



Load Cell Display & DLA1 Operating instructions

For Software Version 1.12

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Product liability

Stowe Marine Ltd. accepts no responsibility for the use and/or operation of this equipment. It is the user's responsibility to ensure that under all circumstances the equipment is used for the purposes for which it has been designed.

Warning – electrical hazard

This equipment uses high voltage electrical power. Contact with high voltages may result in injury and/or loss of life.

Warning - calibration

The safe operation of this equipment is dependent on accurate and correct calibration. Incorrect calibration of this equipment may lead to false and inaccurate navigational readings placing the vessel into danger.

Caution

The use of solvent based or chemical cleaners on Display will result in damage and invalidate your warranty.

Caution

Display contains no user-serviceable parts. Repairs should only be made by an authorised service centre. Unauthorised repairs or modifications may invalidate the warranty.

EMC Directive 89/336/EEC



This product has been designed to be compliant with the above Directive. Maximum performance, and compliance with the EMC Directive, can only be ensured by correct installation. It is strongly recommended that the installation conforms to the following standards:

Small Craft – Electrical Systems:

- A. ISO 10133 –Extra Low-Voltage DC Installations
- B. ISO 13297 –Alternating Current Installations

ISO = International Standards Organization

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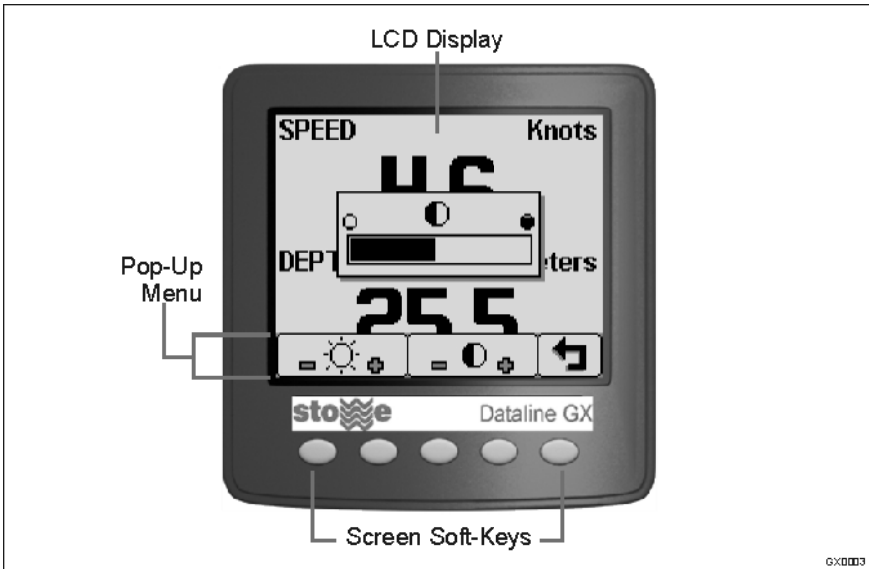
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Operation



Display Soft-keys

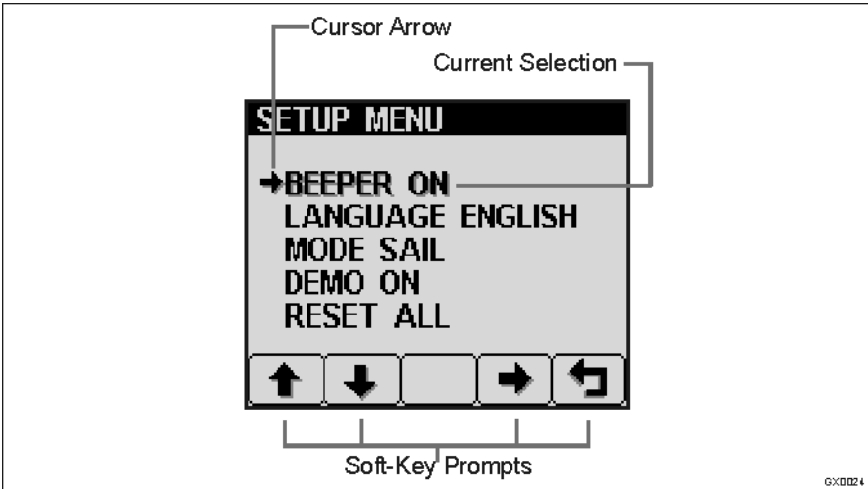
The Dataline GX has five Screen Soft-keys that control all unit functions. Screen Soft-keys are used for choosing screens, as well as navigating through and choosing the various menu options. The functions of these five keys are context-sensitive, and depend upon the screen being displayed at the time a soft-key is pressed. A popup menu showing each soft-key's function appears just above the soft-key at the bottom of the LCD display. There is also an audible "beep" when any button is pressed to confirm the button press. This beeping function can be disabled within the SETUP MENU

Menu and Soft-key Prompts

When working with the Dataline GX functions and menus, there are many ways to choose options and enter information. Many of the screens that will require your input will also give you Prompts on how to enter the information or choose options.

