

**USER GUIDE FOR**

**DATALINE-X™**

**DEPTH**

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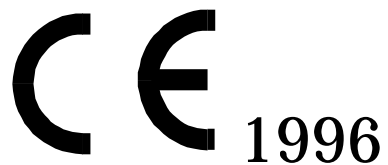
Dataline-X Depth Manual, Part Number 05697SM, Issue 2, Dec 1995.

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## **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.***

***Simrad Ltd disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of 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 combined **DEPTH** and **SEA TEMPERATURE** digital display, known as **Dataline-X DEPTH**, used within the Dataline-X System.

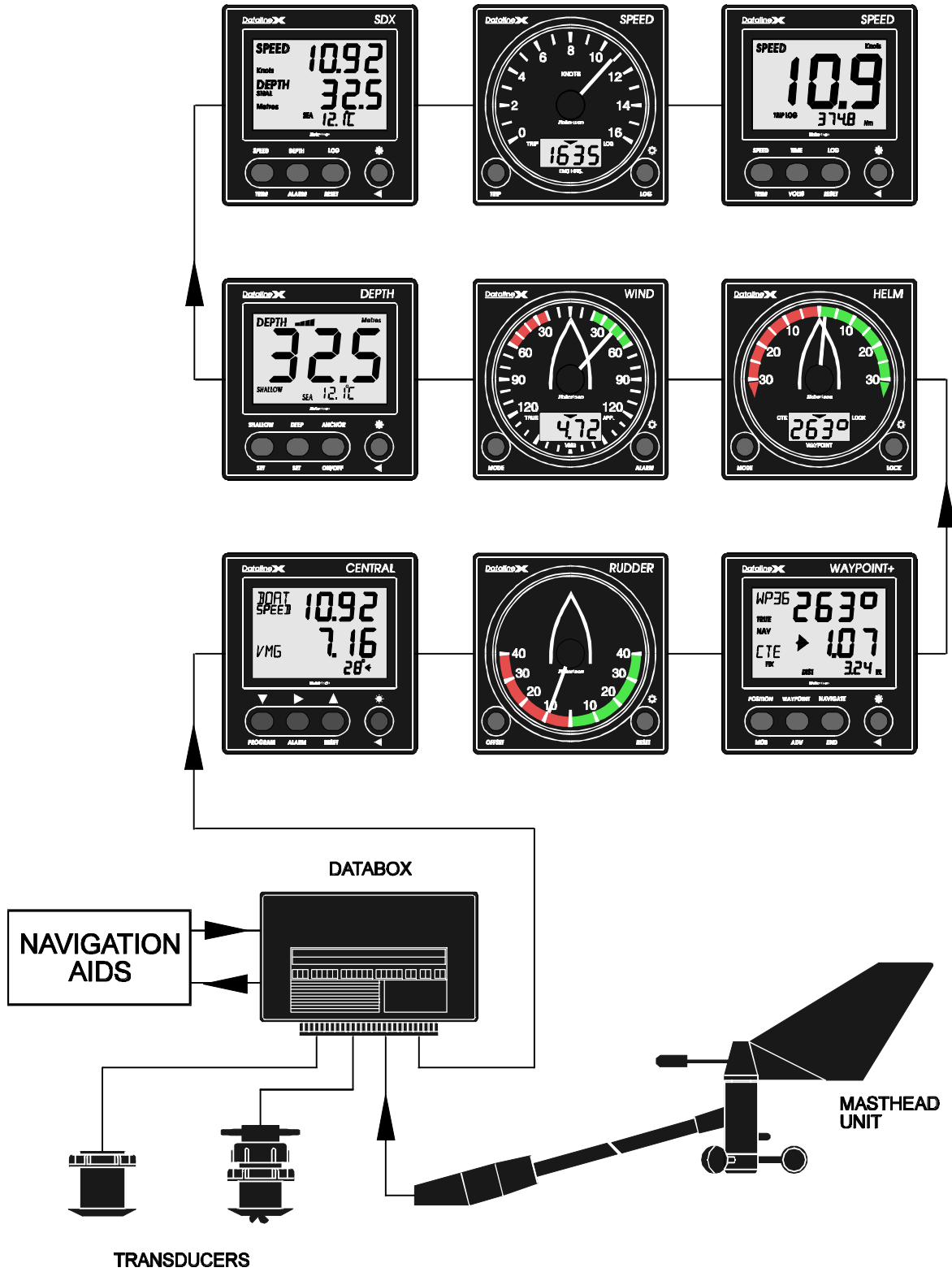


Figure 1.1 - Dataline-X System Diagram



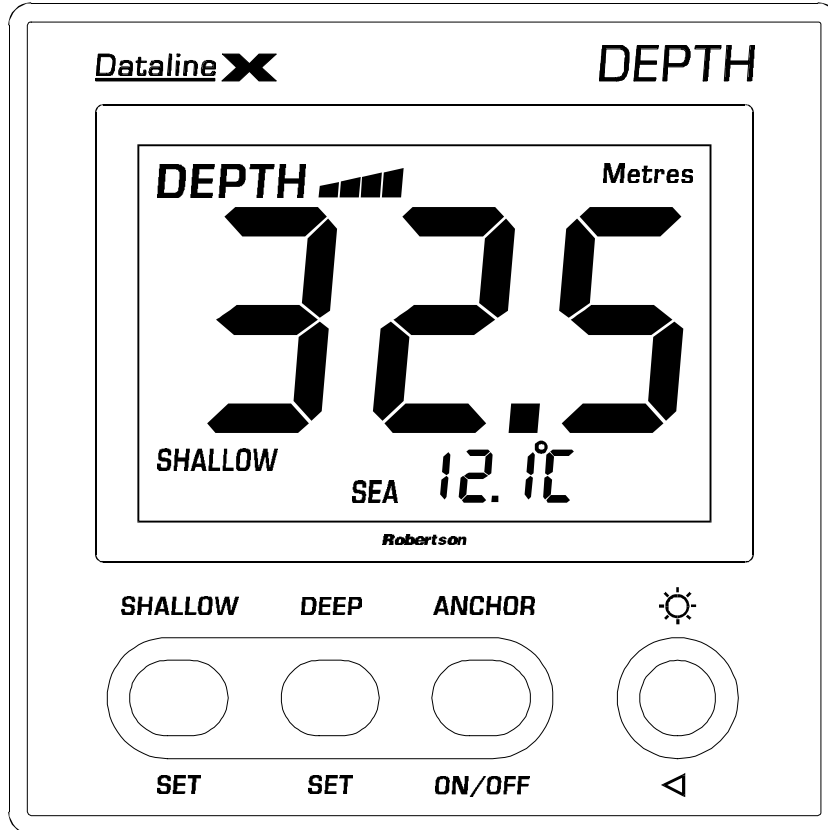


Figure 1.2 - Dataline-X DEPTH Instrument

**1.2 Dataline-X DEPTH Specification**Depth Functions

Depth Display	0 to 300 metres (see Note 1)
Depth Units	Metres/Feet/Fathoms
Depth Accuracy	± 0.1 ft (± 0.03 m)
Depth Alarms	Deep, Shallow and Anchor (see Note 2)
Depth ON/OFF	(switches sounder ON or OFF)

Sea Temperature Functions

Sea Temperature	0 to 40° C, ± 0.1° C
Sea Temperature Units	°C / °F
Sea Temperature Precision	To 1°C/°F or to 0.1°C

Additional Functions

System Calibration Facility	
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 given relates to the display, the depth transducer installed, and sea conditions.
2. The anchor alarm does not monitor 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.

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**2.1 General Description**

The LCD display is generally controlled by the three oval buttons. These buttons move up, down, or sideways through the groups of display screens that are available.

