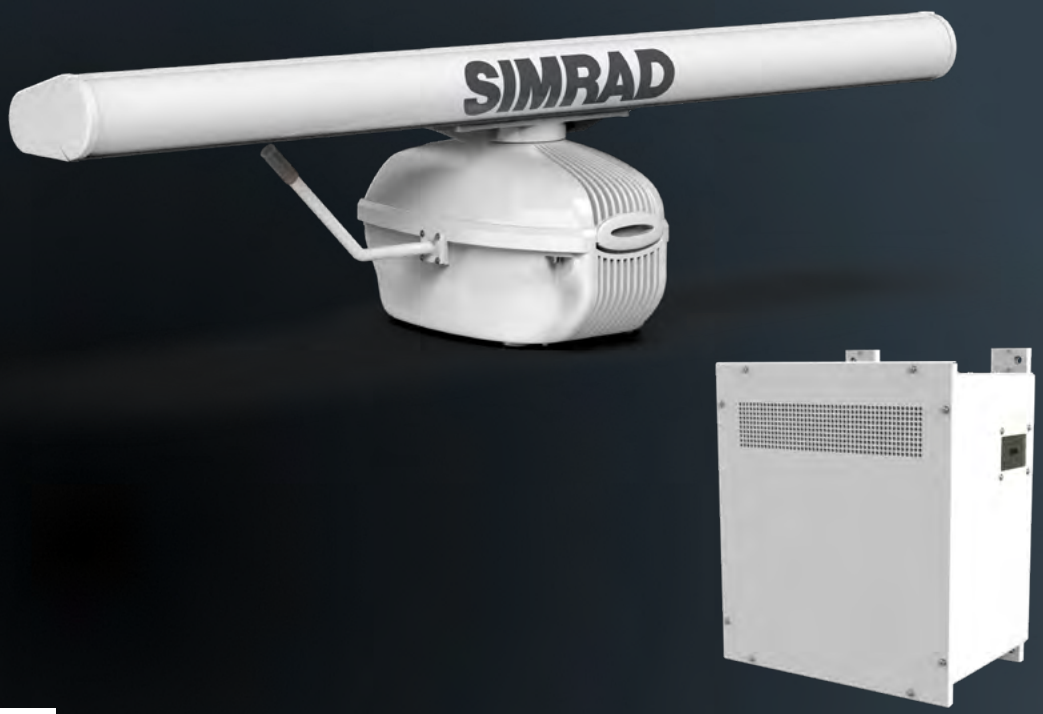
SIMRAD®

SRT LAN X-Band Down-Mast

Installation manual

English



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Preface

Disclaimer

⚠ Warning: Refer to important safety information in the product documentation and review all warnings, limitations, and disclaimers before using this product.

This product is not a substitute for proper training and prudent seamanship. It is the owner's sole responsibility to install and use the equipment in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing maritime safety practices.

Navigational features that appear in this document are not a substitute for proper training and prudent seamanship. They do not replace a human navigator and SHOULD NOT be relied on as a sole or primary source of navigation. It is the operator's sole responsibility to use more than one navigational methods to ensure the route suggested by the system is safe.

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Governing language

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The warranty card is supplied as a separate document. In case of any queries, refer to the brand website of your unit or system:

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Compliance statement

Navico declare under our sole responsibility that the product conforms with the requirements of:

- European Council Directive 2014/90/EU on Marine Equipment modified by Commission Implementing Regulation (EU) 2023/1667 (8 August 2023) - Wheelmark

The relevant declaration of conformity is available in the product's section at the following website:

- www.navico-commercial.com

About this manual

Intended audience

This manual is written for system installers.

This manual is written for professional installation and service engineers.

The manual assumes that the reader has basic knowledge about this type of equipment with regards to:

- installation work to be carried out
- nautical terminology and practices

Important text conventions

Important text that requires special attention from the reader is emphasized as follows:

➔ ***Note:*** Used to draw the reader's attention to a comment or some important information.

⚠ Warning: Used when it is necessary to warn personnel that they should proceed carefully to prevent risk of injury and/or damage to equipment/ personnel.

Change log

Part no	Date and description
988-12289-001	2018-Sept-28
	First version.
988-12289-002	2018-Oct-31
	Updates to Technical specifications.
988-12289-003	2021-July-25
	Compliance updates.
988-12289-004	2023-Sept-25
	Compliance updates and copyright updates.
988-12289-005	2023-December-15
	Updates to comply with IEC62288 Ed.3.

Safety precautions

Safety precautions described in this section are applicable to the radar system. They are general safety precautions that are not related to any specific procedure, and they might therefore not appear elsewhere in this manual. They are recommended precautions that personnel must understand and apply during operation and maintenance of the system.

You are obliged to read these operating instructions prior to operation, and to adhere to the operating instructions in order to prevent possible danger. Prevention of danger includes that operator personnel are trained and authorized for safe operation of the equipment. We assume no liability for damage due to improper operation which could have been prevented.

The system must only be operated by persons who have passed the relevant mandatory training on the respective systems and applications. Only reading these operating instructions cannot replace such training. Persons authorized to operate, maintain and troubleshoot the system are instructed and trained by Simrad. Persons operating or servicing this radar system must be familiar with the general safety regulations and specific safety systems, and they must have passed all required training. They must have read the relevant operating instructions and manuals before starting to work.

Have these operating instructions always at hand on all relevant locations, and ensure that copies are available to all operators. Operating personnel must at all times follow all safety regulations.

During normal operation, the unit can be quickly disconnected from the main power line by turning OFF the relevant circuit breaker located on the electric switchboard.

Do not replace components or make adjustments inside the unit when the voltage supply is turned ON. Always remove power and discharge to ground a circuit before touching it. Under no circumstances should any person initiate servicing or repairing the unit except in the presence of a qualified person.

Ensure unobstructed access to all operator panels, controls, and relevant switchgear cabinets in order to enable instant response to alarms.

Whenever it is necessary to disconnect the waveguide from a radar transmitter for maintenance purpose, the transmitter output should be terminated with a matched load. If this is not possible, care should be taken. Do not stand in front of an open-ended waveguide from which power is being radiated.

➔ ***Note:*** Main power is always present on the terminal board unless the main break from the power distribution panel of the vessel is turned off.

⚠ Warning: Never look down a waveguide from which power is being radiated!

Warnings

High voltage

Radar equipment includes high voltage that can cause injury or loss of life. Danger exists only when the units are opened, exposing internal circuits, as when servicing the equipment.

This radar has been carefully designed to protect personnel from possible injury from high voltages. Although every effort has been made to eliminate danger to personnel, no responsibility is accepted for any injury or loss of life suffered in connection with this equipment.

Radio frequency radiation

Harmful effects (particularly to the eyes) may be caused by exposure of any part of the human body to high power radio frequency radiation.

However, the system is designed to always disable the microwave radiation when the antenna is not rotating.

Hazard distances

Configuration	Distance 100 W/m^2 point (m)	Distance 50 W/m^2 point (m)	Distance 10 W/m^2 point (m)
25 KW Transceiver 6' X-band Antenna	0.1	0.2	1.3
25 KW Transceiver 9' X-band Antenna	-	0.1	1.0
25 KW Transceiver 12' X-band Antenna	-	0.05	0.9

X-Ray radiation

This radar system does not generate X-ray radiation.

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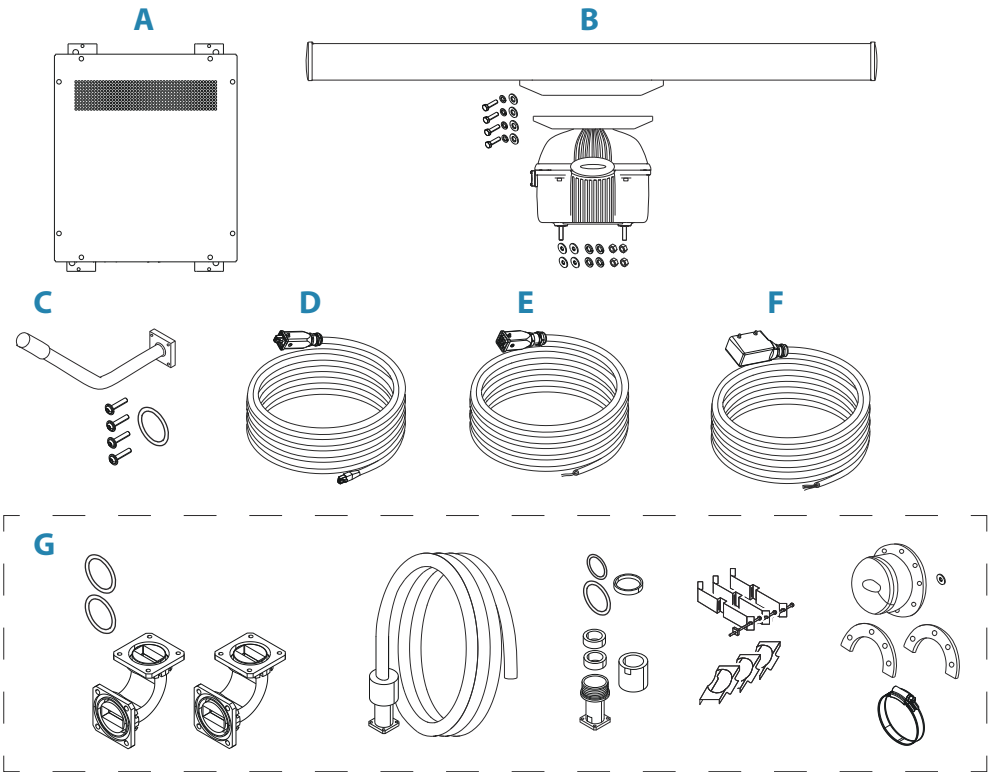
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1 Parts included

