SIMRAD

I3005 / I3007

Operator Manual

ENGLISH

www.navico-commercial.com

Preface

Disclaimer

As Navico is continuously improving this product, we retain the right to make changes to the product at any time which may not be reflected in this version of the manual. Please contact your nearest distributor if you require any further assistance.

It is the owner's sole responsibility to install and use the equipment in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing maritime safety practices.

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Copyright

Warranty

The warranty card is supplied as a separate document. In case of any queries, refer to the brand website of your unit or system:

www.navico-commercial.com

Compliance statements

Europe

Navico declare under our sole responsibility that the product conforms with the requirements of:

- CE under EMC Directive 2014/30/EU
- European Council Directive 2014/90/EU on Marine Equipment modified by Commission Implementing Regulation (EU) 2020/1170 (16 July 2020) - Wheelmark

→ ***Note:*** The unit(s) are Wheelmark approved only when installed according to the relevant MED-B certificate.

United States of America

This product has been assigned **U.S. Coast Guard Module B number** in accordance with the European Council Decision 2004/425/EC dated 21 April 2004 on the conclusion of an Agreement between the European community and the United Stated of America on Mutual Recognition of Certificates of Conformity for Marine Equipment.

⚠ Warning: The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Australia and New Zealand

Navico declare under our sole responsibility that the product conforms with the requirements of:

- Level 2 devices of the Radiocommunications (Electromagnetic Compatibility) standard 2017

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Contents

1 Introduction

About this unit

The I3005 and I3007 units are touch controlled color displays. The units support English language in menus and dialogs.

The units are configured with multiple analog-style gauges as well as configurable digital data display layouts.

Both I3005 and I3007 are approved for SOLAS vessels.

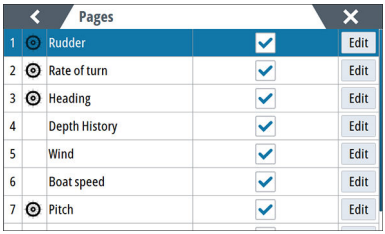
Type approved pages

The following pages are type approved:

- Rudder page
- Rate of turn page (I3007 only)
- Heading page
- Propeller pitch page
- Propeller RPM page

The layout for these pages cannot be customized.

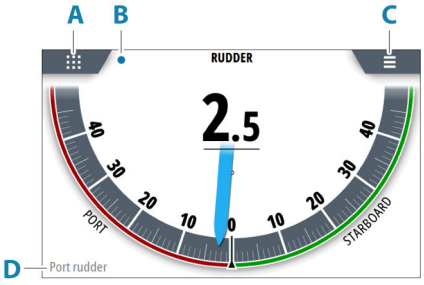
Type approved pages are labelled with the wheelmark icon in the Pages settings dialog.



NMEA 0183 equivalence with IEC 61162-1/2

This device uses the term NMEA 0183 in menus and dialogs. NMEA 0183 is equivalent with the IEC standard IEC 61162-1/2.

Page layout



A Page selection button

B Picture freeze indicator

C Menu button

D Custom label

Picture freeze indicator

The image includes a picture freeze indicator. The small dot blinks at an interval of 1 second to show that the screen is alive and that information from sensors is updated.

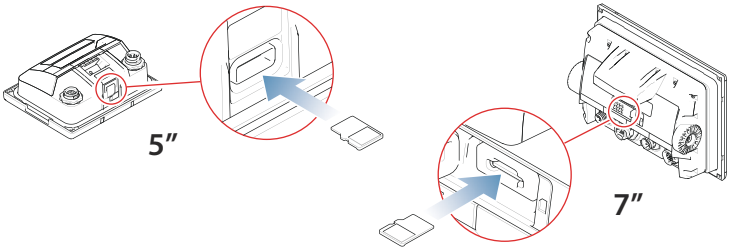
If the picture freezes the unit must be restarted.

Custom label

A label can be added to most of the pages.

The label can be used to identify the source for identical pages (e.g. port and starboard rudder indicators).

Card reader



A memory card can be used for:

- Software updates
- Transfer of user data
- System backup

The protective door should always be securely shut immediately after inserting or removing a card, in order to prevent possible water ingress.

2 Basic operation

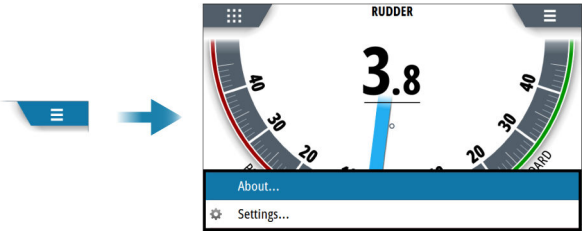
Turning the unit ON

The unit does not have a power key.

The system will be ON as long as the power switch is on. Depending on your setup, the power switch can be the ignition switch or a separate power switch.

Menu overview

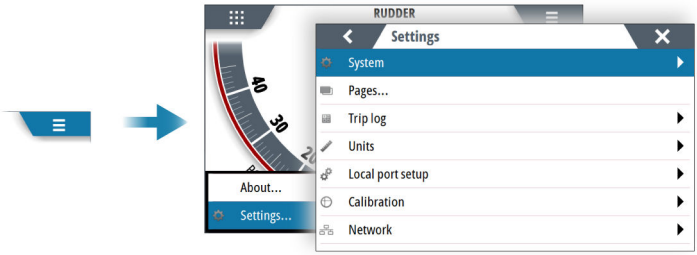
Page menu



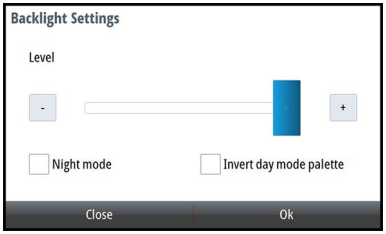
Not all pages have the same page menu options. See the page specific sections in this manual for page menu options.

The settings dialog

The software setup is done from the settings dialog.

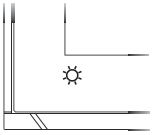


Backlight settings



The display backlight can be adjusted at any time from the backlight settings dialog.

To access the dialog:



- Press the brilliance key

Repeated short presses on the brilliance key cycles thru the preset backlight levels.

→ ***Note:*** All changes made to the display setup will apply to all units belonging to the same display group. For more information about network groups, refer to *"Software setup"* on page 22.

Screen capture

To take a screen capture:

- Press the screen for 5 seconds

The screen capture function is only available when a memory card is inserted in the unit. Screen captures are automatically saved to the memory card.

