Timing & Synchronization

Power Utility Timing Systems

Timing and Synchronization

Timing and synchronization are indispensable in our increasingly digital, networked world. Precise, accurate time enables virtually all infrastructures such as data centers, wired and wireless communications, financial exchanges, industrial networks, smart powergrid, and other secure communications. Wireless networks, for example, rely on highly accurate timing and synchronization for smooth cell-to-cell transfers of the mass of voice, video and mobile data deluging the networks daily. Precise timing is similarly vital for financial networks processing billions of dollars in transactions daily.

Achieving highly accurate precision time is no easy feat from a technological perspective, so it's important to find a resource you can trust. Our end-to-end timing solutions generate, distribute, and apply precise time for multiple industries, including communications, aerospace/defense, IT infrastructure, financial services, industrial and more. Microchip customers range from communications service providers and network equipment manufacturers to governments and their suppliers worldwide.

Leveraging Microchip's advanced portfolio of timing technologies, services, and solutions, we enable our customers to build more reliable networks and systems supporting today's precise timing standards, including:

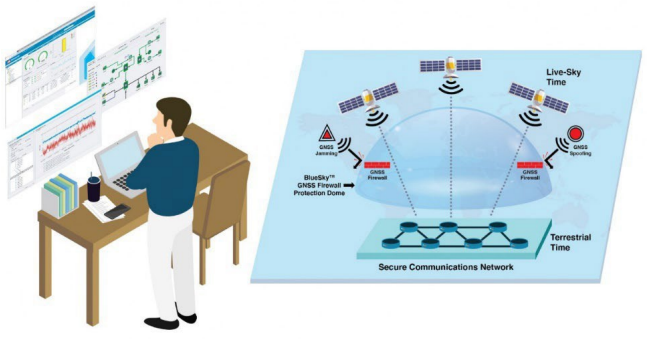
- GPS-based timing
- IEEE 1588 Precision Time Protocol (PTP)
- Network Time Protocol (NTP)
- Synchronous Ethernet (SyncE) and
- Data-over-Cable Service Interface Specifications (DOCSIS) timing

Updates to GPS Data Validation Rules

Microchip is continuously tracking GPS signal activity.

Microchip's worldwide deployment of atomic clocks and GPS systems are used as a reference frame to continuously analyze GPS data for changes including spoofing threats, jamming attacks, multipath signal interference, atmospheric activity and any other effect that degrades GPS performance.

Unified Management of "Terrestrial Time" and "Live-Sky Time" Sources to Enable Resilient Timing for Critical Infrastructure



Power Utility Timing Systems

The modern smart grid is a highly distributed architecture that is dependent on accurate timing for coordination, protection and control systems. Microchip's portfolio of power utility timing systems (formerly the Tekron portfolio) provides a full selection of GNSS time servers for every substation timing application. The products are designed to meet stringent environmental-hardening requirements for power utility substation deployment.

Product	Product Photo	Product Features
GridTime™ 3000 GNSS Time Server		• Software-configurable license model • Isolated single- or dual-power supply options • Swappable high- and low-voltage power supplies • Independently isolated outputs • Hardware-based assurance boot process • Support for a wide range of industry profiles for IEEE 1588 Precision Time Protocol (PTP)
TCG 01-G		• ½ width 1U GNSS Time Server • NTP/PTP/SNTP • DCLS/AM IRIG-B, DCF-77, Programmable Pulse • Isolated Power Supply
TCG 02-G		• 1U GNSS Time Server • NTP/PTP/SNTP • DCLS/AM IRIG-B, DCF-77, Programmable Pulse • Isolated Dual Power Supply Option • VCTCXO, OCXO or Rubidium Option
TTM 01-G		• Din Rail Mounted GNSS time server • Independently isolated outputs • Isolated power supply • NTP/PTP/SNTP
NTS 02-G		• ½ width 1U GNSS Time Server • 3 independent RJ45 Ethernet ports • NTP/PTP/SNTP • Isolated Power Supply
NTS 03-G+		• 1U GNSS Time Server • 3, 4 or 6 independent RJ45 Ethernet ports options • PTP/NTP/SNTP/PRP • Isolated Dual Power Supply Option • TCXO, OCXO or Rubidium Option

Product	Product Photo	Product Features
Isolated Timing Repeater (ITR)		• Extends the distance of an IRIG-B or Pulse signal • Provides isolation between A & B Protection Systems or between IEDs • Converts a copper signal to a fiber signal (or vice versa) • Converts low voltage (0-5 V) signal to a high voltage digital output S Time Server • Reduces wiring to panels of equipment
PTP Translator		• Compact DIN-rail mounted translator • Allows IED's equipped with IRIG-B to conveniently access a PTP network • Translation from PTP to IRIG-B
IRIG-B Analyzer		• Decode over 24 IRIG-B timecodes with extensions • IRIG-B DCLS, AM and Modified Manchester decoding • Electrical and optical signals decoded • Ruggedized, handheld device

Support

Microchip is committed to supporting its customers in developing products faster and more efficiently. We maintain a worldwide network of field applications engineers and technical support ready to provide product and system assistance. For more information, please visit www.microchip.com:

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Training

If additional training interests you, Microchip offers several resources including in-depth technical training and referencematerial, self-paced tutorials and significant online resources.

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