SRT LAN Radar sensor X-band down-mast



A SRT LAN down-mast transceiver
B Radar antenna (6 feet, 9 feet or 12 feet) and antenna pedestal
C Radar performance monitor arm kit
D Ethernet cable
E Power cable
F Down-mast cable
G Waveguide kit

2 Installation

Installation guidelines

The information provided by radar is of vital importance to skippers and the safe navigation of ships. Special care should be taken to ensure correct installation of the radar, in order to ensure the performance of the radar system is not compromised.

Interference, either by reflecting structures or other RF transmitters, may significantly impair radar performance by creating blind sectors, clutter on the radar display or generation of false targets.

The antenna should be mounted clear of any structure that may cause signal reflections and resultant blind sectors. Large flat metallic structures perpendicular to the radar generally cause the worst reflections, and should be avoided.

All hardware should be mounted with appropriate gauge and number of fasteners, and structure radar is mounted to should be determined to be fit for purpose, capable of supporting the radar in any weather or sea state.

Service platform

Safe service access should be provided using service platforms where necessary, having a minimum size of 1 m^2 at a suitable height and with a safety rail of suitable height.

The design of the mounting platform for the up-mast transceiver should take into account the vibration requirements defined by IEC 60945.

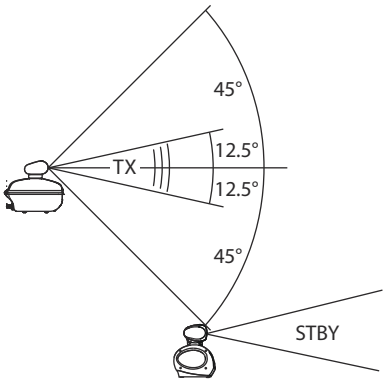
The platform that is being mounted to should be level when vessel is loaded and underway at typical cruise speed.

→ ***Note:*** When working at height, ensure appropriate safety harness and lanyard is used.

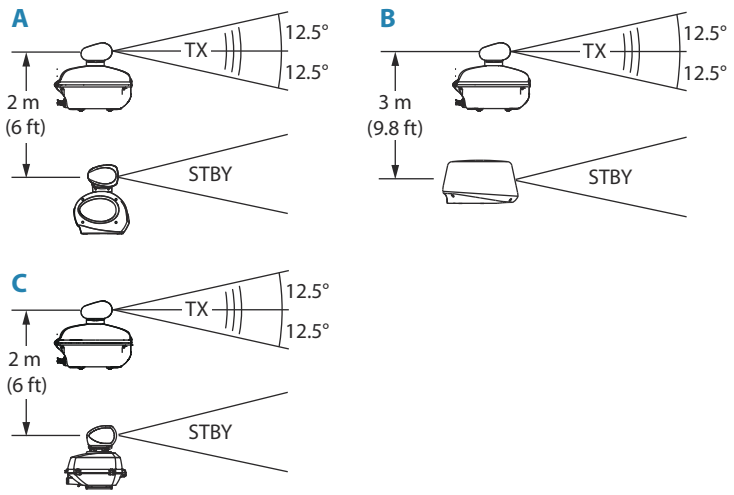
Interference

Other radars

Do not install the radar transceiver on the same beam plane as other radars, provide at least 45 degrees vertical separation. Use sector blanking as required to eliminate interference from same frequency radar on vessel.



The following illustrations shows suggested minimum vertical separation for different radar combinations, where radars are installed one above the other:



A Pulse radar and pulse compression radar

B Pulse radar and broadband radar

C Two pulse radars

Other RF sources

The radar antenna should be installed at a safe distance from interfering high-power energy sources and other transmitting and receiving radio antennas.

Sensitive equipment

Some electronics such as GPS and electronic heading sensors may be particularly sensitive to radar emissions. Follow the manufacturers guide on suitable separation distances. Avoid having such equipment directly in the beam of the radar.

Obstructions and blind sectors

Railings

The underside of the radar antenna should be a minimum of 50 cm above any safety rail.

Swing diameter

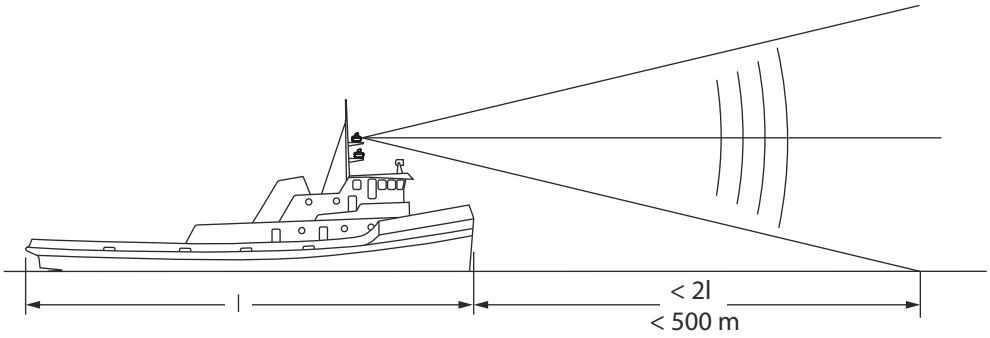
Ensure all obstructions are clear of the rotation of the antenna. To avoid the antenna coming in contact with other installed objects while it is rotating, ensure that there is at least 200 mm between the swing circle (turning radius) and the other installed objects.

Blind sectors

It should be kept to a minimum, and not occur in an area of the horizon from right ahead to 22.5° abaft the beam to either side. Any two blind sectors separated by 3° or less should be treated as one combined blind sector. Individual blind sectors of more than 5°, or a total of blind sectors of more than 20°, should not occur in the remaining area abaft the aforementioned area. For radar installations with two radar systems, where possible, the antennas should be placed in such a way as to minimize the blind sectors.

Distance to water surface

For all radar systems and where practical, a line of sight from the radar antenna to the bow of the ship should hit the surface of the sea at no more than 500 m or twice the ship length, depending which value is smaller. This goes for all load and trim conditions.



Radar antenna height implications

Antenna elevation table

The antenna elevation from the water surface determines the distance the radar beam travels before hitting the water surface.

Height (m)	1	2	3	4	5
Distance (m)	4.7	9.4	14.1	18.8	23.5

Height (m)	7.5	10	15	20	25
Distance (m)	35.3	47.0	70.6	94.1	117.6

Height (m)	30	40	50		
Distance (m)	141.1	188.2	235.2		

Elevation impact

The radar antenna should be installed in an elevated position to permit maximum target visibility, but not higher than necessary as sea clutter increases and short range performance is compromised with increased installation height. On smaller vessels excessive height may also have a negative impact on vessel stability.

Mounting

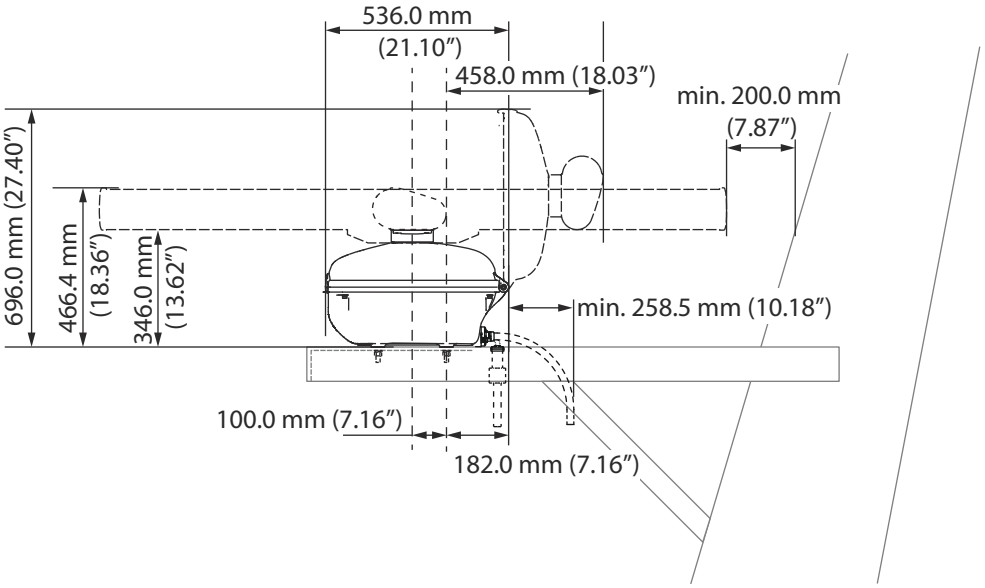
Mounting guidelines

- Choose a location that will not expose the unit to conditions that exceed the specifications, refer to the technical specification in the *"Technical specifications"* on page 27
- The mounting surface needs to be structurally strong, with as little vibration as possible
- Ensure that any holes cut are in a safe position and will not weaken the boat's structure
- Before cutting a hole in a panel, make sure that there are no hidden electrical wires or other parts behind the panel
- Check that it is possible to route cables to the intended mounting location. Leave sufficient clearance to connect all relevant cables
- Make drip and service loops for cables

⚠ Warning: Inadequate ventilation and subsequent overheating of the unit may cause unreliable operation and reduced service life. Exposing the unit to conditions that exceed the specifications could invalidate your warranty, refer to the technical specification in the *"Technical specifications"* on page 27.