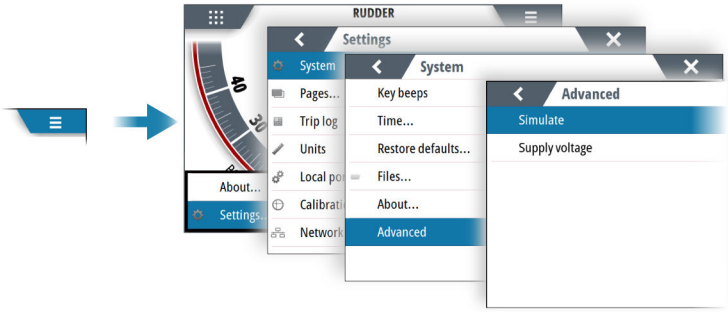
Simulator mode

The simulate option lets you operate the unit without being connected to sensors or other devices.

It is not possible to simulate commissioning and setup.

If the unit is turned off while in simulator mode, this mode will still be active on next power on.

Active simulator mode is indicated with a flashing notification on the image.



3 Pages

Page options

This display includes 10 predefined data pages, together with 5 template pages used for creating user defined pages.

The predefined pages can be used as-is, customized, or replaced with user defined pages.

→ ***Note:*** The type approved pages cannot be customized.

You can have up to 8 pages enabled, and only enabled pages can be selected by using the page selection button. The enabled pages can be any combination of predefined pages and user defined pages.

If only 1 page is enabled, the page selection button is not available.

Customizing the pages

Different options are available for customizing a page. The options available are listed for each page in *"Predefined pages"* on page 17.

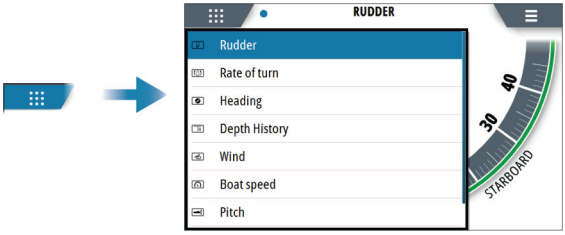
For how to customize a page, refer to *"Page settings"* on page 25.

Predefined pages and templates

Pre-defined pages		Template pages	
	Depth history		2x2 Grid
	Rate of turn		2x1 Grid
	Engine RPM		Full screen
	Heading		3x1 Grid
	Rudder		1+2 Digital
	Wind		
	Pitch		

Pre-defined pages		Template pages	
	Boat speed		
RPM	Propeller RPM		
	Trip Log		

Selecting a page

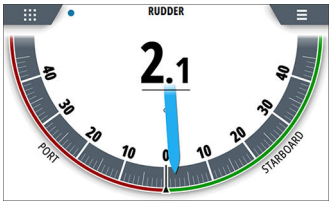


Missing or faulty data

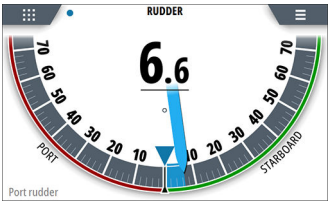
If a data type is missing or if the data is out of scale, there will be no data reading on the display.

Predefined pages

Rudder



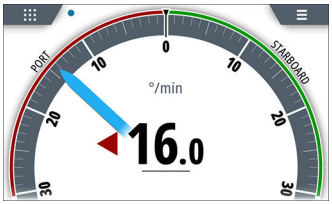
Default page



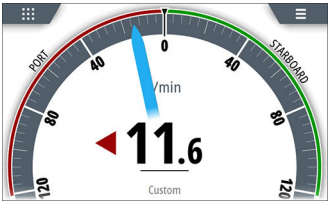
Customized page

Page settings: Range scale (+/- 45°, +/- 70° or +/- 90°), commanded rudder angle, and custom label.

Rate of turn



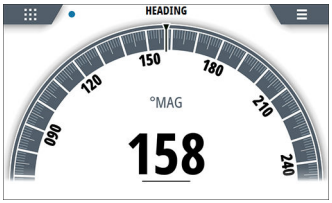
Default page



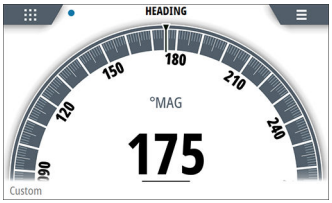
Customized page

Page settings: Scale range (+/- 30°, +/- 120° or +/- 300°), and custom label.

Heading



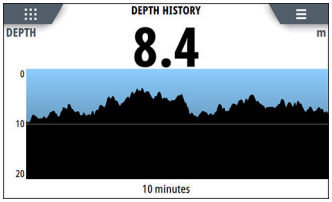
Default page



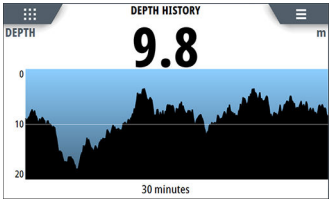
Customized page

Page setting options: custom label.

Depth history



Default page

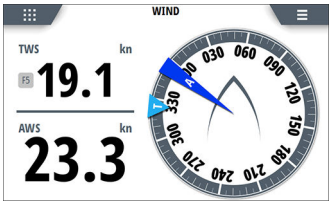


Customized page

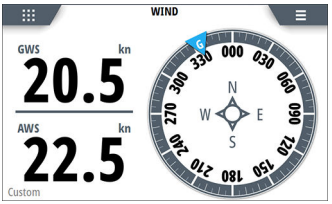
Page settings: Time range (5, 10, 30 or 60 minutes).

Changing time range

Wind



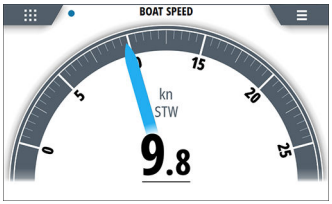
Default page



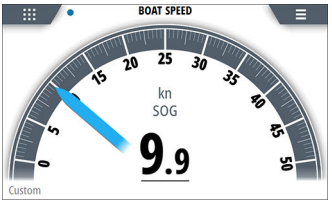
Customized page

Page settings: true wind calculation (relative to vessel or relative to ground), orientation (relative to vessel or relative to ground), and custom label.

Boat speed



Default page



Customized page

Page settings: scale limit (25 or 50 knots), source (STW or SOG), and custom label.

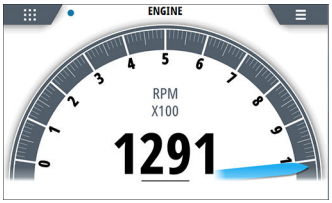
Propeller pitch

Default page

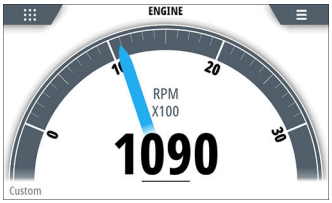
Customized page

Page settings: labels (propeller shaft pitch angle: ahead/astern, or thruster pitch angle: port/starboard), and custom label.