Menu Prompts

On menu screens where a number of different menu items are listed, the currently selected menu item is denoted by bold print and a small cursor arrow next to it.



If there are more menu items than can be displayed on the screen at the same time then a scroll bar is displayed on the left side of the screen to indicate that more items are available off-screen. The size and position of the dark box within the scroll bar represents the proportion of menu items currently being displayed and where these items are located within the overall list of menu items available. To view menu items that are off-screen, use the Up and Down soft-keys (see “Soft-key Prompts” below) to scroll through the list and reveal the additional menu items.

Soft-key Prompts

The function of a particular soft-key changes from screen to screen to whatever is most appropriate for the given screen. This context sensitive functionality provides you the greatest flexibility without the need for numerous function-specific buttons for every task.

The function of a soft-key on a particular screen is shown by an icon or soft-key prompt that appears directly above it in a pop-up menu. Common soft-key prompts are shown below along with descriptions of what the associated soft-key’s function is.



Adjust/Customise – Adjusts, toggles or customises an element of the current instrument screen or selected menu item.



Return – Returns you to the previous menu or screen, or enters a data value upon exiting a calibration screen.



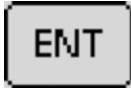
Decrease – Decreases the setting of a selected menu item.



Down – Moves the cursor arrow down to select the next menu item in a list



Increase – Increases the setting of a selected menu item.



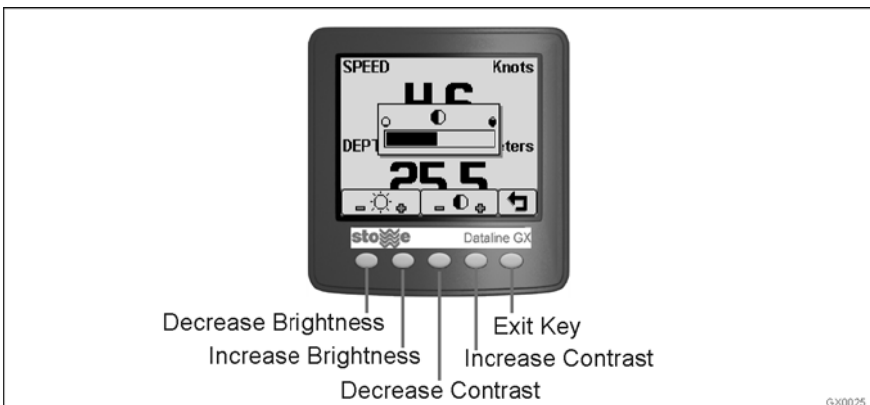
Enter – Stores the setting of a selected function.



Up – Moves the cursor arrow up to select the previous menu item in a list.

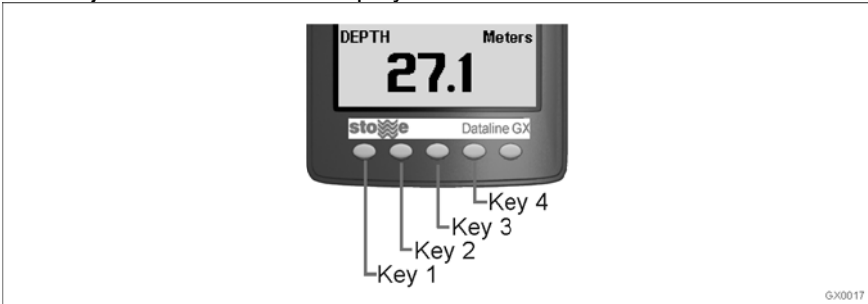
Backlighting and Contrast

The backlight intensity and contrast settings for the Dataline GX display can be adjusted by briefly pressing the right-most soft-key whilst viewing any instrument display screen. Doing so causes the Lighting and Contrast Pop-up Menu to appear at the bottom of the LCD display. Press the soft-key directly below the soft-key prompt for the adjustment desired and that display will immediately adjust according to your selection. Continue making these adjustments until you have achieved the optimum viewing settings for readability. Press the soft-key under the return symbol to leave the Lighting and Contrast Pop-up Menu and return to the screen you were viewing prior to making the display adjustments.



