The TimeCesium® 4400 is an autonomous Primary Reference Source based on the latest Cesium III technology from Microsemi. It is designed for telecom network operators to generate superior and highly reliable Stratum I synchronization signals for advanced network services.

**Network Applications**

The TimeCesium 4400 is used to equip core network offices with Stratum 1 synchronization.

The deployment of TimeCesium 4400 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 to propagate across the network
- Enhances overall network performance
- Provides total control of your network synchronization source

**Standards Compliance**

The TimeCesium 4400 meets industry standards, including ITU-T, ETSI, ANSI, Telcordia, NEBS, and AS; RoHS 5/6 compliant. This includes the requirements contained in the new ITU-T G.811.1 ePRC standard.
Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world’s standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Learn more at www.microsemi.com.

Specifications

Performance

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

Stability

- Average time
  - 1 s: \( 1.2 \times 10^{-11} \)
  - 10 s: \( 8.5 \times 10^{-12} \)
  - 100 s: \( 2.7 \times 10^{-12} \)
  - 1,000 s: \( 8.5 \times 10^{-13} \)
  - 10,000 s: \( 2.7 \times 10^{-13} \)

- 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, 133 \( \Omega \)
- T1, 100 \( \Omega \)
- E1, 120 \( \Omega \)
- BNC for unbalanced signals, 75 \( \Omega \)

Sinusoidal signals

- 1 at 5 MHz, 10 MHz
- 1 \( V_{\text{RMS}} \)/50 \( \Omega \), BNC

General

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

Dimensions

- Width: 18.2" (46.2 cm)
- Depth: 10.2" (25.7 cm)
- Height: 10.5" (26.67 cm)
- Weight: 36.5 lb (16.6 kg)

Fuses: External DC input 2 A, 250 V, slow acting

Environment

- Temperature
  - Operating: 0 °C to 50 °C
  - Non-operating: –40 °C to 75 °C
- Humidity: 95%, non-condensing

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