

ACE (DCS2044)

DCC Controller



**User Manual Supplement
for version 3.20 firmware**



Sig-naTrak[®]

Model railway electronics by GFB Designs

Introduction.....

The *ACE* is a “living product” and is continually under development in order to improve its performance and features following feedback from YOU, its users.

The internal embedded “firmware” is now released at version 3.20 and provides several changes to the operation of the *ACE*.

Please read this supplement in conjunction with the main User Manual but bear in mind that the information in this document supersedes any conflicting data in the main manual. This document will be incorporated into the main manual in the future.

Enjoy using the *ACE*, but please note that it is a “state of the art” piece of equipment and needs to be treated as such! In particular.....

- Take care not to knock or drop the *ACE*.
- Use only your finger and/or the plastic stylus on the touch screen.
- Do not operate the unit in damp, or excessively-cold, environments.
- KEEP THE UNIT CLEAR FROM ANY CONTAMINANTS – including (but not limited to) smoke, liquids, glues, dust or other powdery substances.
- THE *ACE* IS NOT A TOY and it should not be used by persons under the age of 14 years unless supervised by an adult.
- Do not make any electrical connections to the *ACE* other than as described in this manual.
- Do not power the *ACE* from any electrical source other than the power supply packaged with the unit without first consulting *GFB Designs*.
- Do not attempt to dismantle – or otherwise tamper with – the power supply.

HOW TO UPGRADE (only necessary if you do not already have V3.20!)

Connect your *ACE* to a personal computer, running the Windows® operating system, via the supplied USB lead. The latest firmware can then be downloaded from our website and installed in your *ACE* by following the instructions in the “*ACE Firmware Upgrade*” manual.

(If you prefer, you may return your unit to *GFB Designs* - see our contact details in section 6.4).

CONTENTS

1 WHAT'S NEW IN V3.20?	4
1.1 START UP	4
1.2 FUNCTION TYPE (Momentary or Latching)	4
1.3 FUNCTION SETS	5
1.4 PANEL DRIVE SCREEN	5
1.5 "MORE" (Functions) SCREEN	6
1.6 HANDSET DRIVE SCREEN	6
1.7 ENTRY TO SYSTEM SETUP	7
1.8 FACTORY SETUP	7
1.9 OTHER ENHANCEMENTS	8
1.9.1 Emergency Stop Features	8
1.9.2 Overload Protection	8
1.9.3 Handset Button response	8
2 TRAIN LIST EDITING	9
3 FUNCTION NAMES EDITING	10
4 FACTORY SETUP	12
4.1 TOUCH SCREEN CALIBRATION	12
4.2 DATA LISTS (REGISTRY) ERASING	13
5 POWER SUPPLIES	14
6 IMPORTANT INFORMATION	16
6.1 DISPOSAL OF WASTE ELECTRICAL & ELECTRONIC EQUIPMENT	16
6.2 WARRANTY	16
6.3 DECLARATION OF CONFORMITY	16
6.4 CONTACT DETAILS	16

1 WHAT'S NEW IN V3.20?

1.1 START UP

All firmware versions present the following *START-UP SCREEN*:-



NOTE:-

- i) From version 3.10 onwards, there is a delay of 5 seconds between plugging in power and display of the above screen.
- ii) If you are reading this supplement, the firmware version displayed on your ACE start-up screen should be “V3.20”!
- iii) If the *factory reset* process is running – see section 4.2 – the progress bar will appear to “jump” in several places. This indicates that your train, accessory, functions and operating session data is being erased.

1.2 FUNCTION TYPE (Momentary or Latching)

The ACE now supports both *latching* and *momentary* train functions.

Momentary functions are active only whilst the relevant key/button is held pressed and are usually used for “one shot” effects such as horns or coupling “clanks”.

Latching functions – where the effect is *toggled* between on and off with each key press - are still the default type within the ACE but any (or all) of these can be changed to momentary as described in section 3.

1.3 FUNCTION SETS

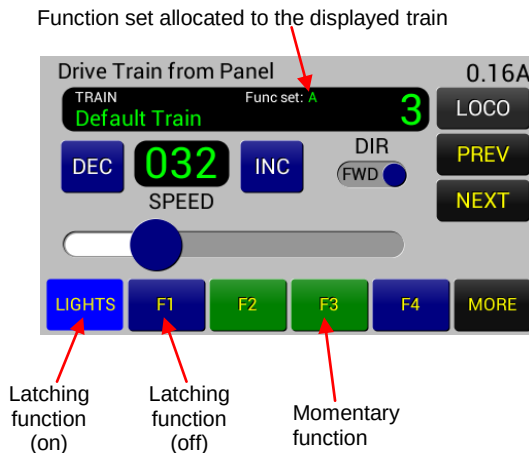
There are now 16 separate sets of function names and types stored in the ACE – designated “A” to “P”. Each set can be independently customised in terms of the function names (i.e. key labels) and the function types (latching or momentary). This customising process is described in section 3.

