AEROMARITIME GROUP

AT-4000 Series

MULTIFUNCTIONAL COMMUNICATIONS ANTENNA SYSTEM



FEATURES

Special antenna system for mobile applications with limited space, especially onboard submarines.

- Suitable for pressure-tight and non-pressure-tight masts
- Passive ESM support up to 2 GHz for Ship-to-Ship and Ship-to-Air
- Omnidirectional radiation patterns for LoS comms
- Hemispherical radiation patterns for SATCOM
- Passive Iridium Compatible



aeromaritimegroup.com

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Over 150 AEROMARITIME antenna systems have been delivered for submarines worldwide. These systems provide omnidirectional transmission and reception for communication, navigation, and electronic support measures applications in space-limited environments. They are installed in pressure-proof, seawater-resistant radomes with low magnetic signature flanges.

ELECTRICAL DATA

Functions	Frequency Band (MHz)	Polarization	Radiation Pattern (Horizontal Plane)	Antenna Gain (dBi) approx.	VSWR (Max.)	Communication Mode	Max. Power Handling (W (CW))
HF-Rx	1-30	Horizontal	Omnidirectional	Rx only	3:1	Rx only	Receiver Sensitivity
VHF-Low	30 - 88	Vertical	Omnidirectional	0 to 3	3:1	Full-Duplex	50 CW
VHF-High	100 - 164	Vertical	Omnidirectional	0 to 3	3:1	Full-Duplex	50 CW
UHF-LoS	220 - 512	Vertical	Omnidirectional	0 to 3	3:1	Full-Duplex	50 CW
Link-16	960 - 1215	Vertical	Omnidirectional	0 to 2	3:1	Full-Duplex	200 CW
IFF	RX = 1030 TX = 1090	Vertical	Omnidirectional	0 to 2	3:1	Full-Duplex	1 kW P with 2% Duty Cycle
GPS L1/L2	1575.42/1227.6	RHCP	Omnidirectional	0	2:1	Rx only	Receiver Sensitivity
Iridium (passive)	1610-1626.5	RHCP	Hemispherical / Omnidirectional	0	2:1	Full-Duplex	20 CW
INMC-Rx	1530 - 1545	RHCP	Hemispherical / Omnidirectional	Rx only	2:1	Semi-Duplex	Receiver Sensitivity
INMC-Tx	1626.5-1646.5	RHCP	Hemispherical / Omnidirectional	0	2:1	Semi-Duplex	50 CW
GSM 900	890 - 960	Vertical	Omnidirectional	0 to 2	3:1	Full-Duplex	50 CW
GSM 1800	1710 - 1880	Vertical	Omnidirectional	0 to 2	3:1	Full-Duplex	50 CW

MECHANICAL DATA

Antenna	Diameter Length Weight	176 mm 1215 mm incl. non-pressure tight connectors* approx. 44 kg
Interface Module	Supply Voltage Power Consumption Dimension (L x W x H) Weight	115/230 VAC, 50 - 60 Hz, 18-32 VDC RX: approx. 40 W, Tx: approx. 200 W 332 x 250 x 111 mm approx. 8 kg
Remote Control	Dimension (L x W x H) Weight	approx. 125 x 60 x 80 mm approx. 0.8 kg

*approximately

ENVIRONMENTAL DATA

Shock	Vertical Horizontal Vertical/Horizontal	165 g for 1 ms (typ.) 400 g for 1 ms (typ.) 55 g for 6 ms (typ.)
Temperature	Operating Non-Operating	-25°C to +55°C -40°C to +70°C
Pressure	Operating Non-operating	70 bar 90 bar

SIMULTANEOUS OPERATIONS

	HF-Rx	VHF-Low	VHF-High	UHF-LoS	Link-16	IFF	GPS	INMC-Rx	INMC-Tx	Iridium (Passive)
HF-Rx	●	●	●	●			●	●	●	●
VHF-Low	●	●	●	●	●	●	●	●	●	●
VHF-High	●	●	●	●	●	●	●	●	●	●
UHF-LoS	●	●	●	●	●	●	●	●	●	●
Link-16		●	●	●	●	●				
IFF		●	●	●	●	●				
GPS	●	●	●	●			●	●		
INMC-Rx	●	●	●	●			●	●		
INMC-Tx	●	●	●	●					●	
Iridium (Passive)		●	●	●	●	●				

Interface Module

The Interface Module is a part of the antenna system AT 4125. All necessary DC power and control signals are supplied from the Interface Module by means of a bias-tee via the inner conductor of a common coaxial cable to the GPS/Inmarsat-C antenna.

Power Supply

The Power Supply PS 4125 has to be supplied with the 115VAC/50Hz shipboard mains and it mainly supports the active HF-antenna in the AT-4125 antenna system with the required DC-power. The DC-power for the active antenna will be provided by means of a bias-tee via the inner conductor of the coax cable heading to the active antenna amplifier of the HF-antenna inside the AT-4125 antenna. Vice versa the received HF-signal of the active antenna will be conveyed via the same inner conductor of the coax cable from the AT-4125 antenna to the Power Supply.

Remote Control Unit

The remote control provides the switching of power. In ON-condition, indicated by a signal Lamp, the Inmarsat-C and GPS functions are active. In OFF condition, the IFF equipment is switched to the Antenna.

