

SmartFind M6 AIS CLASS A USER MANUAL

General Information

Volume 1 of 2

USER MANUAL, refer to the separate INSTALLATION MANUAL for installation and setting to work information.

i. Copyright

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iii. Safety Warning



It is important to know that AIS is designed for the purpose of anticollision and serves as a complement to navigation. It is not the absolute navigational equipment and does not replace any navigational system installed on board. Any AIS device cannot guarantee the monitoring and receiving of signals from all vessels in the surroundings.

ELECTRICAL SHOCK HAZARD



Improper disassemble or modification could cause electrical shocks, fire, or personal injury. Contains no user-serviceable parts. Only suitably qualified personnel should attempt repair of the equipment.

CORRECT POWER SOURCE



Incorrect power sources will damage the equipment and may even result in fire. Please ensure the correct power source is provided at all times.



AVOID DIRECT CONTACT WITH RAIN OR SPLASHING WATER

Electrical shock or fire could be resulted if water leaks into the equipment.

RADIO LICENCE



The AIS transponder is a maritime radio transmitter. Some administrations may require that the user holds a valid radio license to cover its ownership and use.

RADIO FREQUENCY RADIATION HAZARD



The AIS transponder emits low levels of radio frequency radiation. It is the operator's responsibility to ensure that no personnel come within the Maximum Permissible Exposure (MPE) radius of 1.9 m from the antenna.



NOTE/INFORMATION

Throughout this manual this symbol indicates important information.

iv. Product Category

This product is categorized as "protected" in accordance with the requirements as defined in IEC 60945.

v. Compass Safe Distance

Safe distance to the transponder (and junction box) unit is: Standard-magnetic-compass: 0.30 m Steering-magnetic-compass: 0.30 m

vi. RF Exposure Safe Distance

The AIS transponder has been tested and meets applicable limits for radio frequency (RF) exposure. This device generates and radiates RF

electromagnetic energy and requires a Maximum Permissible Exposure (MPE) no entry zone for all personnel of 1.9 m radius around the antenna during its operation.

vii. Hardware / Software Version

The model name/number, hardware information, and firmware (software) version of the transponder can be identified through MKD at MENU/DIAGNOSTICS/VERSION. The software maintenance/upgrade of the transponder can be carried out on board via MicroSD card. The onboard documentation as described in the installation manual Appendix C can be used to assist reflecting software maintenance records.

viii. Type Approval

The AIS transponder complies with applicable international standards and is type approved in accordance with the European Marine Equipment Directive.

ix. Declaration of Conformity

Hereby, Netwave Systems B.V. declares that the McMurdo SmartFind M6 Class A AIS transponder is in compliance with the essential requirements and other relevant provisions of European MED Directive 2014/90/EU. A full list of applicable national type approvals and Declaration of Conformity(s) can be obtained on-line from:

https://www.seasofsolutions.com/products/?_sft_technology=aiselectronics

x. UK Declaration of Conformity

McMurdo Ltd declares that this equipment is in conformity with the Merchant Shipping (Marine Equipment) Regulations 2016 as amended under Annex 1 of MSN 1874, as amended including Compliance Requirements for UK/4.32.

A copy of the Manufacturers Declaration of Conformity can be obtained online from: <u>https://www.seasofsolutions.com/products/</u>

xi. Disposal Instruction

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to minimize any adverse impact of electronic equipment on the environment, both during the product lifetime and when it becomes

waste. Within the European Union this legislation is mandated by Directive 2002/96/EC, and there is similar legislation in most other continents. The directive applies to all electronic products such as IT, household appliances, portable electronics etc., and imposes requirements to collect, treat, recover and recycle each product at its end of life. Do not dispose of this device with unsorted waste. Improper disposal may be harmful to the environment and human health. Please refer to your local waste authority for information on return and collection systems in your area.

xi. IMO Green Passport Ship Recycling Information

Netwave Systems B.V. hereby declares potentially hazardous content in some of its electronic products. In keeping with European directive 2002/96/EC (Waste Electronic and Electrical Equipment) and the provisions of IMO Resolution A.962(23) (Guidelines On Ship Recycling), Netwave Systems B.V. strongly recommends that its products, including any battery packs, be disposed of in a considerate and legal manner.

xii. Maintenance and contact information

All servicing must be carried out by a Netwave Systems B.V. approved service agent. Always call your nearest agent and talk to their service department before returning equipment.

xiii. Product Warranty

As standard, your unit has a one year (12 months) warranty from the date of purchase shown on your invoice, however, this can be extended by a further one year by simply registering your unit on-line within 90 days of purchase at: <u>https://www.seasofsolutions.com/contact-us/warranty-registration/</u>

Warranty enquiries should be sent to: Email: info@seasofsolutions.com Telephone: +44 (0) 239262 3900 Or by mail to: Netwave Systems B.V. Blauw-roodlaan 100, 2718 SJ Zoetermeer, Netherlands. or McMurdo Ltd Holbrook Court, E1 Cumberland Business Centre, Northumberland Road, Southsea, Hampshire, PO5 1DS, UK

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1 WHAT IS AIS?

The Automatic Identification System (AIS) is a Very High Frequency (VHF) radio broadcasting system that transfers packets of data over the VHF data link (VDL) and enables AIS equipped vessels and shore-based stations to exchange identification information and navigational data. Ships with AIS transponders continually transmit their ID, position, course, speed and other data to all nearby ships and shore stations. Such information can aid greatly in situational awareness and provide a means to assist in collision avoidance.

AIS equipment is standardized by ITU, IEC, IALA and IMO and is subject to approval by a certification body. The following AIS devices have been developed for variant applications.



AIS Class A:

mandated by the IMO for vessels of 300 gross tonnages and upwards engaged on international voyages, cargo ships of 500 gross tonnages and upwards, as well as passenger ships. It transmits typically on 12.5 watts output power.

AIS Class B:

provides limited functionality and is intended for non-SOLAS commercial vessels and recreational vessels. It transmits typically on 2 watts output power.

AIS Receiver:

only receives AIS signal and it does not have transmitter to send out AIS signal. Suitable for recreational vessel that does not want to send out its vessel information.



is provided by aids-to-navigation authorities to enable the ship to shore / shore to ship transmission of information. Networked AIS Base Stations can assist in providing overall maritime domain awareness.

AIS AtoN (Aids to Navigation):

provides an opportunity to transmit position and status of buoys and lights through the same VDL, which can then show up on AIS-ready devices within the range.

AIS SART & AIS MOB (MSLD):

Search and Rescue Transmitter using AIS used to assist in determining survivor location information, typically of a life raft or a person (MOB) in the water.

AIS on Search and Rescue (SAR) Aircraft:

used on airplanes and helicopters to assist search and rescue operation.

2 M6 OPERATION



M6 will turn on and start operating as soon as the DC power is applied from the vessels DC switch panel.

2.1 Front Panel Overview



Keypad Description:

Item	lcon	Name	Function(s) when pressed
1	Fn	FUNCTION	 Radar View: Select chart orientation and type of target to show Target List: Select sort method and what type of target to show
2	Esc	ESC	 MENU: Go back to the previous level Long Press: Go to Alert List
3	t) B	Voyage /SRM	 Short Press: Go to Voyage Long Press: Go to Send SRM
4		MENU	 Go to MENU Long Press: Capture a screenshot and save it to the SD card
5	*	Screen brightness	 Quick switch of screen brightness (5 levels) Long Press: Change screen brightness to 1st level (screen protection)
6	Ð	DISP	 Short Press: Display modes rotating Long Press: Go to User Customize

7	Ļ	Enter	 Confirm the currently selected item
8		Arrow Key	 Move the selection cursor Radar View: Up-Down: change scale Right-Left: select target Ship Detail: Right-Left: change page

Display Modes 2.2

For quick access, users can rotate display modes by simply pressing the 🕒 button.