Each of the trains/locomotives stored in the train list (up to 127) has one of the 16 function sets allocated to it (default is set A for all trains).

For example – you may decide allocate function set B to your diesel multiple units and function set C to your steam locomotives. It would then be logical to rename “F2” in function set B as “HORN” and “F2” in function set C as “WHISTL”.

1.4 PANEL DRIVE SCREEN

This has been revised as shown below:-



The two differences from previous versions are the inclusion of the function set display and the distinguishing of momentary and latching functions through the key colour.

1.5 “MORE” (Functions) SCREEN

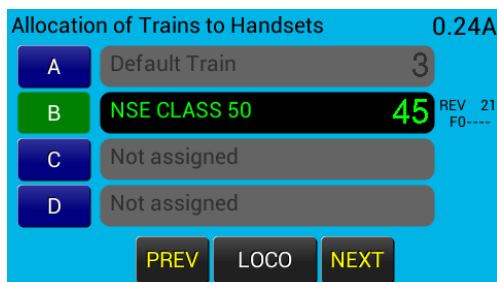
Access to all 29 locomotive functions is still achieved by touching the **MORE** key (in the bottom right-hand corner of the PANEL DRIVE screen) but the screen has been enhanced as follows:-



- i) A speed control slider and a direction toggle have been added to enable the currently-selected train to be controlled entirely from this screen. The slider and direction toggle are *mutually slaved* with the corresponding controls on the main PANEL DRIVE screen (i.e. changes on either screen are reflected on the other).
- ii) The train/locomotive number and name (if appropriate) are displayed. Like earlier versions, a change of train is accomplished by briefly returning to the main PANEL DRIVE screen using the **EXIT** key.
- iii) The function set allocated to the currently-selected train is displayed.

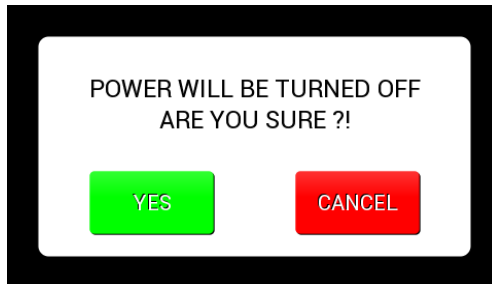
1.6 HANDSET DRIVE SCREEN

The only change to this screen is the re-colouring of the button for the currently-selected handset, for clarity, as shown here:-



1.7 ENTRY TO SYSTEM SETUP

As entry to the SYSTEM SETUP mode turns off track power, you are now presented with a “reminder” or “challenge” in the form of the following screen:-



This provides the option – by touching “CANCEL” – of returning to normal operations, with no interruption of track power, in the event that the “SYSTEM SETUP” key was touched in error.

1.8 FACTORY SETUP

This feature is enabled by the use of a “jumper link” on two pins of the rear panel OPTIONS connector. It allows a re-calibration of the touch screen and – optionally – the erasing of entries in the train, accessory and function names lists. Recall of the last operating session is also cleared.

The factory setup feature is described fully in section 4.

1.9 OTHER ENHANCEMENTS

1.9.1 Emergency Stop Features

Use of the  key has not changed from previous versions, but a few “quirks” regarding its operation have been resolved. You will now note:-

- i) The “STOP” button on the DRIVER handsets now activates **EMGY–STOP** and **ALL E–STOP** at any time, even if the handset is *locked out*.
- ii) **EMGY–STOP** is only displayed for the train that has been stopped. (i.e. if another train is selected on the panel, then the newly-selected train may be driven and the track current is displayed.)
- iii) The controls for a train subject to an emergency stop are locked until the



is touched again.

1.9.2 Overload Protection

The internal operation of the overload shutdown has been refined so as to better accommodate the surge currents associated with layout switch-on and DCC auto-reversing modules.

1.9.3 Handset Button response

This has been improved to give a faster response – mainly to aid the manipulation of momentary functions.

2 TRAIN LIST EDITING

When a new train is added to the list, or its entry is edited, a function set must be allocated to the train. The new, V3.20, screen is shown here:-



The new procedure is:-

- i) Touch the LOCO key and then type in the required address (max. 9999).
- ii) Touch the “OK” key, on the numeric pad, to enter the address.

