

USER GUIDE FOR

DATALINE-X™

ANALOGUE DEPTH

Stowe Marine Ltd.

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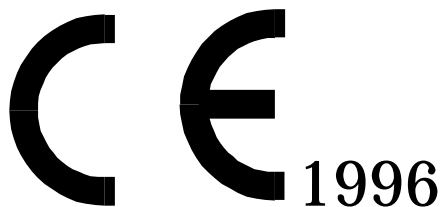
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Dataline-X Analogue Depth Manual, Part Number 06277SM, Issue 2, Dec 1995.

Warning

The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. The user must be familiar with the contents of the manual before attempting to operate or work on the equipment.

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1.1 The Dataline-X System

The Dataline-X System, as its name implies, uses a single cable to carry both power and data around the vessel to each instrument. This is done using a NMEA 0183 serial digital communication link, which is an established industry standard. Because of this, instruments from other manufacturers may be interfaced to the Dataline-X System - assuming that they have a NMEA output or input.

This User Guide describes the Navigation System Repeater digital display, known as **Dataline-X ANALOGUE DEPTH**, used within the Dataline-X System.

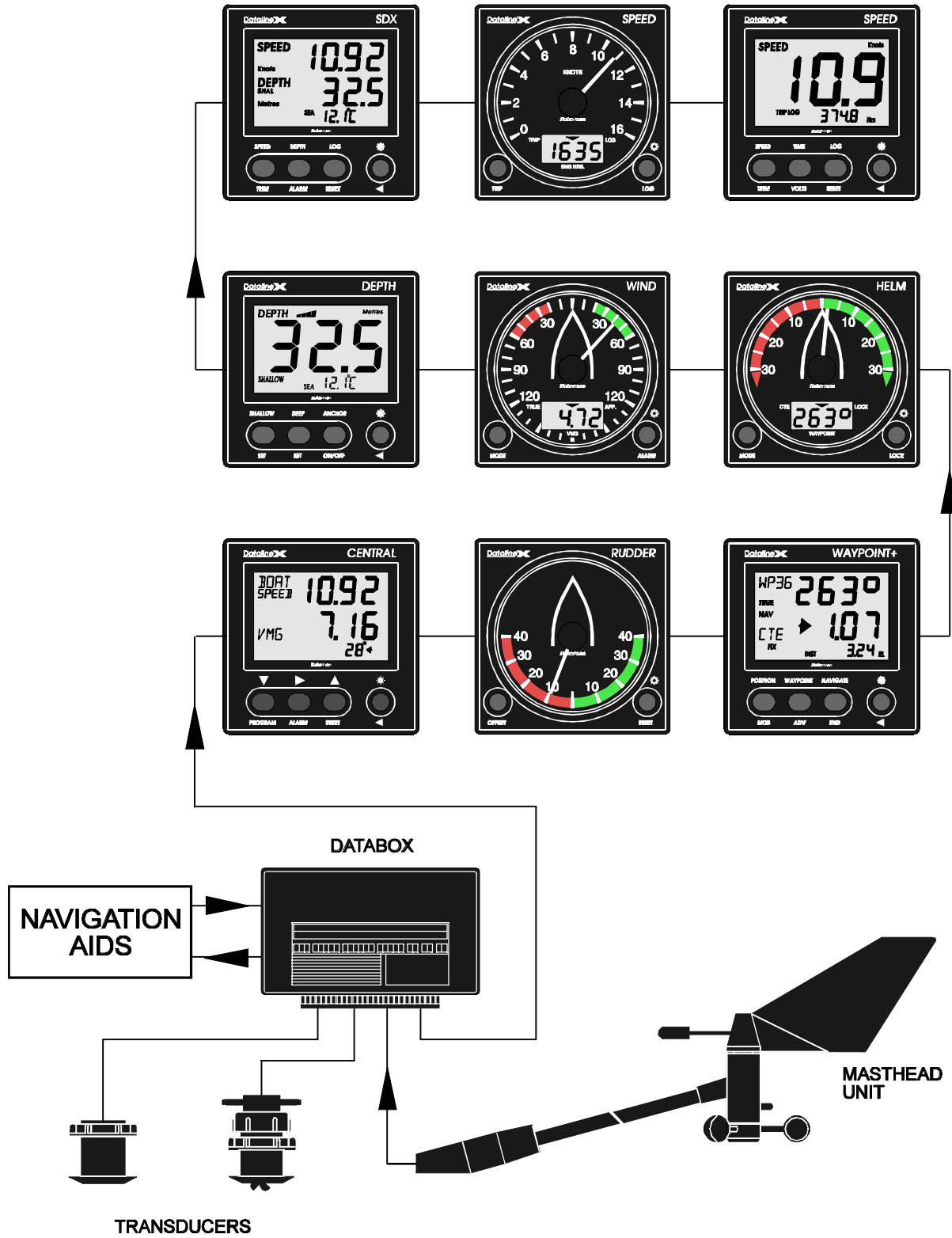


Figure 1.1 - Dataline-X System Diagram

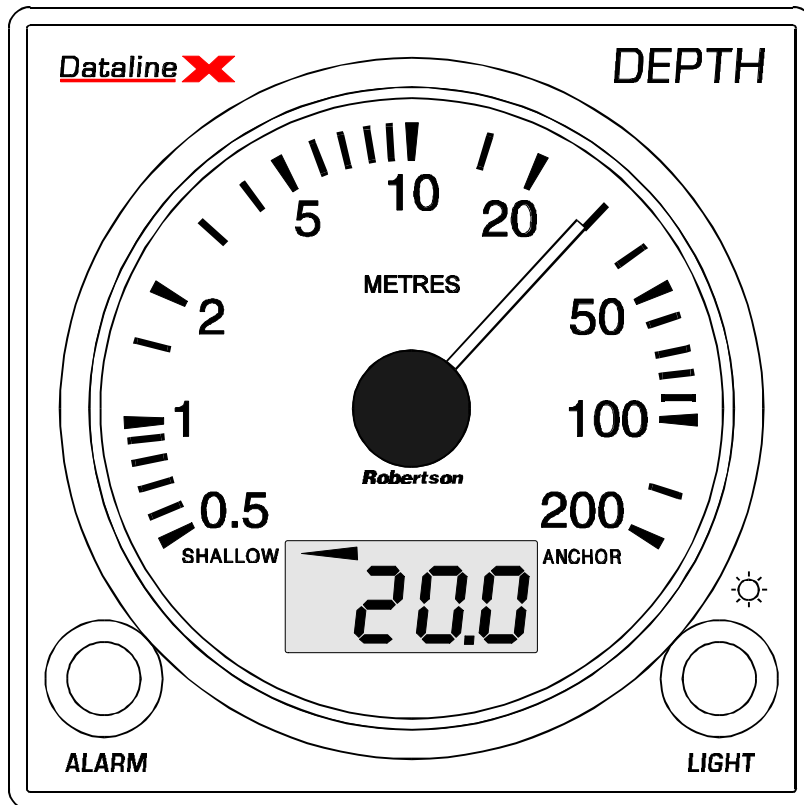


Figure 1.2 - Dataline-X ANALOGUE DEPTH Instrument

1.2 Dataline-X ANALOGUE DEPTH SpecificationDepth Functions

Depth Display	0 to 200 metres (See Note 1)
Depth Units	Metres
Depth Precision	0.1 metres (on LCD)
Depth Alarms	Shallow and Anchor Alarm, (Deep Alarm shown, sounded, and cancelled, if set up by another Display) (See Note 2)
Sounder On/Off Control	Switches the Databox Sounder On or Off

Additional Functions

Display Backlighting Levels	Seven levels plus Off
Display Backlighting Colours	Three colours, (Red, Green, Yellow)
Display Backlighting Control	Two independent lighting banks.
External Alarm Drive	(via Databox, or via the 'Brown' terminal on the case rear if a 'standalone' system)

General

Power Requirement	10 to 16V, 70 mA, (100 mA max with lighting)
Size	110 x 110 x 18 mm (above panel)
Mounting Hole Size	50 mm (2 inches)
Total Depth Below Panel Front	32 mm
Weight	210 grams
Environmental Rating	IP65
Temperature Range	0°C to 70°C

Alternative Transducers

If any of the system transducers are not fitted to the Databox, but there is alternative depth NMEA data being transmitted from another sensor to the Databox, then this alternative data will be used.

—

Notes:

1. The maximum depth and depth precision given relate to the display, the depth transducer installed and sea conditions will determine the actual maximum depth and precision for the system.
