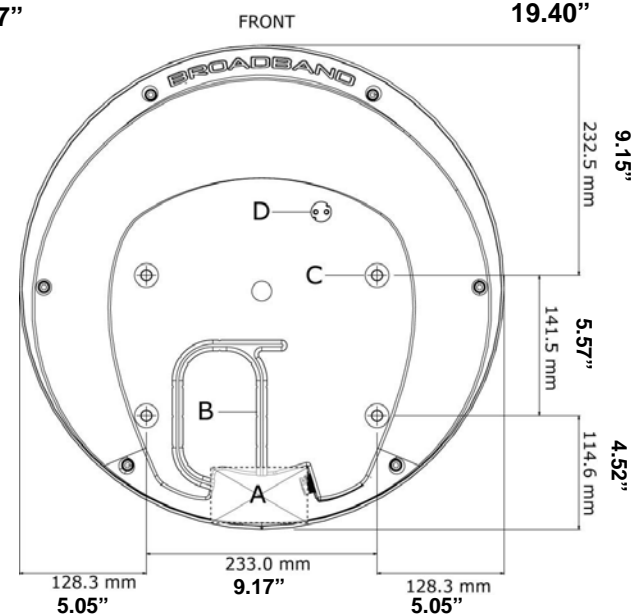
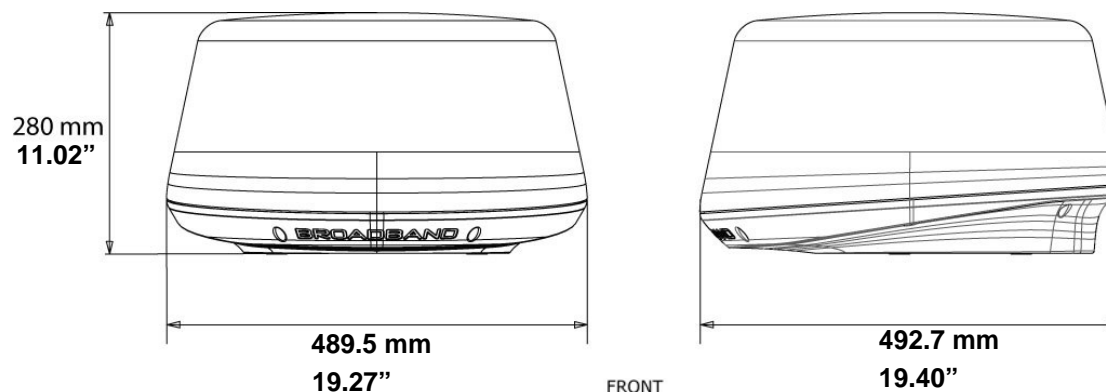
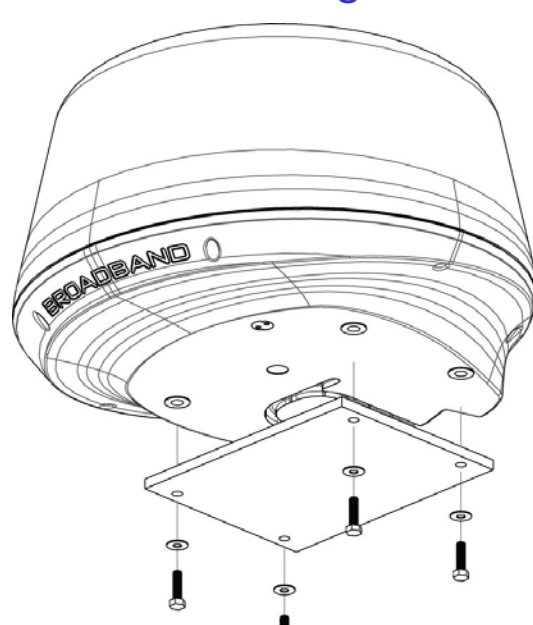


# Broadband Radar System Installation

## Radome mounting and dimensions



### Mounting the scanner

- Use the supplied mounting template and tape it securely to the chosen location site.
- Before drilling, check that:
  - you have oriented the mounting template correctly so that the front of the scanner unit will face the front of the vessel
  - the location site is not more than 15 mm (0.6") thick. If the location site is thicker use longer bolts

