



# FURUNO®

**Increases availability of position-fixing capability  
by installing Loran-C in addition to GPS**

## **AUTOMATIC LORAN NAVIGATOR**

### **Model LC-90 MARK-II**

- Large, clear LCD
- 100 waypoints and 20 events in L/L and TD
- Adjustable illumination of display and keyboard
- Automatic route following
- Splashproof tactile touchpads
- Range/bearing to waypoints, speed and course made good, velocity and time-to-go, cross-track error and course offset
- Audible and visual alarms
- IEC 61162-1, NMEA digital Interface
- Covers all Loran-C and Chayka stations
- Geodetic system WGS 84 and others



The FURUNO LC-90 MARK-II is a sophisticated hyperbolic navigation receiver accommodating all features necessary for safe and efficient navigation. It covers most Loran-C and Chayka stations in the world, complying with IMO and US RTCM Loran-C standards. Carriage of Loran-C and GPS navigators increases the availability of electronic position-fixing system (EPFS) for safety and efficiency at sea.

The position is indicated in Lat/Lon without use of the Loran charts or tables. TDs from preselected master-secondary stations can be indicated. The display reads major system data. Various navigation data and parameters are marked with an index cursor.

Parameters include cross-track error, waypoint numbers, time-to-go, speed and course. Up to 100 waypoints can be entered by Lat/Lon, TD, or range and bearing from any position. Current Lat/Lon and TDs can be instantly stored as an event position by pressing the SAVE key (20 max). The stored event position may be recalled at any time and easily registered as a waypoint for permanent storage.

The LC-90 MARK-II automatically select the optimum master and secondaries, compensates for ASF for improved accuracy over a varying terrain and time of day. Automatic functions may be manually overridden by the operator.



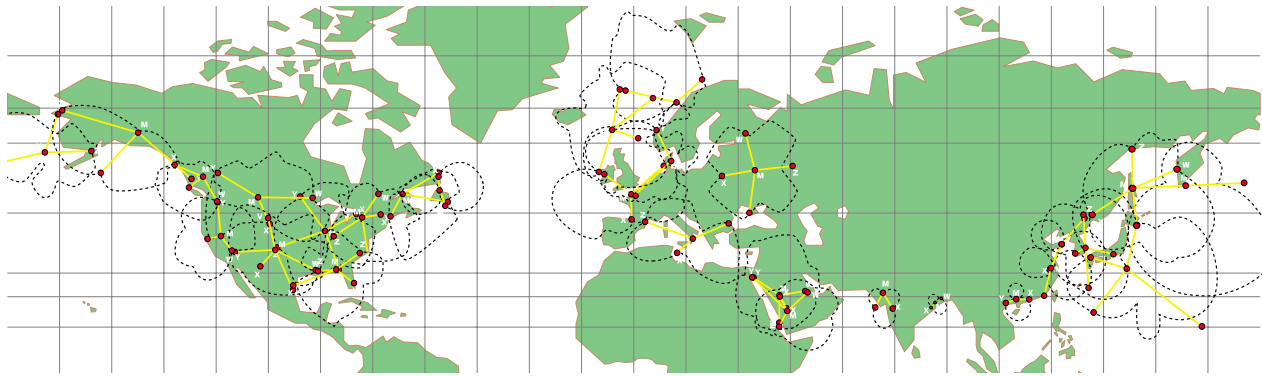
The future today with FURUNO's electronics technology.

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Catalogue No. L-138c

TRADE MARK REGISTERED  
MARCA REGISTRADA



## SPECIFICATIONS OF LC-90 MARK-II

**1. Performance Standards**

Complies with RTCM paper 12-78/DO-100, RTCM paper 378-81/DO-10, IMO Res A.818(19), IEC 61075

**2. Receiver Frequency** 100 kHz

**3. Sensitivity**

Less than TD 0.3 μs at signal level 17.8 μV at speed 0 kt, differential 60 dB; or near baselines.