2. The deep alarm value and On or Off state is set by other instruments, although the DEPTH will sound this alarm, and can be used to cancel it. The anchor alarm does not monitor the depth for a minimum or maximum value, but sounds if the change in depth exceeds a set rate. This can be used together with one or both of the shallow and deep alarms, if desired. The anchor alarm is not available if the display is used on an instrument system other than Dataline-X, (or some Dataline instrument systems).

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2.4.1	Alarm ON/OFF Setting
2.5	To Set The Display Backlighting
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2.1 General Description

The display is divided into two sections, the pointer, and the LCD. The pointer always shows the Depth, while the LCD normally shows the Depth, but can show other data under the control of the two buttons.

2.1.1 The Dialplate

The dialplate is printed with a logarithmic scale of 0.5 to 200 metres Depth.

2.1.2 The LCD Display

The LCD normally shows the Depth, but can show the shallow alarm value or other data.

There are three arrows at the top of the LCD which show which alarms are currently turned on, and which flash to show which alarms are tripped. The left arrow points to **SHALLOW** on the dialplate for 'Shallow Alarm On', and the right arrow points to **ANCHOR** on the dialplate for 'Anchor Watch Alarm On'.

The centre arrow is lit and points down when the Deep Alarm is On, although this is not shown on the dialplate as this alarm cannot be set up or turned on or off by the Analogue Depth display.

2.1.3 The Buttons

The word below the button indicates the main function for that button.

Pressing the ALARM button shows the Shallow Alarm Value on the LCD for three seconds, and then the LCD returns to showing the depth. If the ALARM button is pressed again while the Shallow Alarm Value is being shown however this will set the Shallow and Anchor Watch alarms On or Off.

The LIGHT button (this button has a ***** symbol above it) sets the lighting level if it is held down.

When a function has been selected, a BEEP will be heard to confirm correct operation.

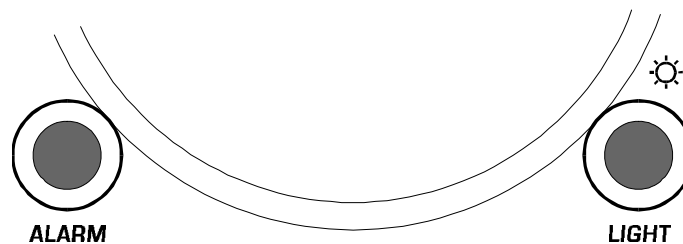


Figure 2.1 - The Buttons

2.2 Powering Up

When powering up the instrument, it will beep, the pointer will move to the zero position, and all the LCD segments will be shown for approximately one second.

