



## SAT-TV ANTENNAS

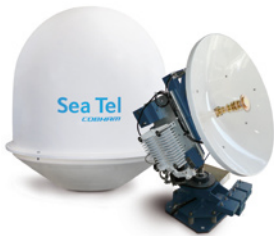
### SATELLITE COMMUNICATIONS

Voice, fax, weather, high speed data, video, internet, C-Band and Ku-Band.  
The most reliable systems, more stable signal levels, fewer acquisition losses, and lower bit-error rates.

#### COBHAM

##### SEA TEL 2406

Code: MM SET 2406



3-Axis marine stabilized antenna system compatible with Ku-Band satellites.

- Antenna: 0.6 m/24 " ring focus
- Radome: .87m/34" D x 1m/39" H (Frequency Tuned)
- Weight: 113 Kg/ 250lbs
- Feed Assembly: Orthogonal Linear polarized
- Transmit Gain: 36 dB mid band
- Receive Gain: 34 dB mid band
- Ship's Motion: +/-25 degree roll, +/-15 degree pitch
- Pedestal Type: 3-axis: Level, Cross Level and Azimuth
- Rate (all axis): 90 degrees/second
- Acceleration (all axis): 60 degrees/second<sup>2</sup>
- Stabilization Accuracy: +/- 0.2 degrees
- Tangential Accelerations: 0.5 G in 6 seconds
- Azimuth Stabilization: Requires heading reference signal from ship's gyrocompass system.
- Operating Temperature Range: -20 to +55 Degrees C
- System G/T calculated includes radome and receive filter: 13.5 dB/k min
- Cross-Pole Isolation: >30 dB
- Sidelobes: Meets FCC EIRP Spectral Density Mask @ -21.6 dBW/4KHz
- 1-year parts; 1-year labor

#### COBHAM

##### SEA TEL 3612

Code: MM SET 3612



3-Axis marine stabilized antenna system compatible with Ku-band satellites

- Reflector size: 0.91m (36in) D Ring focus
- Radome: 1.27m /50in (D) x 1.49m /58.5in(H)
- Tx Frequency: 13.75-14.5 GHz
- Rx Frequency: 10.7-12.75 GHz
- Tx Gains (preliminary): 40.0dBi @ 14.25GHz
- Rx Gains (preliminary): 38.0dBi @ 12.50GHz
- G/T (calculated): 17.0 dB/k, Clear Sky, 30° EL
- BUCs: 8W & 16W LBUC, 8W mini and others
- Pedestal Type: 3-axis
- Azimuth: Unlimited
- Elevation Joint Angle: -15° to +115°
- Weight: 132kg/292lb
- Polarization: Linear cross-pol or co-pol (selectable from below deck)
- Stability Accuracy: 0.1° RMS

## COBHAM

### SEA TEL 4009

Code: MM SET 4009



3-Axis marine stabilized antenna system compatible with Ku-Band satellites

- Antenna: 1m/40in D Ring Focus
- Radome: 50 Inch (1.42m/56in D x 1.51m/59.4in) Frequency Tuned
- System Weight: 147.4kg/325lbs (Will vary by RF)
- Polarized Feed: Linear Cross-pol or Co-pol (selectable from below deck)
- Waveguide Rotary Joint: Minimizes Tx Path loss. (0.75dB typ.)
- BUC Options: 8W NJR, 8W & 16W Codan. (Additional options available)
- Transmit Gain: 40.6dB @ 14.25GHz
- Receive Gain: 39.8dB @ 12.5GHz
- System G/T: 18.1 dB/k (In Radome)
- Pedestal Type: 3-axis; Level, Cross Level and Azimuth
- Ship's Motion: +/-20 degrees Roll; +/-10 degrees pitch
- Vibration and Shock: IEC 60721-4-6, Mechanical Class 6M3
- Transmission rate is compatible with many different types of modems, networks and services.
- IP access to the internet and corporate networks enabling fast downloads of large data files and e-mail.
- Brake system on EL and CL axes to prevent damage due to loss of power.
- Minimum threshold for 4009 environmental specifications meets or exceeds the requirements of Det Norske Veritas (DNV) Standard for Certificate No. 2.4
- Efficient spectral use maximizing cost per bandwidth.
- Easy Stand-alone or network compatible installation.
- 24/7 customer care and technical support.
- 1-year parts, 1-year labor

## COBHAM

### SEA TEL 6009 KU

Code: MM SET 6009



3-Axis marine stabilized antenna system compatible with Ku-Band satellites

- Antenna: 1.5m/58in D Ring Focus
- Radome: 76 Inch (2.01m/79.1in D x 2.01m/78.9in) Frequency Tuned
- System Weight: 233.6kg/515 lbs (Will vary by RF)
- Polarized Feed: Linear Cross-pol or Co-pol (selectable from below deck)
- Waveguide Rotary Joint: Minimizes Tx Path loss. (0.75dB typ.)
- BUC Options: 8W NJR, 8W & 16W Codan. (Additional options available)
- Transmit Gain: 45.1dB @ 14.25GHz
- Receive Gain: 44.0 dB @ 12.5GHz
- System G/T: 21.9 dB/k (In Radome)
- Pedestal Type: 3-axis; Level, Cross Level and Azimuth
- Ship's Motion: +/-20 degrees Roll; +/-10 degrees pitch
- Vibration and Shock: IEC 60721-4-6, Mechanical Class 6M3
- Transmission rate is compatible with many different types of modems, networks and services.
- IP access to the internet and corporate networks enabling fast downloads of large data files and e-mail.
- Brake system on EL and CL axes to prevent damage due to loss of power.
- Minimum threshold for 6009 environmental specifications meets or exceeds the requirements of Det Norske Veritas (DNV) Standard for Certificate No. 2.4
- Efficient spectral use maximizing cost per bandwidth.
- Easy Stand-alone or network compatible installation.
- 24/7 customer care and technical support.
- 1-year parts, 1-year labor

## COBHAM

### SEA TEL USAT 24

Code: MM SET USAT24



Marine stabilized antenna system compatible with Ku-Band satellites

- Antenna: 60 cm/24" Ring Focus feed
- Receive gain: 34.0dBi @ 10.95 GHz
- Transmit gain: 36.0dBi @ 14.0 GHz
- 13.5 dB / K calculated G/T @ 12 GHz (Clear sky, 20 degrees elevation)
- Radome: 70cm / 27.2" D X 68cm / 26.6" H (Frequency Tuned)
- Weight: 45Kg / 99.4 lbs max.
- Meets FCC EIRP Spectral Density Mask @ -21.6 dBW / 4KHz
- Ship's Motion: +/- 25° Roll and +/- 10° Pitch
- < 0.2° RMS mis-pointing @ +/- 20° / 10°
- Linear polarized feed with Auto Pol
- 8W BUC version only
- Built-In GPS for fast satellite acquisition
- Azimuth Range of Motion: 680 Degrees (Limited)
- Elevation Range of Motion: +2° to +75°
- Built-in test capability, run from antenna control unit or PC
- Windows M&C program
- Built-in test includes Strip Chart Recorder
- Remote Diagnostic Capable
- Single or Quad Band LNB options

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## COBHAM

### SEA TEL USAT 30

Code: MM SET USAT30



Marine stabilized antenna system compatible with Ku-Band satellites

- Antenna: 75 cm/30", Ring Focus feed with motorized AutoPol
- Transmit Gain: 39.0 dBi @ 14.25 GHz
- Receive Gain: 37.0 dBi @ 11.85 GHz
- G/T: 16 dB/K calculated at 12 GHz (clear sky @ 30 degrees elevation)
- Meets FCC EIRP Spectral Density Mask @ 17.4 dBW/4 KHz output EIRPsd -21.6 dBW/4 KHz input EIRPsd
- Pedestal Type: Closed Loop Servo
- Pointing Accuracy: 0.2° RMS @ 20° roll
- Elevation Range of Motion: +2° to +75°
- Azimuth Range of Motion: 680°
- Radome Dimensions (max): 99.1 cm/39" diameter x 101.7 cm/40" high
- Total Weight with Radome: 132 lbs/60 kgs

## TV-AT-SEA

Sea Tel antennas will provide a strong signal for TV and HDTV channels on multiple receivers. The footprints are generous and service is compatible with most leading satellite providers.

## COBHAM

### SEA TEL 4004

Code: MM SET 4004



3-Axis marine stabilized antenna system ready for multiple satellite TV selection

- Min. EIRP: 42 dBW
- Dish Diameter: 1.0 m; 40 in
- Radome Diameter: 1.27 m; 50 in
- Radome Height: 1.5 m; 59 in
- Antenna Weight: 86.6 kg; 191 lbs
- Antenna Stabilization: 3-axis closed loop
- Stabilization Motors: Brushless (quiet) DC Motors
- Built-In GPS Provides Automatic Satellite Acquisition
- Ship's Motion: +/- 25° Roll and +/- 15° Pitch
- Roll & Pitch Response Rate: Unlimited
- Azimuth Range: 680 degrees
- Full Elevation Range: -15° to 115°
- Polarization Control: Automatic where required
- Tracking System: Dishscan (no rotating feed)
- More than 200 digital quality TV channels and over 30 channels of CD quality music.
- The O4 Series antennas are compatible with the services provided by the industry's leading satellite companies like DirecTV™, DISH Network™, Bell TV™, Hotbird, Sky, Orbit, Sky Mexico and DirecTV Latin America (DLA)™.
- All Sea Tel DBS TV-at-Sea™ systems accommodate any number of satellite receivers. Many TV sets may be installed onboard, each receiving its own programming from its satellite receiver.
- Unmatched stabilization accuracy allows the system to detect the slightest motion that may affect the antenna's connection and correct as needed.
- 2-year warranty on parts; 1-year labor.
- Ready for multiple satellite selection.
- HD ready (except for use with DirecTV)

## COBHAM

### 5004 UA

Code: MM SET 5004



3-Axis marine stabilized antenna system ready for multiple satellite TV selection

Typical data for 5004 UA

- Minimum EIRP: 41 dBW
- Dish Diameter: 1.27 m; 50 in
- Radome Diameter: 1.55 m; 61 in
- Radome Height: 1.67 m; 66 in
- Antenna Weight: 95.3 kg; 210 lbs
- Antenna Stabilization: 3-axis closed loop
- Stabilization Motors: Brushless (quiet) DC Motors
- Ship's Motion: +/-25° Roll & +/-15° Pitch
- Roll & Pitch Response Rate: Unlimited
- Azimuth Range: Unlimited
- Elevation Range: -15° to +115°
- Polarization Control: Automatic
- Tracking System: Dishscan (no rotating feed)
- Warranty: 2 years parts / 1 year labor

Typical data for DAC 2202 Controller

- Model: 2202
- Mounting: Rack Mount
- M & C Ports: 1 Serial, 3 TCP/IP, 1 multi-user web browser support
- UDP Upload port for updating software in the Comm Interface
- Reformatted GPS output: (GGA and GLL)
- Heading Input: NMEA 0183, SBS, Synchro or No-Gyro Mode
- Dimensions: 19" X 1.75"

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## COBHAM

### SEA TEL 6004

Code: MM SET 6004

3-Axis marine stabilized antenna system compatible with Ku-Band satellites



- Antenna Dish Diameter: 1.5 meters / 60"
- Radome Diameter: 1.93 meters / 76"
- Radome Height: 2.06 meters / 81"
- Antenna Weight: 158.7 kg / 350 lbs. (including Radome)
- Antenna Gain: 44.2dB @12.5 GHz
- Minimum E.I.R.P.: 40.5
- European Antenna Polarization: Quad Linear
- U.S. Antenna Polarization: Dual Circular
- Type of Stabilization: 3-Axis Servo
- Ship's Motion: +/- 25° Roll and +/- 15° Pitch
- Roll & Pitch Response Rate: Unlimited
- Azimuth Turn Rate: 12°/sec
- Azimuth Range: 540°
- Elevation Range: -15° to +115° (allows full clearance for roll and pitch at minimum elevations)
- Power Requirements: 70 watts at 110 or 220 VAC, 50/60 Hz.
- Power requirements do not include satellite receiver or your TV set.
- Power to the antenna is supplied by the antenna control unit.
- Simple Coax only installation
- 2-year warranty on parts; 1-year labor
- Ready for Multiple satellite selection
- HD ready (except for use with DirecTV)

## COBHAM

### SEA TEL ST60

Code: MM SET ST60

3-Axis marine stabilized antenna system compatible with C-Band Circular TV services



Typical data for ST60 C Band

- Radome: 76" (1.9m) frequency tuned
- Pedestal Type: 3-Axis: Elevation, Azimuth, Cross level
- Specifications: MIL STD 167-1, IEC 60945, IEC 60950
- Response Rate: >100°/Sec
- Stabilization Accuracy: 0.1°
- Ship's Motion: ±25° roll, ±15 pitch°
- Antenna: 1.5m
- Polarized Feed: Circular
- Feed Assembly: C Band circular polarized dual port  
LHCP/RHCP (3.625–4.200 GHz)
- Min EIRP (Est): 33.0 dBW
- Elevation Range: -15 to +115 degrees
- Azimuth Range: Unlimited

