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# DA3

[GA02091]



# USER MANUAL

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|                   |                         |
|-------------------|-------------------------|
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## TABLE OF CONTENTS

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>DOCUMENT INTRODUCTION .....</b>                      | <b>3</b>  |
| 1.1      | MANUAL AMENDMENTS.....                                  | 3         |
| 1.2      | COPYRIGHT .....   | 3         |
| 1.3      | LIMITED WARRANTY .....                                  | 3         |
| 1.4      | PRODUCT SAFETY INFORMATION .....                        | 4         |
| 1.5      | DISCLAIMER .....  | 4         |
| <b>2</b> | <b>PRODUCT INTRODUCTION .....</b>                       | <b>6</b>  |
| 2.1      | GENERAL DESCRIPTION.....                                | 6         |
| 2.2      | KEY FEATURES .....                                      | 6         |
| 2.3      | COMPONENT OVERVIEW .....                                | 6         |
| 2.3.1    | <i>DA3 Kit Variants</i> .....                           | 7         |
| 2.3.1.1  | DA3 SMART Update Tool components .....                  | 7         |
| 2.3.1.2  | Standard DA3-Kit components.....                        | 7         |
| 2.3.1.3  | DA3 Pre-programmed .....                                | 7         |
| <b>3</b> | <b>MECHANICAL INSTALLATION .....</b>                    | <b>8</b>  |
| 3.1      | CONNECTING THE DA3 .....                                | 8         |
| 3.1.1    | <i>Driver Installation</i> .....                        | 8         |
| 3.1.1.1  | Windows 7 Driver Install .....                          | 9         |
| 3.1.1.2  | Windows 8/10 Driver Install .....                       | 11        |
| 3.1.2    | <i>Connecting the DA3 to a Computer</i> .....           | 12        |
| 3.1.3    | <i>Connecting the DA3 in the Field for Update</i> ..... | 13        |
| 3.1.3.1  | Option 1 – Power Supply via Host Machine .....          | 13        |
| 3.1.3.2  | Option 2 – Power Supply via external Power Supply ..... | 14        |
| <b>4</b> | <b>SOFTWARE INSTALLATION AND CONFIGURATION .....</b>    | <b>15</b> |
| 4.1      | SOFTWARE OVERVIEW .....                                 | 15        |
| 4.1.1    | <i>Device Programming System (DPS)</i> .....            | 15        |
| 4.1.1.1  | General Description .....                               | 15        |
| 4.1.1.2  | Firmware Update/Change on the DA3.....                  | 15        |
| 4.1.1.3  | Adding datasets to the dataset library.....             | 16        |
| 4.1.1.4  | Storing files on the DA3 .....                          | 17        |
| 4.1.1.5  | Tagging files for override .....                        | 18        |
| 4.1.2    | <i>NV Memory Card Utilities</i> .....                   | 19        |
| 4.1.2.1  | General Description .....                               | 19        |
| 4.1.2.2  | Format for log data .....                               | 20        |
| 4.1.2.3  | Format for dataset update card (NV200 Range only) ..... | 21        |
| 4.1.2.4  | Format for option update card (NV200 Range only).....   | 24        |
| 4.1.2.5  | Format for SSP packet log .....                         | 24        |
| 4.1.2.6  | Format for Hostless Refill (NV200 Range only) .....     | 24        |
| 4.1.2.7  | Format for initialisation (NV200 Range only).....       | 24        |
| 4.1.2.8  | Upload Log Data.....                                    | 25        |
| <b>5</b> | <b>OPERATION AND SETUP .....</b>                        | <b>26</b> |
| 5.1      | STANDARD FIRMWARE .....                                 | 26        |
| 5.1.1    | <i>General Description</i> .....                        | 26        |
| 5.1.2    | <i>BNV Match Download</i> .....                         | 26        |



[<< Back to Contents](#)

|          |   |           |
|----------|---|-----------|
| 5.1.3    | Set BNV to check mode .....                           | 28        |
| 5.1.4    | Serial Comm Monitor .....                             | 28        |
| 5.1.5    | Collect Note Data .....                               | 28        |
| 5.1.6    | Copy A to DA3 .....                                   | 29        |
| 5.1.7    | Copy DA3 to A .....                                   | 29        |
| 5.1.8    | Copy A to B .....                                     | 30        |
| 5.1.9    | Data Logging .....                                    | 31        |
| 5.1.9.1  | General Description .....                             | 31        |
| 5.1.9.2  | Requirements .....                                    | 31        |
| 5.1.9.3  | Setup .....   | 31        |
| 5.1.9.4  | Collecting Data .....                                 | 32        |
| 5.1.9.5  | Extract the Data .....                                | 32        |
| 5.2      | SMART UPDATE FIRMWARE .....                           | 33        |
| 5.2.1    | General Description .....                             | 33        |
| 5.2.2    | Requirements .....                                    | 33        |
| 5.2.3    | Setup .....   | 34        |
| 5.2.4    | Update Procedure .....                                | 35        |
| <b>6</b> | <b>FIRST LEVEL SUPPORT .....</b>                      | <b>36</b> |
| 6.1      | LED ERROR FLASH CODES .....                           | 36        |
| <b>7</b> | <b>TECHNICAL DATA .....</b>                           | <b>37</b> |
| 7.1      | ENVIRONMENTAL REQUIREMENTS .....                      | 37        |
| 7.2      | POWER REQUIREMENTS .....                              | 37        |
| 7.2.1    | Supply Voltages .....                                 | 37        |
| 7.3      | DIMENSIONS .....                                      | 37        |
| <b>8</b> | <b>COMPLIANCES AND APPROVALS .....</b>                | <b>38</b> |
| 8.1      | EC DECLARATION OF CONFORMITY .....                    | 38        |
| <b>9</b> | <b>APPENDIX .....</b>                                 | <b>39</b> |
| 9.1      | CABLE DRAWINGS .....                                  | 39        |
| 9.1.1    | CN00214 – USB A to B cable assembly .....             | 39        |
| 9.1.2    | CN174 – Ribbon Cable .....                            | 40        |
| 9.1.3    | CN00345 - DA3 Power Cable .....                       | 41        |
| 9.2      | SWITCHING ITL DEVICES TO PROGRAMMING MODE (SSP) ..... | 42        |
| 9.3      | FIRMWARE IDENTIFIER .....                             | 42        |



## 1 DOCUMENT INTRODUCTION

### 1.1 Manual Amendments

| Rev. | Date       | Amendment Details  | Issued by |
|------|------------|--|-----------|
| 1.0  | 20.06.2017 | First Issue  | SG        |
| 1.1  | 05.12.2017 | - Layout amendment<br>- Dimensions added<br>- Wording amendments<br>- LED Error Flash Code Troubleshooting added | SG        |

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The foregoing warranties and remedies are exclusive and are in lieu of all other warranties, expressed or implied, either in fact or by operation of law, statutory or otherwise, including warranties of merchantability and fitness for a particular purpose.

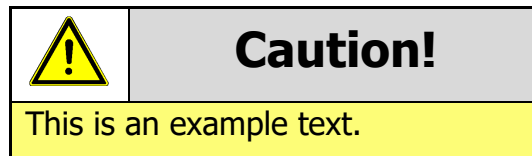
Innovative Technology Ltd shall not be liable under this warranty if it's testing and examination disclose that the alleged defect in the product does not exist or was caused by the customer's or any third person's misuse, neglect, improper installation or testing, unauthorized attempts to repair, or any other cause beyond the range of the intended use. In no event will Innovative Technology Ltd be liable for any damages, including loss of profits, cost of cover or other incidental, consequential or indirect damages arising out the installation, maintenance, use, performance, failure or interruption of an Innovative Technology Ltd product, however caused.



## 1.4 Product Safety Information

Throughout this user manual, we may draw your attention to key safety points that you should be aware of when using or maintaining the product.

These safety points will be highlighted in a box, like this:



This user manual and the information it contains is only applicable to the model stated on the front cover, and must not be used with any other make or model.

## 1.5 Disclaimer

Innovative Technology Ltd is not responsible for any loss, harm, or damage caused by the installation and use of this product. This does not affect your local statutory rights. If in doubt please contact Innovative Technology for details of any changes.

Innovative Technology Ltd has a policy of continual product improvement. As a result the products supplied may vary from the specification described here.

Innovative Technology Ltd does not accept liability for any errors or omissions contained within this document. Innovative Technology Ltd shall not incur any penalties arising out of the adherence to, interpretation of, or reliance on, this standard.





## Safety Notice! Read before using this product!

**Safety Notice - Warning.** Ensure power is removed before allowing access to the inside of this product. Ensure any static build up is discharged before allowing access to any part of this product or media contained. Always earth this product/base plate in accordance with the manual.

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The power supply terminals and/or connectors are: Not investigated for field wiring
- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Mechanical, Fire

**Sicherheitshinweis – Warnung:** Es muss sichergestellt werden, dass das Gerät von der Versorgungsspannung getrennt wird, bevor ein Eingriff in das Innere des Gerätes erfolgt. Es muss sichergestellt werden, dass jegliche statische Aufladung des Gerätes entladen wird, bevor auf das Gerät oder auf innerhalb des Gerätes befindliche Objekte zugegriffen wird. Die Erdung des Gerätes muss immer gemäß Handbuch erfolgen.

Nur für die Verwendung in oder mit kompletter Ausstattung, dessen Eignung und Kombination von der UL LLC ermittelt wurde. Bei der Installation in einem Endprodukt, muss folgendes berücksichtigt werden:

- Die Spannungsversorgungsklemmen und/oder Verbinder sind: Feldverkabelung wurde nicht untersucht
- Der untersuchte Verschmutzungsgrad ist: 2
- Folgende Anforderungen an die Gehäuse des Endproduktes sind gefordert: Mechanisch, Feuer

**Aviso de seguridad:** Asegúrese de que la alimentación está desconectada y de que toda la energía estática es descargada antes de manipular este producto. Conecte a tierra la chapa base de la manera que se indica en el manual.

Solo para uso con dispositivos con los cuales la compatibilidad ha sido certificada por UL LLC. Tras su instalación en producto acabado, tener en cuenta lo siguiente:

- Los conectores y terminales de alimentación son: No se ha investigado/especificado cableado externo.
- El grado de contaminación determinado es: 2
- Los siguientes manuales/certificados de producto final son requeridos: Mecánico, Fuego

**Avis de sécurité :** Assurez-vous que l'alimentation est coupée et que toute l'énergie statique est déchargé avant de manipuler ce produit. Connecter à la terre, la plaque de base à la manière indiquée dans le manuel.

A utiliser Seulement avec les dispositifs dont la compatibilité a été certifiée par UL LLC. Après son installation dans le produit fini, prendre en considération ce qui suit:-

- Les connecteurs et les bornes d'alimentation sont : cela n'a pas été étudié/spécifié câblage externe.
- Le degré de contamination déterminé est: 2
- Les manuels suivants / les certificats du produit final sont nécessaires : mécanique, incendie

**Bezpečnostní upozornění.** Před manipulací uvnitř tohoto produktu se ujistěte, že je produkt odpojen od zdroje elektrického napětí. Ujistěte se, že jakýkoliv elektrostatický náboj byl vybit před manipulací s jakoukoliv částí tohoto produktu nebo obsaženým médiem. Vždy uzemněte tento produkt/základovou desku v souladu s návodem.

Pouze pro použití v nebo s kompletním vybavením, kde je přijatelnost kombinace určena UL LLC. Při instalaci v konečném produktu je třeba zvážit následující:

- Napájecí svorky a/nebo konektory: Nejsou sledované pro externí kabeláž
- Sledovaný stupeň znečištění je: 2
- Následující krytí konečného produktu jsou požadované: Mechanické, Protipožární



## 2 PRODUCT INTRODUCTION

### 2.1 General Description

The DA3 is a hand-held validator programming system that enables the user to re-program ITL banknote validators in the field, without the use of a PC.