The pointer and LCD will then show the current Depth if it is available, while the LCD will also show the status of the various Alarms.

Note:

1. If Depth data is not available then the pointer will remain at the zero position, and the LCD will show “----”.

2.3 To Set Depth Sounder ON or OFF

In certain circumstances, e.g., if in deep water for long periods, or to save power in known waters, it may be desirable to disable the depth sounder transmissions. This may be done as follows:

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button three times until the LCD indicates ' ON ' (or ' OFF').
3. Select the required state, either with the Depth Sounder On or Off, by pressing both buttons together.
4. Return to the main display by pressing the ALARM button four times to select the Calibration Mode End Screen, and then pressing both buttons together.

Notes:

1. When the Depth Sounder is turned OFF the pointer remains at the 'zero' (0.5m) position, and the LCD Display shows 'OFF'.
2. On power up, the sounder is always ON.
3. If the Depth Sounder is turned OFF or the echo is lost while there is an alternative NMEA Depth input to the Databox, then this alternative Depth will be shown.

2.4 The Depth Alarm

When an alarm is turned on, its arrow will be shown on the display. When the alarm is triggered, this arrow will flash and the display will beep. In order to cancel the alarm sound, press either button. The arrow will, however, continue to flash until the depth is outside the alarm limits again.

When any alarm is sounding the external alarm sounder that is connected to the Databox (or directly to the display in a standalone system) will also be sounded.

2.4.1 To Set the Alarms On or Off

Pressing the ALARM button shows the Shallow Alarm Value on the LCD for three seconds, and then the LCD returns to showing the depth. If the ALARM button is pressed again while the Shallow Alarm Value is being shown however this will set the Shallow and Anchor Watch alarms On or Off.

The ALARM button should be repeatedly pressed until the required alarms are shown. The order of turning the alarms on and off is as below:

- Shallow and Anchor Watch Alarms Off - Left and Right Arrows Off
- Shallow Alarm On - Left Arrow Lit
- Shallow and Anchor Watch Alarms On - Left and Right Arrows Lit
- Anchor Watch Alarm On - Right Arrow Lit
- Shallow and Anchor Watch Alarms Off - Left and Right Arrows Off

If the ALARM button is not pressed for three seconds then the alarms will be set as shown, and the LCD will return to showing the Depth.

2.5 To Set Display Backlighting

Press the LIGHT button and hold. The display backlighting will change from 0 to level 7, then level 6, then level 5, and so on to level 0. If the button is still held, the level will then increase back to 7 again.

At the desired display backlighting, release the LIGHT button.

This will set the lighting on ALL displays on the Dataline-X system, which are in the same Lighting Bank. The Dataline-X system has two lighting banks, so that the internal lighting on a power boat may be set differently to that on the flybridge, or the cockpit lighting may be set differently to the chart table or mast display lighting on a yacht. All displays are supplied set to bank 1, see Part 4 for the bank set-up information.

Note: On some Dataline Systems (not Dataline-X) only lighting levels 0, 3, 5 and 7 are available.

2.6 Demonstration Mode

The Demonstration Mode allows the user to familiarize himself/herself with all the functions of the instrument with the device removed from the system. Demonstration software within the instrument produces realistic values for the display.

A +12V power supply will be required to be connected as follows:

- 0V to the BLACK (far right) terminal.
- +12V to the RED (far left) terminal.

To enter the Demonstration Mode, press the LIGHT button whilst applying power to the instrument.

To leave the Demonstration Mode, switch off and re-apply power.

Notes:

1. The display will leave demonstration mode if any data is received.
2. The display can be set to automatically enter 'Shop' demonstration mode every time it is powered up. (See Part 4 for further details.)

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- 3.1 General
- 3.2 Installation
- 3.3 Choosing the Cable Routes
- 3.4 Securing the Cable

3.1 General

The instrument head is fully waterproof and can, therefore, be installed on deck or below. The connections should be protected from water penetration and should, if possible, allow rear access to remove the desiccant pack, if required. The position selected should, in the first instance, meet the requirements of the helmsman, or crew.

The selected surface for the instrument head must be flat and even to within 0.5 mm.

Before installation, note the Serial Number of the unit and keep it in a safe place.