Typical data for DAC 2202 Controller

- Model: 2202
- Mounting: Rack Mount
- M & C Ports: 1 Serial, 3 TCP/IP, 1 multi-user web browser support
- UDP Upload port for updating software in the Comm Interface
- Reformatted GPS output: (GGA and GLL)
- Heading Input: NMEA 0183, SBS, Synchro or No-Gyro Mode
- Dimensions: 19" X 1.75"

## COBHAM

### SEA TEL ST94

Code: MM SET ST94

3-Axis marine stabilized antenna system compatible with C-Band and Ku-Band satellites



- Antenna Gain C-band: 39.5 dB at 4.2 GHz
- Antenna Gain Ku-band: 47.5 dB at 12.5 GHz
- Minimum EIRP C-band: 30–31 dBW
- Minimum EIRP Ku-band: 35–36 dBW
- Dish Diameter: 2.4 m; 94 in
- Radome Diameter: 3.65 m; 144 in
- Antenna Stabilization: 3-axis servo
- Built-In GPS: Automatic Satellite Acquisition
- Ship's Motion: +/- 15° Roll or +/-20° Roll and +/- 15° Pitch
- Full Elevation Range: -15° to +115°
- Radome Baseframe: Galvanized steel;
- Azimuth Range: Unlimited
- Reception: Single C-Band (Linear or Circular)/ Single Ku-Band (Linear Only), Dual C-Band Linear, Quad Ku-Band linear, Dual C-Band Linear/Quad Ku-Band linear (can be configured to receive 2 C-Band and 2 Ku-Band signals simultaneously or 4 Ku-Band signals simultaneously)
- Ku-band: The entire frequency range for Ku-band satellite television is 10.7 to 12.75 GHz. Proper polarization is also an issue as both linear polarizations (horizontal & vertical) and circular polarizations (left & right) are used, and one configuration is not compatible with the other.
- C-band: The C-band frequency range is 3.7 to 4.2 GHz worldwide. Sea Tel TV-at-Sea™ systems are delivered with C-band LNB noise temperatures of 17 degrees K or better. The IF frequency in all cases is 950-1450 MHz
- Designed to meet Navy MIL-STD-167-1 vibration standard and MIL-STD-461 EMI & RFI standards (including 200V/M).

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### BB100 - THE NEW BROADBAND ON THE MOVE

Code: MM RAD BB100



#### Radiofrequency

- Reflector: 100cm ADE carbon fiber
- Tx-Gain: 40.9dB @ 14.250 Ghz (no radome)
- RF TX path loss between BUC and Dish: 1.1dB
- BUC type: 4W Anatel type approved 8W NexGenWave (optional) 16W or 25W Codan (optional)
- Rx Gain: 39.9dB @ 12.5 Ghz (no radome)
- G/T: 18.0dB/K @ 20° elevation (with radome)
- LNB low noise figure: <0.6dB with Swedish Microwave
- Double quad LNB compliant (DiSEqC protocol)
- Polarized feed: selectable from BBController software or OpenAMIP  
Linear Cross-pol  
Co-pol
- Radome loss: <1dB TX and RX Ku band optimized

#### Mechanic

- Radome diameter: 125 cm
- Antenna weight: 55Kg (with 10W BUC)
- Operating temperature: -10°C/+60°C
- Antenna power: 24Vcc – 10A or 110-230Vac (ext power supply)
- Maximum angles: roll +/- 20°  
pitch +/-20°  
yaw +/- 20°/sec  
unlimited azimuth movement through rotary joint
- Tracking accuracy: <0.3° with external gyro connected  
<0.5° without external gyro
- Mechanics: 70% carbon fiber  
30% aluminum



### BB100 ALLTECH - 3 ANTENNAS INTO ONE

Code: MM RAD BB100ALL



#### Radiofrequency

- Reflector: 100cm ADE carbon fiber
- Ku-Band: TX: 13.75-14.50 GHz  
RX: 11.0-12.5 GHz  
H/V co-polar and cross-pol
- Ka-Band: TX: 29.5-30.0 GHz  
RX: 19.7-20.2 GHz  
Linear and circular polarization
- VSAT+TV Mode of operation (Ku band only)
- Double PLL quad-band LNB compliant (DiSEqC protocol) for VSAT
- Double DRO LNB for TV (DiSEqC compliant)
- Wide/Narrow band and DVBS2 Tuner

#### Mechanic

- Radome diameter: 125 cm
- Antenna weight: 60Kg (with 10W BUC)
- Operating temperature: -10°C/+60°C
- Antenna power: 24Vcc – 10A or 110-230Vac (ext power supply)
- Ships motion: roll +/- 20°  
pitch +/- 20°  
yaw +/- 20°/sec  
unlimited azimuth movement through rotary joint
- Tracking accuracy: <0.3° with external gyro connected  
<0.5° without external gyro
- Pedestal type: 2 axis level plus dynamic roll over skew
- Mechanics: 90% carbon fiber - 10% aluminum



### BB150 KU-BAND VSAT - TOP PERFORMANCE

Code: MM RAD BB150



#### Radiofrequency

- Reflector: 150cm ADE carbon fiber
- Tx-Gain: 43.7dB @ 14.250 Ghz (no radome)
- RF TX path loss between BUC and Dish: 0.5dB
- BUC type: 4W Anatel type approved 8W New Japan Radio (optional) 16W or 25W Codan (optional)
- Rx Gain: 42dB @ 12.0 Ghz (no radome)
- G/T: 22.0dB/K @ 25° elevation (with radome)
- LNB low noise figure: <0.6dB with Swedish Microwave
- Double quad LNB compliant (DiSEqC protocol)
- Polarized feed: selectable from BBController software or OpenAMIP  
Linear Cross-pol  
Co-pol
- Radome loss: <1dB TX and RX Ku band optimized

#### Mechanic

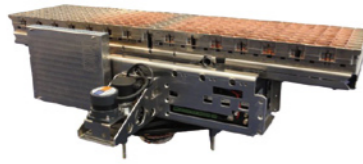
- Radome diameter: 175 cm
- Antenna weight: 95Kg (with 10W BUC)
- Operating temperature: -10°C/+60°C
- Antenna power: 24Vcc – 15A or 110-230Vac (ext power supply)
- Maximum angles: roll +/-30°  
pitch -20° / +100°  
unlimited azimuth movement
- Rotary joint: Combined slip-ring for Ethernet and power, plus coaxial 2 way rotary joint for RF signals
- Tracking accuracy: <0.1° with external gyro connected  
<0.2° without external gyro
- Pedestal type: 4 axis: azimuth, elevation, cross level, polarization skew
- Mechanics: 70% carbon fiber - 30% aluminum

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### SKYMAR 1000 PHASED ARRAY

Code: MM RAD SKYMAR



#### Radiofrequency

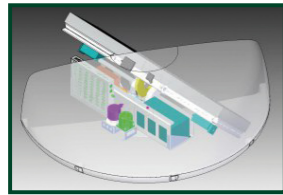
- EIRP: 43 dBW @ 0°-90° Elev
- G/T @ 12GHz: 13.5 dB/K @ 20° Elev
- Ku-Band: TX: 13.75-14.50 GHz  
RX: 10.95-12.50 GHz  
H/V co-polar & cross-pol or circular polarization left and right
- Internal Tracking Receiver: Wide/Narrow band and DVBS2 Tuner
- Double PLL quad-band LNB compliant (DiSEqC protocol)

#### Mechanic

- Radome dimension: DIA 95cm x H 30cm
- Antenna weight: 25Kg (with 16W BUC and modem)
- Antenna design: 90cm x 22cm slot phased array TX/RX radiation panel
- Operating temperature: -20°C/+60°C
- Antenna power: 12/48Vcc – 10A max

#### Tracking performance:

- initial acquisition <60 sec
- reacquisition after 5 min blockage <2 sec
- tracking accuracy <0.3° without external gyro
- tracking speed capacity 300°/sec
- unlimited azimuth movement through ethernet rotary joint
- no RF degradation from 0° to 90° Elev range



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## VHF ANTENNAS



### RA2025 - VHF - 3DB - 1 M (3') - FIBREGLASS - COAXIAL CABLE NOT INCLUDED

Code: MM GLO RA2025



Suitable for any type of boat, the new RA2025 antenna from the "MULTIPURPOSE" series, ensures the best of Glomex technology:

- Easy installation under any condition, thanks to the included V9181 mount, and the accessories 1"x14 ADAPTOR and V9179 KIT (optional);
- Quick connection thanks to standard ending SO239 for PL259 connectors;
- Tube of double-layer fiberglass, protected by 5 layers of polyurethane paint, resistant to UV-rays;
- Middle-wave internal element ensuring the best possible communication with a wide irradiation lobe on the horizontal plan.

#### Technical Specifications

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR: ≤ 1,3 at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 1m/3'
- Antenna Weight: 150g/5,29oz
- Termination: SO239 for PL259 male connector



### RA104NYAUS - VHF - 3DB - 1M (3') - FIBERGLASS - 2 WAY INTEGRATED NYLON MOUNT - 4,50 M (15') COAXIAL CABLE

Code: MM GLO RA104NYAUS



RA104NYAUS is the VHF Glomex antenna with a 2 way nylon integrated mount and plug-n-play!

It's a solid antenna, thanks to a tube of double-layer fiberglass and protected by 5 layers of polyurethane paint it is resistant to UV-rays, and it's the perfect solution for the small mid sizes motor boat. The internal 1/2 wave antenna element assures the best communication possible, due to the resulting extended angle of transmission on the horizontal plane. For this reason RA104NYAUS, as well as having a premium look, is one of the most performing VHF antennas on the market.

#### Technical Specifications

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR: ≤ 1,3 at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 1m/3'
- Antenna Weight: 180g/6,35oz
- Termination: Cable



### RA104SSAUS - VHF - 3DB - 1M (3') - FIBERGLASS - 2 WAY INTEGRATED STAINLESS STEEL MOUNT - 4,50 M (15') COAXIAL CABLE

Code: MM GLO RA104SSAUS



RA104SSAUS is the VHF Glomex antenna with a 2 way stainless steel integrated mount and plug-n-play!

It's a solid antenna, thanks to a tube of double-layer fiberglass and protected by 5 layers of polyurethane paint it is resistant to UV-rays, and it's the perfect solution for the small mid sizes motor boat. The internal 1/2 wave antenna element assures the best communication possible, due to the resulting extended angle of transmission on the horizontal plane. For this reason RA104SSAUS, as well as having a premium look, is one of the most performing VHF antennas on the market.

#### Technical Specifications

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR: ≤ 1,3 at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 1m/3'
- Antenna Weight: 180g/6,35oz
- Termination: Cable

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**RA121 - VHF - 1DB - 210 MM (8") - FIBERGLASS - 9 M (30') COAXIAL CABLE**

Code: MM GLO RA121



RA121 is a VHF antennas identical to the V9114 Vega omnidirectional TV antenna, allowing you to keep a balanced look of your boat.

It's a compact VHF antenna (diameter 100 mm/4", height 210 mm/8"), conceived for any vessel, whether sailboat or motorboat, and it's provided with all necessary accessories for installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 1 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 50 W
- DC Ground: No
- Antenna Length: 210mm/8"
- Antenna Weight: 50g/8,81oz
- Termination: SO239 for PL259 male connector


**RA124 - VHF - 1DB - 300 MM (12") - FIBERGLASS - 9 M (30') COAXIAL CABLE**

Code: MM GLO RA124



RA124 is a VHF antennas identical to the V9126 Altair omnidirectional TV antenna, allowing you to keep a balanced look of your boat.

It's a compact VHF antenna (diameter 250 mm/10", height 300 mm/12"), designed for motorboats, and it's provided with all necessary accessories for installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 1 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 50 W
- DC Ground: No
- Antenna Length: 300mm/12"
- Antenna Weight: 430g/15,17oz
- Termination: SO239 for PL259 male connector


**RA106GRPSB18 - VHF - 3DB - 900 MM (35") - FIBERGLASS - 18 M (59') COAXIAL CABLE**

Code: MM GLO RA106GRPSB18



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106GRPSB18 is a VHF antenna designed for sailboats with a fibreglass rod which takes advantage of white polyurethane paint, assuring a total protection of the antennas' inside copper components. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA106GRPSB25 - VHF - 3DB - 900 MM (35") - FIBERGLASS - 25 M (82') COAXIAL CABLE**

Code: MM GLO RA106GRPSB25



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106GRPSB25 is a VHF antenna designed for sailboats with a fibreglass rod which takes advantage of white polyurethane paint, assuring a total protection of the antennas' inside copper components. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector

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**RA106SLSSB18 - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - 18 M (59') COAXIAL CABLE**

Code: MM GLO RA106SLSSB18



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106SLSSB18 is a VHF antenna designed for sailboats with the tapered stainless steel rod which can absorb extreme forces without damage. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA106SLSSB25 - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - 25 M (82') COAXIAL CABLE**

Code: MM GLO RA106SLSSB25



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106SLSSB25 is a VHF antenna designed for sailboats with the tapered stainless steel rod which can absorb extreme forces without damage. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA109GRP - VHF - 3DB - 900 MM (35") - FIBERGLASS - COAXIAL CABLE NOT INCLUDED**

Code: MM GLO RA109GRP



The RA109 series antennas are expressly designed for installation on sailboats, and they stand out for their optimum performance.