**2.1.1 The LCD Display**

The LCD is divided into two sections, the large section is the 'Depth Display' and generally shows the depth. The smaller lower section is the 'Temperature Display' and generally shows the sea temperature. This display also shows the Depth Alarm values and Alarm ON/OFF status when any of the three oval buttons are pressed. In addition a small bargraph at the top of the display shows the 'quality' of the depth signal.

### 2.1.2 The Buttons

The word above the button (in white) indicates the main function for that button.

The word below the button (in grey) indicates an additional function which can only be selected when that button is used in conjunction with the round \* button. Both can be pressed together, or the \* button may be pressed first.

For some functions, such as setting the display backlighting with the round \* button the button must be held for greater than 3 seconds.

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

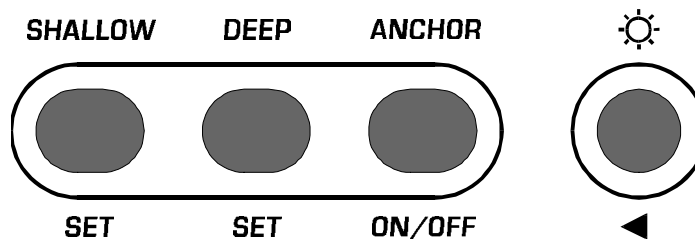


Figure 2.1 - The Buttons

### 2.2 Powering Up

When powering up the instrument, it will beep and will show all the LCD segments for approximately one second.

The display will then show the current operating values for Depth and Sea Temperature.

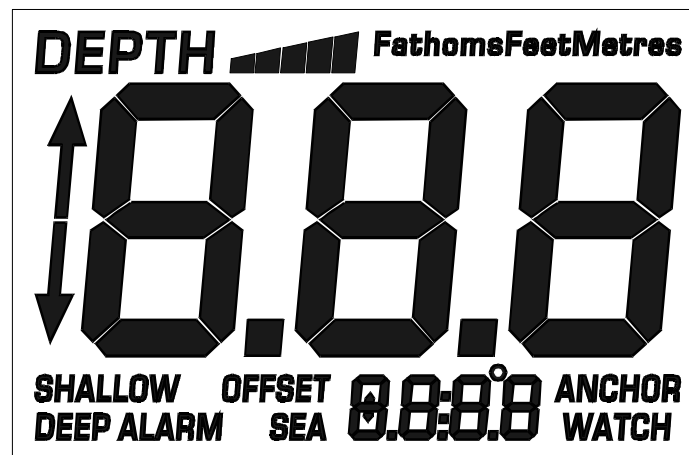


Figure 2.2 - Display on Power Up

### 2.3 Depth and Echo Signal Quality Display

The large digital display generally shows the water depth, while the small bargraph above it shows the Echo Signal Quality.

Notes:

1. The Depth units may be set to Metres, Feet or Fathoms.
2. The Echo Signal Quality bar graph shows five segments for a perfect signal and no segments if there is no echo signal present. If one or two segments show then the indicated **Depth** has been measured but water conditions are very bad.
3. If the echo signal is lost the Depth Display will flash the last known good depth value and the Echo Signal meter will show no segments.
4. Depths of less than 100 units are displayed to one decimal place while depths greater than 100 units are displayed to zero decimal places.

### 2.4 To Set Depth Sounder ON or OFF

1. 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:
2. Press the ON/OFF and \* buttons together to switch the Depth Sounder OFF.

Notes:

1. When the Depth Sounder is turned OFF the Depth Display shows 'OFF'.
2. When either one of the SHALLOW, DEEP or ANCHOR buttons is pressed, the depth sounder will automatically switch on.
3. On power up, the sounder is always ON.
4. 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. In this case the alarm buttons will operate normally and a repeat press of the ON/OFF and \* buttons together will switch the Depth Sounder back on.

