COBHAM

SAILOR Nargentus AM-FM TV Antenna

Installation manual

SAILOR Nargentus

Installation and maintenance manual

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Record of Revisions

Rev.	Description	Release Date	Initials
A	Original document	2013	JW
B	Reformatted to comply with Cobham SATCOM requirements.	24 September 2014	UFO

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About this manual

1.1 Intended readers

This is an installation manual for the SAILOR Nargentus system, intended for installers of the system and service personnel. It is important that you install the system according to the guidelines in this manual.

1.2 Manual overview

This manual has the following chapters:

- *Introduction*
- *Installation*
- *Maintenance*
- *Technical specifications*

1.2.1 Precautions

1.2.1.1 Warnings, Cautions and Notes

Text marked with "Warning", "Caution", "Note" or "Important" show the following type of data:

- **Warning**: A Warning is an operation or maintenance procedure that, if not obeyed, can cause injury or death.
- **Caution**: A Caution is an operation or maintenance procedure that, if not obeyed, can cause damage to the equipment.
- **Note**: A Note gives information to help the reader.

- **Important**: A text marked Important gives information that is important to the user, e.g. to make the system work properly. This text does **not** concern damage on equipment nor personal safety.

1.2.1.2 General precautions

All personnel who operate equipment or do maintenance as specified in this manual must know and follow the safety precautions.
The warnings and cautions that follow apply to all parts of this manual.

Warning! Before using any material, refer to the manufacturers' material safety data sheets for safety information. Some materials can be dangerous.

Caution! Do not use materials that are not equivalent to materials specified by Thrane & Thrane. Materials that are not equivalent can cause damage to the equipment.

Caution! The system contains items that are electrostatic discharge sensitive. Use approved industry precautions to keep the risk of damage to a minimum when you touch, remove or insert parts or assemblies.

Introduction

2.1 General description

SAILOR Nargentus is a terrestrial omni-directional active AM-FM-TV (0.1-790 MHz) radio/TV antenna for maritime use for receiving digital and analogue signals. Especially suitable for vessels operating near the coast or in harbour and being equipped with only one or two radio/TV set(s), the SAILOR Nargentus is the perfect solution for example for the following vessels:

- Coasters in limited international trade
- Fishing-boats
- Tugs
- Pilot service
- Rescue cruisers

Filters with high efficiency suppression prevent interference from VHF telephones, AIS transmitters and LTE wireless communication.

Using a low-noise amplifier powered via the coaxial cable, the antenna body's low profile design is made of reinforced fibre-glass composite and withstands even the toughest conditions at sea. All inner parts are embedded in polyurethane foam to protect the antenna from vibrations and water. Connections, bolts and antenna elements are made of acid proof steel (A4/SUS304).

SAILOR Nargentus has the following benefits:

- Omni-directional reception of radio/TV signals, no adjustments necessary
- Small dimensions, perfect balance between size and performance
- Rigid, non-corrodible and maintenance-free construction

The amplifier increases the sensitivity of the system as well as compensates for coaxial cable losses in the antenna's down lead. The circuitry is protected against static discharge.

Installation

3.1 To unpack

3.1.1 What's in the box

Unpack your SAILOR Nargentus and check that the following items are present in the assembly kit:

- Red cable (L= 500 mm) with fuse holder incl. fuse T400mA L250V (1 pce)
- Black cable (L= 500 mm) (1 pce)
- Self-tapping screws with pan head 3/4" (2 pcs)
- F Connectors twist on (3 pcs)
- Terminating resistor 75 Ohm with F male (1 pce)
- Cord 1.5m F-IEC TV-Set (1 pce)
- Fuse T400mA L250V (2 pcs)
- Holder for coaxial cable (1 pce)

3.1.2 Initial inspection

Inspect the shipping cartons immediately upon receipt for evidence of damage during transport. If the shipping material is severely damaged or water stained, request that the carrier's agent be present when opening the cartons. Save all box packing material for future use.