RA109GRP is a VHF antenna compact in size, just 900 mm/35", in fibreglass rod.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: SO239 for PL259 male connector


**RA109SLS - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - COAXIAL CABLE NOT INCLUDED**

Code: MM GLO RA109SLS



The RA109 series antennas are expressly designed for installation on sailboats, and they stand out for their optimum performance.

RA109SLS a VHF antenna compact in size, just 900 mm/35", in stainless steel rod.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: SO239 for PL259 male connector

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**RA2022/18AUS - VHF - 3DB - 1,50 M (5') - FIBREGLASS - CHROMED BUSHING - 18 M (60') COAXIAL CABLE**

Code: MM GLO RA2022/18AUS



The MASTHEAD series antennas are specified designed for installation on the masthead.

RA2022/18AUS is a VHF fibreglass antenna for installation on the masthead. It differs from the RA2022/25AUS by the length of the double-shielded coaxial cable available, respectively 18m (59').

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 50 W
- DC Ground: Yes
- Antenna Length: 1,5m/5"
- Antenna Weight: 400g/14,10oz
- Termination: Cable


**RA2022/25AUS - VHF - 3DB - 1,50 M (5') - FIBREGLASS - CHROMED BUSHING - 25 M (82') COAXIAL CABLE**

Code: MM GLO RA2022/25AUS



The MASTHEAD series antennas are specified designed for installation on the masthead.

RA2022/25AUS is a VHF fibreglass antenna for installation on the masthead. It differs from the RA2022/18AUS by the length of the double-shielded coaxial cable available, respectively 25 m (82').

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 50 W
- DC Ground: Yes
- Antenna Length: 1,5m/5"
- Antenna Weight: 400g/14,10oz
- Termination: Cable


**RA106GRPPB - VHF - 3DB - 900 MM (35") - FIBREGLASS - COAXIAL CABLE NOT INCLUDED**

Code: MM GLO RA106GRPPB



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106GRPPB is a VHF antenna designed for motorboats with a fibreglass rod which takes advantage of white polyurethane paint, assuring a total protection of the antennas' inside copper components. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA106GRPPB6135 - VHF - 3DB - 900 MM (35") - FIBREGLASS - 4,5 M (15') COAXIAL CABLE**

Code: MM GLO RA106GRPPB6135



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106GRPPB6135 is a VHF antenna designed for motorboats with fibreglass rod which takes advantage of white polyurethane paint, assuring a total protection of the antennas' inside copper components. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector

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**RA106SLSPB - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - COAXIAL CABLE NOT INCLUDED**

Code: MM GLO RA106SLSPB



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106SLSPB is a VHF antenna designed for motorboats, thanks to the tapered stainless steel rod which can absorb extreme forces without damage. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA106SLSPB6135 - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - 4,50 M (15') COAXIAL CABLE**

Code: MM GLO RA106SLSPB6135



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106SLSPB6135 is a VHF antenna designed for motorboats, thanks to the tapered stainless steel rod which can absorb extreme forces without damage. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector


**RA112 - VHF - 3DB - 1,5M (5') - FIBREGLASS - NYLON FERRULE - 4,5M (15') COAXIAL CABLE**

Code: MM GLO RA112



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA112 is the ideal choice for excellent performance and reduced size, just 1,5 m (5') height. It's a VHF antenna equipped with white nylon ferrule and polyurethane tube resistant to UV-rays.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 1,5m/5'
- Antenna Weight: 450g/15,90oz
- Termination: Cable


**RA112CR - VHF - 3DB - 1,5M (5') - FIBREGLASS - CHROMED BUSHING - 4,5M (15') COAXIAL CABLE**

Code: MM GLO RA112CR



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA112CR is the ideal choice for excellent performance and reduced size, just 1,5 m (5') height. It's a VHF antenna equipped with chromed bushing and polyurethane tube resistant to UV-rays.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 1,5m/5'
- Antenna Weight: 580g/20,45oz
- Termination: Cable

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**RA113 - VHF - 6DB - 2,7M (9') - FIBREGLASS - STAINLESS STEEL BUSHING - 6,0M (20') COAXIAL CABLE**

Code: MM GLO RA113



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA113 is a high performing collinear VHF antenna 2.70 m (9') in height. It's equipped with a stainless steel bushing, made of brass inner components and polyurethane finish resistant to UV-rays, assuring best performance and long life.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 6 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 2,7m/9'
- Antenna Weight: 960g/33,90oz
- Termination: Cable


**RA1206CR - VHF - 6DB - 2,4M (8') - FIBREGLASS - CHROMED BUSHING - 4,5M (15') COAXIAL CABLE**

Code: MM GLO RA1206CR



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA1206CR is an economical and light VHF antenna, containing solid brass components inside. It's equipped with chromed bushing and double-layer painted tube with polished polyurethane resistant to UV-rays.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 6 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 2,4m/8"
- Antenna Weight: 670g/23,63oz
- Termination: Cable


**RA1206NY - VHF - 6DB - 2,4M (8') - FIBREGLASS - NYLON BUSHING - 4,5M (15') COAXIAL CABLE**

Code: MM GLO RA1206NY



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA1206NY is an economical and light VHF antenna, containing solid brass components inside. It's equipped with nylon bushing and double-layer painted tube with polished polyurethane resistant to UV-rays.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 6 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 2,4m/8'
- Antenna Weight: 456g/16,08oz
- Termination: Cable


**RA106SLSRIB - VHF - 3DB - 900 MM (35") - STAINLESS STEEL - 4,50 M (15') COAXIAL CABLE**

Code: MM GLO RA106SLSRIB



The RA106 series antennas are reliable and solid, ideal for any type of boat, whether a sailboat or a motorboat and for tenders as well (version RIB).

RA106SLSRIB is a VHF antenna designed for inlatables RIB, thanks to the tapered stainless steel rod which can absorb extreme forces without damage. It's equipped with Glomex "RA106 solderless" special connector, waterproof and solderless, easing the installation.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 3 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 900mm/35"
- Antenna Weight: 180g/6,35oz
- Termination: RA106 solderless connector

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**RA1225 - VHF - 6DB - 2,4M (8') - FIBREGLASS - STAINLESS STEEL BUSHING - 6,0M (20') COAXIAL CABLE**

Code: MM GLO RA1225



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA1225 is a collinear antenna 2.40 m (8') in height, designed to assure excellent performance in terms of quality, operation and design. Compared to the traditional antennas, whilst similar in shape, this antenna deeply differentiates itself due to the inside finish and the rod features. Made of spiral copper wires inserted in brass tubes, this antenna assures a long-range communication and best radio performance. The tube is made of fibreglass with polished polyurethane finish and resistant to UV-rays and is reinforced by a double-layer (1,2 mm/0,05') RA1225 is a vertical polarization antenna minimizing the effect of reflection on flat surfaces.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 6 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 2,4m/8'
- Antenna Weight: 742g/26,17oz
- Termination: Cable


**RA500 - VHF - 9DB - 6,40 M (21') - FIBREGLASS - CHROMED BUSHING - 6,0 M (20') COAXIAL CABLE**

Code: MM GLO RA500



The CLASSIC series antennas are designed to fit the specific needs of all motorboats.

RA500 is a standard of excellence for professional communications. It is a collinear antenna with 2 wave phases that consists of 2 vertically aligned sections with 9 dB of gain and 6.4 m (21') in height. It's equipped with chromed bushing and polyurethane finish resistant to UV-rays.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 9 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 100 W
- DC Ground: Yes
- Antenna Length: 6,4m/21' - two pieces (4+2,4m/13+8')
- Antenna Weight: 2,95kg/6,50lb
- Termination: Cable


**RA111 - VHF - 1DB - 140 MM (5") - RUBBER - - 18 M (59') COAXIAL CABLE**

Code: MM GLO RA111



The REGATTA & EMERGENCY series antennas are characterized by compactness and functionality.

RA111 is a small VHF antenna (140mm/5") protected by a tapered synthetic rubber tube that can be installed, on the sailboats or motorboats. It is equipped with 18m (59') of coaxial cable and with a PL259 male connector.

**Technical Specifications**

- Frequency Range: 156/162 MHz
- Gain Average: 1 dB
- Impedance: 50 ohms
- Polarization: Vertical
- SWR:  $\leq 1,3$  at 156,8 MHz
- Max Input Power: 50 W
- DC Ground: No
- Antenna Length: 140mm/5"
- Antenna Weight: 220g/7,76oz
- Termination: SO239 for PL259 male connector

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## GPS &amp; RADARS

## FURUNO

## 7" WIDE COLOR LCD GPS/WAAS CHART PLOTTER GP-1870

Code: MM FUR GP1870



## Features

- Bright 900 cd/m<sup>2</sup> LCD gives excellent readability even in direct sunlight
- The LCD and AR glass are bonded together to ensure no fogging issues
- Clear visibility even when wearing polarized sunglasses
- Internal GPS antenna for simple and easy installation
- Supports detailed C-MAP 4D charts by Jeppesen (Locally supplied with an SD card)
- RotoKey™ revolving menu and familiar point-and-click operation
- Internal memory: Waypoint/Track 30,000 points, Route 1,000 routes

## Specifications

- Display Type: Color TFT LCD
- Screen Size: 7"
- Screen Resolution: 800 x 480 pixels (WVGA)
- Brightness: 900 cd/m<sup>2</sup> (typical)
- Receiving Type: GPS: 50 channels WAAS: 1 channel
- Receiving Frequency: L1 (1575.42 MHz)
- Memory Capacity: 30,000 points for ship's track and waypoints  
1,000 planned routes (Max. 50 points per route)  
5,000 quickpoints
- Display Modes: Course plot, Nav Data, GPS status
- Waterproofing: IP56
- Power Supply: 12-24 VDC
- Consumption Current: 1.05 - 0.53 A (When 600 W transducer used)

## FURUNO

## 7" WIDE COLOR LCD GPS/WAAS CHART PLOTTER (WITH FISH FINDER) GP-1870F

Code: MM FUR GP1870F



## Features

- Bright 900 cd/m<sup>2</sup> LCD gives excellent readability even in direct sunlight
- The LCD and AR glass are bonded together to ensure no fogging issues
- Clear visibility even when wearing polarized sunglasses
- Internal GPS antenna for simple and easy installation
- Supports detailed C-MAP 4D charts by Jeppesen (Locally supplied with an SD card)
- RotoKey™ revolving menu and familiar point-and-click operation
- Internal memory: Waypoint/Track 30,000 points, Route 1,000 routes
- Equipped with FURUNO's latest digital fish finder technology
  - Bottom Discrimination Function\*\* Thru-hull transom transducer mount required.
  - ACCU-FISH™ — A unique fish size analyzer
- Post-processing Gain Control applied to all echoes displayed on the screen
- White Line function — Discriminates fish lying near the bottom

## Specifications

- Display Type: Color TFT LCD
- Screen Size: 7"
- Screen Resolution: 800 x 480 pixels (WVGA)
- Brightness: 900 cd/m<sup>2</sup> (typical)
- Receiving Type: GPS: 50 channels WAAS: 1 channel
- Receiving Frequency: L1 (1575.42 MHz)
- Memory Capacity: 30,000 points for ship's track and waypoints  
1,000 planned routes (Max. 50 points per route)  
5,000 quickpoints
- Display Modes: Course plot, Nav Data, Instruments, Engine monitor, Anemometer, Fuel level gauge, GPS status, Fish Finder
- Transmit Frequency: 50/200 kHz
- Transmission: 600 W or 1 kW \*Matching box MB-1100 required for certain transducers
- Display Range: 5 - 1,200 m, shift: 0 - 500 m
- Extension Mode: ACCU-FISH\*, Auto (Fishing/Cruising/Manual), A-Scope, Marker Zoom, Bottom Zoom, Bottom Lock, Bottom Discrimination
- Picture Advance: 7 steps: 2/1, 1/1, 1/2, 1/4, 1/8, 1/16, stop
- Waterproofing: IP56
- Power Supply: 12-24 VDC
- Consumption Current: 1.05 - 0.53 A (When 600 W transducer used)