Display Mode	Screen Shot	Purpose
Radar View	25'035555N 22 121'38.0733E	Displays all targets on Radar View (Refer to section 4.2.1 Radar View)
AIS Target List	25 00 5555N 12 1*38.07331E 2023.05.04 14:14.57 Target List 14:14.57 Ø BARLIAN T1201 23s 125 4.31 Ø BARLIAN T1201 23s 125 4.31 Ø AGE BAG RNG 1/12 Ø BARLIAN T1201 23s 125 4.31 Ø AGE BAG RNG 1/12 Ø AGE S.57 4.31 325 Ø AGE S.55 5.57 5.57 Ø STAR ADMIRAL 10m.23 210 7.85 Ø S500051/2 331 18 2.50 Ø 5630051600 50c 12 9.85	Shows all received ship data (Refer to section 4.7.2 AIS Targets)
Dangerous Target List	25*03.5555% 2023.05/04 12+38.07.33E 14-18-32 Dangerous Target List Name/MMSI CPA TCPA 1/2 ① 640.041 (200) 5. 10 ① 15 15 15	Shows all dangerous AIS targets presently (Refer to section 4.7.6 Dangerous Target List)



2.2.1 Radar View



Radar View displays own ship and target ships' statuses, and their correlations. It is a proportional chart scale showing the current ratio displayed. The distance between the inner and outer circles (1 grid) is the number displayed on the scale at left bottom. You can adjust the scale to display ships in different distances. Radar View supports three ship orientation modes, North up, Head up, and Course up.

N-up	NORTH UP	The orientation is fixed and true north is always pointing up.
H-up	HEAD UP	The orientation is determined by the direction of own ship's bow.
C-up	COURSE UP	The orientation is determined by the own ship's traveling course.

2.2.2 Target Symbol Description

Symbols for each AIS target displayed on the **Radar View** are described as below:

Own Ship	Color: White
\odot	Own ship Icon.
AIS Target	Color: White
A	Ship equipped with AIS system in the surrounding sea will appear on the Radar View as an AIS target.
Selected	Color: White / Flashing Colored Frame
Target	Use the arrow keys to select any target on the Radar View. After
[2]	selected, press 🖬 and the detailed information on each target
	can be viewed.
Dangerous	Color: Red
Target	When distance to a ship is smaller than CPA/TCPA, the target will
4	be changing color to RED. Use the arrow keys to select the
	dangerous target and to view its detailed information.
AtoN	Color: Green / Plus Sign
(Real)	The icon will be displayed if any AIS AtoN (Aids to Navigation) Real
\Leftrightarrow	station is in the range of reception.
AtoN Color: Green / Plus Sign and Undercut	
(Virtual)	The icon will be displayed if any AIS AtoN (Aids to Navigation)
÷	virtual station is in the range of reception.
SAR	Color: Green
Δ	The icon will be displayed if any SAR air plane is in the range of
	reception.
SART	Color: Green / Cross
\otimes	The icon will be displayed if any SART message is sent out.
Base	Color: Green
Station	The icon will be displayed when any AIS base station is in the
∇	recention range
u	

2.2.3 Status Bar

The **Status Bar** constantly indicates own ship position, GPS status, SRM, ALR (alert state), and Date (YYYY/MM/DD) & Time. It will indicate IL (Inland) and/or B (Blue Sign) when the system is running Inland mode.



2.2.4 Transmission and Reception Bar

The **Transmission & Reception Bar**, at bottom of **Radar View**, constantly displays real time status of AIS transmission and reception, and ship orientation mode.



ltem Number	Name	Function		
	Indicators	\bigcirc	No transmissions & receptions: No flash	
1			Reception of AIS message: Flash green color	
			Transmission of AIS message: Flash orange color	
		N-up	North up	
2	Ship Orientation Mode	C-up	Course up	
		H-up	Head up	
3	Compass	٨	Indicate north direction	
4	Scale		0.05 NM ~ 24 NM	

2.3 **Keyboard**

Keyboard will pop up when getting into AIS Settings, Send SRM, etc. pages.

The following two keyboards are used when entering text and the right one is only for entering numbers.

Upon keyboard showing up on screen, user can use physical arrow keys on device front panel to traverse and select character for editing text.



- Use to move the caret index
- Confirm the entering value. (Hot key: press for 2 seconds)

- I Delete one character
- Esc Leave the keyboard. (Hot key: press
- ... Change the keyboard character. The keyboard character will change back after entering one character.
- Lk Lock the keyboard character •



2.4 Menu Tree Overview

Press **E** to enter main MENU. There are 5 menu choices, and additional 2 menu choices for Inland mode. Each menu holds related sub-menu as depicted below.



Messages				
SRM Inbox	Log of safety related messages (SRM) received			
SRM Outbox	Log of safety related messages (SRM) sent			
	Log of received inquiry messages from long-range			
	interrogation			
Send SRM	Send SRM			
	AIS Settings			
Own Ship	Your vessel setting			
VOYAGE	Navigation setting			
СРА / ТСРА	CPA / TCPA setting			
Operation Made	Configure AIS mode to SOLAS or INLAND, and SART Test			
Operation wode	Mode			
Alert Settings	Enable or disable Alert			
Long Range Settings	Long Range settings			
Long Range	Long Pango broadcast channel setting			
Broadcast				
VSWR Settings	VSWR (voltage standing wave ratio) setting			
Transceiver	Configure silent mode and RF Tx power condition and			
Indifficeivei	External switch function			
Extended Tow	Setting extended dimension values used by towing			
Dimension	vessels. (When Navigation status is set to 12)			
	Navigation Operation			
Own Ship	Your vessel information			
Target List	Navigation status and boat information of other			
	AIS-equipped vessels.			
Region List	Regional information status			
GNSS Status	Display GNSS statuses			
Sensor Status	Display sensor statuses			
Dangerous Target List	Dangerous ship list			
Alert List	Display all activated alert.			
Alert History	Log of activated alert			
	System Configuration			
User Customize	Personalization settings			
GNSS Customize	GNSS settings			

2.4.1 Menu Item Brief Description

I/O Port Settings	I/O port settings	
Password Setting	Password change	
Firmware Upgrade	Firmware upgrade	
Ethernet Setting	Ethernet setting	
Factory Reset	Restore all setting to default	
	Diagnostics	
Keypad Test	Button key test	
Panel Test	LCD panel test	
Power On/Off Log	Device activated log	
Firmware Version	Firmware version	
System Diagnostics	System diagnostics	
Debug Messages	Debug messages	
Communication Test	Test communication link	
Ethernet Error	Display Ethernet Error Logging	
Logging		
	Inland Messages	
POB Outbox	Log of Person On Board message (RFM55 or IFM16) sent	
Create POB Message	Create Person On Board message (RFM55 or IFM16)	
Inland Settings		
Vessel Data Setting	Configure vessel data	
Number of Person	Set number of persons	
Blue Sign Setting	Set blue sign settings	
Report Rate Setting	Set report rate settings	

2.5 Messages

When a SRM (Safety Related Messages) from other AIS equipped vessels is received, the status bar will display a, the new message icon.