### 2.5 The Depth Alarms

When an alarm is turned on its symbol 'SHALLOW', 'DEEP' or 'ANCHOR WATCH' will be shown on the display. When the alarm is triggered this symbol will flash and the display will beep. Pressing any button will cancel the alarm beep but the symbol will continue to flash until the depth moves outside of the alarm limits.

**2.5.1 To Set The SHALLOW Alarm Value**

1. Press the SHALLOW and \* buttons together.
2. Increase the depth value using the ANCHOR button.
3. Decrease the depth value using the SHALLOW button.
4. Turn the alarm ON or OFF by pressing the DEEP button.
5. Return to the main display by pressing the \* button.

**2.5.2 To Set The DEEP Alarm Value**

1. Press the DEEP and \* buttons together.
2. Increase the depth value using the ANCHOR button.
3. Decrease the depth value using the SHALLOW button.
4. Turn the alarm ON or OFF by pressing the DEEP button.
5. Return to the main display by pressing the \* button.

**2.6 To Set The SHALLOW Alarm to ON or OFF**

1. Press the SHALLOW button. If the Shallow Alarm is turned off the Sea Temperature display will indicate 'SHALLOW ALARM OFF'. If the Shallow Alarm is turned on the Sea Temperature display will indicate 'SHALLOW ALARM' and the value of the alarm.
2. To turn the Alarm ON or OFF press the SHALLOW button again within 3 seconds.
3. After 3 seconds the Sea Temperature display will revert to indicating Sea Temperature.

**2.7 To Set The DEEP Alarm to ON or OFF**

1. Press the DEEP button. If the Deep Alarm is turned off the Sea Temperature display will indicate 'DEEP ALARM OFF'. If the Deep Alarm is turned on the Sea Temperature display will indicate 'DEEP ALARM' and the value of the alarm.
2. To turn the Alarm ON or OFF press the DEEP button again within 3 seconds.
3. After 3 seconds the Sea Temperature display will revert to indicating Sea Temperature.

Note: The Deep Alarm can only be set to ON if a value has been entered as in Paragraph 2.8.3

**2.8 To Set The ANCHOR Alarm to ON or OFF**

1. Press the ANCHOR button. If the ANCHOR Alarm is turned off the Sea Temperature display will indicate 'ANCHOR WATCH OFF'. If the Shallow Alarm is turned on the Sea Temperature display will indicate 'ANCHOR WATCH ON'.
2. To turn the Alarm ON or OFF press the ANCHOR button again within 3 seconds.
3. After 3 seconds the Sea Temperature display will revert to indicating Sea Temperature.

**2.9 To Set The Display Backlighting**

Press the \* 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 \* 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

