

ccTools Software & User Manual



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1. Dairy of Changes

Issue	Date	Changes
1.0	08/07/05	first Issue

2. Introduction

IMPORTANT INFORMATION

The ccTools hand held programmer will arrive with the customer empty with no coins, notes or orders etc programmed into it.

You must install on your PC the ccTools software, which is provided with the ccTools kit before any programming can be carried out.

The ccTools must be connected to the PC for the software to work.

Firstly connect the 9 way connector to your 9 way socket on your PC.

Secondly connect the 26 way connector to the ccTools socket.

Thirdly connect a 12v PSU to the BLACK PSU socket the cctools is ready for you to start programming.

The main purpose of ccTools product is for the customer to individually download and create their own coin and note specs, orders and macros.

The latest coin and note downloads for SR3, SR5, Lumina and Condor Plus are all available via our web site @ www.moneycontrols.com/downloads using a download program called Spectacle.

Please read carefully the following ccTools manual, to fully appreciate the benefits of this Money Controls product.

3. ccTools user software

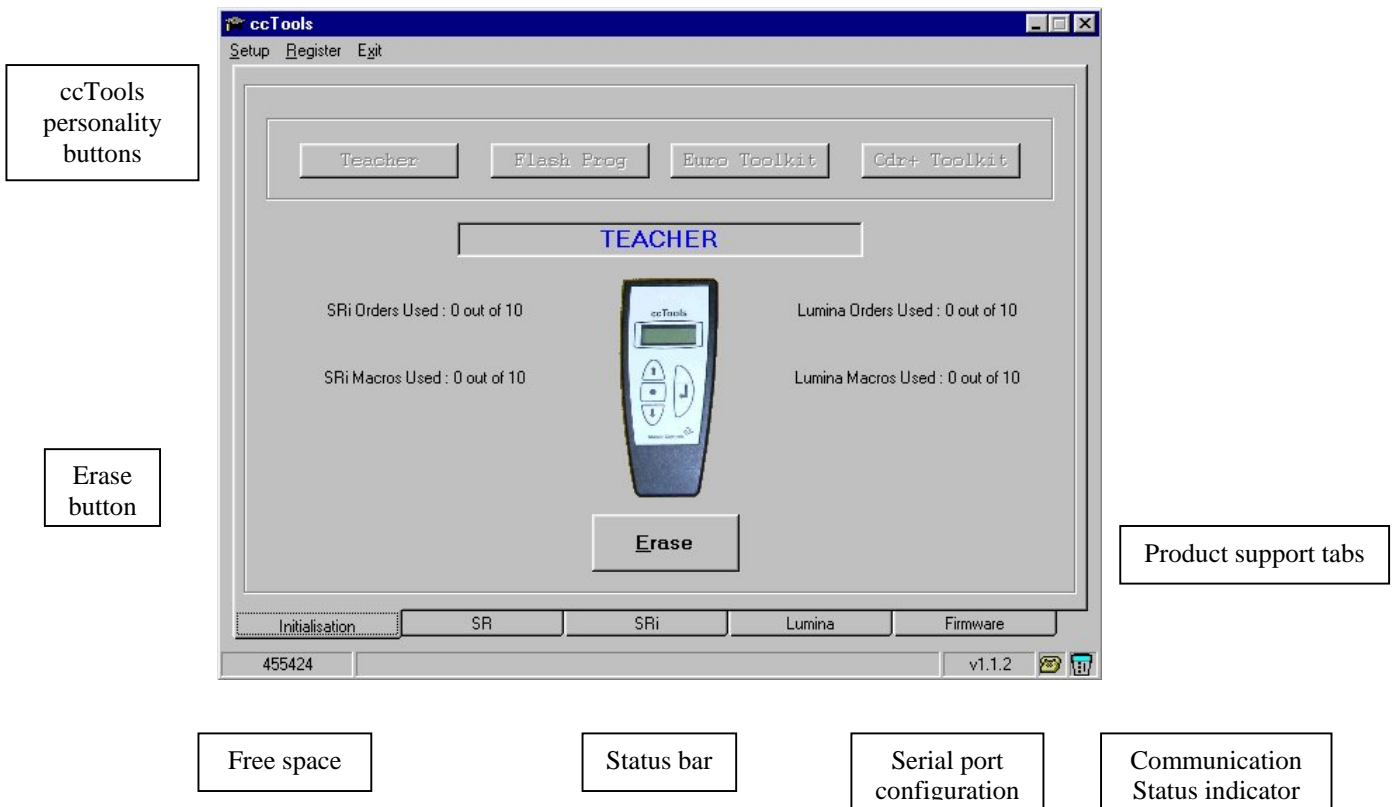
ccTools is PC support software for ccTools hand held programmer.

Numerous products are supported for coin or note specification programming :

1. SR3 and SR5 coin acceptors
2. SR5i coin acceptor
3. Lumina note acceptor
4. Condor Plus

SR5i and Lumina also have macro and firmware support.

The illustration below shows the different areas that are referred to in this document:



3.1 **Communication Status Indicators**



No communication ccTools is not connected or switched on



Communicating ccTools Support Software is transmitting or receiving data from ccTools hand held




Connected ccTools Support Software has detected ccTools hand held is connected to the computer and is ready to accept data.

4. Configuration

With ccTools hand held connected to a 12 volt power supply and a serial port on your computer, start ccTools Support Software.

If the 'No communication' icon is displayed, the serial port may need to be configured.

Click on the  icon in the status bar or the Setup menu item to open the Serial port configuration form.

Select the serial port that ccTools is connected to, the default power-on speed of ccTools hand held is 9600, and the cctalk address is 85. Click the 'OK' button to activate the settings.

After a couple of seconds the communication status icon should change to the 'Communicating' icon, and the ccTools hand held memory contents will be read in to ccTools Support Software.

The power to ccTools hand held may need to be cycled a couple of times if communication is not established within five seconds.

5. Initialisation – ERASE

The Initialisation screen allows access to the programming of ccTools personality, and the ability to clear the ccTools memory contents via the Erase button.

The erase function must be used after the personality of ccTools has been changed.

Since changing the personality of ccTools does not clear the memory, any data left in ccTools (such as coin specifications) will appear as corrupt data, and must therefore be erased from ccTools before any new data is programmed.

5.1 Personality Selection

If ccTools is powered up with the 'Dot' key held down, the personality module of ccTools can be changed by ccTools Support Software. This is indicated by the top row of ccTools display containing black squares, and ccTools Support Software 'Personality' buttons becoming available.

Available personalities :

Teacher	Coin and Note programming of acceptors
Flash Prog	Firmware upgrade of coin acceptors using Mitsubishi processors.
Euro Toolkit	Securely enables single coin Condor Plus.
Cdr+ Toolkit	Securely enables single coins, and combinations of coins having the same value in Condor Plus.