Radar pedestal

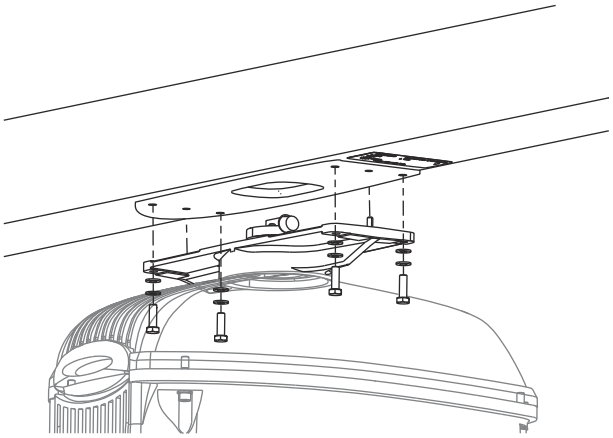
Ensure that there is adequate space for the pedestal housing and antenna. Securely mount the radar pedestal prior to fitting the antenna. For dimensional drawings, refer to *"Dimensional drawings"* on page 30.



➔ ***Note:*** A length of at least 0.5x the diameter of the screw should be visible below the nut when the pedestal is properly secured. Use a good quality isolating or anti-seize compound on the thread, to prevent electrolysis.

Radar antenna

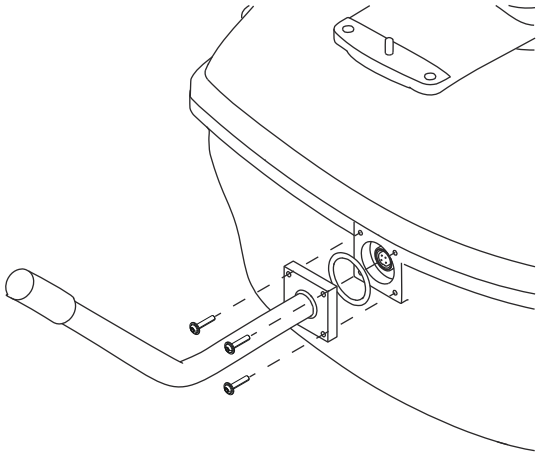
Remove the 2 lifting eye bolts. Mount the antenna over its support and make sure that the waveguide connection on the antenna pedestal is aligned with the connection in the antenna. Tighten the 4 screws holding the antenna ta a torque of 22 Nm.



➔ ***Note:*** The waveguide protection cover on the antenna pedestal must not be removed until immediately prior to antenna fitment.

Radar performance monitor arm

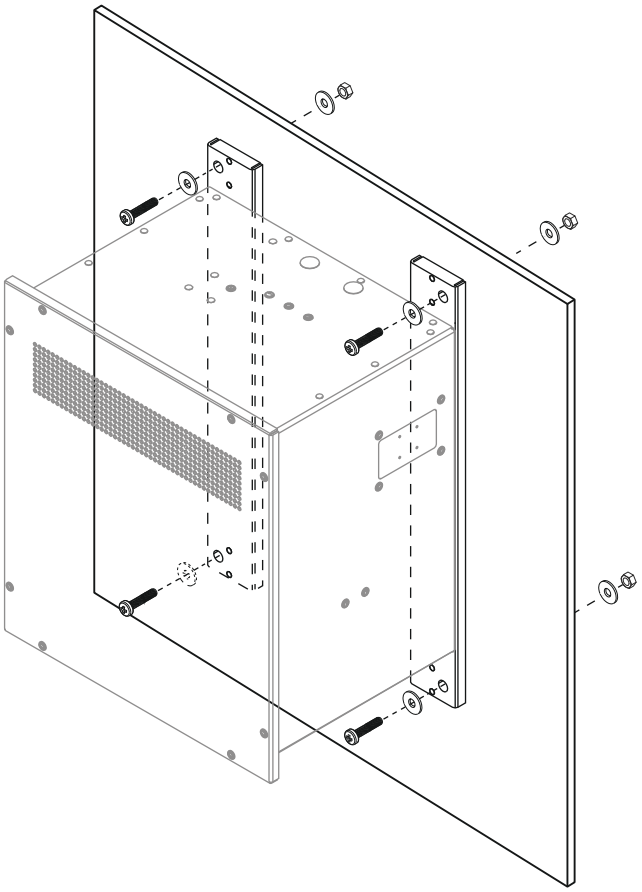
Attach the performance monitor arm to the pedestal housing. The arm should be oriented to point upwards. Ensure the gasket ring is fitted between the housing and the base of the arm.



All electrical connections are made when the performance monitor arm is attached to the pedestal. It is not necessary to complete any further connections inside pedestal enclosure.

SRT LAN down-mast transceiver

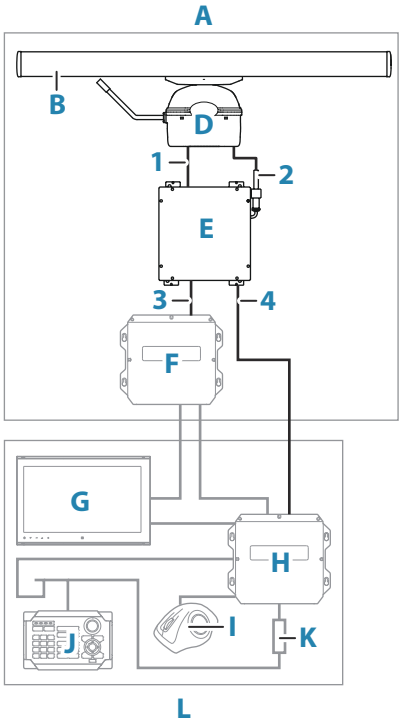
Ensure that there is adequate space for the SRT and cabling. For dimensional drawings, refer to *"Dimensional drawings"* on page 30.



→ ***Note:*** Fasteners should be of AISI 304 or 316 stainless steel and property class 70 or better. Use M12 screws and nuts or equivalent.

3 Wiring

System example



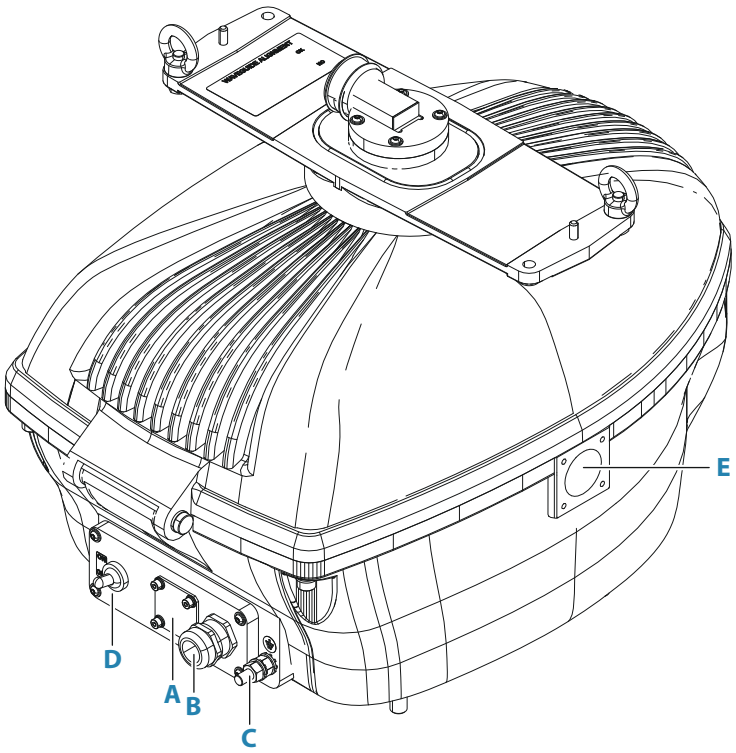
A	SRT LAN radar sensor
B	Antenna
D	Antenna pedestal
E	SRT LAN down-mast transceiver
F	R5000 power supply unit
G	M5000 monitor
H	R5000 radar processor
I	O5000 trackball
J	O2000 controller
K	O2000 power supply unit
L	R5000 control station
1	Down-mast cable
2	Waveguide
3	Power cable
4	LAN cable