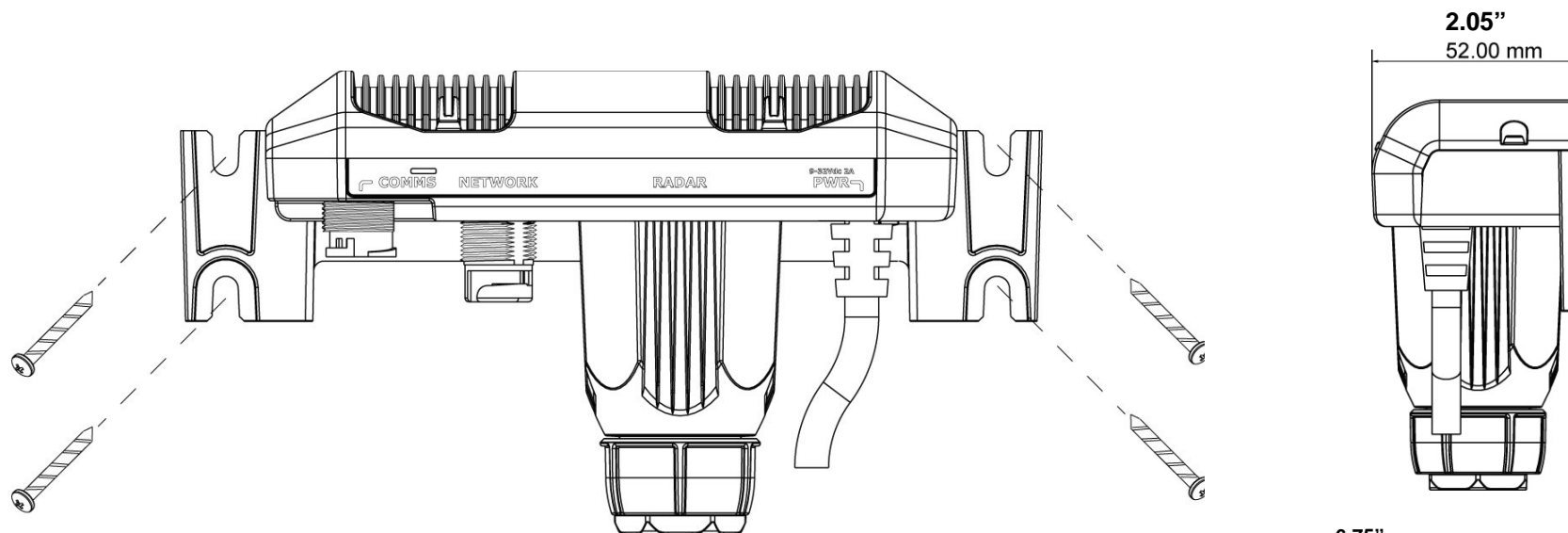
*Note: The bolts supplied are M8 x 30 mm x 4. If you need to use longer bolts make sure they are 304 stainless steel and allow for 15 mm (0.6") of thread contact.*

- The location site allows the drain hole to empty.
- Drill the four holes where shown.
- Remove the mounting template.
- Connect the scanner interconnection cable (see "Connect the Broadband radar to your display" page 16)
- Position the scanner carefully over the bolt holes so that they are aligned.
- Place a spring washer then a plain washer onto each bolt, as shown.
- Screw each bolt into each drill hole from the under side of the location site, and tighten securely.

| Key | Description               |
|-----|---------------------------|
| A   | Cable entry area          |
| B   | Cable retention channel   |
| C   | Bolt holes x 4 M8 x 30 mm |
| D   | Breather                  |