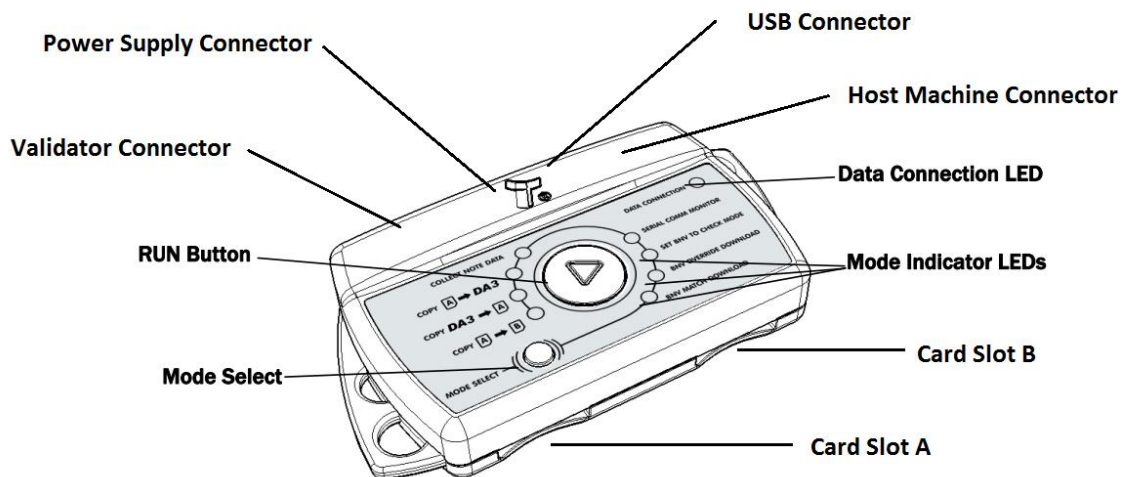
Dataset and firmware files for different validator models can be stored on the DA3.

Once programmed the user can update or override existing software as well as test the functionality of the validator, away from the host machine.

### 2.2 Key Features

- Re-program ITL banknote validators in the field, without the use of a PC
- Update or override existing software
- Test the functionality of the validator
- Configure ITL data flash cards for various functionality

### 2.3 Component Overview



## 2.3.1 DA3 Kit Variants

### 2.3.1.1 DA3 SMART Update Tool components

A DA3 and a pre-programmed SD card including all dataset files for current ITL validators. The Kit consist of the following cables and Accessories:

| Type    | ITL Part Number | Description               | Quantity | Details                                       |
|---------|-----------------|---------------------------|----------|---|
| Cable   | CN174           | NV9 / NV10 Ribbon Cable   | 1        | <a href="#">Link to 9930500764</a>            |
| Cable   | CN214           | USB A to B Cable Assembly | 1        | <a href="#">Link to 9930550207</a>            |
| SD card | IC02017         | Blank SD Card 4GB         | 1        | <a href="#">link to preprogrammed SD Card</a> |

### 2.3.1.2 Standard DA3-Kit components

Blank DA3 unit with all required cables. The Kit consist of the following cables:

| Type  | ITL Part Number | Description               | Quantity | Details                            |
|-------|-----------------|---------------------------|----------|------------------------------------|
| Cable | CN174           | NV9 / NV10 Ribbon Cable   | 1        | <a href="#">Link to 9930500764</a> |
| Cable | CN214           | USB A to B Cable Assembly | 1        | <a href="#">Link to 9930550207</a> |

### 2.3.1.3 DA3 Pre-programmed

DA3 unit Pre-programmed to customer specific requirements. The Kit consist of the following cables:

| Type  | ITL Part Number | Description               | Quantity | Details                            |
|-------|-----------------|---------------------------|----------|------------------------------------|
| Cable | CN174           | NV9 / NV10 Ribbon Cable   | 1        | <a href="#">Link to 9930500764</a> |
| Cable | CN214           | USB A to B Cable Assembly | 1        | <a href="#">Link to 9930550207</a> |





## 3 MECHANICAL INSTALLATION

### 3.1 Connecting the DA3

#### 3.1.1 Driver Installation

The ITL drivers allow you to connect any of our validators to a compatible Windows device. On the website is a driver package for download available.

This can be downloaded from the Software download page on support, to download click on the padlock to the right of the screen. To Download the package, you would need to log-in/Register on the website.

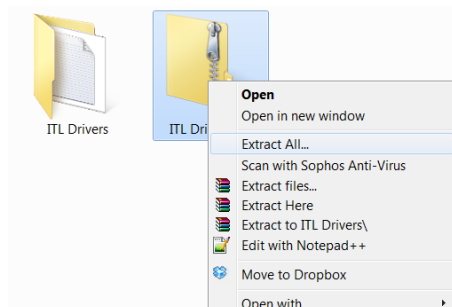
Always ensure you are using the most up-to-date software before altering any firmware or currency dataset files.

| Title                              | Version | File          |
|------------------------------------|---------|---------------|
| DPS - Device Programming System    | 1.1.4   | [Info] [Lock] |
| Validator Manager                  | 4.3.3   | [Info] [Lock] |
| SMART PIPS (Pay In Pay Out System) | 2.3.1   | [Info] [Lock] |
| Validator Update Tool              | 4.9     | [Info] [Lock] |
| ITL Drivers                        | 2.1     | [Info] [Lock] |
| Validator Manager for Smart NV200  | 4.3.3   | [Info] [Lock] |
| DA3 SMART Update Tool - Euro €10   | 2.1     | [Info] [Lock] |

Latest Datasets

- THB01606 (NV200)
- THB71606 (NV200)
- PYGO2B01 (NV9USB)
- PYGO2B01 (NV11)
- THB01606 (SMART Payout)
- THB71606 (SMART Payout)
- EUR01306 (BVS0)
- RUB06B06 (NV9USB)
- RUB06B06 (NV11)
- EUR70621 (NV200)

Once downloaded you will need to extract the drivers from the zip file, this can be done by right clicking and selecting extract all.



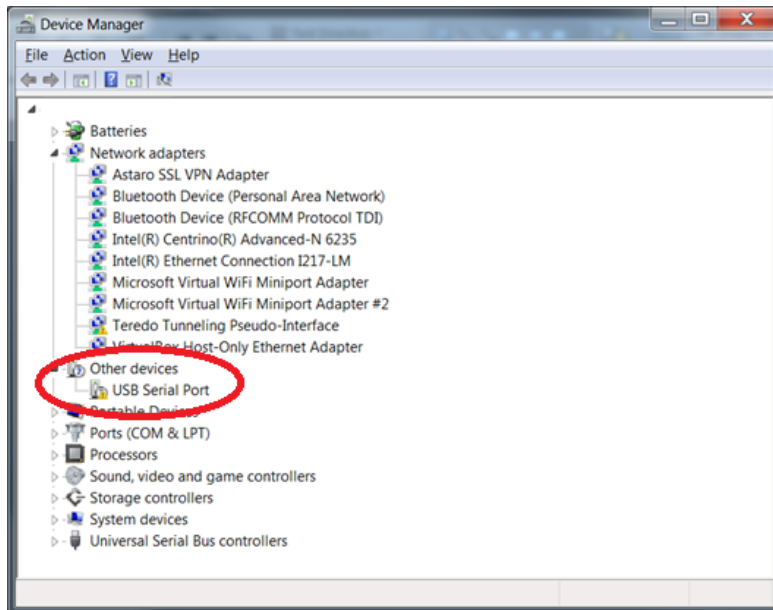
This will create a new folder with the extracted files.



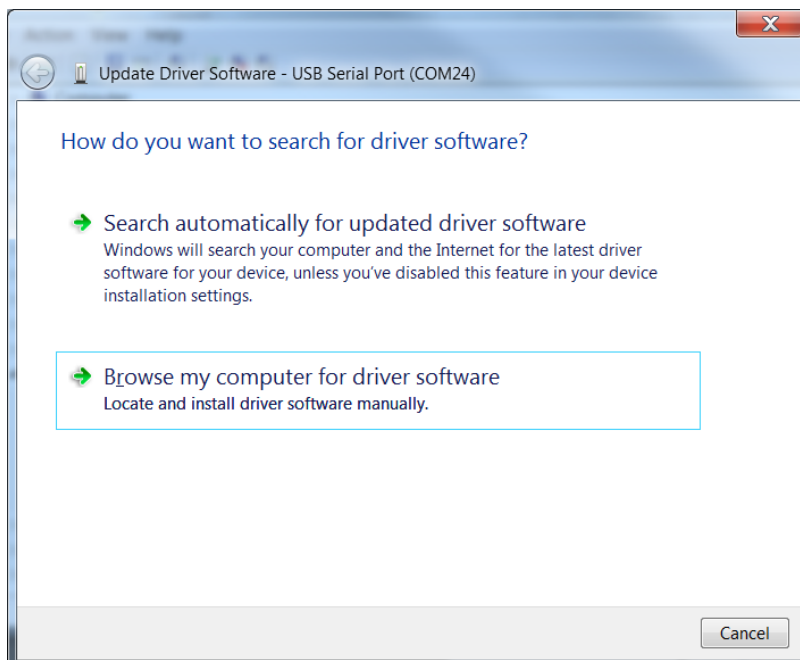
[<< Back to Contents](#)

### 3.1.1.1 Windows 7 Driver Install

Now navigate to device manager, an unknown device should be present, as shown in the figure below.

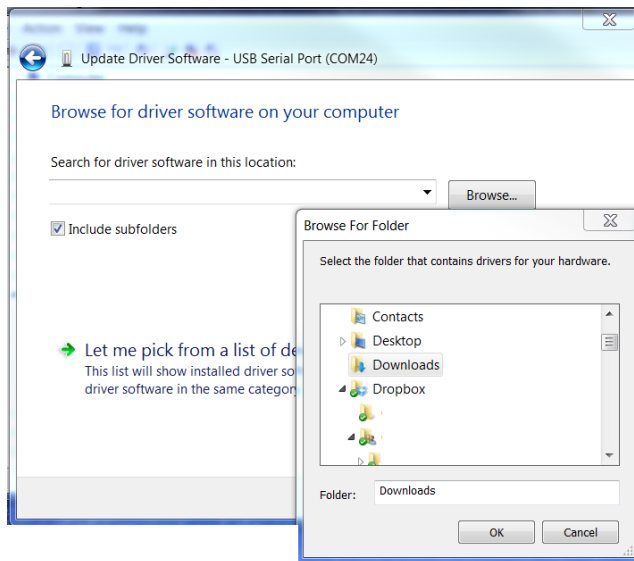


Right click and select 'Update Driver Software', a screen will appear asking you to either search Windows update for the correct driver or to 'Browse your computer', you will need to click browse my computer.



[<< Back to Contents](#)

Now navigate to the folder where the drivers were extracted, as shown below and choose the required DA3 driver pending on your system ("NVxx, BVxx, DA3 - 32 bit" or "NVxx, BVxx, DA3 - 64 bit"):



Click next then the driver will install, once the process has completed the interface device will be visible under ports.