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## FURUNO

## 4' OR 6' OPEN RADAR SENSOR DRS12A

Code: MM FUR DRS12A



- 12kW, 72 n.m. Radar Antenna for NavNet 3D with choice of stylish 4' or 6' Open Array
- Ultra High Definition (UHD™) Digital Radar offers crystal clear, noise-free target presentation with automatic real-time digital signal processing
- Real-time digital auto Gain/Sea/Rain controls to deliver noise-free radar presentation
- Radar antenna rotation speed (24/36/48 rpm) is automatically shifted to the appropriate pulse length

## FURUNO

## 4' OR 6' OPEN RADAR SENSOR DRS25A

Code: MM FUR DRS25A



- 25kW, 96 n.m. Radar Antenna for NavNet 3D with choice of stylish 4' or 6' Open Array
- Ultra High Definition (UHD™) Digital Radar offers crystal clear, noise-free target presentation with automatic real-time digital signal processing
- Real-time digital auto Gain/Sea/Rain controls to deliver noise-free radar presentation
- Radar antenna rotation speed (24/36/48 rpm) is automatically shifted to the appropriate pulse length

## FURUNO

## 10.4" LCD RADAR MODEL 1935

Code: MM FUR 1935



- Display: 10.4" color LCD
- Antenna: Open 100 cm
- Range: 48 NM
- Power: 4 kW
- Power Supply: 12-24 VDC

## 23.1" MARINE RADAR FAR-2827

Code: MM FUR FAR2827



- Range: 0.125, 0.25, 0.5, 0.75, 1.5, 3, 6, 12, 24, 48, 96 nm
- Output Power: 25 kW
- Antenna Length: 4', 6.5', 8' open
- Display: 23.1" color LCD

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## GPSMAP® 751

Code: MM GRM 0100110302

Simply amazing. The premier Garmin GPSMAP 751 chartplotter has 60 percent more processing power than its previous generation for faster zooming and panning. It includes a 7" WVGA touchscreen with pinch-to-zoom display. Chartplotter has a built-in high-sensitivity 10 Hz Garmin GPS/GLONASS receiver that updates position and heading 10 times per second, displaying fluid vessel movement and dramatically improves your ability to accurately mark and quickly navigate to 5,000 waypoints. Also includes full wireless connectivity, media integration, autopilot compatibility, radar support, NMEA® 2000 connectivity and comes preloaded with UK and Ireland<sup>1</sup> Bluechart g2 charting.

**Physical & Performance**

- Unit dimensions, WxHxD: 9.0" x 5.6" x 2.4" (22.9 x 14.2 x 6.1 cm)
- Display size, WxH: 6.0" x 3.6", 7.0" diagonal (15.2 x 9.1 cm, 17.8 cm diagonal)
- Display resolution, WxH: 800 x 480 pixels
- Display type: multi-touch touchscreen WVGA display
- Weight: 2.1 lb (0.9 kg)



## GPSMAP® 4012

Code: MM GRM 0100059200

The power of networking meets the brilliance of great design in this large-screen chartplotter, which serves as your all-in-one "nerve centre" for the Garmin Marine Network. The GPSMAP 4012 has crisp, video-quality resolution on a large 30.7 cm (12 in) XGA display as well as a worldwide, satellite-enhanced basemap. By connecting to the Garmin Marine Network, you can add sonar and radar. For even more enhanced features, you can add the optional BlueChart® g2 Vision® card.

**Physical & Performance**

- Unit dimensions, WxHxD: 14.8" x 9.5" x 4.6" (37.6 x 24.1 x 11.7 cm)
- Display size, WxH: 9.7" x 7.3", 12.1" diagonal (24.6 x 18.4 cm, 30.7 cm diagonal)
- Display resolution, WxH: 1024 x 768 pixels
- Display type: XGA display
- Weight: 10.0 lb (4.5 kg)



## echoMAP™ 70s

Code: MM GRM 0100110400

echoMAP 70s offers amazing features in a combination chartplotter/sounder with a 7" touchscreen with pinch-to-zoom and HD-ID™ sonar. Its 10 Hz Garmin GPS updates your position and heading 10 times per second, displaying fluid vessel movement and dramatically improving your ability to accurately mark and navigate to 5,000 waypoints. Also includes sonar recording capability that coordinates the timing of the sonar return with your boat's position and saves digital information on the map. Features wireless connectivity. Comes preloaded with UK and Ireland<sup>1</sup> Bluechart g2 marine charts.

**Physical & Performance**

- Unit dimensions, WxHxD: 9.0" x 5.6" x 2.4" (22.9 x 14.2 x 6.1 cm)
- Display size, WxH: 6.0" x 3.6", 7.0" diagonal (15.2 x 9.1 cm, 17.8 cm diagonal)
- Display resolution, WxH: 800 x 480 pixels
- Display type: multi-touch touchscreen WVGA
- Weight: 2.0 lb (0.9 kg)

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## echoMAP™ 50s

Code: MM GRM 0100109500

echoMAP 50s is a combination chartplotter/sounder with a 5" display and HD-ID™ sonar. Built-in high-sensitivity 10 Hz Garmin GPS/GLONASS receiver updates position and heading 10 times per second to display fluid vessel movement and dramatically improve your ability to accurately mark and navigate to 5,000 waypoints. Also includes sonar recording that coordinates the timing of the sonar return with your boat's position and saves digital information on the map. Features wireless connectivity and comes preloaded with UK and Ireland<sup>1</sup> Bluechart g2 charting. It makes fishing almost too easy. Almost.

**Physical & Performance**

- Unit dimensions, WxHxD: 5.9" x 6.1" x 2.4" (15.0 x 15.5 x 6.1 cm)
- Display size, WxH: 3.0" x 4.0", 5.0" diagonal (7.6 x 10.2 cm, 12.7 cm diagonal)
- Display resolution, WxH: 480 x 640 pixels
- Display type: VGA display
- Weight: 1.6 lb (0.7 kg)



## echo™ 550c

Code: MM GRM 0100095501

echo 550c turns fish into sitting ducks. That's because of its powerful sonar with 500 watts (RMS) power with Garmin's exclusive HD-ID target tracking technology. A video-quality 640x480-pixel VGA screen provides you an amazing level of detail on fish returns, structure and bottom contours. With echo 550c, you can see well beyond the sides of your boat thanks to a dual-beam transducer with up to 120 degree viewing angle. Plus the powerful sonar lets you see as deep as 1,900 ft.

**Features:**

- Garmin HD-ID™ technology
- 500 watts (RMS) transmit power
- Depths to 1,900 ft
- Beam width to 120 degrees
- Five-inch video-quality colour display
- Tilt/swivel mount, transducer, trolling motor clamp and transom mount

**Physical & Performance**

- Unit dimensions, WxHxD: 6.0" x 5.9" x 1.8" (15.2 x 15.0 x 4.6 cm)
- Display size, WxH: 2.9" x 4.0" (7.4 x 10.16 cm); 5" diag, (12.7 cm)
- Display resolution, WxH: 480 x 640 pixels
- Display type: VGA, 256 colour
- Weight: 17.6 oz (499 g)



## echo™ 300c

Code: MM GRM 0100095201

echo 300c is designed to make catching fish as simple as possible. The system's 3.5-inch sunlight-readable display and exclusive Garmin HD-ID™ target tracking technology let you see through the water like never before. Plus, a 300-watt (RMS) sounder offers a viewing angle of up to 120 degrees and bottom detail to 1,500 ft.

For an uninterrupted view of the sonar image, echo 300c also boasts Garmin Smooth Scaling™ technology, which means you won't lose sight of the sonar history as the unit changes depth ranges.

**Features:**

- HD-ID technology
- 300 watts (RMS) transmit power
- Depths to 1,500 ft
- Beam width to 120 degrees
- 3.5 in sunlight-readable colour display
- Tilt/swivel mount, transducer, trolling motor clamp and transom mount

**Physical & Performance**

- Unit dimensions, WxHxD: 4.1" x 5.8" x 2.8" (10.4 x 14.7 x 7.1 cm)
- Display size, WxH: 2.1" x 2.8" (5.3 x 7.1 cm); 3.5" diag (8.9 cm diag)
- Display resolution, WxH: 240 x 320 pixels
- Display type: QVGA, 256 colours
- Weight: 11.6 oz (330 g)

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# Raymarine®

## RAYMARINE RADOME RADAR ANTENNAS



Model	Raymarine RD418D	Raymarine RD424D	Raymarine RD418HD	Raymarine RD424HD
Code	MM RYM RD418D	MM RYM RD424D	MM RYM RD418HD	MM RYM RD424HD
Signal Processing	Digital		HD Color	
Compatible with	New e Series Multifunction Displays New c Series Multifunction Displays Raymarine C Series Widescreen Multifunction Displays Raymarine E Series Widescreen Multifunction Displays Raymarine G Series Multifunction Navigation			
Networking	SeaTalkHS			
Peak Power Output (kW)	4.0 kW (nominal)			
Antenna Type	Patch Array			
Beam Width (Nominal)	4.9° horizontal, 25° vertical	3.9° horizontal, 25° vertical	4.9° horizontal, 25° vertical	3.9° horizontal, 25° vertical
Polarization	Horizontal			
Rotation Rate	24 rpm (nominal)			
CE Approval	Conforms to 1999/5/EC			
FCC Approval	Conforms to 47CFR Part 2 and Part 80			
Dimensions	521 x 247 mm (20.5 x 9.7 in)	652 x 247 mm (25.7 x 9.7 in)	521 x 247 mm (20.5 x 9.7 in)	652 x 247 mm (25.7 x 9.7 in)
Weight	9.5 kg (21 lbs)	10 kg (22 lbs)	9.5 kg (21 lbs)	10 kg (22 lbs)
Input Voltage	12 - 24 V DC			
Power Consumption	40 W (20 W Standby)		60 W (25 W Standby)	
Temperature Range	-10° to +55°C			
Humidity Limit	up to 95% at 35°C			
Maximum Operating Wind Speed	100 kts			
Maximum Range Scale	48 nm			
IF Frequency	60 MHz (nominal)		70 MHz (nominal)	
Receiver Characteristic	Logarithmic		Linear	
Receiver Noise Figure	Less than 5 dB (including Low Noise Converter/Limiter & IF Receiver)			
Receiver Bandwidth	12/3/0.7/0.5 MHz		Matched digital filter for each pulse length	
Transmitting Frequency	9405 +/- 25 MHz			
Transmitter	Solid-state modulator driving Magnetron			
Standby Mode	Magnetron heater and control left on, all other services off			
Duplexer	Circulator			



# Raymarine®

## RAYMARINE HD & SUPER HD COLOR RADAR SCANNERS



Model	HD Color Scanners				Super HD Color Scanners			
	RA1048D	RA1072D	RA3048HD	RA3072HD	RA1048SHD	RA1072SHD	RA3048SHD	RA3072SHD
Code	MM RYM RA1048D	MM RYM RA1072D	MM RYM RA3048HD	MM RYM RA3072HD	MM RYM RA1048SHD	MM RYM RA1072SHD	MM RYM RA3048SHD	MM RYM RA3072SHD
Scanner Power and Type	4kW HD Color		12kW HD Color		4kW Super HD Color		12kW Super HD Color	
Antenna Size	1.2 m (4 ft)	1.8 m (6 ft)	1.2 m (4 ft)	1.8 m (6 ft)	1.2 m (4 ft)	1.8 m (6 ft)	1.2 m (4 ft)	1.8 m (6 ft)
Max Range Scale	72 nm							
Scanner Weight (Pedestal + Antenna)	26 kg (57.3.4 lbs)	29 kg (63.9 lbs)	26 kg (57.3.4 lbs)	29 kg (63.9 lbs)	26 kg (57.3.4 lbs)	29 kg (63.9 lbs)	26 kg (57.3.4 lbs)	29 kg (63.9 lbs)
Beam Width Horizontal (Nominal)	1.85°	1.15°	1.85°	1.15°	1.85°	1.15°	1.85°	1.15°
Effective Horizontal Beam Width (after Super HD Processing)	N/A				Less than 1°			
Beam Width Vertical -3dB	25°							
Antenna Side Lobes (Inside 10°)	< -21dB							
Antenna Side Lobes (Outside 10°)	< -30dB							
Rotation Rate	24 rpm				24 rpm / 48 rpm (Automatic high speed mode improves tracking of fast moving contacts at ranges of 3 miles or less. MFD dependant.)			
Receiver Bandwidth	Matched digital filter for each pulse length							
Pulse Length/PRF Settings	8							
Voltage	10.8 to 32 volts DC (using supplied VCM100) for 12V, 24V DC Systems							
Power Consumption (Typical)	<70W (transmit) <30W (standby) <1.2W (sleep)	<110W (transmit) <30W (standby) <1.2W (sleep)	<70W (transmit) <30W (standby) <1.2W (sleep)	<110W (transmit) <30W (standby) <1.2W (sleep)	<70W (transmit) <30W (standby) <1.2W (sleep)	<70W (transmit) <30W (standby) <1.2W (sleep)	<110W (transmit) <30W (standby) <1.2W (sleep)	<110W (transmit) <30W (standby) <1.2W (sleep)
Number of Displayed Video Levels	256 (8-bit)							
Operating Temperature Range	-10°C to +55°C D6							
Non-Operating Temperature Range	-20°C to +70°C C6							
Waterproofing Standard	IPX6							
Scanner Cable Length	15 m standard (5m 10 m and 25 m optional)							