Warning! To avoid electric shock, do not apply power to the system if there is any sign of shipping damage to any part of the front or rear panel or the outer cover. Read the safety summary at the front of this manual before installing or operating the system.

After unpacking the system, i.e. opening the cartons, inspect it thoroughly for hidden damage and loose components or fittings. If the contents are incomplete, if there is mechanical damage or defect, or if the system does not work properly, notify your dealer.

3.2 Installation of the SAILOR Nargentus

3.2.1 Overview

For optimum system performance, some guidelines on where to install or mount the different components of the SAILOR Nargentus System must be followed. Mounting and placement details are included in this section.

3.2.2 Mounting considerations

1. Mount the SAILOR Nargentus as high as possible and placed away from funnels, radio communication antennas and radars to avoid reflections and interference.
2. The superior location is in the masthead, with free path in all directions. You can mount the antenna on a 1.5-2 inch (38-50 mm) mast tube

Note | Do not tighten the mounting screws (9) more than 4 Nm (0.4 kpm) torque.

For correct mounting of the coaxial cable holder see the following figure.

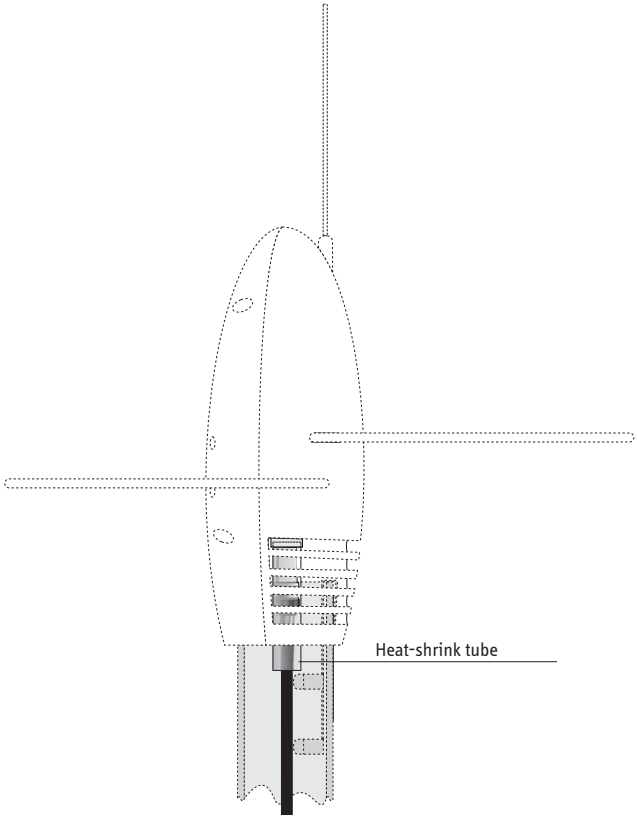

Figure 1: Heat-shrink tube, position

When shrinking the heat-shrink tube (item 12) do not overheat the antenna's body and type label.

3. Protect the coaxial cable down lead well and secure it to the mast.
4. Unload the coaxial cable down lead using coaxial cable clamps and protect it from mechanical damage.
5. Avoid outdoor coaxial cable joints. If this cannot be avoided, make sure they are waterproof by using self-vulcanizing rubber tape or similar.

6. Avoid excessive bending at the coaxial cable.

Factors, such as transmitting power, polarization, radiation angle and antenna height affect the received signal strength.

In some areas, close to transmitters, an overload of the amplifier and/or radio/TV-set might occur. Under these circumstances do not interfere with the installation of the radio/TV-set