Engine RPM



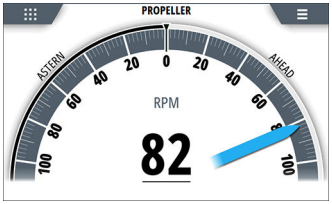
Default page



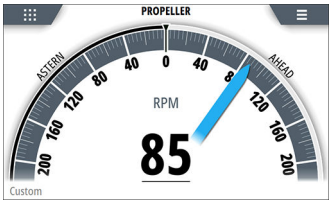
Customized page

Page settings: scale limit (200, 500, 1000, 3000, 7000 or 10 000), and custom label.

Propeller RPM



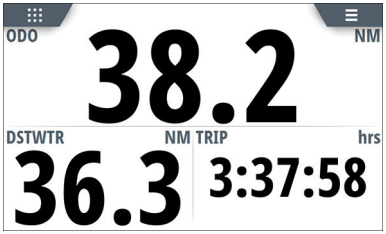
Default page



Customized page

Page settings: scale limit (100, 125, 150, 200, 250, 300, 400 or 450), and custom label.

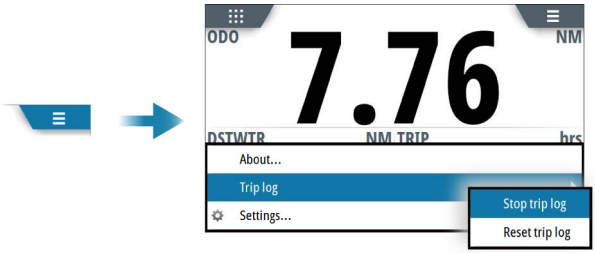
Trip log page



There are no optional settings for this page.

The total trip distance can be set and STW toggled on/off from the trip log settings dialog, refer to *"Software setup"* on page 22.

Starting/stopping and resetting the trip log



4 Software setup

Software setup overview

Prior to use, the system requires a number of settings to be configured in order for the system to perform as expected.

Most settings are intended to be configured by the technician commissioning the system, by the operator at first use, or by a technician after servicing or replacement of system parts. Other settings are generic, and the system can be used with default values.

→ ***Note:*** Before starting the software setup, the system must be wired according to the wiring instructions. All system units must be powered on.

Introduction to Lightweight Ethernet

Lightweight Ethernet (LWE), defined by IEC61162-450, is a protocol defined to enable an Ethernet connection between multiple talkers and multiple listeners, using the messages defined in IEC61162-1/2. LWE is an IP-based implementation, making use of a multicast address and corresponding User Datagram Protocol (UDP) port for transmission. LWE is essentially a means to share data between units over Ethernet.

There are some restrictions on the connection of LWE networks:

- The different components are connected through an Ethernet switch, and connection to a router or repeater hubs are not allowed
- No multicast filtering is configured

Equipment on the network that performs system functions can transmit and receive information. Each System Function (SF) is identified by a System Function Identifier (**SFI**) which is unique on any boat network.

→ ***Note:*** If no SFI is entered (remaining with the default 9999 value), the device will not be visible on the LWE network, and it will not share any data.

Every device that is a part of the LWE network shall be assigned an IP address (172.16.0.1 to 172.31.255.254). This IP address is to be chosen as a unique address for every device on the boat network.

First time startup

When the unit is started for the first time, or after a reset, the unit displays a series of dialogs. Respond to the dialog prompts to make fundamental settings.

You can perform further setup and later change settings using the system settings dialogs.

Software setup sequence

This chapter describes the software setup options as they appear in the menu system.

All relevant areas listed must be addressed during commissioning, and they should be stepped through in the listed sequence.

1 *"Page settings"* on page 25
- Define the pages that are to be used on this device

2 *"Ethernet setup"* on page 35
- Define this device on the Lightweight Ethernet

3 *"Local port setup"* on page 28
- Configure the two NMEA 0183 ports
- Configure the analog port
- Configure the digital port

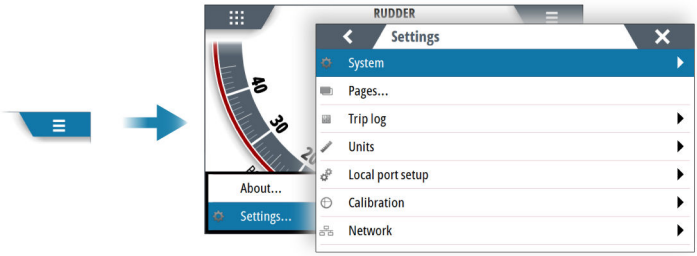
4 *"NMEA 2000 setup"* on page 33
- Make sure that the global NMEA 2000 data sources have been selected

5 *"Display sources"* on page 32
- Select sources for this device if these are to be different from the global NMEA 2000 sources

When the required start-up settings are done, you should page through all the remaining settings and confirm that they are as desired.

The settings dialog

The software setup is done from the settings dialog.



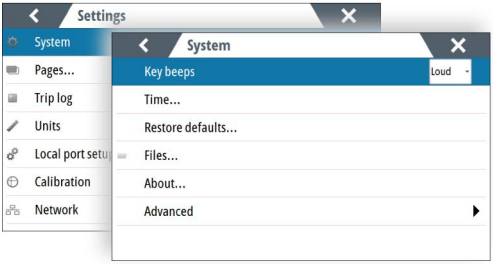
Access control

The parameters in the settings dialogs are intended for system setup and service engineers. These parameters are protected, and they are only available by entering the pin: **1947**.

When the password is entered, all settings are accessible.

The settings dialogs will be automatically closed after 5 minutes of inactivity.

System settings



Key beeps

Controls the loudness of the beep sound when a key is pressed.

Time

Controls the local time zone offset, and the format of the time and date.

Restore defaults

Restores selected settings to default factory values.

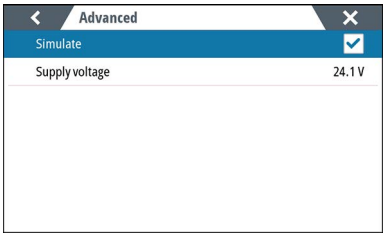
Files

File management system. Used to display selected content of the unit for export, and to browse storage devices connected to the unit.

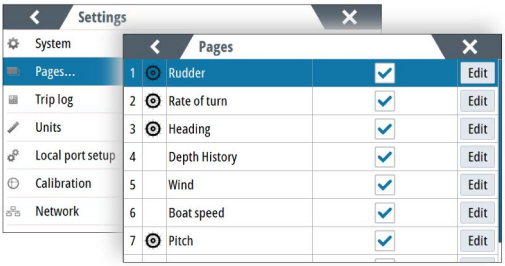
About

Displays copyright information, software version, and technical information for this unit.

