AST-200

AIS Transponder Antenna Splitter

Installation & User Manual

Before operating the unit you should familiarize yourself with the complete user manual supplied with the product.

Electrical safety
Make sure the power supply is switched off before you make any electrical connections to the unit.

Product installation
This equipment must be installed in accordance with the instructions provided in this manual. Failure to do so could result in poor performance, personal injury and/or damage to your vessel and/or connected equipment.

Cables
The supplied cables should only be cut, shortened or lengthened by an appropriate supplier.

General
The compass safe distance of this unit is 0.5m or greater for 0.3° deviation.

In accordance with a policy of continual development and product improvement the AST-200 hardware and software may be upgraded from time to time and future versions of the AST-200 may therefore not correspond exactly with this manual.

When necessary, upgrades to the product will be accompanied by updates or addenda to this manual. Information contained in this manual is liable to change without notice.

Comar Systems Ltd. disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

1. Introduction

Congratulations on the purchase of your AIS Transponder Antenna Splitter. It is recommended that your antenna splitter is installed by a professional installer.

The AST-200 allows your existing VHF antenna to be used by both a VHF radiotelephone and an AIS Transponder.

The AST-200 also includes an antenna connection for FM broadcast receivers providing a third use for your existing VHF antenna.

This manual describes the installation and operation of the AST-200.

2. Installation

2.1 Before you start

The following items are supplied in the AST-200 packaging:

- The AST 200 unit itself.
- This operating manual.

You will need the following items and tools to complete the installation:

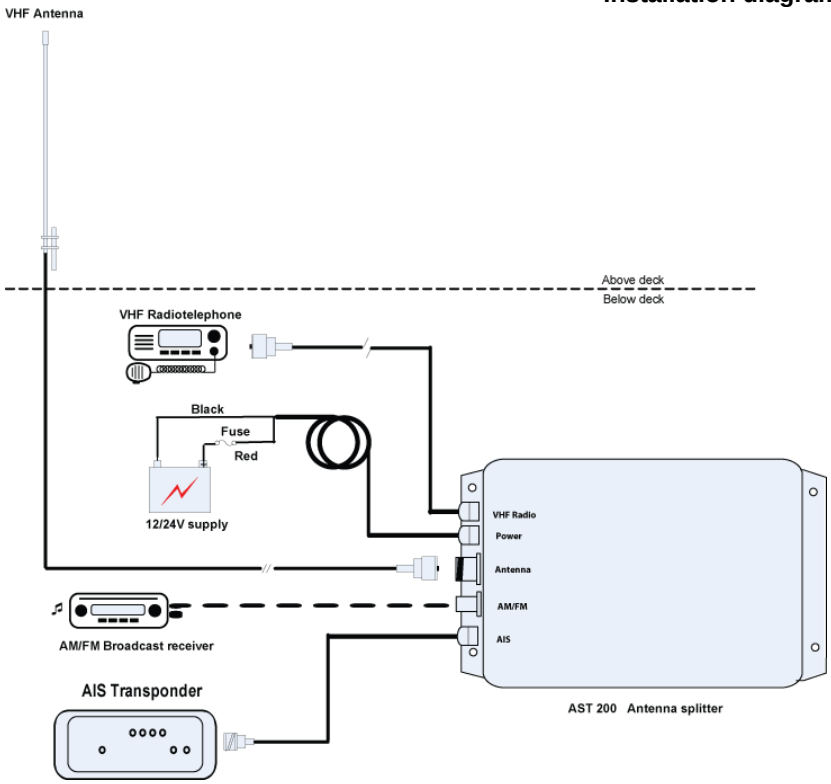
- Class B AIS Transponder.
- Pre-installed VHF Antenna and cable.
- Access to 12V DC or 24V DC power supply where the unit is to be installed, via a 1A rated fuse or circuit breaker.
- Connector block or junction box for power connections.
- Four M4 (no.6) screws or other fixings appropriate to the mounting location.

2.2 Installing the unit

Before starting installation select a suitable location for the antenna splitter. The unit is intended for installation below deck in a dry location. When locating the unit you should consider:

- Routing of power and antenna cables to the unit.
- Provision of sufficient space behind the unit for cable connections.
- Maintaining the compass safe distance of 0.5m.
- Visibility of the front panel indicators.

Installation diagram



Installation step 1

- Secure the antenna splitter to a flat surface in the selected location. Use four 5mm wood screws or other fixings suited to the material the unit is being fixed to.

- The unit may be installed in any orientation.

