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safety for professionals

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**orolia** Group

**mcmurdo**  
safety for professionals



Distributors and agents throughout the world



Dealer:

## McMurdo the Brand

McMurdo is a brand of marine safety and emergency location beacon products, manufactured by McMurdo Ltd. The brand originated in the 1940's, and since that date has been involved in designing and manufacturing marine safety products.

The first McMurdo COSPAS-SARSAT approved EPIRB was produced in 1989, and McMurdo further galvanised its position as a leading brand in safety equipment technology in 1992, with the release of the first McMurdo GMDSS approved Search And Rescue Transponder (SART). McMurdo products have continually led the way in the functionality and accuracy of emergency location beacons, launching a PLB (Personal Locator Beacon) for use on land and sea in 2000. In that same year, GPS technology was introduced to both the EPIRB and the PLB.

2009 saw the launch of the groundbreaking, ultra compact Fast Find 200 range of PLBs, and 2010 the introduction of cutting edge technology with the Smartfind S5 AIS SART.

The McMurdo brand name stands for high quality products, which utilise the latest technology. Organisations such as the Royal Navy, the US Coastguard and countless commercial organisations around the world understand the importance of ultra-reliable high quality equipment, which is why they have chosen McMurdo products for their vessels and their crew.

McMurdo products are used globally, on land and at sea. Where safety is important you will find McMurdo.



## Service and Spares

McMurdo Ltd has a complete customer service operation that handles the repair and servicing of our full range of products. From scheduled beacon battery changes, to the service and repair of McMurdo products, our team is here to help.

Our in-house service department operates in support of our worldwide service agents, who are fully trained and certified to service and repair McMurdo equipment. For your nearest service agent please visit [www.mcmurdomarine.com](http://www.mcmurdomarine.com).

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## How does an EPIRB work?

An Emergency Position Indicating Radio Beacon (EPIRB) or Personal Locator Beacon (PLB) is used to alert search and rescue services in the event of an emergency. They do this by transmitting a coded message on the 406 MHz distress frequency. This message is relayed via satellite and earth stations to the nearest rescue co-ordination centre.

406 MHz EPIRBs and PLBs work with the Cospas-Sarsat satellite system which provides true global coverage.



The GPS enabled EPIRBs and PLBs have built-in transmitters that will typically alert the rescue services within 3 minutes. These models are capable of providing positional accuracy of +/- 62 Metres and position updates every 20 minutes, given a clear view skyward.

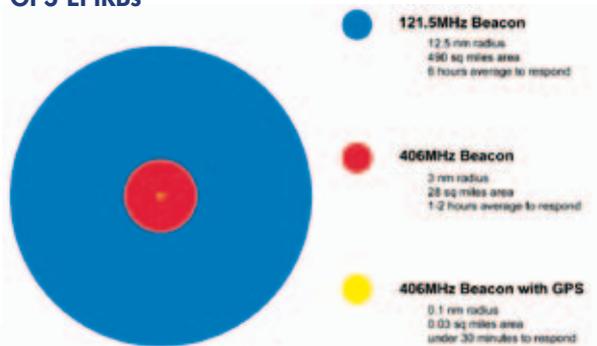
Standard EPIRB and PLBs can be located to within

5km (3 miles). The coded message identifies the exact vessel to which the EPIRB is registered, or the person the PLB is registered to. This information allows the rescue services to eliminate false alerts and launch an appropriate rescue.

All McMurdo EPIRBs and PLBs also have a secondary distress transmitter. This transmits on 121.5 MHz and is used for "homing" purposes. When the rescue services get close, this allows them to direction find on the signal. To cater for searches at night, EPIRBs have a high brightness LED flashing light that aids final visual location.

Since its inception in 1982 the Cospas-Sarsat System has provided distress alert information which has assisted in the rescue of over 30,713 persons in over 8,387 distress situations. The Cospas-Sarsat programme assists search and rescue (SAR) activities on a worldwide basis by providing accurate, timely and reliable distress alert and location data to the International community on a non-discriminatory basis.

## GPS EPIRBs



The GPS EPIRB and PLBs have been designed to further enhance the lifesaving capabilities of conventional beacons. The standard Global Positioning System (GPS) uses an array of 27 satellites and provides continuous positional information, with a typical accuracy of around 62m. A 406MHz EPIRB such as the Smartfind Plus, or PLB such as the Fastfind 210 and MaxG have a built in GPS. When the beacon is activated in an emergency, positional information is incorporated into the distress message which it transmits.

This incorporation of positional information overcomes the difficulties with location when using geostationary satellites, and can greatly reduce the time it takes for the SAR authorities to arrive on the scene. When speed of response and accuracy of location are important considerations, then the GPS EPIRB/PLB offers the best performance.

## Smartfind

Available with a manual bracket or an automatic deployment housing, the Smartfind range meets the demands of recreational boaters and all classes of Commercial vessels alike. This stylish unit is available as a standard 406 MHz EPIRB or, for enhanced position location, with a built in high accuracy GPS.