## VHF RADIOS



## PMR446 FM TRANSCEIVER IC-4088SR



Code: MM ICO 5723955

- Number of channels : 8 (simplex; 446.00625–446.09375MHz)
- Battery requirements : 3 × AA (R6) alkaline cells; or optional BP-202
- Operating Temp. range : –20°C to +55°C
- Dimensions (W×H×D) : 60.5×1115.6×26.9 mm (projections not included)
- Weight (approx.) : 200g (includes 3 alkaline cells)

ACCESSORIES	
Description	Code
Ni-Cd battery cell assembly. Install into the battery cell space in the transceiver. 3.6V/700mAh	MM ICO BP-202
Wall charger 6V DC, 1A output AC adapter. Charges the BP-202, while operating the radio.	MM ICO BC-149D
Cigarette lighter cable 6V DC, 2A output from 12V cigarette lighter socket with internal DC-DC converter.	MM ICO CP-18E
Desktop charger. Rapidly charges installed Ni-Cd battery cell assembly, BP-202.	MM ICO BC-119N
The charger adapter and the AC adapter supplied with the BC-119N depending on version. Charging time: 75 to 85 min.	MM ICO BC-145D/UK
	MM ICO AD-105



## VHF MARINE TRANSCEIVER IC-M23



Code: MM ICO 5722025

- Frequency range :  
TX 156.000–161.450MHz  
RX 156.000–163.425MHz
- Usable channel groups : INT, USA\* channels; 70 programmable channels (\* Depending on version)
- Type of emission : 16K0G3E (FM)
- Current drain (at 3.7V DC) :  
Tx High 2.3A  
Rx AF max. 350mA typ.
- Power save 8mA typ.
- Operating temp. range : –15°C to +55°C
- Antenna impedance : 50Ω (Stud)
- Dimensions (W×H×D) : 58.5×128.5×34.5 mm (projections not included)
- Weight (approx.) : 260g (With BP-266, FA-SC58V, MB-124)

ACCESSORIES	
Description	Code
Li-Ion battery pack BP-266 3.7V, 1500/1590 mAh (min./typ.)	MM ICO BP-266
Wall Charger BC-1995* Charges BP-266 in 8.5 hours (approx.).	MM ICO BC-1995
Rapid Desktop Charger BC-1455* BC-119N+AD-123* Charges BP-266 in 2.5 hours. (approx.).	MM ICO BC-1455 + BC-119N+AD-123*
Cigarette Lighter Cable CP-24 with built-in DC-DC converter	MM ICO CP-24
Belt Clip MB-124	MM ICO MB-124
Antenna FA-SC58V	MM ICO FA-SC58V

\* BC-1995A/BC-1455A for 120V AC. SE for 230V AC. SV for 240V AC. BP-266 must be removed from the radio for charging in the BC-119N.

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## VHF MARINE TRANSCEIVER IC-M35



Code: MM ICO 5722020

- Frequency range Tx : 156.000–161.450MHz  
Rx 156.000–163.425MHz
- Usable channels : INT, USA\* channels; 70 programmable channels (\* Depending on version)
- Current drain (at 7.4V DC) : Tx 6W output 1.5A typical  
5W output 1.3A typical  
Rx AF max. Internal speaker 300mA typical  
External speaker 200mA typical  
Power save 10mA typical
- Operating temperature range : –15°C to +55°C
- Antenna impedance : 50Ω (STUD)
- Dimensions (W×H×D) : 62×139.5×43 mm (projections not included)
- Weight (approx.) : 295g (with BP-252, MB-109 and antenna)

ACCESSORIES	
Description	Code
BP-251 Battery case for AAA (LR03)×5 alkaline cells. Output power: 2W.	MM ICO BP-251
BP-252 Li-Ion BATTERY PACK 7.4V, 950mAh (min.) 980mAh (typ.). Provides 8 hours operating time (approx.). (Typical operation with Tx (Hi): Rx: standby=5:5:90)	MM ICO BP-252
BC-173 DESKTOP CHARGER + BC-147SE/SV AC ADAPTER Charges the battery pack, BP-252, in 10 hours (approx.).	MM ICO BC-173 + BC-147SE/SV
BC-162 DESKTOP CHARGER + BC-145SE AC ADAPTER Rapidly charges the battery pack, BP-252, in 2 hours (approx.).	MM ICO BC-162 + BC-145SE
HM-165 SPEAKERMICROPHONE Waterproof construction equivalent to IPX7 (1 m depth for 30 min.).	MM ICO HM-165
MB-109 BELT CLIP Alligator type. Same as supplied.	MM ICO MB-109
FA-SC58V ANTENNA Soft flexible antenna. Same as supplied.	MM ICO FA-SC58V



## VHF MARINE TRANSCEIVER IC-M71



Code: MM ICO 5722013

- Frequency range : Tx 156.000–161.450MHz  
Rx 156.000–163.425MHz
- Usable channels : INT, USA\* channels (\* Depending on version)
- Current drain (at 7.2V DC) : Tx 6W output 1.7A typical  
1W output 0.7A typical  
Rx Internal SP 400mA typical (AF Max.)  
External SP 200mA typical (AF Max.)
- Operating Temp. range : –15°C to +55°C
- Antenna impedance : 50Ω (SMA)
- Dimensions (W×H×D) : 52.5×125×30 mm (projections not included)
- Weight (approx.) : 280g (with BP-245)

ACCESSORIES	
Description	Code
BP-245 7.4V/2000mAh Li-Ion battery pack. Provides 15–16 hours* operating time (approx.). Same as supplied. *(Tx (Hi): Rx: standby=5:5:90).	MM ICO BP-245
BC-166 DESKTOP CHARGER + BC-147E AC ADAPTER Regularly charges the battery pack, BP-245 in 11–12 hours (approx.). Same as supplied.	MM ICO BC-166 + BC-147E
BC-119N DESKTOP CHARGER + AD-114 CHARGER ADAPTER + BC-145E/UK AC ADAPTER For rapid charging of a battery pack. Charging time: 3–4 hours. (approx.)	MM ICO BC-119N + AD-114 + BC-145E
BC-121N MULTI-CHARGER + AD-114 CHARGER ADAPTER + BC-157 AC ADAPTER For rapid charging of up to 6 battery packs (Six AD-114s are required). Charging time: 3–4 hours. (approx.)	MM ICO BC-121N + AD-114 + BC-157
OPC-656 DC POWER CABLE (12–16 V DC required)	MM ICO OPC-656
HS-94 : Earhook headset with flexible boom microphone.	MM ICO HS-94
HS-95 : Behind-the-head headset with flexible boom microphone.	MM ICO HS-95
HS-97 : Throat microphone fits around your neck and picks up speech vibrations.	MM ICO HS-97
SPEAKER-MICROPHONE HM-125 Full sized, submersible construction corresponds to IPX7 (1m depth for 30 minutes).	MM ICO HM-125
BELT CLIP MB-86: Swivel-type.	MM ICO MB-86
BELT CLIP MB-103: Alligator-type. Same as supplied.	MM ICO MB-103

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VHF MARINE TRANSCEIVER IC-M87



Code: MM ICO 5722003

- Frequency range : Marine Tx 156.000–161.450MHz  
Rx 156.000–163.425MHz  
PMR Tx/Rx 146.000–174.000MHz
- Usable channels\* : All International and U.S.A. channels  
22 PMR channels (\* Varies according to version.)
- Channel spacing : Marine 25kHz  
PMR 25/12.5kHz, 20/12.5kHz
- PLL channel step (PMR) : 5/6.25/7.5kHz
- Current drain (at 7.2V DC) : Tx (at 5W output) 1.6A  
Rx (at AF max.) 200mA
- Operating temp. range (except BP-227) : Marine –15°C to +55°C  
PMR –25°C to +55°C
- Antenna impedance : 50Ω (SMA)
- Dimensions (W×H×D) : 62×97×39 mm (projections not included)
- Weight (approx.) : 280g (with BP-227)

ACCESSORIES	
Description	Code
BP-226 BATTERY CASE Battery case for AA (R6)×5 alkaline cells.	MM ICO BP-226
BP-227 Li-Ion BATTERY PACK 7.2V/1700mAh Li-Ion battery pack. Provides 15 hours operating time* (approx. at 5 Watts). The same as that supplied. Operating temp. range: –20°C to +60°C * Tx (Hi): Rx: standby=5:5:90	MM ICO BP-227
BC-152 DESKTOP CHARGER + BC-147A/E AC ADAPTER Regularly charges the BP-227 in 9-10 hours. The same as that supplied.	MM ICO BC-152 + BC-147A/E
BC-119N DESKTOP CHARGER + AD-100 CHARGER ADAPTER + BC-145A/E/V/UK AC ADAPTER For rapid charging of battery pack. An AC adapter is supplied depending on version. Charging time: 2.5–3 hours.	MM ICO BC-119N + AD-100 + BC-145A/E/V/UK
BC-121N MULTI-CHARGER + AD-100 CHARGER ADAPTER + BC-124 AC ADAPTER For rapid charging of up to 6 battery packs (Six AD-100s are required). Charging time: 2.5–3 hours.	MM ICO BC-121N + AD-100 + BC-124
CP-17L CIGARETTE LIGHTER CABLE WITH NOISE FILTER	MM ICO CP-17L
HM-138 SPEAKER-MICROPHONE Full sized, water resistant construction corresponds to JIS grade 7 (1 m/30 min.). Equipped with an alligator type clip.	MM ICO HM-138
MB-79 BELT CLIP Alligator type belt clip.	MM ICO MB-79
MB-86 SWIVEL BELT CLIP Swivel belt clip. Prevents accidental dropping from your belt. The same as that supplied.	MM ICO MB-86



VHF MARINE TRANSCEIVER IC-M91D



Code: MM ICO 5722020

- Frequency range: Tx: 156.000–161.450MHz  
Rx: 156.000–163.425MHz
- Usable channel groups: INT channels
- Type of emission: 16K0G3E (FM)  
16K0G3B (DSC)
- Current drain (at 7.4V.DC)  
Tx - 5W output: 1.5A  
Rx - AF Max: 500mA
- Operating temp. range: –15oC to +55oC
- Antenna impedance: 50 ohms
- Dimensions (W x H x D) (Projections not included): 61.2 x 141.4 x 43.2 mm
- Weight (approx): 318g (With BP-275, FA-SC59V, MB-109)

ACCESSORIES	
Description	Code
BATTERY PACK BP-275 Li-Ion 7.4V. 1500mAh	MM ICO BP-275
REGULAR CHARGER BC-01 - BC-204	MM ICO BC-01 - MM ICO BC-204
RAPID CHARGER BC-06 - BC-205	MM ICO BC-06 - MM ICO BC-205
MULTI-CHARGER BC-197 - BC-157S	MM ICO BC-197 - MM ICO BC-157S
SPEAKER MICROPHONE HM-167	MM ICO HM-167
BELT CLIP MB-109	MM ICO MB-109
LEATHER BELT HANGER MB-96F	MM ICO MB-96F
CIG. LIGHTER CABLES: CP-25 For use with BC-204 / CP-23L For use with BC-205	MM ICO CP-25 - MM ICO CP-23L
DC POWER CABLES: OPC-515L For use with BC-205 / OPC-656 For use with BC-197	MM ICO OPC-515L - MM ICO OPC-656



VHF MARINE TRANSCEIVER IC-M411



Code: MM ICO 5722428

- Frequency range\* : Tx 156.000–161.450MHz  
Rx 156.000–163.425MHz  
Ch. 70 Rx 156.525MHz
- \* Frequency range that may be subject to licensing conditions.
- Type of emission : 16K0G3E (FM), 16K0G2B (DSC)
- Usable channel : INT, USA\* channels groups \* Available depending on version
- Power supply : 13.8V DC (10.8 to 15.6V DC)
- Current drain (at 13.8V DC): Tx high (25W) 5.5A Max.  
Rx Max. audio 1.5A Max.
- Operating temp. range : –20°C to +60°C
- Antenna connector : SO-239 (50Ω)
- Dimensions : 164(W)×78(H)×139.5(D) mm (projections not included)
- Weight (approx.) : 1.08kg
- GPS interface : NMEA0183 ver 2.0, 3.01  
RMC, GGA, GNS, GLL sentence.