3.3 Antenna assembly

3.3.1 Exploded view of the SAILOR Nargentus

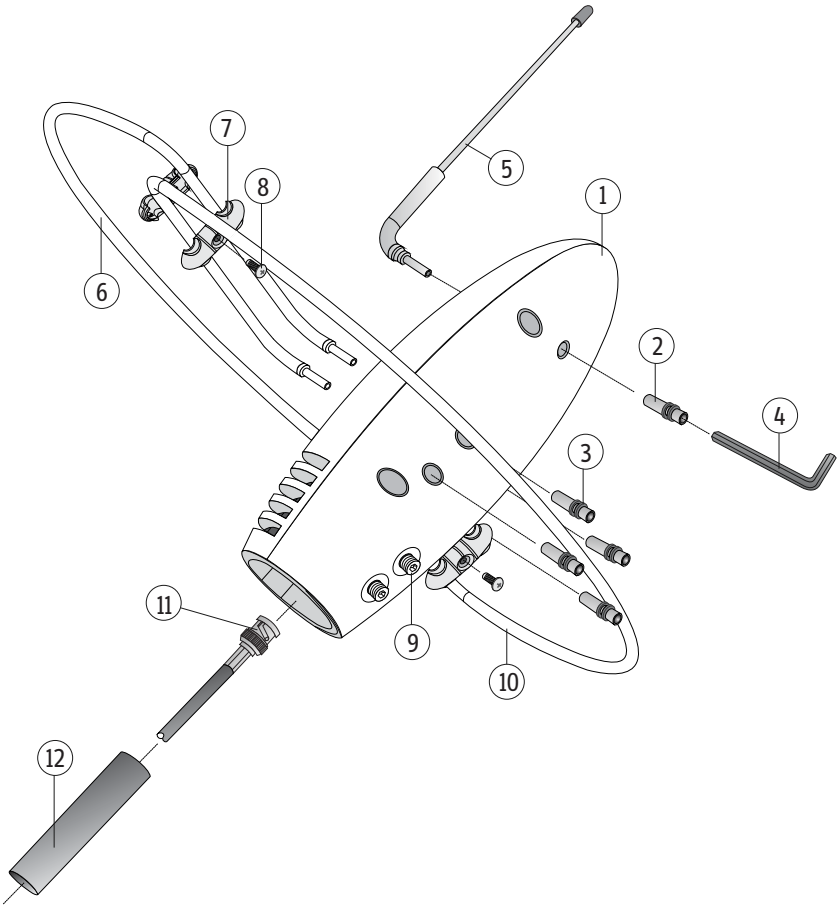

Figure 2: Exploded view of the antenna

1. Antenna body, 1 pce

2. Screw bushing, 5 pcs
3. Rubber gasket, 10 pcs
4. Hex wrench 4 mm, 1 pce
5. AM antenna rod, 1 pce
6. Upper antenna element, 1 pce
7. Element spacer, plastic, 2 pcs
8. Self-tapping screw for element spacer, 2 pcs
9. Mounting screw, Hex 4 mm, 2 pcs
10. Lower antenna element, 1 pce
11. BNC Male 75 Ohm connector with 25 m low loss double shielded RG6 coaxial cable, 1 pce
12. Heat-shrink tube 72x20 mm, 1 pce

