# FT- RXLi

## Military standard Time and Frequency System

The FT-RXLi is the Rugged version based on the well deployed and common modular ultra-precision Model XLi Time and Frequency System by "Symmetricom" requirements.

### KEY FEATURES:

- 12 Channel GPS Receiver with TRAIM
- Better than 30 Nanoseconds RMS Accuracy to UTC
- Better than 1x10-12 Frequency Accuracy
- Supports Primary and Secondary Reference Inputs (GPS, Time Code, IPPS)
- Configurable as Dual Redundant GPS Receiver in One Chassis
- Standard 10/100 Base-T Network Port
- Intuitive Web Based Management
- HTTP, Telnet, SNMP with MIB Standard
- Vacuum Fluorescent Display and Keypad
- Completely Modular with Plug-and Play Capability
- Numerous Field-Upgradeable, Plug-in Option Cards Available
- Time code reader/generator (IRIG A,B; IEEE 1344; NASA 36) AM and DC
- Auxiliary Reference Input Supports Lock to External Cesium to Enhance Holdover
- Standard Outputs: 1PPS, Selectable Pulse Rates and Alarm
- Flash Memory for Remote Software Upgrade

### Additional Features:

- Network time server on standard network port
- Frequency measurement
- Time interval/event timing
- Programmable pulse output
- Time Monitor Software for XLi

The FT-RXLi is completely modular through a variety of option cards that are easily configured by the user. The wide range of option cards make it easy to tailor your system to support nearly every possible output/input needed for time and frequency applications, by combining up to ten option modules (2U chassis), oscillator upgrades, and two GPS receivers per unit. Configuration recognition software automatically detects the unit's setup, without modifications to the operating system, providing "plug-and-play" configuration capability for current and future application needs. Modularity delivers the freedom to configure the XLi as a GPS timing receiver, or a time code unit (TCU). Deploy Symmetricom's GPS technology to generate ultra-high precision time and frequency outputs for a wide range of synchronization requirements, or leverage Symmetricom's years of expertise in Time Code technology, which is built into the heart of the XLi system. The XLi seamlessly integrates into a network centric environment. The 10/100 Base-T interface is standard. Remote management is facilitated with the intuitive HTML web based interface as well as SNMP with an enterprise MIB. Command line interface is also supported via Telnet or the RS-232/422 serial port.

The XLi can function as a Stratum1 NTP server with addition of the NTS option.

The standard XLi provides a wide range of time and frequency inputs and outputs such as:

1PPS output; time code input/output (IRIG A, B; IEEE 1344; NASA36) in both modulated (AM) and demodulated (DCLS) formats; programmable pulse rates; open collector alarm; front panel keypad and display; and more.

The modular XLi architecture allows easy extension of the software and hardware in the field.

Software updates are remotely administered. Existing and future hardware option modules can be added as needed by the user. The GPS timing interface is also modular which facilitates future upgrade to alternate Global Navigation Satellite Systems (GNSS), such as Galileo, when available.

| Ordering No. | Description |
|---|---|
| PLATO-HR-TTLI-4LF-AC | High stability Rubidium, TTL 1PPS interfaces, 4x10MHs Low phase noise outputs, AC |
| PLATO-HR-422I-AC | High stability Rubidium, RS422 type 1PPS interfaces, AC |
| Additional options are available upon request | |

# FT- RXLi TOP SPECIFICATIONS

## GPS RECEIVER

- Receiver input: 1575.42 MHz L1 C/A code. Coarse acquisition. Position accuracy: typical 10 m RMS tracking 4 satellites.
- Tracking: 12 parallel channels. Multi satellite assembling with TRAIM.
- Acquisition time: Cold start <20 min. (typical) 1PPS output accuracy: UTC(USNO): ±30 nS RMS 100 ns peak
- Frequency output accuracy: 1 x 10-12@ 1 day
- Frequency/timing Allan Deviation stability (TCXO):
  1 x 10-9 @ 1 sec
  3 x 10-10 @ 10 sec
  3 x 10-10 @ 100 sec
  2 x 10-10 @ 1000 sec
  1 x 10-12 @ 1 day
- Stability when not Tracking satellites (TCXO): 5 x 10-7 ( 0°C to 50°C) typical

## TIME CODE UNIT (TCU) SYNC GENERATOR

- Sync code: IRIG A,B; IEEE 1344; NASA 36
- Code out: IRIG A,B; IEEE 1344; NASA 36

## OSCILLATOR

- Standard oscillator: VCTCXO
- Optional oscillators: OCXO, high stability OCXO, Rubidium, and high stability Rubidium.

