3020 Display

PRODUCT USER GUIDE

The A+T 3020 is a high specification large format display. Very high contrast 62mm high digits 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 or Fastnet bus based for older systems. It is compatible, including remote button control, with existing B&G H3000, H2000 and WTP2/3 systems using the Fastnet bus and will fit the cut out and fastening holes of existing 20/20 displays.

Specifications:

Input Voltage	10-40 Vdc, internal self resetting fuse
Consumption	0.9 to 1.4 W
Weight incl bezel and 5m cable	0.52 kg
Environmental	IP68, tested at 1m submersion for 24hr
Operating temperature	-10 to +70 deg C
Backlighting	Red or Green, tunable brightness
Compatibility	B&G Fastnet, A+T Ethernet

CE

3020 functionality

- The 3020 allows the display of any data available from the instrument processor.
- Up to 14 data pages may be set up that can be user selected and scrolled through
- Control is via an A+T MFD, a remote push button, or B&G H2000 or H3000 Fastnet based FFD/GFD
- Setup of tunable lighting, pages, firmware updates and diagnostic testing is performed over a Bluetooth connection.

Remote button control

Any momentary closed circuit button may be used to scroll through the pages. See **Appendix A** for wiring.
A single press of the button will cycle to the next page on the 3020.
The list of pages on each 3020 can be set up at an A+T MFD or over Bluetooth

MFD control

Access and control 3020 displays by pressing MENU then navigate to System > Remote Displays. Once the MFD has found all displays:
1. Scroll to the 3020 you want to control and press MENU to highlight the variable
2. Pressing UP or DOWN buttons will scroll through the available pages
3. Pressing the RIGHT button will let you select the data variable for that specific page

Bluetooth Control

See Appendix B for details on connecting a Windows PC to the 3020 Display over Bluetooth. Once connected, a number of functions are available:
- Update the displays firmware
- View display diagnostics, logs, statistics, and perform system tests
- Manage lighting, including fine tuning lighting to match other displays
- Factory reset the display
- Set up page data

Appendices:-

A. Display wiring
B. Firmware update and Bluetooth connection
C. Mounting instructions and cut-out template

APPENDIX A

The 3020 is supplied with a 5 metre bare ended cable. This can be shortened without affecting the unit or warranty. Custom cable lengths are available, as are IP68 rated in-line connectors. Contact A+T to discuss your requirements.

Fastnet 3020:

The colour codes in the cable are:-

A+T Colour	Function	Comment
Black	0v	**See note below
Red	+ve Power	Normally from Fastnet bus
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	

**If the unit is powered from a supply other than the Fastnet power, then the 0V of this 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 Ω, at either end of the network. The resistance measured across green and white with no power should be close to 50 Ω.

Ethernet 3020:

The colour codes in the cable are:-

A+T Colour	Cat5e Colour*	Function	Comment
Black	White/Blue & Blue	0v	
Red	White/Brown & Brown	+ve Power	10-40 VDC
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	

Note: 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.

APPENDIX B

Firmware updates

Ethernet based 3020s can be updated from the ATP web-server. See the ATP Manual for instructions.

Fastnet 3020's can be set up and updated via Bluetooth.

Preparation

1. A terminal emulator program such as TeraTerm or HyperTerminal is required. TeraTerm is recommended and is available at https://osdn.net/projects/ttssh2/releases/.

2. Download the Bluetooth Uploader files and the latest version of Analogue firmware from https://www.aandtinstruments.com/support/downloads/

3. The Bluetooth Uploader VX.XX.zip file contains two files which must be extracted to the same Folder:
   - A+T Uploader VX_XX.exe
   - InTheHand.Net.Personal.dll

4. Turn on the 3020 Bluetooth
   - 4.1 Ensure the system is powered OFF
   - 4.2 Disconnect the Fastnet data wires (either green or white) from the 3020
   - 4.3 Power ON the system.
   - 4.4 The 3020 will display "**PAIR**" within 10 seconds and display its serial number in the top line. It is now ready to pair.
   - 4.5 You may set the Bluetooth to remain always ON – see the Bootload instructions below

