

...a significant advance in marine safety!

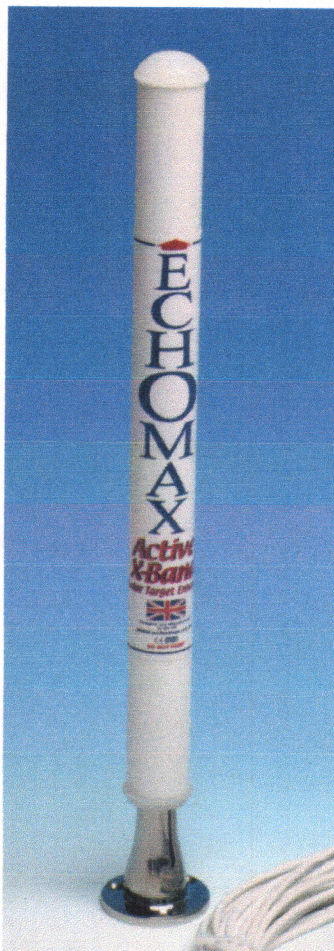
ECHOMAX

Active-X-Band

Radar Target Enhancer

OPERATION MANUAL

*Now available with
optional
ORIONIS B LED
All round white*



*Available with halyard or
spreader mount options*



Echomax Active-X-Band RTE shown with optional base fitting

Active X - Best Buy PBO September 2009

FCC CERTIFICATION ID: XZMACTIVE-X

CE 0191

NATO STOCK NO.5840-99-904-3941

TURKISH PERMISSION REP: B.62.0.BTK.0.11.244.02/17595/8059



**Manufactured by
Echomax Products in the UK
PO Box 6032, Dunmow CM6 3AS, UK.
www.echomax.co.uk Tel: 00 44 (0) 1371 830216**

ECHOMAX Active-X-Band

IMPORTANT PLEASE READ BEFORE INSTALLING YOUR ACTIVE RTE.

CONTENTS

Echomax Active-X antenna
24 Meters of 2 core cable
Control box
Operation manual
Optional extras are available see page 4.

ECHOMAX ACTIVE-X COMPONENTS, CONSTRUCTION USE AND INSTALLATION. If you are not able to safely install the unit yourself you are advised to seek the services of a competent person or company to install the Active-X

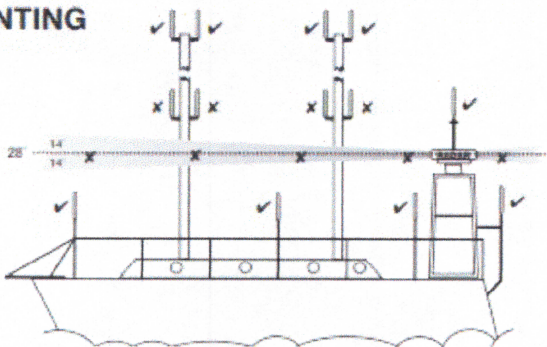
MOUNTING BASE MOUNTED UNIT

The antenna has provisions in the base for 1 inch—14NF female thread mast fitting or deck mount bracket. To ensure a permanent fixing 'LOCTITE' or PTFE or plumbers tape should be used and the RTE must be screwed down tightly. **CARE MUST BE TAKEN TO ENSURE THAT AS THE ACTIVE-X IS TIGHTENED ON THE BASE THE CABLE IS ALLOWED TO TURN FREELY**

MOUNTING SUSPENDED UNIT

Free suspension from the two back stays in most cases allows compensation by the bottom attachment from heel, thus retaining most of the 112m² stated performance level whilst the vessel is at heel. The RTE must not be subjected to winch pressure and cable secured to avoid chafing. Each RTE is supplied with 24M of cable as standard. Careful consideration should be given to evaluate if this mounting option is suitable for your rig and use.

MOUNTING



Please note that mast top mounting may result in frequent activation due to large horizon. Lower installation may be preferred.