Advanced



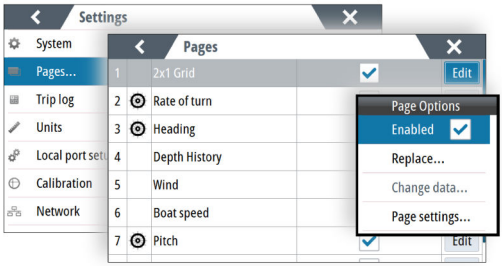
Page settings



→ ***Note:*** Type approved pages are labelled with the wheelmark icon in the Pages settings dialog.

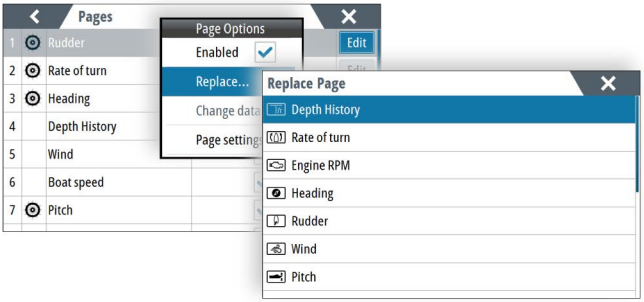
Enable/disable a page

To make a page available for display it has to be enabled.



Replace a page

Pages can be replaced with one of the other predefined pages, or by a template page if you want to create a custom page.



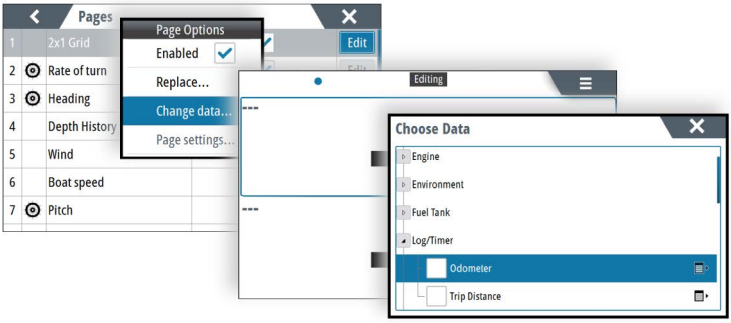
Creating and editing a custom page

A custom page is created in a two steps process:

1. Replace one of the active pages with a template page, refer to *"Replace a page"* on page 26
2. Select the data to be shown in the page´s data field(s), refer to *"Changing page data"* on page 26

Changing page data

Some pages allow you to change which data is displayed on the page.

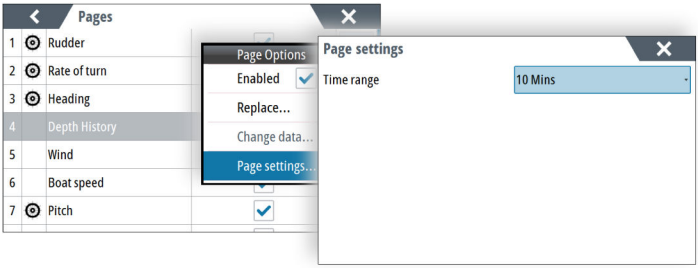


If the page has multiple data fields, select the field you want to change.

Use the menu option to save or cancel the changes.

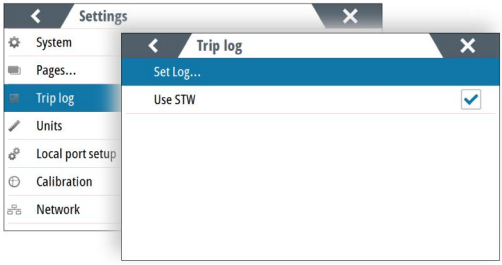
Change page settings

The pre-configured pages have different options for customizing the page layout.



For options available for each page, see details in *"Pages"* on page 15.

Trip log settings



Use STW

Used for setting the speed source to be speed through water. When enabled, the speed data will be STW rather than speed over ground (SOG) on the trip log page.

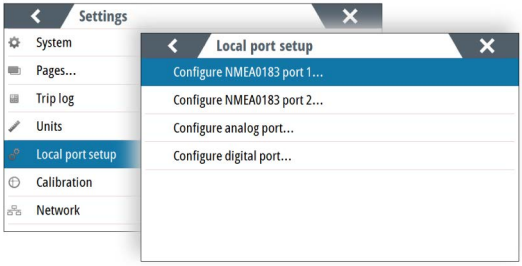
Set log

Allows for manually entering the total trip log distance.

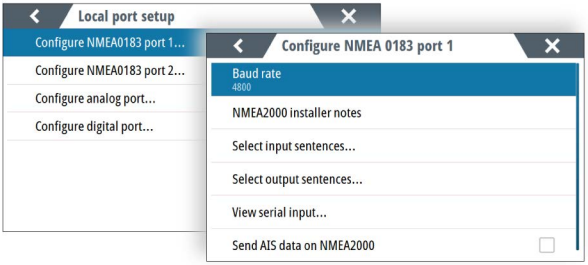
Units settings

Used for specifying the units of measurement.

Local port setup



Configure NMEA 0183 ports



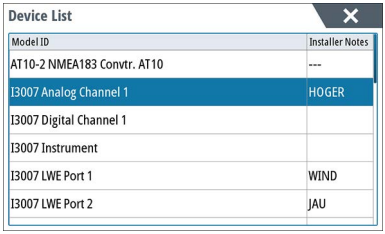
Baud rate

This should be set to correspond with devices connected to the NMEA 0183 input and output. The input and output (Tx, Rx) use the same baud rate setting.

➔ ***Note:*** AIS transponders typically operate at NMEA 0183-HS (high speed), and will require the baud rate to be set to 38,400.

NMEA 2000 installer notes

Used to identify a device in the NMEA 2000 device list.



Select input sentences

This list allows control over which sentences that are received from other devices from the NMEA 0183 port.

Selected output sentences

This list allows control over which sentences that are transmitted to other devices from the NMEA 0183 port. Due to the limited bandwidth of NMEA 0183 it is desirable to only enable the data that is required. The less sentences that are selected, the higher the output rate of the enabled sentences.

View serial input

Used to confirm that the port setup is correct.

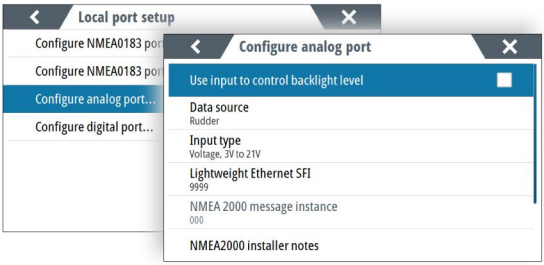
Send AIS data on NMEA 2000

Bridges AIS data received on NMEA 0183 to NMEA 2000.