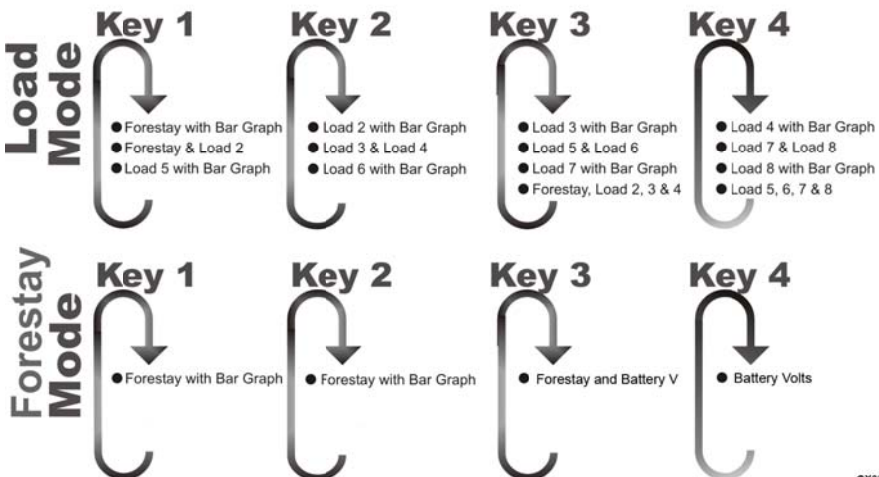
Screen Selection

The Dataline GX displays instrument data and information on screens selected by the user. These screens are accessed via the five screen soft-keys positioned just below the LCD display.



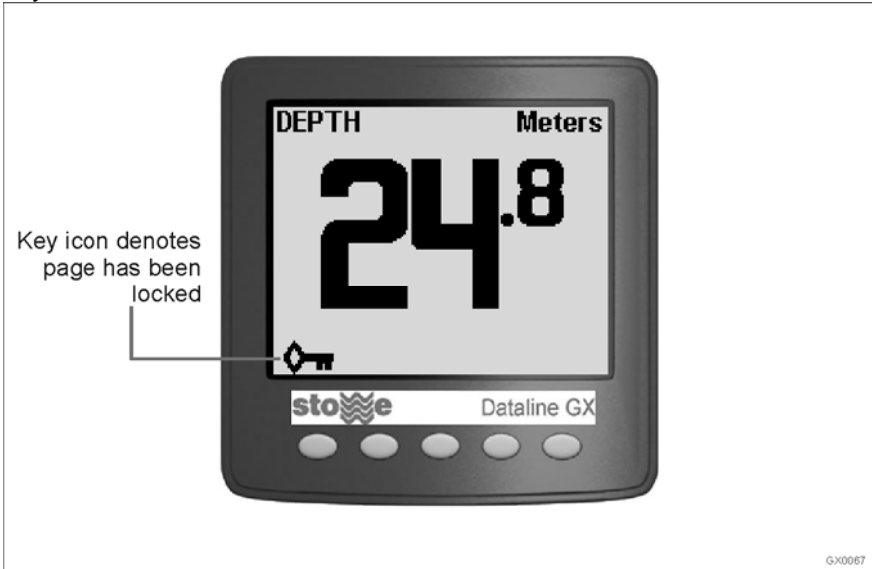
The four leftmost soft-keys (Key 1 to Key 4) are factory configured and will take you directly to the pre-set screens with only a single key press. Successive presses of each of these keys will cycle around the available options.

Screen selection Flowchart



Page Lock

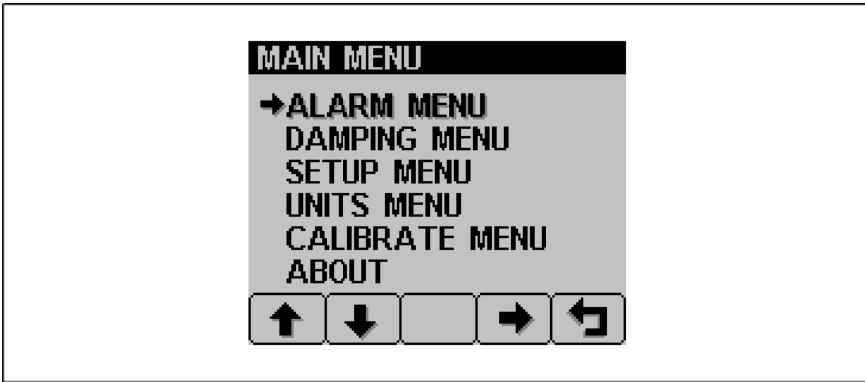
The Page Lock facility allows a key to be locked to one particular display screen, so that it may easily be recalled at the push of a button. To activate the Page Lock feature, simply press and hold the Key you wish to lock for two seconds until the Key symbol is displayed. To unlock a Key, press and hold the Key for two seconds.



Main Menu

The MAIN MENU allows you to calibrate, configure, and customise the Dataline GX according to your needs and preferences.

To access the MAIN MENU, press and hold the rightmost soft-key for five seconds until the MAIN MENU appears. Use Up and Down soft-keys to highlight individual menus and menu items.