Radome

The antenna will be covered by a radome, made of epoxy fibreglass material. The reinforced pressuretight radome is pressure proof test up to 90 bar.

VHF-Diplexer

The VHF-Diplexer Filter Unit separates the incoming VHF-signal from the AT4125 antenna and combines the outgoing VHF-signal from the VHF-Low and the VHF-High transceivers. At the Band1 port the RF-signal in the VHF-Low Band from 30MHz to 88MHz will be provided to the corresponding VHF-Low transceiver, whereas at the port Band2 the RF-signal of the VHF-High Band between 100MHz and 164MHz will be presented to the VHF-High transceiver. Vice versa the VHF-Diplexer Filter Unit combines the RF-signal from the VHF-Low transceiver and the VHF-High transceiver to a common signal which will be fed to the VHF-antenna port.

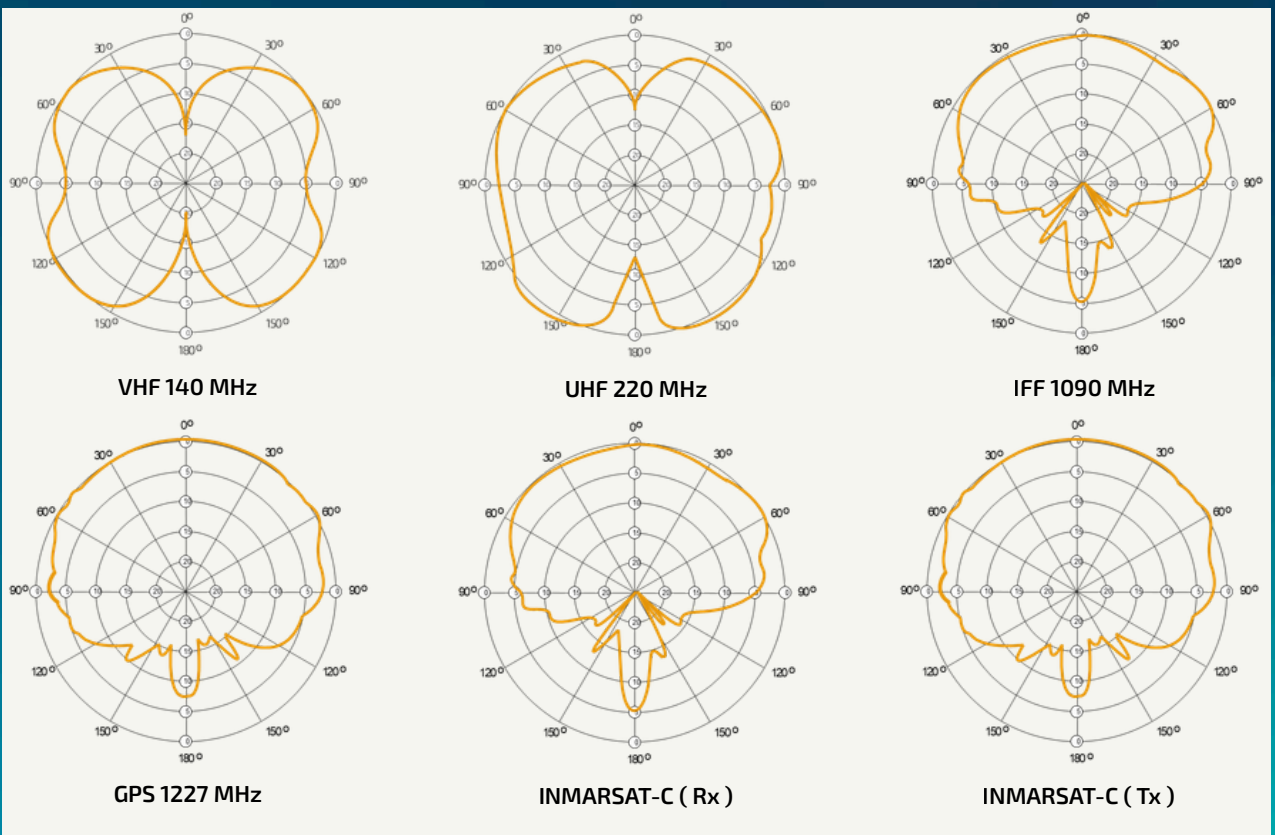
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ANTENNA TYPES

Antenna Type	HF-Rx	VHF-Low	VHF-High	UHF -LoS	UHF - LoS Extended	Link-16	IFF	GPS	INMC - Rx	INMC - Tx	Iridium (Passive)
AT4125-0000			●	●			●	●	●	●	
AT4125-0010	●		●	●			●	●	●	●	
AT4125-0020		●	●	●			●	●	●	●	
AT4125-0030	●	●	●	●			●	●	●	●	
AT4125-0040	●	●	●	●	●		●	●	●	●	●
AT4125-6050		●	●	●	●	●	●	●	●	●	
AT4125-0060		●	●	●			●	●	●	●	●
AT4125-6023		●	●	●		●	●	●	●	●	
AT4125-0071		●	●	●			●	●			●
AT4125-6000			●	●		●	●	●	●	●	

RADIATION PATTERNS



VHF 140 MHz

UHF 220 MHz

IFF 1090 MHz

GPS 1227 MHz

INMARSAT-C (Rx)

INMARSAT-C (Tx)

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For more information visit our website: aeromaritimegroup.com