### Key Features

- Internationally Approved
- Transmits on 406 and 121.5 MHz
- Integrated GPS PS (Plus version)
- Non hazardous battery for safe and easy transportation
- Unique CARRYSAFE bracket available for safe transportation
- High brightness LED flashing locator light
- 60 comprehensive diagnostic and self-tests during battery life
- Once activated, will transmit for a minimum of 48 hours
- 7 year battery life
- 5 year warranty



SMARTFIND Manual EPIRB  
with Carrysafe bracket

### The SMARTFIND Series consists of two models:

E5 SMARTFIND is a 406 MHz EPIRB designed to operate with the COSPAS-SARSAT international search and rescue system. Once removed from its CARRYSAFE mounting bracket the unit can be activated automatically by immersion in water, or manually by following the activation instructions printed on the unit.

The G5 SMARTFIND PLUS has all the advanced features of the standard E5 SMARTFIND with the addition of an integral 12 channel GPS receiver. The addition of a GPS receiver ensures that an accurate position of a casualty is relayed to the rescue services. This can in turn improve the speed of recovery by updating the position of the beacon at regular intervals.

A float free automatic housing is available for both versions of the SMARTFIND.



GMDSS

GPS

406MHz

121.5MHz

5yr

48hr

## McMurdo PLB Range

The McMurdo range of PLBs are designed to be carried by individuals as a last resort safeguard against any life threatening incidents that may occur anywhere in the world. Whether alone or within a group, on holiday, at work, carrying out your sport or hobby, if you ever find yourself in a remote area, land or sea, without any other form of communication, the Fastfind PLB comes into its own. Once activated it transmits a unique identification signal via the international search and rescue satellite system operated by COSPAS SARSAT on 406 MHz. The signal is then quickly passed to regional search and rescue authorities who can rapidly get to the scene.

There are now four models within the McMurdo PLB range, the Fastfind Max and Fastfind MaxG, which have a 48 hour battery operation life and the new ultra compact Fast Find 200 and Fast Find 210 which will slip into the smallest pocket.

Fastfind PLB's use the same advanced technology as McMurdo EPRIB's, miniaturised into a compact and rugged, palm sized unit. They are designed to withstand the harshest of environments while still being extremely easy to operate and small enough to carry with you at all times.

### Fast Find 220 PLB

FAST FIND is the most versatile 406 MHz emergency location beacon available. It is waterproof to 10 metres, only 106mm long and weighs just 150g. It will slip into the smallest pocket and users can be confident of being able to alert professional search and rescue services if they are unlucky enough to encounter life threatening situations, even in the most remote parts of the world.

FAST FIND complies with tough international standards. It operates on the global COSPAS SARSAT 406MHz search and rescue satellite communication system. The system is supported by international government search and rescue authorities around the world, so a call for help will be acted upon and fast.

- Internationally approved
- Compact, lightweight and waterproof
- Transmits on 406 and 121.5 MHz
- Global emergency alerting via COSPAS-SARSAT satellites
- 50 channel integral GPS
- 60 comprehensive diagnostic and self-tests during battery life
- 6 year battery life
- 5 year warranty
- Minimum of 24 hours continuous operation
- SOS Morse LED flash light
- Typical alert to rescue services 3 minutes
- Simple three-stage activation
- Flotation Pouch included



Fastfind 220  
with integral  
50 channel GPS



Flotation Pouch

## Fast Find 220 PLB Accessories

A range of accessories are available to personalise the usage and carriage of the Fast Find 200 / 210 PLB, these include:

- Universal Pouch (yellow)
- Belt Pouch (black)
- Neck Lanyard (430mm – 470mm)
- Wrist Lanyard (160mm – 190mm)



## Fastfind MaxG PLB

The Fastfind MaxG brings added endurance to safety with 48 hour operational battery life at temperatures as low as -20°C.

The battery packs have a five year storage life and are easily user replaceable.

Fastfind MaxG has a unique discreet antenna deployment system with simple three-stage, manual operation to prevent any risk of accidental or false activation. In its stored state, the antenna is completely hidden from view and fully protected against rough handling. Once deployed, the antenna automatically springs into the optimum position ready for use.

The Fastfind MaxG's integral GPS receiver gives a typical positional accuracy of +/- 62 metres and new position updates every 20 minutes, significantly reducing the normal search area from a 28sq nm area, when given a clear view skyward. MaxG also has visual indication of GPS position acquisition.

- Internationally approved
- Compact and lightweight
- Waterproof to 10 metres
- Buoyant
- Transmits on 406 and 121.5 MHz
- Global emergency alerting via COSPAS-SARSAT satellites
- Integral GPS
- Minimum of 48 hours continuous operation
- Typical alert to rescue services 3 minutes
- Simple three stage activation
- Carry pouch and lanyard included
- 60 comprehensive diagnostic and self-tests during battery life
- 5 year battery life
- User replaceable battery
- 5 year warranty



Fastfind MaxG  
with inbuilt GPS

Carrying the Fastfind could not be simpler. Supplied with a strong but flexible lanyard cord and a smart carry pouch, the PLB is easy and convenient to carry with you at all times.

NEW PHOTO

McMurdo's PLB range consists of the following models:

Operation life at minimum temperature			
	GPS	-20°C 48 hour	-20°C 24 hour
Fastfind 220	•		•
Fastfind MaxG PLB	•	•	
Fastfind Max PLB		•	

The Fastfind range of PLB products from McMurdo provide professional mariners, fishermen and those involved in outdoor adventure activities with the very best chance of being found without delay in the event of an emergency.

PLB's are intended for use within the maritime and land environments where permitted by national administrations.