Use the Adjust/Customise soft-key to select choices and/or make adjustments. In some instances, you may be required to confirm a selection by pressing ENT. Use the RETURN soft-key to return to previous/parent menus. When done with all your changes, press the RETURN soft-key again to exit from the MAIN MENU to return to the display screen you were viewing prior to accessing the menu.

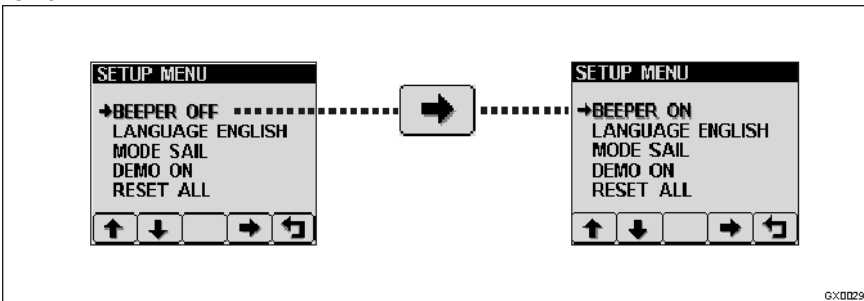
Note In some instances, you may be required to confirm a selection by pressing ENT.

Setup Menu

The SETUP MENU is a sub menu of the main menu and contains the following functions.

Beeper

This function enables and disables the internal beeper from sounding each time a soft-key is pressed. Audible alarm functions remain unaffected. This function will only adjust the local unit and the setting is stored in memory through a power-off.



Use the Adjust/Customise soft-key to toggle the key press beeper's operational status.

Language

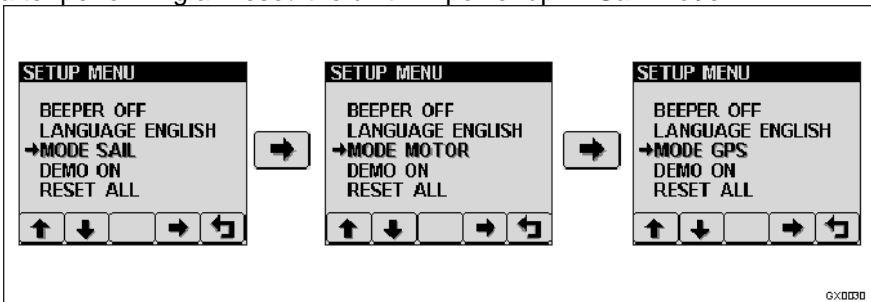
Selecting LANGUAGE from the SETUP MENU displays the LANGUAGE MENU screen. This menu allows you to change the language used by all the displays in a networked system.



Select the desired language by using the Up, Down, and Adjust/Customise soft-keys.

Mode

The Dataline GX Display has been designed for use with several modes. This instruction manual only covers the 'Load' and 'Forestay' modes which must be selected to operate as a Load Cell Display. To alter the display mode, simply press the Adjust soft-key to cycle through the available menu choices. Note that after performing a 'Reset' the unit will power up in 'Sail' mode.



Demo

The Dataline GX can be configured to run an internal demonstration program, which is useful for learning the operation of the display.

Units Menu

Selecting UNITS from the SETUP MENU produces the UNITS MENU screen. This menu allows you to customise the displayed units. Selected units can be 'tonnes f', 'kgf' or 'klbf'. The units selection does not affect the calculation and is only used to set up the display title. The display must also be calibrated in the units required.

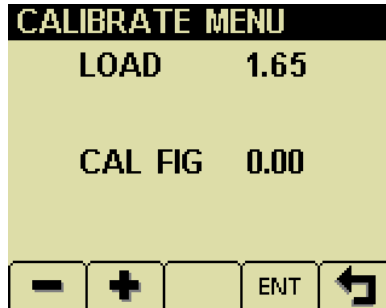
Calibrate Menu

Selecting CALIBRATE MENU from the MAIN MENU produces the CALIBRATE MENU screen. This menu allows you to calibrate the amplifier to the load pin in the units required. Before entering the calibration figure it is **IMPORTANT TO REMOVE ALL LOAD** from the pin to allow the amplifier to automatically carry out the zero calibration as part of the automatic calibration procedure.



Load Cal Figure

The Load Cal Figure option allows you to enter the 'Cal Equivalent' figure from the supplied Load Cell Calibration Certificate.



The current output from the amplifier is shown in the top of the display as LOAD, which should be on or near zero with all load removed. The figure in the middle of the display is the new calibration figure from the certificate and can be in either 'tonne f', 'kgf' or 'klbs'.

Simply adjust the calibration value by using the increment and decrement soft-keys, and then press ENT to automatically calibrate and store the new zero and calibration values in the amplifier. To exit the calibration page without recalibrating, press the RETURN soft-key.