25° 03.5555'N 121° 38.07 33'E	2023/07/19 07:54:20
Menu	Messages
🖾 Messages	SRM Inbox
💐 AIS Settings	SRM Outbox
🍯 Navigation Operation	LR Inbox
System Configuration	Send SRM
& Diagnostics	

2.5.1 SRM Inbox



25° 03.5555'N 2023, 121° 38.0733'E 14 SRM Inbox					
	MMSI	Date/Time	Message	1/1	
X	75000000	05/04 09:30	TEST MESSAGE		

25° 03.5555'N 121° 38.07 33'E		2023/05/04 14:21:07
Messages		
Message Type Date/Time MMSI	Addressed SRM 05/04 09:30 750000000	
Message Content	TEST MESSAGE	

When pressing , system will show 3 options. You can choose to **reply** the highlighted message or **delete** it or **delete all** messages in SRM Inbox. Press to confirm your choice.

25°03.5 121°38	5555'N .0733'E		2023 1	3/05/04 4:21:46
SRM I	nbox			
	ммы	Date/Time	Message _{Reply}	
感	75000000	05/04 09:30	TEST ME Delete	
			Delete All	

2.5.2 SRM Outbox

You can read all sent SRM under Outbox. Use 🛛 🖤 to traverse the
message list and highlight your choice. Read the message content by pressing
Tx column, you can see 3 different icons. 🔲 means the device is still sending the
message. After sending the message, Tx column will show 🗹 that means the

message has been successfully sent, if failure it will show 🗵

25° 03.5555'N 121° 38.07 33'E				2023/05/04 14:22:19
SRM Outbox				
MMSI	Message	Date/Time	Tx	1/3
751000000	TEST MESSAGE	05/4 09:59		
751000001	TEST MESSAGE	05/4 09:58	\checkmark	
751000002	TEST MESSAGE	05/4 09:5 7	×	

25° 03.5555'N 121° 38.07 33'E			2023/05/04 14:22:55
Messages			
MMSI Date/Time Message Type	22222222 05/4 09:59 default	Destination MMSI ACK	7 51000000 NO
Message Content	TEST MESSAGE		

When pressing , system will show 2 options. You can choose to **delete** it or **delete all** messages in SRM Outbox. Press to confirm your choice.

2.5.3 Long Range Inbox

When the transponder is connected to a long range communication system via the long range communication port then long range interrogations may be received. These are requests for information from a distant base station beyond normal AIS operation range. LONG RANGE Inbox holds all received Long Range Interrogation messages.



Use

to traverse the message list and highlight your choice. Read the

message content by pressing

When pressing E, system will ask whether the highlighted message should be acknowledged. Press to confirm your choice.

2.5.4 Send SRM

This submenu allows the users to compose a Safety Related Message (SRM). Maximum length for the message is 85 characters. **Message Type** gives you the option to send the broadcast message or the addressed message. If the user chooses to send the addressed message, the system will show **MMSI** below the **Message Type**.

25° 03.5555'N 121° 38.07 33'E		2022/03/24 14:48:09
Send SRM		
Message Type	Broadcast SRM	
Channel	No Preference	
Message Content	Enter text here	
	Send	

25° 03.5555'N 121° 38.07 33'E			2022/03/24 14:49:09
Send SRM			
Message Type	Broadcast SRM	Addressed SRM Broadcast SRM	
Channel	No Preference		
Message Content	Enter text here		
		Send	

25°03.5555'N 121°38.0733'E Send SRM			2022/03/24 14:49:43
Message Type MMSI Channel	Addressed SRM 000000000 No Preference		
Message Content	Enter text here		
		Send	

25° 03.5555'N 121° 38.07 33'E	555'N 2022/03/2= 0733'E 14:50:20						
Send SRM			MMSI				
Message Type MMSI	Addressed SRM 00000000		Cha	racte	left	9	
Channel	No Preference		1	2	3	×	
Message Content	Enter text here		4	5	6	ESC	
			7	8	9		
		Send	0	ŧ	♠	→I	

After entering the MMSI number, choose the **Channel**. It gives you the option to send message through channel A, B or Both A & B. By No Preference, which is the default option, the system will select the channel automatically. Then, compose the message.

25° 03.5555'N 121° 38.07 33'E			2022/03/24 14:51:19
Send SRM			
Message Type MMSI Channel Message Content	Addressed SRM 222222221 No Preference Enter text here	No Preference Only Channel A Only Channel B Both Channel A & B	
		Send	

25°0 121°	25° 03.5555'N 2021/11/17 121° 38.07 33'E 15:07:58												
Sen Message Content Character left : 85													
Mes													
мм	1	2	3	4	5	6	7	8	9	0	+	$\langle \mathbf{x}$	
Cha	Q	W	Ε	R	Т	γ	U	I	0	Ρ		ŧ	
Mes	А	S	D	F	G	Н	J	Κ	L		[•	
	Ζ	Х	С	V	В	Ν	М			/		\	
	Lk										ESC	→I	

To send the message, press the send button on the bottom of the view and the system will ask whether to send the message. Select **YES** to send and return to Messages submenu, **NO** to cancel and stay at this view.



To leave this page, press and the system will ask whether to leave this view. Select YES to leave, NO to stay at this view. For simple use, press two times and the system will return to the Messages submenu.

25° 03.55555'N 121° 38.07 33'E		2022/03/24 14:53:16
Send SRM	Send SRM	
Message Type MMSI Channel Message Conto	Quit ?	
	YES NO	
	Send	

2.6 AIS Settings

This menu list provides access to settings that are required during installation of the transponder. There are a total of 9 submenus.

25° 03.5555'N 121° 38.07 33'E	2023/07/19 08:33:04
Menu	AIS Settings
🖾 Messages	Own Ship
💐 AIS Settings	Voyage
🎻 Navigation Operation	CPA / TCPA
System Configuration	Operation Mode
& Diagnostics	Alert Settings ▽

2.6.1 Own Ship

Note: Own ship settings are operator password protected, changes can only be saved when the operator password is entered. For password details, see section 2.12 of the M6 installation manual.

The following information about the vessel should be correctly set up by installation technician prior to operation.

- Ships MMSI number
- Ship Name limited to 20 characters
- Ship IMO number
- Call Sign vessel radio call sign (limited to 7 characters)
- Position of internal GPS antenna giving the location of the GNSS antenna connected to the AIS transceiver (integrated internal GPS receiver)
- Position of external GPS antenna giving the location of the GNSS antenna connected to any external position source connected to the AIS transceiver
- Length and Beam measured length and width of the ship (inland mode only)

25° 03.5555'N 121° 38.07 33'E	2023/05/04 16:18:01
Own Ship	SAVE
MMSI 000000000 Ship Name IMO 000000000 Call Sign	
Internal Antenna Position (m) A B C D External Antenna Position (m) A B C D	A C D
25°03.5555'N 121°38.0733'E	2023/05/04 16:39:23
Own Ship(Inland)	SAVE
MMSI 000000000 Ship Name IMO 0000000000 Call Sign	
Length and Beam (m)	
LS BS Internal Antenna Position (m)	
A B C D	↓ • · · · · · · · · · · · · · · · · · ·
External Antenna Position (m)	C D
A B C D	
25° 03.5555'N 121° 38.07 33'E	2023/05/04 16:40:49
Own Ship	MMSI
MMSI 000000000 Ship Name IMO 0000000000 Call Sign	Character left : 9
	1 2 3 🗵
Internal Antenna Position (m)	4 5 6 ESC
A B C D	7 89
External Antenna Position (m) A B C D	0 ← → →