ACCESSORIES	
Description	Code
HM-164B HAND MICROPHONE Regular type hand microphone. Same as supplied.	MM ICO HM-164B
MB-69 FLUSH MOUNT KIT For flush-mounting the IC-M411 to a flat surface such as an instrument control panel.	MM ICO MB-69
OPC-1758 ANTENNA FLOATING CABLE Isolates the radio from the antenna ground and provides floating ground connection.	MM ICO OPC-1758



VHF MARINE TRANSCEIVER IC-M423



Code: MM ICO 5722429

- Frequency range: Tx 156.000–161.450MHz  
Rx 156.000–163.425MHz  
CH70 156.525MHz
- Usable channels: INT, USA\* channels \* Available depending on version
- Type of emission: 16K0G3E (FM), 16K0G2B (DSC)
- Power supply requirement: 13.8V DC nominal (10.8–15.6V DC)
- Current drain (at 12.0V DC)  
Tx 25W output: 5.5A  
Rx AF max. (RX SP ON): 5.0A (External speaker)
- Operating temperature range: –20°C to +60°C
- Antenna impedance: 50Ω (SO-239)
- Dimensions (W×H×D) (projections not included): 180×82×119.9mm
- Weight (approx.): 1.2kg
- NMEA in/out formats: RMC, GGA, GNS, GLL, DSC, DSE

ACCESSORIES	
Description	Code
COMMANDMIC™: HM-195B (Black) / HM-195SW (Super white) - 6.1m (20ft) of cable, Microphone hanger, Mounting base for connector supplied	MM ICO HM-195B - MM ICO HM-195SW
OPC-1541 EXTENSION CABLE for COMMANDMIC, HM-195B/SW - 6.1m (20ft) extension cable. Up to two cables available.	MM ICO OPC-1541
FLUSH MOUNT KIT MB-132	MM ICO MB-132
CLASS B AIS TRANSPONDER MA-500TR	MM ICO MA-500TR

AVAILABLE ACCESSORIES

- Battery Packs
- Battery Chargers
- Ear Sets
- Belt Clips
- Antennas
- Speaker Microphones

AUDIO



MR45D-CPAK - MR45 STEREO, MA206 SPEAKER & WC2 SPLASH COVER COMBO PACK

Code: MM POL MR45D-Cpak



MR45D-Cpak is a combo package of MR45 stereo, a pair of MA206 speaker and WC2 splash cover. MR45 is the AM/FM/CD and/or Sirius Satellite Ready Stereo. MR45 is a stereo receiver designed specifically for the marine environment with adjustable backlight display. Front and Back AUX-Input available for your MP3 music device, iPod® Input available for your iPod®/iPhone® devices and USB Input available to play your music from a USB Flash drive. Wired and Wireless Remotes available (sold separately).

Features:

- MRR2 wireless remote compatible (sold separately)
- MR45R wired remote compatible (sold separately)
- Adjustable backlight display
- Built-in IR receiver (front) and IR input (back) - unit will interface with Poly-Planar IR Speakers
- Front and Back AUX-Input available for your MP3 music device
- iPod® Input available for your iPod®/iPhone® devices
- USB Input available to play your music in a USB Flash drive

Specifications:

- MR45 Stereo Overall Dimension: 7-1/16" X 2-1/16" X 7-7/8"
- MA206 Speaker Impedance: 4 ohms
- MA206 Max Power Handling per speaker: 40 watts
- MA206 Speaker Overall Diameter: 7-1/2"
- MA206 Speaker Cutout Diameter: 5-13/16"

Accessories



MM POL ACX10  
USB/AUX Accessory  
Extension Cable



MM POL DA1  
5' Dipole Wire Antenna



MM POL IPC4580  
5' iPod® adapter cable



MM POL IR4050 - IR  
Remote Sensor  
with 9' cable



MM POL ME400D  
Class D Power Amplifier



MM POL MR45R  
Wired Remote Control  
for MR45 and MRD80



MM POL MRR21  
IR Wireless Remote



MM POL MRRF18  
RF Wireless Remote



MM POL MS55  
Waterproof Box  
Subwoofer



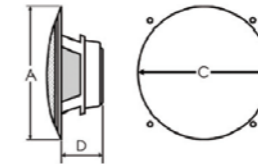
MM POL SCC1BL  
Sirius Tuner-without  
antenna

MANSUETO MARINE



INTEGRAL GRILL PERFORMANCE SPEAKER

MA4055  
5" 2 WAY COAX



A = 5.91" / 150.1mm  
C = 4.41" / 112mm  
D = 2.2" / 55.9mm

Code: MM POL MA4055

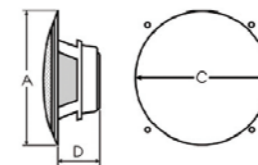
Specifications:

- Type: 2-way Coaxial
- Cone Size: 5" (127mm)
- Peak Power: 80 watts per pair
- Continuous Power: 40 watts RMS/pair
- Weight: 1.20 lbs per unit weight
- Outside Diameter: 5 15/16" (150mm)
- Cutout Diameter: 4 7/16" (112mm)
- Mounting Depth: 2 1/4" (56mm)

Features:

- Stainless steel mounting hardware included
- Available in Black color (Part# MA4055B) and White color (Part# MA4055W) speaker

MA4054  
4" 2 WAY COAX



A = 5.2" / 132.1mm  
C = 4.02" / 102.1mm  
D = 2.13" / 54.1mm

Code: MM POL MA4054

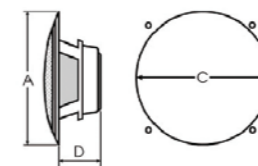
Specifications:

- Type: 2-way Coaxial
- Cone Size: 4" (102mm)
- Peak Power: 80 watts per pair
- Continuous Power: 40 watts RMS/pair
- Weight: 1.2 lbs per unit weight
- Outside Diameter: 5 1/4" (132mm)
- Cutout Diameter: 4 1/16" (102mm)
- Mounting Depth: 2 1/8" (54mm)

Features:

- Stainless steel mounting hardware included
- Available in Black color (Part# MA4055B) and White color (Part# MA4055W) speaker

MA4056  
6" 2 WAY COAX



A = 7.17" / 182.1mm  
C = 5.2" / 132.1mm  
D = 2.56" / 65mm

Code: MM POL MA4056

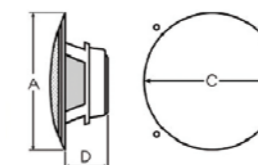
Specifications:

- Type: 2-way Coaxial
- Cone Size: 6" (152mm)
- Peak Power: 80 watts per pair
- Continuous Power: 40 watts RMS/pair
- Weight: 1.55 lbs per speaker
- Outside Diameter: 7 3/16" (182mm)
- Cutout Diameter: 5 1/4" (132mm)
- Mounting Depth: 2 9/16" (65mm)

Features:

- Stainless steel mounting hardware included
- Available in Black color (Part# MA4055B) and White color (Part# MA4055W) speaker

MA4600  
6" DUAL CONE



A = 7.17" / 182.1mm  
C = 5.59" / 142mm  
D = 2.07" / 52.6mm

Code: MM POL MA4600

Specifications:

- Type: dual-cone speaker
- Cone Size: 6" (152mm)
- Peak Power: 80 watts per pair
- Continuous Power: 40 watts RMS/pair
- Weight: 1.10 lbs per speaker
- Outside Diameter: 7 3/16" (182mm)
- Cutout Diameter: 5 5/8" (142mm)
- Mounting Depth: 2 1/8" (53mm)

Features:

- Stainless steel mounting hardware included
- Available in White color speaker only

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### MA8505 - 5" TITANIUM SERIES SPEAKER

Code: MM POL MA8505



#### Features:

- Colorfast plastic frame withstands UV rays
- Anti-magnetic design
- Waterproof construction throughout
- Rugged powder coated stainless steel grill
- 3-way design with mylar tweeter & midrange
- Available in Black color (Part# MA8505B) and White color (Part# MA8505W) speaker

#### Specifications:

- Peak Power: 200 watts
- Continuous Power: 100 W RMS/pair
- Speaker Impedance: 4 ohm
- ASTM UV & Salt Spray Test: Meets or Exceeds 600hrs
- Weight (each): 1.85 lbs per Speaker
- Mounting Depth: 2 7/16" (62mm)
- Outside Grill: 6" (153mm)
- Cutout: 4 1/2" (115mm)
- Frequency Response: 55Hz to 20KHz (3 way)
- SPL: 90dB
- Cone Size: 5"



### MA8506 - 6" TITANIUM SERIES SPEAKER

Code: MM POL MA8506



#### Features:

- Colorfast plastic frame withstands UV rays
- Anti-magnetic design
- Waterproof construction throughout
- Rugged powder coated stainless steel grill
- 3-way design with mylar tweeter & midrange
- Available in Black color (Part# MA8506B) and White color (Part# MA8506W) speaker

#### Specifications:

- Peak Power: 200 watts
- Continuous Power: 100 W RMS/pair
- Speaker Impedance: 4 ohm
- ASTM UV & Salt Spray Test: Meets or Exceeds 600hrs
- Weight (each): 1.85 lbs per Speaker
- Mounting Depth: 2 7/16" (62mm)
- Outside Grill: 7" (177mm)
- Cutout: 5 9/16" (140mm)
- Frequency Response: 55Hz to 20KHz (3 way)
- SPL: 90dB
- Cone Size: 6" (152mm)



### WC400 - STEREO WEATHER ENCLOSURE

Code: MM POL WC400



A = 4.17" / 105.9mm  
B = 9.06" / 230.1mm  
D = 10.26" / 260.6mm

#### Features:

- Accommodates any dual post, removable and DIN-style stereos
- High Impact ABS Housing
- Stainless Steel Bracket
- Dash or Overhead Mounting
- Mounting Hardware Included
- Available in Black (Part# WC400B) or White (Part# WC400) color

Install virtually any auto or marine stereo on your boat without fear of damage from moisture, corrosion or UV rays. The WC400 is waterproof housing that surrounds your stereo on all sides for maximum protection. A gasket-sealed, polycarbonate splash cover on the front of the rugged ABS enclosure prevents water from entering. The hinged cover lifts easily and remains out of the way in any of several positions. When open, it maintains partial splash protection while still allowing access to stereo controls. Wires and a rear connector let you hook up the stereo and antenna through the housing. A gimbal mounting bracket permits installation above or below the dash, under an electronic box or on any convenient horizontal surface.

#### Specifications:

- Overall Dimensions: 4-3/16" (H) x 9-1/16" (W) x 10-5/16" (D)

MANSUETO MARINE



### RM10 - OVERHEAD RADIO MOUNT

Code: MM POL RM10



#### Features:

- UV stabilized ABS housing
- Fits DIN and Post-mount Stereos
- Can be installed overhead or under dash
- Mounting hardware included
- Accepts PolyPlanar and most other brands of stereos

RM-10 Radio Mount is designed to accommodate today's larger front panel format Marine radios as well as older DIN style and Post mount. Made from heavy wall ABS plastic, the RM-10 has room for all the accessory cables found on the newest radios. Accepts Poly Planar, Sony, Jensen, Marine AV and even Clarion CMD4!

#### Specifications:

- Length: 11-15/16" (302mm)
- Width: 10-7/16" (265mm)
- Height: 4-3/8" (111mm)



### SBC1 - 7-1/8" SPEAKER BACK COVER

Code: MM POL SBC1



Provide protection to the back side of the speakers, behind a bulkhead or wall. Covers wire connections and protects the speakers cones.

#### Features:

- Slotted mounting holes match stud locations on most speakers
- Covers wire connectors
- Compact size fits Poly-Planar MA4054, MA4055, MA4056, MA8505, MA8506, MA6500 and MA5106 speakers

#### Specifications:

- Diameter Size: 7-1/8"



### SBC2 - 8-1/2" SPEAKER BACK COVER

Code: MM POL SBC2



Provide protection to the back side of the speakers, behind a bulkhead or wall. Covers wire connections and protects the speakers cones

#### Features:

- Hide and protect valuable speakers
- High Impact white ABS
- Compact size fits Poly-Planar MA4054, MA4055, MA4056, MA4600 and MA5104 speakers

#### Specifications:

- Diameter Size: 8-1/2"

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### SBC3 - 11" SPEAKER BACK COVER

Code: MM POL SBC3



Provide protection to the back side of the speakers, behind a bulkhead or wall. Covers wire connections and protects the speakers cones.

#### Features:

- Hide and protect valuable speakers
- High Impact white ABS
- Compact size fits Poly-Planar MA6600, MA6800, MA6900, MA5107, MA5950 speakers and MS150 subwoofer

#### Specifications:

- Diameter Size: 11.00"



### WC3 - RADIO SPLASH COVER

Code: MM POL WC3



The gasket-sealed lid on this splash cover prevents water entry into virtually any marine or spa stereo on the market. Accommodates any dual post, removable and DIN-style stereos. Contemporary styling makes it an attractive addition to the dashboard or wall. The lid lifts easily and stays open in multiple positions to maintain partial splash protection while allowing access to radio controls. Stainless steel mounting hardware (included) ensures that corrosion will not damage the mount.