Bargraph Range

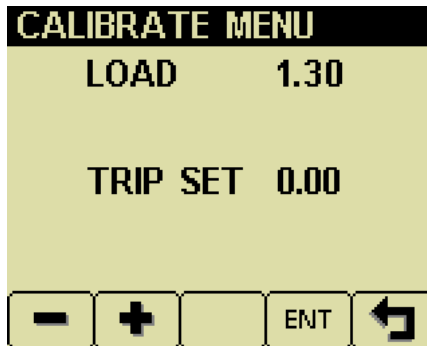
The Bargraph Range setting is used to adjust the maximum scaling for the analogue bargraph indicator.



To adjust the maximum range, repeatedly press the ADJUST soft-key to scroll through the pre-set limits. The pre-set limits are available as follows: 1-10 in single units and then 15-50 in increments of 5 units.

Trip Relay Set

The trip relay setting is used to adjust the point at which the relay switches its change over contacts.



To adjust the trip relay setting, adjust the trip set value by using the increment and decrement soft-keys in either 'tonne f', 'kgf' or 'klbs' depending on the

chosen units entered during calibration, and then press ENT to store and update the trip value in the amplifier.

Engineers Test Functions

There are two Engineers controls under the cover on the DLA1 which should not be required under normal use. These functions relate to software version 1.00 only.

'Set' Pushbutton. When pressed, this button switches on the calibration resistor. A properly functioning and calibrated system will output the calibration figure as LOAD while the button is held pressed.

'Adjust' control is used to calibrate the battery voltage input.

Installation

A complete installation consists of mounting the Dataline GX and making all the necessary connections.

Parts Supplied

Below is a list of the parts supplied by Stowe Marine; please ensure that all the appropriate parts were included in your package:

- Dataline GX Display
- Dataplug Connector
- Cover
- This User Manual
- Installation Template

If any items are missing, please call Stowe Customer Support on +44 (0) 1590 610071.

Additional Tools and Items you'll Need

You may need to order additional cabling to connect your Dataline GX to the existing instrument system. To do so, you will need to take measurements of several wiring runs. If it is determined that additional cabling is required, please contact your local authorised Stowe Marine dealership who will be able to supply the appropriate cabling. Next, carefully plan where you will be installing the Dataline GX and where you will be routing any cables. Then, preferably, pre-install the Dataline GX prior to measuring to ensure that you will have the exact measurements prior to ordering.

When planning and measuring cable routes, measure along unobstructed wire runs between the various points of connection. Round off each measurement to the nearest 30cm (1') and add additional length if uncertain.

If required, order cables and all other needed parts from Stowe Marine by calling +44 (0) 1590 610071. In addition to the items above, you will also need the following for installation and operation:

- A 64mm (2.5") hole saw
- A hand drill and various drill bits
- Terminal-block screwdriver
- A ruler or measuring tape
- Pen or pencil
- Adhesive tape
- UV nylon mounting cable ties. Clamps may be used instead.

