User Manual
ADDENDUM

USER MANUAL - ADDENDUM

This document is an addedum to the User Manual (code C1622-080311e), valid for the follwing SEIWA products:

CHART PLOTTER	DESCRIPTION	SOFTWARE
SW501e	5" Sunlight Readable Vertical Color Display External Smart GPS Receiver	16.31.00 R
SW501i	5" Sunlight Readable Vertical Color Display Internal GPS Receiver	16.31.00 R
SW501ce	5" Sunlight Readable Vertical Color Display External Smart GPS Receiver & Internal FF	16.31.00 R
SW501ci	5" Sunlight Readable Vertical Color Display Internal GPS Receiver & Internal FF	16.31.00 R
SW701e	7" Sunlight Readable WVGA Color Display External Smart GPS Receiver & Video Input	16.31.00 R
SW701i	7" Sunlight Readable WVGA Color Display Internal GPS Receiver & Video Input	16.31.00 R
SW701ce	7" Sunlight Readable WVGA Color Display External Smart GPS Receiver & Video Input & Internal FF	16.31.00 R
SW701ci	7" Sunlight Readable WVGA Color Display Internal GPS Receiver & Video Input & Internal FF	16.31.00 R
SW1101	11" Sunlight Readable Color Display	16.31.00 R
SEAWAVE3	12" Color Display External Smart GPS Receiver & Video Input	16.31.00 R
MARLIN	15" Color Display External Smart GPS Receiver & Video Input	16.31.00 R
EXPLORER3	External Smart GPS Receiver & Video Output	16.31.00 R

A.1 AIS

AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship-to ship, ship reporting and VTS applications. The system should enable operators to obtain information from the ship automatically, requiring a minimum of involvement of ship's personnel, and should have a high level of availability. AIS transponders installed on IMO vessels use VHF frequencies to:
• Transmit details of their own vessel
• Receive details from other vessels or navigation aids within VHF range.

Information being transmitted from vessels over 300 tons that, due to recent worldwide legislation, are required to fit Class "A" AIS transponders.
Connecting to the chart plotter an AIS receiver (please contact your local dealer), vessels with AIS transponder within VHF range are displayed on screen giving the skipper or navigator a visual interpretation of the data of nearby vessels. This improves safety, and specifically for collision avoidance reasons.

A.1.1   AIS System Definitions

• **Target**
It is a vessel equipped with AIS. Information about the Targets is being received by AIS Receiver and displayed on the screen.

• **CPA**
Closest Point of Approach is the closest distance that will be achieved between your vessel and the tracked Target, based on your vessel's speed and direction and the Target's speed and direction.

• **CPA Limit**
This is the distance from your vessel that a Target may reach before a Target is deemed a threat.

• **CPA Alarm**
Occurs if CPA is less or equal to CPA Limit. This test is done for active Targets only.

• **TCPA**
Time to closest Point of Approach is the time remaining until the CPA will occur.

• **TCPA Limit**
This is the time remaining before the CPA is reached.

• **TCPA Alarm**
Occurs if TCPA is less or equal to TCPA Limit. This test is done for active Targets only and if CPA value is less or equal to CPA Limit.

• **Radio Call Sign**
International call sign assigned to vessel, often used on voice radio.

• **Name**
Name of ship, 20 characters.

• **MMSI**
Maritime Mobile Service Identity.

• **MMSI number**
A unique 9 digit number that is assigned to a DSC radio station. It primarily registers the boat information in the U.S. Coast Guard's national distress database for use in emergency situations.

• **Active Target**
Target located within the Activation Range. Active Target is represented by oriented triangle with COG and Heading vectors. Rate of turn may also be displayed.

• **Dangerous Target**
Target detected by CPA or TCPA Alarm. Dangerous Target is Active Target by definition. For better visibility Dangerous Target symbol is flashing.

• Sleeping Target

Target located outside the Activation Range. Sleeping Target is represented by a small oriented triangle.

• Lost Target

When the AIS info is not received from that vessel for 3.5 minutes. The presentation will be a flashing black triangle with a cross through.

• Activation Range

Range around your boat where Targets become active. AIS Target become active within this range. Activation Range should be greater than CPA Limit by definition.

• SART

Search and Rescue Target, a target with active Search-and-Rescue status, i.e. a declared emergency (vessel, man over board send my portable SART equipment, etc.)

NOTE

A Target is removed from the screen if data is not received for 10 minutes.

The maximum number of tracked Targets is 200.

Depending on the scale the presentation of the Targets change to remove clutter on the screen.