For mast fitting the Active-X antenna should be fitted vertically at masthead or as illustrated. The transmit antennas are positioned 70mm from the base of the Active-X and need a clear 360° azimuth. When fitted at mast head keep as far away as possible from other fittings to reduce shadowing using the Echomax mast bracket. The antenna will not interfere electrically with other mast head fittings. It should not be fitted on a back stay or where its vision is obscured or is close to any metal object otherwise performance could be significantly impaired.

The Active-X unit should not be painted as this may seriously impair performance. The Active-X must not be fitted in or close to the vessels radar transmitting beam width of 28° as this may seriously damage the PCB. The Active-X can be fitted below or preferably above the radar. It is possible to shorten or extend the cable by a further 25 meters without affecting the performance using extension cable rated at 3A at 300V

ACTIVATION BY VESSELS OWN RADAR

It is to be expected that use of the vessels own radar will illuminate the green LED. The Active-X RTE will treat this as a third party radar and will continue to receive and respond to all other radar.



Echomax Control Box for Surface fitting or flush mount fitting with optional flush mount kit

The control box must be fitted internally as it is not waterproof. The control box can be wired from the base or the back as required. A 12v fused or circuit breaker supply of 3-5A is required. The control box has a triple alarm facility.

CONTROL BOX FUNCTION

Turn on the red power switch. Once this is turned on the unit is in the quiescent mode and will consume up to 15mA. When interrogated by a radar the green LED light will flash every 2.4 seconds. If the flash lengthens then this indicates that more than one radar is painting the antenna. If painted by a high speed radar which rotates every 1.5 seconds then the LED light will flash quicker. Turning on the green switch will mobilize the internal buzzer, which is set to actuate for approximately half a second intervals. The control box also has facilities for a 8A external volt free alarm. **THIS IS NOT A POWER SOURCE** and must be initialised as shown in the wiring diagram. The control box has an externally replaceable 0.5A fuse and is surge and cross polarity protected.

NB- ISOLATE POWER SUPPLY during installation, alteration or repair of wiring.

REMOVAL OF FUSE.

Gently push fuse in and turn anti-clockwise and then remove. Failure to do this will damage the aluminium connections

IMPORTANT

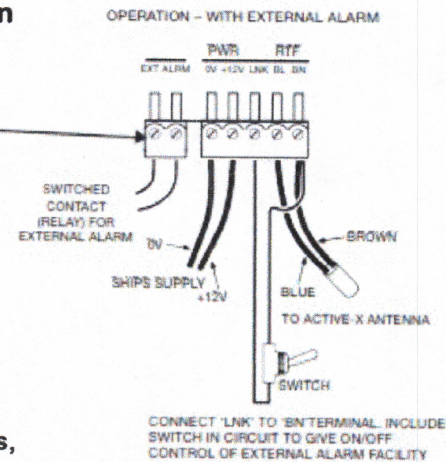
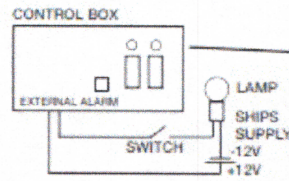
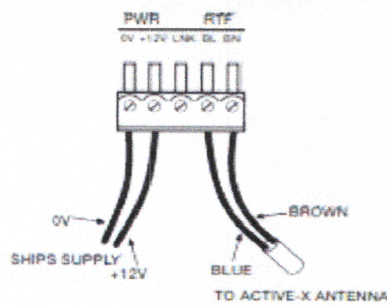
The fitting of the Echomax Active-X Band RTE does not exclude you from exercising safe navigational judgement for your vessel under the International Regulations for the Prevention of collisions at Sea and to keep a proper look out at all times.

LICENSING REQUIREMENTS

Many countries and administrations require a ships radio license or modification of your existing ships radio licence before Active-X can be used for maritime use. Contact your local administration for details.