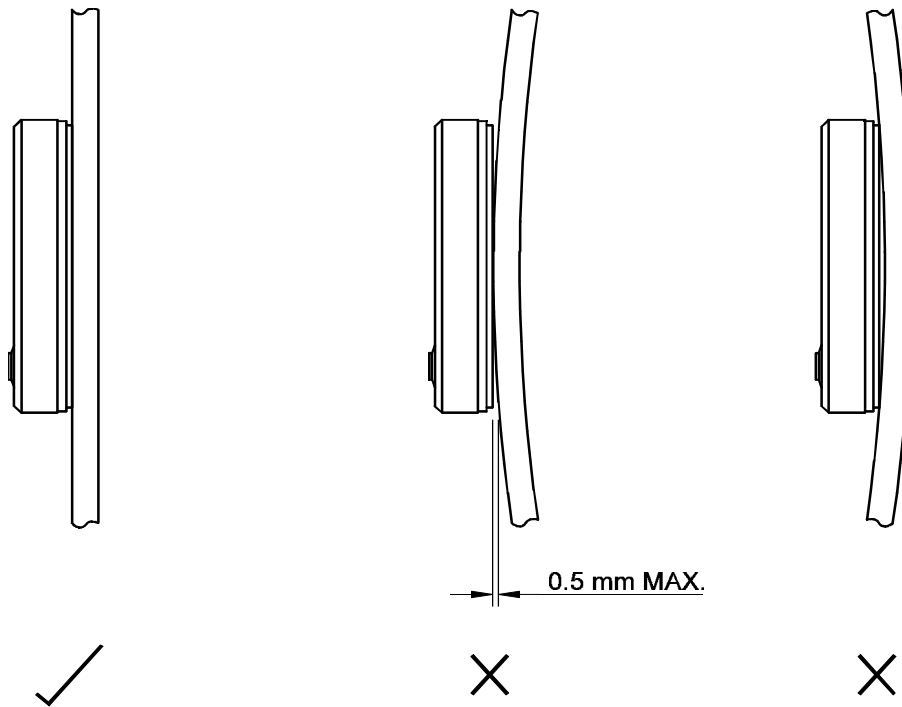


Figure 3.1 - Installation

3.2 Installation

1. Carefully position the self-adhesive template provided on the surface where the instrument is to be mounted.
2. Drill a small pilot hole first, and then check the location on the other side of the panel or bulkhead to confirm suitability.
3. Open out the pilot hole to 50 mm (2 ins.) using a cutter in a hand-held brace, or electric drill.
4. Drill the four fixing holes using a 2.5 mm (3.32 ins.) drill.

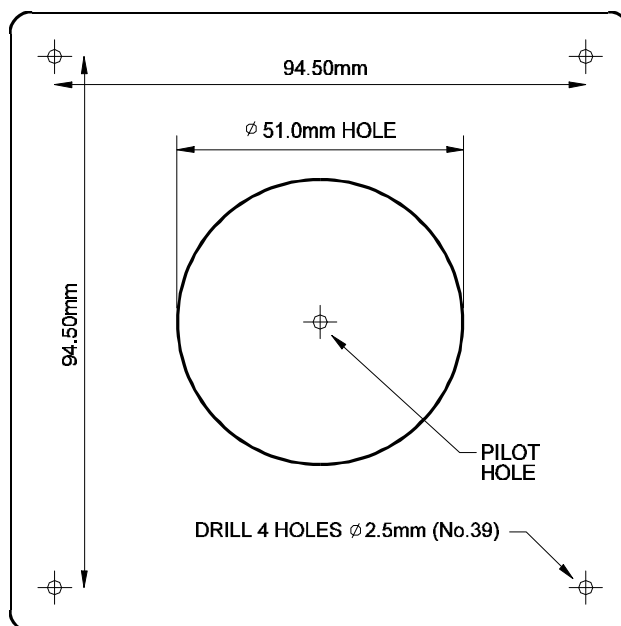


Figure 3.2 - Mounting Details (Not To Scale)

1. The instrument should next be wired into the system. The wiring should be carried out as in the 'Choosing the Cable Routes' and 'Securing the Cable' Sections below.

- a. If the instrument is being connected to a Dataline-X system, then connect it to the Dataline wire. This can normally be done simply by using the 'Dataplug' connector and cable supplied to connect the display to the Databox or to any adjacent display. If the cable routing cannot be made with the Dataplug connector attached, then simply disconnect it from the cable. The cable may then be run through holes of down to 6 mm (0.25 ins.) diameter before reconnecting the Dataplug connector, making sure that the colours are correctly wired to the terminals. The correct positions for the different coloured wires are shown on the rear label of the instrument.
- b. If the instrument is being connected to another instrument system then the connections are as below:

Red = +12V Power In (Fused 1A).

White = NMEA Signal In (A / + / Positive).

Brown = Depth Alarm Output (30mA).

Green = NMEA Reference In (B / - / Negative).

Black = 0V Power In.

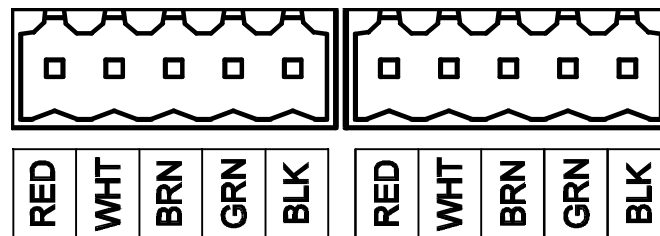


Figure 3.3 - Electrical Connections

6. Check that the instrument functions correctly.
7. Temporarily disconnect the Dataplug connectors and coat the terminals and wires with silicone grease or petroleum jelly. These products will not harm the instrument.
8. Make sure the 'dovetail' lugs are free from grease and securely located into the rear of the instrument when replacing the Dataplugs.
9. Secure the instrument using the four, No 4 self-tapping screws provided. Ensure that the sealing gasket is correctly located.
10. Replace the front cover, the installation of the instrument is complete.

CAUTIONS

DO NOT OVER-TIGHTEN FIXING SCREWS.

DO NOT USE SEALING COMPOUND ON THE INSTRUMENT BACK.

DO NOT USE WD40 OR ANY SOLVENT ON ANY PART OF THE INSTRUMENT.

3.3 Choosing the Cable Routes

After you have decided on the system and started to mount the components of the Dataline-X System, the next step in the installation process is to route the cables between the various parts of the system and to the power supply. When routing the cables, choose the most direct paths while avoiding the following hazards:

- Sharp Bends or Kinks in the Cable
- Hot Surfaces (Exhaust Manifolds or Cooking Equipment)
- Rotating or Reciprocating Equipment
- Sharp or Abrasive Surfaces
- Door and Window Jambs
- Corrosive Fluids or Gases

3.4 Securing the Cable

After the ideal cable routing has been established, use tie-wraps, 'P'- clips or other fixings to secure the cables along the routings.