**4. Differential signal levels** 80 dB

**5. Tracking**

Master + 5 secondaries, 80 knots, lock-on time 5 min (depends on signal conditions)

**6. Display**

**7. Display Resolution**

Monochrome LCD panel  
TD: 0.1 μs, L/L: 0.01 min, Range: 0.01 nm

**8. Signal Status and Alarms**

Status: Lost signal, Tracking Point, Interference Frequency and Level, etc.

Alarms: XTE, Border, Arrival, Anchor Watch

**9. Geodetic system** WGS 84, others

**10. Memory capacity** Waypoint 100, Event 20

**11. Other Functions**

- HOLD of TD and L/L with continuous background processing
- Ground Speed and True Course Display
- Range and Bearing to waypoint in GC
- Velocity and Time-to-go
- Route planning and automatic route following
- Manual compensation for TD and L/L
- Auto or Manual compensation for magnetic variation
- Automatic Additional Secondary Phase Factor (ASF) or manual correction factors
- Memory back-up
- Cross track error, course to steer to get back to an intended course

**12. Interface**

IEC 61162-1, NMEA 0183 V.2, V1.5, NMEA 0180

**13. Environment**

Display unit: -15°C to +55°C  
Antenna Coupler: -25°C to +70°C

**14. Power Supply**

12 to 32 VDC, 9W.  
115/230 VAC, 50/60 Hz (w/Rectifier Unit)

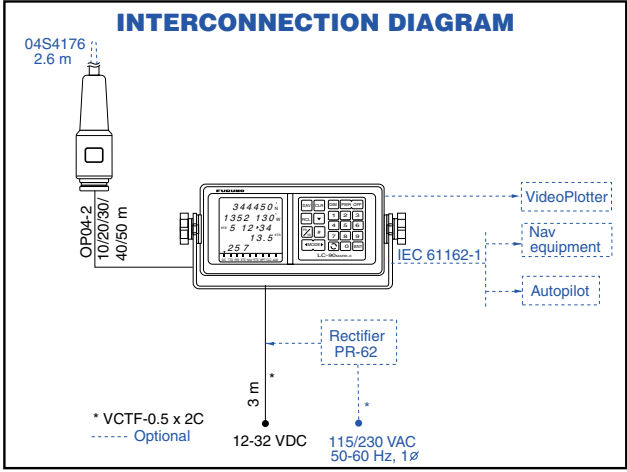
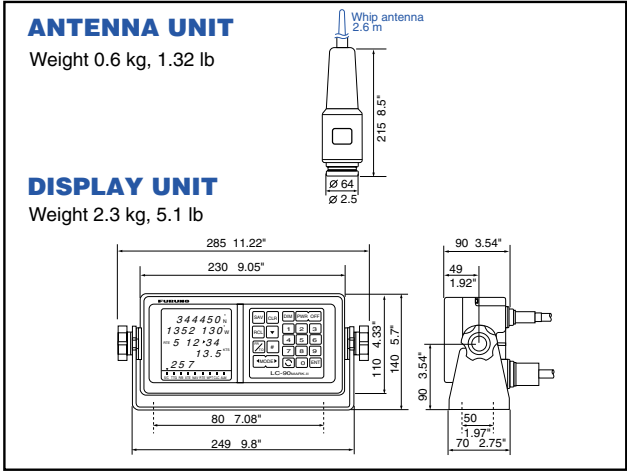
**15. Equipment List**

**Standard**

- |                          |         |        |
|--------------------------|---------|--------|
| 1. Display Unit          |         | 1 unit |
| 2. Antenna Coupler       | AC-900C | 1 unit |
| 3. Installation Material |         | 1 set  |

**Option**

- |                                                          |         |
|----------------------------------------------------------|---------|
| 1. Whip Antenna (2.6 m)                                  | 04S4176 |
| 2. Extension Antenna Cable (10, 20, 30, 40 or 50 m)      | OP04-2  |
| 3. Rectifier Unit for 115/230 VAC                        | PR-62   |
| 4. Interconnect Kit (for data output to other equipment) | LC-1091 |
| 5. Flush Mount Kit                                       | 04S4169 |



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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