

# GPS BASED FREQUENCY STANDARD

The **ES-110** and **ES-410** generate a stable source of 10 MHz and 1 PPS using GPS satellites as a reference. The units provide 10 MHz in both Sine Wave and Square Wave (5 volt logic) form. The **ES-110** provides two 10MHz outputs (1-Sine & 1-Square), the **ES-410** produces eight 10MHz outputs (4-Sine & 4-Square). Each unit also provides a 1 PPS output that is a 50% duty, 5 volt logic signal, positive-edge coinciding with the UTC seconds change. An **ESE TC90™** Time Code output is also provided for driving remote time displays. Internal DIP switches allow configuration of the Time Code, Time Zone, antenna cable length compensation, and the satellite tracking mode.

If frequency distribution is needed, we offer the **ES-210** a Quad 1x6 1/5/10 MHz Distribution Amplifier. The **ES-210** provides four independent 1x6 Frequency DAs in a single rack-mount enclosure (see page15).

## Features

- Disciplined Temperature-Compensated Crystal Oscillator
- 10 MHz Outputs (Sine Wave & Square Wave)
- Ruggedized Desk-Top Enclosure
- **ESE** Time Code Output
- Phase Coherent 1 PPS Output
- GPS Timing Reference With 1 x 10<sup>-8</sup> Accuracy
- Several Options Available



ES-110 Rear



ES-410 Rear



## Specifications

**Outputs:** 10 MHz Sine Wave, BNC, 4 VPP into 50 ohms  
 10 MHz Square Wave, 5 VPP CMOS/TTL, BNC  
 1 PPS, 50% Duty, 5 VPP CMOS/TTL, BNC  
**ESE** Time Code™ (TC90), Drives 100 Slaves @ 4000', BNC

**Accuracy:** 1 x 10<sup>-8</sup>  
**GPS Receiver:** Internal 12-Channel  
**Antenna:** Indoor/Outdoor with 16' Cable

**Antenna Input:** L1, 1.57542 GHz, TNC  
**Enclosure:** Desk-Top, Black Anodized Aluminum  
**Dimensions:** 1.6" H x 10" W x 4.8" D  
**Electrical:** 117 VAC, 50/60 Hz  
**Power:** 5W maximum  
**Options:** Ant, BBU, DC, J, P, UL

# TIME CODE TO USB CONVERTERS

**ESE's** "TCUSB" line of Time Code to USB converters offers a simple and quick solution for synchronizing a computer to your existing time code equipment. When a serial port or a PCI slot for a Time Code Card is not available or these solutions are undesirable, an **ESE** "TCUSB" is the ideal alternative.

## Features

- Error Detect and Correction (Switchable)
- DIP Switch/Software Configuration
- Time Sync Software Provided
- Dongle measures 5" L x 1.2" W x 1" H
- Powered via USB Interface
- USB Interface Cable Included (2')
- Linux Real Time Mode

### ES-56 Edit Code



The **ES-56** converts SMPTE/EBU LTC code or **ESE** Time Code to a USB interface. The device is powered by the USB interface and may be used for computer time synchronization or for obtaining LTC data for editing purposes (when using SMPTE/EBU). The unit features five modes of operation which may be selected by DIP switch or by software: **ESE** Time Code, LTC Forward/Reverse with Frames, or LTC Real Time with 3 selectable date formats (**ESE**, Leitch or SMPTE 309M).

### ES-71 Real Time



The **ES-71** converts SMPTE/EBU LTC code or **ESE** Time Code to a USB interface. The device is powered by the USB interface and is intended for computer time synchronization. The unit features four modes of operation which may be selected by DIP switch or by software: **ESE** Time Code, or LTC Real Time with 3 selectable date formats (**ESE**, Leitch or SMPTE 309M).