Click the button relating to the required personality, and a warning message is displayed. If you chose 'Yes' ccTools will be reprogrammed, otherwise no changes will occur and ccTools can be power cycled to return to normal operation.

After ccTools has had its personality changed, a message will be displayed to indicate programming has finished.

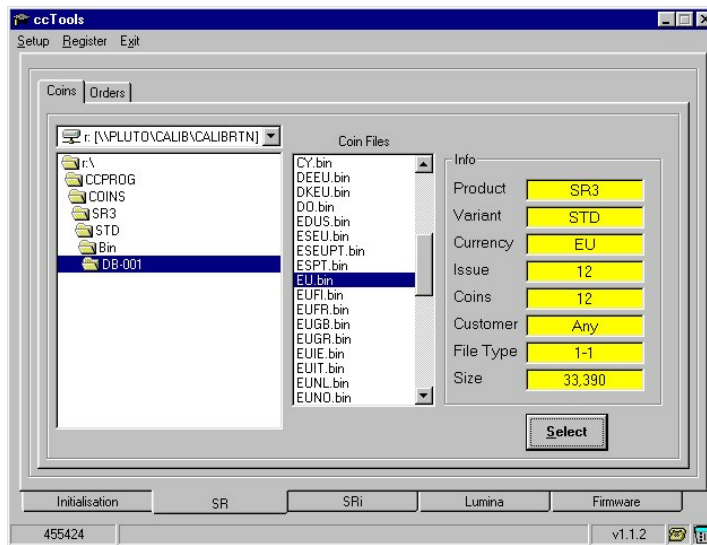
Turn ccTools off, and wait for the 'Communication Status' to change to 'No Communication'.

Switch ccTools back on, and if the 'Communication Status' does not change to 'Communicating' within five seconds, cycle the power again. This may take more than one attempt.

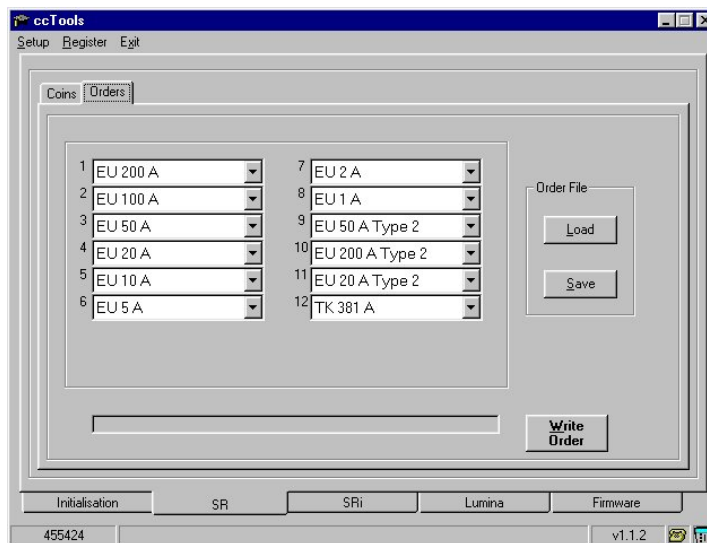
Once communications have been re-established, click the 'Erase' button to remove any corrupt data.

6. SR Product Support

Clicking on the 'SR' tab opens the SR coin file selection screen :



Select the drive and folder where your SR3 or SR5 coin files are stored. Chose one of the files from the 'Coin File' list, and click the 'Select' button. Details about the coin file are displayed in the 'Info' section.



When the required coin file has been selected, click on the 'Orders' tab at the top of the screen.

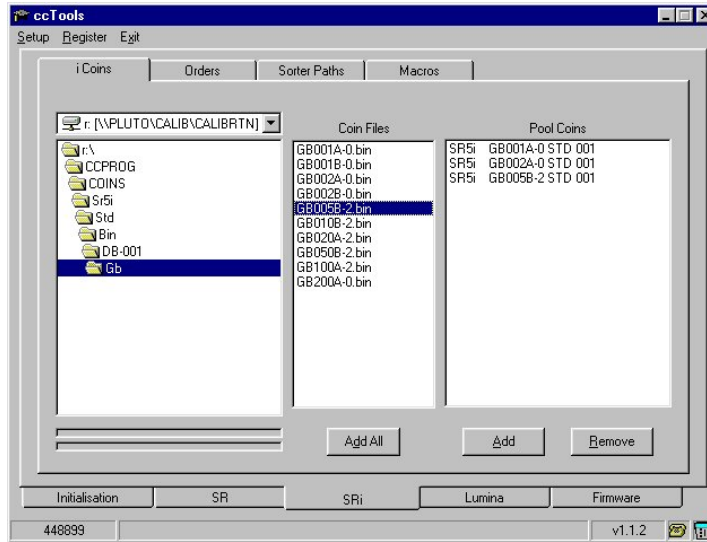
Any coin in the coin file can be placed in any channel in the coin acceptor. The 'Order' may be saved on the computer for use at a later date. Only one 'SR' coin specification may be stored in ccTools hand held, and it can only be removed by erasing everything in ccTools memory. See Initialisation-ERASE.

When the order has been configured to the required layout, click the 'Write Order' button to store in ccTools.

The blue progress bar indicates when the order has been written into ccTools.

7. SRi Support

Clicking on the 'SRi' tab opens the SRi coin file selection screen :



7.1 *Coin Selection*

Select the drive and folder where the coin files are stored. The available coin files are displayed in the 'Coin File' list.

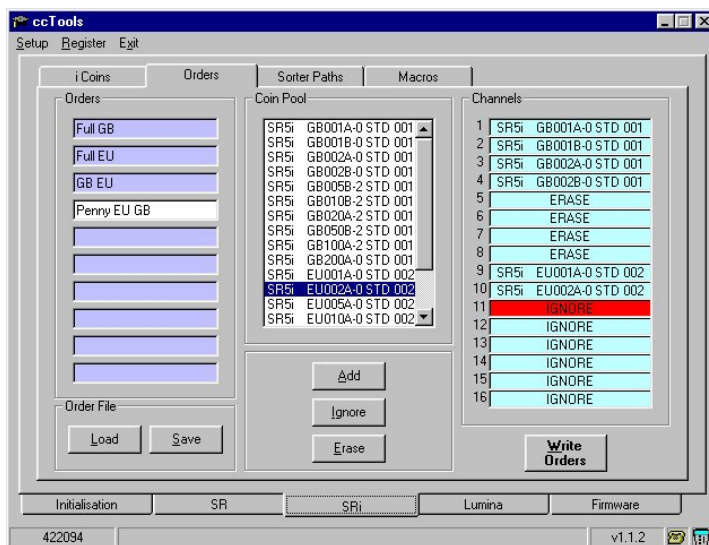
Select a coin file and either double click it in the coin file list or click the 'Add' button to add it to the 'Coin Pool'. All the coin files in a folder can be added to the 'Coin Pool' by clicking the 'Add All' button.