#### Features:

- Hide and protect valuable speakers
- High Impact white ABS
- Compact size fits Poly-Planar MA6600, MA6800, MA6900, MA5107, MA5950 speakers and MS150 subwoofer

#### Specifications:

- Diameter Size: 11.00"



### MS55 - WATERPROOF BOX SUBWOOFER

Code: MM POL MS55



The MS-55 subwoofer is a compact, high efficiency bass enclosure optimized for marine applications. It's small size enables it to be easily mounted below seats, under the gunwale area, behind the instrument panel, or any convenient location. The MS-55 is a self contained bass unit requiring no cutting of panels or holes in the boat interior. It produces solid, deep bass extending down to 40Hz and is the perfect addition to any audio system.

#### Features:

- Dual Voicecoil, high-excursion, 5.25" woofer
- High density, UV stable enclosure
- Water resistant
- Bass-reflex, high-efficiency acoustic design
- Side vented output ports
- Compact size and molded-in mounts provide for convenient installation nearly anywhere
- Acoustically matched for use with Poly-Planar ME-51, MZ-60 and ME-400D amplifiers or can be used with any amplifier 25 - 100 watts

#### Specifications:

- Power Handling: 100 Watt RMS
- Speaker Impedance: 4 ohm x 2 inputs
- Frequency Range: 40 Hz - 300 Hz
- Weight: 8.5 lb (3.8g)
- Width: 8-5/8" (218mm)
- Length: 11-1/2" (292mm)
- Height: 4-13/16" (122mm)



### MC-20 + MC-2 - WIRELESS MARINE REMOTE COMMANDER

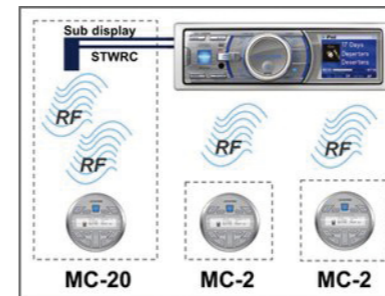
Codes: MM ALN MC20  
MM ALN MC2



MC-20 / MC-2 Marine Controller Solution – Ready to take command Thanks to ingenious Controller Solutions each Alpine Marine System can be controlled from almost anywhere onboard the boat.

The wireless waterproof MC-20 Remote Commander which includes the wired main transmitter/receiver unit is ready for optional cockpit use. It gives multi-zone control over all marine sources. In addition to control the head unit, it provides full control over additional sources like iPod® and CD/DVD changer.

Dual-Zone Volume Control (with CDA-118M only)  
MC-20 Wireless Main Commander (incl. RF-transmitter)  
MC-2 Sub Commander



#### Overview MC-20

- Dual-Zone Volume Control (with CDA-118M only)
- Compatible with all Alpine Marine Head Units
- High contrast display designed to work in direct sunlight
- Quick Search lets you find your favourite song fast on any source
- IPx6 Waterproof Design - mount it anywhere
- Connects through Alpine's SWRC input and Vehicle Display output Wireless operation (using RF transceiver)
- Multiple Commanders can be used together in one system
- IPx6 High Pressure WJ
- Salt/Fog (ASTM B117) Certified
- UV (ASTM G154/D4329) Certified

#### Overview MC-2

- Dual-Zone Volume Control (with CDA-118M only)
- Compatible with all Alpine Marine Head Units
- High contrast display designed to work in direct sunlight
- Quick Search lets you find your favourite song fast on any source
- IPx6 Waterproof Design - mount it anywhere
- Multiple Commanders can be used together in one system
- IPx6 High Pressure WJ
- Salt/Fog (ASTM B117) Certified
- UV (ASTM G154/D4329) Certified
- Wireless operation (using RF transceiver)



### SPR-M70 - 17,8 CM COMPONENT 2-WAY SPEAKER

Codes: MM ALN SPRM70



#### Specifications

##### Power Handling

- Power Rating (RMS): 70 Watts
- Power Handling Capacity (Peak): 210 Watts

##### Dimensions

- Tweeter Mounting Diameter (mm): 55.3mm
- Tweeter Mounting Depth (mm): 25mm
- Woofer Diameter (mm): 195.9mm
- Woofer Mounting Diameter (mm): 162.6mm
- Woofer Mounting Depth (mm): 93.1mm

##### General

- Frequency Response: 45Hz - 22kHz
- Impedance: 4 ohm
- Sensitivity: 90 dB 1W/1m

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**CDA-118M - MARINE CD RECEIVER / IPOD® CONTROLLER**

Codes: MM ALN CDA118M


**Features**

- Tuner
- Bluetooth®
- Connection for iPod®
- Connection for USB
- Disc Player
- Sound Tuning
- CD Changer Control

**Specification**

- Power Requirement: 14.4 V (11-16 V) DC
- Pre Output Voltage (Before Clipping): 2 V
- Operating Temperature (°C): 60 °C to -10 °C
- Maximum Mounting Angle: 30° from Horizontal
- Weight: 2.0 kg (4 lbs. 6 oz)
- Max Power Output: 50W x 4

**Remote Control**

- Model Number: RUE-M1RF (Optional)

**Marine**

- Water Proof: IPx5
- UV Coating: ASTMG154
- Salt/Fog: ASTMG117

**Dimensions**

- DIN Size: 1.8
- Chassis Size (W x H x D) mm: 181.5 mm x 51.5 mm x 187 mm
- Nose Piece Size (W x H x D) mm: 200 mm x 92.5 mm x 50 mm


**CDA-9886M - MARINE CD RECEIVER**

Codes: MM ALN CDA9886M


**Features**

- CD Changer Control
- Sound Tuning
- Disc Player
- Connection for iPod®
- Bluetooth®
- Tuner

**Specification**
**General**

- Weight: 1.6kg (3lbs 8oz)
- Maximum Mounting Angle: 35° from Horizontal
- Operating Temperature (°C/ °F): 60 °C (140 °F) to -10 °C (14 °F)
- Pre Output Voltage (Before Clipping): 4V
- Power Requirement: Power Requirement: 14.4 (11-16) V.DC

**Dimensions**

- Nose Piece Size (W x H x D): 170mm x 46mm x 24mm
- Chassis Size (W x H x D): 178mm x 50mm x 160mm
- Din Size: 1


**IDA-X100M - MARINE DIGITAL MEDIA RECEIVER**

Codes: MM ALN iDAX100M


**Features**

- CD Changer Control
- Sound Tuning
- Connection for iPod®
- Connection for USB
- Bluetooth®
- Tuner

**Specification**
**General**

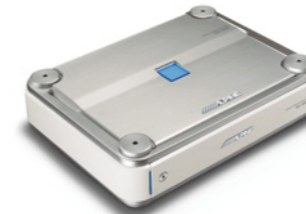
Max Power Output: 4 x 50W

**Dimensions**

- DIN Size: 1
- Chassis Size (W x H x D): 178mm x 50mm x 160mm
- Power Requirement: 14.4 (11-16) V.DC
- Pre Output Voltage (Before Clipping): 2V
- Operating Temperature (°C): 60 °C to -10 °C


**PDX-1.600M - MARINE MONO DIGITAL AMPLIFIER**

Codes: MM ALN PDX1600M


**Specification**
**General**

- Signal to Noise: CEA 2006 S/N Ratio (IHF A Weighted, Reference: 1W into 4Ω) 80 dBA
- Speaker Impedance: 4 or 2 Ω
- Frequency Response: 20Hz - 200Hz (20Hz/-3dB)
- Input Sensitivity: 0.1V to 8.0V (For Rated Power)
- Power Requirements: 14.4V DC (11V to 16V)

**Dimensions**

- Heat Sink (WxHxD): 257mm x 192mm x 62mm

**Sound Tuning**

- Crossover: Variable, 50Hz - 200Hz (-24dB / oct), Low-Pass

**CEA-2006 Power Ratings**

- CEA-2006 Power Rating: (4/2 Ω @14.4V ≤1% THD+N), S/N: 80dBA, ref:1W into 4 Ω) 600W x 1

**RMS Power Ratings**

- Per channel into 2 Ω: (@ 14.4V ≤1%THD+N, 20Hz-200Hz) 600W x 1
- Per channel into 4 Ω: (@ 14.4V ≤1%THD+N, 20Hz-200Hz) 600W x 1


**PDX-4.100M - MARINE 4 CHANNEL DIGITAL AMPLIFIER**

Codes: MM ALN PDX4100M


**Specification**
**General**

- Signal to Noise: CEA 2006 S/N Ratio (IHF A Weighted, Reference: 1W into 4Ω) 76 dBA
- Speaker Impedance: 4 or 2 Ω
- Frequency Response: 20Hz - 20kHz (+0, -1dB)
- Input Sensitivity: 0.2V to 4.0V (For Rated Power)
- Power Requirements: 14.4V DC (11V to 16V)

**Dimensions**

- Heat Sink (WxHxD): 257mm x 192mm x 62mm

**Sound Tuning**

- Crossover: Variable, 30-400Hz (-12dB / oct ), Low-Pass/High-Pass /OFF Selectable

**CEA-2006 Power Ratings**

- CEA-2006 Power Rating: (4/2 Ω@14.4V ≤1%THD+N), S/N: 76dBA (Ref. 1W into 4 Ω): 100w x 4

**RMS Power Ratings**

- Bridged 4 Ohms: Bridged into 4 Ω (≤1%THD+N) 200w x 2
- Per channel into 2 Ω: (@14.4V ≤1%THD+N, 20Hz-20kHz) 100W x 4
- Per channel into 4 Ω: (@14.4V ≤1%THD+N, 20Hz-20kHz) 100W x 4


**SWR-M100 - MARINE SUBWOOFER**

Codes: MM ALN SWRM100


**Specification**
**Dimensions**

- Added Volume: 0.055 cu. ft. (Reverse Mount, Magnet Out)
- Displacement: 0.083ft cu. ft. (Front Mount)
- Mounting Diameter: 229 mm
- Mounting Depth: 144.72 mm

**Power Handling**

- Peak Power Handling: 900 Watts
- RMS Power Handling: 300 Watts
- CEA-2006 Power Rating: 300 Watts





**SPS-M600 - 16,5 CM 2-WAY COAXIAL SPEAKER**

Codes: MM ALN SPSM600



**Specification**

**General**

- Sensitivity: 89dB / W(1m)
- Impedance: 4 Ω
- Frequency Response: 60Hz - 22kHz

**Dimensions**

- Woofer Mounting Depth: 72.1mm
- Woofer Mounting Diameter: 127mm
- Woofer Diameter: 165.1mm

**Power Handling**

- Power Handling Capacity (Peak): 100 Watts
- Power Handling Capacity (RMS): 30 Watts
- CEA-2031 Power Rating: 30 Watts



**SPR-M700 - 17,8 CM 2-WAY COAXIAL SPEAKER**

Codes: MM ALN SPRM700



**Specification**

**General**

- Sensitivity: 90dB / W(1m)
- Impedance: 4 Ω
- Frequency Response: 45Hz - 22kHz

**Dimensions**

- Woofer Mounting Depth: 3-31/32"
- Woofer Mounting Depth: 93.1mm
- Woofer Mounting Diameter: 6-13/32"
- Woofer Mounting Diameter: 162.6mm
- Woofer Diameter: 7-23/32"
- Woofer Diameter: 195.9mm

**Power Handling**

- Power Handling Capacity (Peak): 150 Watts
- Power Handling Capacity (RMS): 50 Watts
- CEA-2031 Power Rating: 50 Watts



**RUE-M1RF - HANDY CONTROLLER**

Codes: MM ALN RUEM1RF



- Compatible with all Alpine Marine Head Units
- Water-resistant
- RF remote works up to 30 metres away from the unit
- Up to 8 of these remotes can be programmed to work with the RUE-M1RF
- Multiple controllers can be used together in one system
- IPx67
- Salt/Fog (ASTM B117) Certified
- UV (ASTM G154/D4329) Certified

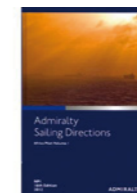
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**NAUTICAL PUBLICATIONS**