# Broadband Radar System Installation

## Interface junction mounting and dimensions

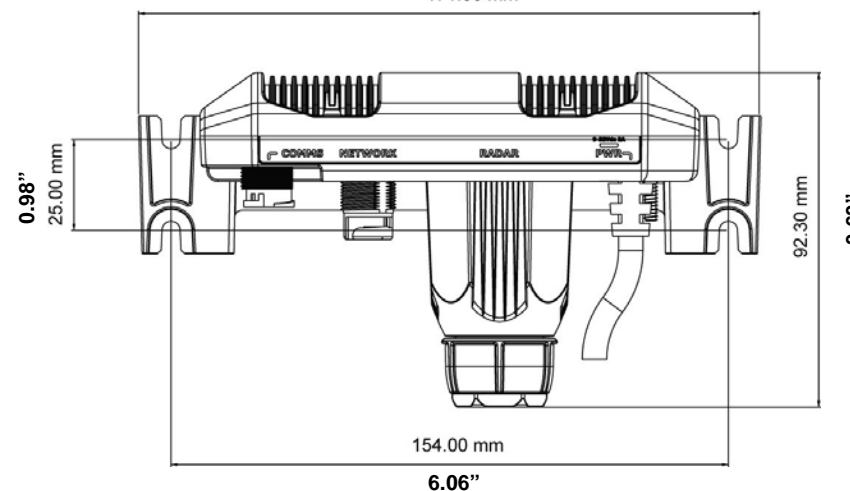


2.05"  
52.00 mm

6.75"  
171.50 mm

### Mounting the radar interface box

- Install the radar interface box in a dry location away from spray, rain, drips and condensation.
- The radar processor must be located where it can be easily connected to the ship's ground, the scanner interconnection cable, a power source and the display or display network.
- Allow enough room for cables to form a drip loop.
- Preferably mount the radar interface box on a vertical surface with cables exiting downwards.
- Secure to the surface using the four mounting points



0.98"  
25.00 mm

92.30 mm  
3.63"

154.00 mm

6.06"

# Broadband Radar System Installation

## Interface junction wiring

### Connect interconnection cable to the scanner

The scanner interconnection cable connects the scanner to the RI-10 or RI-11 interface box (or Lowrance HDS U.S only). The cable connects to the scanner using a 14 pin connector.

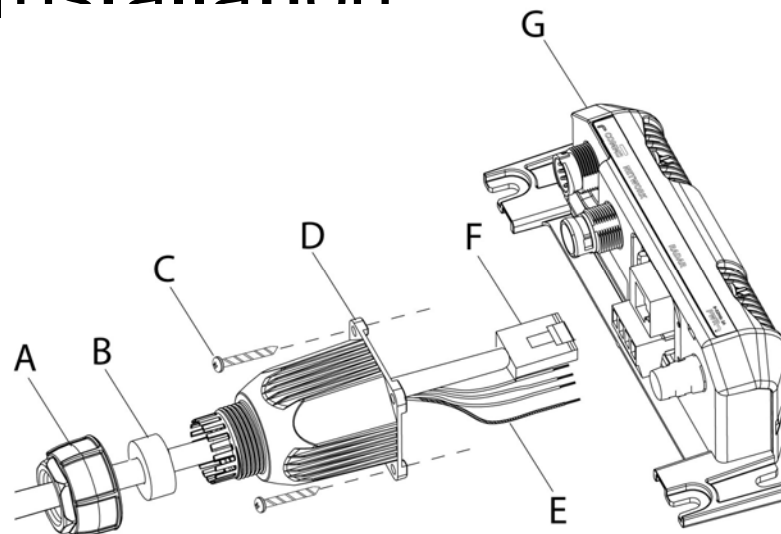
- Insert cable connector on to the male 14 pin plug on the scanner.
- Take care to align the connector correctly to avoid bending the pins. Secure the locking collar by rotating clockwise.
- Feed and secure the cable into the cable retention channel.

