Symmetricom

XL-750

GPS Time Source

KEY FEATURES

- 12 Channel GPS Receiver Provides a Continuous UTC Time Reference
- Extremely Accurate Output Pulses
- IRIG Time Code Output
- Electrically Isolated Outputs and Inputs
- Synchronization of SCADA System Equipment, Remote Terminal Units (RTU), Protection Relays and Power/Tariff Meters
- Multiple Format RS232 Serial Time Broadcast
- Event Time Tagging (option)
- Network Time Server (option)

Symmetricom's XL-750 GPS Time Source has been developed to address key power industry timing requirements. Whether it's the monitor, control or analysis of the power system, the XL-750 is the cost-effective GPS time synchronization solution.

To begin with, the XL-750 offers superb timing accuracy (100ns to UTC). Using GPS satellites, it generates extremely accurate output pulses and time codes in multiple formats.

The XL-750 synchronizes a wide variety of microprocessor-based power system equipment including: SCADA systems, remote terminal units (RTUs), protection relays, sequence of event recorders, digital fault recorders, tariff meters and and other Intelligent Electronic Devices (IEDs). Field programmable using a Windows-based configuration program, the XL-750 allows the user to define output pulses or choose from pre-programmed pulses and time codes. Each output can feed directly to different areas through electrically isolated outputs which insures reliable operation in a harsh substation environment.

The XL-750 generates a wide range of timing signals via four output ports. A fixed output provides an IRIG B amplitude modulated (AM) time code signal. Three independently configurable digital ports can provide pulses or unmodulated time code. The XL-750 pulse output is easily configured to provide common power industry pulse rates including a 1 pulse-per-second (PPS), 1 pulse-per-minute (PPM), and 1 pulse-per-hour (PPH). Supported signal levels are TTL (standard) and optionally RS422, fiber optic, and high voltage MOSFET outputs.

A serial port (RS232) is provided for configuration and synchronous time string broadcasts. A dual channel, event time tagging option provides 100 nanosecond time stamping of external event pulses. A Network Time Server (NTS) option is available which allows the XL-750 to synchronize computer clocks and other network devices via the Network Time Protocol (NTP).

XL-750 GPS Time Source

XL-750 Specifications

GENERAL SPECIFICATIONS

- GPS receiver
  - Input: 1575.42 MHz L1 CA code
  - Position accuracy: 10m RMS (typical) tracking 4 satellites
  - Tracking: 12 parallel channels with multi-satellite ensembling with TRAIM
  - Acquisition time: <30 minutes typical
- Accuracy
  - 1PPS output: ±100nS RMS UTC(USNO), Positive edge on-time
  - P2 & P3: ±100nS RMS UTC(USNO), Positive edge on-time
  - P4 RS232 pulse/code output: ±1.5µS UTC (USNO)
  - Pulse durations: Programmable from10mS to 24 hours
  - Pulse duration accuracy: To ±300nS to positive edge
- Oscillator: TCXO

INPUT/OUTPUT SIGNALS

- User configurable outputs (3): IRIG B time code (B00x)
  IRIG B modified Manchester encoding (B22x)
  - Time code (Unmodulated) or Programmable Pulse Rates: Selectable extensions (IEEE 1344, AFNOR)
    DCF77 pulse simulation
    Configurable pulses per second/minute/hour/day
    Pulse rate duration (10ms-24 hours)
    Connector and signal type:
    BNC female (P2, P3)
    TTL: 0-5V, 150mA (standard)
    RS422: ±6V, 50Ω (optional)
    HV switch, MOSFET 300V, 1A (optional)
    Fiber Optic: 62.5/125um ST (optional)
    9-pin D male subminiature (P4-pin1)
    RS232 levels: ±10V, 15mA
- Time code modulated output: IRIG B time code (B12x)
  Selectable extensions (IEEE 1344, AFNOR)
  Connector: BNC female (P5)
  6Vpp into 50Ω
- Serial port I/O: XL-750 Configuration port
  Time string broadcast
  Connector: 9-pin D male subminiature (P4)
  RS232 levels: ±10V, 15mA
- Alarm relay output: Synchronization status: (NO/NC)
  Connector: 3 pin (P7)
- Event time tagging (option): Dual channel, 100 nsec resolution
  TTL 0-5 V
  Connector: 2 pin (P6)
  Minimum pulse duration: 1 µsec
  Maximum events per second: 100
- Network time server (option): NTP Version 2, 3, 4, Stratum 1 server
  Network interface: 10baseT
  Connector: RJ-45, 8 pin (P8)

MECHANICAL/ENVIRONMENTAL SPECIFICATIONS

- Time system
  - Power
    - Voltage ranges: L = 12-36 VDC
      M = 20-72 VDC
      H = 90-350 VDC
    - Power drain: 6W max (load dependent)
    - Fuse: 500mA
    - Connector: 2 pin plug with mating connector
  - Size: 1.58" x 6.3" x 6.3" (4cm x 16cm x 16cm)
  - Operating temperature: 0°C to +50°C (32°F to +122°F)
  - Humidity: 95% non-condensing
  - Display: LCD 2 line x 16 characters
  - Rackmount: Kit included
- Isolation: 2.5kV between all outputs
  2.5kV all outputs to base
  1kV power supply to base unit
- Antenna
  - Size: 3" Dia x 3" H (7.62 cm x 7.62)
  - Input: SMA female to GPS receiver. TNC on antenna.
  - Power: +5 VDC
  - Operating temperature: -55°C to +85°C (-67°F to +185°F)
  - Storage temperature: -55°C to +85°C (-67°F to +185°F)
  - Humidity: 95% non-condensing

OPTIONS

- Power supply ranges (12-36, 20-72, 90-250Vdc)
- Network time server (NTS)
- Event time tagging (2 channel)
- High voltage switching (P2 and/or P3)
- Fiber optic output (P2 and/or P3)
- RS422 output (P2 and/or P3)
- Lightening arrestor
- Antenna cable length options (150, 300, >300')

RELATED PRODUCTS

- High Isolation Repeater (HIR)

Rear view

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