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800 Series

Low-Cost Time Code Units

The 800 Series Time Code Units pack the performance and versatility of many larger and higher-priced units in an affordable, 1.75-inch rack-mounted package. The modular design allows many features to be included as standard that normally are found as extra-cost options. A large library of readily available optional features allows you to custom configure a unit for your specific application.

The 800 consists of a small, rugged chassis that provides the platform for the front panel controls and displays, the power supply, and the timing processor. The front panel high-intensity LED display of time of year is augmented by an alphanumeric LCD that displays set-up and operating parameters. A 20-key front panel keypad allows full operator control of all functions. All user settings are stored in nonvolatile memory.

The 800 Series can be configured to operate as a:

- Generator
- Translator
- Synchronized Generator
- Combination of the above modes

Generate Mode: The 800 operates as a precision digital clock, generating any of a wide range of time codes. Additionally, the unit can be toggled between the Translate and Generate modes without any loss of ongoing generator time.

Translate Mode: In this mode, the 800 reads and displays time code from magnetic tape or other sources over a wide range of input speed, amplitude, or frequency. The current library of supported input codes includes: IRIG A, B, E, G, H, NASA 36, XR3, 2137 and MILA.

Synchronized Generator Mode: This feature phase locks the generator to a user-supplied time code. All outputs are then referenced to the user-supplied time code. In the event of input code failure, the synchronized generator allows the outputs to continue without interruption. Additionally, a sophisticated frequency correction algorithm enhances the accuracy of the internal oscillator with respect to the input code. The frequency correction is maintained uniformly over periods of input code failure or loss.

The 800 Series includes the following models:

Model 814: Time Code Generator. Stand-alone IRIG B time code generator/display.

Model 820: Time Code Translator/Display. Translates (decodes) and displays serial time codes over a wide frequency range in both forward and reverse directions.

Model 840: Time Code Translator/Generator. Combines the features of the 814 and 820 to operate in Translator or Generator modes.

Specifications 800 Series

Standard features of the 800 Series applicable as noted for specific models.

DISPLAYS

LED: Time, displayed in seconds through day-of-year using 0.6" high-intensity LEDs. One spare 7-segment LED is available as needed.

LCD: A 2-line, 32-character backlit LCD, adjustable for optimum viewing angle and lighting.

Keypad: 0–9, left and right arrows, SETUP, ENTER, START, STOP, FWD, REV

Indicator LEDs: Display status such as Forward, Reverse, Advance, Retard, Start, Stop; spares available for optional applications.

Internal Oscillator: 10 MHz, stability $5x10^{-5}$, 0°C to +50°C

OUTPUTS

For Models 814 and 840 only:

Time Code: 1 kHz amplitude modulated IRIG B time code, 0–6 Vpp into 600 ohms; SBS available on request as an option.

Pulse Rates: 1 PPS, 10 PPS, 100 PPS, and 1 kPPS, 50% duty cycle, positive on time, HC (0–5Vdc) levels.

INPUTS

For Models 820, 840 and Model 814 with Synchronized Generator only:

Time Code: 1 kHz amplitude modulated IRIG B time code. 0.1–10 Vpp, approximately 100k ohms to ground. 800 translator frequency range 30 Hz to 50 kHz.

For Models 814 and 840 only:

External Oscillator: Accepts 1 MHz sine or square wave, 0.5–10 Vpp, 10k ohms to ground.

External Start: Selectable positive or negative, TTL level. Pulse starts generator on next edge after unit is armed.

MECHANICAL/ENVIRONMENTAL

Size: 1.75" x 14" behind panel (4.4 x 35.5 cm). Mounts in standard 19" EIA rack systems.

Power: 95–260 Vac 47–440 Hz, 15 W

Operating Temperature: 0°C to +50°C

Storage Temperature: -17°C to +85°C

Humidity: To 95%, noncondensing

Options

Many options can be added allowing the unit to be modified easily for custom applications.

Synchronized Generator: The generator phase locks and derives its time from a user-supplied time code. Allows the generator to output different time codes all referenced to the input code.

Oscillator:

TCXO: $5x0^{-7}$ over 0°C to +50°C, aging $1x10^{-6}$/year

OCXO: $1x0^{-8}$ over 0°C to +50°C, aging $1x10^{-9}$/day

Parallel BCD: Day of year through milliseconds in BCD

Slow Codes:

IRIG H: 1-minute frame time code

IRIG E: 10-second frame time code

RS-232:

800 Series Talker: You can freeze and/or request time; unit responds at 9600 baud with time and status.

800 Series Talker/Listener: Allows you to freeze and/or request time and remotely control the unit's operating features.

IEEE-488: Full support of the IEEE-488 bus protocol, including parallel poll. Allows you to integrate the time code unit into a GPIB-based system. In Remote Mode, all functions normally controlled at the panel are controlled via IEEE-488 bus. Time output is day of year through milliseconds or the resolution of the input code when in the translator mode.

Multiple Input/Output Codes: Some of the available codes are IRIG A, B, E, G, H, NASA 36, XR3, 2137, MILA, and BUDX. Please contact TrueTime with your specific requirements.

Simultaneous Output Codes: Choose up to 4 simultaneous codes from the above list (except BUDX and MILA)

50/75 Ohm Driver: Replaces driver on output codes.

Band-Pass Filters: Automatically selected as a function of code format and speed ratio.

IRIG PB1: Binary days word, 27 bits of binary milliseconds time of day word, data ready strobe.

IRIG PB2: Binary days word, binary tenths of milliseconds time of day, data ready strobe.

IRIG PB4: Binary days word, binary milliseconds, binary microseconds.

Video Time Inserter: Provides time insertion on Composite Video, RS-170/A and PAL compatible.

Transformer Coupling: 600 ohm for input/output code(s).

DC Input Power: Available for 12 V, 24 V, or 125 Vdc in lieu of standard AC supply. AC & DC power input also available.

Reference Frequency Outputs: Up to 4 sine wave outputs available in decades of 100 Hz through 100 kHz.

Others: With the sophisticated, modular design utilized in the 800 Time Code Units, most user needs can be met.

Specifications subject to change without notice.

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