Installation step 2

Make the electrical connections to the antenna splitter as follows:

- Remove the VHF antenna cable connection from your VHF Radio and connect it to the connector labelled ‘Antenna’.

- Connect the 1m cable marked “VHF Radio” to your VHF Radiotelephone antenna connection.

- Connect the 1m cable marked “AIS” to your AIS Transponder antenna connection..

- Optionally connect the antenna input of an FM Broadcast receiver to the connector labelled ‘AM/FM’.

- Connect 12VDC or 24VDC power supply to the power cable.

    - The red wire should be connected to the positive power supply connection via a 1A rated fuse or circuit breaker.

    - The black wire should be connected to the negative power supply connection.

Installation step 3

Apply power and verify the unit is operating:

- Apply power to the antenna splitter, AIS Transponder and VHF radiotelephone.

- Verify that the green power LED on the antenna splitter is illuminated.

- Transmit using the VHF radiotelephone and verify that the red LED on the antenna splitter marked 'VHF' is illuminated during the transmission.

- Wait for the AIS Transponder to transmit its first position report. This is indicated by the red LED TX on the AIS Transponder illuminating. During AIS Transponder transmissions the red 'AIS' LED on the antenna splitter will flash briefly. Class B AIS transmissions occur once every 3 minutes if your vessel is stationary.

3. Operation

Operation of the antenna splitter is automatic and requires no user intervention.

- During operation the antenna splitter will share signals received at your VHF antenna with both the VHF Radiotelephone and the AIS Transponder.

- When either connected device transmits, the antenna splitter will automatically route the transmission to the antenna.

- VHF Radiotelephone transmissions (including DSC transmissions) are given priority over AIS transmissions.

It is not possible for both connected devices to transmit simultaneously using a single VHF antenna. Whilst you are talking on your VHF Radiotelephone no AIS position reports will be transmitted.

4. Troubleshooting

Problem	Solutions
Power LED not illuminated.	• Check power supply connections and fuse or circuit breaker. • Check polarity of power supply connections. • Check power supply voltage.
'VHF' LED does not illuminate when VHF Radiotelephone is transmitting.	Check the antenna output of the VHF radiotelephone is connected to the antenna splitter input labelled 'VHF'.
'AIS' LED does not illuminate when AIS Transponder is transmitting.	Check the antenna output of the AIS transponder is connected to the antenna splitter input labelled 'AIS'.
Clicks or pops are heard from a connected FM broadcast receiver.	This is normal and may occur during VHF or AIS transmission.
VHF or AIS reception range is reduced.	A very slight reduction in receiver range is normal and due to the insertion loss of the antenna splitter.

5. Specification

General

Size (L x W x H) Mounting area (L x W)	146 x 106 x 46mm 170 x 106mm
Weight	260g
Power	12VDC or 24DC supply
Operating current (receive)	65mA typical at 12VDC
Operating current (VHF transmit)	135mA typical at 12VDC
Operating current (AIS transmit)	135mA typical at 12VDC

Environmental

Operating temperature	-15°C to +55°C
Operating humidity	Up to 93%
Storage temperature	-20°C to +70°C

RF performance

VHF & AIS Frequency range	156.025MHz to 162.025MHz
Insertion loss, AIS Receive path	Typical 4dB
Insertion loss, VHF Receive path	Typical 4dB
Insertion loss, AIS Transmit path	Typical 0.8dB
Insertion loss, VHF Transmit path	Typical 0.8dB
Max input power, AIS port	12.5W
Max input power, VHF port	25W
Min input power, VHF port	5mW
AIS port impedance	50 Ω
VHF port impedance	50 Ω
Antenna port impedance	50 Ω
FM port impedance	75 Ω
Switching time, Receive to AIS Transmit	Typical 20uS
Switching time, Receive to VHF Transmit	Typical 20uS

Connectors

Power	1m 2 core cable
Antenna	SO-239 (UHF) connector
VHF Radiotelephone	PL259 on 1m lead
AIS Transponder	BNC Plug on 1m lead
FM broadcast receiver	RCA/Phono Socket

6. Limited Warranty

Comar Systems Ltd warrants this product to be free from defects in materials and manufacture for one year from the date of purchase. Comar Systems Ltd will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour. The customer is, however, responsible for any transportation costs incurred in returning the unit to Comar Systems Ltd.

This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

The above does not affect the statutory rights of the consumer.

Note: Every effort has been made to ensure that all information contained in this manual is accurate at the time of going to press. However AIS is a new technology and the legislation is subject to change. We therefore cannot take any responsibility for the content of this manual and advise that you take normal steps to ensure that the information is at its most current when you are reading this manual.

7. Product Support

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