Interconnection cable pin out

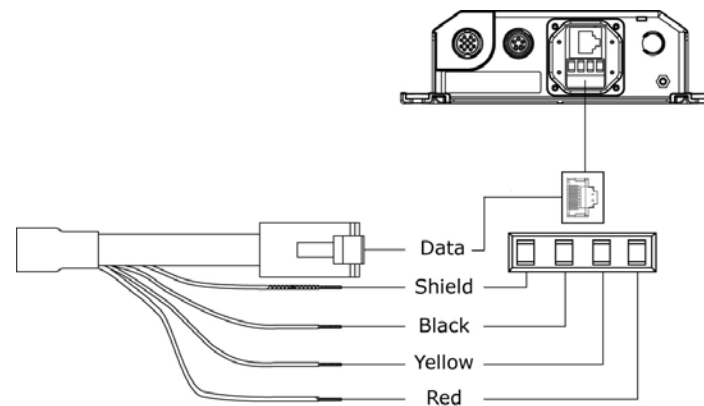
|      |                | Pinout      |  |  |
|------|----------------|-------------|--|--|
| Conn | Wire color     | RJ45        |  |  |
| 1    | Black          | Tinned wire |  |  |
| 2    | Red            | Tinned wire |  |  |
| 3    | Yellow         | Tinned wire |  |  |
| 4    | Drain          | Tinned wire |  |  |
| 5    | N/A            | N/A         |  |  |
| 6    | Blue           | RJ45 Pin 4  |  |  |
| 7    | White / Blue   | RJ45 Pin 5  |  |  |
| 8    | white / Brown  | RJ45 Pin 7  |  |  |
| 9    | Brown          | RJ45 Pin 8  |  |  |
| 10   | White / Green  | RJ45 Pin 3  |  |  |
| 11   | N/A            | N/A         |  |  |
| 12   | White / Orange | RJ45 Pin 1  |  |  |
| 13   | Green          | RJ45 Pin 6  |  |  |
| 14   | Orange         | RJ45 Pin 2  |  |  |

### Connect the interconnection cable to radar interface box

- Remove the 4 phillips screws that secure the cable gland housing and disassemble.
- Slide the lock nut, gland washer, and glad housing on to the scanner cable
- Connect power wires to the terminal strip.
- Connect the RJ45 data connector.
- Secure the gland housing to the interface box using the 4 screws.
- Insert the gland washer into the gland housing.
- Screw the lock nut on to the gland housing.



| Key | Description                               | Part Number                             |
|-----|---|---|
| A   | Lock nut                                  |   |
| B   | Gland washer                              |   |
| C   | Screws x 4 M3x12mm phillips pan head      | SR000041-G                              |
| D   | Cable gland housing                       |   |
| E   | Power wires (see "Connect power" page 14) |   |
| F   | Radar data connector RJ45                 |   |
| G   | Radar interface box                       | AA010204 (Serial)<br>AA010189 (Network) |

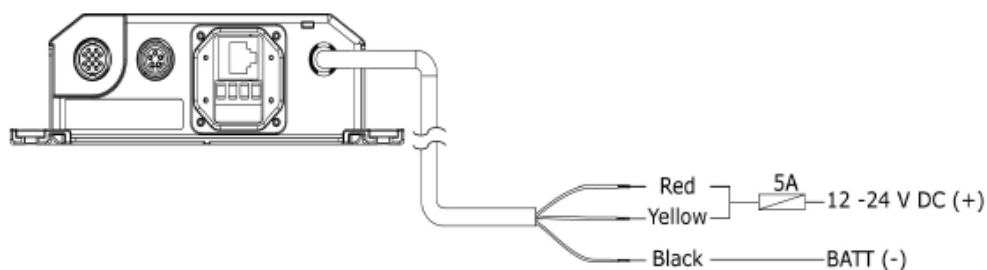


# Broadband Radar System Installation

## Interface Box wiring

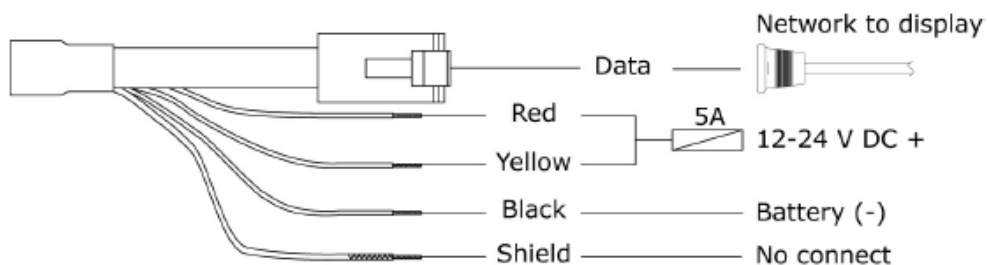
For systems using a radar interface box

- Connect the red wire to power positive 12 or 24 V DC. Use a 5 amp fuse or breaker.
- Connect the yellow wire to power source that will turn on the system (see above).
- Connect black to power negative.



