

RTG-510

Universal GPS and Time Code Processor



Features

- **Universal GPS, IRIG A, B, E, G, NASA36, and HaveQuick inputs**
- **12 channel GPS receiver**
- **16 programmable outputs for time codes and pulse rates**
- **Output codes include NTP, IRIG A, B, E, G, H NASA36, HaveQuick, 1PPS**
- **Electrical time code input/output**
- **Dual Independent Ethernet ports with integrated web server control**
- **High Stability Oven Controlled Oscillator Standard**
- **9-Digit Time Display**
- **Redundant Hot Swap Power Supplies**
- **1U 19" rack mount**

Brandywine's RTG-510 master clock will synchronize to almost any timing input, including GPS, IRIG A, B, E, G, Have Quick, NASA36, and simultaneously output IRIG A, B, E, G, H, HaveQuick, 1PPS, dual NTP and RS232 to your system. This versatile unit has a 9-digit time display, a built-in web browser for easy use, and has dual redundant power supplies for reliability. Built with either TCXO or OCXO (std) or rubidium oscillators, the RTG-510 has the ability to track incoming time code over +/- 200ppm to allow time code conversion from legacy tape playback systems.

An intuitive, easy to use web browser interface allows simple setup of the RTG510 from any network connected computer, tablet or smart phone.

RTG-510 Specifications

Inputs

Input synchronization source selectable from:

GPS

- 12 Channel C/A Code L1
- Antenna and 100ft cable included
- Antenna Connector BNC

Time Code

Time Code Types

- Electrical Amplitude Modulated
- DC Level Shift

Time Code Formats (x= User Selectable)

- IRIG A00x, A13x
- IRIG B02x, B12x, CF per IEEE-1344
- IRIG E00x, E11x
- IRIG G00x, G14x
- IRIG H00x
- NASA 36
- Have Quick

Time Code Characteristics

Electrical

Modulated

- Amplitude: $0.1V_{pp} - 8V_{pp}$
- Input Impedance: 50Ω, 600Ω s/w Selectable
- DC Level Shift (single ended)

- Amplitude: 0-5V
- Connector BNC
- DC Level Shift (Differential)
- RS422
- Connector DB9-F

Frequency range: +/- 200ppm (for tape playback)

Manual setting

1PPS sync with manual time of year entry

1PPS input characteristics

- Single Ended
- Amplitude: 0-10Vp-p /50Ω
- Connector: BNC
- Differential
- RS422 compliant
- Connector: DB9-F

Countdown option

Run/Hold/Stop inputs

Internal Oscillators supported

TCXO (opt)

1ppm 0-50 deg/5x10⁷/year aging

High Stability OCXO (std)

2x10⁻⁹ 0-50 deg/1x10⁻¹⁰/day aging

Rubidium (opt)

5x10⁻¹⁰ 0-50 deg/5x10⁻¹¹/mo aging

Accuracy (std HSOCXO)

Time Accuracy GPS <30ns

Modulated Time Code <5us

DCLS time code <1us

Ext 1PPS <30ns

Holdover <1us/hr

Outputs

1PPS

- No of outputs: 2
- Amplitude: 2.5V or 5V into 50Ω, via link
- Pulse width: 1us -500ms s/w settable
- Connector BNC

Have Quick time code

- No of outputs: 2
- Amplitude: 2.5V or 5V into 50Ω, via link
- Format HQII per ICD-GPS-060A/STANAG4430
- Connector BNC

Time code output

Outputs: 16 outputs total

Output Types

- 4ea single ended modulated
- 5ea DC Level Shift or Pulse s/w settable
- 5ea Differential DCLS or pulse @ RS422 levels

Output Characteristics

Electrical

Connector: BNC

Modulated

- Amplitude: 3vp-p
- Modulation Ratio: 10:3

DCLS/Pulse Rate

- Connector DB-15
- Single ended: Amplitude 2.5V and 5V into 50Ω
- Differential: RS422

Time Code Formats available

- IRIG A002, A006, A007, A132, A133, A134,
- IRIG B002, B006, B007, B122, B123, B124,
- Control Functions per IEEE-1344
- IRIG E002, E006, E007, E122, E126, E127
- IRIG G002, G006, G14, G142, G144
- IRIG H002
- NASA 36

Network Interface

Type: 10/100 BaseT Ethernet

No of Outputs: 2

Protocols Supported: HTTP, NTP, SNMP

Power Supplies

Single or Dual (std) Hot Swappable Power Supplies

AC supply: 85-264 VAC (50/60 Hz) 40 W ea

Connector:

IEC 320 (std)

MS3102A-10SL-3P (opt)

DC supply: -48 VDC

Connector:

MS3102A-10SL-2P (std)

- Terminal Block (opt)

Control and Display Functions

Display

Front Panel display of DDD:HH:MM:SS (LED colons indicate reference lock status)

Power LED (2)

Fault LED

Holdover LED

Brightness Control s/w control

Physical

Size: 19" rack-mount 1U high (1.75"), 14" deep

Weight: 8 lbs nominal

Environmental Conditions

Temperature

Operating -20 to +50C

Storage -55 to +85C

Humidity

Up to 95% RH (non-condensing)

Altitude

20,000 ft

EMC

FCC Part 15

EN55022

EN55024