25° 03.5555 121° 38.07 3	'N 🖸	2								20	21/01/3 16:36:	27 51
Own Shi	Ship	Name						Cha	racter	left :	20	
MMSI (
IMO (1	2	3	4	5	6	7	8	9	0	×	
	Q	W	Ε	R	Т	γ	U	Ι	0	Ρ		
Internal	А	s	D	F	G	н	J	К	ι		→I	
A B External	Z	Х	С	V	В	Ν	М			7	ESC	
A B	Lk											
25° 03.5555	'N									20	23/05/	04
121°38.0/3	3'E					bin				C ///	16:41: E	35
Own Ship)			0	wn 2	nıp				SAV	<u> </u>	_
MMSI 0	000								- 1			
	000				C A) /F							
					SAVE	. :			ī			
Internal /	Ant									A		
A B		V	'FS	1			N	0	-	R		
External	An									0		
А В		с	· I	D O				1.	-1			
25° 03.5555	'n									20	23/05/	04
121°38.073	3'E										16:48:	26
Own Ship)			Passw	vord R	equir	ed		_	SAV	E	
MMSI O	000											
IMO O	000		Pas	sword	l must	be 6	digits					
					0000	00			Ţ			

NEXT

Internal Ant

а-- в--External An A

В

25° 03.55555'N 121° 38.07 33'E		2023/05/04 16:42:37
Own Ship		SAVE
MMSI 0000 IMO 0000	Password checking successful	
Internal An	Ready to save setting	A
а в External An	ОК	В
А В	C D	

2.6.2 Voyage

In this submenu the following navigational information can be configured:

- Destination Ship's next destination port (limited to 20 characters).
- ETA Date Estimated date of arrival at destination (using UTC time)
- ETA Time Estimated time of arrival at destination (using UTC time)
- Ship Type use direction keys to select the type of vessel from the list
- Ship Cargo use direction keys to select the type of vessel from the list
- Navigation status use direction keys to select the suitable status from the list
 - 25°03.5555'N 2023/05/05 121°38.0733'E 09:33:34 SAVE Voyage Destination ETA Date mm/dd Set1 ETA Time hh:mm Set2 Ship Type 30 - Vessel Fishing Set 3 Ship Cargo 0 - All ships of this type Set4 Navigation Status 15 - Undefined Set 5 Draught(m) 25.5 Person 8191
- Person the number of person on board

Notice: if Ship Type is Tanker, by regulation, whenever the ship navigation status is "Moored", the transponder's transmission power is automatically changed to 1W for safety measures.

At the right side of the view, you can see a block (Set1 ~ Set5) when pressing row, you can input the setting name and then the system will save the current voyage setting to this Set. Next time, if you want to use the same setting, just select the Set, you saved, and press. The system will apply the setting to the current voyage value.

25° 03.5555'N 121° 38.07 33'E		2023/05/05 09:46:50
Voyage		SAVE
Destination		
ETA Date	mm/dd	Set1
ETA Time	hh:mm	Set2
Ship Type	30 - Vessel Fishing	Set 3
Ship Cargo	0 - All ships of this type	Set4
Navigation Status	15 - Undefined	Set5
Draught(m)	25.5	
Person	8191	

2023/05/05 09:54:05

Character left : 7

121°38.0733'E Voy Input the setting name Des TPE ETA 1 2 3 4 5 6 7 8 Shi; Q W E R T Y U I

25°03.5555'N

× 9 0 W Ε R U 0 Ρ Shi А D G Н Κ L Nav Dra Ζ С V В Ν М Pers Lk ESC →

25° 03.5555'N 121° 38.07 33'E		2023/05/05 09:55:37
Voyage		SAVE
Destination		
ETA Date	mm/dd	TPE
ETA Time	hh:mm	Set2
Ship Type	30 - Vessel Fishing	Set3
Ship Cargo	0 - All ships of this type	Set4
Navigation Status	15 - Undefined	Set5
Draught(m)	25.5	
Person	8191	

25° 03.5555'N 121° 38.07 33'E			2023/05/05 09:59:28
Voyage			SAVE
Destination			
ETA Date		TPE	
ETA Time	Apply Set 1 to Vova	Set2	
Ship Type		Set 3	
Ship Cargo			Set4
Navigation Sta			Set5
Draught(m)	YES	NO	
Person			

25° 03.5555'N 121° 38.07 33'E				2023/05/05 10:00:31
Voyage		Voyage		SAVE
Destination				TDE
ETA Time	TA Time	SAV/F ?	Set2	
Ship Type		SAVE .		Set 3
Ship Cargo				Set4
Navigation Sta				Set5
Draught(m)	YES		NO	
Person				

2.6.3 CPA/TCPA

In this submenu the closest point of approach (CPA) and time to CPA (TCPA) can be set. The vessels with insufficient CPA and TCPA will be displayed in the dangerous list and radar view with red color.

- CPA in nautical miles
- TCPA in minutes

25° 03.5555'N 121° 38.07 33'E			2023/05/05 10:56:47
СРА / ТСРА			SAVE
CPA (NM)	5		
TCPA(min)	10		

To save the setting, select the SAVE button in the view and press . The system will ask whether the changes should be saved. Select YES to save or NO to discard and return to AIS settings submenu.

2.6.4 Operation Mode

You can configure the transponder to operate in SOLAS or INLAND mode. Each mode has some specific submenu and menu options. Displaying the SART Test on the M6 screen can be enabled or disabled by configuration setting (ON/OFF) as well.

25° 03.5555'N 121° 38.07 33'E		2023/05/05 11:15:12
Operation Mode		SAVE
AIS Mode	SOLAS	I
SART Test Mode	OFF	

2.6.5 Alert Settings

This submenu can be used to enable or disable ALF sentence. For instance, if an ALF sentence is no enabled, the corresponding alarm would not activate.

25° 03.55 121° 38.0	55'N 733'E	20	23/05/05 11:29:10
Alert Se	ttings	SAV	E
BIIT ID	Description Text	Enabled	1/17
1	Tx malfunction	\checkmark	
2	VHF Antenna VSWR exceeds limit	\checkmark	
3	Rx channel 1 malfunction	\checkmark	
4	Rx channel 2 malfunction	\checkmark	
5	Rx Channel 70 malfunction	\checkmark	
6	General failure	\checkmark	
7	UTC sync invalid	\checkmark	
9	Internal/external GNSS position mismatch	\checkmark	
10	NavStatus incorrect	\checkmark	
2.6.6 Long Range Settings

This section is password protected, value changes can only be saved using the operator password. This menu provides user choices to auto-response remote interrogation and settings of the response information.

You can set **Mode** to either Auto or Manual. The setting for the rest of information is either Provide or Not Provide.

25° 03.55555'N 121° 38.07 33'E	2023/05/05 11:53:42
Long Range Settings	SAVE
Mode	Auto
Name,Call Sign,IMO	Provide
Length, Breadth, Type	Provide
Date/Time	Provide
Ship Cargo	Provide
ETA	Provide
Draught(m)	Provide
Position	Provide
COG	Provide

2.6.7 Long Range Broadcast

This section is password protected, value changes can only be saved using the operator password. Class A transmits Message 27 every 3 minutes through the channels alternately. Provided here are the options to change the transmitting channel (default 75 or 76) for Message 27.



2.6.8 VSWR Settings

The VSWR setting function allows the fine-adjustment of VSWR threshold according to the cable length and VHF antenna characteristics.

