

**BFD**

## **PRODUCT USER GUIDE**

The A+T Big Format Display (BFD) is a high specification full colour large format display. Very high contrast on toughened glass provide superb viewability under the harshest conditions.

Supplied as either an Ethernet based unit for use with an A+T ATP processor, CANbus for N2k systems or Fastnet bus based for older systems. It is compatible with existing B&G H5000, H3000, H2000 and WTP2/3 systems using the Fastnet or N2k bus and the BFD will fit the cut out and fastening holes of existing 40/40 displays.

### **Specifications:**

Input voltage	10-40 Vdc, internal self resetting fuse
Power consumption	@max brightness 26W
Weight incl 7m cable	2.53 kg
Environmental	IP68, tested at 1m submersion for 24hr
Operating temperature	-10 to +70 deg C
Display resolution	1200 x 800
Backlighting	Max 1200nits, tunable levels

### **Warranty:**

The A+T BFD are warranted against manufacturing defects for five years from date of shipping from factory on a return to factory basis. Warranty is void if opened except by A+T. An integral tamper sensor is fitted.

The warranty specifically excludes physical damage, lightning strike to the vessel, overvoltage on supply or signal lines and use outside the normal operating environment of a yacht.

### **Trademarks:**

A+T is a registered trademark of A+T Instruments Ltd. B&G, H2000, H3000, WTP, WPT2 & WPT3 are product names or trademarks of Navico UK Ltd whose use here is acknowledged.

### **Conformity.**

This display complies with the CE EMC directive 2004/108/EC and Level 2 of the Radio communications (Electromagnetic Compatibility) standard 2008





## **BFD functionality**

- The BFD allows the display of any data available on the instrument databus.
- Up to 6 fully custom layout pages are available that can be scrolled through via push button
- Configuration and setup is via web-server
  - Fastnet and CANbus displays have built in WiFi to access the web-server from any WiFi enabled device (Windows, MacOS, Android or iOS).
  - Ethernet displays are accessed from an ATP1 or ATP2 web-server

### **Remote button control**

Any momentary closed circuit button may be used to scroll through the pages.

A single press of the button will cycle to the next page on the BFD.

The layout, number and behaviour of individual pages is set up by web-server

### **Setup and configuration**

The BFD web-server has a number of functions:

- Customise display pages
- Manage lighting, including fine tuning lighting to match other displays
- Save and reload display configurations
- Upload firmware updates and system diagnostics

### **Appendices:-**

- A. Display wiring
- B. WiFi connection
- C. Web-server setup and configuration
- D. Mounting instructions and cut-out template



## **Appendix A**

The Fastnet and ethernet BFD is supplied with a 7 metre cable. This cable may be shortened without affecting the unit or warranty. Custom cable lengths are available, as are IP68 rated in-line connectors. Contact A+T for CANbus connectivity or for custom cable requirements.

The BFD requires a protected power supply of minimum 26W, independent of the data bus power. The 5 way ATJB junction box is suitable to connecting BFD's to the data bus.

### **Fastnet BFD:**

The colour codes in the cable are:-

<b>Colour</b>	<b>Function</b>	<b>Comment</b>
Black	0v	**See note below
Red	+V Power	Fastnet bus power, plus minimum 26W fused supply
White	Fastnet A	Connect to B&G Fastnet White
Green	Fastnet B	Connect to B&G Fastnet Green
Brown		Not used (isolate)
Blue		
Violet		
Yellow	Push button	When contacted with 0v will step to next page
Bare	Screen	

\*\*The 0v of the independent power supply should be connected common to the 0v (black wire) of the Fastnet bus.

The normal requirements for Fastnet bus apply in that two terminator resistors, each of 100  $\Omega$ , at either end of the network. The resistance measured across green and white with no power should be close to 50  $\Omega$ .

### **Ethernet BFD:**

The colour codes in the cable are:-

<b>A+T Colour</b>	<b>CAT5 colour</b>	<b>Function</b>	<b>Comment</b>
Black	White/Blue & Blue	*0V	
Red	White/Brown & Brown	*+V Power	10-40 VDC, plus 26W fused supply
White	White/Green	RX+	
Green	Green	RX-	
Brown	White/Orange	TX+	
Blue	Orange	TX-	
Violet			Not used (isolate)
Yellow		Push button	When contacted with 0v will step to next page
Bare		Screen	

\*The +V and 0v connections use spare wires within cat5e cable. Twist together the White/Brown and Brown pair, and the White/Blue and Blue pair for connection to the +V and 0V terminals.



**CANbus BFD:**

Contact A+T for connection requirements.

The colour codes in the cable are:-

<b>A+T CANbus Colour</b>	<b>N2k Colour</b>	<b>Function</b>	<b>Comment</b>
Brown	Screen	Shield	
White	Red	NET S/+ve	
Blue	Black	NET C/-ve	
Black	White	CAN+/NET H	
Grey	Blue	CAN-/NET L	



## **Appendix B**

### **Connect to the BFD with WiFi**

The BFD WiFi is always on.

SSID: [Unit serial number]  
WiFi Password: instruments

The BFD has an internal DHCP server and you can connect up to 16 devices at one time.