The 'Coin Pool' is a list of coin files that are both stored in ccTools, and selected from the local computers hard drive.

Once a coin has been programmed in to ccTools it can only be removed by erasing all specifications stored in ccTools. See Initialisation-ERASE.

7.2 *Order Configuration*

When all the required coins have been selected and entered in to the coin pool, click the 'Orders' tab at the top of the screen.



Up to ten orders can be stored in ccTools hand held.

Click on an 'Order' to enable it.

Enter a name (of up to sixteen characters) for the order, this will be a menu item on ccTools under 'Send SR-I Spec'

Click on a channel you want a coin to be placed in. The channel should turn red indicating it is active.

Either double click on a coin in the coin pool to copy it in to the selected channel or click on a coin in the coin pool once to select it and press the 'Add' button to copy it in to the selected channel.

If you wish for any currently programmed channels in the coin acceptor to be erased, click the channel you wish to erase to select it, and press the 'Erase' button. The channel should display 'ERASE' to indicate the coin in that channel will be erased from the coin acceptor.

If a coin currently programmed in the coin acceptor is not to be changed or erased, click the channel to select it and press the 'Ignore' button. The selected channel should then display 'IGNORE' indicating that whatever is currently programmed in to the coin acceptor in that channel will not be changed in any way.

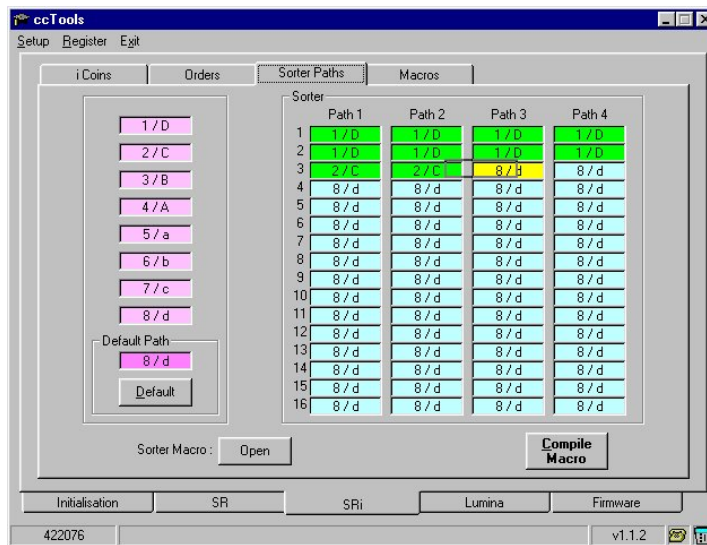
Once all the required orders are configured click the 'Write Order' button to program the coins and orders in to ccTools hand held.

Orders can be modified and saved at any time without erasing ccTools hand held.

7.3 Sorter Path Macros

Support for programming Sorter Paths in a SR5i is achieved with the use of Macros.

Clicking the 'Sorter Paths' tab at the top of the screen displays the Sorter Path configuration screen.



Drag and drop the required Sorter Path to the Channel Path or Default Path. The above example shows a Sorter Path being dragged to Channel 3, Path 3. As the Sorter Path is dragged over the Channel Paths, the Channel Paths turn yellow to indicate it is the current drop target. When a Sorter Path has been dropped on to a Channel Path, the Channel Path changes to green and displays the Sorter Path it will be programmed with.

Clicking the Default button changes all Channel Paths to the default path.

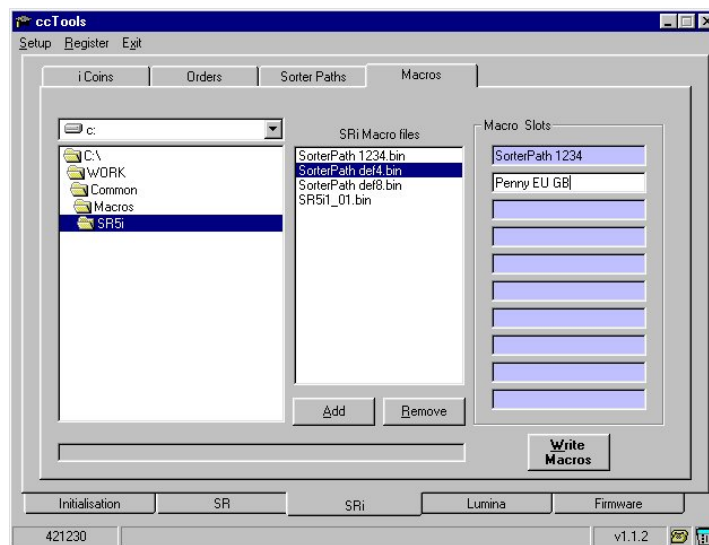
When all the Paths have been configured, click the 'Compile Macro' button to build and write the macro to the local computers hard drive. Once the macro has been saved it can be stored in ccTools hand held using the 'Macros' screen.

Previously created Sorter Path Macros can be opened from the computers hard drive, and viewed using the 'Open' button.

7.4 Macro Selection

Up to ten SRi macro files can be stored in ccTools hand held.

Clicking on the 'Macro' tab at the top of the SRi screen opens the macro screen used to store macros in ccTools hand held.



Select the drive and folder where the macro files are stored. The available macro files are displayed in the 'SRi Macro files' list.

Click on a 'Macro Slot' to select it.

Either double click on the macro in the 'SRi Macro Files' list, or select the macro in the 'SRi Macros File' list by clicking on it once and click the 'Add' button.

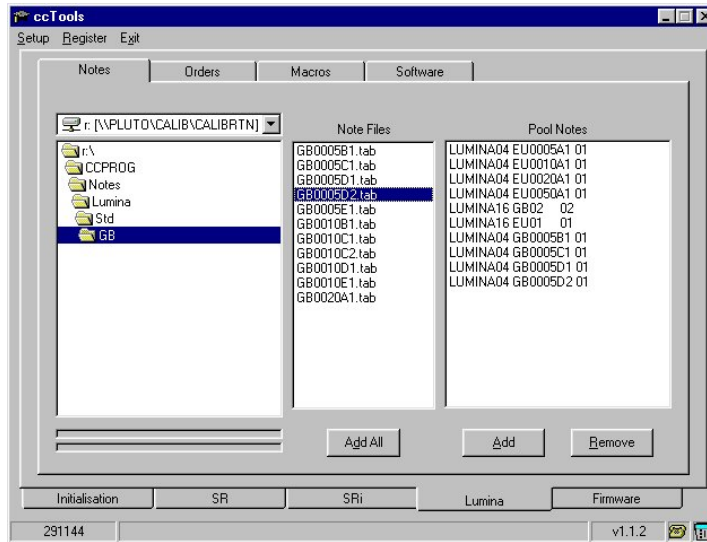
The file name of the macro is automatically entered in the 'Macro Slot' but this can be changed to any sixteen character label of your choice.