If the locomotive/train is already in the list, its name will be displayed if previously entered. If the train was not named, or it is a new entry, a “_” will be displayed.

- iii) Now type in a name, if required, using the “QWERTY” keypad on the display and/or the numeric keys (you may find it convenient to use the supplied plastic stylus).

Touching the “BACK” key, on the numeric pad, causes the last character to be erased and may be used to amend entries.

- iv) Touch the “OK” key (on the numeric pad) to save the train name to the list.
- v) Now type the function set (A-P) – or leave as displayed – as desired.
- vi) Finally touch “OK” and the train’s data will be saved.

You will notice that the train name and function set indications flash at the relevant point in the process to indicate which piece of data is being edited.

Please note also that train names are now restricted to 16 characters owing to the available space in the data box.

3 FUNCTION NAMES EDITING

The new FUNCTION NAMES screen – shown here - includes an entry box for the function set which is currently being edited, along with a *toggle* to select either latching or momentary action for the currently-displayed function.



This screen now operates in a slightly different manner from previous versions, as follows:-

- i) Touch the “FUNC. NO.” key and type the number (0-28) of the function that you wish to edit.
- ii) Touch the “OK” key and type the function set designator (which will be flashing), between “A” and “P” (or leave as displayed).
- iii) Touch the “OK” key and the current name, associated with the displayed function number and set, will appear (and will flash).
- iv) Now type a revised name, if required, using the “QWERTY” keypad and/or the numeric keys (max. 6 characters).

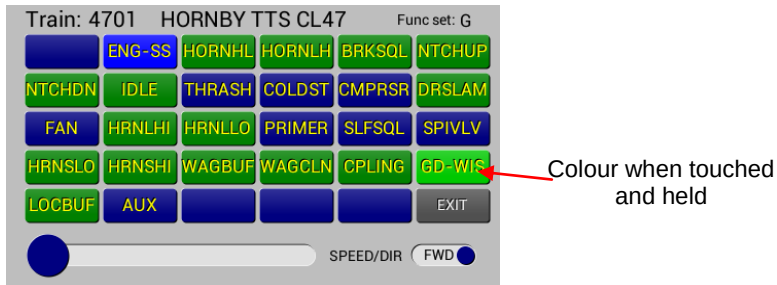
Touching the “BACK” key, on the numeric pad, causes the last character to be erased and may be used to amend entries.

- v) Touch the toggle, if required, to select latching or momentary action.
- vi) Finally, press “OK”, and the data for the displayed function will be saved.

Repeat steps (i) to (vi) for each function name you wish to change. This process then needs to be repeated, as necessary, for each function set which requires amendment.

The following example shows the “MORE” (functions) screen under the following circumstances:-

- i) Locomotive number “4701” entered in the TRAIN LIST, along with the name “HORNBY TTS CL47”.
- ii) Function set “G” is allocated to locomotive number 4701.



- iii) In the FUNCTION NAMES screen, all 29 function names have been changed (approximately 10 minutes work). Note that functions 0, 26, 27 and 28 have been given blank names as these functions are not implemented on the model in question.
- iv) Functions 1, 8, 9, 10, 12, 15, 16, 17 and 25 are set as latching functions.
- v) Function 1 – “ENG-SS” is (latched) on.
- vi) The remaining used functions are set as momentary.
- vii) Function 23 – “GD-WIS” – is currently being touched. (The button will return to dark green when released.)

4 FACTORY SETUP

NOTE- the following procedures should not be required under normal operating circumstances, and should be used with care!

The *factory setup* mode is entered, from initial power-up of the ACE, under either of the following circumstances:-

- i) Upon the **first** application of power, following the installation of new firmware.
- ii) By fitting the jumper link (supplied with either a new V3.20 ACE and/or a UBI2044 module), on two of the pins on the OPTIONS connector, as shown here:-



Fit over these two pins

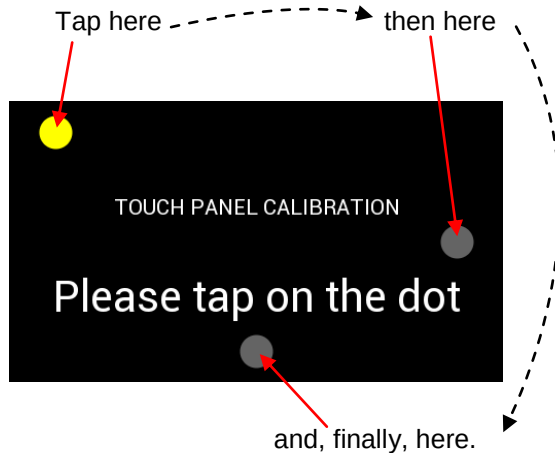
NOTE – the jumper **MUST** be fitted **BEFORE** the power is plugged into the ACE.