## The Fastfind PLB Dive Canister

This waterproof aluminium housing enables a diver to carry the Fastfind PLB to depths of 150m (500ft), with the assurance that once they have returned to the surface they have the security of having access to the Fastfind PLB if there are any threats to their safety.



- Dimensions – 162mm x 93.5mm
- Weight – 900g

## Accessories



### Grab Bag

Designed for marine and land use, this waterproof and buoyant Grab Bag is perfect for holding emergency equipment.

- High visibility
- Buoyant
- Waterproof
- Dimensions – 35cm x 15cm x 24cm

### Grab Bag XL

Made from high quality material the Grab Bag XL has an external EPIRB pouch and flare stowage pockets.

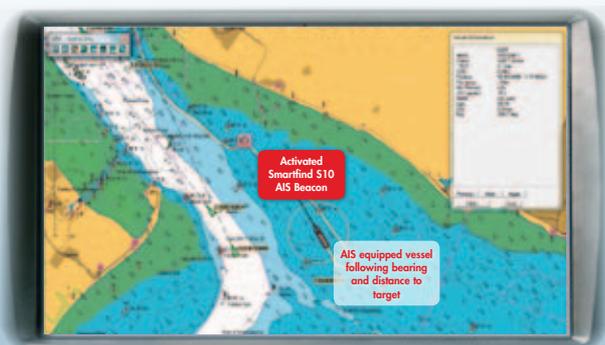
- Buoyant
- Waterproof
- Watertight zip and velcro closure
- Carry handles and shoulder strap
- Large capacity – 44cm x 22cm x 30cm



## AIS Beacon

An AIS beacon is a new, innovative personal safety device that incorporates both AIS (Automatic Identification System) and GPS technology. The AIS beacon has been designed to aid the speedy local retrieval of personnel/crew members who find themselves in difficulty at sea.

An AIS beacon transmits target survival information, including structured alert messages, GPS position information and a unique serialised identity number. AIS beacon target information can be viewed using standard ships AIS equipment such as Class A and Class B transponders and a wide variety of receive only AIS units. AIS equipped vessels and land based VTS stations within the local vicinity will also have visibility of the AIS-beacon signal. Whether displayed on the AIS itself or on a companion plotter or ECDIS screen, the unique alert message will clearly indicate the exact location, distance and bearing to person(s) in need of assistance.



AIS equipment\* displays the alert icon (pictured above). Precise target survivor information becomes viewable when the chart plotter/ECDIS\* cursor is positioned over the alert icon.

*\*For use with AIS enabled chart plotters, contact your chart plotter manufacturer for further info. As AIS SARTs are still very new, not all small-craft chart plotters with AIS show the correct SART icon as recommended by the IMO. At the very least, they will show the same icon as used for other craft – normally an arrow. In addition, user settings generally allow you to configure the display to show the MMSI number, which in the S10 always begins with 970. This way you can differentiate the S10 from other vessels. If in doubt, check with your plotter manufacturer how they display SARTs on screen. All new ECDIS plotters (on ships over 300 tonnes) will display the SART icon correctly.*

## SMARTFIND S10 AIS Beacon

The SMARTFIND S10 AIS Beacon transmits a unique alert to all AIS enabled equipment within a 4 mile radius (typical). An inbuilt high precision GPS receiver provides accurate position information which is frequently updated to assist quick retrieval of persons in difficulty. The SMARTFIND S10 AIS Beacon is intended for carriage by divers, crew and anyone who carries out activities on water.

- Simple, manual activation
- Transmits GPS target tracking information over AIS
- Unique serialized ID
- Small and light for unobtrusive carriage
- Waterproof, buoyant and fully submersible to 60m
- Flashing LED light
- Minimum 24 hour continuous operation
- 5 year battery storage life



## R1 Waterproof Handheld VHF Radio

The R1 VHF radio is designed specifically to meet worldwide legislation, and exceeds the demanding IMO requirements for GMDSS survival craft radios. It is 100% waterproof and designed to cope with the toughest marine environments, making it an ideal "Fit and Forget" item.

- Tough, reliable, 100% waterproof and drop proof
- Exceeds GMDSS specification for use in Survival Craft
- Easy to use
- Three channels: 6, 13 and 16
- Floats
- Long life lithium battery
- Test battery available



## R2 Handheld GMDSS VHF Radio

The McMurdo R2 GMDSS fully featured 19 channel VHF radio fits securely and comfortably in the palm of the hand. The R2 GMDSS has been built to meet the latest stringent IMO, GMDSS and ETSI standards. This reliable and easy to use radio is 100% waterproof and drop tested to cope with the toughest marine environments.

- Fully featured all 19 Simplex channels as permitted by GMDSS legislation
- Superior voice quality and fully waterproof
- 2.5 watts RF output
- Selectable dual/tri watch function
- Priority channel
- All channel memory scan
- 8 hour battery life at -20°C
- Variable LCD display illumination
- Approved to latest GMDSS, IMO, ETSI Resolutions



# SART

**A SART is a 'search and rescue locating device' designed to assist in survivor craft location during search and rescue operations.**

The SART is primarily intended for fitment by SOLAS vessels under carriage requirement rules. SOLAS fitting rules differ depending on type and size of vessel and survival craft. In general, at least one search and rescue locating device is carried on each side of every passenger and cargo ship over 500 gross tons. Smaller SOLAS classified vessels are required to carry at least one search and rescue locating device.