3.3.2 Mechanical dimensions

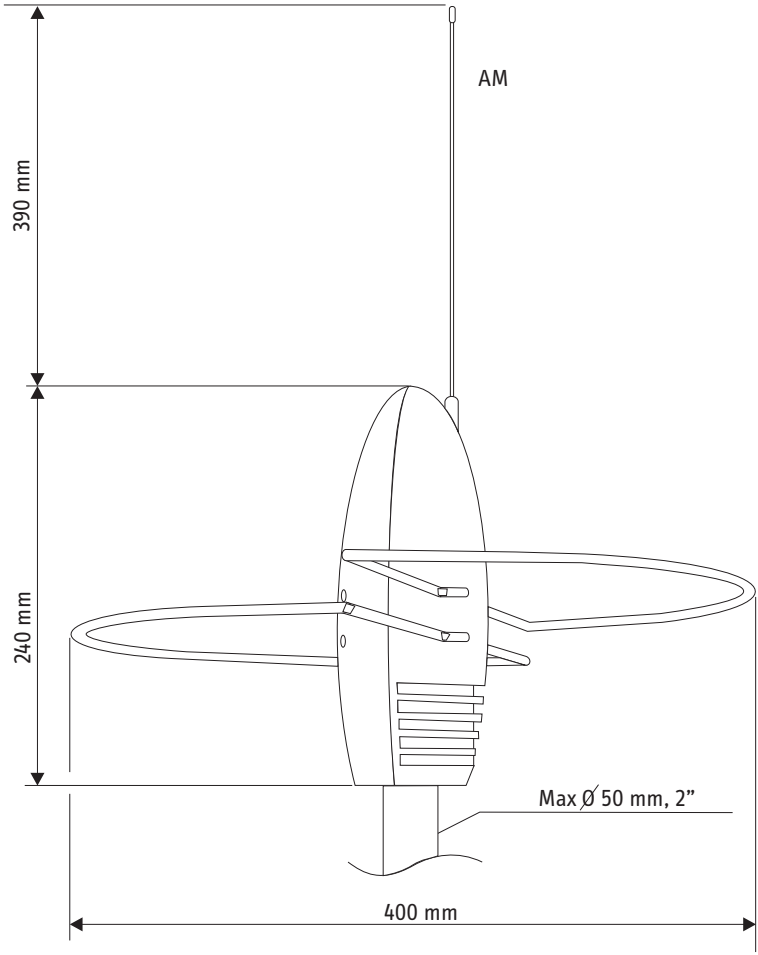

Figure 3: Mechanical dimensions

3.3.3 To mount the cable holder

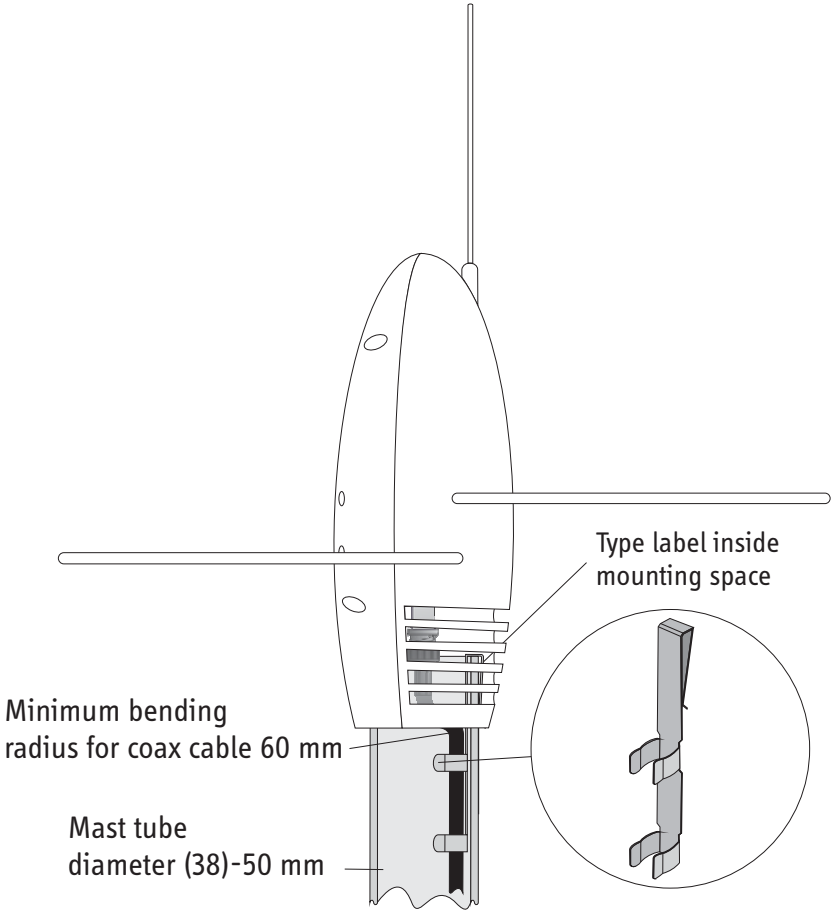

Figure 4: Cable holder

3.3.4 To mount the mast

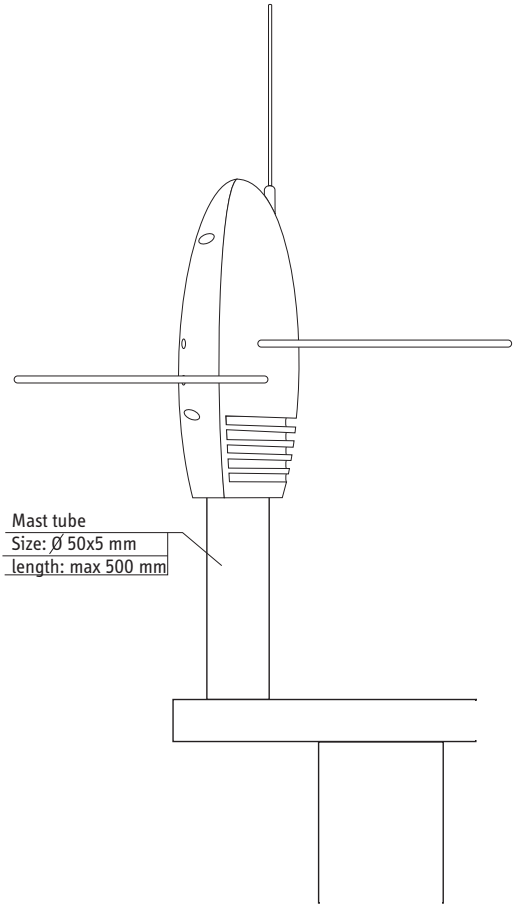

Figure 5: Mast mount

3.4 To install the PS 16 Power Supply

To install the power supply do as follows:

1. Mount the PS16 Power Supply indoors on the bulkhead by means of two screws.

   Note The PS16 Power Supply is not waterproof. Do not connect the supply voltage until the installation is completed!

2. Strip the down lead coaxial cable and twist on the F-connectors. Make sure that no parts of the braided shield are short circuited to the inner conductor.

