

17.1 Technical specification — Base station

The following technical specification apply to the Ray90 and Ray91.

Power specification

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| Nominal supply voltage | 12 V dc (with over voltage protection) |
| Operating voltage range | 10.2 V dc to 16 V dc |
| Fuse requirements | <ul style="list-style-type: none">• Inline fuse = 10 A• Thermal breaker = 7 A |
| Current consumption | <ul style="list-style-type: none">• Less than 6 A at high power (13.6 V)• Standby: 600 mA• Receive: 2 A• Loud hailer: 3 A (8 Ω) / 6 A (4 Ω) |
| LEN | 1 |

Environmental specification

| | |
|-----------------------|--------------------------------|
| Operating temperature | -25°C (-13°F) to +55°C (131°F) |
| Storage temperature | -25°C (-13°F) to +70°C (158°F) |
| Relative humidity | 95% |
| Water proofing | IPx6 & IPx7 |

Connections

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|------------------------------------|---|
| Wired handsets | x 2 via HS1 and HS2 connectors |
| Wireless hub | x 1 via Hub connector |
| GNSS (GPS) antenna | x 1 via GPS connector (TNC)(|
| VHF antenna / splitter | x 1 via VHF connector (50 Ohm SO239) |
| NMEA 0183 input | x 1 via bare ended wires on data cable |
| NMEA 0183 output | x 1 via bare ended wires on data cable |
| NMEA 2000 / SeaTalkng [®] | x 1 via N2K (DeviceNet) connector |
| Loud hailer | x 1 via bare ended wires on data cable. |

VHF Transmitter

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|---------------------|---|
| Channels | All available US, International and Canadian VHF marine bands |
| Frequency Range | 156.025 MHz to 157.425 MHz / 155.500 MHz to 161.425 MHz (Private channels) |
| Frequency stability | +/- 1.5 ppm |
| Channel Spacing | 25 kHz |
| Power Output | <ul style="list-style-type: none">• Low power setting — 1 W• High power setting — 25 W |
| Spurious emissions | Better than -36 dBm at 25 W (Less than 0.25 μ W) |
| Maximum deviation | +/- 5 KHz |
| Antenna impedance | 50 Ohms (typical) |

Receiver

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|---------------|---|
| Receiver type | Double conversion super heterodyne |
| Channels | All available US, International and Canadian VHF marine bands |

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|------------------------------|--|
| Frequency range | 156.050 MHz to 163.275 MHz / 155.500 MHz to 161.425 MHz (Private channels) |
| Sensitivity | Better than 1 microvolt EMF @ 20dB SINAD |
| Squelch sensitivity | Less than -2 dBμ EMF |
| Hum and noise | Better than -40 dB |
| Audio distortion | Less than 10% |
| Receiver sensitivity | <ul style="list-style-type: none"> Distance — 119dBm (0.25uV) @ 12dB SINAD (typical) Local — 110dBm (0.7uV) @ 12dB SINAD (typical) |
| Adjacent channel selectivity | More than 70 dB |
| Spurious response rejection | More than 70 dB |
| Inter modulation rejection | More than 68 dB |

GNSS (GPS)

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|------------------------------|---|
| Channels | 72 |
| Cold start | 29 seconds |
| Receiver IC Sensitivity | <ul style="list-style-type: none"> Tracking and navigation = -167 dBm Reacquisition = -160 dBm Cold start = -146 dBm Hot start = -156 dBm |
| GNSS compatibility | <ul style="list-style-type: none"> GPS GLONASS Beidou |
| SBAS compatibility | <ul style="list-style-type: none"> QZSS WAAS EGNOS MSAS GAGAN |
| Special features | Active Jamming and Interference Reduction |
| Operating frequency | <ul style="list-style-type: none"> GPS L1 C/A GLONASS L10F Beidou B1 |
| Signal Acquisition | Automatic |
| Almanac Update | Automatic |
| Geodetic Datum | WGS-84 (alternatives available through Raymarine MFD) |
| Refresh Rate | 20 Hz (20 times per second Concurrent GNSS) |
| Antenna | <ul style="list-style-type: none"> External — An external passive antenna is required |
| Horizontal Position Accuracy | <ul style="list-style-type: none"> Autonomous = 2.5m (8.2 ft) SBAS = 2m (6.56 ft) |

AIS (Ray91 only)

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|------------|---------------|
| Class type | Receiver only |
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17.2 Technical specification — Wired handset (Raymic)

The following technical specifications apply to the Wired handset.

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| Operating temperature | -25°C (-13°F) to +55°C (131°F) |
| Storage temperature | -25°C (-13°F) to +70°C (158°F) |
| Relative humidity | 95% |
| Water proofing | IPx6 & IPx7 |
| Max speaker power output | 1 W (16 Ω) |
| VHF radio compatibility | <ul style="list-style-type: none"> • Ray90 / Ray91 • Ray63 / Ray73 • Ray60 / Ray70 |

17.3 Technical specification - Wired (Passive) speaker

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|--------------------------|---|
| Operating temperature | -25°C (-13°F) to +55°C (131°F) |
| Storage temperature | -25°C (-13°F) to +70°C (158°F) |
| Relative humidity | 95% |
| Water proofing | IPx6 & IPx7 |
| Max speaker power output | 5 W (8 Ω) |
| Connection | RCA female connector, connects to Wired handset via adaptor cable (A80297) |
| VHF radio compatibility | <ul style="list-style-type: none"> • Ray90 / Ray91 • Ray53 / Ray63 / Ray73 • Ray50 / Ray52 / Ray60 / Ray70 |

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