Symmetricom®

TimeCesium 4500

Cesium Primary Reference Source

KEY FEATURES

- State of the Art Cesium III Beam Tube Technology
- Autonomous Primary Reference Source
- Low Cost of Maintenance with 12 Year Tube Warranty
- Plug and Play in Less Than 45 Minutes of Installation
- DS1, E1, 2048 kHz G.703/13, 10 MHz, 5 MHz, 1.544 MHz and Composite Clock Outputs

INTRODUCTION

Symmetricom is the world's leading supplier of telecommunication and commercial Cesium synchronization and timing products. The Cesium III beam tube technology, pioneered by Symmetricom, is now part of the TimeCesium™ 4500 product (formerly known as the PRS 45). It is designed for telecom network operators to generate superior and highly reliable Stratum 1 synchronization signals for advanced network services.

PLUG & PLAY IN < 45 MINUTES

The TimeCesium 4500's architecture uses the latest digital technology to provide superior performance and maintenance-free operation. The TimeCesium 4500 is easy to install and is fully operational in less than 45 minutes. Its plug & play architecture provides highly reliable operation over the lifetime of the system.

NETWORK APPLICATIONS

The TimeCesium 4500 is used to equip core network offices with Stratum 1 synchronization.

The deployment of TimeCesium 4500 sources across the network provides the following benefits:

- Flattens the sync distribution hierarchy
- Lowers the overall OAM&P (Operation, Administration, Maintenance & Provisioning) costs
- Reduces the number of network recovery clocks (TSG/SSU) operating in tandem
- Minimizes pointer adjustments caused by "frequency errors" in the SONET/SDH payload
- Prevents up-stream network clock errors from propagating across the network
- Enhances overall network performance
- Provides total control of network synchronization source

STANDARDS COMPLIANCE

The TimeCesium 4500 meets industry standards, including ITU-T, ETSI, ANSI, Telcordia, NEBS, and CE/AS.

TimeCesium 4500

TimeCesium 4500 Specifications

PERFORMANCE
- Accuracy (over environment): $\leq \pm 1 \times 10^{-12}$

STABILITY
- Averaging time:

1 s	1.2×10^{-11}
10 s	8.5×10^{-12}
100 s	2.7×10^{-12}
1,000 s	8.5×10^{-13}
10,000 s	2.7×10^{-13}

- Warm-up time (typical)   30 minutes

OUTPUTS
- Telecom signals: Two framed or unframed
- Framed (AMI)

     1544 kbps   ANSI T1.102 DS1 selectable framing: SF(D4) or ESF, with Stratum 1 Sync Status Message (SSM)

        Format: Framed all ones, B8ZS

     2048 kbps   ITU-T Rec.G.703/9 (E1) with G.704 framing and with Stratum 1 Sync Status Message (SSM)

        Format: Framed all ones, HDB3

- Unframed

1544 kHz	G.703/13
2048 kHz	G.703/13
Composite Clock	G.703/4

- Connectors: DB9 for balanced signal
  CC, 133Ω
  T1, 100Ω
  E1, 120Ω
  BNC for unbalanced signals, 75Ω

- Sinusoidal signals: 1 at 5 MHz, 10 MHz, 0.5 V rms/50Ω, BNC

GENERAL
- Power requirements: Dual redundant DC inputs
- Operating voltage: -48 V DC nominal (-36 to -62 V DC)
- Power

Operating:	40 W
Warm-up:	55 W

- Interface connections

External DC inputs, A and B:	#6 screw terminal block
RS232:	9 pin male D-connector
Chassis ground, A and B:	#6 screw terminal block
Alarm - critical and minor:	#6 screw terminal block

- Fuses: External DC Input
  2 A, 250 V, slow acting

- Dimensions

Width:	18.2" (46.2 cm)
Depth:	10.1" (25.7 cm)
Height:	10.5" (26.67 cm)
Weight:	36.5 lb (16.6 kg)
Mounting:	Mounting ears provided for 19" or 23" racks

ENVIRONMENT
- Temperature

Operating:	0°C to 50°C
Non-operating:	-40°C to +75°C

- Humidity: 95%, non-condensing