



## Fastnet Trouble-shooting

Issue 1.0 October 2020

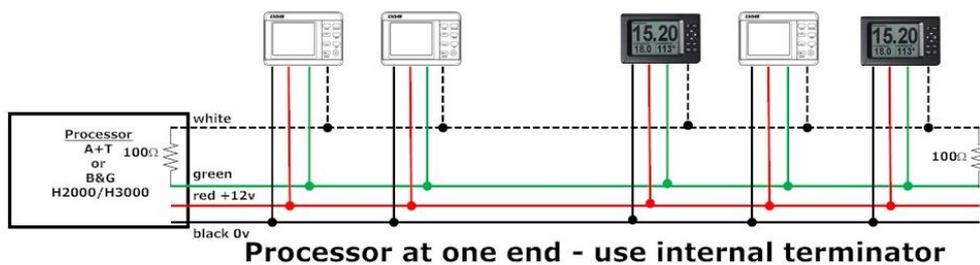
A+T make a number of displays, sensors and processor which run on the legacy B&G Fastnet databus to support existing installations. We have a very deep understanding of how this works and much experience of trouble-shooting difficult or complicated situations with up to 40 displays.

With good wiring and good maintenance this Fastnet databus is still very reliable and we set out below the major pointers and issues that arise. The amount of data on the bus is not normally a cause. A+T displays have a function which shows the databus loading and we have rarely seen this over 30%, even on the biggest and most complex yacht systems.

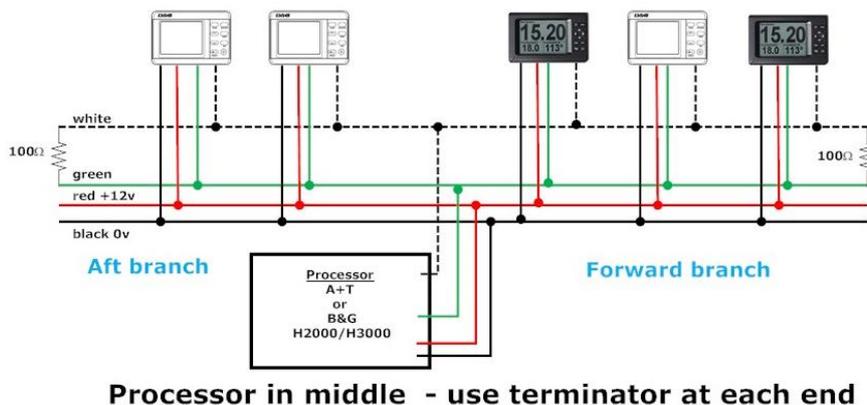
### The basics

Fastnet databus layouts are generally a single 'backbone' with no practical limit to the lengths of the connecting cables to display, sensors etc. Two configurations are common:-

#### Processor at one end



#### Processor in the middle



### Network resistors

In each of the above configurations a 100  $\Omega$  resistor (terminator) is needed between the signal (white and green) wires at each end – these provide a load to ensure that the signal current gets fully to each end of the network.

The total resistance across white and green should be close to 50  $\Omega$ , as measured with a meter with the processor turned off. Alternatively and easier, A+T MFDs display the network resistance on their network diagnostics page.

If the resistance is high then this may be a terminator missing or an open circuit. If low or shorted then this may indicate water in a junction box or a short somewhere.

### Power

A+T displays work on 10-36V, but as all B&G displays work only on 12V, most Fastnet networks run on nominal 12V.

Measure the voltage across red and black at the processor. The voltage must never be less than 1.5V less than this at any point on the network. So if the processor voltage at processor is 13.6V then the voltage at every point of the network must be at least 12.1V.

Even if the displays are powering up, voltage drop more than 1.5V will stop data or lead to errors.

It is also worth checking all of this with the display lights on. The current draw is then highest so the voltage drop most.