RTE CONNECTIONS The diagrams show the correct wiring installation

BASIC OPERATION— NO EXTERNAL ALARM



PERFORMANCE CHECK

As the RCS of your vessel may exceed the RCS of the Active-X, the trial is best carried out at 0.5nm as the target can be easily identified. The range should then be increased at intervals of 0.5nm turning the Active X on and off at intervals noting the change in response. Increase the distance between the Active-X and the bare target, so that the test target can be seen at all times. In busy waters to avoid confusion with other vessels the target vessel can be acquired by turning the Active-X on and off, then watching the display for change in target response. In normal weather and sea conditions, with the Active-X and interrogating radar mounted at four meters above sea level the Active-X should appear on the radar screen.

If the mounting heights, including that of the interrogating radar vary so will the response due to the curvature of the earth. These figures are for guidance only and should not be relied upon.
 2KW radar up to 4nm: 5KW radar up to 10nm:
 10-25KW radar up to 15-30 nm

For restricted response to FMWC-Broadband Radar Please see FAQ Section on website.

DO NOT EXPECT to always see by the naked eye the vessel or land based interrogating radar which may be +/-30 miles away and principally below the horizon. Reports of 60 miles reception have been recorded.

FAULT FINDING CHART

No Red LED light when red switch is turned on	Check fuse or circuit breaker Check polarity of wiring Check power supply at control box	Damaged cable or wrong connection Cable cut with power on check fuse
Unit switched on and continuous green LED light Shows, in harbour or when saturating Active-X	Local Radar on, or radar operating moored nearby (<15M) Moored close to large metal object. Check polarity of Active-X wiring Relocate vessel to more suitable position	
Unit and buzzer on and unit fails to operate when it clearly is interrogated	Check all above faults. Is Active-X in shadow	
Buzzer switched on but does not sound when painted by radar	Buzzer faulty—return control box to Echomax for inspection,	

TECHNICAL SPECIFICATION

Reception frequency: X Band Radar 9.3-9.5 GHz
 Operating Temperature: -20 to + 60°C
 Voltage: 12V DC - + 30% - 10% (voltage Surge and cross polarity protected)
 Current consumption
 In quiescent state: <15mA
 Current consumption When transmitting: X Band Radar 190mA (typically)
 Position accuracy: Within 1 metre
 EIRP: 1W (typically)

STATED PERFORMANCE LEVEL (SPL)

Exceeds ISO 8729-2 effective July 09-X Band Radar 7.5m²
 At Zero, +/-10 and 20 degrees of heel maintained over a total angle of 280 degrees

Typical performance-QinetiQ Funtington Anechoic Chamber March 2010.

X BAND RADAR SPL (Stated performance level) (ISO Standard 7.5m²)

Zero degrees: 111.36m²
 +/- 10 degrees: 78.96m²
 +/- 20 degrees: 20.80m²

DIMENSIONS AND WEIGHTS

Antenna length: 478mm
 Antenna width: 40.5mm
 Antenna weight: 327gms (excluding cable)
 Control Box width: 92mm
 Control Box height: 51mm
 Control Box depth: 38mm
 Control Box weight: 99gms
 Cable length: 25m 2 core 0.5mm²
 Cable weight: 967 gms

OPTIONAL EXTRAS

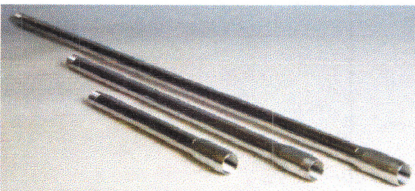
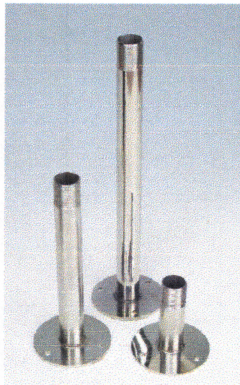
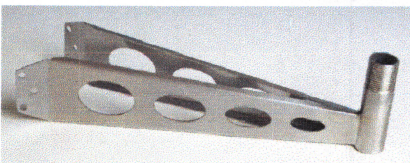
FLUSH MOUNT KIT FOR CONTROL BOX