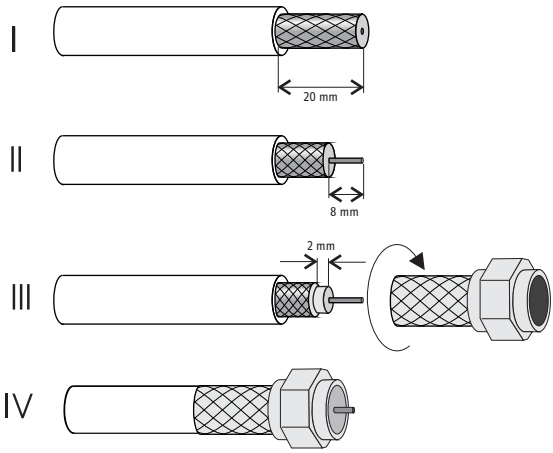

Figure 6: Coaxial cable, strip

3. Connect the cord to the terminal marked “Antenna”.

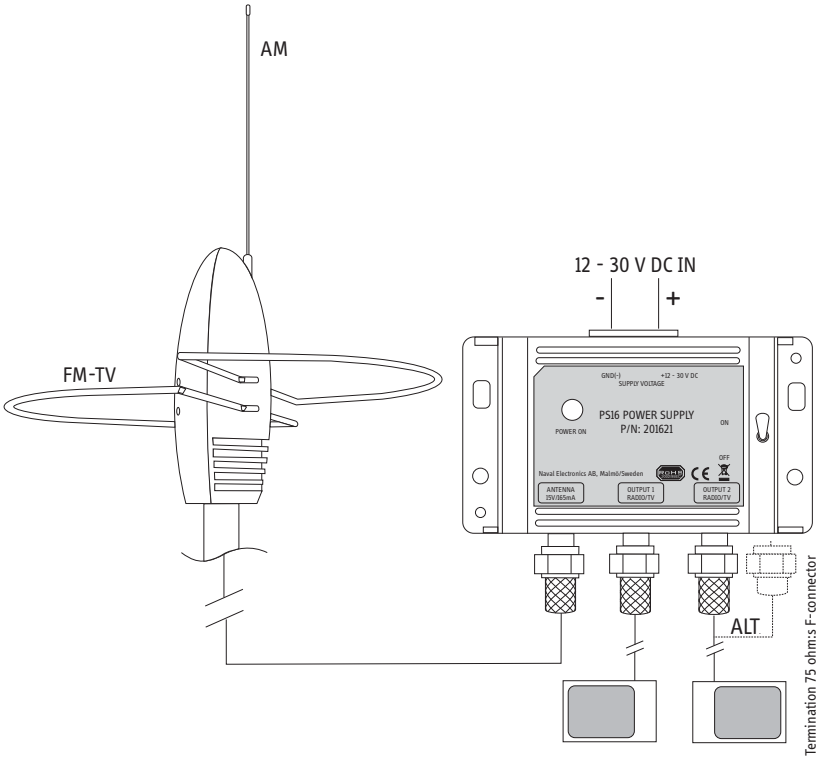

Figure 7: Connection of terminal to antenna

Note

To achieve the best performance, the total coaxial cable length (between antenna and Radio/TV-set) must be shorter than 25 m (80 ft) and unused outputs must be terminated by a 75 Ohm terminator F-connector delivered with the antenna (item no 500207).

The coaxial cable must be of low loss 75 Ohm type.

4. Secure the coaxial cable by using clamps and avoid excessive bends and sharp edges.
5. For optimum results always terminate any unused Radio/TV outputs not used with the supplied terminator plug.

6. Connect the supply voltage input to the terminals marked GND and “12-30 V DC”.
7. Install the fuse holder with a fuse T400mA L250V in the positive branch of the power cable. If AC is required use a locally supplied adapter.

   Note Inspect the complete installation. Check supply voltage and polarity before switching on. Put the power switch in position ON to activate the antenna’s built-in amplifier!

8. Tune your radio/TV-set and check the sound/picture quality.

   Note In some ports severe reflections from buildings, cranes etc. can cause distortion due to the nature of the characteristics of the omni-directional receiving antennas!

Maintenance

4.1 Contact for support

If this manual does not provide the remedies to solve your problem, contact your local dealer.

4.2 Troubleshooting

This section describes an initial check of the primary functions of the SAILOR Nargentus system, and provides some guidelines for troubleshooting.

If the SAILOR Nargentus radio/TV distribution system is not working properly, check the following:

1. Power supply voltage to power supply ok?
2. Connections
3. Output voltage from power supply to antenna (should be 15 V DC ±10%)
4. Antenna current (should be approximately 165 mA)

4.3 To return units for repair

Should your Cobham SATCOM product fail, please contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the partner details on www.cobham.com/satcom where you also find the Cobham SATCOM Self Service Center web-portal, which may help you solve the problem.

Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair.

Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

Technical specifications

Item	Specification
Frequency range /Amplifier gain	
AM 0.1-26.5 MHz	Average 25 dB
FM/TV 40-790 MHz	Average 25 dB
Noise figure	Max 4.5 dB
Max. output level	106 dBµV (2 signals-60 dB IMA)
Electrical	
Supply voltage	12-30 V DC
Antenna voltage	15 V DC
Antenna current	165 mA
Surge	
AM	6 kV
FM/TV	6 kV
Approvals	
CE-EM	EN 50083-2, EN 61000-3-2-2000 EN 61000-3-3:1995+A1:2001 DEV 60068-2-6
Wave traps/filters	
VHF	156 MHz
AIS	162 MHz
LTE(800)	800-1000 MHz

Table 1: Specifications

Item	Specification
General	
Temperature (operational)	-25 to +55˚C
Connectors	BNC Female, 75 Ohm
Net Weight	1.0 kg
IP rating	IP56
Material	
Housing only	Nylon66 + glass fibre
Antenna elements	Acid proof steel A4 (SUS304)

Table 1: Specifications (Continued)

Figure 8: Approvals and disposal