Notes:

1. Install protection for the cable jackets where the cables pass through bulkheads, or past sharp edges. This will prevent the cables from chafing.
2. Secure the cable near to the terminals. This serves as a strain relief.
3. Secure the cable ends with enough slack to allow for easy connection.

4. Cut any spare wire ends to an appropriate length.

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- 4.2 Calibration Mode
- 4.3 Lighting Colour Selection
- 4.4 Lighting Bank Selection
- 4.5 LCD Contrast Setting
- 4.6 Depth Sounder ON or OFF Setting
- 4.7 Default Shallow Depth Alarm Setting
- 4.8 Depth Offset Setting
- 4.9 Test Mode Entry Screen
- 4.10 Shop Demo Mode Setting
- 4.11 Leaving Calibration Mode

4.1 System Calibration

After installation, the system may be calibrated to take into account the physical position of and type of transducers installed. Additionally, such things as display units and precision may be selected.

4.2 Calibration Mode

To enter Calibration Mode:

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. For each successive press of the LIGHT button, the display will step through the calibration menu. To step through backwards, press the ALARM button.
3. The menu function may be changed immediately by pressing both buttons together, or this may cause the value to flash, depending on the function.
4. The ALARM and LIGHT buttons may be used to decrement or increment values, which are flashing. When the value is correct, press both buttons together again to save it.

5. Selecting the Calibration Mode End Screen and pressing both buttons together will return the instrument to its normal working mode.

The following calibration functions are available:

- Lighting Colour (select Yellow, Red or Green)
- Lighting Bank (select Bank One or Bank Two)*
- LCD Contrast (select Level 1 or Level 2)
- Depth Sounder On / Off Setting (select On or Off)*
- Default Shallow Depth Alarm (value entry, 0.0m to 30.0m)
- Depth Offset (value entry, \pm 30.0m)*
- Test Mode entry screen (select, On, Off)
- Shop Demo Mode Selection (select On, Off)

The options marked with '*' perform no function if the display is not part of a Dataline-X system.

4.3 Lighting Colour Selection

This function enables the colour of the backlighting on the display to be set to Yellow, Red, or Green. This is independent of all other displays.

1. Press both buttons together, and hold for more than 3 seconds.
2. The display should indicate the current lighting colour as either 'rEd', 'Grn', or 'YEL', and will light to show this.
3. Press both buttons together to the desired colour, 'rEd' (Red), 'Grn' (Green) or 'YEL' (Yellow).
4. Return to the main display by pressing the ALARM button once to select the Calibration Mode End Screen, and then pressing both buttons together.

4.4 Lighting Bank Selection

The Dataline-X instrument system can have two separate banks of instruments. Setting the lighting level on one display will set all the other displays in that bank to the same level, but will not effect any displays in the other bank. For instance, the lighting level can be independently controlled for:

1. The cockpit and chart table displays of a yacht.

2. The cockpit and mast displays on a yacht.
3. The cabin and flybridge of a motor yacht.

This is independent of the display colour, so that displays in the same bank may have different colours if desired.

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button once until the LCD indicates '-1-' (or '-2-').
3. Select the required lighting bank, either 1 or 2, by pressing both buttons together.
4. Return to the main display by pressing the ALARM button twice to select the Calibration Mode End Screen, and then pressing both buttons together.

4.5 LCD Contrast Setting

The LCD on Dataline-X Series instruments can be set to one of two or more contrast levels to best suit the viewing angle of the particular installation. This display has two contrast levels.

The default level (level 2) is suitable for a wide range of viewing angles and will probably not require alteration. However, if viewing the display from above, the contrast level may be lowered to level 1 to reduce the 'ghosting' of the parts of the display which are turned off. The lighting is illuminated when setting the contrast to highlight the display.

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button twice until the LCD indicates the current contrast level as 'LCd2' (or 'LCd1').
3. Select the required LCD contrast level, either 1 or 2, by pressing both buttons together.
4. Return to the main display by pressing the ALARM button three times to select the Calibration Mode End Screen, and then pressing both buttons together.

4.6 To Set Depth Sounder ON or OFF

In certain circumstances, e.g., if in deep water for long periods, or to save power in known waters, it may be desirable to disable the depth sounder transmissions. This may be done as follows:

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button three times until the LCD indicates ' ON ' (or ' OFF').
3. Select the required state, either with the Depth Sounder On or Off, by pressing both buttons together.
4. Return to the main display by pressing the ALARM button four times to select the Calibration Mode End Screen, and then pressing both buttons together.

Notes:

1. When the Depth Sounder is turned OFF the pointer remains at the 'zero' (0.5m) position, and the LCD Display shows 'OFF'.
2. On power up, the sounder is always ON.
3. If the Depth Sounder is turned OFF or the echo is lost while there is an alternative NMEA Depth input to the Databox, then this alternative Depth will be shown.

4.7 Default Shallow Depth Alarm Setting

Every time that the system is powered up, the shallow alarm will default to this value.

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button four times until the LCD indicates ' SHAL'.
3. Press both buttons together to start to set the Shallow Alarm Value, the current value will be shown flashing.
4. Increase the alarm value using the LIGHT button.
5. Decrease the alarm value using the ALARM button

6. Press both buttons together to save the alarm value.
7. Return to the main display by pressing the ALARM button five times to select the Calibration Mode End Screen, and then pressing both buttons together.

4.8 Depth Offset Setting

The Dataline-X system will either display the depth below the transducer, the depth below the keel or propellers, or the depth below the waterline. To show the depth below the transducer, the depth offset should be zero. To show the depth to the keel or propellers, the depth offset should be negative, and be the difference in depth between the transducer and the bottom of the keel or propellers. To show the depth below the waterline, the depth offset should be positive and be the depth of the transducer below the waterline.