Length: 111mm Height: 70mm



STAINLESS STEEL DECK MOUNTING BRACKETS

100mm Base fitting: male 1/14 TPI thread
 200mm Base fitting: male 1/14 TPI thread
 300mm Base fitting: male 1/14 TPI thread
 300mm Stainless Steel Extension Pole: female/male 1/14 TPI
 600mm Stainless Steel Extension Pole: female/male 1/14 TPI
 1000mm Stainless Steel Extension Pole: female/male 1/14 TPI
 Active-X mast bracket: 26cm reach with male 1/14TPI

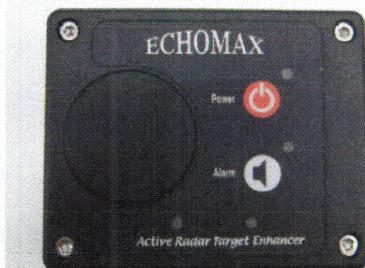
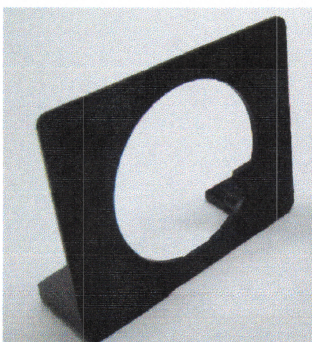


FLUSHMOUNT WATERPROOF CONTROL BOX

New slim line flush mount waterproof control box features:
 Keypad operation: X or X & S Band LED to match your single or dual band RTE
 Selectable audio alarm sensitivity
 Selectable day or night time illumination brightness
 Extension alarm facility

DIMENSIONS

Control Box width: 90mm
 Control Box height: 72mm
 Control Box depth: 50mm (excluding provision for cables)
 Cut out diameter is 57mm
 Free Standing Bracket as below



Specifications given in this manual are subject to change without notification

Declaration of Conformity
 (As required by Article 6.3 of Directive 1999/5/EC-RTTE Directive) Declares under his sole responsibility that the active radar target enhancer manufactured by:

AQUAMATE PRODUCTS LTD. Also trading as **ECHOMAX**
 Dunmow
 Essex
 U.K
 Telephone + 00 44(0) 1371 830216
 Email: reflectors@echomax.co.uk

Intended for Worldwide use as an X Band active radar target enhancer aboard non SOLAS vessels and identified by the type number Active-X to which this declaration refers has been tested to the essential radio, EMC and safety tests required by the notified body and is in conformity with the standards.

EN60945:2002 (Clauses 9,10 & 12)
 And complies with the essential requirements of Directive 1999/5/EC. CE 0191: Performance requirements of ISO 8729-2 X Band Radar.

Conformity procedure under Annex IV of 1999/5/EC (Technical Construction File) has been undertaken by QinetiQ (0191) of Cody Technology Park, Ively Road, Farnborough GU14 0LX UK.

The Technical Construction File is held by:-
 John H Simpson
AQUAMATE PRODUCTS LTD. Also trading as **ECHOMAX**
 Dunmow
 Essex
 U.K.
 Tel: 00 44 (0)1371 830216
 Email:reflectors@echomax.co.uk

Signed

John H. Simpson Managing Director September 2009

GUARANTEE

The Echomax Active-X Band RTE is guaranteed for 12 months from the date of purchase and provides for the replacement at our discretion of the complete unit or any of the components providing failure is attributed to component failure or defect which is not attributed to accidents, misuse, fair wear and tear or neglect.

The guarantee is invalidated by any attempt whatsoever to open up or interfere in any way with the unit. It is the users responsibility to return the unit at his expense to us to inspect and report on the reason for failure. No exchange unit will be given until a full inspection and report is issued.

This guarantee does not affect your statutory consumer rights or those governed by local Law.

For comparison with competing products see:
www.echomax.co.uk

AT	BE	BG	CY	CZ	DK
EE	FI	FR	DE	GR	HU
IS	IE	IT	LV	LT	LU
MT	NL	NO	PL	RO	SK
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