**SAILING DIRECTIONS**

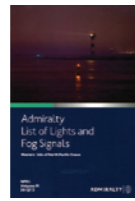


Code	NP No	Title
MM CAI NP1	1	Africa Pilot Vol 1
MM CAI NP2	2	Africa Pilot Vol 2
MM CAI NP3	3	Africa Pilot Vol 3
MM CAI NP4	4	South-East Alaska Pilot
MM CAI NP5	5	South America Pilot Vol 1
MM CAI NP6	6	South America Pilot Vol 2
MM CAI NP7	7	South America Pilot Vol 3
MM CAI NP7A	7A	South America Pilot Vol 4
MM CAI NP8	8	Pacific Coasts of Central America and United States Pilot
MM CAI NP9	9	Antarctic Pilot
MM CAI NP10	10	Arctic Pilot Vol 1
MM CAI NP11	11	Arctic Pilot Vol 2
MM CAI NP12	12	Arctic Pilot Vol 3
MM CAI NP13	13	Australia Pilot Vol 1
MM CAI NP14	14	Australia Pilot Vol 2
MM CAI NP15	15	Australia Pilot Vol 3
MM CAI NP18	18	Baltic Pilot Vol 1
MM CAI NP19	19	Baltic Pilot Vol 2
MM CAI NP20	20	Baltic Pilot Vol 3
MM CAI NP21	21	Bay of Bengal Pilot
MM CAI NP22	22	Bay of Biscay Pilot
MM CAI NP23	23	Bering Sea and Strait Pilot
MM CAI NP24	24	Black Sea and Sea of Azov Pilot
MM CAI NP25	25	British Columbia Pilot Vol 1
MM CAI NP26	26	British Columbia Pilot Vol 2
MM CAI NP27	27	Channel Pilot
MM CAI NP28	28	Dover Strait Pilot
MM CAI NP30	30	China Sea Pilot Vol 1
MM CAI NP31	31	China Sea Pilot Vol 2
MM CAI NP32	32	China Sea Pilot Vol 3
MM CAI NP33	33	Philippine Islands Pilot
MM CAI NP34	34	Indonesia Pilot Vol 2
MM CAI NP35	35	Indonesia Pilot Vol 3
MM CAI NP36	36	Indonesia Pilot Vol 1
MM CAI NP37	37	West Coasts of England and Wales Pilot
MM CAI NP38	38	West Coast of India Pilot
MM CAI NP39	39	South Indian Ocean Pilot
MM CAI NP40	40v	Irish Coast Pilot
MM CAI NP41	41	Japan Pilot Vol 1
MM CAI NP42A	42A	Japan PiVot Vol 2

Code	NP No	Title
MM CAI NP42B	42B	Japan Pilot Vol 3
MM CAI NP42C	42C	Japan Pilot Vol 4
MM CAI NP43	43	South and East Coasts of Korea, East Coast of Siberia and Sea of Okhotsk Pilot
MM CAI NP44	44	Malacca Strait and West Coast of Sumatera Pilot
MM CAI NP45	45	Mediterranean Pilot Vol 1
MM CAI NP46	46	Mediterranean Pilot Vol 2
MM CAI NP47	47	Mediterranean Pilot Vol 3
MM CAI NP48	48	Mediterranean Pilot Vol 4
MM CAI NP49	49	Mediterranean Pilot Vol 5
MM CAI NP50	50	Newfoundland and Labrador Pilot
MM CAI NP51	51	New Zealand Pilot
MM CAI NP52	52	North Coast of Scotland Pilot
MM CAI NP54	54	North Sea (West) Pilot
MM CAI NP55	55	North Sea (East) Pilot
MM CAI NP56	56	Norway Pilot Vol 1
MM CAI NP57A	57A	Norway Pilot Vol 2A
MM CAI NP57B	57B	Norway Pilot Vol 2B
MM CAI NP58A	58A	Norway Pilot Vol 3A
MM CAI NP58B	58B	Norway Pilot Vol 3B
MM CAI NP59	59	Nova Scotia and Bay of Fundy Pilot
MM CAI NP60	60	Pacific Islands Pilot Vol 1
MM CAI NP61	61	Pacific Islands Pilot Vol 2
MM CAI NP62	62	Pacific Islands Pilot Vol 3
MM CAI NP63	63	Persian Gulf Pilot
MM CAI NP64	64	Red Sea and Gulf of Aden Pilot
MM CAI NP65	65	St Lawrence Pilot
MM CAI NP66	66	West Coast of Scotland Pilot
MM CAI NP67	67	West Coasts of Spain and Portugal Pilot
MM CAI NP68	68	East Coast of the United States Pilot Vol 1
MM CAI NP69	69	East Coast of the United States Pilot Vol 2
MM CAI NP69A	69A	East Coasts of Central America and Gulf of Mexico Pilot
MM CAI NP70	70	West Indies Pilot Vol 1
MM CAI NP71	71	West Indies Pilot Vol 2
MM CAI NP72	72	Southern Barents Sea and Beye More Pilot
MM CAI NP100	100	The Mariner's Handbook
MM CAI NP136	136	Ocean Passages for the World
MM CAI NP3501	350(1)	Admiralty Distance Tables - Atlantic Ocean
MM CAI NP3502	350(2)	Admiralty Distance Tables - Indian Ocean
MM CAI NP34	350(3)	Admiralty Distance Tables - Pacific Ocean
MM CAI NP35	735	Maritime Buoyage System



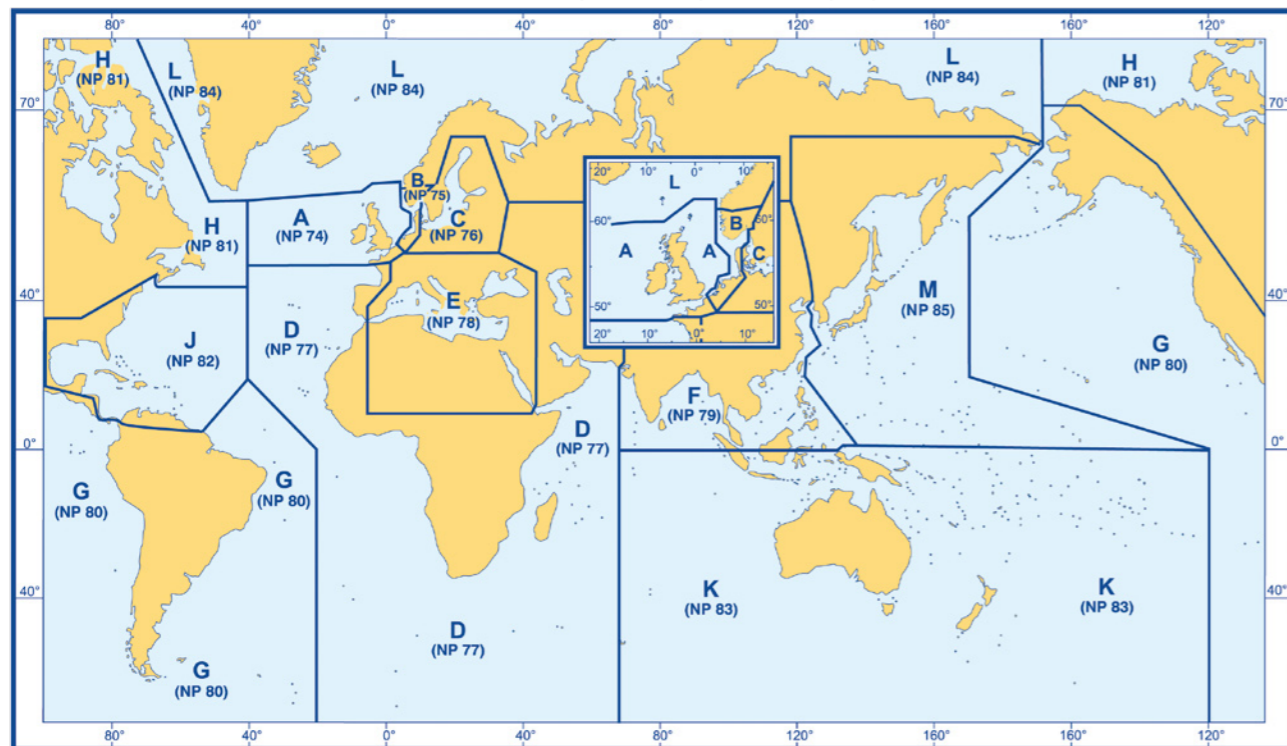
LIST OF LIGHTS



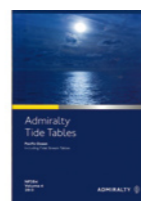
This series of books provides extensive information on all lighthouses, lightships, lit floating marks (over 8m in height), fog signals and other lights of navigational significance. Each publication also gives the characteristics of lights and fog signals, together with the equivalent foreign language light descriptions. Tables can be used to calculate the geographical and luminous ranges of lights. Details for all lights listed include the international number, location and/or name, geographical co-ordinates, characteristics and intensity, elevation in metres, range in sea miles and description of structure.

Ordering Code: **MM CAI + required area**

Limits of Admiralty List of Lights and Fog Signals



TIDAL PUBLICATIONS



Code	Description
MM CAI NP201-204	<b>NP201-204 Admiralty Tide Tables</b> Admiralty Tide Tables detail the times and heights of high and low waters for over 230 standard and 6000 secondary ports in the UK and Ireland, Europe, the Indian Ocean, South China Sea and Pacific Ocean for each day of the year. The tables outline methods of prediction, the effect of meteorological conditions on tides and provide additional information on exceptional tidal factors in each area.
MM CAI NP120	<b>NP120 Admiralty Manual of Tides</b> This is a largely mathematical, detailed description of tidal theory and its application to the analysis and prediction of tides and tidal streams.
MM CAI NP122 1-3	<b>NP122 1-3 Admiralty Tidal Handbooks</b> These three volumes outline the Admiralty method of harmonic tidal analysis for long and short observation periods and include information on datums for hydrographic surveys.



LIST OF RADIO SIGNALS



Code	Description
MM CAI NP281	NP 281 (Parts 1 & 2) - Maritime Radio Stations
MM CAI NP282	NP 282 - Radio Aids to Navigation, Satellite Navigation Systems, Differential GPS (DGPS) Legal Time, Radio Time Signals and Electronic Position Fixing Systems
MM CAI NP283	NP 283 (Parts 1 & 2) - Maritime Safety Information Services
MM CAI NP284	NP 284 - Meteorological Observation Stations
MM CAI NP285	NP 285 - Global Maritime Distress and Safety System (GMDSS)
MM CAI NP286	NP 286 (Parts 1 - 7) - Pilot Services, Vessel Traffic Services and Port Operations



OTHER PUBLICATIONS



Code	Description
MM CAI NP35013	<b>NP350 1-3 Admiralty Distance Tables</b> A three part series of tables, sub-divided by region, giving the shortest distances between ports. There are supporting diagrams and text as well as link tables for places not in the same or adjacent table.
MM CAI NP131	<b>NP131 Catalogue of Admiralty Charts and Publications</b> A comprehensive reference in graphical and textual form of all Admiralty charts and publications worldwide, listed by region. The catalogue gives full details for each chart and publication, including details of all digital products and Admiralty distributors worldwide. Updated and published annually.
MM CAI NP133A	<b>NP133A Paper Chart Maintenance Record</b> Record your Admiralty chart updating details, weekly Notices to Mariners and new charts and editions. Use the index to check Notices to Mariners against all Admiralty charts.
MM CAI NP294	<b>NP294 How to Keep Your Admiralty Products Up-to-Date</b> A comprehensive guide to updating all Admiralty products.
MM CAI NP735	<b>NP735 IALA Maritime Buoyage System</b> Describes the Cardinal and Lateral Buoyage system with diagrams and written explanations of the five types of marks: lateral, cardinal, isolated danger, safe water and special marks.
MM CAI NP136	<b>NP136 Ocean Passages for the World</b> This classic volume on ocean voyage planning has routing details for powered and sailing vessels; individual chapters on each of the world's oceans; advice on winds, weather, climate, seasonal factors, currents, swell, ice hazards; and the shortest routes between ports and important positions.
MM CAI NP5011	<b>NP 5011 Symbols and Abbreviations</b> Used on Admiralty Charts, Chart This convenient A4 book details Admiralty and INT paper chart symbols in full colour with information on hydrography; topography; navigational aids and services; abbreviations of principal terms shown on English and foreign charts; and general information on the content of Admiralty paper charts.
MM CAI NP5012	<b>NP 5012 Admiralty Guide to ENC Symbols used in ECDIS</b> A companion to NP5011, intended to be used both as a training aid and as a reference during passage planning and navigation, this guide contains comprehensive information relating to ENC symbols. The publication provides graphics showing both the traditional and the simplified forms of symbols, as well as descriptions of the use of the symbol that can be understood by the intended users (international seafarers) with reference to the chart 5011 / INT1 equivalent symbol where applicable.
MM CAI NP231	<b>NP 231 Admiralty Guide to the Practical Use of ENCs</b> A comprehensive reference guide to assist ENC users gain a high level of understanding of the practical use of ENCs.
MM CAI NP100	<b>NP100 The Mariner's Handbook</b> A compendium of essential maritime information on charts; operations and regulations; tides, currents and characteristics of the sea; basic meteorology; navigation in ice, hazards and restrictions to navigation; and the IALA Buoyage system.