25° 03.5555'N 121° 38.07 33'E		2023/05/08 09:56:00
VSWR Settings		SAVE
System VSWR	0.000 V	
Available Threshold Range	0.0 ~ 3.3 V	
VSWR Threshold	1.30	

2.6.9 Transceiver

This section is password protected value changes can only be saved using the operator password. The submenu allows the users to switch on or off the transmission and enable to switch the transmission power between 12.5 W, as "normal", and 1 W. The External Switch (SOLAS Mode Only) allows the user to set "No Function" and "Low TX Power Mode" function for "BLUE_SIGN" connector on Junction Box.

	2023/02/22 15:19:59
	SAVE
OFF	I
Normal	
No Function	
	OFF Normal No Function

2.6.10 Extended Tow Dimension

This option provides users to setting extended dimension values used by towing vessels.

Under the following two conditions, this option will appear in the Menu.

- 1. AIS operate mode is INLAND mode or
- 2. in SOLAS mode, and Navigational Status is 12 = power-driven vessel pushing ahead
 - or towing alongside.



2.7 Navigation Operation



2.7.1 Own Ship

This option displays the full information on your ship, including both dynamic and static data. Use direction keys to change between dynamic and static information.

25° 03.5555'N 121° 38.07 33'E			2023/05/08 11:12:50
Own Ship			
Ship Name			1/2
MMSI O	SOG	COG	
Latitude		ROT	
Longitude		HDG	
Navigation Status	0 - Under waj	y using engine	
Position Accuracy	Low		
Position Quality			

Static data and Dynamic data

25° 03.55555'N 121° 38.07 33'E				2023/05/08 11:13:42
Own Ship				
Call Sign		EPFD	Undefined	2/2
IMO	0	RAIM		
Ship Type	0			
Ship Cargo	0 - A	Il ships of this typ	pe	
Destination				
ETA			Draught(m)	0.0
Dimension			Person	0
Manoeuvre indic	ator	Not available	DTE Not availa	able

Inland Vessel Information

The following information is only available under inland mode.

25° 03.5555'N 121° 38.07 33'E			2023/05/08 11:15:43
Own Ship			
ENI		Quality of Speed	3/3 Low
Ship Length(m)	0.0	Quality of Course	Low
Ship Beam(m)	0.0	Quality of Heading	Low
ERI Ship Type			
Blue cones	0	Crew members	0
Draught(m)	0.0	Passengers	0
Load Status	Loaded	Shipboard personnel	0
Blue Sign	Disabled	Persons on Board	0

2.7.2 Target List

This option displays all received AIS information of other vessels including dynamic and static information. Use direction keys to select AIS target and then press for go through dynamic and static information of the selected vessel. There are two pages of ship details for SOLAS mode and another one page for Inland mode.

25°0 121°3	3.5555'N 38.0733'E					2023/05/08 11:26:50
Targe	et List					
	Name/MMSI		AGE	BRG	RNG	1/12
$\overline{\mathbf{A}}$	BARLIAN T1201		23s	125	4.31	
$\overline{\mathbf{A}}$	TB SOL 1010		12s	325	5.57	
$\overline{\mathbf{A}}$	440982000		9s	27	12.52	
VA	47777 0700		3m 10s	164	1.84	
VA	CRYSTAL RIVER		1s	59	2.50	
$\overline{\mathbf{A}}$	STAR ADMIRAL		10m23s	210	7. 85	
$\overline{\mathbf{A}}$	525009342		33s	188	2.50	
$\overline{\mathbf{A}}$	538008570		2m13s	19	3.56	
1	563051600		50s	12	9.85	
25°0 121°3	3.5555'N 38.0733'E					2023/05/08 11:28:19
25°0 121°3 Targe	3.5555'N 88.0733'E et Detail					2023/05/08 11:28:19
25°0 121°3 Targe Ship I	3.5555'N 38.0733'E et Detail					2023/05/08 11:28:19
25°0 121°3 Targe Ship f	3.5555'N 38.0733'E et Detail ^{Vame}	sog			COG	2023/05/08 11:28:19
25°0 121°3 Targo Ship I MMSI Latitu	3.5555'N 38.0733'E et Detail Name de	SOG			COG ROT	2023/05/08 11:28:19
25°0 121°3 Targo Ship I MMSI Latitu Longi	3.5555'N 38.0733'E et Detail Name de tude	50G			COG ROT HDG	2023/05/08 11:28:19
25°0 121°3 Targe Ship I MMSI Latitu Longi Navig	3.5555'N 38.0733'E et Detail Name de tude ation Status	SOG 0 - Und	er way usir	ng engine	COG ROT HDG	2023/05/08 11:28:19
25°0 121°3 Targe Ship I MMSI Latitu Longi Navig Positi	3.5555'N 38.0733'E et Detail Vame de tude ation Status on Accuracy	SOG 0 - Unda Low	er way usi	ng engine	COG ROT HDG	2023/05/08 11:28:19
25°0 121°3 Targe Ship I MMSI Latitu Longi Navig Positi Positi	3.5555'N 38.0733'E et Detail Name de tucle ation Status on Accuracy on Quality	50G 0 - Unde Low 	er way usi	ng engine	COG ROT HDG	2023/05/08 11:28:19
25°0 121°3 Targo Ship I MMSI Latitu Longi Navig Positi Positi	3.5555'N 38.0733'E et Detail Name de tude ation Status on Accuracy on Quality	SOG 0 - Unde Low 	er way usin	ng engine	COG ROT HDG BRG	2023/05/08 11:28:19
25°0 121°3 Targo Ship I MMSI Latitu Longi Navig Positi Positi CPA (I	3.5555'N 38.0733'E et Detail Vame de tude ation Status on Accuracy on Quality	SOG O - Unde Low TCPA(min	er way usin	ng engine	COG ROT HDG BRG RNG	2023/05/08 11;28;19

Use direction keys to continue reading the dynamic and static information of the selected vessel.

Additional inland information is available under inland mode.

25°03.5555'N 121°38.0733'E			2023/05/08 13:30:53
Target Detail			
ENI Ship Length(m)	0.0	Quality of Speed Quality of Course	Low Low
Ship Beam(m) ERI Ship Type	0.0	Quality of Heading	Low
Blue cones		Crew members	0
Draught(m)	0.0	Passengers	0
Load Status	Loaded	Shipboard personnel	0
Blue Sign	Disabled	Persons on Board	0
			3/3

• Sorting vessels

In the list, press m will open the pop-up window and user can sort the list according to vessels' MMSI, direction (BRG), or distance (RNG). Also user can choose what kinds of ship type whether should be displayed in the target list.

In the screenshot of the Target List, one subtitle has different color between others indicates the current sorting method.

25° 03.5555'N 121° 38.07 33'E		2023/05/08 13:31:50
Target List		
Sorting	Filter	
MMSI BRG RNG	✓ AII ✓ Base Station ✓ SAR	✓ Class A ✓ Class B ✓ AtoN

2.7.3 Region List

The region list displays all saved region areas. Use direction keys to traverse the list.

Press enables you to read the highlighted region information.

25°03 121°3	.5555'N 8.0733'E			2023/05/08 15:05:53
Regio	n List			
In Use	LAT(NE)	LON(NE)	LAT(SW)	LAT(SW) 1/1
	23°30.0000'N	121°30.0000'E	19°30.0000'N	122° 30.0000' E
25°03 121°3	.5555'N 8.0733'E			2023/05/08 15:06:39

25° 03.5555'N 121° 38.07 33'E			2023/05/08 15:06:39
Region Detail			
Latitude(NE)	20°30.0000'N	Power	High
Longitude(NE)	123° 30.0000' E	Source	ACA sentence
Latitude(SW)	19°30.0000'N	TX/RX Mode	TxA/TxB/RxA/RxB
Longitude(SW)	122° 30.0000 E		
Only Channel A	2022	Bandwidth	0
Only Channel B	2061	Bandwidth	0
Transition Zone(NM)	5		

• Editing or Adding region content

You can add or modify the region area setting by pressing E at the region list page. Use direction keys to select the field to edit, then press to enter the value.