General wiring guidelines

- Check all ground connections. During the hardware installation they must be completed before power and communication cabling
- Create drips loops where cable connects to product, to prevent water collecting on device connectors
- All cables should be routed as directly as possible, consistent with consideration for other equipment, in order to reduce electromagnetic interference effects and voltage drop
- Cables should not be installed close to high-power or high frequency conducting cables, such as radar or radio-transmitter lines or large DC motor cables

- Where cables intersect, try to stay at right angles (90°) to minimize inductance of noise
- Only use suitable waterproof connectors when joining cables
- If a cable being pulled through a concealed area requires excessive force to finish pulling through the remaining cable, consider rerouting cable via an alternative route – otherwise cable conductors may get broken, the cable sheath & insulation may be damaged, or the same damage may be done to adjacent cables, which may cause a fire

Antenna pedestal overview



A Waveguide connector (shown with protective cover attached)

B SRT down-mast cable gland

C Ground terminal

D Safety switch

E Radar performance monitor arm flange

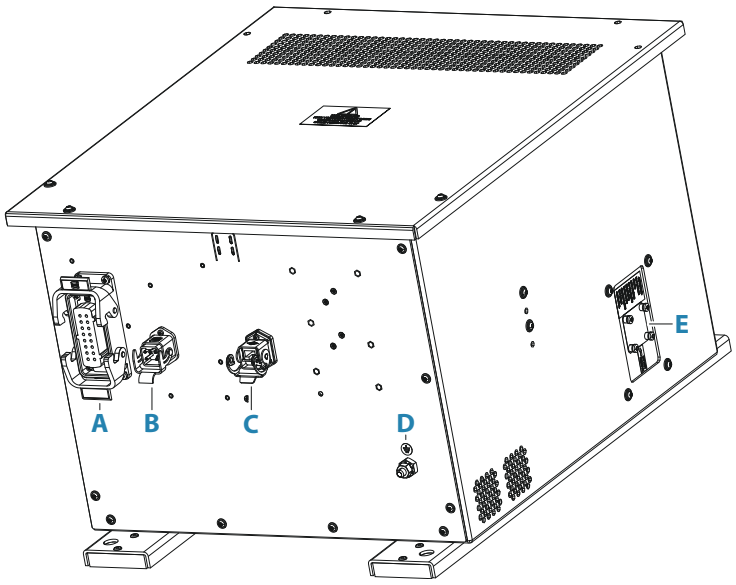
Grounding the antenna pedestal

Connect a tinned copper cable (>25 mm2) between the ground terminal on the radar pedestal and the ship´s structure. Cable should be kept to minimum necessary length. Ensure it is fastened using a suitable stainless bolt and lock nut or spring washer. Self-tapping screws should not be used. Good electrical connection is essential, ensure paint or other isolating coatings on surface are properly removed around area of bolt and ring terminal contact. After fitting, apply a suitable anti-corrosive coating to the assembly.

→ ***Note:*** Radar mast should be a good conductor (i.e. metal), and be bonded to rest of ships ground. If not, earth cable should be run to nearest grounded structure.

→ ***Note:*** Earth strap is ideally braided tinned copper, but tinned power cable is also suitable.

SRT LAN down-mast transceiver overview



A Down-mast cable connector

B Power cable connector

C Ethernet cable connector

D Grounding terminal

E Waveguide connector (shown with protective cover attached)

Grounding the SRT LAN down-mast transceiver

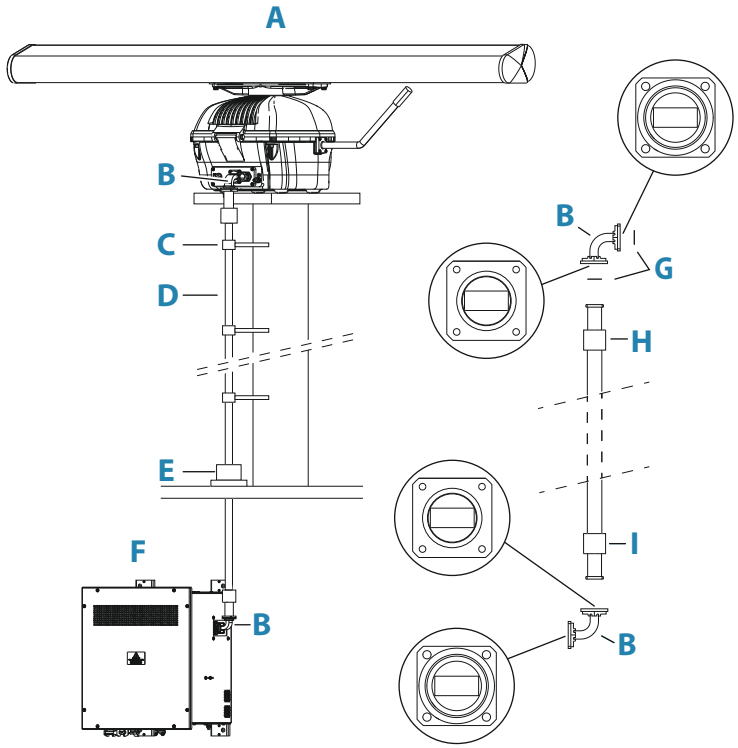
Connect a tinned copper cable (>25 mm2) between the ground terminal on the SRT and the ship´s structure. Cable should be kept to minimum necessary length. Ensure it is fastened using a suitable stainless bolt and lock nut or spring washer. Self-tapping screws should not be used. Good electrical connection is essential, ensure paint or other isolating coatings on surface are properly removed around area of bolt and ring terminal contact. After fitting, apply a suitable anti-corrosive coating to the assembly.

→ ***Note:*** Earth strap is ideally braided tinned copper, but tinned power cable is also suitable.

Waveguide

Installation, maintenance, or removal of waveguide parts requires qualified, experienced personnel. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance and condition of equipment.

Overview



A	Antenna and antenna pedestal
B	90° waveguide bend
C	Hanger
D	Waveguide
E	Wall / Roof feed-thru
F	SRT LAN transceiver
G	O-ring
H	Attached waveguide connector
I	Unattached waveguide connector

Preparation

Inspect the waveguide for possible shipping damage and pressure loss prior to hoisting. The waveguide and connector assemblies have been pressure tested at the factory before shipping.

The factory attached flange connector has a blank flange attached to maintain pressure during shipment. Do not remove this flange until after you install the waveguide.

Field attachment of the connector at the transceiver end must be completed before hoisting. Attach the connector to the end of the waveguide in accordance with instructions in this chapter.

Hoisting

Obtain a suitable hoist line to support the weight of the waveguide. Refer to *"Technical specifications"* on page 27 for weight and bending radius. Place protective covering over the connector to prevent damage during hoisting. Attach a rope sling or cable grip near the end of the waveguide allowing sufficient length to reach the antenna pedestal from the hoisted waveguide position. Tie the end of waveguide to the hoist line to keep it from dangling.

Additional tying can be done above and below the cable grips to keep the weight on the hoist line and not on the waveguide. Make certain to allow slack in the waveguide when tying and maintain that slack during hoisting. Tying is accomplished with strong fiber-

reinforced tape or similar material applied at 4.6 m or 6.1 m (15 ft. or 20 ft.) intervals as the waveguide is raised. Hoist the waveguide slowly. Careless handling can cause kinks, dents, and scrapes. Waveguide bends should not be formed by hand. A mandrel that will provide curved forming surface of equivalent radius should be used. The waveguide can be twisted slightly for flange alignment. Use the cable grip as a temporary anchor to support the waveguide until the connector has been properly mated with the antenna pedestal. Provide sufficient slack to permit easy flange alignment.

Anchoring

Maintain hoist line tension until anchoring is completed. Attachment to lighting conduit or vertical angle irons runs is recommended in installations where the antenna mast does not provide adequate or convenient hanger support. Waveguide subject to vibration or wind must not be left unsupported. Space the first three hangers at the top of a vertical run approximately 0.3m (1 ft.) apart and 1.2 m (4 ft.) apart thereafter. If distance from feed termination to 1st hanger is more than 1.2 m (4 ft.), the waveguide must be supported.

Position hangers to hold the waveguide away from the antenna mast. Rubbing against edges can cause damage. Do not tighten hangers excessively as dents or deformations can cause degradation in performance. Follow the hanger instructions included with the hangers. If the jacket has been cut, apply vinyl tape to damaged areas.