For systems not using radar interface box (Lowrance HDS USA only)

- Connect the red wire to power positive 12 or 24 V DC. Use a 5 Amp fuse
- Connect the yellow wire to power source that will turn on the system (see above)
- Connect black to power negative.



# Technical Specs

| Characteristic                         | Technical Data  |
|--|---|
| <b>General</b>                         |   |
| Compliance                             | °FCC/IC/R&TTE/AUS Type Certification complete<br>°FCC ID: RAYBR24<br>°IC ID: 4697A-BR24<br>°Human Exposure General Public Safety Limit – touch dome anywhere. |
| Environmental                          | °IEC60945 4 <sup>th</sup> edition 2002-2008<br>°Operating Temperature: -25° to +55°C<br>°Relative humidity: +35C, 95% RH<br>° <b>Waterproof: IPx6</b>         |
| Relative wind velocity                 | 51 m/sec ( <b>Max:100 Knots</b> )   |
| Power consumption                      | Operating: 17W (Typ.) @ 13.8V <sub>DC</sub><br>Standby: 1.6W (Typ.) @ 13.8V <sub>DC</sub> ~ 110mA   |
| DC input (at end of radar cable)       | <b>9V to 32VV<sub>DC</sub> (12/24 Volt systems).</b><br><b>Reverse polarity protection</b>  |
| Transmitter Source (pre-heating time ) | No magnetron – Instant On™  |
| Outside dimensions                     | Height 280mm (11.02”) x Diameter 489.5mm (19.27”)   |
| Scanner Weight (no cable)              | <b>7.4 kg (16.3 lbs.)</b>   |

# Technical Specs continued

| Characteristic                             | Technical Data   |
|--|--|
| <b><i>Radar and Antenna Parameters</i></b> |  |
| Radar Ranges                               | 200' to 24NM with 17 range settings (nm/sm/km)                                       |
| Rotation                                   | 24rpm +/- 10%  |
| Transmitter frequency                      | X-band - 9.3 to 9.4GHz   |
| Transmitter source (warm-up time)          | No Magnetron – all solid state. Instant On™ (excluding CPU boot time of ~16 seconds) |
| Plane of polarization                      | Horizontal Polarization  |
| Transmitter peak power output              | 100mW nominal  |
| Main Bang Dead Zone & Tuning               | None – not a pulse radar   |
| Sea and Rain Clutter                       | 3-5X less than a pulse radar   |
| Sweep Repetition Frequency                 | 200Hz  |
| Sweep Time                                 | 1ms  |
| Sweep Bandwidth                            | 65MHz max  |
| Horizontal Beam width (Tx and Rx antenna)  | <b>5.2° +/- 10% (-3dB width)</b>   |
| Vertical Beam width (Tx and Rx antenna)    | <b>30° +/- 20% (-3dB width)</b>  |
| Side lobe level (Tx and Rx antenna)        | Below -18dB (within ±10°); Below -24dB (outside ±10°)                                |
| Noise figure                               | Less than 6dB  |

# Technical Specs continued

| Characteristic                        | Technical Data  |
|---------------------------------------|---|
| <b><i>Coms/Cabling/Mounting</i></b>   |   |
| Com Protocol                          | 10/100Base-T Ethernet and Serial  |
| Heading                               | NMEA2000/Simnet (with RI-10 interface box)  |
| Inter Connecting cable length         | <b>10m (32.8') standard with RJ45 thin custom connector – Display model dependent</b>   |
| Maximum Inter Connecting cable length | <b>30m (98.4")</b>  |
| Bolts (4)                             | M8x30 - 304 stainless steel   |
| Footprint                             | Port to Starboard W233.0mm (9.17") x Bow to Stern L141.5mm (5.57")<br><b>(matches Garmin GMR18HD/Raymarine RD218 footprint)</b> |
| <b><i>Compatible Displays</i></b>     |   |
| Lowrance:                             | Lowrance HDS – 5", 7", 8", 10"  |
| Simrad:                               | Simrad GB40 – 10", 12", 15"   |
|                                       | Simrad NX40/45 – 8", 12"  |
| Northstar:                            | Northstar 8000i – 12", 15"  |
|                                       | Northstar M84/M121 – 8", 12"  |