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the LIGHT button five times until the LCD indicates ' OSet'.
3. Press both buttons together to start to set the Depth Offset Value, the current value will be shown flashing.
4. Increase the depth offset value using the LIGHT button.
5. Decrease the depth offset value using the ALARM button
6. Press both buttons together to save the depth offset value.
7. Return to the main display by pressing the ALARM button six times to select the Calibration Mode End Screen, and then pressing both buttons together.

4.9 Test Mode Entry Screen

The Test Mode will test all the display functions (See Part 5 for further details).

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the ALARM button three times, until the LCD shows 'tEST'.
3. Press both buttons together to start to set Test Mode On, the current value, 'OFF', will be shown flashing.

4. Select Test Mode On by pressing either button on its own, the LCD will show 'ON' flashing.
5. Press both buttons together to start Test Mode.

If it is decided not to start Test Mode then press either button to change the LCD back to flashing 'OFF', then press both buttons to return to showing 'tEst'. Return to the main display by pressing the LIGHT button twice to select the Calibration Mode End Screen, and then pressing both buttons together.

4.10 Shop Demo Mode Setting

The instrument can be set to always power up in demonstration mode by setting 'Shop Demo' Mode On (this function is for use by dealers only).

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the ALARM button twice, until the LCD shows 'SHOP'.
3. Press both buttons together to start to change the Shop Demo mode setting, the current value, 'OFF' (or 'ON'), will be shown flashing.
4. Select Shop Demo Mode On (or Off) by pressing either button on its own, the LCD will show 'ON' (or 'OFF') flashing.
5. Press both buttons together to save the Shop Demo Mode setting.
6. Return to the main display by pressing the LIGHT button once to select the Calibration Mode End Screen, and then pressing both buttons together.

Note After power up, the instrument will always return from Shop Demo Mode to showing data if any data is received.

4.11 Leaving Calibration Mode

To return to the main display from Calibration Mode the Calibration Mode End Screen has to be selected.

1. From any Calibration Mode menu screen press either the ALARM or the LIGHT button repeatedly until the LCD shows 'End?'. This is the Calibration Mode End Screen.

-
2. Return to the main display by pressing both buttons together.

CONTENTS

- 5.1 General
- 5.2 Test Mode
- 5.3 Fault Finding Chart

5.1 General

This instrument has been tested before shipment. However, installation conditions and procedures are outside the control of the manufacturer and can sometimes produce faults. The following check list is provided to assist the user in diagnosing such faults and suggests remedial action to be taken. The built in Test Mode will also help diagnose faults. For additional assistance, call your local dealer.

5.2 Test Mode

The Test Mode will test all the display functions.

1. Press both buttons together, and hold for more than 3 seconds, until 'rEd', 'Grn', or 'YEL' is shown on the display.
2. Press the ALARM button three times, until the LCD shows 'tESt'.
3. Press both buttons together to start to set Test Mode On, the current value, 'OFF', will be shown flashing.
4. Select Test Mode On by pressing either button on its own, the LCD will show 'ON' flashing.
5. Press both buttons together to start Test Mode.

If it is decided not to start Test Mode then press either button to change the LCD back to flashing 'OFF', then press both buttons to return to showing 'tESt'. Return to the main display by pressing the LIGHT button twice to select the Calibration Mode End Screen, and then pressing both buttons together.

Test Mode

The display will go through six tests. In order to move on to the next test, press the ALARM button. In order to leave test mode, press the LIGHT button.

First the LCD will light all the segments and the pointer will return to the zero position. The LCD will then blank.

Pointer Test

The LCD will then show the software code version, and after a few seconds the pointer will start to move backwards and forwards through its whole movement. This will be repeated until a button is pressed.

LCD Segments Test

After the pointer test, the display will show 'tSt2', and start the LCD test. This will light every one of the segments on the LCD one by one. They will then be turned off one by one until they are all off again. This will be repeated until a button is pressed.

LCD Contrast Test

After the LCD Segment test, the display will show 'tSt3' and start to swap between the two LCD contrast levels, showing 'LCd' and the contrast level. This will continue until a button is pressed.

Lighting Test

After the LCD Contrast Test, the display will show 'tSt4' and start to cycle through the various lighting levels and colours. There are four red lighting levels (r8, r4, r2, r1), three green levels (G4, G2, G1) and three yellow levels (L4, L2, L1). This will continue until a button is pressed.

NMEA Input Test

After the lighting test, the display will show 'tSt5' and start to monitor its NMEA input. It will show 'IN' and a count of the successful inputs up to five, when it will automatically step onto the next test.

If the display is receiving NMEA data, the count should happen without any actions on the user's part. If the display is powered up on its own, then its NMEA input (White) may be connected to the 12V power (Red) five times to simulate an input.

NMEA Output Test

After the NMEA Input test, the display will show 'tSt6' and step onto the NMEA output test. If the display is connected to a Databox, then it will automatically transmit messages to the Databox and monitor the NMEA input for correct replies. This will count up from 1 to 5 while showing 'OUT'. (A failure here could be a wiring or Databox problem, however.) If the display is not on a Databox, then its NMEA Output (Brown) should be connected to the NMEA Input (White) and the display will transmit directly to itself.

After a successful test, the display will automatically step on to the next test.

Button Test

After the NMEA Output test, the display will show 'tSt7', then test the two buttons, prompting with the button number. After a successful test of both buttons, the display will automatically return to normal mode.