Configure analog port

Used for defining the data source, the input type for the selected source, and for calibrating the source.

The dialog options vary with selected data source and input type.



Use analog input to control backlight level

This option must be turned on if an external potentiometer is to be used to control the backlight level.

Calibration data

Calibration data is used to calculate a value from the signal input from the sensor.

Calibration data for the sensor being configured needs to be obtained from the documentation following the device.

System Function ID (SFI)

A unique SFI must be assigned to each port that is to be part of the LWE network.

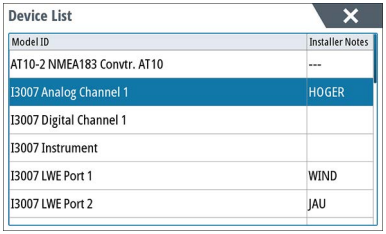
If no SFI is entered (remaining with the default 9999 value), the device will not be visible on the LWE network, and it will not share any data.

NMEA 2000 message instance

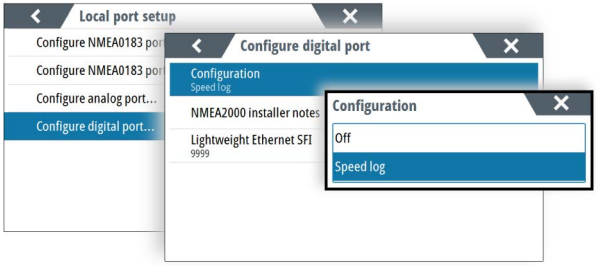
The instance number is used to identify devices on the network. It should only be required to change this if there are identical devices on the network (e.g. port and starboard RPM).

NMEA 2000 installer notes

Used to identify a device in the NMEA 2000 device list.



Configure digital port



→ ***Note:*** A unique SFI must be assigned to the digital port if this is to be part of the LWE network.

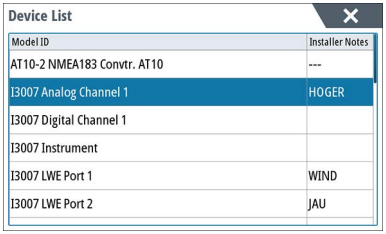
Speed log input

It is possible to configure the digital port for speed input.

→ ***Note:*** Only speed logs outputting 200 pulses per nautical mile are supported.

NMEA 2000 installer notes

Used to identify a device in the NMEA 2000 device list.



System Function ID (SFI)

A unique SFI must be assigned to each port that is to be part of the LWE network.

If no SFI is entered (remaining with the default 9999 value), the device will not be visible on the LWE network, and it will not share any data.

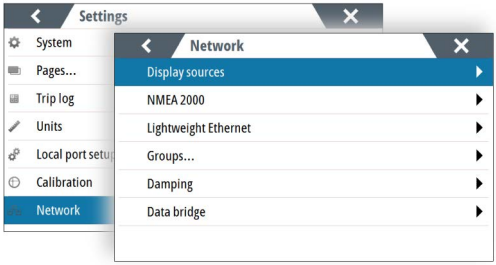
Calibration

Magnetic variation

Magnetic variation is the difference between true bearings and magnetic bearings, caused by different locations of the Geographic and the Magnetic north poles. Any local anomalies such as iron deposits might also affect the magnetic bearings.

When set to Auto, the system automatically converts magnetic north to true north. Select manual mode if you need to enter your own local magnetic variation.

Network settings

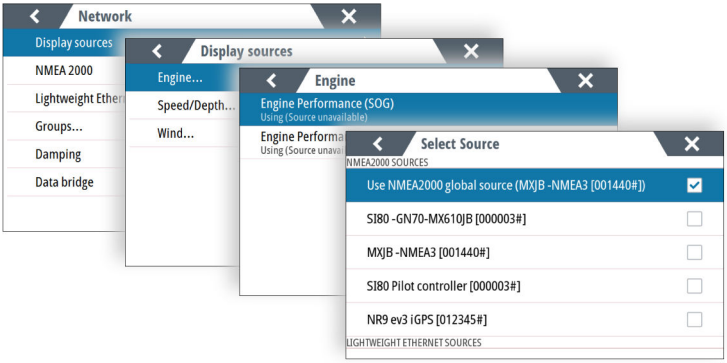


Display sources

Used for selecting sources for this device if these are to be different from the global NMEA 2000 sources.

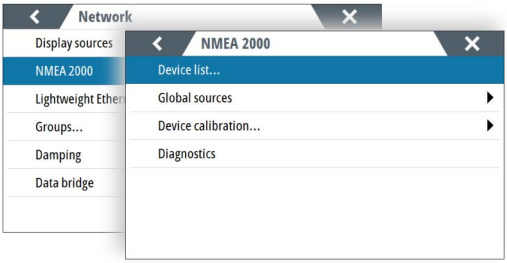
The display sources can be either NMEA 2000, Lightweight Ethernet or local sources.

By default, NMEA2000 global sources will be selected.



→ ***Note:*** Serial ports are represented as virtual NMEA 2000 devices.

NMEA 2000 setup



Device list

Selecting a device in this list will bring up additional details and options for the device.

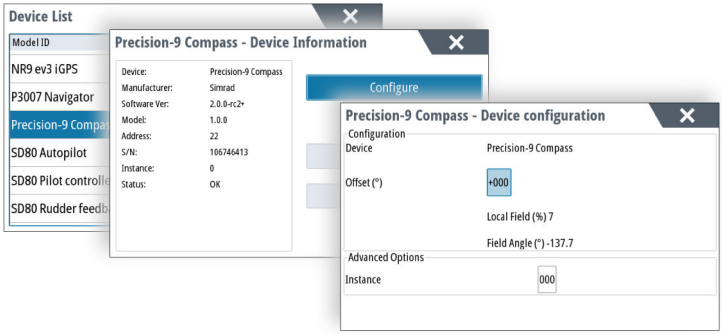
All devices allow allocation of an instance number in the configure option. Set unique instance numbers on any identical devices on the network to allow the unit to distinguish between them. The data option shows all data being output by the device.

→ ***Note:*** In most cases, setting the instance number on a 3rd party product is not possible.

Configure a device

Devices may require configuration before use, they can be configured once connected to the network.

Some devices show additional options specific to the device. For example the Calibrate option, to allow easy setup of a device. For device specific details, refer to the device documentation.