**2.10 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 \* 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.

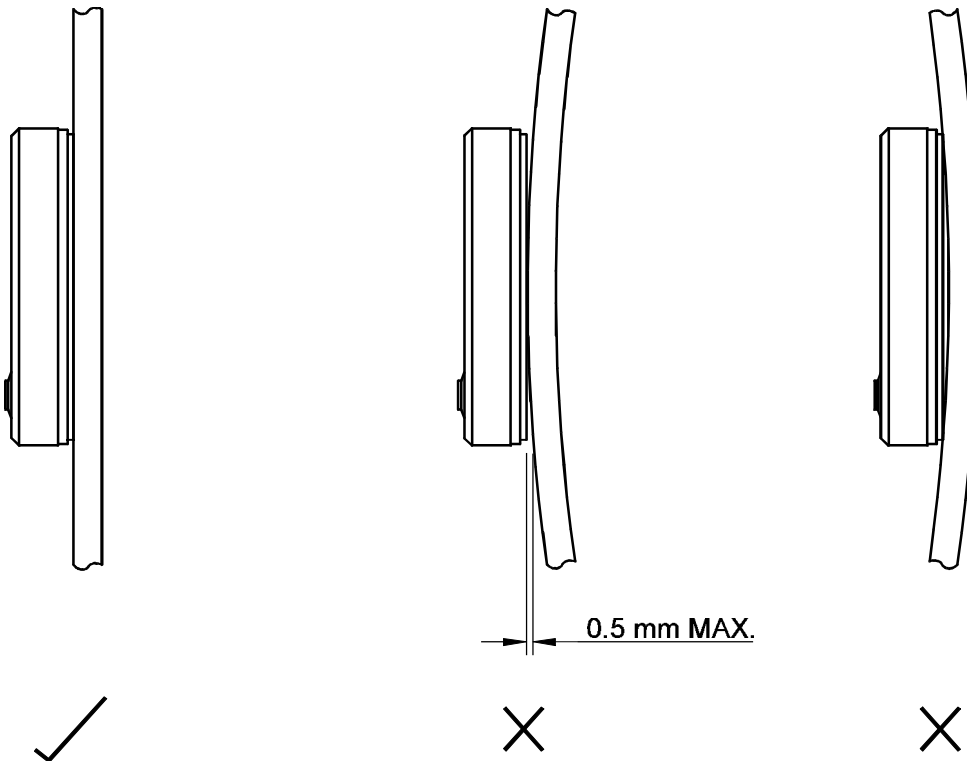


Figure 3.1 - Installation

**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.

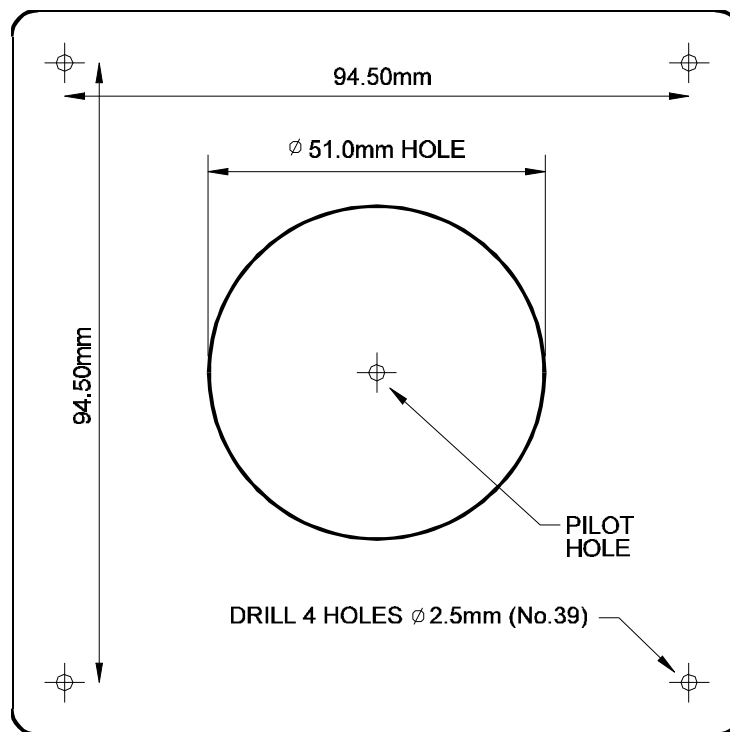


Figure 3.2 - Mounting Details (Not To Scale)

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.

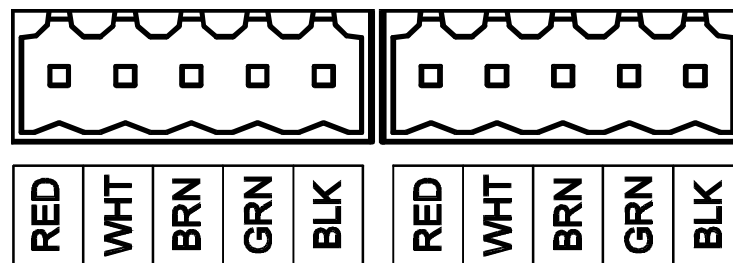


Figure 3.3 - Electrical Connections

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 to complete the instrument installation.