25°03 121°3	.5555'N 8.0733'E			2023/05/08 15:12:25
Regio	n List			
In Use	LAT(NE) 23°30.0000'N	LON(NE) 121°30.0000'E	LAT(SW) 19° 30.0000'N	LAT(SW) 1/1 Add Edit Delete
25°03 121°3	.5555'N 8.0733'E			2023/05/08 15:12:47
25°03 121°34 Regio	.5555'N 8.0733'E n Detail			2023/05/08 15:12:47 SAVE

2.7.4 GNSS Status

In this submenu the following GNSS information is displayed:

- GNSS Status show device's GNSS data
- GNSS Constellation GNSS source location distribution
- Ship Location -
- Satellite Signal to Noise Ratio GNSS source signal magnitude





2.7.5 Sensor Status

25° 03.5555'N 121° 38.07 33'E		2023/05/08 15:53:34
Sensor Status		
Position Status Position Quality	External DGNSS in use Position > 10 m	
UTC Status COG Status SOG Status Heading Status ROT Status	Invalid Invalid Invalid Invalid Invalid	

Display sensor statuses:

SENSOR	STATUS
	External position source other than GNSS
	Internal GNSS in use
Desition Status	External GNSS in use
Position Status	Internal DGNSS in use (corrected; beacon)
	Internal DGNSS in use (corrected; Message 17)
	External DGNSS in use
	No position
Desition Quality	Manual position
Position Quality	Dead reckoning position
	valid position with no time stamp

	Position > 10m		
	Position with RAIM > 10 m		
	Position <= 10 m		
	Position with RAIM <= 10 m		
	Outdated position > 200 m		
UTC Status	Valid / Invalid (Note 1)		
COG Status	Internal COG / External COG / Invalid		
SOG Status	Internal SOG / External SOG / Invalid		
Heading Status	Valid / Invalid		
ROT Status	Valid / Other ROT / Invalid		
Note 1: When AIS not o	connected with internal GPS, UTC got lost and time		
unsynchronized, then the M6 will continue operation using indirect or semaphore			
synchronization.			

2.7.6 Dangerous Target List

With the setup of closest point of approach (CPA) and time to CPA (TCPA), this submenu provides an efficient way to monitor vessels with insufficient CPA and TCPA. The dangerous targets can also be observed on radar view (with red color).

Use direction keys to traverse the list and press to read information of the selected vessel.

25°03. 121°38	5555'N 3.0733'E		202	23/05/08 16:24:53
Dang	erous Target List			
	Name/MMSI	CPA	TCPA	1/2
T				
J	TB SOL 1010	10	15	

2.7.7 Alert List

M6 features SART/MOB alarm that can appear any time during operation. When SART/MOB message is received, the ! or or icon will appear in the status bar with beeping sounds twice from the buzzer.

There are 2 ways to access the Alert List: either through Main Menu/Navigation

Operation/Alert List or with the hot key by holding for 3 seconds and the system will enter the Alert List screen. Another hot key in Alert List, by pressing you can select the alert between the first and the last.

The list shows all current AIS alerts and their status. Use direction keys to navigate the list. You can acknowledge (ACK) the alert message by pressing \blacksquare . The system will ask for confirmation if the chosen alert should be acknowledged. If the alert has not yet acknowledged, an indication icon \blacksquare will appear in the status bar till all acknowledged are made.

The transponder performs a function self-check continuously. If a self-check fails an alarm will occur. The Appendix shows all possible alarm scenarios.

25° 03.5555'N 121° 38.07 33'E			20	023/05/08 16:30:49
Alert List				
Alert Identifier	Alert Text	Priority	BIIT ID	State
3108	Locating device	w	14	
Additional Informa	tion			1/1
Check AIS targets				

Alert ID	Alert text	Additional information	Prio	Cat	Escal	BIIT ID
3108	Locating device	Check AIS targets	W	В	W	14
3062	General fault	Check AIS equipment	W	В	W	6
3008	Transceiver fail	Not transmitting, check AIS	W	В	W	1
		Not receiving, check AIS	W	В	W	3 ` 4
3015	Lost position	Own ship position not transmitted	W	В	W	26
3116	Impaired radio	Reduced coverage (antenna VSWR)	С	В		2
		Ch1 inoperative, check AIS	С	В		3
		Ch2 inoperative, check AIS	С	В		4
		DSC inoperative	С	В		5
3113	Sync in fallback	Check AIS for UTC time synchronisation	С	В		7
3003	Lost ext EPFS	Check external position sensor	С	В		25
3119	Missing COG	Not transmitting COG	С	В		30
	Missing SOG	Not transmitting SOG	С	В		29
	Missing Heading	Not transmitting Heading	С	В		32
	Missing ROT	Not transmitting Rate of Turn	С	В		35
3013	Doubtful GNSS	Int/Ext GNSS position mismatch	С	В		9
	Doubtful heading	Difference with COG exceeds limit	С	В		11
3019	Wrong NavStatus	Check NavStatus setting	С	В		10
3009	Lost MKD	Cannot display safety related messages	С	В		8

 Table
 –
 BAM alert instance

Note 1, Alert priority (Prio): W (Warning) $\ C$ (Caution) Note 2, BIIT ID 1 is generated if there is a malfunction in the transmitter hardware or the MMSI is set to "0".

Table – Alert state and audible annunciation for warnings

Alert state	Visual presentation	Audible annunciation
V: active –		2 short audible signals and repeated
unacknowledged	•	as a warning after 3 minutes
S: active – silenced	N	None
	<u> </u>	
A: active –		None
acknowledged	•	
U: rectified –		None
unacknowledged	✓	

Table – Alert state and audible annunciation for cautions

Alert state	Visual presentation	Audible annunciation
A: active	<u>.</u>	None

2.7.8 Alert History

This submenu lists all recorded alarms and time of occurrence.

25° 03.5555'N 121° 38.07 33'E			2023/05/08 16:47:32
Alert History			
Alert Identifier	BIIT ID	Text	Date/Time 1/1
3108	14	Locating device	05/08 16:40

2.7.9 MOB crew list

This page explains how to assign a friendly crew name to an individual AIS MOB Marine Survivor location device (MSLD) or AIS SART. The pre-entered name can then be displayed upon receiving an AIS MOB message alert from the crew members allocated MMSI identity. An SD Card should be inserted under the M6 front facing cover flap, used to store the crew MOB crew list information. Up to 100 sets of MMSI with crew member name can be stored.

25° 03.5555'N 121° 38.07 33'E		2023/11/16 11:50:49
Menu		Navigation Operation
 Messages AIS Settin Navigatio System Content 	gs n Operation onfiguration	△ Sensor Status Dangerous Target List Alert List Alert History
🖉 Diagnosti		MOB List
25° 03.5555'N 121° 38.07 33'E		2023/11/16 11:49:37
MOB List		
MMSI	Name	1/12
970050001	JIM	Add
970050002		
970030002	PETTER	Edit 970050001
97 005 0002	PETTER SAL	Edit 970050001 Delete 970050001
970050002 970050003 970050004 970050005	PETTER SAL MAGGIE WINNIE	Edit 970050001 Delete 970050001
97 0050002 97 0050003 97 0050004 97 0050005 97 0050006	PETTER SAL MAGGIE WINNIE GEORGIA	Edit 970050001 Delete 970050001
97 0050002 97 0050003 97 0050004 97 0050005 97 0050006 97 0050007	PETTER SAL MAGGIE WINNIE GEORGIA LEILA	Edit 97 0050001 Delete 97 0050001
97 0050002 97 0050003 97 0050004 97 0050005 97 0050006 97 0050007 97 0050008	PETTER SAL MAGGIE WINNIE GEORGIA LEILA JULIA	Edit 97 0050001 Delete 97 0050001

Pressing **Fn** will display the following three sub-menus.

