UN-151 eLoran Receiver Module

Key Features

- Small form factor
- NMEA messaging
- Complete range of integration capabilities
- Software configurable
- Intuitive user-friendly graphic display software
- Loran-C, eLoran, Chayka
- Flexible SDR architecture

The UN-151B is the latest version of UrsaNav’s Mitigator™ series Low Frequency (LF) receivers designed as an OEM module for further integration into your applications. This OEM module provides precise time, frequency, and data channel demodulation from Loran-C or eLoran systems. The receiver is capable of processing Chayka and other low or medium frequency sources.

The UN-151B is the only commercially available timing receiver module that meets the stringent European Telecommunications Standards Institute requirements for Primary Reference Clocks, the Stratum–I frequency requirements, and provides traceability of time to within 50 nanoseconds of UTC. Built-in future–proofing ensures capability to track next generation LF signals with advanced waveforms and enhanced data channel capability.

As solutions experts for LF Position, Navigation, Timing, Frequency, and Data technology; UrsaNav has you covered from transmission to reception. Our turnkey solutions include system design, timing and control equipment, advanced data channel techniques, and differential Loran reference equipment.
UN-151 Technical Specifications

PERFORMANCE

Timing
- Timing Specifications: ETSI EN300 462-6-1 / ITU G.811
- Maximum Time Interval Error: < 50ns from UTC; < 25ns for 100s intervals; < 100ns for intervals <1000s
- Hold-over: < 5 μs / 24 hrs
- Timing source: 1 to 3 radio transmitters with automatic handover

Positioning
- Time to First Fix: 30 seconds
- Position Update Rate: 1 Hz
- Accuracy (95%): 10-20m
- Stand-alone eLoran absolute positioning accuracy in differential eLoran mode
- Stations tracked: All in view

eLoran Engine
- Sensitivity: 30-120 dB μV/m
- Dynamic range: 96 dB
- Signal Processing: Band pass/notch filtering, cross-rate cancellation, moving average TOA integration
- Loran Data Channel: Eurofix, 9th / 10th pulse
- Heading: <1 degree with H-field antenna

PHYSICAL & ELECTRICAL

- Dimensions: 100 x 158 x 33 mm
- Weight: 198 g
- Input Voltage: +5VDC (+/- 5%)
- Power Consumption: 14 W

INTERFACE

- Dual Serial ports (TTL Level)
- 115200 baud
- NMEA Messaging
- GPIO Port
- 10 MHz frequency output
- 1 PPS eLoran UTC output
- 10 MHz frequency input
- Feature connectors
- Optional USB
- Optional Ethernet

ENVIRONMENTAL

- Operating Temperature: -40°C to +65°C
- Storage Temperature: -50°C to +75°C
- Humidity: 95% non-condensing

FEATURES

- Dual Core ARM/DSP Software Defined Radio
- Firmware upgradable
- On Board FPGA and flash memory
- Meets RTCM SC127 draft MPS spec
- Meets ETSI PRC requirements
- Meets Stratum-I frequency spec
- eLoran UTC recovery
- Full eLoran, Loran-C, Chayka capable
- Differential Loran capable
- Position, Frequency, Time & Data
- GNSS Integration ready
- Stand-alone, ASF and Differential Positioning

ELEGANT™

- User friendly intuitive GUI for Windows XP/7
- Allows monitoring, archiving and control of UN-151 series
- Time of Arrival trending
- Position Scatter plot
- Loran Data Channel display
- Command interface
- Replay of recorded data
- FFT

ACCESSORIES

- User Manual, ELEGANT user interface
- Optional UN-006 E-field antenna
- Optional UN-008 H-field antenna
- Optional Antenna Cable 5, 15, or 30m

The UN-152A and UN-152B are stand-alone enclosed eLoran receivers that contain UrsaNav’s UN-151 receiver module. Both versions are capable of receiving Loran-C, eLoran, and Chayka signals, including all existing versions of Loran Data Channels.