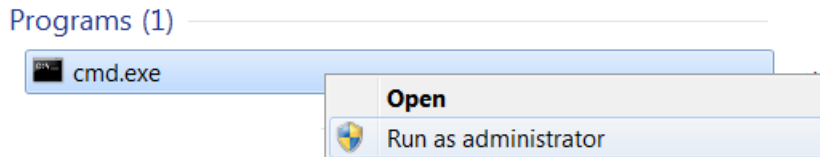


### 3.1.1.2 Windows 8/10 Driver Install

Windows 8 & Windows 10 requires drivers to be signed by Microsoft. This will prevent installation of ITL drivers being installed. If you have a Windows 8 or 10 platform, the below instructions will disable this feature, and the installation can continue.

To do this you must use the Shutdown command with the /o parameter:

So you open an admin level command prompt



Once open type: `shutdown.exe /r /o /f /t 0`

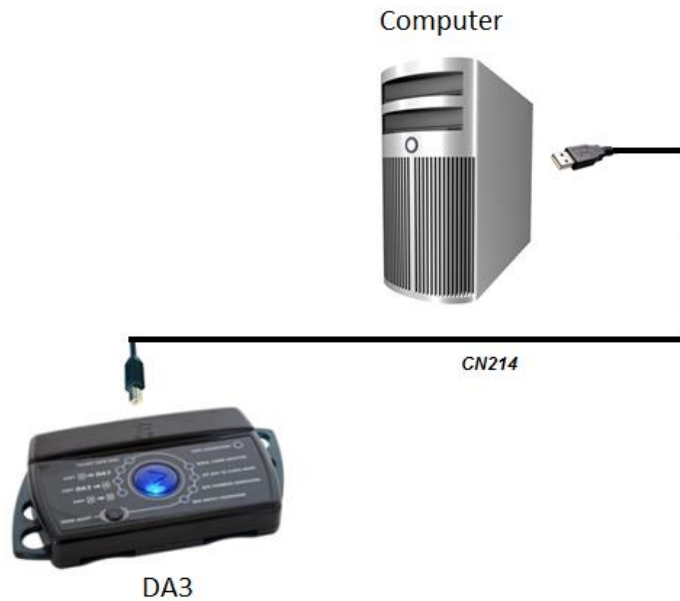
- `/r` Full shutdown and restart the computer.
- `/o` Go to the advanced boot options menu and restart the computer.  
Must be used with `/r` option.
- `/f` Force running applications to close without forewarning users.
- `/t xxx` Set the time-out period before shutdown to xxx seconds.

When the system restarts you can select "Disable Driver Signature Enforcement" from the option screen and continue the installation as usual ([3.1.2.1 Windows 7 Driver Install](#)). Once the drivers have installed you can reboot your system to Enable Driver Signature Enforcement.



[<< Back to Contents](#)

### 3.1.2 Connecting the DA3 to a Computer



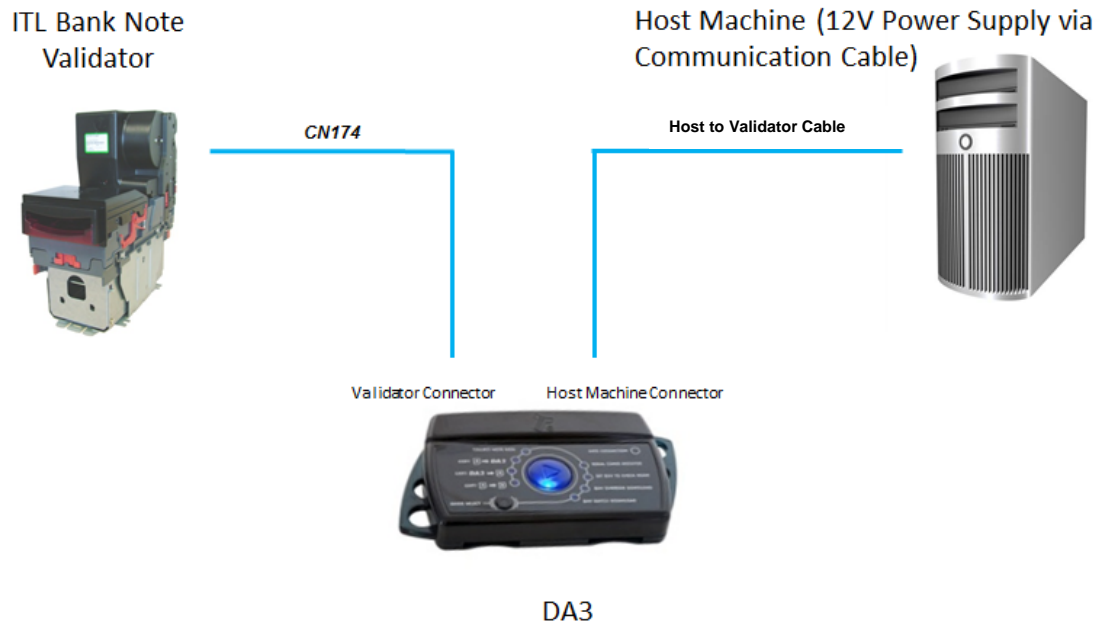
| Type  | ITL Part Number | Description               | Quantity | Details                            |
|-------|-----------------|---------------------------|----------|------------------------------------|
| Cable | CN214           | USB A to B Cable Assembly | 1        | <a href="#">Link to 9930550207</a> |

This Cable is part of the DA3 Kit (Please refer to chapter [2.3.1 DA3 Kit Variants](#) for further information).



### 3.1.3 Connecting the DA3 in the Field for Update

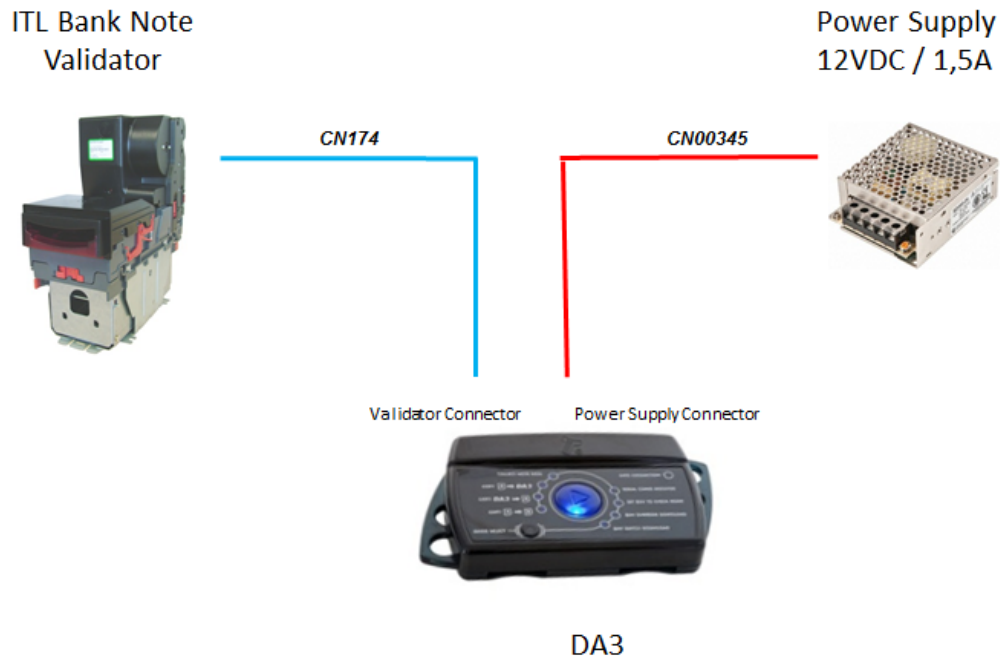
#### 3.1.3.1 Option 1 – Power Supply via Host Machine



| Type  | ITL Part Number | Description             | Quantity | Details                            |
|-------|-----------------|-------------------------|----------|------------------------------------|
| Cable | CN174           | NV9 / NV10 Ribbon Cable | 1        | <a href="#">Link to 9930500764</a> |

This Cable is part of the DA3 Kit (Please refer to chapter [2.3.1 DA3 Kit Variants](#) for further information).

### 3.1.3.2 Option 2 – Power Supply via external Power Supply



| Type  | ITL Part Number | Description                   | Quantity | Details                            |
|-------|-----------------|-------------------------------|----------|------------------------------------|
| Cable | CN174           | NV9 / NV10 Ribbon Cable       | 1        | <a href="#">Link to 9930500764</a> |
| Cable | CN00345         | DA3 / IF17 / IF18 Power Cable | 1        | <a href="#">Link to 9930550280</a> |

The CN174 is part of the DA3 Kit (Please refer to chapter [2.3.1 DA3 Kit Variants](#) for further information) and the Cable CN00345 needs to be ordered separately.



## 4 SOFTWARE INSTALLATION AND CONFIGURATION

### 4.1 Software Overview

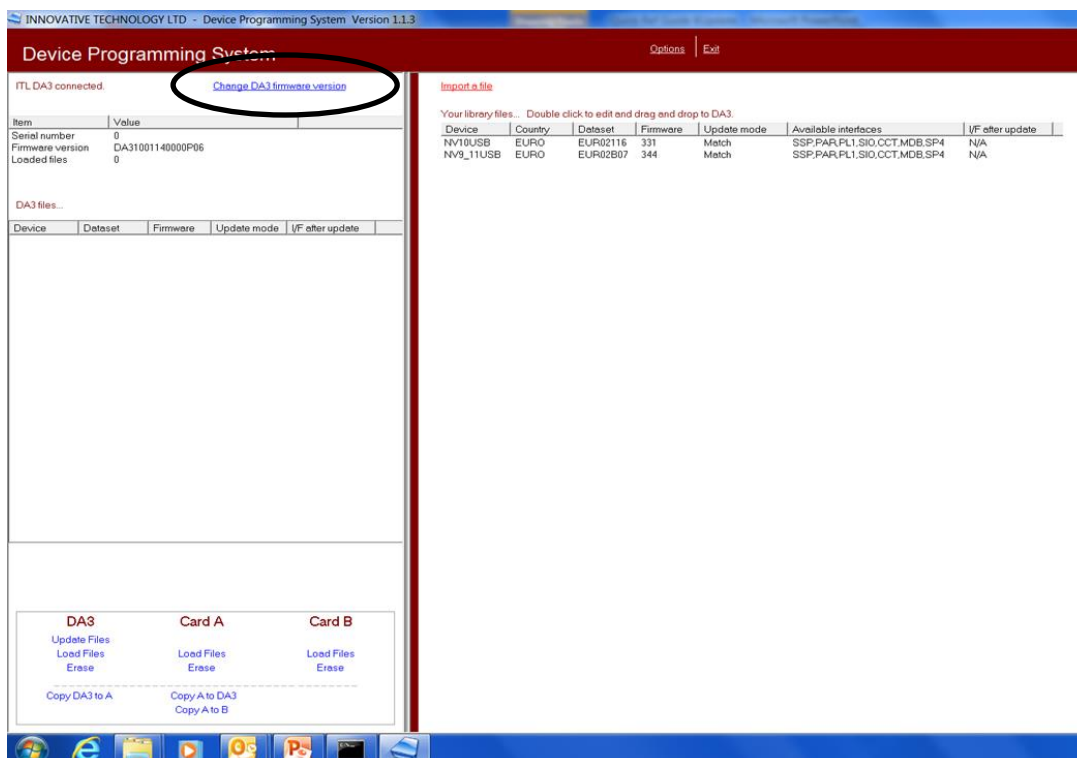
#### 4.1.1 Device Programming System (DPS)

##### 4.1.1.1 General Description

Device Programming System (DPS) is designed to configure a DA3 with the required firmware and dataset variants for easy updates of ITL products in the field without the need of a laptop or computer.

##### 4.1.1.2 Firmware Update/Change on the DA3


- Connect the DA3 to your PC using a USB cable, and open DPS software. You may need to install the DA3 driver. Please refer to [chapter 3.1.1 Driver Installation](#) to proceed.
- Select 'Change DA3 firmware version' at top of screen.