The SART should be stowed on board in a location where it can be rapidly placed in any survival craft. Once activated, the SART may be suspended inside the survival craft or mounted in an elevated position using the integrated extending pole.



## S4 Rescue Radar SART

The S4 Rescue Radar SART is a 9GHz X-band radar transponder which offers proven reliability. Extremely simple to use, the S4 Rescue can be operated even with gloved or wet hands. Its compact design makes it suitable for packing in liferafts or as a carry off device.

When a radar signal is received from a ship or aircraft, the S4 Rescue automatically transmits a response signal, which clearly identifies the survival craft on the radar screen by means of a stream of 12 in-line dots. Once activated, the S4 will remain in standby mode for over 96 hours.

The S4 Rescue has been designed for reliable operation in the toughest of marine environments.

- Ship or survival craft options
- Waterproof to 10mtrs
- Buoyant
- Compact and lightweight
- Replaceable, 5 year battery pack
- Audio/visual indication of operation
- Built-in test facility
- Integral lanyard
- Mounting options - internal/external



## Smartfind S5 AIS SART

The new Smartfind S5 AIS SART is a manual deployment survivor location device intended for use on life rafts or survival craft. It meets IMO SOLAS requirements and is an alternative to a Radar SART. Compact, easy to operate and deploy, the Smartfind S5 AIS SART is a portable device packed inside a quick release carry off bag for quick evacuation.

Smartfind S5 AIS SART transmits target survivor information including structured alert messages, GPS position information and serialised identity number. Once activated the Smartfind S5 AIS SART transmits continually for a minimum of 96 hours. An inbuilt high precision GPS provides accurate position information to assist in quick recovery of survivors.

Whether wall mounted in the ships bridge or packed inside a survival craft, the highly visible and buoyant carry case affords maximum protection.



### Key Features

- Internationally approved
- Ship or Survival craft options
- Waterproof to 10m
- Buoyant/floats
- Rugged, compact and lightweight
- Non-hazardous battery for safe and easy transportation
- Minimum 96 hour operational battery life
- 6 year battery life
- Visual indication of operation
- Built-in test facility
- Integral lanyard
- Mounting options – Internal/External
- Comes complete in its own carry case



**NAVTEX is a system for broadcast and automatic reception of maritime safety and weather information. NAVTEX provides ships with navigational and meteorological warnings and urgent information through either on-screen display or automatic printouts from a dedicated receiver. NAVTEX is a component of the IMO/IHO Worldwide Navigational Warning Service (WWNWS) defined by IMO. It is also included as an element of the Global Maritime Distress and Safety System (GMDSS).**

NAVTEX messages are transmitted worldwide from local stations that provide services targeted at local users and passing ships. Users can set their NAVTEX Receiver to pick up specific message types and reject others. Messages such as navigational and meteorological warnings and search and rescue information are non-rejectable, to ensure that ships are always updated with the most vital information. Users can choose to receive information from the single transmitter that serves the sea area around their position, or from a number of different transmitters. A full listing of all Worldwide NAVTEX services is published in the Admiralty List of Radio Signals Volume 5 and regularly updated through the notice to mariners update service.

## GMDSS Navtex Receiver



Tri Channel Professional Colour NAVTEX Receiver

The SMARTFIND Global Maritime Distress and Safety System (GMDSS) NAVTEX provides clear and up-to date NAVTEX maritime safety information. Three parallel digital receivers simultaneously provide tri-channel monitoring of the international 518 KHz English language service, 490 KHz national language and the 4209.5 KHz long range NAVTEX services. It can either be operated as a stand-alone unit or as part of an integrated navigation or bridge system. SMARTFIND GMDSS NAVTEX is suitable for use on all types of commercial vessel.

- Large 6" colour display
- Simple and intuitive to use
- Easy to read extra large font
- Tri-channel simultaneous reception
- ESM® Enhanced Signal Monitoring
- Printer output
- GPS interface capability
- INS and ECDIS interface capability
- Range of antennas available



# Technical Specifications

## Smartfind & Smartfind Plus

<b>Approvals</b>	Satellite system	Cospas-Sarsat T.001/T.007
	Europe	IEC 61097-2 Marine Equipment Directive
	USA	USCG/FCC approved FCC ID : <b>KLS-XX-X</b>
	Worldwide	IEC 61097-2
	Meets IMO resolution	A.662(16); A.694(17); A.810(19); A.696(17)
<b>406 MHz Transmitter</b>	Operating frequency	406.040 MHz ±1 kHz
	Power output	5 W typical
	Modulation	Phase (16K0GID)
<b>121.5 MHz Homer</b>	Operating frequency	121.5 MHz ±3.5 kHz
	Power output	50 mW radiated typical
	Modulation	Swept tone AM (3K20A3X)
<b>GPS Receiver (Smartfind Plus only)</b>	Centre frequency	1.57542 GHz
	Sensitivity	-175 dBW minimum
	Satellites tracked	12 max
	Type	High intensity LED
<b>Strobe light</b>	Type	Lithium manganese dioxide
<b>Battery</b>	Operating life	48 hours minimum
	Shelf life	7 years storage
	Automatic release depth	4 metres max. (13 feet)
<b>Environment</b>	Operating temperature	-20 °C to +55 °C (-4° F to +131° F)
	Storage temperature	-30 °C to +70 °C (-22° F to +158° F)
	Weight	770 grams (1.7 lb)
<b>Physical</b>	Height of body	21 cm (8.2 inches)
	Length of antenna	18 cm (7 inches)

This device complies with the GMDSS provisions of part 80 of the FCC rules. The GPS module (where fitted) complies with the relevant sections of IEC 61108-1: 2003.