The buzzer should beep on every button test.

5.3 Fault Finding Chart

This chart assumes that the instrument is part of a Dataline-X instrument system. If it is connected to another instrument system then perform the equivalent checks on that system.

General Display and Communications Faults

<u>Condition</u>	<u>Probable Cause</u>	<u>Action</u>
<p>All instruments have blank displays.</p>	<p>No 12V Power Supply.</p>	<p>Check that the ships instrument system fuse(s) or circuit breaker(s) are not blown / tripped.</p> <p>Check the power supply wiring to the Databox.</p> <p>Check the 2.5A fuse inside the Databox. (This is the leftmost of the two fuses inside the Databox when it is viewed with the connectors at the lower edge, with the top cover removed. In order to remove the top cover to the Databox first remove the four screws in its corners.)</p> <p>Check the power supply wiring from the Databox to the instruments (the Red and Black 'Dataline' wires).</p> <p>Check for the Dataline-X instruments powering up, if not connected to the Databox, but directly to the power supply.</p> <p>Contact your dealer.</p>
<p>One or more, but not all, instruments have blank displays.</p>	<p>There is no 12V power supply to the affected instrument (s).</p>	<p>Check the power supply wiring to the affected instrument(s) (the Red and Black 'Dataline' wires). This is almost certainly the problem if more than one instrument is not functioning.</p> <p>Contact your dealer.</p>

<u>Condition</u>	<u>Probable Cause</u>	<u>Action</u>
<p>All instruments always show '----', with the pointers of analogue instruments at their zero positions.</p>	<p>No data is reaching any of the instruments.</p>	<p>Check that the battery voltage at the Databox Power Input terminals is greater than 10V.</p> <p>Check the signal wiring from the Databox to the instruments (the White and Green 'Dataline' wires). (If the lighting on any instrument can be controlled from another instrument then this is not the problem.)</p> <p>Contact your dealer.</p>
<p>One or more, but not all, instruments always show '----', with the pointers of analogue instruments at their zero positions.</p>	<p>No data is reaching the affected instrument(s).</p>	<p>Check the signal wiring to the affected instrument(s) (the White and Green 'Dataline' wires). This is almost certainly the problem if more than one instrument is affected. (If the lighting on any affected instrument can be controlled from another instrument then this is not the problem.)</p> <p>Contact your dealer.</p>
<p>All instruments show question marks on their display after they are used to set the lighting level, and the lighting level soon returns to Off, but other data is correct.</p> <p>Or:</p> <p>All instruments show question marks after setting any other data values.</p>	<p>The lighting level or other data is not reaching the Databox.</p>	<p>Check the return signal wiring to the Databox (the Brown 'Dataline' wire).</p> <p>Contact your dealer.</p>
<p>One or more instruments show question marks on their display after they are used to set the lighting level, and the lighting level soon returns to the previous level, but other data is correct, and other instruments can set the lighting level correctly.</p> <p>Or:</p> <p>One or more instruments show question marks after setting any other data values.</p>	<p>The lighting level or other data is not reaching the Databox from the affected instrument(s).</p>	<p>Check the return signal wiring from the affected instruments to the Databox (the Brown 'Dataline' wire).</p> <p>Contact your dealer.</p>

Depth Display Faults

<u>Condition</u>	<u>Probable Cause</u>	<u>Action</u>
<p>The maximum depth capability is less than expected.</p> <p>Or:</p> <p>The performance at very low depths is unsatisfactory.</p> <p>Or:</p> <p>The Depth display always shows flashing numbers or flashing '0.0'.</p>	<p>The depth transducer is not connected to the Databox properly.</p> <p>There is a poor 12V Power Supply to the Databox.</p> <p>The power supply voltage is too low.</p> <p>The depth transducer cable is not the correct length.</p> <p>There is marine growth on the face of the depth transducer.</p> <p>If an in-hull depth transducer the transducer bonding may be broken or there may be insufficient oil to form a good interface between the transducer and the hull.</p> <p>If an in-hull depth transducer the GRP may be too thick or be poorly laid up in the region of the transducer.</p> <p>The depth transducer may have been damaged by impact, or by the boat being lifted with a strop over the transducer face.</p>	<p>Check the depth transducers connections to the Databox.</p> <p>Check that the depth transducer cable is not damaged.</p> <p>Check the Power Supply connections to the Databox (the '+' and '-' 'Power' wires).</p> <p>Check that the Power Supply wires are not damaged.</p> <p>Check that any fuses fit their holders correctly and are not loose.</p> <p>Check that the wire that has been used for the Power Supply is of sufficient size.</p> <p>Check the battery condition, and charge or change the battery if required.</p> <p>Check that the depth transducer cable was not cut or lengthened during the system installation.</p> <p>Check for growth and LIGHTLY scrub or sand the face of the transducer to remove it if necessary.</p> <p>Check and correct if necessary.</p> <p>If possible move the transducer to a more suitable location, or mount through the hull.</p> <p>Test with another transducer if possible.</p> <p>Contact your dealer.</p>
<p>The Depth display is normally correct but occasionally shows unexpected low readings.</p>	<p>Probably moving over weed, fish, or other obstacles.</p>	<p>No action possible.</p>

<u>Condition</u>	<u>Probable Cause</u>	<u>Action</u>
The Depth display is normally correct but occasionally flashes the display unexpectedly.	Probably moving over aerated water, such as the wash from a ferry.	No action possible.
The Depth display is normally correct but flashes the display when travelling at increased or planing speeds.	Probably suffering from aeration in front of the transducer face.	<p>Check the siting of the depth transducer.</p> <ol style="list-style-type: none"> 1. There should be no skin fittings or other obstructions in front of it. 2. It should be well faired into the hull without any large steps. 3. It should be mounted well to the rear of the hull in planing vessels, and not mounted in or near propeller tunnels. <p>Make the checks for poor depth performance as above.</p> <p>Contact your dealer.</p>