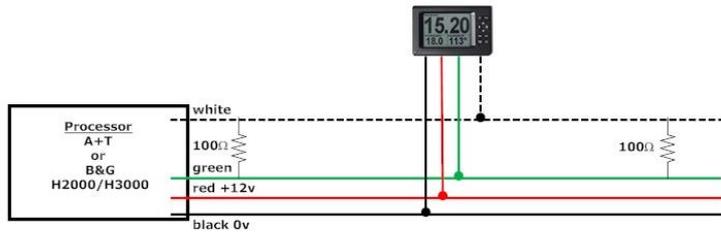
**There is no point going further until both of these (power and network resistance) check out OK**

### The next stages

Is it the processor or is it the wiring/displays ?

Are any displays on the system displaying data and working properly? If **yes** then nothing wrong with processor so the problem must be with the wiring and/or displays.

If **no**, then disconnect the whole network from the processor and connect a single known working display (or new MFD display from A+T) directly to the processor:-

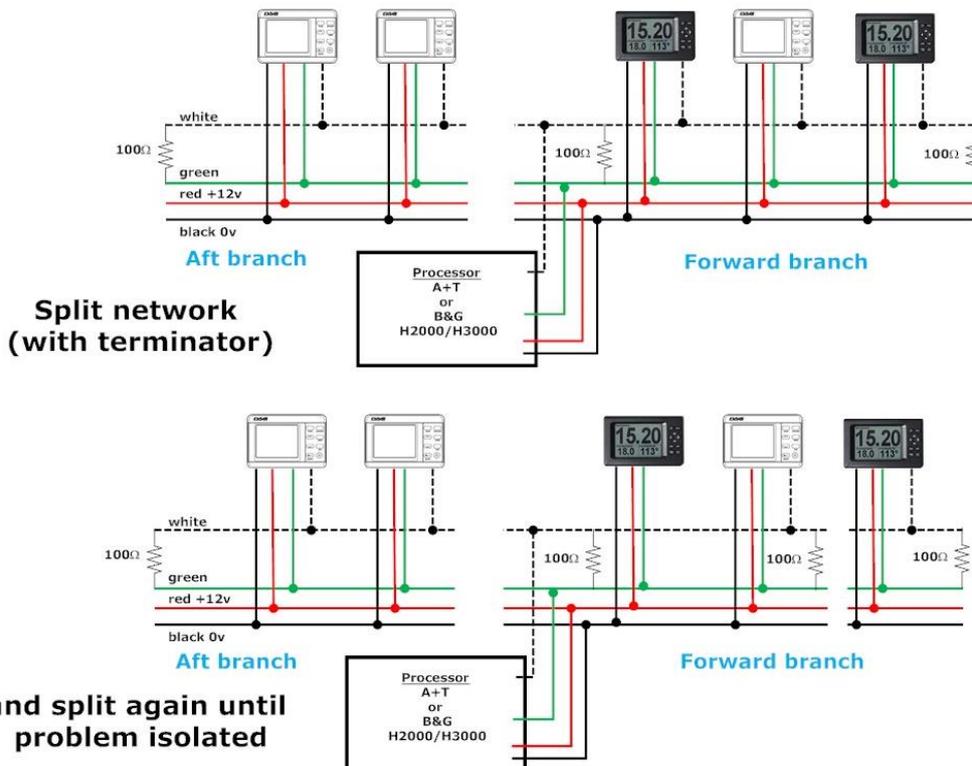


**Connect known good display and ensure 2 x 100Ω terminators (so net resistance across green and white is 50Ω)**

**Check display works and all data available**

**If this OK then processor working and Fastnet output working**

The processor is OK so the problem is wiring or displays

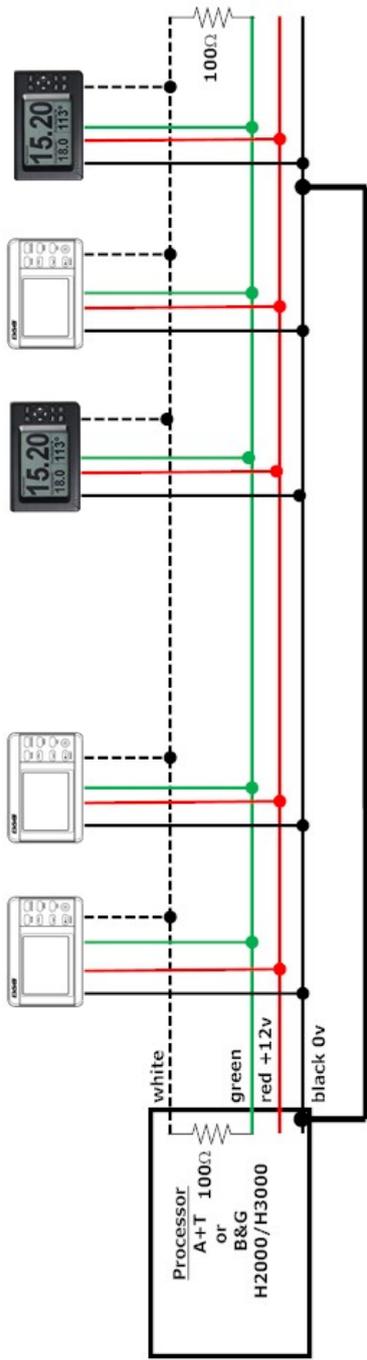


Keep breaking system into sections (each time ensuring terminators fitted at each end).