## Fastfind 220

### 406 Beacon Specification Standards applied

COSPAS-SARSAT  
T.001/T.007 class2  
RTCM SC110 STD 11010.2  
ETSI EN 302-152-1  
AS/NZS 4280.2  
NSS-PLB06

### Environmental

Exterior Finish  
Sealing  
Operating temperature  
Storage temperature  
Altitude

Highly visible yellow  
Waterproof to 10m (30ft) (IP 58, IPX8)  
Class 2, -20°C to +55°C (-4°F to +131°F)  
Class 2, -30°C to +70°C (-22°F to +158°F)  
(40,000 feet)

### Battery

Battery Type  
Battery storage  
Battery replacement  
Battery use

6V Lithium Metal  
6 years minimum  
By service centre  
Logged by microcontroller.

### Operation

Activation  
Self test  
Flash light

Three stage manual activation  
Tests transmitters, battery and light  
Morse code SOS pattern (30 operations allowed)

### Transportation

Air cargo

UN 3091, not restricted, IATA SP 188 - PI 970

### Electrical

406.037 MHz transmitter  
121.5 MHz transmitter  
Homer sweep direction  
Transmit Antenna  
Programming interface

± 1KHz, 5W ± 2dB  
± 3KHz, 50mW ± 3dB PERP  
UP or DOWN  
Deployable flexible vertical blade  
Optical Infra-red link

### Physical

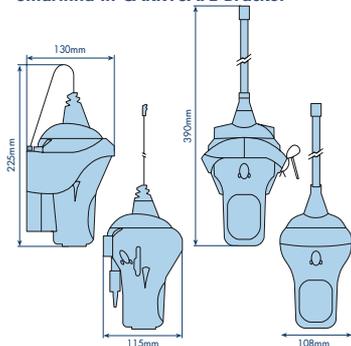
Buoyancy  
Size (D x W x L)  
Weight  
GPS  
Receive Antenna  
GPS Self test

Category 2 will float in included accessory pouch  
34 x 47 x 106 mm (1.34" x 1.85" x 4.17")  
150g (5.3 oz)  
50 channel  
Ceramic Patch  
Position acquisition test (10 operations allowed)

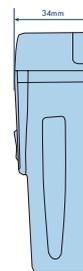
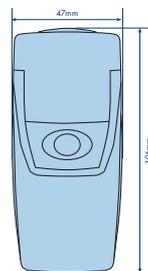
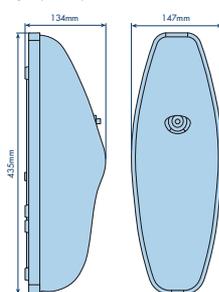
### Part Number

UPDATE

Smartfind in CARRYSAFE Bracket



Auto FLOAT FREE housing for Smartfind



## Fastfind MaxG

### General

Approved to

COSPAS-SARSAT T.007  
Class 2, TAC-184

Internationally type approved, a list of current type approvals is held in the Fastfind Max section of the McMurdo web site; [www.mcmurdomarine.com](http://www.mcmurdomarine.com)

Complies with relevant clauses

EN 60945  
RTCM 76-2002/SC110-  
STD V1.1

Operating temperature range

-20 °C to +55 °C

Storage temperature range

-30 °C to +70 °C

Operational life, Class 2

48 hours minimum at  
-20 °C

Category

2, manual activation

Weight

300 g

Buoyancy

Buoyant

Sealing

Waterproof to  
5 m immersion

Temporary immersion

10 m

Battery type, Class 2

11 V lithium iron disulphide

Battery expiry

5 year storage life

Battery change

User replaceable

### 406MHz transmitter

Frequency

406.040 MHz ±1 kHz

Output power

5 W±2 dB

Data encoding

Bi-phase L

Modulation

Phase modulation; 1.1 rads ±0.1 rads

### 121.5 MHz transmitter

Frequency

121.5 MHz +3 kHz

Output power

50 mW ±3 dB PERP

Sweep direction

Programmable UP or DOWN

GPS

Integral

Indication of GPS position

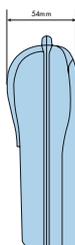
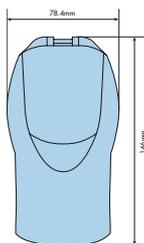
Visual

GPS Antenna

Ceramic dielectric patch

Programming interface

Infra-red diode



## Smartfind S10 AIS Beacon

### Standards Applied

IEC 61097-14, 60945 (environmental/EMC),  
61108 parts 1, ITU-R M.1371

### Environmental

buoyant

Exterior finish

Hi impact ABS/PC Translucent opal

Sealing depth

Immersion to 60m (196 ft)

Operating temperature

-20°C to +55°C (-4°F to +131°F)

Storage temperature

-30°C to +70°C (-22°F to +158°F)