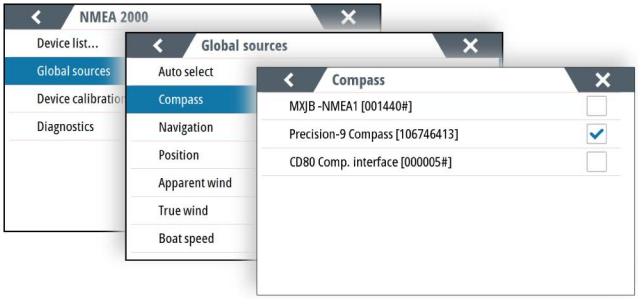
Global sources

Auto Select

The Auto Select option looks for all sources connected to the device. If more than one source is available for each data type, selection is made from an internal priority list. This option is suitable for the majority of installations.

Manual source selection

Manual selection is generally only required where there is more than one source for the same data, and the automatically selected source is not the one desired.



Calibration
An offset (positive or negative) can be applied to correct data inaccuracies from NMEA 2000 sources.

➔ ***Note:*** Any calibrations made here will only be applied locally to this unit. Other devices on the network will not have these offsets applied.

Diagnostics
Provides information useful for identifying an issue with the network.

Lightweight Ethernet

This setting is used for identifying this device on the LWE network. Device specific settings can be shared with devices belonging to the same network group.

Ethernet setup
The Ethernet must be assigned with:

- an IPv4 address. Must be in the range 172.16.0.1 to 172.31.255.254, and the IP address must be unique for each device on the network
- a 4 digit Lightweight Ethernet SFI (System Function ID). The SFI must be unique for each device on the network.

➔ ***Note:*** If no SFI is entered (remaining with the default 9999 value), the device will not be visible on the LWE network, and it will not share any data.

Functions
Displays all devices (excluding this device) sending data on the Lightweight Ethernet network.

Diagnostics
Provides information useful for identifying an issue with the network.

Groups

This function is used to control parameter settings, either globally or in groups of units. The function is used on larger vessels where

several units are connected via a network. By assigning several units to the same group, a parameter update on one unit will have the same effect on the rest of the group members.

If any of the settings require discrete control, set the group to None.

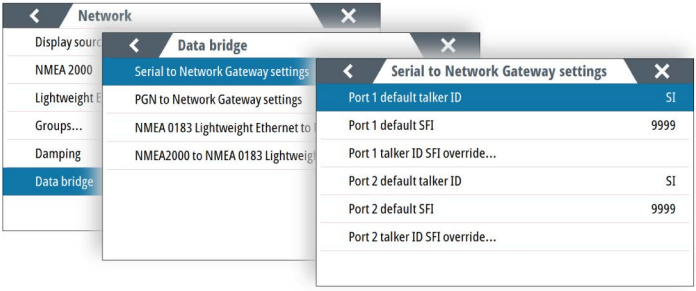
Damping

If data appears erratic or too sensitive, damping may be applied to make the information appear more stable. With damping set to off, the data is presented in raw form with no damping applied.

Data bridge

Only one device per NMEA 2000 backbone must act as a PNG data bridge. If two, or more, units are connected to the same NMEA 2000 backbone and bridges data a data loop will be created.

Serial to Network Gateway settings



Each NMEA 0183 port must be configured with:

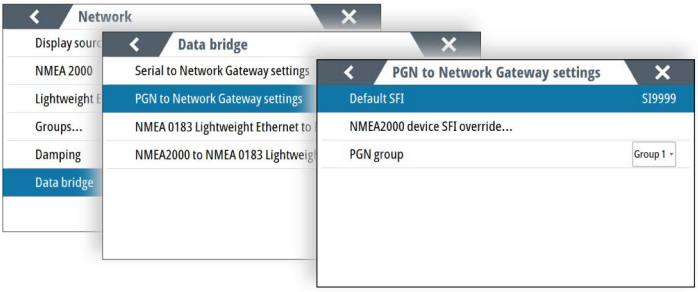
- Default talker ID, this is the ID that will be used when sending messages not bridged from NMEA 0183.
- Default SFI, this is the unique Lightweight Ethernet SFI for data received on this port.
- Talker ID SFI override, use this option to assign a different SFI (different from the default SFI for the port) to a specific talker ID received through NMEA 0183.

PGN to Network Gateway settings

NMEA 2000 data can be bridged from one NMEA 2000 backbone to another. To avoid data loops, only one unit per backbone must be configured to bridge NMEA 2000 data to another backbone.

NMEA 2000 must be connected on any unit receiving PGNs over Lightweight Ethernet.

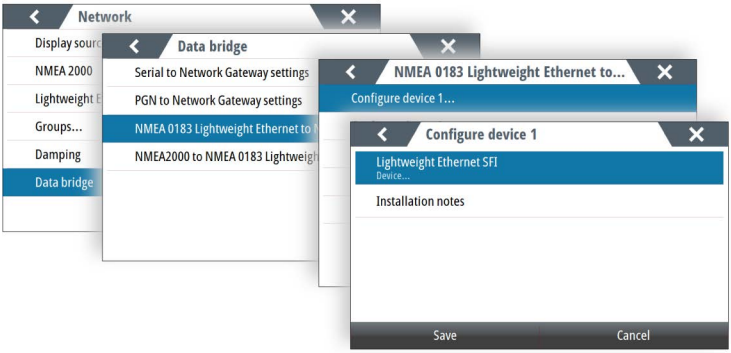
The PNGF filters and supports only the PGNs listed in the NMEA 2000 compliant PGN list. Refer to *"Supported data"* on page 47.



- Default SFI, this is the unique Lightweight Ethernet SFI for this function.
- NMEA 2000 device SFI override, use this option to assign a different SFI (different from the default SFI) to a specific NMEA 2000 device.
- PGN group, bridged data will only be received and made available by units belonging to the same PGN group.

NMEA 0183 Lightweight Ethernet to NMEA 2000

Up to five Lightweight Ethernet devices can be configured and bridged to the NMEA 2000 network.

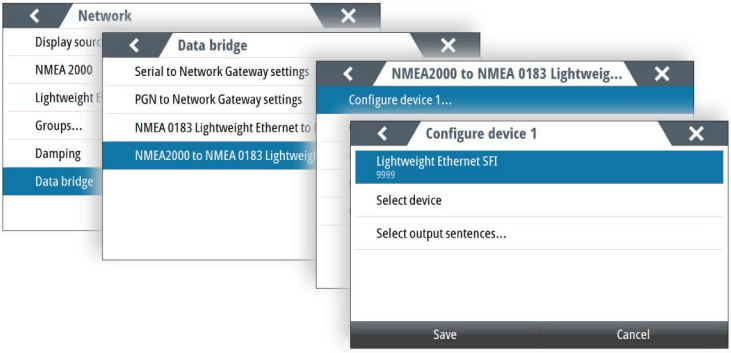


Each of the devices must be configured with:

- the Lightweight Ethernet SFI, selected from the list of available devices.
- installation notes, used to identify the source in the NMEA 2000 device list.