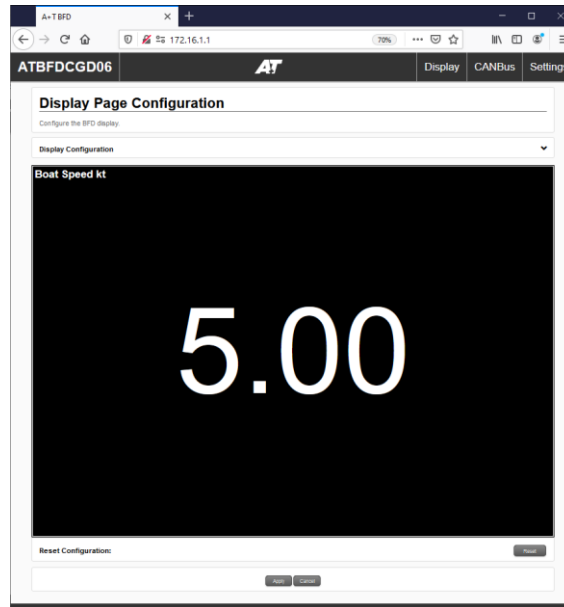
Once connected to the BFD, on your web browser enter the BFD IP address in the address bar to load the web-server.

IP Address: 176.16.1.1

## Appendix C

### Web-server setup and configuration

These instructions are common to all BFD's, however see your ATP1 or ATP2 manual for instructions on selecting the BFD to setup or configure.

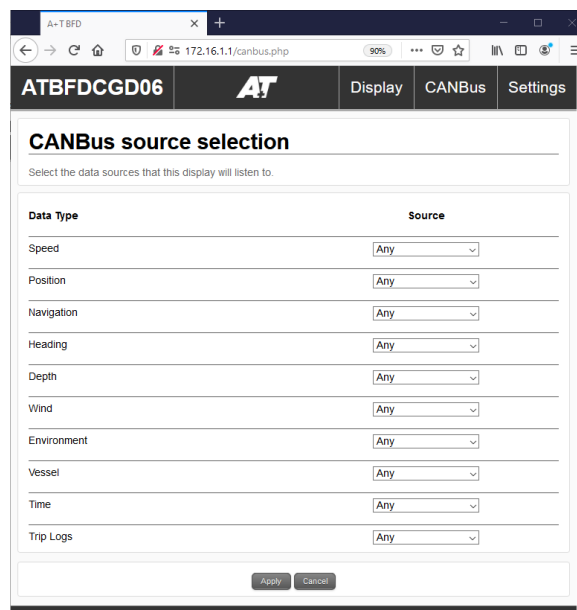


*Display configuration page*

Logging in to the web-server will reveal the Display Configuration Page.

### CANbus

The CANbus menu is only available on CANbus version displays and the sources must be selected before proceeding.



*CANbus source selection*

## Configure display

To set up the BFD display fields, click on **Display Configuration**

- **Number of Pages:** the number of pages available to scroll through on the BFD
- **Current Page:** the current page to be displayed on the BFD and for editing in the web-server
- **Number of Fields:** the number of data fields for the **Current Page**
- **Divider Colour:** Select a standard colour or from a custom palette

Any changes made must be sent to the BFD by pressing **Apply** at the bottom of the window.

To change or edit data in a display field click within that field to enter the Data Page Style editor. You can to select the data to display and edit from standard or custom palette colours, press **OK** then to set to the BFD press **Apply** to send to the BFD.

You may create up to 3 Data Rules to change colour of the data, title or background using logical operators.

For example if you wish to set conditions to indicate colour for safe depth, caution depth, and hazardous depth the setting below will display the data in **RED** when depth <5m, **AMBER** when depth 5 <= 10m and **WHITE** when depth > 10m.

Where conditions overlap, the bottom, or most recently added, rule will apply. In this example, all three rules apply for depth = 15 metres however the last rule has priority so the depth text is **WHITE**.

## Settings

The General Settings page is for further configuration of the display including setting the lighting levels and to upload firmware updates.





## **A+T Splash Screen**

If the BFD is being powered but not receiving data it will show a splash screen. This serves two purposes:

1. As an alert to highlight that no data is being received. This also prevents old or out of date data being displayed.
2. To show a custom image when at anchor or the dock to display a yachts logo or image.

The splash screen functionality may be disabled, and a time delay from when data is no longer available to when the splash screen is displayed.

You may upload a custom image of no larger than 1200 x 800 pixels in \*.JPG, \*.JPEG, \*.PNG, \*.XBM. A smaller image will be centred on the screen.

## **Stored Configurations**

You may save configurations on the BFD for reloading, and download and saved for backup and to be transferred to other displays.

## **APPENDIX D**

### **Portrait or Landscape mounting**

The BFD can be mounted in either conventional landscape, or portrait orientation.

**Landscape:** When viewed from the rear the cable should exit vertically down.

**Portrait:** When viewed from the rear, rotate the display from landscape to portrait 90 deg clockwise. The cable should exit horizontally to the left.

**DO NOT USE Acetone or any alcohol based solvent agents for cleaning. These may damage the plastic materials on the display.**

Recommendations:

1. A 1mm clearance between the BFD and the bulkhead cutout
2. Use a bead of propriety **NON-ADHESIVE** sealant and fasten using small spacers to achieve an even gasket without squeezing all the sealant out of the gap.
3. Once the sealant has cured, remove spacers and gently tighten the fastenings to take up on the now formed gasket.
4. Clean away any surplus sealant.
5. **DO NOT OVERTIGHTEN THE FASTENINGS.** Overtightening could lead to distortion of the display body and consequential loss of watertight/airtight integrity or break the glass or the mounting lugs. None of these occurrences are covered by warranty.

