Symmetricom

DATA SHEET

TimeSource® 3500

GPS Stratum 1 Timing System

Key Features

- Expandable outputs provide single box solutions for small/remote offices
- Built-in early warning performance monitoring catches problems before they impact the network
- Eight user-configurable T1/composite clock/E1/2.048 MHz outputs
- Sync status messaging
- Optional SNTP TimeServer

Key Benefits

- Increases sync coverage into harsh GPS environments
- Window antenna lowers installation and maintenance costs
- Extended holdover reduces nuisance alarms and downtime
- Economical PRS alternative to cesium

The Symmetricom® TimeSource® 3500 is a stand-alone Stratum 1 Primary Reference Source (PRS) which works in GPS hostile environments. TimeSource 3500 meets GR 2830 network PRS performance requirements by using a GPS antenna mounted inside a window or on an outside wall. Timing outputs with Stratum 1 performance are achieved using advanced BesTime® technology, single-satellite locking GPS receiver subsystem, and Rubidium local oscillator.

BesTime is a flexible clock engine which provides robust performance in compromised GPS installations. BesTime continues to predict GPS timing information during the loss of GPS signals thereby guaranteeing Stratum 1 performance with as few as one satellite in view for as little as 10 hours per day. PRS quality holdover is extended to 72 hours (0-50°C) for long term GPS outages. Typical holdover performance is three weeks at PRS quality (at 25°C). TimeSource 3500 can be installed in just about any window or outside wall with a view to the sky, making it the inexpensive, yet high performance, alternative to cesium.

Configuration Options

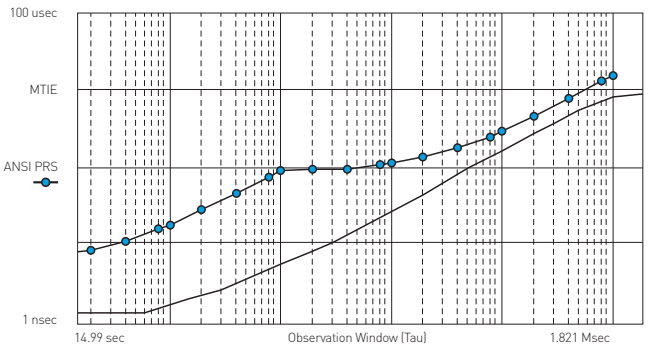
The TimeSource 3500 comes standard with two T1 outputs. It can expand with up to eight T1/E1/2.048 MHz outputs programmable on a per port basis.

Applications

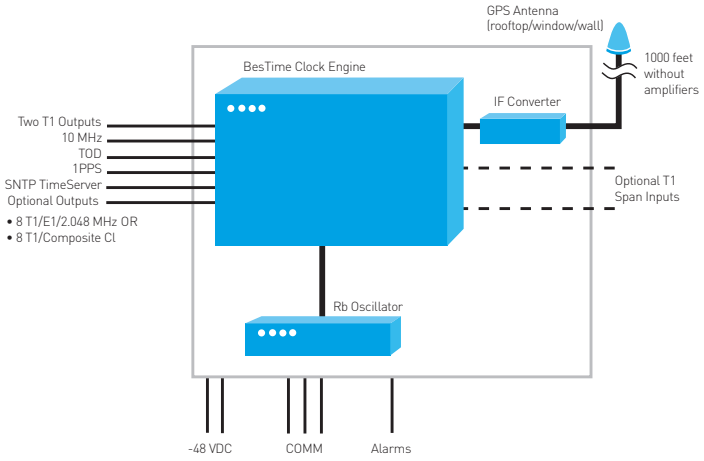
The TimeSource 3500 system can be configured as a PRS to front-end, an office BITS or as a stand alone PRS with 10 outputs for remote or small offices. In the stand alone configuration, TimeSource 3500 provides up to 10 T1 outputs in a compact, inexpensive package. This configuration is ideal for timing remote switch sites which may also have SONET terminals or other network elements.

The TimeSource 3500 ensures PRS performance is maintained through self-auditing the inputs and measuring and reporting performance against one another. Inputs can be easily provisioned to be either included in the timing ensemble output or be used for monitoring only. TimeSource 3500 is fully software upgradeable and provisionable while in-service. Communication is via RS-232 or Ethernet ports.

TimeSource 3500



TimeSource 3500 three week PRS quality holdover (@ 25°C)



TimeSource 3500 Block Diagram

Specifications

GENERAL

Specifications:	GR2830, ANSI T1.101, NEBS, UL
Internal oscillator:	Rubidium
Sync inputs:	GPS, T1 (optional)
Sync outputs:	T1, 10 MHz, 1 PPS, TOD, Composite Clock, E1/2.048 MHz
Sync status messaging:	Outputs and inputs
Communications:	RS-232, Ethernet
Management:	TL1, TimeCraft, TimeScan, TimePictra

SYSTEM OUTPUTS

Number of T1 outputs:	Up to 10 (2 standard)
Format:	D4, ESF with or without SSM - software selectable
Number of E1/2.048 outputs:	Up to 8
Format:	2.048 Mb/s G.703/6 (CCS, CAS, CRC4, or non-CRC4 configu-rable) and 2.048 MHz G.703/10 - software selectable
Frequency accuracy: Locked to GPS:	$1x10^{-12}$
Holdover*:	$1x10^{-11}$ for 72 hours (0°C to 50°C ±5°C) $1x10^{-11}$ for three weeks (@ 25°C) typical performance
	$1x10^{-10}$ for 30 days (0°C to 50°C ±5°C)

* After 1 week of steady-state operation

1 PPS OUTPUT

Number of outputs:	1
Signal type:	TTL
Connector:	BNC
Timing accuracy:	
Locked to GPS:	100 ns to GPS
Holdover:	<3 µs to GPS for 72 hours (0°C to 50°C ±5°C)

TIME OF DAY OUTPUT

Type:	Cisco or NTP type 4	
Signal:	RS-422	Amplitude Modulated
Connector:	RJ-45	BNC

SNTP TIMESERVER (OPTIONAL)

Type:	SNTP
Interface:	Ethernet

SYSTEM INPUTS (OPTIONAL)

Number:	2
Signal:	T1 (bridged or terminated)
Connector:	Wire wrap or BNC

ANTENNA SPECIFICATIONS

Type:	Window or wall mount patch; rooftop
Cable length:	Up to 1000 feet without amplifier

OTHER

Mechanical:	3.5"(H) x 19"(W) x 12"(D)
Power:	-48 VDC (redundant)
Operating temperature:	0° C to +50° C
Humidity:	5% to 95% non-condensing
EMC:	FCC Part 15

Symmetricom®
2300 Orchard Parkway
San Jose, California 95131-1017
tel: 408.433.0910 fax: 408.428.7896
www.symmetricom.com