NMEA 2000 to NMEA 0183 Lightweight Ethernet

Up to five NMEA 2000 devices can be configured and bridged to the Lightweight Ethernet network.



Each of the devices must be configured with:

- a unique 4-digit Lightweight Ethernet SFI for the selected serial port.
- the NMEA 2000 source, selected from the list of available devices.
- Installation notes, used to identify the device.

5 Maintenance

Preventive maintenance

The unit does not contain any field serviceable components. Therefore, the operator is required to perform only a very limited amount of preventative maintenance.

Cleaning the display unit

To clean the screen:

- A micro-fiber or a soft cotton cloth should be used to clean the screen. Use plenty of water to dissolve and take away salt remains. Crystallized salt, sand, dirt, etc. can scratch the protective coating if using a damp cloth. Use a light fresh water spray then wipe the unit dry with a micro-fiber or a soft cotton cloth. Do not apply pressure with the cloth.

To clean the housing:

- Use warm water with a dash of liquid dish soap or detergent.

Avoid using abrasive cleaning products or products containing solvents (acetone, mineral turpentine, etc.), acid, ammonia, or alcohol as they can damage the display and plastic housing.

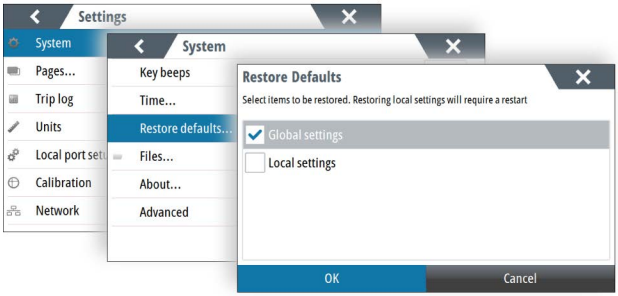
Do not:

- use a jet or high pressure wash

Restoring factory default settings

A default restore will reset the memory to factory settings.

→ ***Note:*** Unless you need to clear all stored values during the installation setup procedure or service, you should not perform a restore of factory settings.



Restore global settings

This option clears the global NMEA 2000 source selection on all networked devices, and resets all local settings to factory default.

After a global reset you need to configure all NMEA 2000 and local sources again when the unit restarts.

Restore local settings

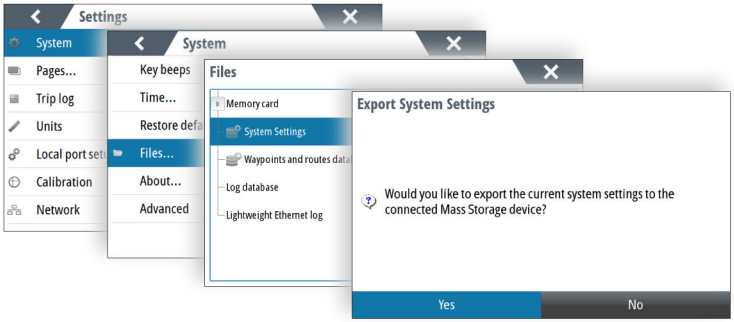
Resets all local settings to factory default.

After a local reset you need to configure local sources again when the unit restarts.

Backup and restore of system data

The system includes a backup and restore function, making it possible to back-up and restore user settings.

→ ***Note:*** It is strongly recommended to make a backup when the system is installed and configured.



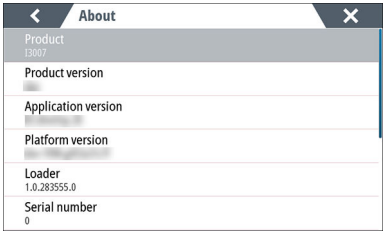
Software updates

Before initiating an update to the unit, be sure to back up any potentially valuable user data. Refer to *"Backup and restore of system data"* on page 40.

Installed software and software updates

The about dialog shows the software version currently installed on this unit.

The product website has information about available software updates.



Update the software from a storage device

You can download the software update from www.navico.com/commercial.

Transfer the update file(s) to a compatible storage device, and then insert the storage device in the unit.

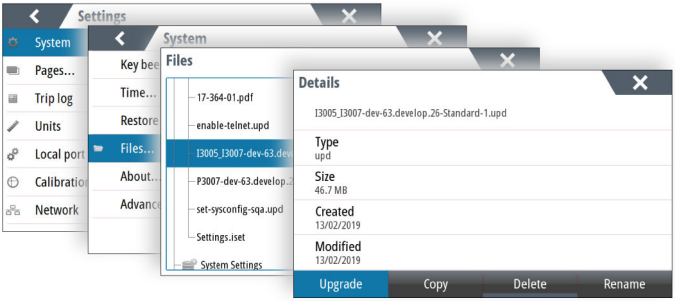
To update this unit only:

- restart the unit to start the update from the storage device

To update this unit or a connected device:

- Select the update file in the dialog

→ ***Note:*** Do not turn off the unit or a connected device until the update is completed, or until you are prompted to restart the unit.


Settings
System
Pages...
Trip log
Units
Local port
Calibratio
Network
System
Key bee
Time...
Restore
Files...
About...
Advanc
Files
17-364-01.pdf
enable-telnet.upd
I3005_I3007-dev-63.dev
P3007-dev-63.develop.2
set-sysconfig-sqa.upd
Settings.iset
System Settings
Details
I3005_I3007-dev-63.develop.26-Standard-1.upd
Type
upd
Size
46.7 MB
Created
13/02/2019
Modified
13/02/2019
Upgrade
Copy
Delete
Rename

6 Appendix

Menu overview

Main menu

Level 1	Level 2
About...	
Time range (Depth history page only)	<Preset options: (5, 10, 30, 60 min)>
Trip log (Trip log page only)	Start/Stop trip log
	Reset trip log
Settings...	See *"Settings menu"* on page 43

Settings menu

Level 1	Level 2
System	Key beeps
	Time...
	Restore defaults...
	Files...
	About...
	Advanced >
Pages	<Activate page>
	<Edit selected page>
Trip log	Set log...
	Use STW

Level 1	Level 2
Units	Distance
	Distance small
	Speed
	Wind speed
	Angular speed
	Depth
	Heading
	Temperature
	Volume
	Pressure
	Baro pressure
Local port setup	Configure NMEA 0183 port 1
	Configure NMEA 0183 port 2
	Configure analog port
	Configure digital port
Calibration	Magnetic variation
Network	Display sources >
	NMEA 2000 >
	Lightweight Ethernet >
	Groups...
	Damping >
	Data bridge >