## To pair with your Windows 7, 8 or 10 PC:

1. In Windows 10, select Settings > Devices > Bluetooth & other devices, then select "Add Bluetooth or other device"
2. Select the AT3020 identified by the serial number
3. When requested, enter the PIN: 1234
4. The 3020 is now connected to your PC over Bluetooth
5. Navigate to Windows Control Panel > Devices and Printers. Right click on the paired device, click on Properties and note the COM port number in the Hardware tab.
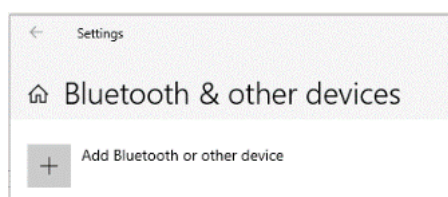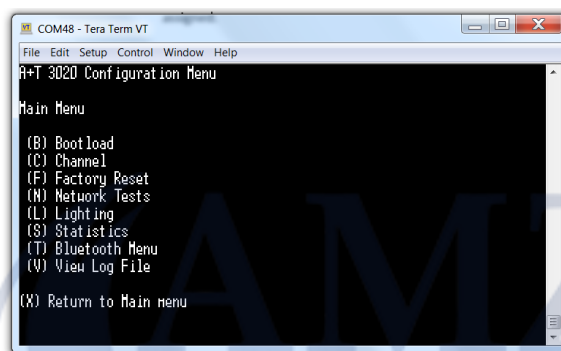
Connect to the 3020 system menu

Open your terminal emulator. The instructions below are for TeraTerm

1. Select Serial and the correct 3020 COM port
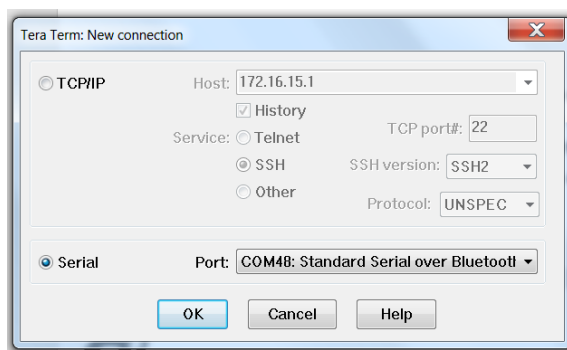
2. Click OK and a blank terminal screen will open
3. Press [Enter] to bring up the system menu

The system menu is operated by keyboard keys. For example to set the Bluetooth to be always on, press T to enter the Bluetooth menu.

Upload new firmware

To upload new firmware follow the procedure in order:

1. Type B to enter the Bootload menu and when prompted press Y to confirm setting the unit to Bootload to receive update files
2. The 3020 will display "LOAD", and is now ready to receive the new firmware.
3. Quit/Exit TeraTerm
4. Run the A+T Bluetooth Uploader program and click on 'Find unit'. The target 3020 will appear in the list of available displays.
5. Select the target 3020 and click 'Connect', then follow the instructions in the Uploader for opening the update file and Uploading.
6. Once uploading starts the addresses on the top line of the display will update.
7. Once uploading is complete the 3020 will restart and display "PAIR".
8. Power down the system then reconnect the Fastnet bus and the 3020 will operate as normal with the updated firmware.

NOTE: If the upload is interrupted, fails, or power is lost during the upload, the 3020 will remain in LOAD status. Restart the process from Upload new firmware step 4.

APPENDIX C

Mounting the 3020 display

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

Recommendations:
a) A 1mm clearance between the Analogue and the bulkhead cutout
b) Use the supplied gasket to mount on a clean, flat surface.
c) Should you require additional waterproofing, or are mounting on a curved surface, use a bead of proprietry **NON-ADHESIVE** sealant instead of the supplied gasket and fasten using small spacers to achieve an even gasket without squeezing all the sealant out of the gap.
   a. Once the sealant has cured, remove spacers and gently tighten the fastenings to take up on the now formed gasket.
   b. Clean away any surplus sealant.
d) **DO NOT OVERTIGHTEN THE FASTENINGS**. Ovetightening 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 ocurrences are covered by warranty.