- Select DA3 Standard firmware from your folder.
- Update DA3 firmware.

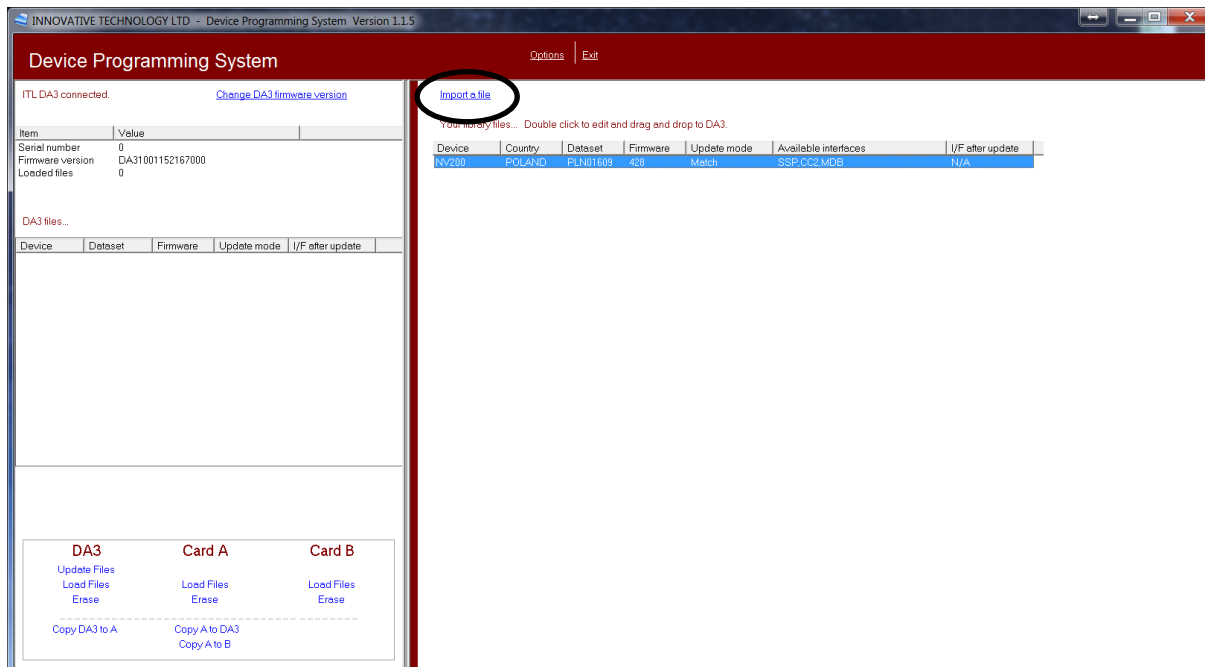




|  |                   |
|--|-------------------|
|   | <h2>Caution!</h2> |
| <p>Interrupting the download process can result in the unit entering a non-functional state, once the process has started it cannot be halted.</p> |                   |

### 4.1.1.3 Adding datasets to the dataset library

The first step is to import a dataset into the program, to do this select 'Import a file', this will open a new dialog box, now browse to the location of the dataset, and click open.



Once a dataset has been loaded into the program it is loaded as a 'match' download, if you wish to modify any of the settings you must switch it to an override download ([4.1.1.5 Tagging files for override](#)).



[<< Back to Contents](#)

#### 4.1.1.4 Storing files on the DA3

Once the files are ready to be copied onto the DA3 simply drag the file from the right and drop on the left. This will prepare the file to be loaded onto the DA3. The DA3 has 8mb of flash storage and can hold up to 20 datasets simultaneously depending on files sizes. To complete the upload click 'Update Files' this will bring up a message box explaining doing this will erase everything currently stored on the DA3, to continue with the upload click ok.

ITL DA3 connected. [Change DA3 firmware version](#)

| Item             | Value             |
|------------------|-------------------|
| Serial number    | 0                 |
| Firmware version | DA310001152167000 |
| Loaded files     | 0                 |

Your Firmware files for update.

| Device | Dataset  | Firmware | Update mode | I/F after update |
|--------|----------|----------|-------------|------------------|
| NVZ00  | PLN01609 | 428      | Match       | N/A              |

Free space: 7.2 M bytes

**DA3**      **Card A**      **Card B**

Update Files      Load Files      Load Files  
Load Files      Erase      Erase  
Erase      Erase      Erase

Copy DA3 to A      Copy A to DA3  
Copy A to B

Import a file

Your library files... Double click to edit end drag end drop to DA3.

| Device | Country | Dataset  | Firmware | Update mode | Available interfaces | I/F after update |
|--------|---------|----------|----------|-------------|----------------------|------------------|
| NVZ00  | POLAND  | PLN01609 | 428      | Match       | SSP-Cc2.MDB          | N/A              |

Drag file across from the right hand side to the left



[<< Back to Contents](#)

#### 4.1.1.5 Tagging files for override

Double clicking on the dataset will open a 'Set Options' screen, from here you will be able to modify all of the settings in the firmware. The SSP options are displayed below; options for ccTalk® included setting the encryption, enabling/disabling DES, setting the ccTalk® address. Once all the changes to the firmware are made, click 'Save' this will take you back to the landing page.

The screenshot shows a window titled "NV200 428 POLAND PLN01609" with a "Set Options" header. It contains two tables and a section for update mode.

| Interface code                          | Description                |
|---|----------------------------|
| <input checked="" type="checkbox"/> SSP | Secure Serial Protocol     |
| <input type="checkbox"/> CC2            | Smart Unit payout protocol |
| <input type="checkbox"/> MDB            | Multi-Drop Bus vending     |

| Option           | Value     |
|------------------|-----------|
| Strim function   | No change |
| Program card     | No change |
| PSU Monitor      | No change |
| Channel Inhibits | No change |
| SSP Bus Address  | No change |
| eSSP Mandatory   | No change |

Update mode

Match

Override

Buttons: Save, Cancel



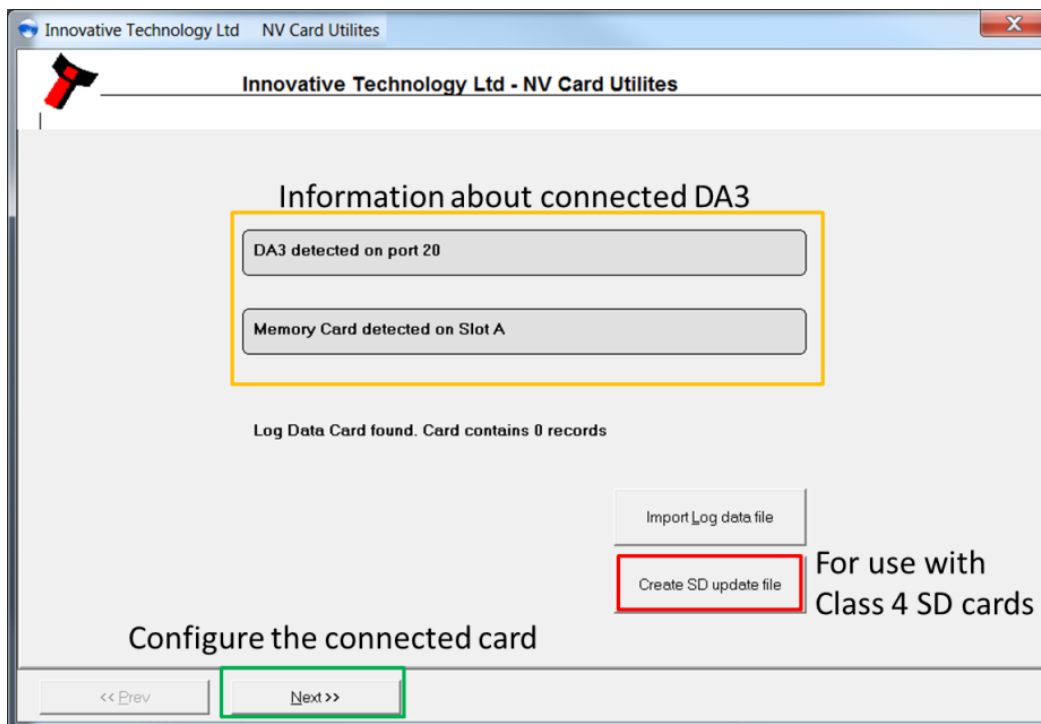
[<< Back to Contents](#)

## 4.1.2 NV Memory Card Utilities

### 4.1.2.1 General Description

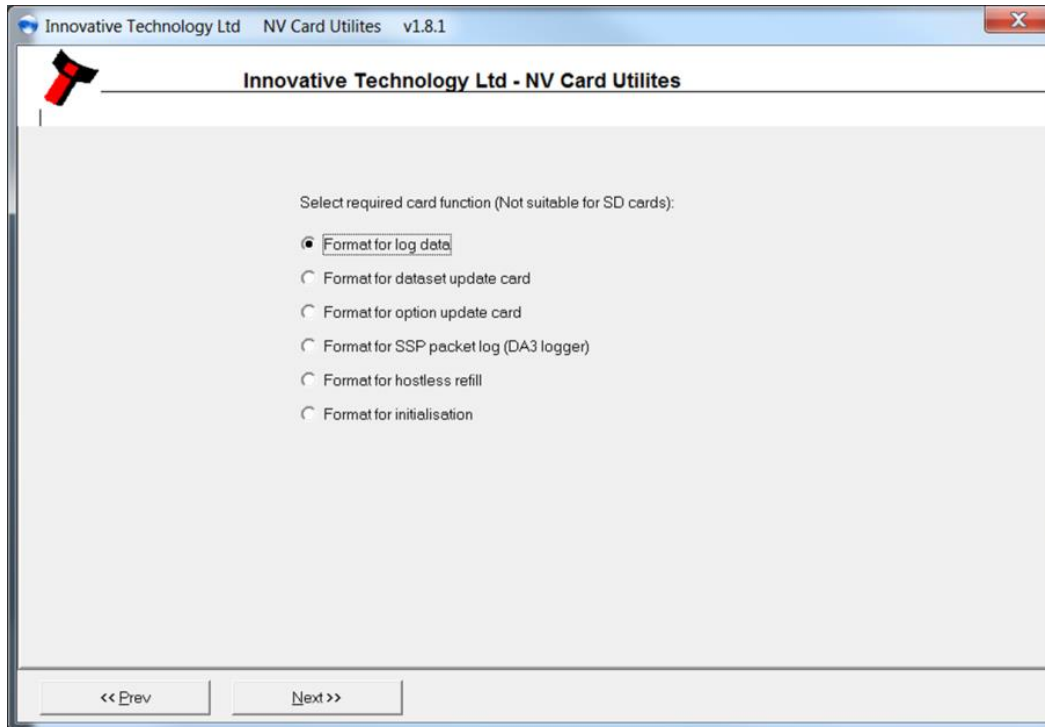
NV Card Utilities is designed to work with the DA3 handheld programmer and Data Flash Cards; it allows the user to create update cards for the NV200 family of products as well as log card functions for all units (excluding BV-series).

Once you have installed the program and connected your DA3 to the computer the start screen will look like the screenshot below:



When you click next you will be prompted with another screen highlighting further options for the user to select from. This additional options are for usage with the ITL Data Flash Cards.





The following sections will briefly explain how to create custom Data Flash cards to achieve several functions on the validator.