Route the waveguide from the base of the mast to the feed-thru flange and from the feed-thru flange to the down-mast SRT LAN transceiver. The waveguide should be supported on both sides of the roof/wall. Attach the waveguide to the horizontal support using same type of hangers and 1.2 m (4 ft.) intervals as in the vertical run. Exposed horizontal runs must be protected from weight of accumulated ice and damage from falling ice and other objects.

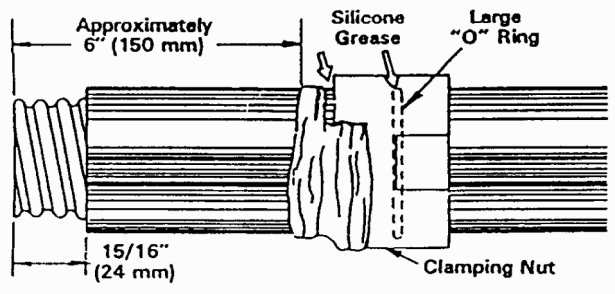
Grounding

The grounding point is designed to provide electrical contact between the outer conductor of the waveguide and the ship's ground. The waveguide should be grounded along the vertical run near the radar antenna.

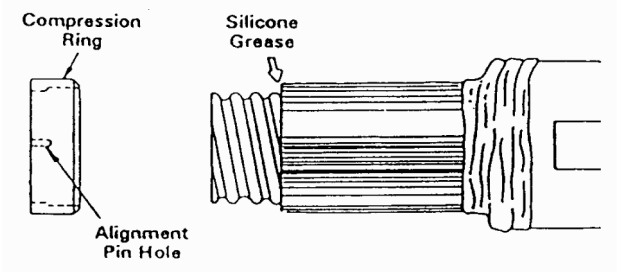
Remove a section of the cable jacket and attach the ground strap tightly to the outer conductor. Wrap the connection in butyl rubber tape and vinyl tape for protection from weather. Attach the ground wire to the ship's ground terminal board.

Mounting the connector

1. Prepare the waveguide as shown in step 2. The end of the waveguide must be square. Use a piece of paper wrapped around the waveguide downward while cutting to keep copper chips from entering the waveguide. Remove all burrs from the cut and waveguide using a knife and a file. Clean exposed copper with solvent. Clean the inside of the waveguide with a bottle brush.
2. Add a thin coating of silicone grease to the large "O" ring gasket and place it into the groove inside the clamping nut, then apply a thin coating of silicone grease to smooth the inside surface of the clamping nut that slides over the smaller "O" ring (step 8). Place the nut over the end of the waveguide at the distance from the end as shown. Secure the nut to the waveguide with several turns of tape covering the end of the nut to keep foreign matter from entering during assembly operation.

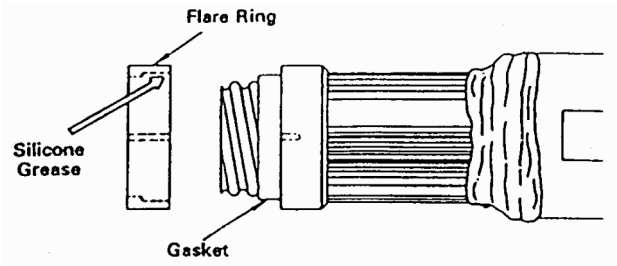


3 Slip the compression ring over the waveguide until the recessed edge bottoms against the jacket. Apply a small amount of silicone grease to the edge of the jacket to aid in installing the compression ring. The alignment pin hole openings must face away from the waveguide as shown.

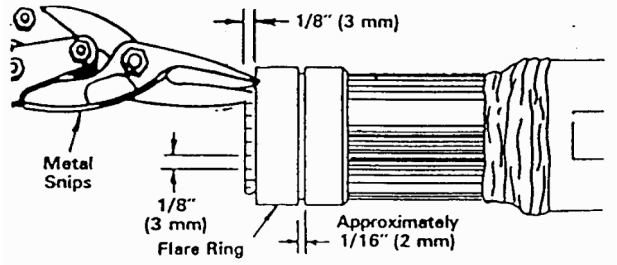


4 Turn the gasket inside out and place it over the end of the waveguide as shown in step 5. Apply a very thin layer of silicone grease to the gasket threads, then flip the gasket over and against compression ring. Apply a thin coating of silicone grease to the outside surface of the gasket. Clean any silicone grease from the exposed copper using a solvent.

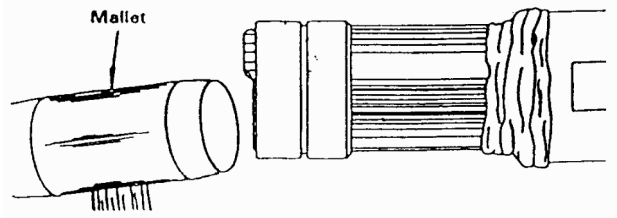
5 Slip the recessed side of the flare ring over the gasket. The alignment pin holes in the flare ring and the compression ring must be in line. The flare ring must be pushed against the compression ring as tight as possible. Approximate opening between flare ring and compression ring should be as shown in step 6.



6 Use a metal snips to make cuts into the end of the waveguide to the depth and intervals shown to form tabs. Make cuts as close as possible to the flare ring.

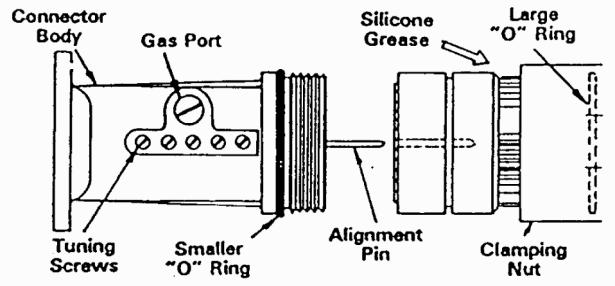


7 Flatten the tabs against the flare ring using a mallet. Use only enough force to flatten the tabs. Do not strike tabs so hard that the thickness is reduced. Trim any tab that protrudes past the outside of the groove in the flare ring. After the tabs are flattened and trimmed, the tabs should be cleaned with solvent to remove any silicone grease. The face of the connector body with contacts tabs should also be cleaned thoroughly so that no grease is present in mating the RF contact surfaces. Clean the inside of the waveguide with a bottle brush.



8 Place the smaller "O" ring gasket into the groove in the connector body. Do not apply silicon grease to the gasket. Apply a thin coating of silicon grease to the rear outer surface of the compression ring. This will allow the large "O" ring gasket inside the clamping nut to slide over the compression ring.

9 Place the connector body against the flare ring. The alignment pins must be properly seated in the alignment holes of the flare ring and compression ring. Remove the tape and slide the clamping nut over the assembled parts and screw it onto the connector body. Tighten the connection with wrenches. Use an adjustable wrench on the rectangular portion of the connector body to hold it in position while the clamping nut is tightened. Turn the clamping nut only, do not turn the connector body.



10 The waveguide should be checked for leaks after installation. When mating two UG type flanges with the gasket grooves, a two flange gasket must be used, if a flange with a gasket groove is mated to a flange without a groove, use a one flange gasket. Two mating EIA type flanges use only one flange gasket. Do not apply silicone grease to flange gaskets.

Wall / Roof feed-thru

The wall / roof feed-thru kit is designed to permit a weatherproof path through a roof or wall.

1 Cut the entrance hole in the roof or wall. Refer to *"Dimensional drawings"* on page 30 for cut out and drilling template.

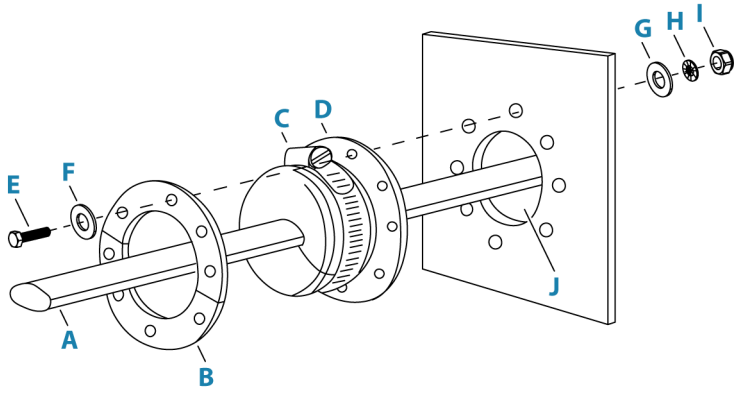
2 Insert the waveguide through the entrance hole and connect it to the components inside the vessel.

3 Apply silicone grease to the hole and slit of the rubber boot. Place the boot on the waveguide and over the entrance hole. Mark the locations of the mounting holes.

4 Remove the boot and drill the mounting holes through the wall or roof. For concrete, either drill holes through the material or drill larger holes deep enough to insert bolt anchors.