Other Faults

<u>Condition</u>	<u>Probable Cause</u>	<u>Action</u>
The external alarm does not sound.	<p>The alarm is not turned on, or the values are not as desired.</p> <p>The external alarm sounder is not connected to the Databox properly.</p> <p>The external alarm sounder is not suitable.</p> <p>The external alarm sounder is not working.</p>	<p>Check that the desired alarm is turned on and has the correct value.</p> <p>Check the alarms' connections to the Databox.</p> <p>Check that the alarm sounder does not require more current or a higher voltage than is available.</p> <p>Check with the alarm sounder driven directly from a suitable power supply.</p> <p>Contact your dealer.</p>
Condensation forms inside the instrument.	Slight internal moisture.	<p>Turn the lights to Level 7 and leave on until cleared.</p> <p>Remove and dry the desiccant pack (See Part 6).</p>

CONTENTS

6.1	General Maintenance
6.2	Annual Maintenance
6.3	Removal of Instrument
6.4	Return for Service

6.1 General Maintenance

The instrument head will require no maintenance apart from occasional cleaning. Do this using fresh water and a mild soap solution (not a detergent).

CAUTION

DO NOT USE ANY ABRASIVES, CHEMICAL CLEANERS, PETROL OR DIESEL TO CLEAN THIS UNIT.

6.2 Annual Maintenance

1. Check all connections to the instrument and, if necessary, cover with silicone grease or petroleum jelly.

6.3 Removal of Instrument

1. If rear access is possible unplug the Dataplug connectors from the rear of the instrument. If the connection needs to be made up then the two wires may be joined using one of the connectors as a terminal block.
2. Remove the outer cover. This can be done by squeezing the instrument sides between finger and thumb and applying an upward pressure. At the same time, place a flat-bladed screwdriver between the bulkhead (or panel) and the cover, and carefully rotate.
3. Remove the cover and the four corner fixing screws.
4. Pull the instrument free from the surface, being careful not to strain the wiring if the connectors have not yet been removed.
5. If they are not yet removed, unplug the Dataplug connectors from the rear of the case, and make up the cable if necessary.

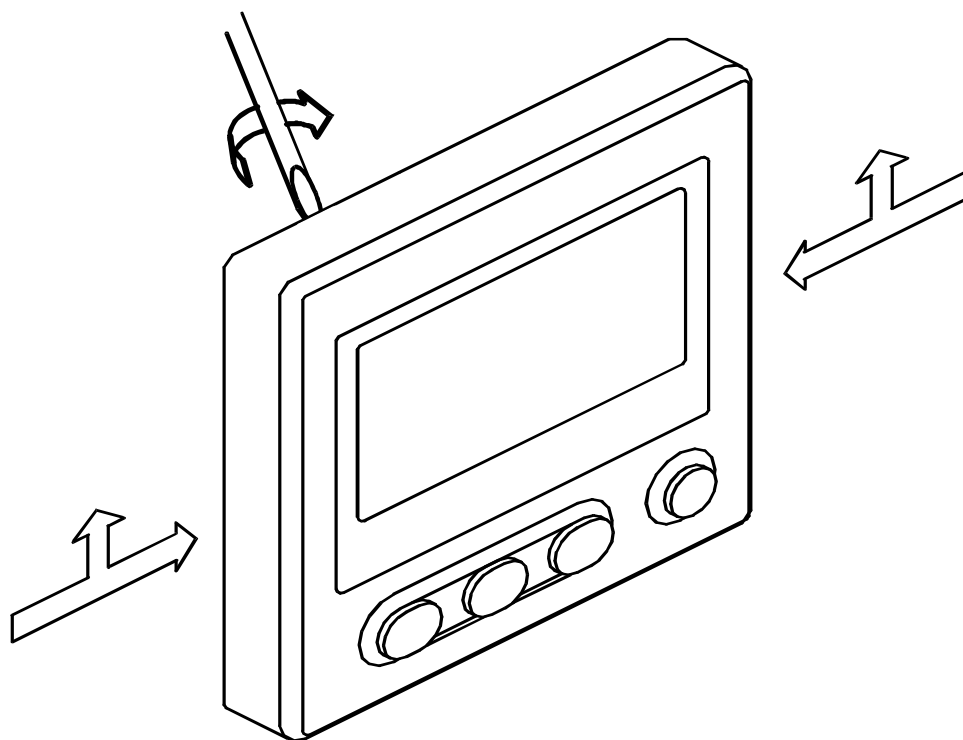


Figure 6.1 - Removal of Instrument

6.4 Return for Service

Please ensure that an instrument that is believed to be faulty is correctly installed, the wiring is in good condition and correct, that all connections are secure, and that a 12V supply is present at its power input terminals.

Should the unit have to be returned to your dealer, adequate packing must be used. Please ensure that your name, telephone number, return address, a clear fault description, and if possible a copy of the receipt of purchase are included with any returned equipment. Simrad Ltd. and their representatives are not responsible for any equipment lost in transit.

Please quote the instrument's serial number in all correspondence. This may be found on the rear of the instrument.

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The NMEA 0183 messages that are received by the DEPTH display are as below.

DPT

DBK = Depth (Feet or Metres Fields)
(Messages listed in descending order of priority)

DBT

DBS