"Smarter Timing Solutions"

MERIDIAN / TYCHO II, RTM3205 *PTP Grandmaster*

PTP/IEEE-1588 Grandmaster Option

The Meridian II, Tycho II, and RTM3205 Precision Time Protocol (PTP) Grandmaster Clocks deliver the level of performance that is required in high-speed, low-latency systems. EndRun makes it easy to add the optional PTP / IEEE-1588 protocol to one or both of the dual gigabit ports. This 2nd-generation PTP Grandmaster option is a perfect choice for PTP or mixed PTP / NTP networks. The highly-integrated solid-state design is very reliable, and you can easily manage it via one of the network ports or the RS-232 serial port. A web interface (HTTPS) is also provided for status monitoring.

Dual Gigabit Ports

Meridian II, Tycho II, and RTM3205 have two 10 / 100 / 1000 Base-T Ethernet ports. The PTP protocol can be enabled on one or both of these ports to service two independent PTP sub-domains. Both ports are security hardened to meet the highest Information Assurance (IA) requirements.

Hardware Timestamping

These products are shipped from the factory ready for hardware-based PTP timestamping. Hardware timestamping enables the nanosecond accuracy and performance that is required for today's low-latency systems.

Easy PTP Configuration

You can easily configure all PTP parameters via the network console port or the front-panel keypad / display (Meridian II). The PTP configuration can be viewed by both methods and also via the built-in web interface. Once the PTP Grandmaster configuration is saved, it is broadcast to all PTP slaves who then configure themselves accordingly. If multiple Grandmasters are installed on your network, the PTP Best Master Clock (BMC) algorithm automatically decides which one becomes the active Grandmaster.

Oscillator Options for Improved Timestamp Accuracy if Signal Lost

Reference oscillator upgrades are available to improve timestamp accuracy in the case of GPS signal loss. The drift rate of the oscillator is what causes the Grandmaster to gradually move away from "perfect time" if the signal is lost. The slower the drift rate, then the more accurate your PTP timestamps will be during periods of signal loss.

The basic Meridian / Tycho II is provided with a TCXO (drift is 10 milliseconds for the first day). An upgraded OCXO or rubidium oscillator is recommended for the PTP Grandmaster. The RTM3205 offers three OCXO options. Specifications for the oscillator options are shown below. For PTP purposes, the most important specification is the accumulated time error for the 1st day after signal loss.

Oscillator Options -ou	-ocilTCXO	MS-OCXO	HS-OCXO	OS-OCXO	Rubidium	HS-Rubid
Accumulated Time Error 1st Day*	10 msecs	80 usecs	15 usecs	10 usecs	5 usecs	1 usecs
Temperature Stability	2.5×10^{-6}	4×10^{-9}	1×10^{-9}	5×10^{-10}	1×10^{-9}	1×10^{-10}
Temperature Range °C	-20 to +70	0 to +70	0 to +70	0 to +70	-20 to +70	-20 to +70
Ageing Rate / Year	1×10^{-6}	3×10^{-8}	3×10^{-8}	3×10^{-8}	1×10^{-9}	5×10^{-10}
Allan Deviation @ 1 sec	6×10^{-10}	3×10^{-12}	1×10^{-12}	5.1×10^{-13}	2×10^{-11}	1.2×10^{-11}

* Typical, 5° C Max Delta, 7.5° C / Hr Max Slew Rate