### Battery

Type

6V Lithium Metal

Replacement

By service centre

Use

Logged by microcontroller

### Operation

Activation

Manual two stage

Self test (short)

Battery use indication

GPS Self test (long)

SART TEST transmission with GPS position

### Transportation

Air cargo

IATA UN 3091, not restricted

Classification

PI970 Section II

### Electrical

AIS Transmitter

Frequency

AIS channel 1- 161.975 MHz, AIS channel 2 - 162.025 MHz

Power

2W nominal

Transmit antenna

Integrated PCB

AIS messages

Message 1 (UID, GPS position, SOG, COG, UTC)

transmitted

Message 14 (MOB-ACTIVE or MOB TEST)

Unique ID number

Factory programmed

GPS receiver

GPS type

50 channel

Antenna type

Ceramic patch

GPS position update

Every minute

### Physical

Length

199mm (7.8")

Diameter at widest point

51mm (2.0")

Weight

186g (6.5oz)

Deployment

Hands free

Belt or arm pouch with head  
band strap included Hand  
held Wrist lanyard included  
Security lanyard fixing point

### Functional

First transmission

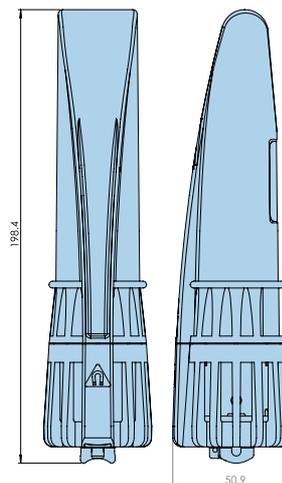
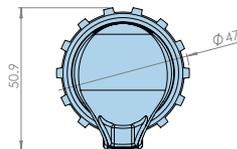
After 15 seconds (no GPS)  
Range 4 nautical miles  
(typical) Secondary location  
device Flashing white LED  
and status indicator

### Part Number

Smartfind S10

98-051-001A

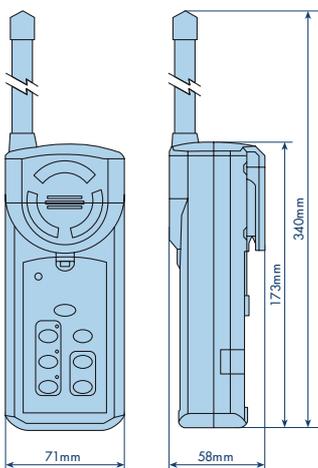
AIS Beacon retail pack



## Technical Specifications

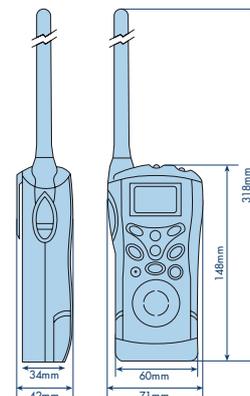
### R1 VHF Radio

Approved to	ETS300-225/A1: 1997 plus relevant section IMO, ITU, SOLAS FCC part 80, (CFR47) GMDSS rules EU MED (Ship's Wheel) approved EMC Standard EN 300 828: 1998
Weight:	less than 400 g
Temperature:	-20°C to +55°C working, -30°C to +70°C storage
Battery:	Primary (lithium)
Battery storage life:	4 years
Battery life:	12 hours (10%/10%/80% duty cycle-transmit/ receive/squelched)
Channels:	Ch 6, 13 and 16
Water resistance:	Waterproof to a depth of 1m
Buoyancy:	Unit will float
TRANSMIT	
Output Power:	0.5 watts ERP
Current Consumption:	350mA
RECEIVE	
Audio Output Power:	0.4 watts (1kHz tone, 3kHz deviation)
Current Consumption:	150mA at rated audio power 10mA squelched



### R2 VHF Radio

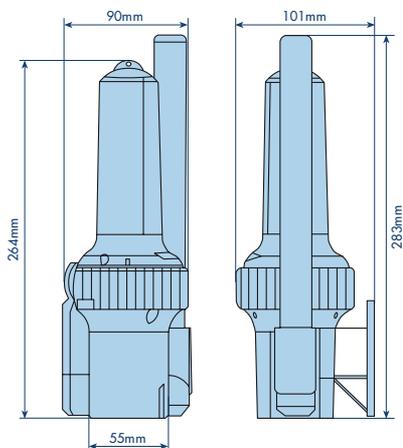
General Performance and Approvals:	in accordance with the minimum requirements of ETS300-225. IMO Resolutions A 694(17) and A809 (19) ITU regulations appendices 18 and 19 SOLAS 1974 and amendments EN 60945 (EMC) EU Marine Equipment Directive (Ship's Wheel) FCC Part 80 GMDSS Rules (CFR47)
RF output power:	2 settings 2.5 Watts/1 Watt
Number of channels:	19 Simplex channels (6,8,9,10,11,12,13,14,15,16,17,67,68,69, 71,72,73,74,77) as permitted by GMDSS legislation
Frequency range:	155-163MHz
Receiver A.F output power:	0.4 Watts
Operational function:	Dual watch. Scan memory. Squelch. Volume. Scan all (with delete). Scan Priority. Tri-watch (16, priority, working channel). All the above subject to requirements of national regulatory authorities.
Illumination:	Channel up/down, on/off, high/low power
Display:	LCD indication of channel and other operational parameters
Antenna:	Removable – stud mounted for strength
Weight:	Radio with Lithium battery 370g
Operating temperature:	-20°C to +55°C
Storage temperature:	-30°C to +70°C
Waterproof:	Fully submersible to a depth of 1m including a 45°C thermal shock
Drop resistance:	Will withstand a 1m drop on any face onto a hard surface
Environment:	Corrosion proof, UV resistant, oil resistant
Battery life:	Lithium 8 hours minimum at -20°C (10% high power transmit, 10% receive, 80% squelched)
Lithium battery storage life:	4 years
NiCad battery option	