**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
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- 4.8 Depth Units Selection
- 4.9 Sea Temperature Units Selection
- 4.10 Sea Temperature Precision Default Selection
- 4.11 Test Mode Entry Screen
- 4.12 Shop Demo Mode Setting
- 4.13 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 the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. For each successive press of the ANCHOR button, the display will step through the calibration menu. To step through backwards, press the SHALLOW button.
3. The menu function may be changed immediately by pressing the DEEP button, or this may cause the value to flash, depending on the function.
4. The SHALLOW and ANCHOR buttons may be used to decrement or increment values, which are flashing. When the value is correct, press the DEEP button again to save it.

- 
5. Depressing the \* button 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 (value entry, Level 1 to Level 9)
- Default Shallow Depth Alarm (value entry, 0.0m to 30.0m)
- Depth Offset (value entry,  $\pm 30.0\text{m}$ )\*
- Depth Units (select, Metres, Feet, Fathoms)
- Sea Temperature Units (select,  $^{\circ}\text{C}$ ,  $^{\circ}\text{F}$ )
- Sea Temperature Precision (select,  $1^{\circ}$ ,  $0.1^{\circ}$ )
- 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 the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. The display should indicate the current lighting colour and light to show this.
3. Press the DEEP button to change to the desired colour, 'rEd' (Red), 'Grn' (Green) or 'YEL' (Yellow).
4. Return to the main display by pressing the \* button.

### 4.4 Lighting Bank Selection

The Dataline-X 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 the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LItE' is shown on the display.
2. Press the ANCHOR button once until the LCD indicates 'LItE-1-' (or 'LItE-2-').
3. Select the required lighting bank, either 1 or 2, by pressing the DEEP button.
4. Return to the main display by pressing the \* button.

#### **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 nine contrast levels.

The default level (level 8) is suitable for a wide range of viewing angles and will probably not require alteration. However, for viewing from below the display, it may be useful to increase the setting to level 9 to obtain the darkest digits. If viewing the display from above, the contrast level may be lowered 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 the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LItE' is shown on the display.
2. Press the ANCHOR button twice until the LCD indicates 'LItE' and the current contrast level.
3. Press the DEEP button to start to set the LCD contrast, the value will start to flash.
4. Increase the contrast value using the ANCHOR button.
5. Decrease the contrast value using the SHALLOW button.

6. Return to the calibration menu by pressing DEEP, and return to the main display by pressing the \* button.

#### **4.6 Default Shallow Depth Alarm Setting**

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

1. Press the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. Press ANCHOR three times until the LCD shows 'SHAL ALARM SET'.
3. Press the DEEP button to start to set the Alarm, the value will start to flash.
4. Increase the Alarm value using the ANCHOR button.
5. Decrease the Alarm value using the SHALLOW button.
6. Return to the calibration menu by pressing DEEP, or return to the main display by pressing the \* button once.

#### **4.7 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 show the down arrow '↓', and 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 show the up arrow '↑', and the depth of the transducer below the waterline.

1. Press SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. Press ANCHOR four times until the LCD shows 'DEPTH OFFSET'.
3. Press the button to start to set the offset, the value will start to flash.
4. Increase the depth offset below the transducer to the keel using the ANCHOR button.



5. Decrease the depth offset below the transducer to the keel using the SPEED button.
6. Return to the calibration menu by pressing DEEP, or return to the main display by pressing \* button twice.

#### **4.8 Depth Units Selection**

Displayed depth units may be set to either metres, feet or fathoms.

1. Press the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds. The instrument should enter Calibration Mode with the display showing the present lighting colour and 'LiTE'.
2. Press the ANCHOR button 5 times until the LCD indicates 'DEPTH UNIT'.
3. Select the required units by pressing the DEEP button. Return to the main display by pressing the \* button.

#### **4.9 Sea Temperature Units Selection**

Displayed temperature units may be set to either °F or °C.

