SecurePNT EdgeGM 7000 with Multi-Orbit SecureTime altGNSS GEO/LEO Service

Half-19"-1U, Multisource and Resilient 1/10/25G PTP Edge Grandmaster Clock

Defense | 5-6G Telecommunications | Transportation | AI Data Center | Energy | Public Safety | Private 5G | Financial | Critical I Infrastructure

Solving Industry Challenges

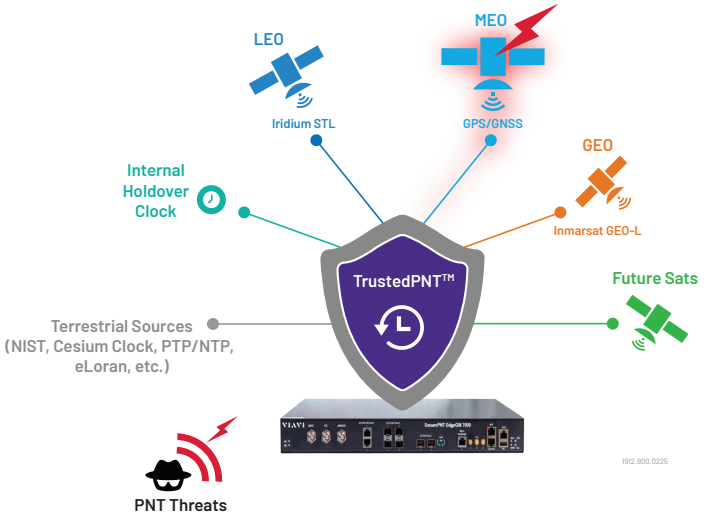
Secure and resilient Position, Navigation and Timing (PNT) services are vital to support at-risk critical infrastructure from rising PNT disruptions such as intricate jamming, spoofing, and meaconing attacks on GPS/GNSS antennas and malicious hacking cyberattacks on network timing targeting NTP/PTP protocols and GPS/GNSS receivers.

Additionally, AI-computing data center infrastructure requires higher PTP speeds to connect to higher-speed ports of network elements while synchronizing them effectively.

Secure and Resilient PNT Grandmaster Clock Solution

The new SecurePNT™ EdgeGM™ 7000 series integrates advanced resiliency from multi-orbit space and terrestrial sources and high-speed Grandmaster clock capabilities, all packed into a half-19" unit.

The EdgeGM 7000 solution is powered by innovative TrustedPNT™ technology, which fuses, authenticates, verifies, qualifies, and learns from multiple timing sources based on its intelligent zero-trust architecture that adheres to the principle of "never trust, always verify".



SecurePNT EdgeGM 7000 powered with SecureTime GEO/LEO Service

Key Features

- Multisource receivers for GNSS backup: Multi-band GNSS with GEO-L for an outdoor antenna, or optional LEO STL only for an indoor antenna
- High-speed ≤25G PTP Grandmaster and NTP Time Server
- Super near-Rb holdover performance options
- Flexible timing platform: SyncE, NTP, PTP (PTRC-A/B), GM, APTS, BC-C/D, Client Clock, TC, 1 PPS, ToD, 10 MHz, Gateway Clock
- High-performance sub-ns timestamping

Key Benefits

- Secure, resilient edge Grandmaster clock
- GNSS backup with on-demand SecureTime altGNSS GEO-L Service activation, or optional LEO STL Service with a LEO STL receiver
- Powerful platform to upgrade from 10G to 25G PTP with a simple license (no costly rip and replace)
- User-friendly SNMP management and Sync GUI monitoring capabilities
- Multi-industry PTP profiles (L2/L3, Telecom, Enterprise, Power, and more)