Terms and abbreviations

AIS	Automatic Identification System
ATON	Aid to Navigation
BRG	Bearing
BTW	Bearing To Waypoint
BWW	Bearing Waypoint To Waypoint
COG	Course Over Ground
CRS	Course
CTS	Course To Steer
DGPS	Differential GPS
DR	Dead Reckoning
DSC	Digital Selective Calling
DTD	Distance To Destination
DTW	Distance To Waypoint
EGNOS	European Geo-Stationary Navigational Overlay System
EPIRB	Emergency Position Indicating Radio Beacon
ETA	Estimated Time Of Arrival
ETW	Estimated Time to Waypoint
GLONASS	Global Orbiting Navigation Satellite System
GMDSS	Global Maritime Distress And Safety System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HDG	Heading
HDOP	Horizontal Dilution Of Precision
MAG	Magnetic
MAN	Manual (speed input)
MMSI	Maritime Mobile Service Identity
MOB	Man Over Board

MSAS	Multi-functional Satellite Augmentation System
ODO	Odometer
RAIM	Receiver Autonomous Integrity Monitoring
ROT	Rate Of Turn
RTCM	Radio Technical Commission For Maritime
SAR	Search And Rescue
SBAS	Satellite Based Augmentation System
SFI	System Function ID
SOG	Speed Over Ground
STW	Speed Through Water
TTD	Time To Destination
UDB	Universal Database
UPS	Uninterruptible Power Supply
UTM	Universal Transverse Mercator (coordinate system)
VRM	Variable Range Marker
VTS	Vessel Traffic Services
WAAS	Wide Area Augmentation System
WPT	Waypoint
XTD	Cross Track Distance

Supported data

NMEA 2000 compliant PGN list

PGN	DESCRIPTION	TX	RX
59392	ISO Acknowledgement	x	x
59904	ISO Request	x	x
60928	Address Claim	x	x
126208	Group Function	x	x
126992	System Time	x	x
126993	Heartbeat	x	x
126996	Product Info	x	x
126998	Configuration Information	x	x
127233	Man Overboard Notification		x
127237	Heading/Track Control	x	x
127245	Rudder	x	x
127250	Vessel Heading	x	x
127251	Rate of Turn	x	x
127252	Heave		x
127257	Attitude		x
127258	Magnetic Variation	x	x
127488	Engine Parameters, Rapid Update	x	x
127489	Engine Parameters, Dynamic		x
127493	Transmission Parameters, Dynamic		x
127503	AC input status		x
127504	AC Output Status		x
127505	Fluid Level		x
127506	DC Detailed Status		x
127507	Charger Status		x
127508	Battery Status		x
127509	Inverter Status		x

PGN	DESCRIPTION	TX	RX
128259	Speed, Water referenced	x	x
128267	Water Depth	x	x
128275	Distance Log	x	x
129025	Position, Rapid Update	x	x
129026	COG & SOG, Rapid Update	x	x
129029	GNSS Position Data	x	x
129033	Time & Date		x
129539	GNSS DOPs	x	x
129540	AIS Class B Extended Position Report	x	x
129545	GNSS RAIM Output		x
129549	DGNSS Corrections		x
129551	GNSS Differential Correction Receiver Signal		x
130306	Wind Data	x	x
130310	Environmental Parameters	x	x
130311	Environmental Parameters	x	x
130312	Temperature	x	x
130313	Humidity		x
130314	Actual Pressure		x
130316	Temperature, Extended Range		x
130576	Small Craft Status		x
130577	Direction Data	x	x
130578	Vessel Speed Components	x	x

NMEA 0183 supported sentences

TX / RX - AIS/DSC

	RX	TX
DSC	x	
DSE	x	
VDM	x	
VDO	x	

TX / RX - GPS

	RX	TX
DTM	x	
GGA	x	x
GGA5	x	
GLC		x
GLL	x	x
GNS	x	
GSA	x	x
GSV	x	x
RMC	x	x
VTG	x	x
ZDA	x	x

TX / RX - Navigation

	RX	TX
AAM		x
ABP		x
BOD		x
BWC		x
BWR		x
RMB		x
XTE		x
RTE	x	
WPL	x	

TX/RX - Echosounder

	RX	TX
DBT	x	x
DPT	x	x
MTW	x	x
VLW	x	x
VHW	x	x

TX / RX - Compass

	RX	TX
HDG	x	x
HDT	x	
THS	x	x
ROT	x	x

TX / RX - Wind

	RX	TX
MWD	x	x
MWV	x	x

TX / RX - Misc.

	RX	TX
ACK	x	
ACN	x	
HBT	x	
HDM	x	
MOB	x	
RPM	x	x
RSA	x	x
TRD	x	x
VBW	x	
XDR	x	x

LWE Transmission groups

LWE Input messages

System function	Transmission group	Talker ID	Sentences
AIS target data	TGTD	- cc -	VDM, VDO
High update rate navigational data	SATD	- cc -	THS, HDT, ROT

System function	Transmission group	Talker ID	Sentences
Miscellaneous	MISC	- cc -	DBT, DPT, MTW, MWD, MWV, RPM, RSA, TRD, VLW, VTG, XDR
Navigational data	NAVD	- cc -	DTM, GGA, GLL, GNS, GSA, GSV, MOB, RMC, VBW, VHW, RTE, WPL
Network administration	NETA	- cc -	SRP
PNGF	PGP1 to PGP4, PGB1 to PGB2 (User selectable)	N/A	N/A
SNGF	MISC	- cc -	Unrestricted
TIME	TIME	- cc -	ZDA

- cc - Received talker identifier as per NMEA.

LWE Output messages

System function	Transmission group	Talker ID	Sentences
Analog gateway	MISC	RC	ROT, RPM, RSA, TRD, XDR
Digital	NAVD	VW	VHW
Navigational data	NAVD	SI	AAM, APB, BOD, BWC, BWR, RMB,RTE, WPL, XTE
Network administration	NETA	SI for each SNGF	SRP

System function	Transmission group	Talker ID	Sentences
NMEA 2000 to LWE data bridge	MISC, NAVD, TGTD (depending on the NMEA 2000 device class and function code)	AI, GN, HC, IN, SD, SI, VW, YX (depending on the NMEA 2000 device class and function code)	AAM, APB, BOD, BWC, BWR, DBT, DPT, DTM, GBS, GGA, GLL, GNS, GRS, GSA, GSV, HDG, MOB, MTW, MWD, MWV, RMB, RMC, ROT, RSA, THS, VBW, VHW, VLW, VTG, VDM, VDO, XDR, XTE, ZDA (User selectable)
PNGF	PGP1 to PGP4, PGB1 to PGB2 (User selectable)	N/A	N/A
SNGF	MISC	SI	As per input in COM1 or COM2

LWE uses protocol IEE 802.3.

988-12439-002

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