## Technical Specifications

### S4 SART

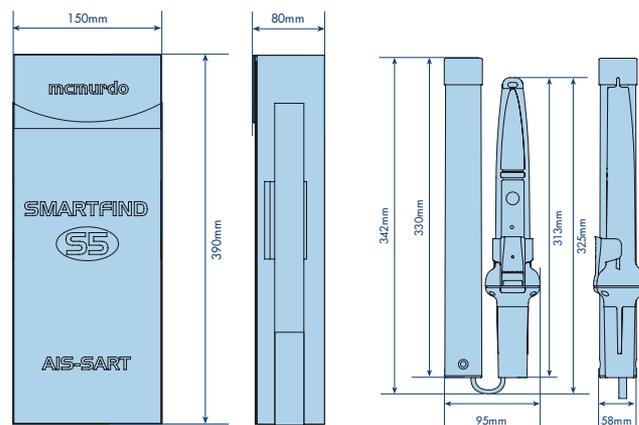
Receiver Response:	9.2–9.5 GHz, sensitivity better than -50 dBm
Transmitter Response:	12 forward and return sweeps through the range 9.2–9.5 GHz. Nominal sweep times 7.5_s forward and 0.4_s return.
Radiated Power (ERP):	Not less than 400 mW (+26 dBm)
Duration of Operation:	96 hours in standby condition followed by a minimum 8 hours of transmission while being continually interrogated with a pulse repetition frequency of 1 kHz.
Temperature Range:	-20°C to +55°C operational -30°C to +65°C storage
Effective Antenna Height:	1 metre or greater
Weight:	360g (without mast or bracket) 510g (with mast) 530g (with mast & bracket)
Dimensions:	264mm long x 90mm diameter
Battery replacement interval:	5 years



### Smartfind S5 AIS SART

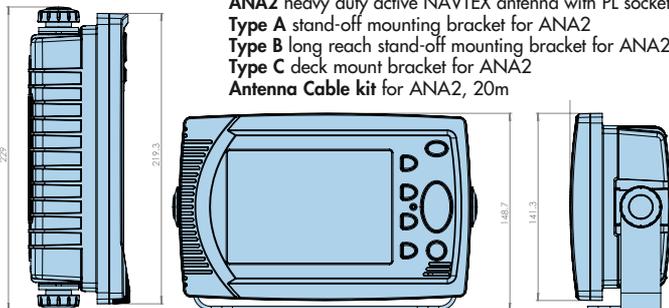
#### Beacon Specification Standards applied

AIS SART	IEC 61097 -14, IEC 60945	M.1371
Radio	ITU-R	
GNSS / GPS	IEC 61108-1	
IMO	MSC.246(83)	
<b>Type</b>	IMO AIS SART	Non float free
<b>Operation</b>	Manual activation switch	Protected by anti tamper cover. Checks transmitter, battery, GPS and indicators.
	Self test	
<b>AIS Transmitter</b>	Operating frequency	AIS1, 161.975 MHz AIS2, 162.025 MHz
	Power output	1 W EIR
	AIS message type	1, 14
	Modulation	GMSK
	Antenna	Integrated vertical element
<b>Battery</b>	Type	Lithium metal
	Operating life	96 hours minimum
	Storage	6 years
	Service	Replaceable
<b>GNSS</b>	GPS	20 channel
<b>Environment</b>	Operating temperature	-20 °C to +55 °C
	Storage temperature	-30 °C to +70 °C
	Waterproof	Immersion to 10m
	Buoyancy	Floats
	Exterior Finish	Highly visible orange
	Compass safe distance	0.2m
<b>Physical</b>	Weight (main unit )	160 grams
	Weight, (including pole)	450 grams
	Length including pole extended	155 cm
	Lanyard	10 m, 50Kg breaking strain
<b>Mounting</b>	Stowage case (packed)	940g H390 x D80 x W150 (mm)
	Bulkhead bracket	230g