#### 4.1.2.2 Format for log data

Formatting for log data allows any ITL validator (excluding BV-series) to collect up to 2 weeks' worth of data; this can then be used for dataset improvements and troubleshooting. To create a log data card, select the option at the screen then click next, then on the next screen 'Format for Log Data'. This can then be placed into the slot at the front of the NV200 to begin logging, if you are using a different validator you will also have to create a SSP packet logger please see section [4.1.2.5 Format for SSP packet log](#).

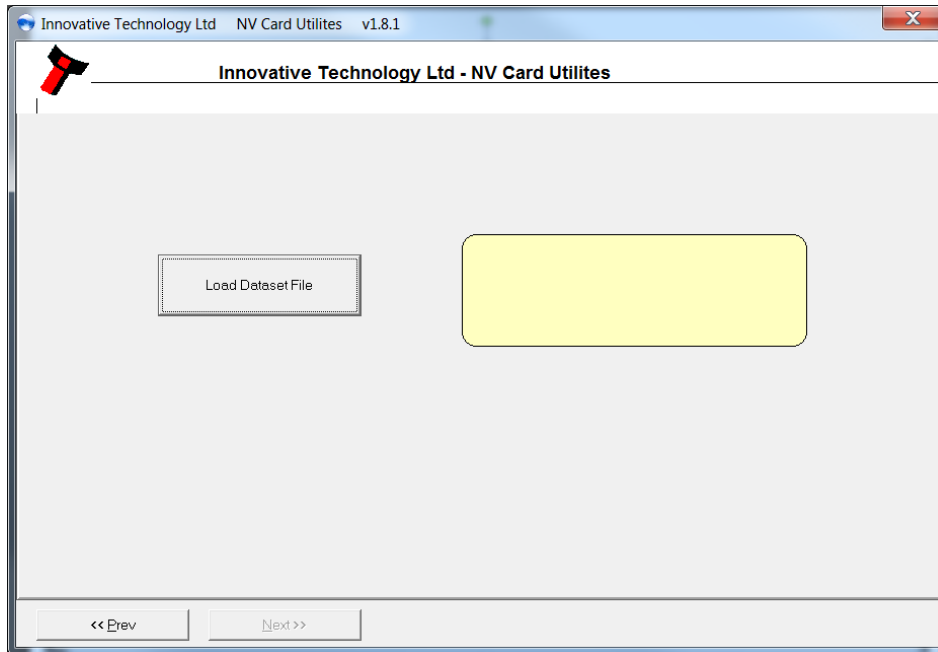


[<< Back to Contents](#)

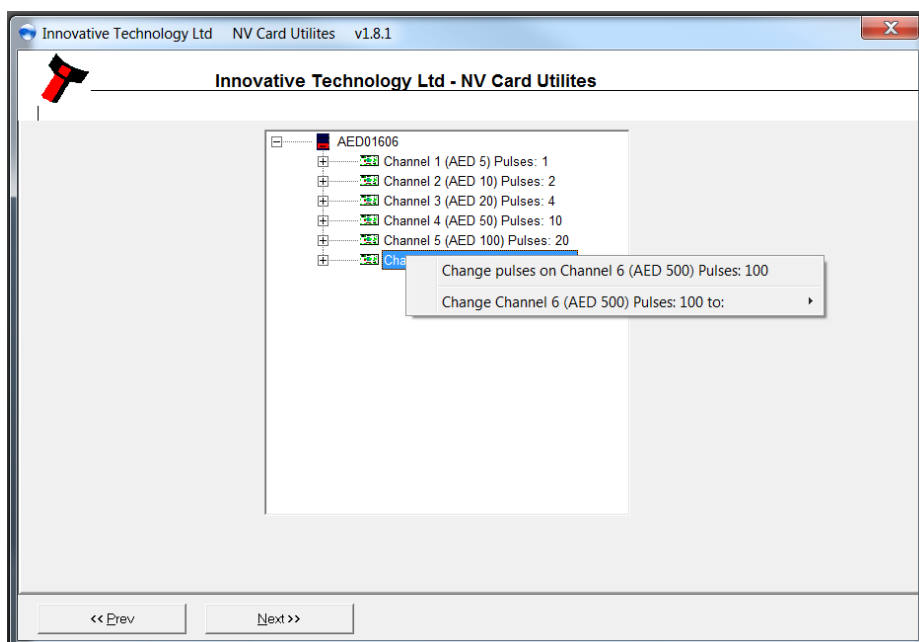
### 4.1.2.3 Format for dataset update card (NV200 Range only)

This function allows you to load any NV200 dataset onto a Data Flash card for the purposes of re-programming the validator.

When you first click the option, you will be prompted with the below screen, you would need to select your dataset (usually located within the downloads folder) and then click next.



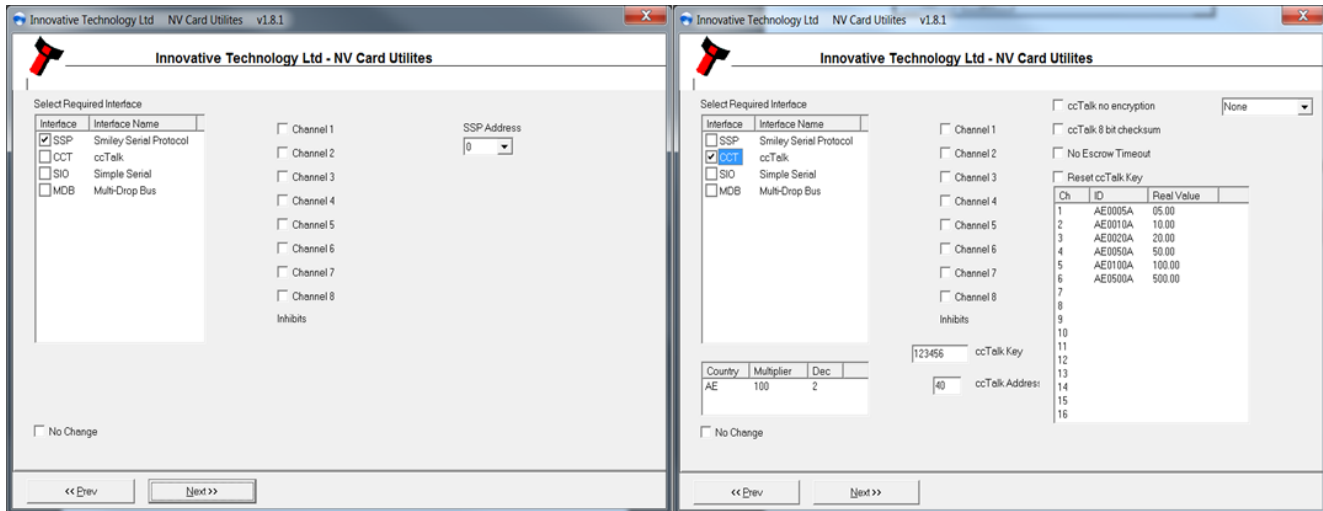
Once the dataset has been loaded it is possible to configure it to fulfill your requirements, on the first screen there is the possibility to change the pulses for the channels. This can be changed should the host machine be expecting specific values.



[<< Back to Contents](#)

The next screen will allow you to customize the interface and channel inhibits. To change the interface, simply check the relevant box. Similarly, to inhibit a channel tick the corresponding box.

On the left is the options available with SSP selected, and on the right, are the options available through selecting the ccTalk® interface.



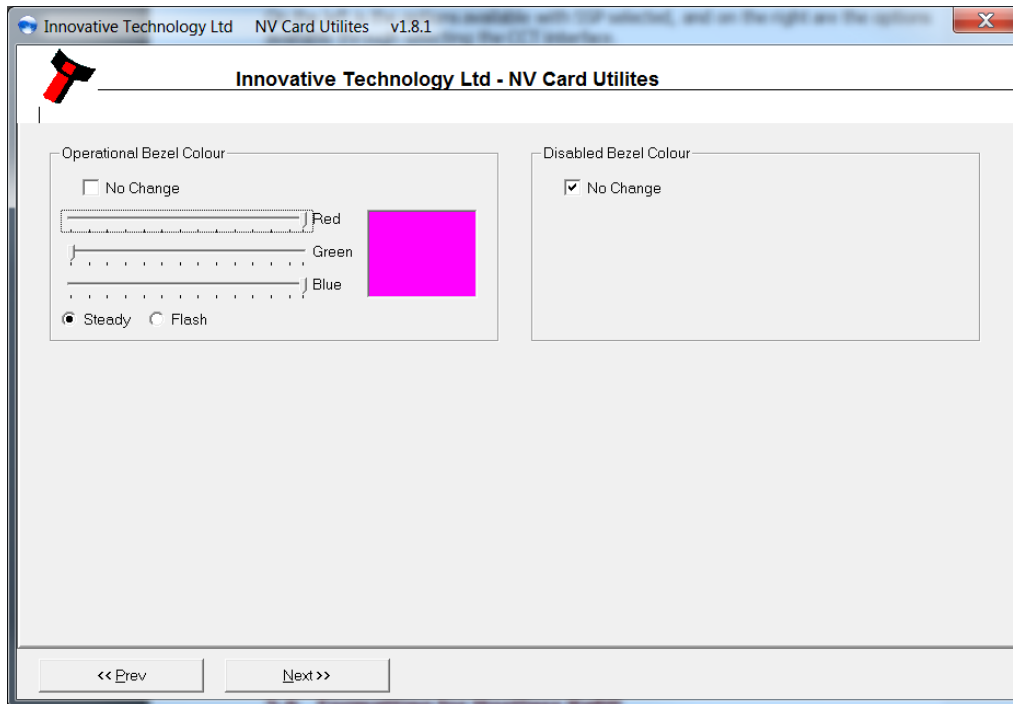
### Information

If you want to keep the current settings on the unit, select no change.



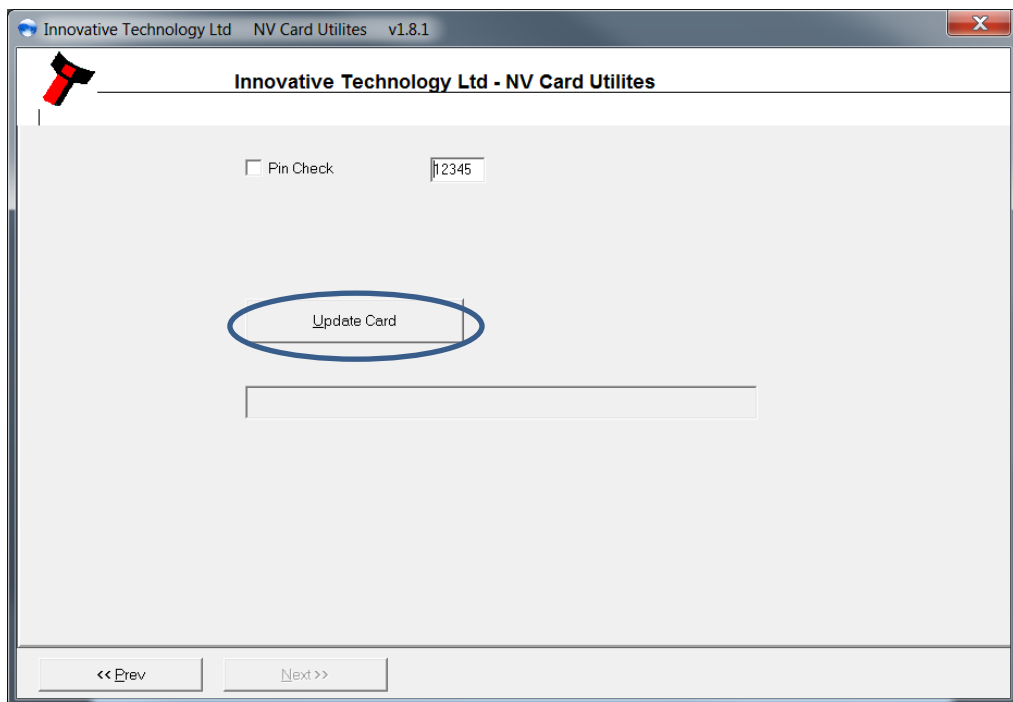
[<< Back to Contents](#)

The next screen allows you to get modify the bezel colors during operation and whilst disabled. The color can be selected using an RGB slider as shown below.