This information is updated every 3 seconds to 6 minutes depending on speed and rate of turn, enabling the track of the vessels in range to be plotted.

A.1.2 Color Legend for AIS Targets

Target color	Description / Ship Type	Symbol
Red cross	Target declared emergency: 'SART Active' status,	
AtoN sign	Target is buoy or AtoN (aid to navigation)	
Helicopter	Target with altitude_bigger than 0 is a helicopter	
yellow	Wing in ground / High speed craft	
blue	Passenger	
green	Cargo	
red	Tanker	
magenta	Sailing	
brown	Pleasure Craft	
orange	Search-and-Rescue ship (SART not active)	
cyan	Pilon / Tug / Port Tender	
black	Law enforcement vessel	
light gray	Unknown type	
white	Others / default type	

TARGET STATUS	DESCRIPTION	SYMBOL
ACTIVE TARGET	Target located within the Activation Range.	
DANGEROUS TARGET	Target detected by CPA or TCPA Alarm. Dangerous Target is Active Target by definition.	Flashing
SLEEPING TARGET	Target located outside the Activation Range.	
LOST TARGET	Ais info is not received from that vessel for 3.5 minutes.	

Fig. A.1.2 - AIS Symbols

NOTES

triangle icon color is selected according to declared ship type;

smaller triangle is displayed for anchored/moored targets or when their speed less than 2 knots

A.1.3   To set the chart plotter for receiving AIS

Make sure that the AIS receiver is properly connected to the chart plotter.
The chart plotter reads the AIS NMEA message VMD, type 1, 2, 3, 4, 5, 9, 11, 18, 19, 21 and 24.
Select the used serial port and transmission speed by following the procedure:
[MENU] + "Advanced Options" + [ENTER] + "Input/Output" + [ENTER] + "Port n Input" + [ENTER] + "AIS 38400" + [ENTER]
Where:

n =		1/2/3/4/5 for SW701e/SW1101
n =		1/2/4/5 for SW701i
n =		1/3/4/5 for SW701ce
n =		1/4/5 for SW701ci

A.1.4   AIS Menu

To configure the chart plotter to receive AIS data, follow the procedure:
[MENU] + "AIS" + [ENTER]

Display	Turns Off the display of AIS targets overlay on the cartography or defines the range from the fix within which the AIS Target becomes active. The values allowed are from 0.1 to 50 Nm. The default setting is 50 Nm.
Display targets	Select types of targets to be displayed: All (default), Class A, Class B, Dangerous (targets causing CPA or TCPA alarm); SART targets are always displayed.
CPA Alarm	Turns Off the alarm or defines the CPA Limit (the values allowed are from 0.1 to 10 Nm). The default setting is 0.5 Nm.
TCPA Alarm	Turns Off the alarm or defines the TCPA Limit (The values allowed are from 1 to 30 min). The default setting is 10 min.
AIS Report	Shows the AIS List page which contains basic information of the Target ship with the ability to select a Target ship and locate it on the chart.
AIS Track List	Opens full-screen AIS Track List window
AIS Legend	Displays pop-up window with AIS Targets color legend (see par. 3.7.1a).

NOTE
The AIS menu could be selected only if the AIS has been selected as external device, see the previous Paragraph.

A.1.5   Quick Info on AIS Target

By placing the cursor over a AIS Target icon, the following information is displayed:
• Vessel Name
• MMSI number
• Radio Call Sign
• SOG
• COG
• CPA and TCPA values
• Vessel type and AIS target icon, displayed with proper color and current orientation

NOTE
The selected AIS Target icon is surrounded by a square frame when user places the cursor over the icon.

A.1.6   Soft-key Controls for AIS Targets

Go To	Only available for SART targets, sets navigation to SART position.
Legend	Displays pop-up window with AIS Targets color legend (see par. 3.7.1a).
List	Opens AIS Report full-screen window (see par.3.7.6).
Track	Toggles saving track for selected AIS Target; if saving track is now active for selected AIS target, a black circle mark is displayed on soft-key label.
Info	Opens full-screen window with full information about selected AIS targe.

A.1.7   AIS Report

AIS Report window lists all AIS Targets, until they are considered Lost (no update received within 10 min).