When all required macros have been entered into the 'Macro Slots', click the 'Write Macros' to store them in ccTools hand held.

The label used for the 'Macro Slot' description is displayed on the ccTools hand held menu under 'Exec SR_I Macro'.

8. Lumina Support

Clicking on the 'Lumina' tab opens the Lumina Note file selection screen :



8.1 Note Selection

Select the drive and folder where the note files are stored. The available note files are displayed in the 'Note Files' list.

Select a note file and either double click it in the note file list or click the 'Add' button to add it to the 'Pool Notes'. All the Note table files in a folder can be added to the 'Pool Notes' by clicking the 'Add All' button.

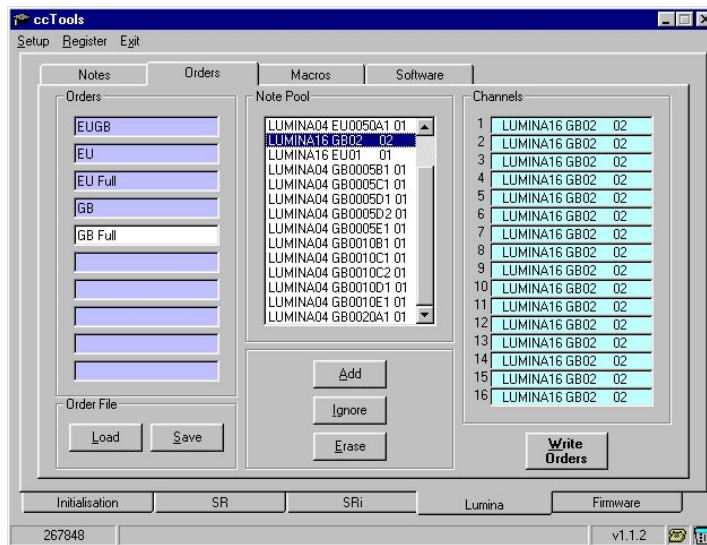
The 'Pool Notes' is a list of note files that are stored in the ccTools hand held and on the computers local hard drive.

Entire note tables are stored in ccTools 'Pool Notes' in the same way.

Once a note has been programmed in to ccTools it can only be removed by erasing all specifications stored in ccTools hand held. See Initialisation-ERASE.

8.2 Order Configuration

When all the required notes have been entered in to the note pool, click the 'Orders' tab at the top of the screen.



Up to ten orders can be stored in ccTools hand held.

Click on an order to enable it.

Enter a name (of up to sixteen characters) for the order, this will be a menu item on ccTools hand held under 'Send Note Spec'

Click on a channel you want a note to be placed in. The channel should turn red indicating it is active.

Either double click on a note in the note pool to copy it in to the selected channel or click on a note in the note pool once to select it and press the 'Add' button to copy it in to the selected channel.

If the selected note is an entire table, it must be put in channel 1, and it will be automatically copied in to the rest of the channels in that order. No channels may be changed if an entire table is loaded into an order.

If you wish for any currently programmed channels in the Lumina to be erased, click the channel you wish to erase to select it, and press the 'Erase' button. The channel should display 'ERASE' to indicate the note in that channel will be erased from the Lumina.

If a note currently programmed in the Lumina is not to be changed or erased, click the channel to select it and press the 'Ignore' button. The selected channel should then display 'IGNORE' indicating that whatever is currently programmed in the Lumina in that channel will not be changed in any way.

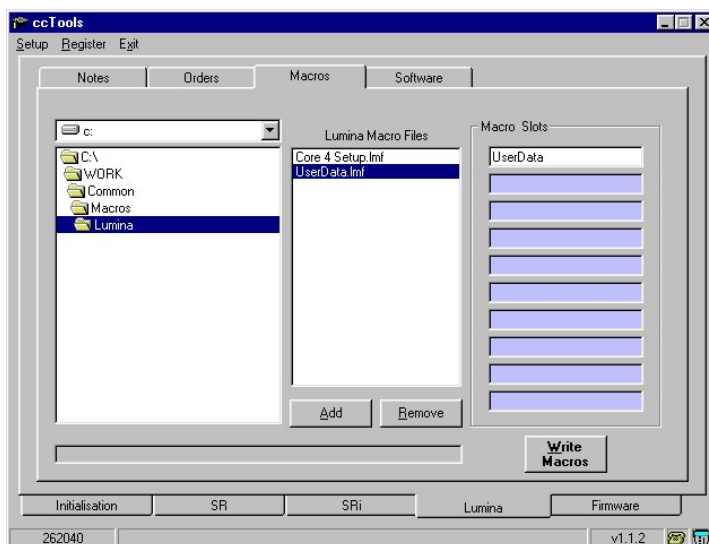
Once all the required orders are configured click the 'Write Order' button to program the note tab files and orders into ccTools hand held.

Orders can be modified and saved at any time without erasing ccTools hand held.

8.3 Macro Selection

Up to ten Lumina macro files can be stored in ccTools hand held.

Clicking on the 'Macro' tab at the top of the Lumina screen opens the macro screen used to store Lumina macros in ccTools hand held.



Select the drive and folder where the macro files are stored. The available macro files are displayed in the 'Lumina Macro files' list.

Click on a 'Macro Slot' to select it.

Either double click on the macro in the 'Lumina Macro Files' list, or select the macro in the 'Lumina Macros File' list by clicking on it once and click the 'Add' button.

The file name of the macro is automatically entered in the 'Macro Slot' but this can be changed to any sixteen character label of your choice.