Mounting the Dataline GX

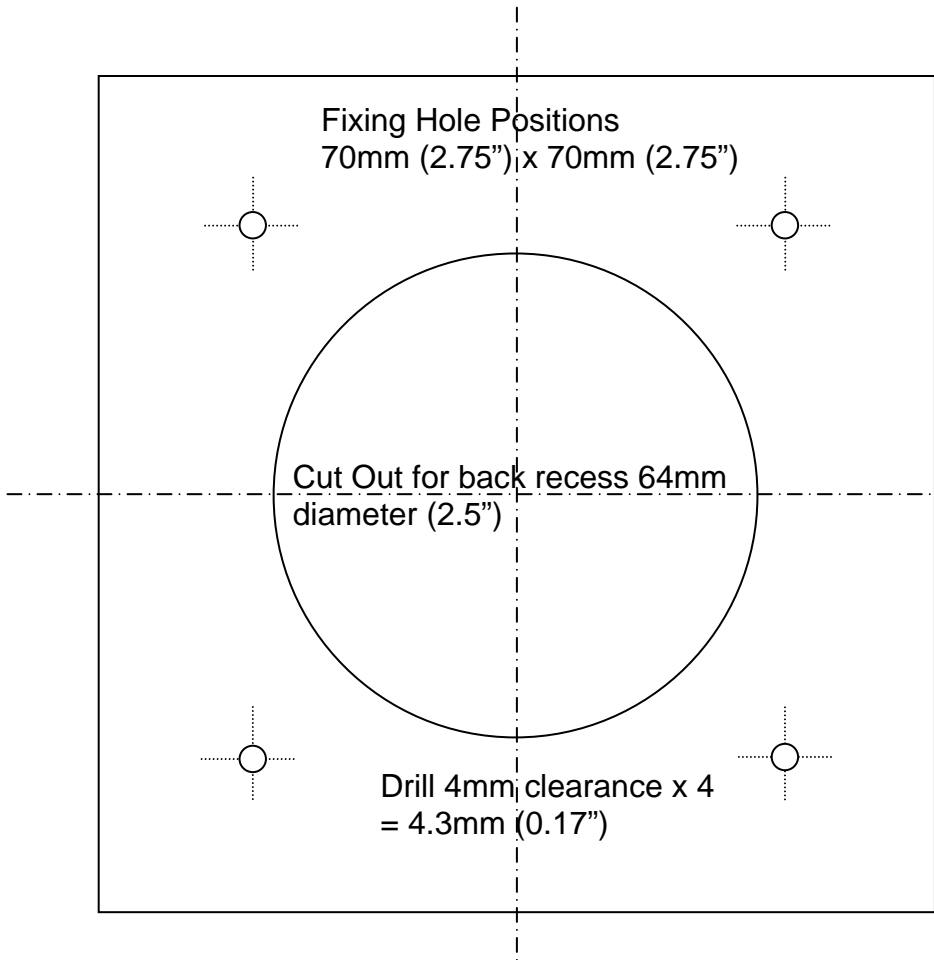
Bulkhead Mounting

Determining Proper Mounting Location

Place the unit in various locations to decide which is best for mounting. The Dataline GX may have to be disconnected for service at some point during the boat's lifetime, so leave at least 100mm (4") of clearance behind the unit for releasing and removing its connectors.

Fixing Template

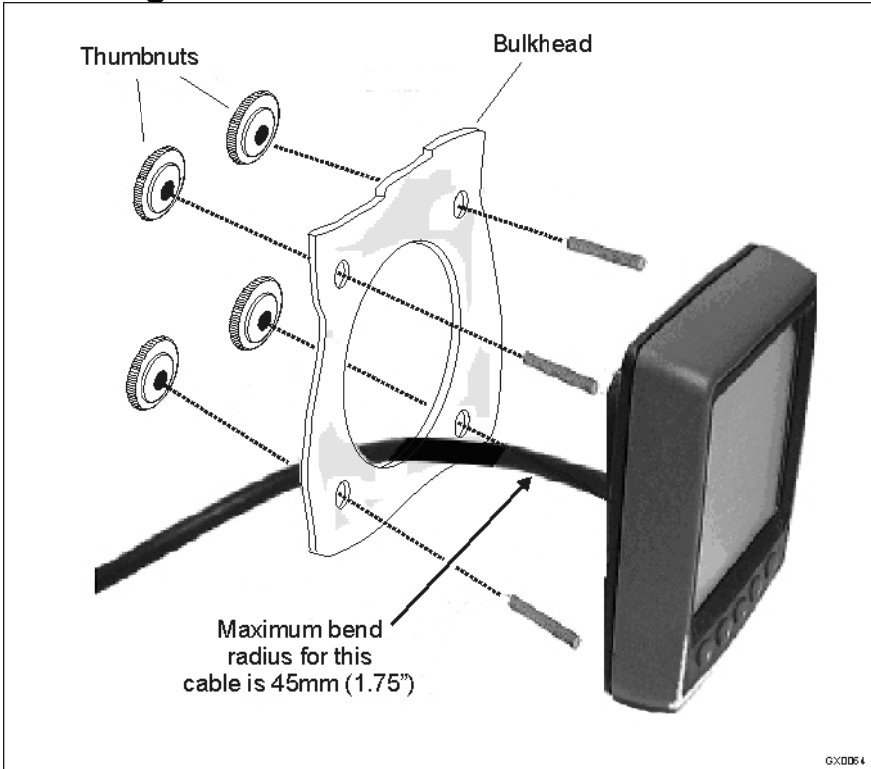
Overall size 110mm (4.33") x 110mm (4.33")



Mounting Unit

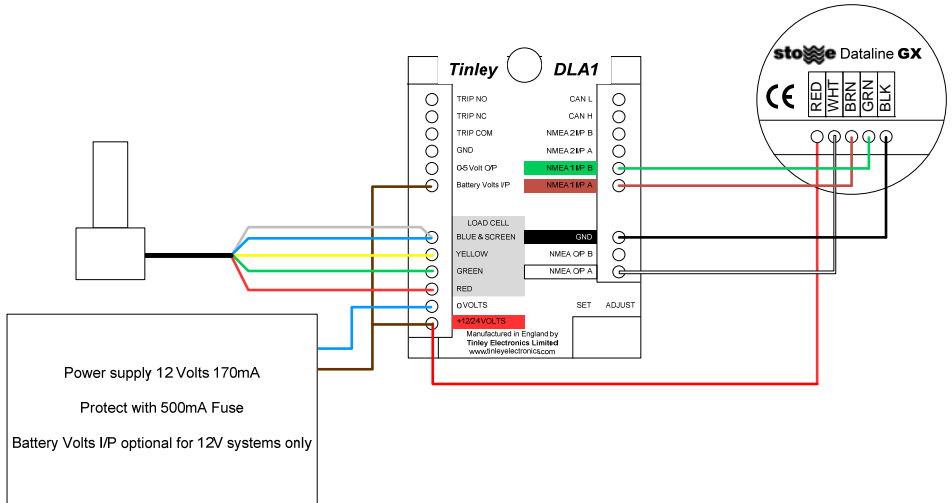
1. Locate a suitable, flat area of the bulkhead to mount the Dataline GX.
2. Tape the Bulkhead Mounting Installation Template to the desired mounting location.
3. Drill a 2.5mm (3/16") hole at each of the four mounting hole locations marked on the template.
4. Cut out the circular section marked in the centre of the template with a 64mm (2.5") hole saw. Remove template when finished.
5. Insert and tighten the four threaded 4.3mm (3/16") studs into the four holes located on the rear-side of the unit.
6. Pass the Dataline GX's rear cable and connector assembly through the main cut-out on the mounting surface.
7. Align the unit with the mounting holes in the front side of the bulkhead and insert the unit and studs into the bulkhead. From the rear-side of the bulkhead, place a thumbnut onto each threaded stud and finger-tighten only. Excess studding may be cropped off if desired.

