# ACE-3 DCC Controller



# Firmware Upgrade Manual



Model railway electronics by GFB Designs

# Introduction.....

The *USB* socket on the *ACE-3* (DCS2044-3) DCC Controller provides a connection between it and a personal computer (PC).

At present, the purpose of the USB interface is to allow users to update their *ACE* controllers with the latest version of *firmware* (currently V1.36) but, in time, it will be possible to control the *ACE* from a PC. Developments in this area will be announced on our distributor's website: <u>www.glrailways.co.uk</u>.

The following screen shots in this manual are intended as a guide only and cannot be shown in detail owing to space constraints.

# **Computer System Requirements**

- i) A PC running the Microsoft Windows® operating system.
- ii) One free USB port.

The following screen shots show operation under Windows 10. Versions VISTA, 7, 8 and 11 may also be used. The application will also run under Windows XP but please contact *GFB Designs* if you experience any problems using this (legacy) version.

### CONTENTS

1 FIRST STEPS	4
1.1 ACE FIRMWARE (.hex) FILE	4
1.2 DCS2044 FIRMWARE UPGRADE WIZARD	5
2 INSTALLING THE USB DRIVERS	7
3 PERFORMING THE FIRMWARE UPDATE	8
3.1 SELECT THE .hex FILE	8
3.2 ESTABLISH USB COMMUNICATIONS	11
3.3 WRITE NEW FIRMWARE	14
4 IMPORTANT INFORMATION	17
4.1 WARRANTY	17
4.2 CONTACT DETAILS	17

# 1 FIRST STEPS

In order to use the USB to update your ACE firmware for the first time, you will need to download various software files and install them on your PC. Please, therefore, carry out the following instructions **fully and in sequence**.

Before continuing, ensure that your computer is reliably connected to the internet.

For future updates, only sections (1.1) and (3) need to be completed.

### 1.1 ACE FIRMWARE (.hex) FILE

i) Type <u>www.glrailways.co.uk/blogs/product-software-firmware-and-updates</u> in your internet browser address bar. You will see the following section:-

	Open Day 14h Deci
ACE3 - The current version of the ACE3 Firmware is V1.2	Signatrak ACE3 Firr
Download the Firmware Update Utility - Available from 10th December	Authors
Then download the latest version of the Firmware below. Launch the Firmware Update Utility and follow the instructions onscreen	Admin Alex Bingley
Latest Firmware Version V1.3 Blue for serial numbers 212 and up - Available from 10th December	Steven
Latest Firmware Version V1.3 Red for serial numbers 211 and below- Available from 10th December	Archive
The next Version to be released will be V1.4 - release date is Q1 2025. This will incorporate computer control/linking, loconet use and a host of other updates.	

ii) Click on the appropriate ("red" or "blue") heading for your ACE-3.

For users of ACE-3s having serial numbers ending 0211 or below, you need file "ACE-3\_Vxyz\_RED.X.UserBuild.hex", where "xyz" is the latest version number.

For users of ACE-3s having serial numbers ending 0212 or later, you need file "ACE-3\_Vxyz\_BLUE.X.UserBuild.hex".

iii) Now click on the "Download" icon as shown above.

The downloaded "hex" file will now be in the "Downloads" folder on your computer. We suggest that you create a new folder – called "SignaTrak", for example - and move the file to this new folder.

#### 1.2 DCS2044 FIRMWARE UPGRADE WIZARD

- iv) Browse back to the <u>www.glrailways.co.uk/blogs/product-software-</u> <u>firmware-and-updates</u> page.
- v) Click on "DCS2044 ACE Firmware Upgrader App.".
- vi) The ".zip" file will download to the "Downloads" folder on your computer, as indicated here:-
- vii) Click on the "^", then on "Show in folder" as shown.
- viii) Move the file to your new "SignaTrak" folder.



 ix) In your "SignaTrak" folder, double-click on the "DCS2044\_USB\_Firmware\_Updater..." *zip* file. In the next window, click "Extract" then click "OK" in the "Copy" box. This is shown below:-

nine w Re Cor	m = Burn New folder			80.0	- 19	
Desktop Downloads Dropbox (GFB Desi Recent Places Dropbox (Personal	gmi) [15 DCS2044_US8_Firmmare_U DCS2044_V320_default.hee	Date modified     Type     Size       pdder_v4.0.3     64/12/2955 35/27     zip Archive     64/8       94/12/2955 35/02     HIX File     962 KB				
Libraries	CriSigna rak\DCS2044_US8_Firmware_Updater_v1.0.3.2	ipl				
Documents	file Est few fevorites Tools Help					
Music Pictures	Add Extract Test Copy Move Delete Info	Capy Capy				
VIDEOS	👔 🕼 C/SignaTrak/DCS2044_US8_Firmware_Updater	Convito	•			
Homegroup	Name	NOTION TO A	Attributes			
Fraser (MAIN-PC)	COMDLG32.0CX	Blar 5 (105550bitan)	A			
Second Second	DCS2044_USB.exe	C\Seea Tak\DCS2044 US8 Fermane (Indate: v1.0.3 re).	Â			
Local Dick (C)	mscometLocx	DCS2044_US8.exe DCS2044_US8.exe	A			
DED/FES	S PSCBOOT.dll	PiceooTal	A			
iccv7avr		miconol lock				
iccv8avr						
🍌 Intel						
i microchip		OK Cancel				
microchip_solut						
Perflors		<b>T</b>				
Program Files						
📕 Program Files (d		<b>/</b>				
PulsonirConfigu		<b>I</b>				
SignaTrak						
SWSetup	•					
Users	0 object(s) selected					
Windows						
Z DCS2048 US	8 Ferminare Lindater v1.0.3 Date modified: 64/12/201618	27 Date constem 04/12/2016 18/27				

x) Finally, create a shortcut to the Updater, as follows:-

In your "SignaTrak" folder, right-click on the "DCS2044\_USB" Application file, then select "Send to"/"Desktop (create shortcut)" in the drop-down boxes.