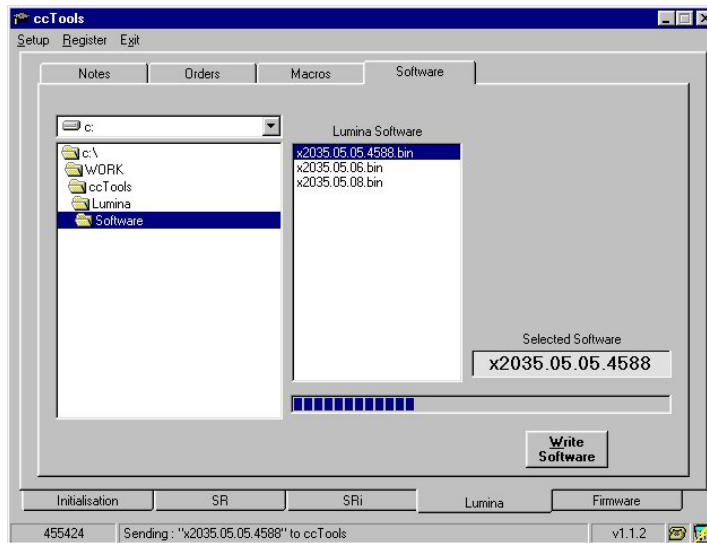
When all required macros have been entered into the 'Macro Slots', click the 'Write Macros' to store them in ccTools hand held.

The label used for the 'Macro Slot' description is displayed on the ccTools menu under 'Exec LuMacro'.

8.4 Lumina Software

One copy of Lumina software (firmware) may be stored in ccTools hand held.

Selecting the 'Software' tab at the top of the 'Lumina' screen opens the Lumina software screen.



Select the drive and folder where the Lumina software files are stored. The available Lumina software files are displayed in the 'Lumina Software' list.

Clicking on a Lumina software file in the 'Lumina Software' list selects the file for writing to ccTools hand held, indicated by the 'Selected Software' box.

Click the 'Write Software' button to store the Lumina software file in ccTools hand held. The blue progress bar indicates when the file has been written.

If there is a copy of Lumina software all ready stored in ccTools hand held, the software name is displayed in the selected software box and the 'Write Software' button is not available as ccTools hand held can only store one copy of Lumina software.

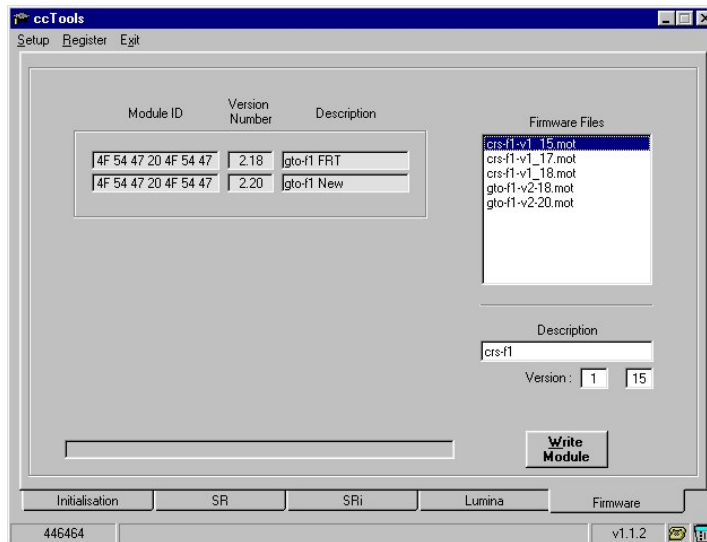
To remove a Lumina Software file from ccTools hand held, use the 'Erase' button on the 'Initialisation' screen. This will erase all coin, note, macro and order specifications from ccTools hand held.

9. Firmware

ccTools hand held is capable of upgrading the flash memory of any coin acceptor with a Mitsubishi processor.

After changing ccTools hand held personality to 'Flash Prog' (see Initialisation-ERASE), firmware files can be stored in ccTools hand held.

Select the 'Firmware' tab to open the firmware selection screen.



A list of available firmware files is shown in the 'Firmware Files' list.

Click on a file in the 'Firmware Files' list to select it.

The 'Description' can be changed to any sixteen character name, which is displayed on ccTools under 'Select Firmware' menu.

The version number can be modified to any value between zero and 255.

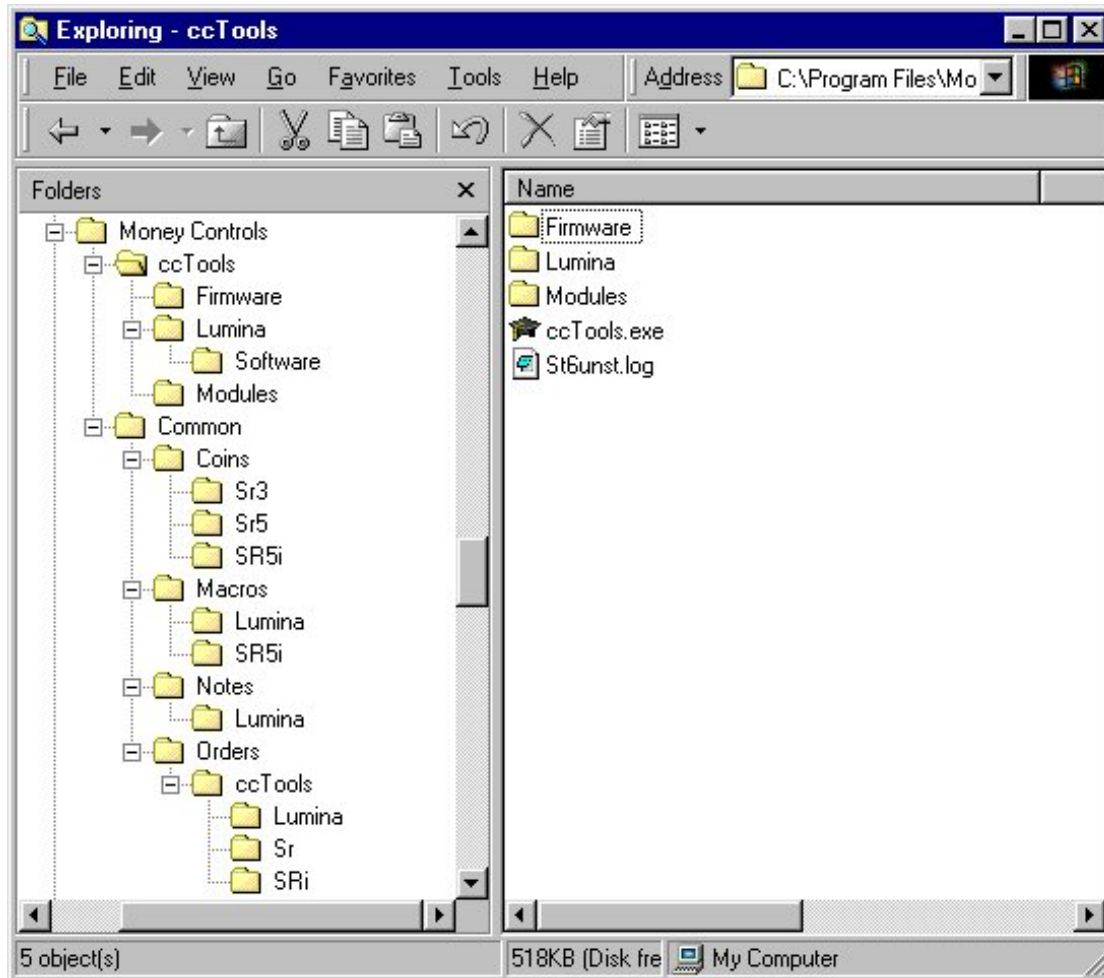
When the required description and version number has been entered, the firmware file is stored in ccTools when the 'Write Module' button is clicked.