Specifications

SecurePNT EdgeGM 7000 with Multi-Orbit SecureTime℠ altGNSS℠ GEO/LEO Service

Multisource Receivers	
• Default config for an outdoor antenna: — Multi-band GNSS (L1, L2, L5) GEO-L • Optional config for an indoor antenna: — LEO STL	• Multi-band GNSS — 184 channels, multi-constellations (GPS, Galileo, Beidou, QZSS, NavIC), multi-band L1/2 or L1/5 user-selectable
SecureTime altGNSS GEO/LEO Service	
• Alternate GNSS backup options • On-demand GEO-L activation over the air	• Optional Iridium LEO STL over Ethernet with a LEO STL receiver
Holdover	
• Super near-Rb holdover oscillator options	• OCXO-24: 1.5 µs over 24 hours* • MEMS-8: 1.5 µs over 8 hours*
Interfaces and Indicators	
• Ethernet ports: — 2 x 100/1000BaseT (RJ45) — 2 x 1/2.5/10G (SFP+) — 2 x 1/2.5/10/25G (SFP28) • Supported SFP/SFP+: MM, SM, SFS, xWDM, Copper • Sync and Timing: — All 6 ports support PTP, SyncE and NTP (user settable) — GNSS antenna in (SMA) — Sat antenna in, LEO STL or GEO-L, (SMA) — 2 x external 1 PPS and 10/1.544/2.048 MHz In/out, user settable, (SMA) — ToD (NMEA/1 PPS) (RJ45)	• µPNTranscoder™ option: — Patented multisource-to-GPS transcoder — Any multisource RF in from GNSS/LEO STL/GEO-L SMA and optional GPS L1 C/A RF out on "Sat-Out" SMA to retrofit legacy GPS/GNSS clock equipment with resiliency • Management (OOB): — 1 x 10/100/1000BaseT (RJ45) — 1 x USB (local console) • LEDs — Link/Activity (per port) — GNSS — Sat — Sync — CPU — Power

*At constant ambient temperature

Specifications continued

PTP/IEEE-1588

- Functions:
  - Grandmaster (PRTC-A/B[2] - 100/40 ns)
  - Boundary Clock (Class C/D)
  - Ordinary Clock (M/S)
  - Transparent Clock (Class C/D)
  - Gateway Clock (e.g., G.8275.2 (L3 upstream) and G.8275.1 (L2 downstream)
- Profiles supported:
  - Telecom Frequency (G.8265.1)
  - Telecom Phase (G.8275.1/G.8275.2 – L2/L3)
  - Enterprise[1]
  - Power[1]
  - Default (IEEE1588)
  - 802.1AS
  - Custom
- APTS:
  - GM PTP ingress/egress offset compensation when GNSS is lost
- Modes supported:
  - 1 and 2 step
  - L2 Multicast
  - L3/UDP Unicast/Multicast
  - Mixed transport modes
  - E2E and P2P delay
  - VLAN tagging
- Scalable Client capacity:
  - 256/512[1]/1024[1] Unicast @ full packet rate
  - Support for max packet rates for:
  - Announce, Sync and Del.Req/Del.Resp messages
- HW timestamping: <1 ns resolution

Other Timing Services/Features

- Synchronous Ethernet (SyncE):
  - G.8261, G.8262, G8262.1 (eEEC)
  - ESMC (G.8264)
- Support O-RAN configurations LLS-C1/C2/C3/C4
- SyncCenter configurator
- NTP (thousands TPS)
  - Client
  - Servers