- Read From SD Card: Read MMSI and Names from MobList.csv list saved on the SD card.
- Save To SD Card: Save MMSI and Names to MobList.csv on the SD card.

Clear MOB List: Delete all MMSI and Names.

25° 03.5555'N 121° 38.07 33'E	SD	2023/11/16 11:48:36
MOB List		
MMSI	Name	1/12
970050001	JIM	Read From SD Card
970050002	PETTER	Save To SD Card
970050003	SAL	Clear MOB List
970050004	MAGGIE	
97 005 0005	WINNIE	
97 005 0006	GEORGIA	
97 005 0007	LEILA	
970050008	JULIA	
97 005 0009	TINA	
25° 03.5555'N 121° 38.07 33'E		2023/11/16 11:50:01
MOB Detail		SAVE
MMSI	97 005 000 1	
Name	MIL	

It might be more convenient to edit a large crew name list on a computer screen. Use a text editor program to access the SD card from a computer and edit and re-save the MOBList.CSV file.

The format of the MOBList.CSV file is as shown here. The first-row column A must contain "MMSI" then in column B "Name". The crew list then starting from the second row, input the desired MMSI and Names. Be careful to keep the same file name when resaving the list.

	A	В
1	MMSI	Name
2	970050001	JIM
3	970050002	PETTER
4	970050003	SAL
5	970050004	MAGGIE
6	970050005	WINNE
-	000000000	aronati

2.8 System Configuration

System configuration provides access to user configurable preferences for M6. All user settings are stored within the transponder and will be maintained if the power supply is switched off.

After the setting is done, press SAVE button in the view and the system will ask whether the changes should be saved.

Select YES to save or NO to discard and return to System Configuration submenu.



2.8.1 User Customize

Customize provides personalization settings:

- Language select the user interface language from the available language options
- Dimmer brightness setting from 0 (low) to 10 (high)
- Dimmer Mode set the Dimmer Mode to Auto or Manual
- Key Beep turn on or off the key beep
- Time Zone set the time zone

25° 03.5555'N 121° 38.07 33'E			2023/05/09 09:35:08
User Customize			SAVE
Language Dimmer Dimmer Mode	English Manual	0	
Key Beep Time Zene	YES		
Time Zone	GM1 +00:00		

2.8.2 GNSS Customize

This submenu allows the user to change the supplied voltage of the GNSS antenna between 3.3 V or 5 V and select up to 3 of the 4 GNSS systems supported at any one time. It also allows to switch the operating altitude.

25° 03.5555'N	2023/05/09
121° 38.07 33'E	09:37:56
GNSS Customize	SAVE
GNSS Antenna Feeding Voltage	3.3V
Operating Altitude	At sea level
GNSS System ✓ GPS ✓ GLONASS	🗌 BeiDou 📄 Galileo

2.8.3 I/O Port Settings

 25° 03.5555'N
 2023/12/12

 121° 38.07 33'E
 15:43:27

 I/O Port Settings
 SAVE

 Port
 Baud Rate
 Checksum

 PILOT (front)
 38400
 Required

Required

Required

Required

Required

Required

Required

Required

Required

38400

38400

38400

38400

4800

4800

4800

This option provides an overview of baud rates and checksum on all ports.

2.8.4	Password Setting
	I abomora becang

This submenu enables change of the default operator password. Certain important settings stored within the transponder can only be changed using the operator password.

The Password is required for the access of the following chapters:

- Own ship contains information about MMSI, vessel name, IMO, call sign and dimension.
- Long Range Settings -
- Long Range Broadcast -

PILOT (rear)

Long Range(LR)

DISP

DGNSS

Sensor 1

Sensor 2

Sensor 3

USB

- Transceiver enables the option to activate/deactivate AIS transmission
- I/O Port Settings about baud rate configuration of sensors

Default password: please refer to section 2.12 in INSTALLATION Manual

Use direction keys to select Old Password, New Password and then press

enter value. To save the settings, press SAVE button in the view and the system will ask whether the changes should be saved. Select YES to save or NO to discard and return to System Configuration submenu.

25° 03.5555'N 121° 38.07 33'E		2023/05/09 09:50:49
Password Setting		SAVE
Old Password	*****	
New Password	*****	

2.8.5 Firmware Upgrade

This option is used when upgrading the transponder firmware version from the SD card.

Firmware Upgrade				
Select	Device	Old version	New version	
				0/0
			Estimated time	0m0s
		Please insert SD card		
		Start		

2.8.6 Ethernet Setting

The default IP address and Mask is 192.168.0.100/24. Input groups NAVD, TGTD and SATD are always enabled.

In this submenu the following Ethernet setting can be configured:

• IP address and network mask of AIS transceiver

Valid IP address ranges are shown as below:

10.0.0.0 ~ 10.255.255.255 (10/8 prefix)

172.16.0.0 ~ 172.31.255.255 (172.16/12 prefix)

192.168.0.0 ~ 192.168.255.255 (192.168/16 prefix)

SFI of AIS transceiver

SFI Range for AIS is Al0000 ~ Al9999. If SFI is Al9999 (default), M6 will not send data to Ethernet.

• Additional input multicast group

This setting is used for additional input groups.

- Transmission group
- SFI for Primary position sensor
- SFI for Secondary position sensor
- SFI for Primary SOG/COG sensor
- SFI for Secondary SOG/COG sensor
- SFI for Primary heading sensor
- SFI for Secondary heading sensor
- SFI for Primary ROT sensor
- SFI for Secondary ROT sensor
- SFI for Primary AIS Control
- SFI for Secondary AIS Control
- SFI for Primary alert command source
- SFI for Secondary alert command source

Table – Input transmission groups with applicable sentences

Тх	Multicast	Port	Typical	Typical sentences	Message
group	address		talker ID		type
NAVD	239.192.0.4	60004	GA, GP, GN,	DTM, GBS, GNS, RMC,	SBM
			LC, IN,	VBW, VTG, GGA, GLL	
			HE,	HDT, THS,	
			ТІ	ROT	
NAVD	239.192.0.4	60004	EC, EI, IN	ABM, ACA, AIR, BBM,	CRP
				SSD, VSD	
TGTD	239.192.0.2	60002	RA	ABM, ACA, AIR, BBM,	CRP
				SSD, VSD	
SATD	239.192.0.3	60003	HE	HDT, THS	SBM
PROP	239.192.0.8	60008	Proprietary	PAMC	SBM

25° 03.5555'N 121° 38.07 33'E	2023/11/27 08:27:46
Ethernet Setting	SAVE
IP address and network mask of AIS transceiver 192.168.0.100/24	
SFI of AIS transceiver	
AI9999	
Additional input multicast group	
NONE	
Additional input multicast group	
NONE	
Transmission group	
TGTD	

2.8.7 NMEA 2000 Settings

This page provides users with the option to enable or disable NMEA 2000, as well as configure System Instance and Device Instance settings.