### GMDSS Navtex Receiver

<b>Display</b>	6 inch, ½ VGA (480 x 320 pixels) Daylight viewable colour STN with adjustable backlight and screensaver
<b>Controls</b>	Backlight/contrast key, Enter key, four soft menu keys, Tracker pad
<b>Receivers</b>	<b>Receiver A</b> , Frequency 518kHz <b>Receiver B</b> , Frequency 490kHz <b>Receiver C</b> , Frequency 4209.5kHz <b>Sensitivity</b> <2 microvolts <b>Frequency stability</b> +/- 10Hz
<b>Connectors</b>	<b>15 way D-type</b> , Power, Alarm & COM 1 data (2m cable supplied with connector pre-wired) <b>9 way D-type</b> , Printer/COM 2 <b>Antenna connector</b> , 50 ohm TNC <b>Ground connector</b> , 1/8" Spade terminal
<b>Data interface</b>	<b>COM 1</b> , RS422 (NMEA 0183) IEC 61162-2 serial port <b>COM 2</b> , RS422 (NMEA 0183) IEC 61162-1 serial/printer <b>Baud rate</b> , 4800, 38400, 115200 <b>NMEA sentences supported</b> (in priority order) RMC, GLL, ZDA for UTC and NRX, NRQ, NMK, ACK, ALR for NAVTEX functions
<b>Alarms</b>	Vital/SAR message receipt (internal buzzer) Alarm state NMEA message data output COM1/COM2 Remote alarm relay contact 1A @ 120VAC/ 24VDC
<b>Antenna voltage output</b>	12 V DC @ 100mA (selectable)
<b>Antenna type (option)</b>	50 ohm, dual band 490 -4209.5KHz active or passive
<b>NAVTEX message memory</b>	300 x 500 character messages per receiver (minimum)
<b>Dimensions</b>	219W x 151H x 76D mm (excluding connectors) <b>Weight</b> 1100g (including bracket)
<b>Environmental</b>	<b>Operating Temperature Range</b> -15° to +55°c <b>Storage Temperature Range</b> -20° to +55°c <b>Humidity</b> 0 to 95%, non-condensing <b>Compass safe distance</b> 0.87m
<b>Mounting</b>	Desk-top or bulkhead (flush panel fixing kit included)
<b>Power</b>	<b>Voltage range</b> 12/24 V DC nominal (10.8 V to 31.2 V) <b>Consumption</b> , with backlight on 8.6 W @ 24 V DC Internal auto resettable fuse @ 1.8 A DC
<b>Technical Standards</b>	IMO Resolutions, MSC.148(77) A.2.1 (17), SOLAS Regulation IV/7.1.4, ITU-R M.540-2, ITU-R M.625-3, IEC 60945-4, IEC 61162-1, -2, IEC 61162-2, IEC 61097-6
<b>Additional Sales Options</b>	<b>ANA1</b> light duty active NAVTEX antenna with 20m cable and stand-off bracket <b>ANA2</b> heavy duty active NAVTEX antenna with PL socket <b>Type A</b> stand-off mounting bracket for ANA2 <b>Type B</b> long reach stand-off mounting bracket for ANA2 <b>Type C</b> deck mount bracket for ANA2 <b>Antenna Cable kit</b> for ANA2, 20m



### AIS SART

Automatic Identification System Search And Rescue Transmitter.

### Automatic Activation

An EPIRB that is activated when it comes in contact with water.

### Automatic Deployment

An EPIRB that is automatically released from its housing when the integral HRU is submerged.

### Category 1 EPIRB

An EPIRB that is automatically deployed and activated when in contact with water. The EPIRB may also be manually deployed and activated.

### Category 2 EPIRB

A manually deployed EPIRB. Once removed from its bracket this EPIRB will be automatically activated when in contact with water, or can be manually activated.

### Class 1 EPIRB or PLB

Rated to operate down to -40°C.

### Class 2 EPIRB or PLB

Rated to operate down to -20°C.

### COSPAS-SARSAT

International satellite system for search and rescue. A joint operation between France, Canada, Russia and the USA who monitor the 406 MHz satellite system.

### EPIRB

Emergency Position Indicating Radio Beacon.

### FCC

Federal Communications Commission (USA).

### GEOSAR

Geostationary Search And Rescue system. Part of the COSPAS-SARSAT satellite system.

### GMDSS

Global Maritime Distress and Safety System.

### HRU

Hydrostatic Release Unit. A release mechanism activated by water pressure.

### IMO

International Maritime Organisation.

### LEOSAR

Low-altitude Earth Orbiting Search And Rescue System.

### LUT

Local User Terminal. A ground receiving station that picks up the initial EPIRB signal and relays it to the Mission Control Centre. The LUT also calculates the position the signal was transmitted from.

## Glossary

### **Manual Activation**

An EPIRB that is activated by the user.

### **Manual Deployment**

An EPIRB that is released from its bracket by hand. McMurdo EPIRBs are available with either a manual "Carrysafe" bracket or an Auto Housing.

### **MCA**

Maritime and Coastguard Agency (UK).

### **MCC**

Mission Control Centre. The MCC manages satellite information from the LUT and sends an alert to the Rescue Coordination Centre for the region.

### **MED**

Marine Equipment Directive. European certification for equipment that meets the standards required by the IMO and SOLAS.

### **MOB**

Man Overboard.

### **NOAA**

National Oceanic and Atmospheric Administration (USA).

### **PLB**

Personal Locator Beacon.

### **RDF**

Radio Direction Finder.

### **RNLI**

Royal National Lifeboat Institute.

### **SAR**

Search And Rescue.

### **SART**

Search And Rescue Transponder

### **SOLAS**

Safety Of Life At Sea. Minimum standards of safety set out by the International Maritime Organisation.

### **S-VDR**

Simplified Voyage Data Recorder.

### **UIN**

Unique Identifier Number programmed into an EPIRB or PLB.

### **USCG**

United States Coast Guard.

### **Wheelmark**

Awarded to products that conform to International Maritime Organisation (IMO) type approval.