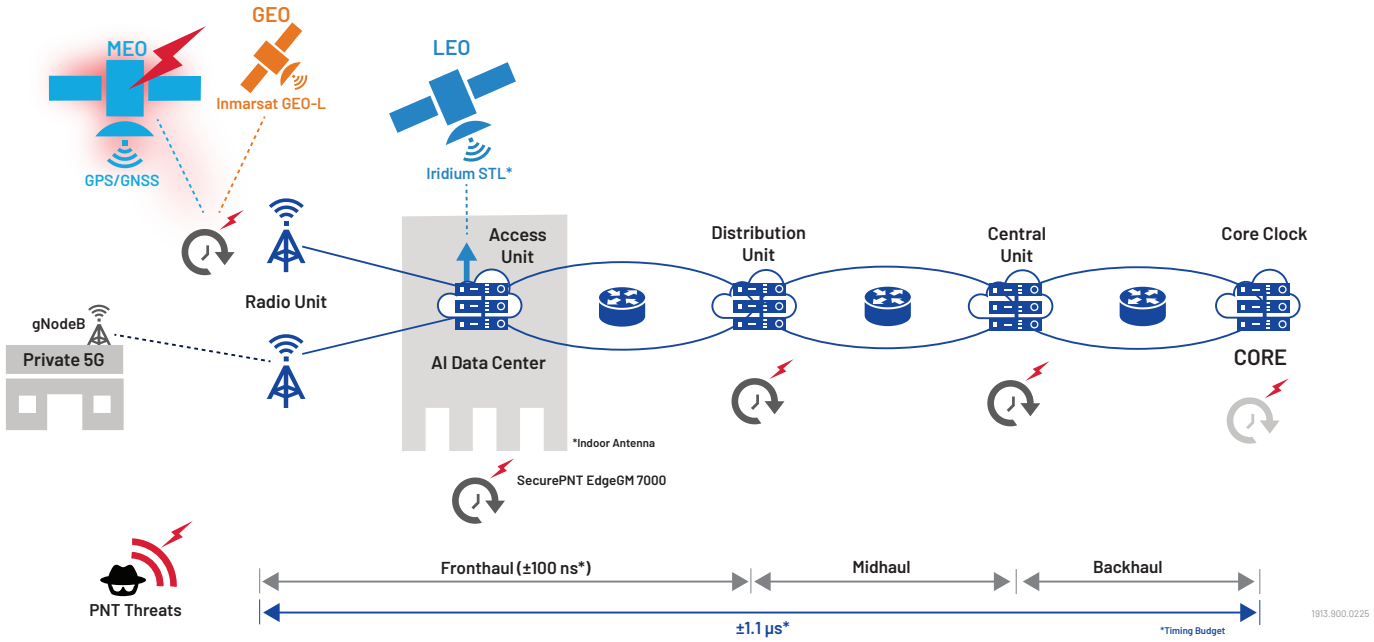
Management

- Interfaces:
  - CLI: Console, Telnet, SSH
  - SNMP: v1/v2c/v3, extensive MIBs
  - Web: HTTP/HTTPS
  - Netconf/YANG
  - Management VLAN
  - IPv6 management
- Sync GUI monitoring
  - User-friendly, web-based application
- Authentication:
  - RADIUS, TACACS+
  - Multiple local users
  - User access levels (15)
  - Management ACLs
  - 802.1x (port/MAC based)
- DHCP client, relay, server, snooping
- Link discovery: LLDP, CDP aware
- Operations:
  - Remote System Update (FTP (SFTP) or HTTP/S)
  - Configuration upload/download (FTP or HTTPS/S)
  - Text based config files, including PTP Profiles
- Alarms:
  - SNMP traps
  - Syslog (internal and remote server)
  - CLI events
- Remote temperature reading and alarm
- Per port and queue detailed statistics
- RMON

Specifications continued

Network Protection	
• Link aggregation: static or LACP • Loop protection • Linear protection: G.8031	• Ring protection: G.8032v2 • Spanning tree: STP, RSTP, MSTPSFP diagnostics (SFF-8472)
Power and Environmental	
• Power Supply: — Internal power supply: 20-60 VDC, dual feed — AC adapter option • Power consumption: • Maximum: <25 W; typical: <20 W	• Operating temperature: — Standard: -10°C to 50°C (14°F to 122°F) — Extended: -40°C to 65°C (-40°F to 149°F)(optional) • Storage temperature: -40°C to 80°C (-40°F to 176°F) • Humidity: 10-90%, non-condensing
Physical	
• Dimensions (HxWxD): — 44 x 221 x 150 mm (1.73 x 8.70 x 5.90 inch) • Mounting: — Desktop — Rack — Wall	• Weight: TBD • Accessories: — USB cable (console) — 19" rack mounting kit (optional) — Rooftop GNSS antenna (optional) — Indoor/Outdoor LEO STL antenna for GNSS backup (optional) — Outdoor GEO-L antenna for GNSS backup (optional)
Regulatory and Compliance	
• Safety: — IEC EN60950-1 • CE • RoHS	• EMC: — FCC CFR 47 part 15, subpart B, Class A — EN 300 386 V1.3.3: 05

Typical Applications: 5-6G O-RAN/AI Data Center/Private 5G Network Timing Architecture with GNSS Backup from Multi-Orbit SecureTime altGNSS GEO/LEO Service



SecurePNT EdgeGM 7000 Applications Powered with SecureTime GEO/LEO Service

Simplified Product Ordering ID

	Model[3]	Optional Receiver	Multi-Orbit SecureTime altGNSS Service Options[4]	Holdover Oscillator	PTP Speed	µPN Transcoder
ID	7000	LEO STL	GEO-L for Outdoor Antenna (GEO-Outd)	OCXO-24/ MEMS-8	10[5]/25G	GPS RF Sat-Out
			LEO STL for In/Outdoor Antenna (LEO-Ind/Outd)			SMA (GPS-Sat-Out)
Ex: Order ID	**7000 + GEO-Outd + MEMS-8 + 25G + GPS-Sat-Out**					

[1] Planned

[2] Depending on RF receiver

[3] Equipped with multi-band GNSS and GEO-L receivers

[4] GEO-L can be activated over the air anytime on-demand. LEO STL can be activated over Ethernet and requires the optional LEO STL receiver

[5] Standard 1G included in the 10G PTP speed

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