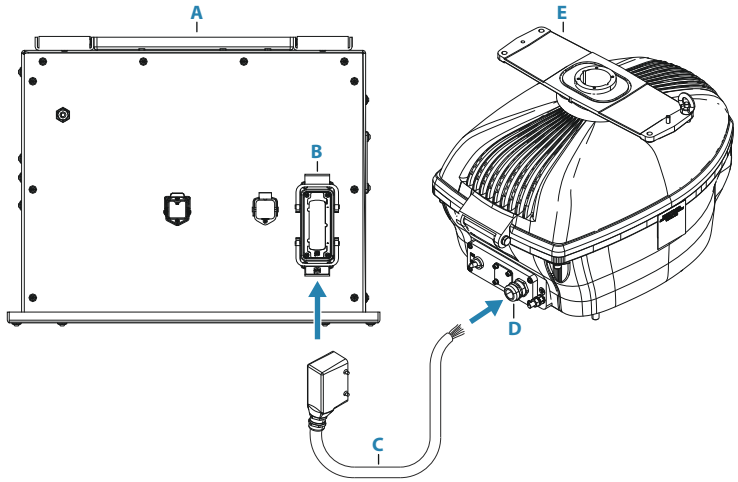
5 Place the boot around the waveguide or cable and over the entrance hole. Position the flange halves in the groove of the boot and align all of the mounting holes. Fasten the assembly with 1/4" bolts, flat washers, and nuts (not included). Place the supplied sealing washer under the bolt head as shown.

6 Wrap the clamp around the boot as shown and tighten it to ensure a leak-proof seal.



A Waveguide
B Flange halves
C Clamp
D Rubber boot
E 1/4" bolt
F Sealing washer
G Flat washer
H Lock washer
I Nut
J Entrance hole

SRT down-mast cable



A SRT LAN transceiver
B Down-mast cable connector
C Down-mast cable
D Down-mast cable gland
E Antenna pedestal

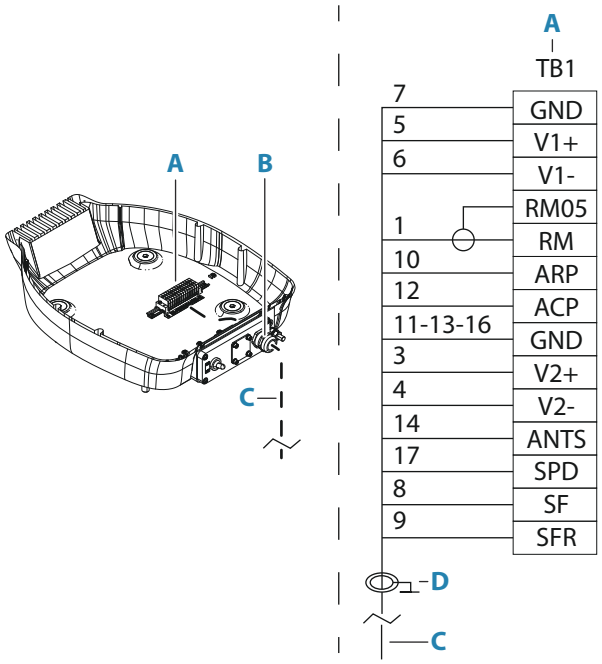
SRT down-mast cable overview

Number	Description	Color
1	RG59 coaxial	Black

Number	Description	Color
2	RX174 coaxial	Black
3	1.5 mm^2 single core	Red
4	1.5 mm^2 single core	Black
5	2.5 mm^2 single core	Red
6	2.5 mm^2 single core	Black
7	2.5 mm^2 single core	Green/Yellow
8	2 x 0.35 mm^2 shielded twisted pair	Blue
9		Black
10	2 x 0.35 mm^2 shielded twisted pair	White
11		Black
12	2 x 0.35 mm^2 shielded twisted pair	Green
13		Black
14	2 x 0.35 mm^2 shielded twisted pair	Red
15		Black
16	0.35 mm^2 single core	White
17	0.35 mm^2 single core	Blue
18	0.35 mm^2 single core	Red

Antenna pedestal connection details

The SRT down-mast cable is terminated at TB1 (Termination Board) located on the lower housing of the antenna pedestal.



	Description
A	TB1 terminal
B	Cable gland
C	Cable to SRT LAN down-mast transceiver
D	Connect the shield of the cable and the shield from internal wires in the cable to the cable holder or cable gland

Ethernet cable

For Ethernet wiring details, refer to the System Installation Manual.

Power cable

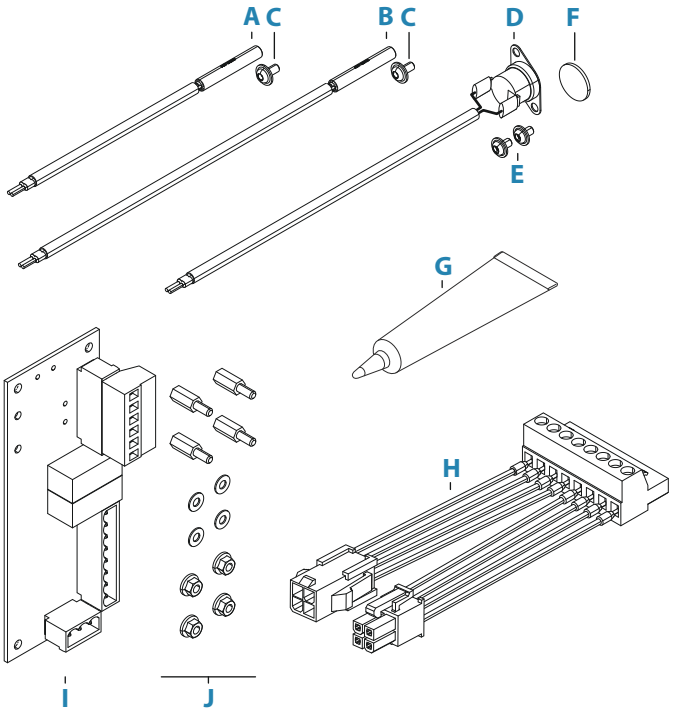
For power wiring details, refer to the System Installation Manual.

4 Heater kit (optional)

The heater kit

The optional heater kit is used to ensure safe start-up and operation in harsh conditions. For details, refer to *"Technical specifications"* on page 27.

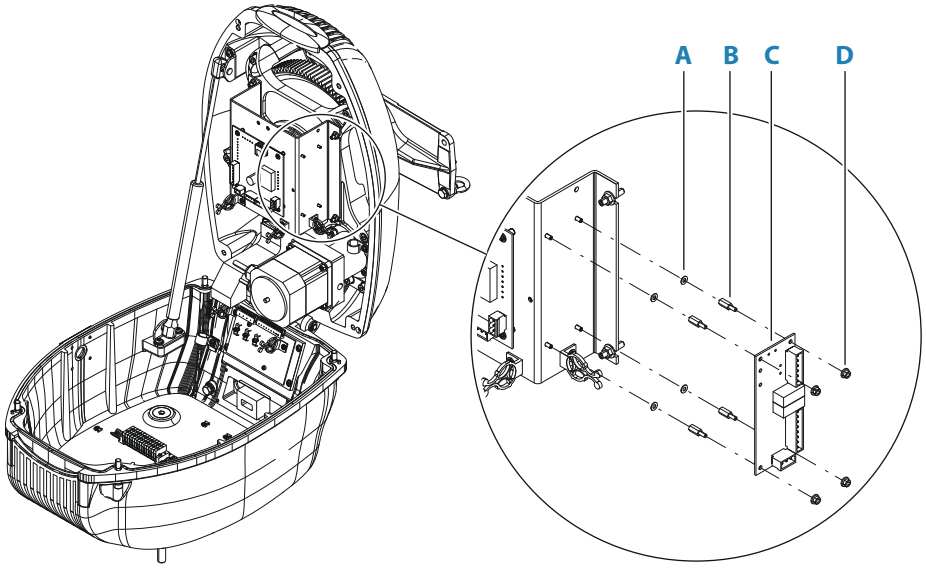
Parts included



A Upper heater element
B Lower heater element
C Screws, M4
D Temperature sensor
E Screws, M3
F Thermal conductive pad for the temperature sensor
G Thermal conductive compound for the heater elements
H Power cable
I Heater PCB
J PCB fasteners

