

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

 $\leq \pm 1 \times 10^{-12}$

1.2 x 10⁻¹¹

8.5 x 10⁻¹²

2.7 x 10⁻¹²

8.5 x 10⁻¹³

2.7 x 10⁻¹³

30 minutes

PERFORMANCE

• Accuracy (over environment):

STABILITY

• Averaging time:

- 1 s 10 s 100 s 1,000 s 10,000 s
- Warm-up time (typical)

OUTPUTS

 Telecom signals:
 Framed (AMI) 1544 kbps

> Format: 2048 kbps

Format:

Unframed
 1544 kHz
 2048 kHz
 Composite Clock

Connectors:

• Sinusoidal signals:

ANSI T1.102 DS1 selectable framing: SF[D4] or ESF, with Stratum 1 Sync Status Message (SSM) Framed all ones, B8ZS ITU-T Rec.G.703/9 (E1) with G.704 framing and with Stratum 1 Sync Status Message (SSM) Framed all ones, HDB3

Two framed or unframed

G.703/13 G.703/13 G.703/4 DB9 for balanced signal CC, 133 Ω T1, 100 Ω E1, 120 Ω BNC for unbalanced signals, 75 Ω 1 at 5 MHz, 10 MHz, 0.5 V rms/50 Ω , BNC

GENERAL

Power requirements:
Operating voltage:
Power

Operating:
Warm-up:

Interface connections

External DC inputs, A and B:
RS232:
Chassis ground, A and B:
Alarm - critical and minor:

Fuses:

• Dimensions Width: Depth: Height: Weight: Mounting:

ENVIRONMENT

Temperature
 Operating:
 Non-operating:
 Humidity:

Dual redundant DC inputs -48 V DC nominal (-36 to -62 V DC)

40 W 55 W

#6 screw terminal block 9 pin male D-connector #6 screw terminal block #6 screw terminal block External DC Input 2 A, 250 V, slow acting

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

0°C to 50°C -40°C to +75°C 95%, non-condensing

Symmetricom

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