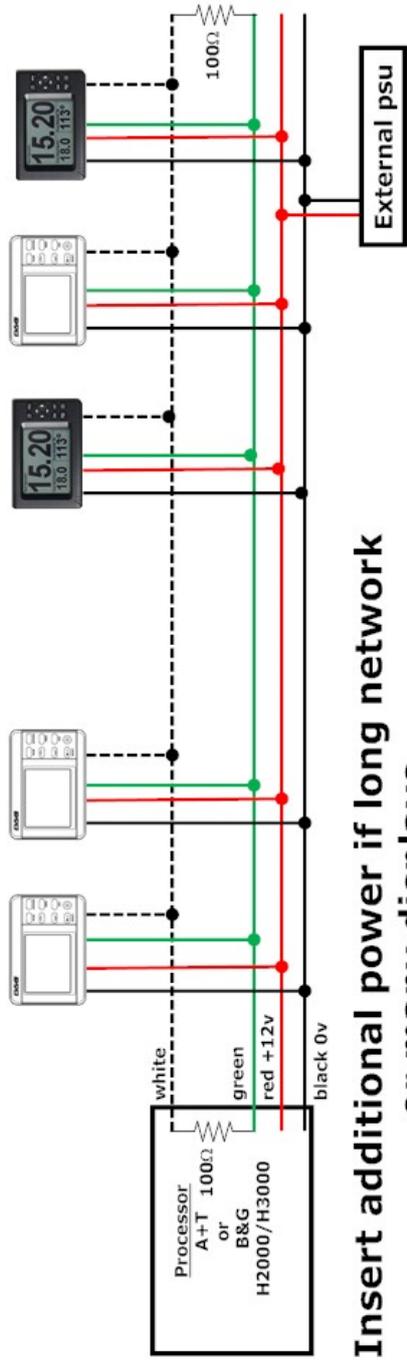
Once the offending part of the network is identified then try removing all displays on this section and then replacing one at a time. One bad display can pull down others or the whole network.

If still problems, document as much as possible with a drawing or sketch of the network layout and displays. Email A+T at [support@AandTinstruments.com](mailto:support@AandTinstruments.com) and we will do our best to help.

In the appendices below there is further information which may be helpful.



**Improve 0V connection - if power sufficient to run displays but data not showing (especially if occurs only when lights on)**



**Insert additional power if long network or many displays**

<b>AT</b>	<b>Fastnet Add power or better 0V</b>	Ref: HJA
		Date: 28/8/20
		Sheet: 1 of 3

## Appendix B – Star architecture

With careful planning this configuration and developments of it will also work. The network resistance should always be close to 50 Ohm