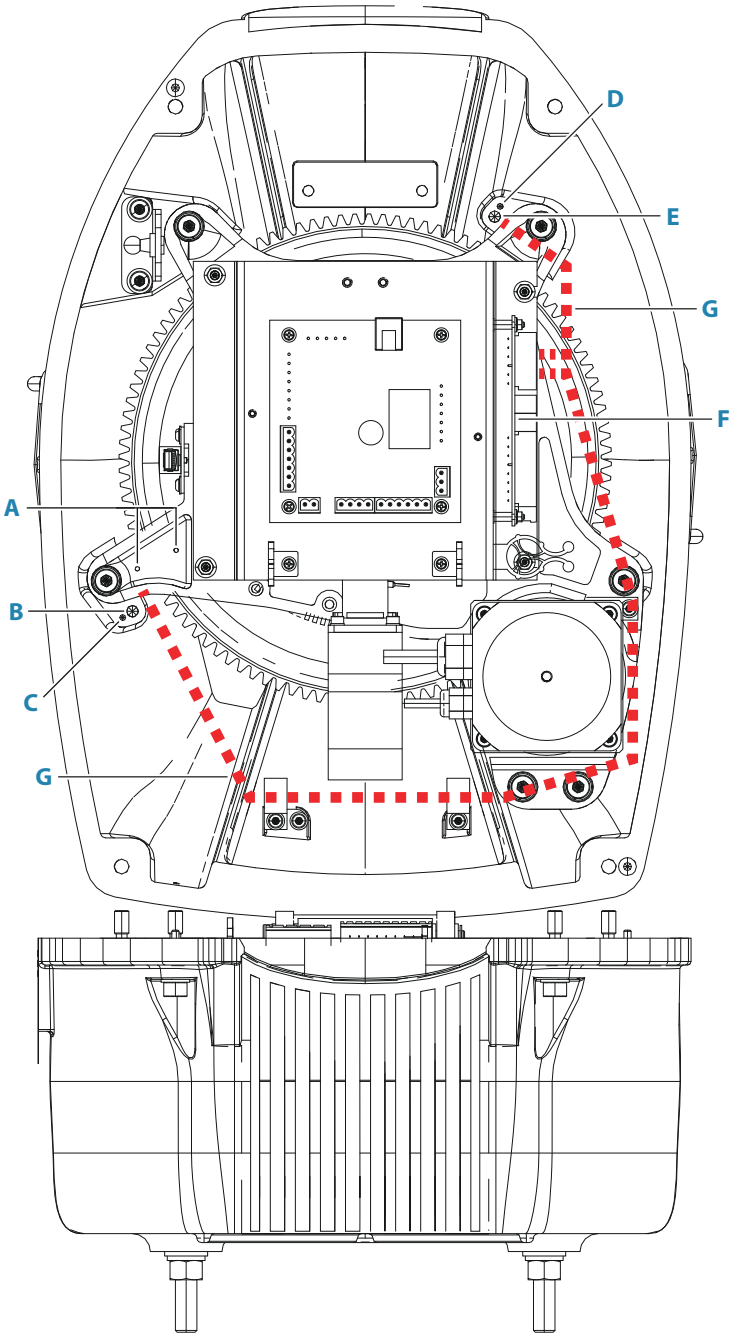
Installing the heater kit

1. Ensure that the radar system is shut down, and a warning sign has been placed at the radar control station. Make sure that the safety switch located on the antenna pedestal is switched OFF.
2. Install the heater PCB.



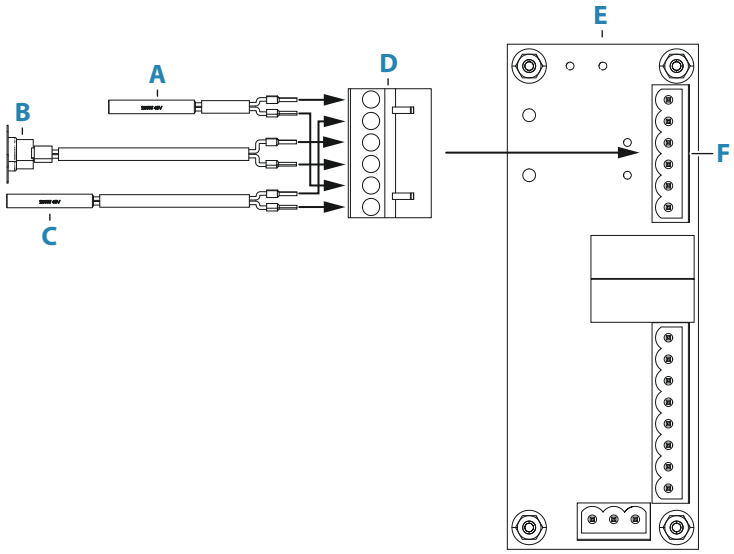
A Washers
B Spacers
C Heater PCB
D Nuts

3 Identify the temperature sensor and heater element mounting locations by referring to the diagram. Ensure no part of the cable has enough slack to risk coming in to contact with moving parts like the main gear wheel.
Apply a layer of thermal conductive compound to the surface of the heater elements. Insert the heater elements into the mounting holes and secure them in place using the M4 screws.
Place the thermal conductive pad between the temperature sensor and the surface of the antenna pedestal. Secure the temperature sensor with the supplied M3 screws.



A Temperature sensor mounting screw holes
B Lower heater element mounting hole
C Lower heater element retaining screw hole
D Upper heater element mounting hole
E Upper heater element retaining screw hole
F Heater PCB
G Cable route

4 Connect the heater elements and the temperature sensor to the PCB.



A Upper heater element

B Temperature sensor

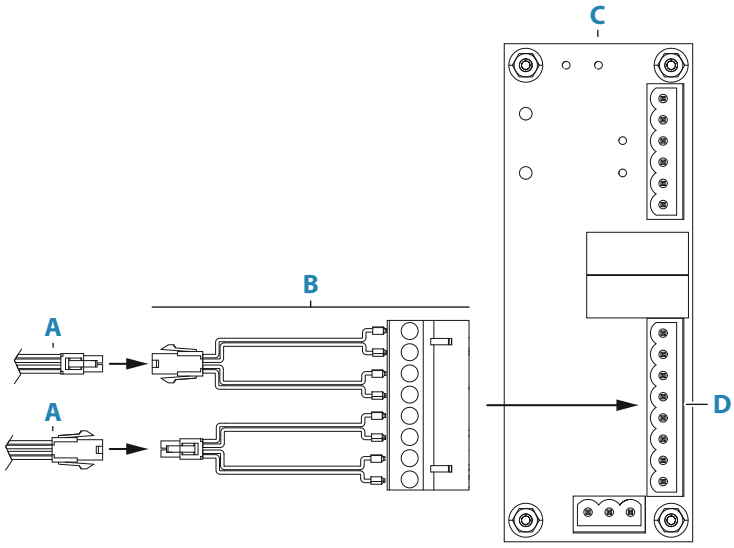
C Lower heater element

D Connector block (attached to the PCB when delivered)

E Heater PCB

F Heater PCB TB3

5 Connect power to the PCB. The antenna pedestal wiring connectors (**A**) are located close to the heater kit PCB.



A Antenna pedestal wiring connectors

B Power cable

C Heater PCB

D Heater PCB TB2

5 Technical specifications

SRT LAN Radar sensor X-band down-mast

General	
Antenna type	End-fed-slotted waveguide
Type approval	Radar Equipment CAT 1 (H), CAT 2 (H) and CAT 3
Environmental	
Temperature	
Operating temperature	-25°C to 55°C (According to IEC 60945 ed. 4.0)
Operating temperature with heater kit installed	-40°C to 55°C according to RMRS rules (2-020101-040-E Vol 2 - Environmental Test of Equipment)
Storage temperature	-25°C to 70°C (According to IEC 60945 ed. 4.0)
Storage temperature with heater kit installed	-60°C to 70°C according to RMRS rules (2-020101-040-E Vol 2 - Environmental Test of Equipment)
Vibration	According to IEC60945 ed. 4.0
Shock	According to RMRS rules (2-020101-040-E Vol 2 - Environmental Test of Equipment)
Product category	
Antenna pedestal and antenna	Exposed
SRT-LAN down-mast transceiver	Protected
IP class	
Exposed units	IPX6
Protected units	IPx2
Relative wind velocity	100 knots wind tunnel test (According to IEC 62388)
Compass safe distance	
Safe distance to the standard magnetic compass	1.40 m (4.60 ft)
Safe distance to the steering magnetic compass	0.75 m (2.46 ft)
Physical	
Dimensions	Refer to dimensional drawings
Weight	
Antenna pedestal and 6 ft antenna	35 kg (77.2 lbs.)
Antenna pedestal and 9 ft antenna	40 kg (88.2 lbs.)
Antenna pedestal and 12 ft antenna	45 kg (99.2 lbs.)
SRT LAN down-mast transceiver	20 kg (44.1 lbs.)
Performance	
RPM	
6 ft. antenna	20 or 40 RPM (selectable)
9 ft. antenna	20 or 40 RPM (selectable)
12 ft antenna	20 RPM
Nominal peak power	25 kW
Operating frequency	9410 ± 30 MHz

Pulse length	
Short pulse	70 ns
Medium pulse	250 ns
Long pulse	800 ns
PRF	
Short pulse	3000 Hz
Medium pulse	1500 Hz
Long pulse	750 Hz
Modulator	MOSFET Solid State
IF amplifier	Logarithmic
IF dynamic	95 dB
IF center frequency	60 MHz
IF bandwidth	
Short pulse	20 MHz
Medium pulse	4.8 MHz
Long pulse	1.5 MHz
Horizontal beam width	
6 ft. antenna	1.35 degrees
9 ft. antenna	0.9 degrees
12 ft. antenna	0.7 degrees
Vertical beam width	22 degrees
Antenna gain	
6 ft. antenna	29 dB
9 ft. antenna	31 dB
12 ft. antenna	32.5 dB
Antenna polarization	Horizontal
VSWR	< 1.20
Overall noise figure	< 5 nominal dB
MDS on long pulse	-105 dBm

EW85 waveguide

Dimensions over jacket	33.5 mm x 22.9 mm (1.3" x 0.90")
Volume	11.9 liters/30 m (0.42 cubic ft/100 ft)
Minimum bend radius	
E-plane	200 mm (8")
H-plane	480 mm (19")
Recommended twist limit	3°/m (1°/ft.)
Weight	0.54 kg/m (0.36 lb/ft.)