As soon as the required Bezel options are selected, press next to proceed to the next screen, here you will be able to load the update onto the Data Flash card.

Click on 'Update card' and the file will be loaded onto the Data Flash card.

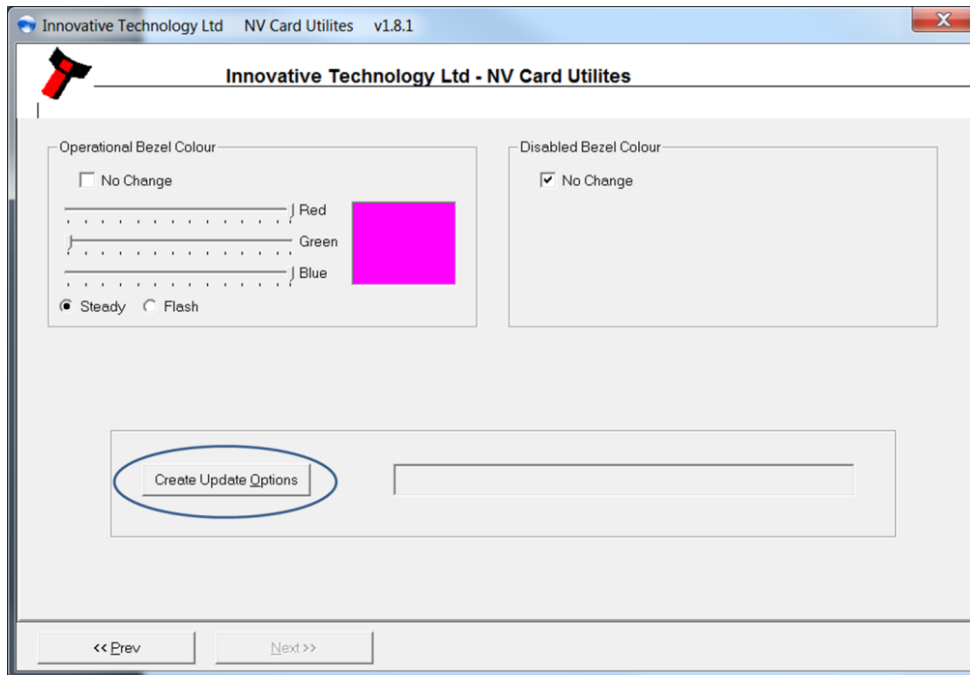




[<< Back to Contents](#)

#### 4.1.2.4 Format for option update card (NV200 Range only)

Formatting for option update allows you to modify the bezel colour of the NV200, simply select the RGB colour using the sliders and select 'Create Update Options'. Once this has been clicked it will format and upload the changes onto the ITL Data Flash card.



#### 4.1.2.5 Format for SSP packet log

Formatting for SSP packet logging is to be used in conjunction with a standard log card in a DA3 to capture all the transmitted and received packets between any of ITL's validators (excluding BV-series) and the host machine. A more detailed instruction on how to do this can be obtained from chapter [5.1.10 Data Logging](#).

#### 4.1.2.6 Format for Hostless Refill (NV200 Range only)

Formatting for Hostless Refill is designed to allow a customer to fill a Payout module without connecting data lines to the host machine, this is useful if the Payout needs to be loaded in a secure location where only power is available or balancing real note values and machine counters.

#### 4.1.2.7 Format for initialisation (NV200 Range only)

This feature allows the user to re-initialise the NV200 validator. To perform the initialisation you will also need the corresponding calibration paper ([LB00149](#)).



#### 4.1.2.8 Upload Log Data

- Open NV card utilities, connect a DA3 via a USB cable and put the Log data card in Slot A. Select 'Next'.
- Select Upload Log data and hit 'Next'.
- Select Upload Records. NV Utilities extracts the data and displays a list of events in a new window.
- Select 'Export as raw data' button.
- Select the location of where you want the file to be saved. It will be saved as an xxxx.NRC file.
- This file can be zipped and sent to [support@innovative-technology.com](mailto:support@innovative-technology.com) for analysis.



## 5 OPERATION AND SETUP

### 5.1 Standard Firmware

#### 5.1.1 General Description

The standard firmware allows dataset and firmware files for different validator models to be stored on the DA3.

Once programmed the user can update or override existing software as well as test the functionality of the validator, away from the host machine.

#### 5.1.2 BNV Match Download

This mode will update the connected BNV with the latest version of dataset and firmware currently programmed into the BNV. All custom settings (pulses, special interface etc.) will remain the same. Tagging files has no effect when the DA3 is used in this mode. For this function to operate, the versions of firmware and dataset stored within the DA3 memory must be later than that stored within the connected validator.

- Set the BNV to SSP mode as described in the BNV product manual. Depending on the BNV model, this will be either by setting the dipswitches as shown on the product label, or by pressing the configuration button
- Connect the BNV to the DA3 as described in chapter [3.1.3 Connecting the DA3 in the field for Update](#) and apply power either from the host machine or from a separate 12V power supply.
- Press the Mode Select button repeatedly until the blue BNV MATCH DOWNLOAD LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the Centre Run Button.
- The centre RUN button will change colour to pulsing blue, and the Mode Indicator LEDs will rotate back and forth as communication is established and the current BNV settings are determined. The DATA CONNECTION LED will flicker as data is transferred to and from the DA3. If there are no matching firmware or dataset files stored on the DA3, the centre RUN button will change colour to pulsing red and the blue BNV MATCH DOWNLOAD LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- If all the files are available on the DA3, the Mode Indicator LED's will rotate in an anti-clockwise direction while the firmware is updated.
- Once the firmware update is complete (a quick Reset will be performed) and the Mode Indicator LED's will rotate in a clockwise direction as the dataset is updated.
- When the firmware and dataset are successfully updated, the centre RUN button will change to a pulsing green light and the BNV will reset.



## BNV Override Download

This mode will overwrite the BNV with pre-selected (Tagged) firmware and dataset files. For this function to operate, the DA3 must have dataset and firmware files tagged for the attached BNV model. See Chapter [4.1.1.5 Tagging files for override](#) for details on tagging files.

- Set the BNV to SSP mode as described in the BNV product manual. Depending on the BNV model, this will be either by setting the dipswitches as shown on the product label, or by pressing a download Configuration button.
- Connect the BNV to the DA3 as described in chapter [3.1.3 Connecting the DA3 in the field for Update](#), and apply power either from the host machine or from a separate power supply.
- Press the Mode Select button repeatedly until the blue BNV Override DOWNLOAD LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the Centre Run Button.
- The Centre RUN button will change colour to pulsing blue, and the Mode Indicator LEDs will rotate back and forth as communication is established and the current BNV settings are determined. The DATA CONNECTION LED will flicker as data is transferred to and from the DA3. If there are no matching firmware or dataset files stored on the DA3, the centre RUN button will change colour to pulsing red and the blue BNV MATCH DOWNLOAD LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- If all the files are available on the DA3, the Mode Indicator LED's will rotate in an anti-clockwise direction while the firmware is updated.
- Once the firmware update is complete, the Mode Indicator LED's will rotate in a clockwise direction as the dataset is updated.
- When the firmware and dataset are successfully updated, the centre RUN button will change to a pulsing green light and the BNV will reset.



### 5.1.3 Set BNV to check mode

This function enables the validator to accept notes so that testing can take place outside of the host machine.

- Set the BNV to SSP mode as described in the BNV product manual. Depending on the BNV model, this will be either by setting the dipswitches as shown on the product label, or by pressing a download Configuration button.
- Connect the BNV to the DA3 as described in chapter [3.1.3 Connecting the DA3 in the field for Update](#), and apply power either from the host machine or from a separate power supply.
- Press the Mode Select button repeatedly until the blue SET BNV TO CHECK MODE LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the Centre RUN button.
- The Centre RUN button will change colour to pulsing blue, and the DATA CONNECTION LED with flash as data is transferred to and from the DA3. If communications cannot be established the Centre RUN button will change colour to pulsing red, and the blue SET BNV TO CHECK MODE LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- When notes are inserted and accepted, the Mode Indicator LED will switch off a number of times according to which channel the note has been credited. For example, if a note from channel 3 has been inserted, the Mode Indicator LED will switch off and back on again 3 times.

### 5.1.4 Serial Comm Monitor

This function is not yet implemented.

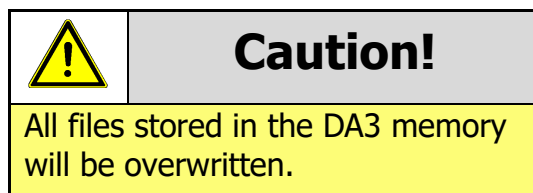
### 5.1.5 Collect Note Data

This function is not yet implemented.



### 5.1.6 Copy A to DA3

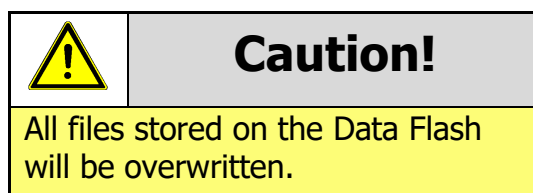
This function copies the contents of the memory card in slot A to the internal memory of the DA3.



- Press the Mode Select button repeatedly until the blue Copy A →DA3 LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the RUN button – the RUN button will change colour from pulsing green to solid blue, and the MODE SELECT button light will switch off.
- Press the RUN button again within 3 seconds to confirm.
  - If the RUN button is not pressed a second time within 3 seconds, the colour of the button will revert to green, and the MODE SELECT button will re-light blue.
  - If there is no Data Flash card in slot A, or the Data Flash Card is blank, the Centre RUN button will pulse red, and the blue Copy A →DA3 LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- The Mode Indicator LED's will rotate in an anti-clockwise direction while the entire contents of the memory card in slot A are be copied to the internal memory of the DA3.
- When the copy procedure is completed, the Centre RUN button will pulse green.

### 5.1.7 Copy DA3 to A

This function copies the contents of the internal memory on the DA3 to the Data Flash card.



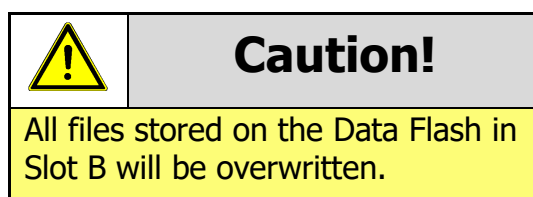
- Press the Mode Select button repeatedly until the blue Copy DA3 →A LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the RUN button – the RUN button will change colour from pulsing green to solid blue, and the MODE SELECT button light will switch off.



- Press the RUN button again within 3 seconds to confirm.
  - If the RUN button is not pressed a second time within 3 seconds, the colour of the button will revert to green, and the MODE SELECT button will re-light blue.
  - If the DA3 is blank or if there is no Data Flash card in slot A, the Centre RUN button will pulse red, and the blue Copy DA3 →A LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- The Mode Indicator LED's will rotate in an anti-clockwise direction while the entire contents of the internal memory of the DA3 are be copied to the memory card in slot A.
- When the copy procedure is complete, the Centre RUN button will pulse green.