**\*\* Note: Specifications subject to change without notice. \*\***

# What's in the Box?

|   |  |                      |
|---|--|----------------------|
| AA010215 Lowrance, BR24 Radar Bundle, HDS - |  | RRP ex VAT £1,699.00 |
| AA010186                                    | BR24 radar dome (branded Lowrance)                 | 1                    |
| AA010204                                    | Navico Interface Box RI11                          | 1                    |
| MN000760B-G                                 | Installation manual                                | 1                    |
| LA000667A-G                                 | Mounting leaflet                                   | 1                    |
| AA010211                                    | External radar cable, 10m                          | 1                    |
| 000-0127-28                                 | Navico Ethernet cable (connects IF box to display) | 1                    |



# What's in the Box?

|  |   |                             |
|--|---|-----------------------------|
| <b>AA010216 Northstar, BR24 Radar Bundle, M-Series</b> |   | <b>RRP ex VAT £1,799.00</b> |
| AA010186   | BR24 radar dome (branded Northstar)                   | 1                           |
| AA010204   | Navico Interface Box RI11                             | 1                           |
| MN000760B-G  | Installation manual                                   | 1                           |
| LA000667A-G  | Mounting leaflet                                      | 1                           |
| AA010212   | External radar cable, 20m                             | 1                           |
| AA010114   | Serial Data Cable – 3mtr (connects IF box to display) | 1                           |

|   |   |                             |
|---|---|-----------------------------|
| <b>AA010217 Simrad, BR24 Radar Bundle, NX4x</b> |   | <b>RRP ex VAT £1,799.00</b> |
| AA010186  | BR24 radar dome (branded Simrad)                      | 1                           |
| AA010204  | Navico Interface Box RI11                             | 1                           |
| MN000760B-G                                     | Installation manual                                   | 1                           |
| LA000667A-G                                     | Mounting leaflet                                      | 1                           |
| AA010212  | External radar cable, 20m                             | 1                           |
| AA010114  | Serial Data Cable – 3mtr (connects IF box to display) | 1                           |

# What's in the Box?

|   |   |                             |
|---|---|-----------------------------|
| <b>AA010218 Northstar, BR24 Radar Bundle, 8000i</b> |   | <b>RRP ex VAT £1,799.00</b> |
| AA010186  | BR24 radar dome (branded Northstar)   | 1                           |
| AA010204  | Navico Interface Box RI11   | 1                           |
| MN000760B-G   | Installation manual   | 1                           |
| LA000667A-G   | Mounting leaflet  | 1                           |
| AA010212  | External radar cable, 20m   | 1                           |
| AA010079  | Ethernet Cable (RJ45) – 0.5mtr (connects IF box to display)                   | 1                           |
| 000-0127-56   | Ethernet adapter Cable (Navico-RJ45) – 2mtr (connects radar cable to display) | 1                           |

|   |   |                             |
|---|---|-----------------------------|
| <b>AA010219 Simrad, BR24 Radar Bundle, GB40</b> |   | <b>RRP ex VAT £1,799.00</b> |
| AA010186  | BR24 radar dome (branded Simrad)  | 1                           |
| AA010189  | Navico Interface Box RI10   | 1                           |
| MN000760B-G                                     | Installation manual   | 1                           |
| LA000667A-G                                     | Mounting leaflet  | 1                           |
| AA010212  | External radar cable, 20m   | 1                           |
| AA010079  | Ethernet Cable (RJ45) – 0.5mtr (connects IF box to display)                   | 1                           |
| 000-0127-56                                     | Ethernet adapter Cable (Navico-RJ45) – 2mtr (connects radar cable to display) | 1                           |