Accuracy • Position Accuracy • Reacquisition  • Reacquisition  • Reacquisition  • Reacquisition  Notes:  1. Spherical error probable    Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable   Survival: 5-500 Hz, 0.015 g2/Hz Random Swept Sine patterns of cable patterns of supporting 150 patterns of cable patterns of c	Accuracy (1 PPS)	• • • • • • • • • • • • • • • • • • • •	Extended Cable Support	0 0	• Vibration	
• Jitter		is properly installed and				
Hold mode  Jitter  A on s (1 s typical) in Position Hold mode  Jitter  A on s (1 s typical) in Position Hold mode  Jitter  A on s (1 s typical) in Survey Mode  Position Accuracy  Position Accuracy  Acquisition Time to First Fix (TTFF)  Reacquisition  A capusition  Notes:  1. Spherical error probable  A lod mode  Dimensions  S8534A (without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector): 16.5 cm H X 15.0 cm D  Add without cable and connector (Jeus-fit clamp (glass-filled, high modulus nylon for secure clamp)  A cquisition Time to First Fix (TTFF)  A cquisition Time to Fix (100-4-3 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-5 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix) high modulus nylon for secure clamp)  A cquisition Time to Fix (100-4-4 (Radiated fix)			· ·		· ·	5-500 Hz, 0.015 g2/Hz Random
• Jitter  40 ns [1 s typical] in Position Hold mode  110 ns [1 s typical] in Survey Mode  • Position Accuracy  • Position Accuracy  • Position Immediate Properties of Power [See Note 2.]  • Reacquisition  • Reacquisition  • Special in Position Position Hold mode  110 ns [1 s typical] in Survey Mode  • Position Accuracy  25 m SEP without SA [See Note 1.]  • Mounting  • Mounting mast [Option AUB]:  discharge, 8kV contact  discharge, 8kV contact  discharge, 8kV contact  discharge, 8kV contact  discharge)  • Mounting  • Mounting  • Mounting  • Mounting  • Mounting modulus nylon for  secure clamp]  • Weight  • Weight  • Weight  • Weight  • Cable and Connector  • Weight  • Cable and Connector  • Weight  • Cable and Connector  • Weight  •					• EMC	CE marked
110 ns [1 s typical] in Survey Mode  Position Accuracy Position Ac	• Jitter	40 ns (1 s typical) in Position	• Dimensions	connector): 16.5 cm H X 15.0		
Mode Position Accuracy Positio			· ·		· ·	
Note 1. Spherical error probable  Note 1.)  Note 2.)  Note 1.)  Note 3.  Note 3.  Note 3.  Note 3.  Note 3.  Note 4.  Note 1.  Note 3.  Note 3.  Note 3.  Note 4.  Note 4.  Note 5.  Note 6.  Note 1.  Note 7.  Note 7.			· · ·	457 mm L X 31.5 mm ±0.125	· · ·	
• Acquisition Time to First Fix (TTFF) • Reacquisition • See Note 2.) • Cable and Connector loss of power (See Note 2.) •	<ul> <li>Position Accuracy</li> </ul>	•	:		•	-
<ul> <li>Acquisition Time to First Fix (TTFF)</li> <li>Reacquisition</li> <li>Reacquisition</li> <li>Reacquisition</li> <li>Cold Start: &lt;2 minutes typical First Fix (TTFF)</li> <li>Weight</li> <li>Cable and Connector loss of power (See Note 2.)</li> <li>Transient/Burst Immunity, 50/ N)</li> <li>twisted pairs, shielded)</li> <li>12 pin round, waterproof connector (Deutsch MMP 21C-2212P1)</li> <li>Notes:</li> <li>Spherical error probable</li> </ul>		•	• Mounting			
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loss of power [See Note 2.]  12 pin round, waterproof connector (Deutsch MMP 21C-2212P1)  Notes:  1. Spherical error probable  500 V)  EN 61000-4-5 (Surge Immunity) EN 61000-4-6 (Conducted RF Immunity)		Cota Start: <2 minutes typicat	· · • Weight	684 g	•	•
12 pin round, waterproof EN 61000-4-5 (Surge Immunity) connector (Deutsch MMP EN 61000-4-6 (Conducted RF 21C-2212P1) Immunity)  Notes:  1. Spherical error probable			Cable and Connector	· · · · · · · · · · · · · · · · · · ·		Transient/Burst Immunity,
Notes:  1. Spherical error probable				12 pin round, waterproof		EN 61000-4-5 (Surge Immunity)
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