	2023/11/16 09:58:19
	SAVE
Enabled	l
0	
0	
	Enabled O O

2.8.8 Factory Reset

This page allows the user to restore the default factory settings. It will restore the system preference settings and AIS settings.



2.9 **Diagnostics**

This submenu provides users to check system statuses. There are a total of 7 check options.



2.9.1 Keypad Test

This option provides keyboard testing. Pressing button during testing, a corresponding button on the screen will response. After all buttons are tested, a message will indicate. Press OK to exit. To quit test without completing, wait for 30 seconds and the system will return to the Diagnostics submenu.



2.9.2 Panel Test

In the submenu users can test the brightness of the screen.



2.9.3 Power On/Off Log

This option provides activation and silent mode history. An event of less than 15 minutes duration will not be recorded in the history.



2.9.4 Firmware Version

Provide model name, transponder firmware, display firmware, etc.

25°00.0000'N 121°00.0000'E		2024/04/28 14:20:31
Firmware Version		
Product	Smartfind M6 AIS Class A Z611	
Transponder Firmware	V2.0.4	
Display Firmware	V2.0.4	
Company	McMurdo	
Website	https://www.seasofsolutions.com	
S/N		

2.9.5 System Diagnostics

This option provides users to simply check the transponder condition. Press system will reset the time and count value.

25° 03.5555'N 121° 38.07 33'E		2023/05/09 15:01:33
System Diagnostics		
Start Time : 2023/05/09 15:01:18 Is vessel MMSI valid? Is GNSS position fixed? System VSWR 0.003 V	-	
Received messages channel A Received messages channel B Transmitted messages channel A Transmitted messages channel B	0 0 0 0	

2.9.6 Debug Messages

This page displays NMEA 0183 sentences output by AIS.

25° 03.5555'N 121° 38.07 33'E	2023/05/09 15:07:12
Debug Messages	Stop
I/O Port	
!AIVD0,1,1,,,100000?P0N`aq>0>CQh;a?wp3P00,0*	
!AIVDO,1,1,,,100000?P0N`aq>0>CQh;a?wp3P00,0*	
!AIVDO,1,1,,,100000?P0N`aq>0>CQh;a?wp3P00,0*	
!AIVD0,1,1,,,100000?P0N`aq>0>CQh;a?wp3P00,0*	
_!AIVD0,1,1,,,100000?P0N`aq>0>CQh;a?wp3P00,0*	

2.9.7 Communication Test

Communication between M6 and other Class A device can be tested. The procedure starts by transmitting Message 10 to an addressed Class A MMSI. The addressed MMSI, once received Message 10, will return Message 11. The test is then complete when the transponder successfully receives the Message 11.

25° 03.5555'N 121° 38.07 33'E		20	23/05/09 15:13:59
Communication Test			
Destination MMSI	Date/Time	Rx ACK	1/1
23333335	11/24 13:40	YES	

Press **I** to start the communication test. The system will show Target List that only has targets with Class A type. Use direction keys to select a target and then press

to start the transmission of Message 10.

2.9.8 Ethernet Error Logging

This option provides users to check the counts of errors detected in processing datagrams containing IEC 61162-1 sentences from Ethernet.

- TAG checksum error;
- TAG syntax error (line length, use of delimiters, invalid characters);
- TAG framing error (incorrect start or termination of TAG block);

25° 03.5555'N 121° 38.07 33'E		2023/05/09 15:16:41
Ethernet Error Logging		RESET
TAG checksum error	0	
TAG syntax error	0	
TAG framing error	0	

3 INLAND AIS OPERATION

3.1 Inland Messages



3.1.1 POB Outbox

The submenu displays log of sent Number of person on board (RFM55/IFM16) messages. The SOLAS Mode sends the total number of persons on board as a binary message with international IFM16.

The Inland Mode sends a message with number of crew, personnel and passengers as a binary message with inland branch RFM55 or IFM16.

Use direction keys to select a message and press 🖬 to display message content.

25° 03.5555'N 121° 38.07 33'E	L			2023/05/09 16:10:17
POB Outbox				
ммы	Туре	Date/Time	Тх	1/1
123456789	IFM16	08/13 09:59		

3.1.2 Create POB Message

In this submenu users can compose number of person on board (RFM55/IFM16) messages. Number of person onboard can be configured in Inland Settings. When "Broadcast SRM" is selected, just omit the Destination MMSI. The **Data Type** provides the option either to send the data in RFM55 or IFM16. Channel gives you the option to send the message through channel A, B, A&B, or No Preference. By No Preference, which is the default option, the system will select the channel automatically.

25° 03.5555'N 121° 38.07 33'E			2023/05/09 16:14:38
Create POB Message			Send
Destination MMSI Message Type	000000000 Broadcast SRM	Data Type Channel	RFM55 No Preference
Inland Persons In Crew members Passengers	oformation 0 0	Shipboard persor	nel O
SOLAS Persons In Number of Person	nformation 0		

3.2 Inland Settings



3.2.1 Vessel Data Setting

Inland related vessel data can be set in this submenu:

- ERI Ship Type ERI classification code.
- ENI European Number of Identification or European Vessel Identification Number
- Blue cones The number of blue cones or blue flag status for the cargo (1, 2 or 3 blue cones, or blue flag).
- Load Status "Loaded", "Unloaded", "Unknown"
- Quality of Speed, Course, Heading will be shown as "High" when the target vessel is using an approved sensor to generate this data, or Low if the data is derived from internal GNSS only.
- Number of Tugboats The number of assisting tugboats (from 0 to 6 or unknown)
- Air Draught The air draught of the vessel. (vessel's highest point to waterline)

25° 03.5555'N 121° 38.07 33'E		2023/07/19 10:50:51
Vessel Data Settin	ıg	SAVE
ERI Ship Type	8021 - Motor tanker, liquid cargo, type	e N
ENI	0000000	
Blue cones	B-Flag	
Load Status	Loaded	
Quality of Speed	Low	
Quality of Course	Low	
Quality of Heading	Low	
Number of TugBoat	7	
Air Draught(m)	40.00	

3.2.2 Number of Person

This submenu provides Number of Person (RFM55) setting:

The number of crew (0 to 254 or unknown), passengers (0 to 8190 or unknown) and other shipboard personnel (0 to 254 or unknown).

25° 03.5555'N 121° 38.07 33'E		2023/05/09 16:29:09
Number of Person		SAVE
Crew members	255	l
Passengers	8191	
Shipboard personnel	255	

3.2.3 Blue Sign Setting

Blue Sign information helps you recognize the approaching vessels in your inland waterway area. A "blue sign" switch may optionally be connected to the AIS transceiver during installation. This setting enables or disables the blue sign switch on the Junction Box.

25° 03.5555'N 121° 38.07 33'E		2023/07/19 11:07:29
Blue Sign Setting		SAVE
Blue Sign Switch	Disabled	

3.2.4 Report Rate Setting

Set M6's report rate. Selectable report rates are Auto/ 30 SEC./ 15 SEC./ 10 SEC. etc.

25° 03.5555'N 121° 38.07 33'E		2023/07/21 15:05:27
Report Rate Setting		SAVE
Report Rate	Auto	

4 DOCUMENT REVISIONS

Date	Rev/Issue	Changes
2024-02-21	1	Initial issue
2024-04-18	2	P9, P54, P57, P60
2024-04-30	3	Graphics update
2024-09-11	4	UK Declaration of Conformity added.
2024-09-13	5	Minor typo corrections.

NOTE:
NOTE:

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