4.1 TOUCH SCREEN CALIBRATION

In the unlikely event that the touch screen becomes un-responsive, or if the unit does not respond correctly to screen touches, a touch panel calibration may be carried out, as follows:-

- i) **With power removed** from the ACE, fit the jumper link as shown above.
- ii) Plug in the power. After 5 seconds, the screen shown below will be presented.
- iii) Using the supplied stylus, tap **CENTRALLY** on the visible yellow dot (top left-hand corner). Repeat the tap in the other two positions shown, as the yellow dot moves.

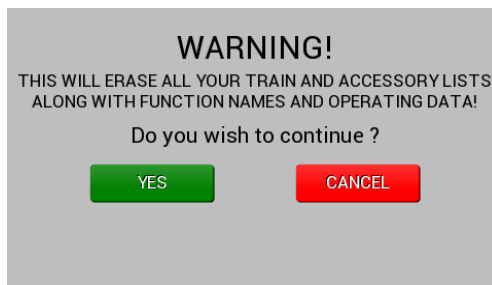
Note that the dot will not move until a tap has been detected.



- i) If the jumper link was removed prior to tapping the third dot, the erasure of train, accessory and functions data is now enabled.
- ii) If the jumper is still in place, the ACE will commence normal operations and will display the start-up screen. Remove the jumper now.

4.2 DATA LISTS (REGISTRY) ERASING

In scenario (i) above, the following screen will be presented:-



Touching "CANCEL" will preserve your lists and commence normal operations.

Touching "YES" will erase all of your train, accessory, functions and operations data!!

5 POWER SUPPLIES

Please note that the power supply, packaged with the ACE, has been changed. The new models now supplied meet the appropriate British, European and international safety and quality standards, as before, but are also compliant with the latest “energy efficiency” regulations.

Use of other power supplies

Generally, DON'T! Our units have been carefully chosen, and tested by us, for compatibility with the ACE.

However, there are circumstances where a different operating voltage is desirable (e.g. lower for smaller scales, higher for larger scales than O gauge) and the ACE can accept an input of between 12 to 22V.

PLEASE ENSURE THAT.....

- A **SMOOTHED DC** supply is used.
- Absolute maximum voltage is 24V – a **REGULATED** supply is preferable.
- The supply must have built-in protection against short-circuits.
- **TRADITIONAL TRANSFORMERS, OR OTHER MODEL RAILWAY CONTROLLERS, MUST NOT BE USED UNDER ANY CIRCUMSTANCES!**

We suggest that you contact *GFB Designs* (details in section 6.4) for advice regarding non-standard operating voltages.

Use of a non-approved power supply may damage your ACE and damage sustained under these circumstances will invalidate any remaining warranty on your ACE.

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6 IMPORTANT INFORMATION

6.1 DISPOSAL OF WASTE ELECTRICAL & ELECTRONIC EQUIPMENT

European law requires that household waste from electrical and electronic equipment is collected separately from normal domestic waste and then properly recycled.

The *ACE* is marked with the crossed out wheeled bin symbol (shown opposite), in accordance with the European directive 2002/96/EC, which means that you must return any damaged or end-of-life units to your local authorised collection centre. *GFB Designs* will provide advice regarding the correct disposal procedures.



6.2 WARRANTY

All *GFB Designs* products are guaranteed against defects in materials and workmanship for a period of 24 months from the date of purchase. Should a defect arise within this period, the product will be repaired or replaced free of charge PROVIDED:-

- The product has been used and maintained in accordance with our instructions and (where applicable) any electrical ratings.
- No physical damage has occurred whilst the product is in the customer's possession.
- The fault has not been caused by any other form of misuse or neglect.

This guarantee is in addition to, and does not diminish, your statutory rights – for further information please contact your local Trading Standards Authority.

6.3 DECLARATION OF CONFORMITY

The undersigned declares that the *ACE DCC Controller* - manufactured by *GFB Designs* (contact details below) - complies, where applicable, with the following European directives:-

93/68/CEE (CE marking)
2011/65/EU (RoHS)

2014/35/EU (Low voltage)
2014/30/EC (electromagnetic compatibility)

Relevant parts of the following standards have been used to demonstrate electromagnetic compatibility:-

BS EN 61000-6-1:2007

BS EN 61000-6-3:2007

A handwritten signature in black ink.

Fraser Black, Proprietor



6.4 CONTACT DETAILS

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