### 5.1.8 Copy A to B

This function copies the contents of the Data Flash card in slot A to the Data Flash card in slot B.



- Press the Mode Select button repeatedly until the blue Copy A →B LED is illuminated. The RUN button will pulse green to indicate that this function is available.
- Press the RUN button – the RUN button will change colour from pulsing green to solid blue, and the MODE SELECT button light will switch off.
- Press the RUN button again within 3 seconds to confirm.
  - If the RUN button is not pressed a second time within 3 seconds, the colour of the button will revert to green, and the MODE SELECT button will re-light blue.
  - If there is no Data Flash card in slot A, or the Data Flash Card is blank, the Centre RUN button will pulse red, and the blue Copy A →B LED will flash a code as described in chapter [6.1 LED Error Flash Codes](#).
- The Mode Indicator LED's will rotate in an anti-clockwise direction while the entire contents of the Data Flash card in slot A are be copied to the memory card in slot B.
- When the copy procedure is complete, the Centre RUN button will pulse green.



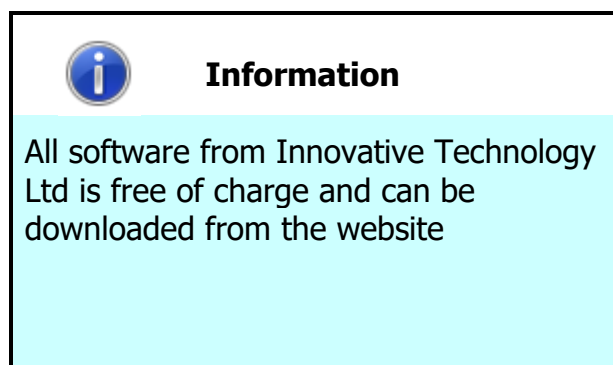
## 5.1.9 Data Logging

### 5.1.9.1 General Description

The DA3 can also be used as a data logging device, utilising the two card slots on the unit. This allows the capturing of performance data and also helps with diagnosing any issues seen in the field.

### 5.1.9.2 Requirements

- Latest Validator Manager version
- A DA3 from week 17 2013 or later with latest firmware version
- Latest NV Cards Utilities version
- ITL Bank Note Validator with a latest Dataset and Firmware



### 5.1.9.3 Setup

- Format a Data Flash card as an SSP Packet Data Log card using NV Cards Utilities (as described in chapter [4.1.2 NV Memory Card Utilities](#)).
- The next step is to format a data flash card as a Log Data card (as described in chapter [4.1.2 NV Memory Card Utilities](#)).
- Open the Validator Manager and connect to the validator that you want to collect data from. Go to the Options tab and change the option "Enable Data Monitor" from Off to On. Hit the "Apply Changes" button. You get an 'Options Set Successfully' message and the validator resets.





#### 5.1.9.4 Collecting Data

- Connect the DA3 in series to the Validator.
- Put the SSP Packet Data card in slot A and the Log Data card in slot B
- The DA3 automatically goes into data collection mode, saving log data to the Log Data card in Slot B and SSP Packet Data to the SSP Packet card. The Centre RUN button lights Blue and the Mode LED's start a sequence clockwise and anticlockwise, again in blue.
- Run the Validator with the Host Software (normal operation).
- Stop the DA3 recording by pressing the Centre RUN button. It now changes to green. The recording **MUST** be stopped by pressing this button before you remove the card or else the data on the card may get corrupted.
- Remove the Log Data Card from slot B. This contains all the required events and data.
- The DA3 can be left connected in series in this mode and will gather data continuously. When the card's memory is full it will overwrite the earliest records and keep recording. The engineer can visit the machine and swap cards as required.

#### 5.1.9.5 Extract the Data

To extract the Data, proceed as described in chapter [4.1.2.8 Upload Log Data](#).



## 5.2 SMART Update Firmware

### 5.2.1 General Description

The SMART Update Tool provides all applicable datasets for a given currency across our product range, allowing multiple units in the field to be easily updated with a single file.

### 5.2.2 Requirements

- 1 x DA3 handheld programmer
- Latest Custom DA3 SMART Update firmware
- UpdateV2.bin file - download it from the ITL Website
- Min 2Gb SD Card, Class 4. Sandisk, Kingston Technology, Transcend have all been tested. NB: Class 10 cards are not supported. Format must be FAT32.
- Latest Custom DPS version



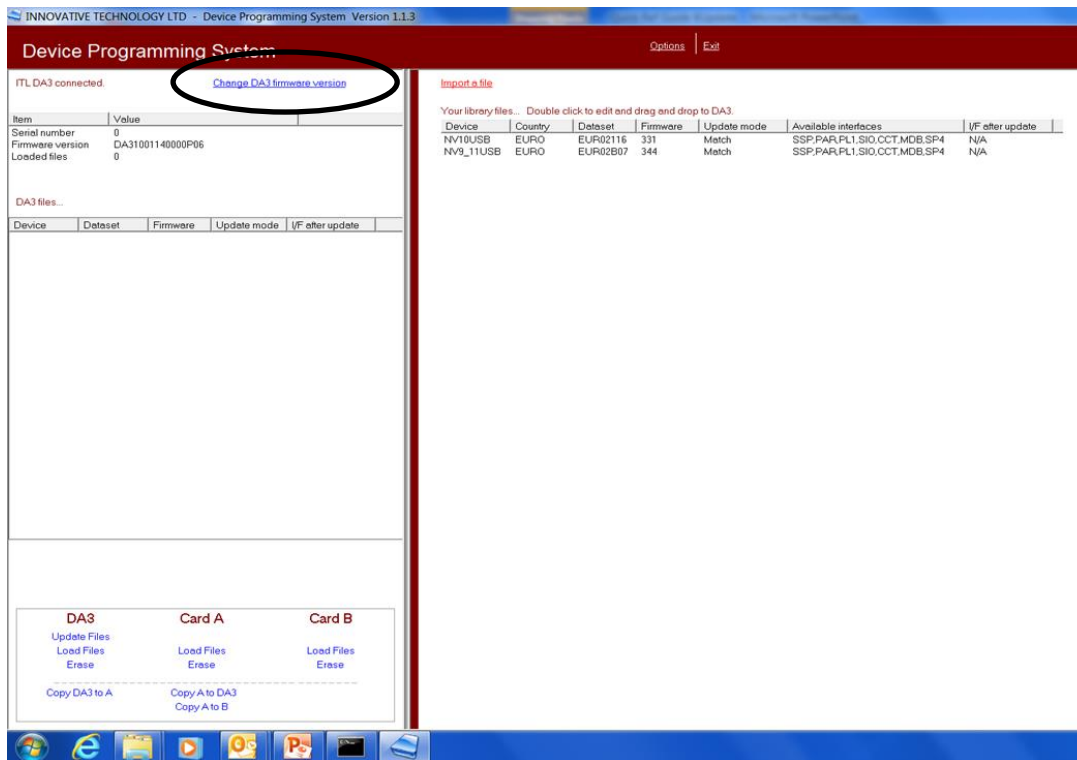
#### Information

All software from Innovative Technology Ltd is free of charge and can be downloaded from the website [www.innovative-technology.com/support/securedownload](http://www.innovative-technology.com/support/securedownload) once registered and logged in.



## 5.2.3 Setup

- Log in to the ITL website software support section [www.innovative-technology.com/support](http://www.innovative-technology.com/support).
- Download the required SMART package which contains: UpdateV2.bin file location. (Save to a folder on your PC and extract files)
- Place SD card in PC card slot and copy UpdateV2.bin file to the card. The file is big (200Mb approx), so this takes a few minutes.
- Connect the DA3 to your PC using a USB cable, and open DPS software. You may need to install the DA3 driver. Please refer to [chapter 3.1.2 Driver Installation](#) to proceed.
- Select 'Change DA3 firmware version' at top of screen.



- Select DA3 SMART Update firmware from your folder (for further details refer to chapter [9.3 Firmware Identifier](#)).
- Update DA3 firmware.

## Caution!

Interrupting the download process can result in the unit entering a non-functional state, once the process has started it cannot be halted.

- Disconnect DA3 from PC.



## 5.2.4 Update Procedure

- Insert SD card with the UpdateV2.bin file loaded into Slot A on the DA3.
- Connect the DA3 to the validator using the ribbon cable and 16-way connector and power it from the host ribbon cable.
- Allow the validator to power up and ensure it is in SSP mode ([9.2 Switching ITL devices to Programming Mode \(SSP\)](#)).
- Press the blue button on the DA3. The button turns green when the dataset has been updated, and the validator resets.
- Disconnect the DA3, reconnect the validator to the host and power up the validator.



## 6 FIRST LEVEL SUPPORT

### 6.1 LED Error Flash Codes

| Number of LONG flashes | Number of SHORT flashes | Indicated Status / Error         | Action   |
|------------------------|-------------------------|----------------------------------|--|
| 1                      | 1                       | Incompatible Dataset             | Check if the dataset on the DA3 match the connected Validator type.  |
| 1                      | 2                       | No validator connection found    | Check if the wiring is correct. Please refer to chapter <a href="#">3.1.3 Connecting the DA3 in the Field for Update</a> . |
| 1                      | 3                       | No valid download files found    | Check if the dataset on the DA3 match the connected Validator type.  |
| 1                      | 4                       | Download fail                    | Check if correct and latest FW is in use.  |
| 1                      | 5                       | Memory card fail                 | Check if the inserted Card is suitable for the DA3.  |
| 1                      | 8                       | Heap Fail (Data Logging Problem) | Check if the correct setup is made as described in chapter <a href="#">5.1.9 Data Logging</a> .                            |



## 7 TECHNICAL DATA

### 7.1 Environmental Requirements

| Environment | Minimum | Maximum            |
|-------------|---------|--------------------|
| Temperature | +3°C    | +50°C              |
| Humidity    | 5%      | 95% Non-condensing |

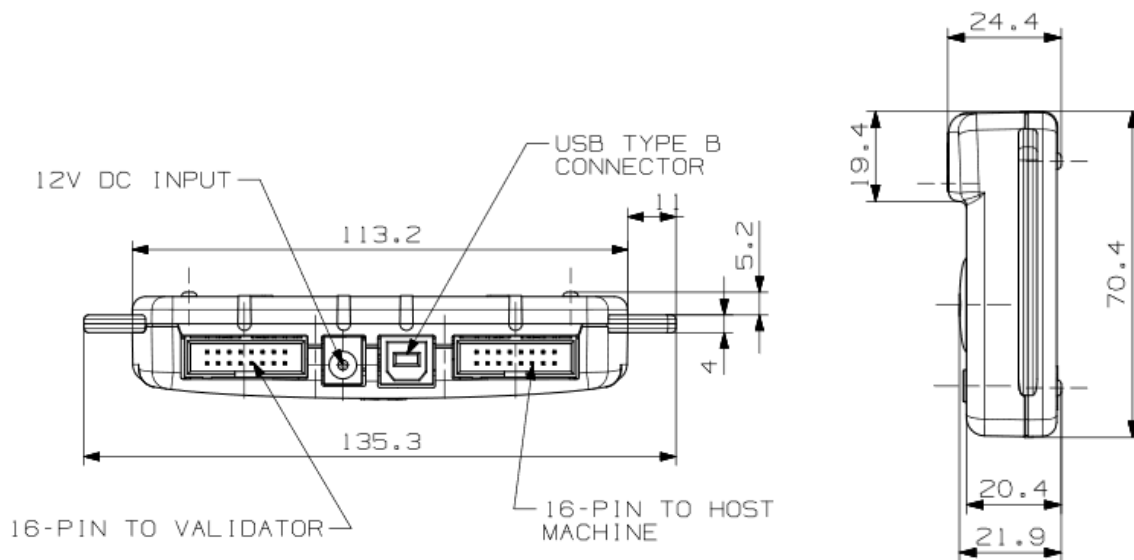
### 7.2 Power Requirements

#### 7.2.1 Supply Voltages

When programming the DA3 using the DPS software, power is taken from the USB bus; no external power supply is required.