# 2 INSTALLING THE USB DRIVERS

Plug the flat ("type A") plug on the supplied USB cable into a free USB port on your computer and plug the other end of the cable into the USB "mini" socket on the ACE.

Now connect the ACE-3's power supply to the mains and to the "DC IN" socket on the ACE-3.

Look carefully to the right of the USB socket and you should see an internal LED flash briefly yellow and green. The following "callout" should now appear on your computer screen:-



Clicking on the callout, as invited, should reveal the following – or a similar – sequence of dialogue boxes:-

Installing device driver	software
FT232R USB UART	O Searching Windows Update
Obtaining device driver softw Skip obtaining driver software	are from Windows Update might take a while. from Windows Update





This final dialogue shows that the USB driver software has been successfully installed on your computer. Take note of the port number (red arrow) – in this case it is "COM8" – as you will need this information for the ACE firmware update.

**NOTE –** the above process is likely to take several minutes as the first stage involves searching the internet for the driver files.

If (for any reason) Windows<sup>®</sup> cannot find the drivers, they can be downloaded from <u>www.ftdichip.com/Drivers/VCP.htm</u>

# **3 PERFORMING THE FIRMWARE UPDATE**

You are now finally ready to update your ACE! (Future updates will be simpler, as the preparation has now been completed.)

NOTE THAT THE DISPLAY ON THE ACE WILL REMAIN BLANK DURING THE ACTUAL FIRMWARE UPDATE PROCESS.

### 3.1 SETUP THE ACE-3

- i) Apply power to the ACE (if not already powered) and press "SYSTEM SETUP".
- ii) Now plug the small black jumper link on the "OPTIONS" connector as shown here (bottom row, second and third pins from the right):-



You should see a small circular red dot appear on the screen, as shown here:-



Now remove the jumper link.

### 3.2 SELECT THE .hex FILE

i) Double-click on the



icon on your computer Desktop.

ii) You may be presented with a User Account Control message, asking:

"Do you want to allow this app from an unknown publisher to make changes to your device?"

Click "YES" and the Updater will start as shown below:-



iii) Acknowledge the three check boxes and then click "NEXT", as shown below:-



iv) Follow the on-screen prompts to select your ".hex" file as shown below:-

Act D CSC044 Firms well Oppder Woard Act D CSC044 Firms ward Concernence Uppder Woard Acter and Concernence Uppder Woard Active and Concernence Uppder Woard Convector Settings Convector Settings Convector Dencie Subdating Firmware	egrade Wizard	_
CSSR4F / Fromework Lopeted DCSSR4F / Fromework Lopeted Solation	ACE URB Booteselar + Distribute + + + y Z New folder Set Dissignin GFD Designin GFD Designin GF	P     P       III     IIII       Date modified     2511/2016 91/27       2511/2016 91/27     2511/2016 91/27       1511/2016 91/28     1511/2016 91/28       1511/2016 91/28     1511/2016 91/28       1511/2016 91/28     1511/2016 91/28
Image: State of the state o	File name: DCSD44 y220_default.her.	HEAD FRIE CHECK

After a short while, the screen will be updated – to indicate that the file has been imported – as follows:-



#### 3.2 ESTABLISH USB COMMUNICATIONS

i) Click on the box marked by the red arrow and select your **port number** (as determined in section (3)). Ensure that the *Baud Rate* is set to **38400**.



If you do not remember the port number, then ensure that the *ACE* is connected to your computer (with the USB cable). Click the "**Device Manager**" button and check the "**USB Serial Port**" entry as shown below:-



ii) Now click the "NEXT" button and the screen will change as shown here:-



iii) Disregard instructions 1 and 2, as these apply to the earlier ACE-2 model. (You should already have the USB cable connected between your ACE-3 and your computer.) Simply click on **"CONNECT TO MY ACE"**.

iv) Disregard instruction 4, shown below, as this also applies to the earlier ACE-2 models.



At this point tap the RED DOT on the ACE-3's SYSTEM SETUP screen, which will then go blank. You must now click the "OK" button (shown above), within 5 seconds. DO NOT EXPECT A DISPLAY TO APPEAR ON THE ACE.



The following screen confirms that USB communications have been established:-



#### **3.3 WRITE NEW FIRMWARE**

i) Click on the "NEXT" button, shown above.



ii) The new firmware (.hex file) will now be written to the *ACE*, overwriting the current system. This will take approximately two minutes and progress can be monitored using the *address counter* (red arrow).

The address counter will run up to "2ABFF" and then the final screen is presented.....



- iii) Check the ACE's screen. It will be presenting the TOUCH PANEL CALIBRATION display.
- iv) Follow the touch panel calibration procedure (consult your ACE manual, if necessary) and the ACE will then commence normal operation.
- v) Remove the USB cable and close down the Updater (by clicking the "EXIT" button shown above).

#### YOUR UPDATE IS NOW COMPLETE !

# **4 IMPORTANT INFORMATION**

#### 4.1 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.

#### 4.2 CONTACT DETAILS

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