

# GPS MASTER CLOCK / TIME CODE GENERATOR

The **ES-185E** is a GPS (Global Positioning System) Master Clock and Time Code Generator. The unit displays nine digits (Day of Year, Hour, Minute & Second) of UTC (Coordinated Universal Time) as received via the internal 12-channel GPS receiver. Simultaneously, the **ES-185E** generates several types of time code (SMPTE-LTC/EBU, IRIG-B, **ESE-TC89**, **ESE-TC90**, RS232C/ASCII and USB) and an extremely accurate 1PPS signal (+/-10ns). These outputs allow the **ES-185E** to easily interface with new or existing computer, automation and clock systems. An optional ethernet NTP (Network Time Protocol) port may be specified (**ES-185E/NTP6**) allowing the clock to be an NTP server and providing clock set-up via a LAN.

## Features:

- SMPTE-LTC/EBU, IRIG-B, USB, ASCII (RS-232C) & **ESE** Time Code Outputs
- USB Set-up Interface & Software
- Automatic or Manual Daylight Saving Time Correction
- GPS "Lock" Indicator
- Dual Battery Back-Up
- Optional NTP Ethernet Port
- Leap Second Correction
- Loss of GPS Signal Output
- 9-Digit .56" LED Display
- Indoor / Outdoor Antenna and 16' Cable
- Optional DC Operation for Field and Ground Mobile Applications
- Rugged Rack Mount Enclosure
- Time Advance/Retard Feature for Synchronization Purposes
- Dual 1 PPS Outputs
- Time Zone Offset



Included with the **ES-185E** is an indoor/outdoor antenna which is connected to the unit via the provided 16' cable. If additional cable is required, "low-loss" cable, an "in-line" amplifier (**ES-810** or **ES-810N** for low-loss cable) or, for extra long cable runs where more than one in-line amplifier is used, an "Antenna Power Supply" (**ES-AB1A**) may be required. Consult the **ESE** factory or website for more information.

Software is also supplied with the **ES-185E** allowing the user to 1) select SMPTE mode (DF, NDF, EBU & Real Time) 2) offset the Time Zone displayed and output by the **ES-185E**, 3) advance or delay the time output for various synchronizing purposes 4) modify dates for Daylight Saving Time 5) input time & date (when not locked to GPS) and 6) set for 12 or 24 hour display.



Standard GPS Antenna  
with 16' cable



ES-Ant (Optional)  
High Performance Antenna  
with 19' cable

## Specifications

**Electrical:** 117 VAC, 50/60 Hz  
**Power:** 15 Watts Maximum  
**Mechanical:** 1.75" x 19" Rack Mount, 10" Deep  
**Displays:** Nine Digits, Yellow LED, .56" High  
**GPS Receiver:** Internal 12-Channel  
**Antenna:** Indoor/Outdoor Dome with 16' Cable  
**Accuracy:** 1 PPS @ <10ns (20% Duty Cycle)  
 IRIG-B @ 1µS  
**ESE TC89 & TC90 Time Code @ 17mS**  
 SMPTE , +/- 3 to 12 Frames  
 Adjustable (Video Modes),  
 0 Frames (Real Time Mode)  
**Drift:** 33mS/day (if no GPS signal)  
**Video Input:** RS-170A Composite Video/Blackburst, 1 Vpp, 75Ω

**Outputs:** 1 PPS: TTL, 20% Duty Cycle  
 1 PPS: TTL, 50% Duty Cycle  
 IRIG-B: 3 Vpp (mark amplitude), 600Ω,  
 AM or TTL selectable  
**ESE Time Code:** drives 100 Slaves @ 4000'  
 SMPTE: 600Ω Balanced or Unbalanced  
 RS-232C: Date & Time Output  
 USB: Universal Serial Bus, Date & Time Output  
 Ethernet (optional): 10/100 Base-T, NTP Output  
**Clock Set-up:** USB, RS-232C, Network (Telnet or Windows®)  
**Battery:** 4-Hour Back-Up (displays are blank)  
**Options:** Ant, DC, HR, J, K, NTP6, UL