Mounting the Dataline GX in a Bulkhead



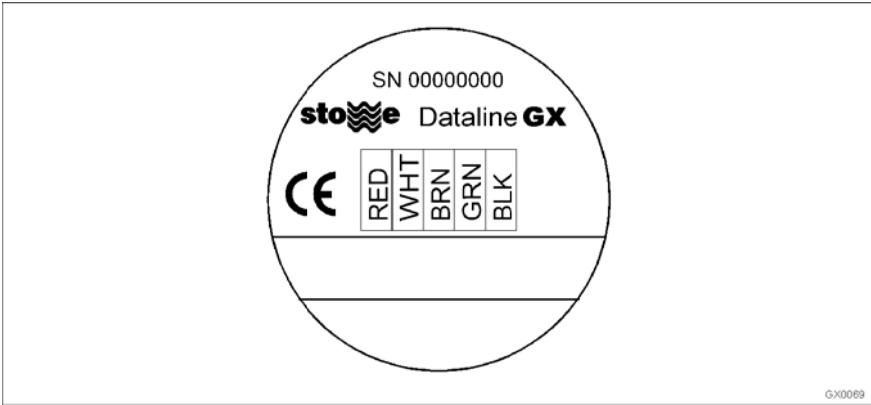
Electrical Connections

1. If the display is being connected to a DLA1 Load Cell amplifier, then connect the display to the colour coded connections in the DLA1.



2. The correct positions for the different coloured wires are shown on the rear label of the display and connect to the DLA1 as in the table below.

Colour	DLA Terminal
Red	+12/24 Volts
White	NMEA O/P A
Brown	NMEA 1 I/P A
Green	NMEA 1 I/P B
Black	GND



3. If the instrument is being connected to another instrument system, then the connections are as shown in the table below:

Colour	Function
Red	+12V ~ +24V Power In (500mA Fuse)
White	NMEA Signal In (A / + / Positive)
Brown	Not Connected
Green	NMEA Reference In (B / - / Negative)
Black	0V Power In

4. Check that the instrument functions correctly.

Notes

- Avoid running cables along other wires or cables that carry high current or might cause EMI (electromagnetic interference). Examples are generator leads or sparkplug wires. Such runs could cause system interference or possibly even failure.
- Do not over-tighten fixing screws.
- Do not use WD40 or any solvent on any part of the instrument.
- Do not use sealing compound on the rear of the instrument casing.
- Secure Dataline cables every 300mm (12") with cable ties or clamps and stainless steel screws.

Specifications

Power

Voltage Input 9V to 24V d.c.
Consumption: 100mA (lights off)
125mA (lights on)

Circuit Protection One 500mA fuse/breaker per unit (in installations using an otherwise un-powered or inadequately powered Dataline)

Display Unit

Display Type FSTN 4 Level Greyscale
128 x 160 pixels

Backlight Green LED with three user selectable levels and Backlit keys

Mounting

Construction Bulkhead or Gimbal
High Impact ABS casing sealed with silicone gaskets
Dimensions 110mm (H) x 110mm (W) x 38.5mm (D)
4.3" (H) x 4.3" (W) x 1.5" (D)

Communication

Dataline Proprietary Stowe Marine protocol based on NMEA
Baud 4800

Input Sentence

`$YXXDR,G,xx.xx,,nnn<CR><LF>`

xx.xx is Generic load in no particular units
nnn is sensor number from 001 to 008
sensor 001 is displayed as Forestay

`$PSTOT,xxxx<CR><LF>`

xxxx is 'Trip value' X 100

Output Sentences

`$PTINC,xxxx<CR><LF>`

xxxx is 'Calibration equivalent' X 100
'Calibration equivalent' can be found on the Load Cell Calibration Certificate

`$PTINT,xxxx<CR><LF>`

xxxx is 'Trip value' X 100

Environmental

Operating Temperature

-25°C to 75°C (-13°F to 167°F)

Storage Temperature

-30°C to 80°C (-22°F to 176°F)

Enclosure Rating

IP67

Troubleshooting

If a problem cannot be identified or corrected, call Stowe Customer Support on 01590 610071.