When programming validators, or using the DA3 card copy functions, power must be applied via the host machine or from a separate 12V DC, 1500mA power supply.

### 7.3 Dimensions



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## 8 COMPLIANCES AND APPROVALS

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### 8.1 EC Declaration of Conformity

- RoHS
- EN Directives
- UL
- REACH
- WEEE

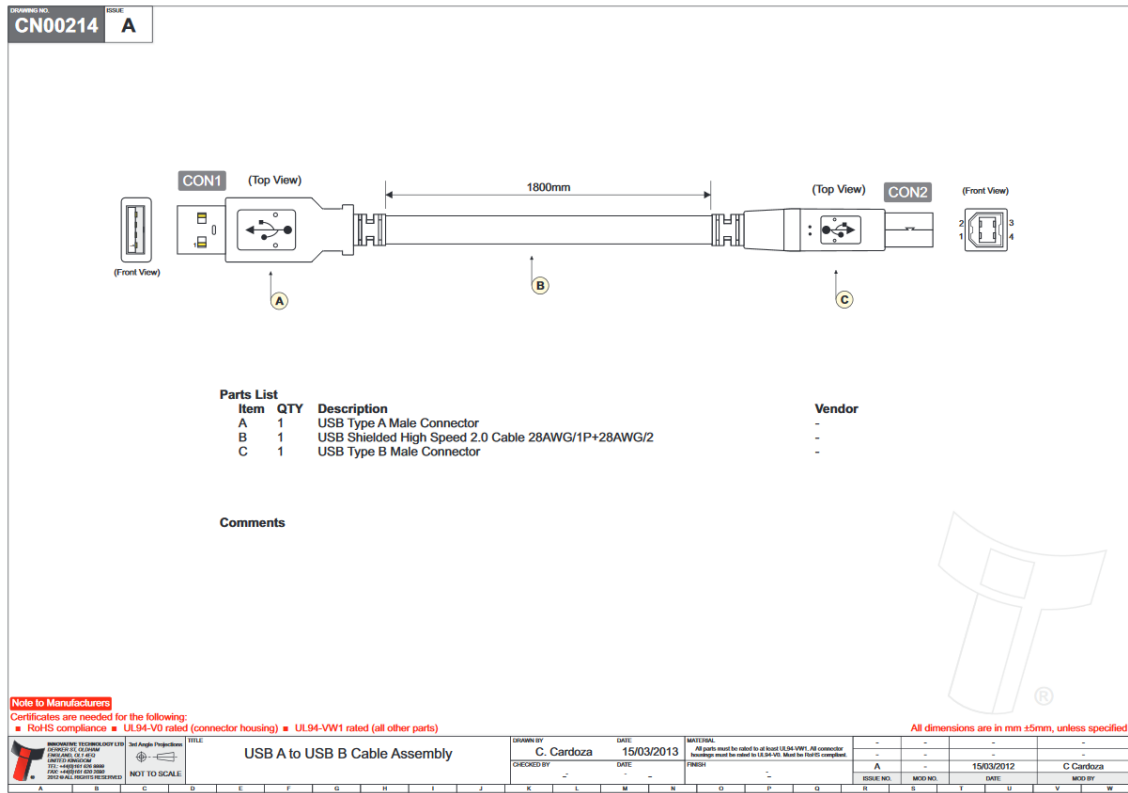
Please contact [support@innovative-technology.com](mailto:support@innovative-technology.com) for further information. Detailed information is available on request.



# 9 APPENDIX

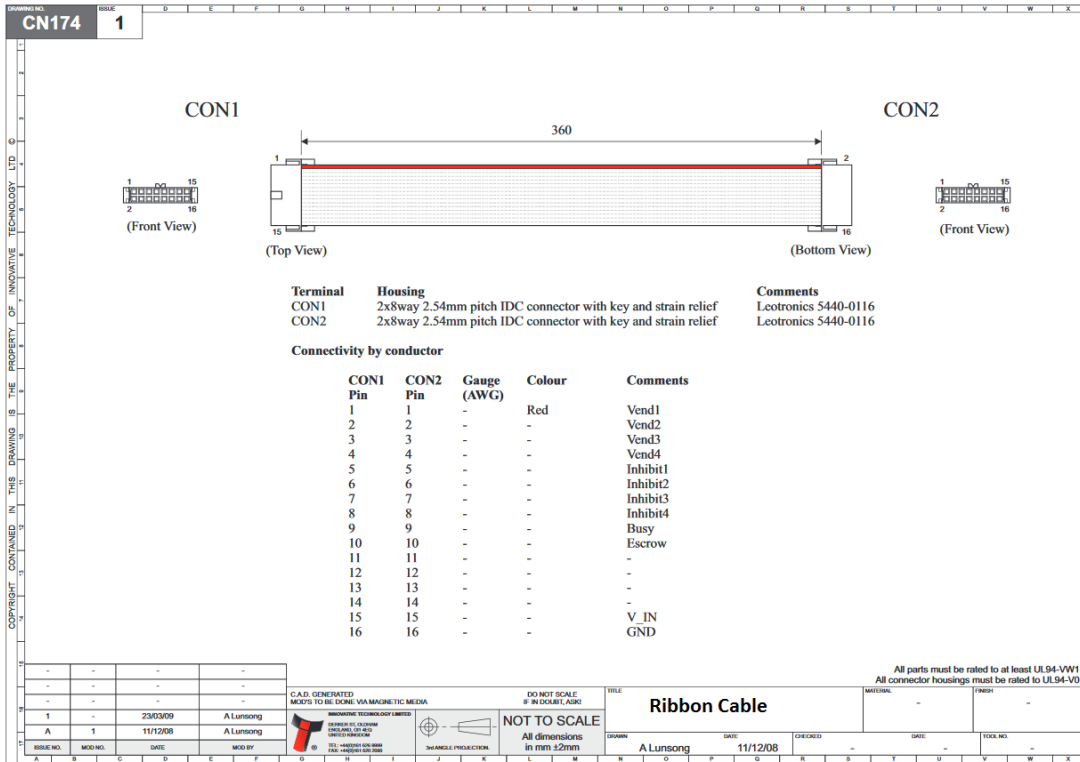
## 9.1 Cable Drawings

### 9.1.1 9930550207 CN00214 – USB A to B cable assembly

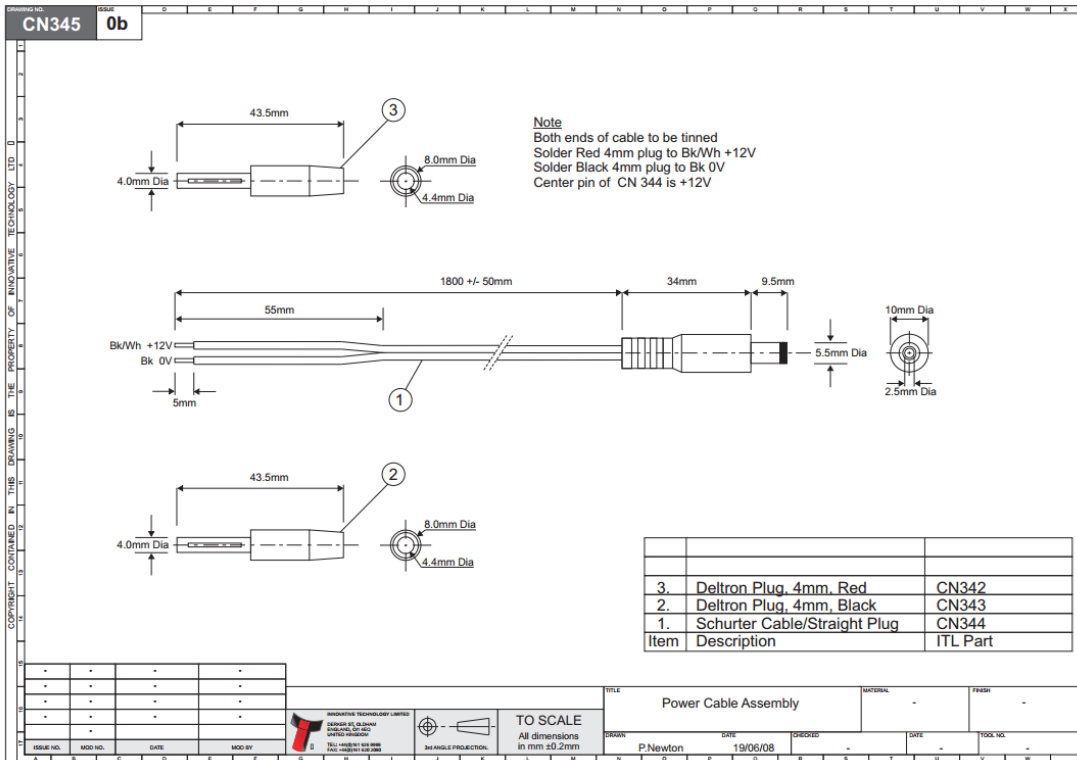




## 9.1.2 9930500764 CN174 – Ribbon Cable



### 9.1.3 9930550280CN00345 - DA3 Power Cable



## 9.2 Switching ITL devices to Programming Mode (SSP)

Please refer to the individual product manual, how to switch the ITL device to the Programming Mode (SSP).

The most ITL Products have a Configuration Button with the following functionality:

| Action   | Power Status | Function   |
|--|--------------|--|
| Press and hold (more than 2 seconds) until the bezel illuminates, then release | Powered ON   | Switch the validator interface                             |
| Press twice (within half a second)   | Powered ON   | Shows current interface type (see flash count table below) |

| Flashes | Interface | Interface Settings |           |                   |     |           |            |            |           |             |               |             |        |
|---------|-----------|--------------------|-----------|-------------------|-----|-----------|------------|------------|-----------|-------------|---------------|-------------|--------|
|         |           | CCT plain          | CCT 8-bit | No Escrow Timeout | DES | Low Power | High Speed | Pulse High | Pulse Low | Pulse per £ | SIO start dis | Credit Hold | Binary |
| 1       | SSP       |                    |           |                   |     |           |            |            |           |             |               |             |        |
| 2       | Pulse     |                    |           |                   |     |           |            | ms/10      | ms/10     | value       |               | 3           |        |
| 3       | MDB       |                    |           |                   |     |           |            |            |           |             |               |             |        |
| 4       | IF30      |                    |           |                   |     |           |            |            |           |             |               |             |        |
| 5       | IF31      |                    |           |                   |     |           |            |            |           |             |               |             |        |
| 6       | ccTalk®   | 1                  | 2         | 3                 | 4   |           |            |            |           |             |               |             |        |
| 7       | SIO       |                    |           | 3                 |     |           | 1          |            |           |             | 2             |             |        |
| 8       | Parallel  |                    |           | 2                 |     |           |            |            |           |             |               |             | 1      |
| 9       | SP4       |                    |           |                   |     |           |            | ms/10      | ms/10     | value       |               | 3           |        |
| 10      | NS        |                    |           |                   |     |           |            |            |           |             |               |             |        |
| 11      | IF32      |                    |           |                   |     |           | 1          |            |           |             |               |             |        |

## 9.3 Firmware Identifier

DA31001210000**SMT**.vps – SMART Update Firmware

DA31001210000003.vps – Standard Firmware