Any firmware files currently stored in ccTools hand held are shown with their 'Module ID', 'Version Number' and 'Description'.

Firmware files can only be removed from ccTools hand held by erasing everything stored in ccTools hand held, see Initialisation-ERASE.

10. File Structure

Although ccTools Support Software can load and save most of the data files from anywhere on your computer, the first time ccTools Support Software is run it creates its own directory structure for the default storage areas of coin files etc.



ccTools MOT files, for the different personalities of ccTools hand held, must be stored in ..\ccTools\Modules

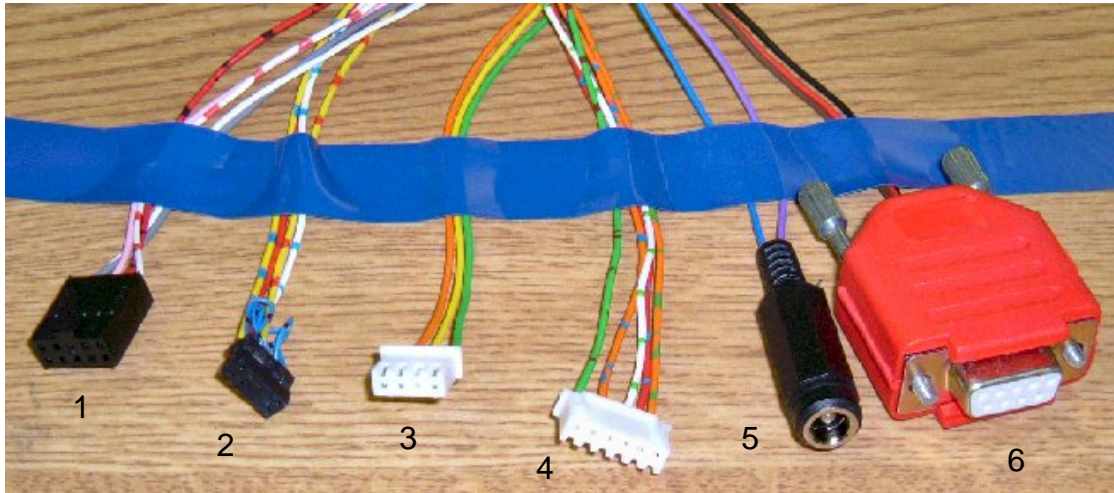
Firmware upgrade MOT files must be stored in ..\ccTools\Firmware

11. ccTools Kit List

5. Carry Bag
6. ccTools Terminal
7. Universal Interface Cable







12. ccTools Cable Description



1. ccTalk 10-way Connector (for 5inch coin acceptors and Lumina)
2. Coin Acceptor Flash Programming Connector
3. ccTalk 4-way Connector (for 3.5inch coin acceptors)
4. Hopper Flash Programming Connector
5. External DC Power Connector (+12V to +24V)
6. PC RS232 9-way D-type Connector

13. Key Description

Key	Name	Function
	Up	Menu select up
	Down	Menu select down
	Enter	Selection OK
	Dot	Special operations

14. iTeach Operating Instructions

14.1 Starting Up

ccTools does not have a battery so it requires an external power supply to function. The supply can be connected through the DC power connector from a regulated source (not included in the kit) or through the product to which it is attached if it already has power on. This is likely to be the case for parallel interface products which have a separate, unused serial connector. For serial interface products, a bypass cable may be needed (contact Money Controls for details).

If connecting to a Lumina bill validator which uses encrypted serial communication then refer to the section on Lumina encryption.

14.2 Programming An Order

An order is a collection of coin or bill files in a set sequence, previously configured on iTeacher, the PC companion program to ccTools. Unused coin or bill positions can be ignored or erased.

Select the <Send Spec> option appropriate to the attached product from the main menu. Using the 'up' and 'down' keys select the desired order, and press the 'enter' key. The lower line of the display will show the message <Sending Data> while the selected order is being programmed. If programming is successful the handheld will beep once while showing <Success> on the display. If the programming action is not successful the unit will beep three times while showing a message and an error code on the bottom half of the display.

14.3 Programming A Macro

A macro is a special programming operation on a coin acceptor or bill validator which can be used to change EEPROM configuration data such as credit pulse widths or alarm modes.

Select the <Exec Macro> option appropriate to the attached product from the main menu. Using the 'up' and 'down' keys select the desired macro, and press the 'enter' key. The lower line of the display will show the message <Sending Data> while the selected macro is being programmed. If programming is successful the handheld will beep once while showing the comment <Success> on the display. If the programming action is not successful the unit will beep three times while showing a message and an error code on the bottom half of the display.

14.4 Using Lumina Encryption

Encryption is a method of scrambling the cctalk message packets to make the product more secure and less prone to eavesdropping. On Lumina, encryption is always enabled. Communication is only possible once a six digit security code is known.

To enter a security code you must select <Set Secure Code> from the main menu. A series of six digits will now be displayed on the lower line of the display. The 'up'

key increases a digit's value and the 'down' key decreases a digit's value. Pressing 'enter' will move the cursor right onto the next digit. Pressing 'dot' will move the cursor left onto the previous digit. When the 'enter' key is pressed with the cursor on the right-most digit the code will be accepted and the handheld will use encrypted communications from this point onwards. Normal mode of communications (un-encrypted) will not be restored until power is removed from the handheld unit.

The 6 digit code security code can usually be found on a small white label attached to the product. Each product has a random code assigned.

Menu Structure

Main Menu :- Top level menu.

Notes

- Lumina Software** :- Update the firmware in a Lumina.
- Send Note Spec** :- Send an order to a Lumina bill validator.
- Exec LuMacro** :- Execute a macro on Lumina.
- Set Secure Code** :- Set security code prior to encrypted comms (Lumina).
- Mech Address** :- Choose a non-standard product address.

Coins

SR

- Send SR Spec** :- Send an order to a SR3 or SR5 coin acceptor (Note α).
- Update SR Spec** :- Update an order on a SR3 or SR5 coin acceptor (Note β).
- Mech Address** :- Choose a non-standard product address.