Visual Inspection

If a problem is experienced with the Dataline GX system, such as lost data or no data being reported from an installed sensor, first visually inspect the system for the most likely causes, which include the following:

- Adequate power supply
- Loose connectors
- Bent connector pins
- Harnesses perforated by excessively tightened wire ties
- Faulty sensor/transducer/interface

Maintenance

Your Stowe Marine Dataline GX is designed to provide you with years of trouble-free operation with virtually no maintenance. Follow the simple procedures below to ensure that your Dataline GX continues to deliver top performance.

If the unit comes into contact with salt spray, simply wipe the affected surfaces with a cloth dampened in fresh water.

Do not attempt to repair the Dataline GX yourself. There are no user serviceable parts inside, and special tools and techniques are required for reassembly to ensure the waterproof integrity of the housings. Repairs should be performed only by authorised Stowe Marine technicians.

Many requests for repair received by Stowe Marine involve units that do not actually need repair. These units are returned “no problem found.” If you have a problem with your Dataline GX, consult the troubleshooting guide before calling Customer Support or sending your unit in for repair. The Dataline GX contains several tools which can aid in determining if there is a problem and how to isolate and repair the problem in many cases.

WARNING

Disassembly and repair of this electronic unit should only be performed by authorised service personnel. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorised individuals will invalidate the warranty. Handling and/or opening this unit may result in exposure to lead, in the form of solder.

Customer Support

If you have any questions, contact Stowe Marine Customer Support:

Telephone: +44 (0) 1590 610071

Email: support@stowemarine.co.uk

Two Year Warranty

We warrant to the original retail purchaser that Stowe Marine electronic products have been manufactured free from defects in materials and workmanship. This warranty is effective for two years from the product manufacture date, except where Stowe Marine electronic products are used commercially or in any rental or other income producing activity; then this warranty is limited to one year from the date of original purchase for mechanical and electrical products.

Stowe Marine products found to be defective and covered by this warranty will be replaced or repaired at Stowe Marine's option, and returned to the customer. Items must be returned (freight prepaid) within the warranty period to the dealer from whom such products were purchased, or directly to Stowe Marine's Lymington facility.

Stowe Marine's sole responsibility under this warranty is limited to the repair or replacement of product that is, in Stowe Marine's opinion, defective. Stowe Marine is not responsible for charges connected with the removal of such product or reinstallation of replacement or repaired parts.

We will have no obligations under this warranty for any product which:

- was improperly installed;
- was used in an installation other than as recommended in our installation or operation instructions or specifications;
- failed or was damaged due to an accident or abnormal operation including racing, misuse or alterations outside our factory;
- was repaired or modified by entities other than Stowe Marine;
- was used on an engine/boat combination where the engine horsepower exceeds the rating established by the boat manufacturer;
- was used with other product(s) which, in Stowe Marine's opinion, are incompatible with the Stowe Marine product.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, OBLIGATIONS OR LIABILITIES ON THE PART OF STOWE MARINE AND WILL BE THE CUSTOMER'S EXCLUSIVE REMEDY EXCEPT FOR ANY APPLICABLE IMPLIED WARRANTIES UNDER ENGLISH LAW WHICH ARE HEREBY LIMITED IN DURATION TO TWO YEARS FROM THE DATE OF ORIGINAL PURCHASE. IN NO EVENT WILL STOWE MARINE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY RELATING TO THE PRODUCTS.

Stowe Marine products returned under this warranty must be tagged with the customer's name, street address, and phone number to ensure proper handling,

and returned freight prepaid to the selling dealer or to the appropriate Stowe Marine manufacturing facility. User manual contains the facility return addresses.

Customer Service

For Customer Service, please contact a Customer Service representative:

Telephone: +44 (0) 1590 610071

Email: info@stowemarine.com

Products should be sent to:

Stowe Marine Ltd.
235 Bentley Way
LYMINGTON
SO41 8JW
England

The Limited Warranty does not cover shipping costs to the Stowe Marine Lymington facility, any costs for labour or otherwise related to product removal or replacement, or any other costs of any nature without prior consent by Stowe Marine Service in Lymington, UK. Parts, products and accessories made by others are warranted only to the extent of the original manufacturer's warranty to Stowe Marine.

Stowe Marine tests 100% of the returned products at its facility.

Please call +44 (0)1590 610071 should you have any questions regarding customer returns. The customer may also email Stowe Marine at info@stowemarine.com