6 Accessories

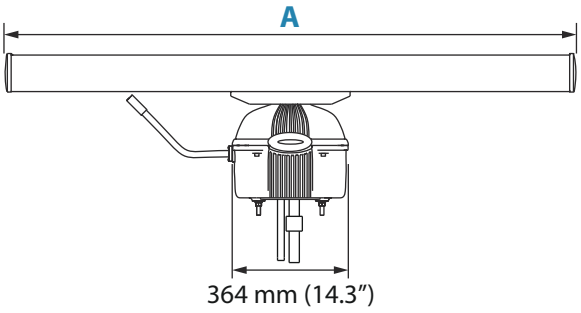
The most up-to-date accessories list is available at:

- www.navico-commercial.com

7 Dimensional drawings

Antenna pedestal and antenna

Front:



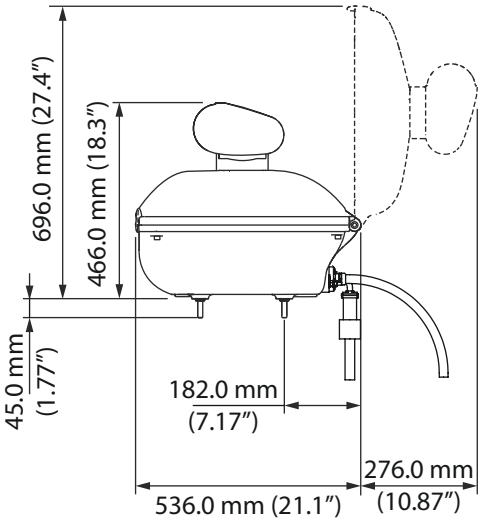
The antenna length (**A**) is model dependent:

6 feet antenna: 1810 mm (71.26")

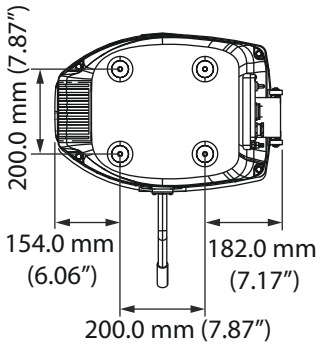
9 feet antenna: 2660 mm (104.72")

12 feet antenna: 3628 mm (142.83")

Side:

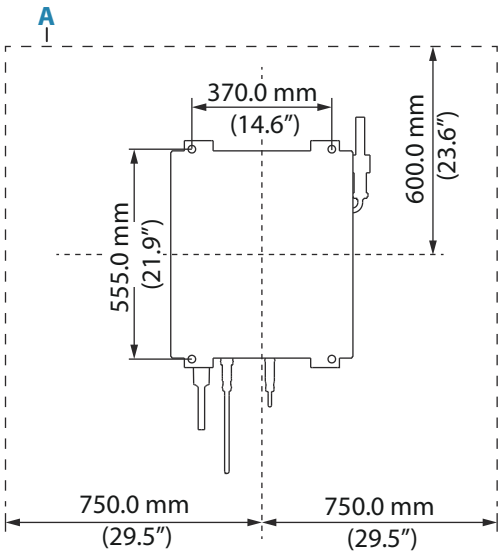


Bottom:



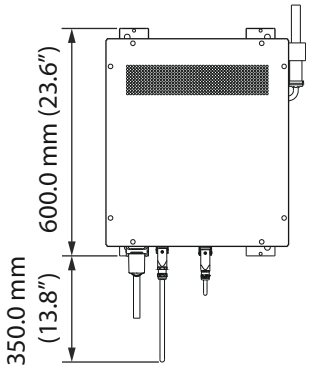
SRT LAN down-mast transceiver

Mounting:

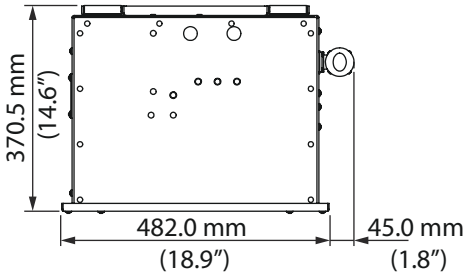


The dashed line (**A**) indicates the minimum free space required around the unit.

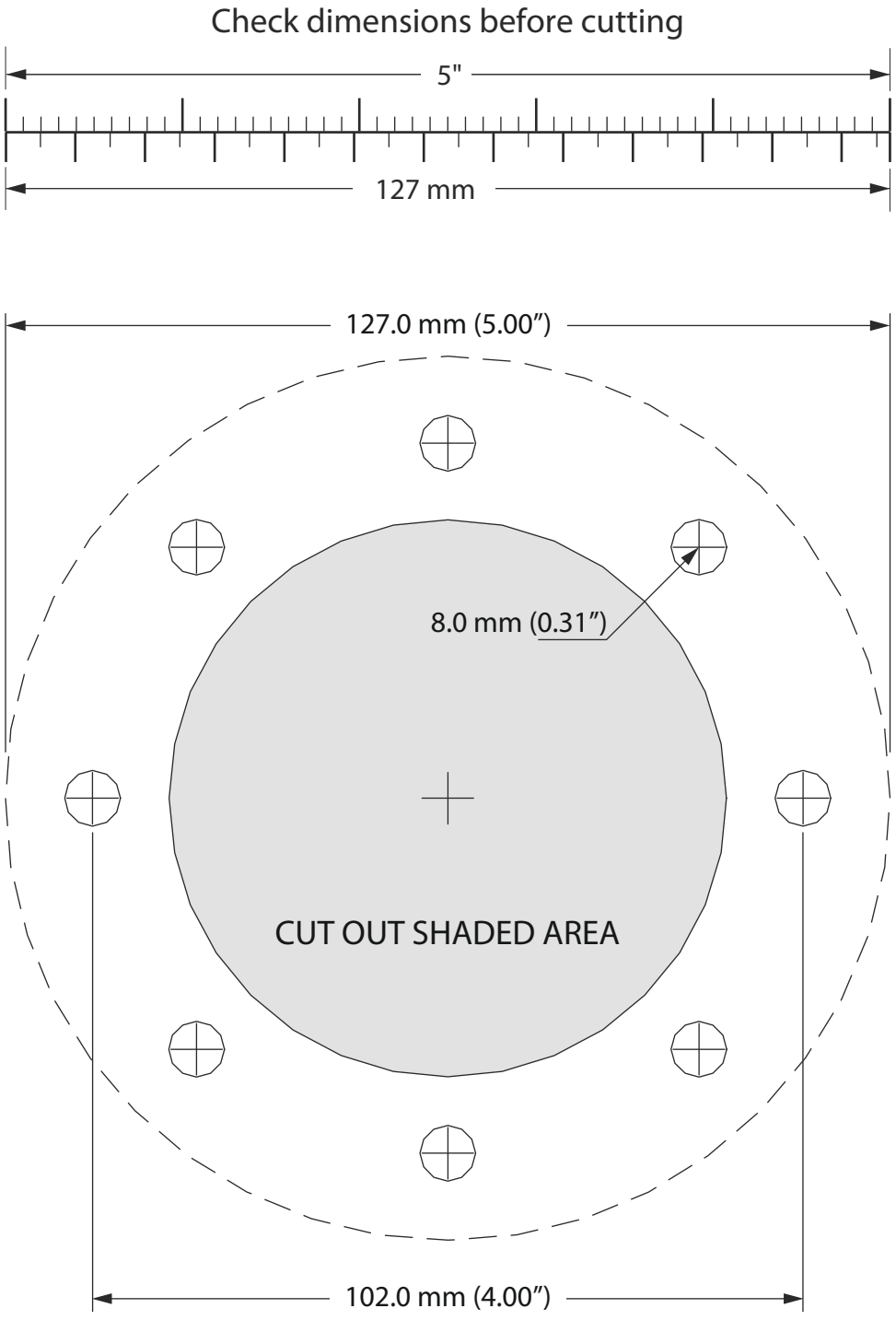
Front:



Top:



Wall roof teed-thru mounting template



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