SRi

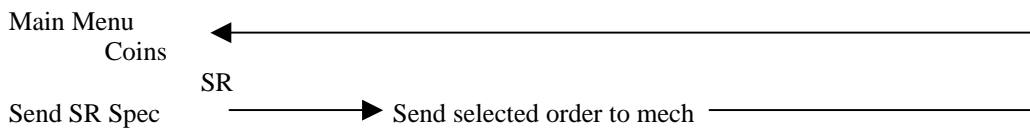
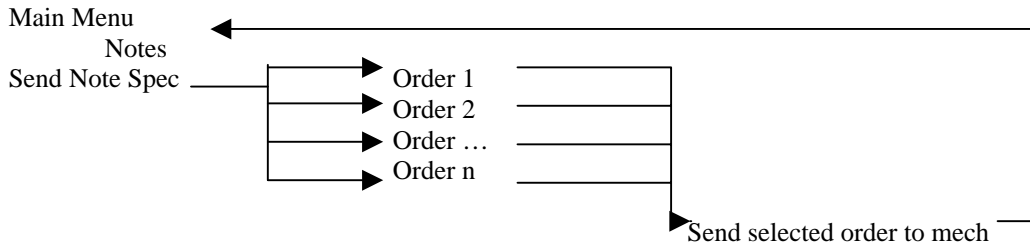
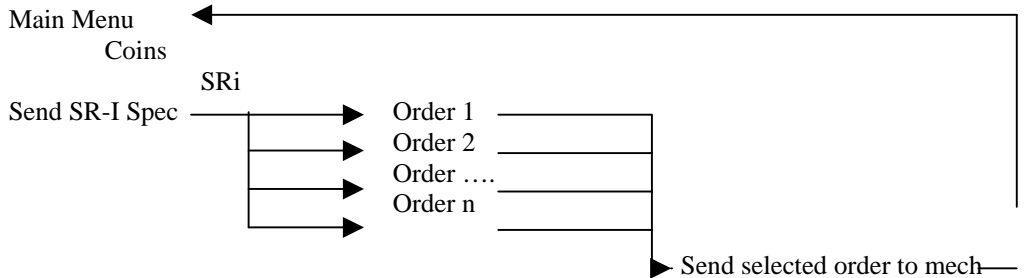
- Send SR-I Spec** :- Send an order to a SR3i or SR5i coin acceptor.
- Set Secure Code** :- Set security code prior to encrypted comms (Lumina).
- Mech Address** :- Choose a non-standard product address.
- Exec SR_I Macro** :- Execute a macro on SR3i or SR5i.
- Mech Address** :- Choose a non-standard product address.

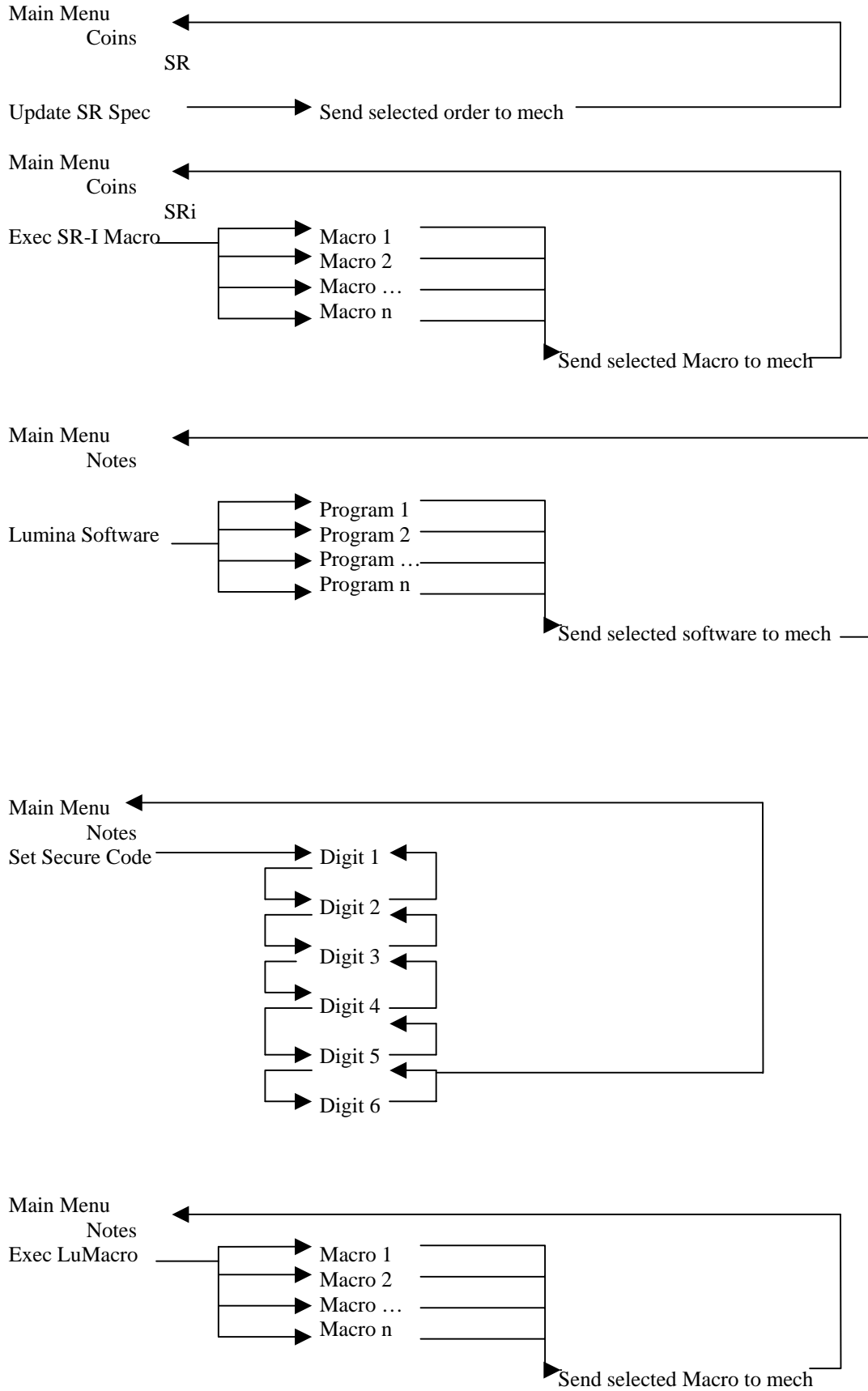
Information :- Display ccTools internal information.