To simplify the use of AIS Report window, all AIS targets are sorted in the following order:
• SART Active targets, colored orange
• Dangerous targets (ones causing Range or Approach Time alarm), colored red
• Active targets (within Active range)
• All other targets

AIS Report lists the following parameters of AIS targets in a table: Vessel name or MMSI id, Target Speed (SOG), Target Course (COG), Range for Closest Approach to a Target (CPA), Time for Closest Approach to a Target (TCPA). The following actions are available via soft-keys:

Sort	AIS Targets can be sorted by Vessel Name, MMSI id, Radio Call Sign, SOG, COG, CPA and TCPA in Ascending or Descending order; default is: CPA, Ascending; current sort mode is displayed by triangle in corresponding column title.
Locate	(also ENTER key) centers the map on current AIS target, puts cursor over it so AIS Quick Info is displayed.
Track	Toggles saving track for selected AIS Target; if saving track is now active for selected AIS target, a black circle mark is displayed on soft-key label.
Info	Opens full-screen window listing all properties of selected AIS Target: Type of ship with colored icon, Rate of Turn (ROT), Speed (SOG), Heading, Draught, MMSI (IMO) id, Radio Call Sign, Range for Closest Approach to a Target (CPA), Time for Closest Approach to a Target (TCPA), Vessel Length and Width, Navigation Status, Beam size, Destination, ETA to Destination, AIS Target Class (A/B), color of AIS Track (if enabled). Go To soft-key is only active for SART targets.

A.1.8   AIS Tracks

A very useful feature of AIS, is the ability to store and display exactly where certain AIS Target has been. This feature, referred to as AIS Tracking, can provide invaluable visual information about past route of AIS target.

NOTE
It is important to separate Own Track (a line connecting past GPS positions of own vessel / boat) and AIS Track – a line connecting positions of certain AIS target.

A.1.9   AIS Track List window

AIS Track List is full-screen window similar to Track List window; but AIS Track List contains tracks for AIS Targets selected by the user – and not track data for own vessel. Here in the table user can see a list of 10 most recent AIS Targets, for which user enabled Track function: number of track, AIS vessel name or MMSI callsign (if name was not available), track type (default: recorded by distance, step is 0,05 Nm) and color (default: color of AIS Target, refer to par. 3.7.1a).

Track configuration is available via Config. Function bound to Soft-key 1. Config. Menu allows to edit AIS Track Description text (by default it is initialized with AIS Target Vessel Name or MMSI id), show / hide AIS track (Mode: Visible / Hidden), change color, tack recording mode (Distance or Time), edit track recording step, Delete old track points for selected AIS Target or all AIS targets. Free Points indicates how many more AIS Track points can be recorded, before AIS Track memory is full and old data will be deleted (see par. 3.7.9).

A.1.10 AIS Track Memory Management

Software manages memory allocated to store Tracks for AIS Targets; user involvement is not required. Old track data is automatically deleted, first for Lost targets, starting with the older recorded positions. This ensures all recent data for tracked AIS targets is recorded and displayed on screen.

Used can also delete AIS Target's Track data via context menu in AIS Track List window:

[Select required AIS Target] + [Config] + Delete This Trackor [Select any AIS Target] + [Config] + Delete All TracksTrack data for own vessel is not affected by any of these operations.

A.1.11 SART Messages Handling

SART (Search and Rescue Transponder) technology was developed to send emergency messages using AIS protocol. Such messages should be handled in a special was by AIS receivers.

Plotter software has some SART-specific features, which would help user to easily identify SART events and react accordingly:

• An alarm appears on AIS SART Target activation, regardless other AIS Alarm settings

• SART icon is red cross in red circle, very different from other ship icons

• SART targets are always displayed on top of AIS Report window, highlighted with orange color

• SART targets have Go To feature enabled

• Once activated, Go To SART function follows SART event position, even if its position changes

A.2 NOTES

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1.5 SELECTING THE LANGUAGE
The catution message changed in:

CAUTION
If you have accidentaly selected an unknown language, and you are not able to select your preferred language please see Chapter 7 "Maintenance" for a RAM Clear operation: the chart plotter will also return all selections, in particular language, to original default values. RAM Clear operation will also cancel all the saved data like ROUTE, WAYPOINTS, MARKS, etc.

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1.13 RANGE/BEARING FUNCTION
A Note was added:

NOTE 2: if R/B object was created in Cursor mode, then it will stay at current cursor position; if R/B was created in Fix mode then R/B will follow Fix position (move with the ship).

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2.2 ROUTES
FOLLOWING A ROUTE
New softkey function:
Forward or Backward to select direction of following the Route.

PAG 89
5.6.11 TRANSDUCER SETUP MENU
New menu option:
Sonar Resolution: 4 bit / 8 bit

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