

TimeSource® 3100

Primary Reference Source For
Telecommunications Network Operators



Key Features

- Innovative BesTime clock engine
- IF antenna provides 300 meter cable runs without amplifiers
- GPS holdover accuracy of 1×10^{-11} for 72 hours with optional inputs
- Timing accuracy of 100 ns when locked to GPS
- Sync status messaging
- Integrated sync monitoring of inputs
- Optional SNTP TimeServer
- CE marked

Key Benefits

- Compliant traceable GPS with advanced holdover capabilities
- Flexible programmable outputs

The Symmetricom® TimeSource® 3100 is a stand alone office Primary Reference Source (PRS) with integrated GPS receiver which meets ITU-T G.811 network performance requirements. The TimeSource 3100 provides undisturbed frequency and time Stratum 1 synchronization when locked to GPS with continued Stratum 1 performance for up to 72 hours upon loss of GPS.

The key to TimeSource 3100's superior performance is its patented multiple input frequency locked loop BesTime® clock engine. The BesTime engine, GPS receiver, and digitally controlled quartz local oscillator work together to produce precise timing outputs. Span line or remote oscillator inputs can be added, at the user's option, to increase system reliability and holdover performance in the event GPS signals are interrupted.

The GPS antenna can be installed up to 300 meters from the office shelf, without amplifiers, using inexpensive thin coax cable. The TimeSource 3100 can be managed using Symmetricom's TimeCraft element manager. The system is CE compliant and provides Sync Status Messaging (SSM).

Configuration Options

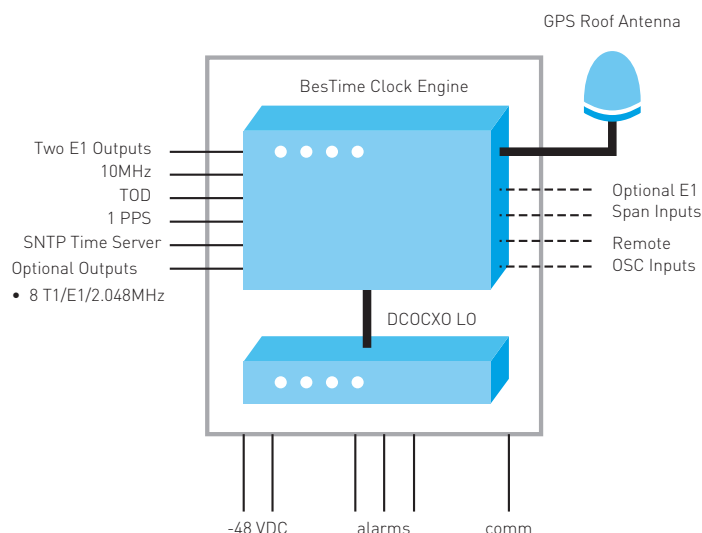
The TimeSource 3100 comes standard with two E1/2.048MHz output options. It can be expanded with eight T1/E1/2.048 MHz outputs programmable on a per port basis.

Applications

The TimeSource 3100 system can be configured as a PRS to front-end an office SSU/SASE or as a standalone PRS with 10 outputs for remote or small offices. In the standalone configuration, TimeSource 3100 provides 10 E1 (2.048 Mb/s or MHz) outputs in a compact, inexpensive package. This configuration is ideal for timing remote switch sites which may also have SDH terminals, or other network elements.

The TimeSource 3100 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. The TimeSource 3100 is fully software upgradeable and provisionable while in-service. Communication is via RS-232 or Ethernet ports.

TimeSource 3100



TimeSource 3100 Block Diagram

Specifications

GENERAL

Specifications:	ITU-T G.811 and G.812, EN 300 462-6-1, ETSI 3017, CE
Internal oscillator:	Digitally Controlled Ovenized Crystal Oscillator (DCOCXO)
Sync inputs:	GPS, E1/2.048MHz, or remote oscillator
Sync outputs:	E1/2.048MHz, 10 MHz, 1 PPS, TOD, ESCIU
Sync status messaging:	Outputs and inputs
Communications:	RS-232, Ethernet
Management:	TimeCraft, TimeScan, TimePictra

E1/2.048 MHz OUTPUTS PERFORMANCE

Number of outputs:	Up to 10 (2 standard)
Format:	2.048Mb/s G.703/9 (CCS, CAS, CRC4, or non-CRC4 configurable) and 2.048MHz G.703/13 - software selectable
Frequency accuracy:	Locked to GPS 1x10 ⁻¹² Holdover - no optional inputs: 1x10 ⁻¹⁰ for 24 hours (0° C to 50° C ±5° C) Holdover - with optional inputs: 1x10 ⁻¹¹ for 72 hours (0° C to 50° C ±5° C)

1 PPS OUTPUT PERFORMANCE

Number of outputs:	1
Signal type:	TTL
Connector:	BNC
Timing accuracy:	Locked to GPS 100 ns to GPS Holdover - no optional inputs <8.6 μs to GPS for 24 hours (0° C to 50° C ±5° C) Holdover - with optional inputs <3 μs to GPS for 72 hours (0° C to 50° C ±5° C)

E1/2.048 MHz INPUTS

Number:	2
Signal:	E1 (G.703/9 and G.703/13 software selectable, bridged or terminated)
Connector:	Wire wrap or BNC

REMOTE OSCILLATOR INPUTS

Number:	2
Signal:	5 or 10 MHz
Connector:	BNC

TIME OF DAY OUTPUT

Type:	Cisco or NTP
Signal:	RS-422
Connector:	RJ-45

SNTP TIMESERVER (OPTIONAL)

Type:	SNTP
Interface:	Ethernet

ANTENNA SPECIFICATIONS

Type:	Active antenna with integrated IF downlink
Cable type:	RG-59 with TNC connector
Cable length:	Up to 300 meters without amplifier
Operating temperature:	-30° C to +80° C

OTHER

Mechanical:	22 cm (H) x 45 cm (W) x 25 cm (D)
Power:	-48 VDC (redundant)
Operating temperature:	0° C to +50° C
Humidity:	5% to 95% non-condensing
EMC:	Compliance with FCC Part 15, Class A