## STANDARD INPUT/OUTPUT SIGNALS

- Eight standard I/Os Two for control and monitoring: Serial and Ethernet port. Six for signals: 1PPS out,
  code in, code out, rate out, aux reference, and Open Collector Alarm output (all with BNC female connector).
  I/Os are configurable via the keypad/display, RS232/422, and the standard network port.
- RS-232/422: User selectable up to
  19200 bps Connector: Male 9-pin D subminiature
- Network interface: Standard 10/100 Base-T RJ-45. Protocols: HTTP, Telnet and SNMP for the user interface,
  FTP (for firmware upgrades) and optional NTP and SNTP.
- 1PPS: Pulse width: 20 µs (±1µs) on the rising edge on time, TTL levels into 50, BNC female connector. RS422- optional

- Code input: AM or DC code (IRIG A,B; NASA 36) AM Code:

**Hardware:**

- GPS Timing engine
- Oscillator upgrades: OCXO, High Stability OCXO, Rubidium, and High Stability Rubidium
- 1, 5, 10 MHz/MPPS frequency outputs
- Low phase noise frequency output (5MHz and 10MHz)
- Enhanced Low Phase Noise 10 MHz output
- N.1 Frequency Synthesizer, 1PPS to 50MPPS in 1PPS steps
- Have Quick/1PPS Time and Frequency Reference
- Multi-code output for IRIG A, B, E, G, H; XR3/2137 and NASA 36
- DC power supplies (12 VDC, 24 VDC, and 48 VDC options)
- Telecommunications interface (E1 and T1 output options)
- Power Utility Frequency and Time Deviation Monitor
- PTTI BCD output with 10 volt 1PPS & 1PPM
- Expansion Module (4 user selected timing outputs)

- Power Consumption: 50W
- Weight: 7Kg



**FT- RXLi** RUGGED MECHANICAL/ENVIRONMENTAL

- System Power: Voltage: 90–260 Vac, Frequency: 47–440 Hz

| | |
|---|---|
| Temperature – Altitude Storage and Transportation | SL to 40000ft<br>-40°C to +71°C |
| Temperature – Altitude Operation (continuous) Operation (Intermitted – 30 min. operation) | SL to 10000ft<br>5°C to +45°C<br>0°C to +50°C |
| | Qualified to MIL-STD-810F Method 501.4 Procedures I, II and Method 502.4 Procedures I, II. |
| Salt Fog (Spray) | Withstand the effects of salt fog environment in its non-operating states. |
| | Qualification to MIL- STD-810F Method 509.4. |
| Humidity | 95% at to +35°C without condensation |
| | Qualification: MIL-STD-810F Method 507.4 Procedure |
| Fungus | The system is qualified to MIL-STD-810F Method 508.5. |
| Sand and Dust | Air Filter<br>Withstand the effects of blowing sand and dust in its operating and non-operating states<br>i. Power plant compartment 70-80%, Air conditioning > 90%; Fresh air supply > 90% Outdoor equipment withstand air containing sand and dust. All air intakes prevents clogging or buildup of sand and dust. With the following composition: |
| | ii. Particle size<br><5 µm 30% ; 5-10µm15% ;<br>10 - 20 µm 15% ; 20 - 40 µm 15%<br>40 - 80 µm 8%; ii.Soot 25% ; iii.Cotton fiber 5% |
| EMC | FCC Clas B, 461E (optional) |
| Degree of Enclosure | Exposed parts are watertight. Sheltered parts are Proof Condensation. Qualification the system to MIL-STD-108E or equivalent. |
| Corrosion | Provide adequate protection against all forms of corrosion commonly associated with operations in a tropical marine environment. |
| | Uniform Attack. All exposed surfaces shall be treated (e.g. painting) to protect it against the effects of corrosion. |
| | Galvanic Corrosion. The system ensures that metals with large potential differences do not come into direct contact. |
| | Crevice Corrosion. The exposed system will minimize areas at which water can accumulate and become stagnant. |
| | Sea corrosion. All exposed surface are treated to protect against sea corrosion. |
| Transportation / Cargo Induced Vibration | Qualify to MIL-STD-810E Method 514.4 Procedure I Figure AI and All. |
| Seaborne Random Vibration | Meet the specified performance when subjected to vibration environment expected during transportation, handling, servicing and operation at sea, qualify to MIL-STD–167-1, Type 1. |
| Ground Vehicle Shock | The system meets and qualified to MIL-STD-810F, Method 516.5, Procedure I, IV, V and VI |
| Seaborne Shock | The shipboard system meets MIL-S-901D, Grade A, Type A or GAMT 13 Essai 12, Category C. |