1. Press the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. Press the SHALLOW button four times until the LCD indicates °C SEA UNIT or °F SEA UNIT.
3. Select required units by pressing the DEEP button.
4. Return to main display by pressing the \* button.

#### **4.10 Sea Temperature Precision Default Selection**

Displayed temperature units may be set to either 1° or 0.1° precision.

1. Press the SHALLOW and ANCHOR buttons together, and hold for more than 3 seconds, until 'LiTE' is shown on the display.
2. Press the SHALLOW button three times until the LCD indicates 'SEA--.-°' OR 'SEA--°..'
3. Select required units by pressing the DEEP button.

#### **4.11 Test Mode Entry Screen**

The Test Mode will test all 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 \* button twice to select the Calibration Mode End Screen, and then pressing both buttons together.

#### **4.12 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 \* 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.

#### **4.13 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 ANCHOR or the \* 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.

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- 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 \* 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 \* button.

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

### 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>
All instruments have blank displays.	No 12V Power Supply.	<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>
One or more, but not all, instruments have blank displays.	There is no 12V power supply to the affected instrument (s).	<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>
Depth Display shows flashing numbers.	Depth Transducer has broken connection.	Check and correct.
	Marine growth on Depth Transducer.	Lightly scrub or sand.
	Poor 12V connection to Databox.	Check all connections.
	Battery voltage too low.	Charge or change battery.
	Transducer bonding broken (in-hull mounting only).	Check and correct.
	Transducer damaged by impact.	Contact dealer.

## Other Faults

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



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**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. This may be done using a little 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.

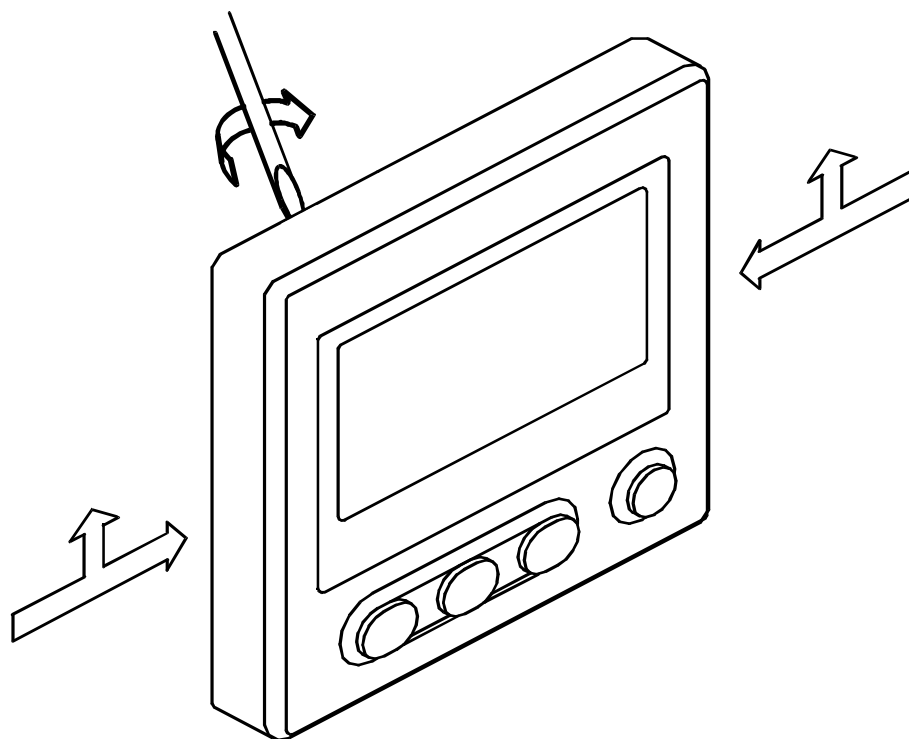


Figure 6.1 - Removal of Instrument

#### 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.

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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 or priority)

DBT

DBS

MTW = Sea Temperature