

# GPS BASED FREQUENCY STANDARD

The **ES-110** generates a stable source of 10 MHz and 1 PPS using GPS (Global Positioning System) satellites as a reference. The unit provides 10 MHz in both Sine Wave and Square Wave (5 volt logic) form. The 1 PPS output 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.

## Features

- Disciplined Temperature-Compensated Crystal Oscillator
- Two 10 MHz Outputs (1 - Sine & 1 - Square)
- Ruggedized Desk-Top Enclosure
- **ESE** Time Code Output
- Phase Coherent 1 PPS Output
- GPS Timing Reference With 1 x 10<sup>-9</sup> Accuracy
- Several Options Available



## Specifications

**Outputs:** 10 MHz Sine Wave, BNC, 3 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>-9</sup> Internal 8-Channel

**GPS Receiver:** Internal 8-Channel

**Antenna:** Indoor/Outdoor with 19' Cable

**Antenna Input:** L1, 1.57542 GHz, TNC

**Enclosure:** Desk-Top, Black Anodized Aluminum

**Dimensions:** 1.6" H x 7" W x 5" D

**Electrical:** 117 VAC, 50/60 Hz

**Power:** 5W maximum

**Options:** Ant, BBU, CE, DC, J, P, P2, Sync Input, UL

# ESE & SMPTE / EBU " PC " CARD

The **PC-471** is a Time Code Interface Card for PC/Compatible computers. The card receives either SMPTE or **ESE** Time Code and, using the supplied DOS or Windows® software, automatically synchronizes the PC's internal time-of-day clock.

Occupies a single 8-bit ISA slot, with time code being input via a rear-mounted BNC connector. Two on board DIP switch banks provide Time Code selection (SMPTE or **ESE**), Time Zone offset (to a time zone other than that of the Master Clock or other source of time code) and I/O port address selection.

## Features:

- Simple Installation & Hands-Off Operation
- Synchronizes PC To Master Clock System
- DOS & Windows® Software Included
- Reads SMPTE/EBU Or **ESE** Time Code
- Time Zone Offset

## Specifications

**Power:** Supplied by PC computer

**Mechanical:** Half Card, 5.5" deep x 4.0" high

**Time Code Input:** SMPTE/EBU: 10kΩ, Balanced or Unbalanced, 100mVpp to 10 Vpp or, **ESE:** TC76, TC89 or TC90, 120kΩ, Unbalanced

**Connector:** Single BNC