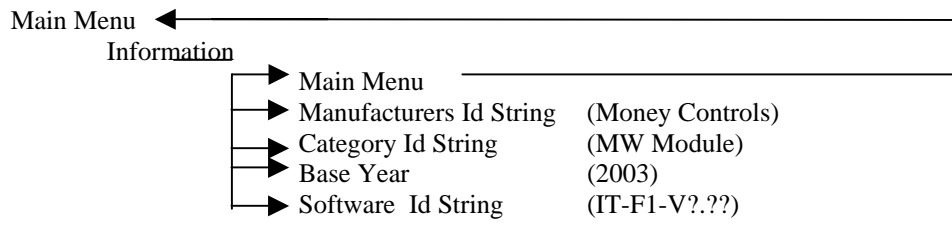
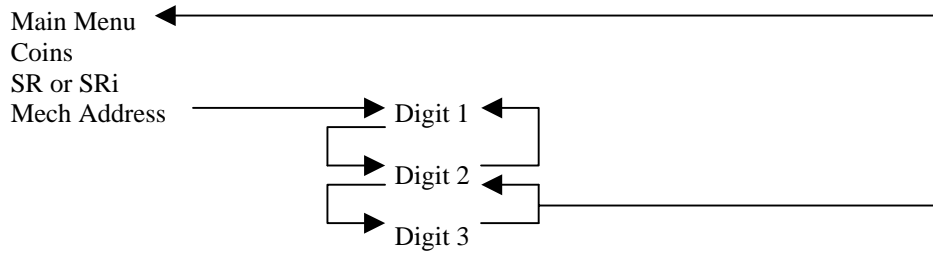
Notes

α Previously done by ccTeach

β Previously done by ccEuroTeach (Euro specifications only)







ccTools Error Codes

Comms Error Codes

- 01** - No answer
- 64** - Illegal coin position (coin position must be 1 to 16 on SR5i)
- EF** - Unsupported file format
- F0** - Unsupported packet header
- F9** - File verification error type 4 (unknown macro command header)
- FA** - File verification error type 3 (serial number mis-match)
- FB** - File verification error type 2 (failed checksum type 2)
- FC** - File verification error type 1 (failed checksum type 1)
- FD** - Too much data (packet too large for memory)
- FE** - Packet too long (sent data > packet length field)
- FF** - Packet too short (sent data < packet length field)

Most of these codes indicate either an error with the communication link (such as a faulty lead) or a corrupted data file.

Product Error Codes

- 65** - Failed coin signature verification
- C8** - Internal neural network error
- E7** - Sensor mis-match
- E8** - Key mis-match
- E9** - Not supported by this software revision (ROM id)
- EA** - Mech does not allow calibration (internal flag setting)
- EB** - Mech does not support calibration (database version = zero)
- EC** - Non-matching database version
- ED** - Non-matching variant name
- EE** - Non-matching product name

Most of these codes indicate either the product does not support download of data files or that the wrong type of data file is being used. Coin specification files for instance must have a matching product and variant name such as SR5i STD or SR5i FRT.

15. Condor+ Toolkit Operating Instructions

15.1 Introduction

This module provides a secure method of enabling coins in single coin Condor Plus. The module supports enabling of single coins, and combinations of coins having the same value.

15.2 Starting Up

Insert connector 3 into condor plus coin acceptor serial socket. For serial interface products, a bypass cable may be needed (contact Money Controls for details).

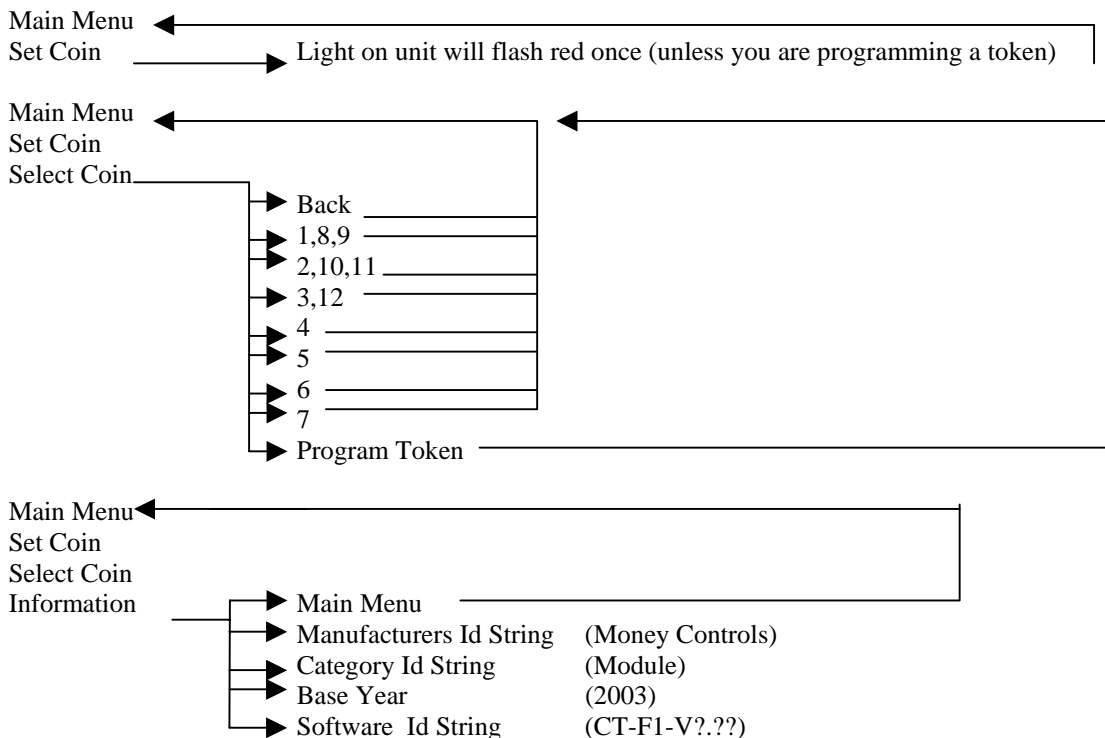
15.3 Enabling A Coin

Coins can be enabled by first choosing a coin from the “Select Coin” menu. Then chosen coin can the be enabled in the unit by selecting the “Set Coin” menu option. When this option is selected the green indicator light on the unit will flash red once if the operation has been successful.

15.4 Programming a token

Tokens can be programmed into a unit by first selecting the “Program Token” option on the “Select Coin” menu. The user must then select the “Set Coin” menu option. The green indicator on the unit will then turn red. The user must then insert approximately 8 identical tokens into the unit, when enough tokens have been inserted the indicator will flash green/red once and return to green. This indicates the operation has been successful.

15.5 Menu Structure



16. Euro Toolkit Operating Instructions

16.1 Introduction

This module provides a secure method of enabling coins in single coin Condor Plus. The module supports enabling of single coins only.

16.2 Starting Up

Insert connector 3 into condor plus coin acceptor serial socket. For serial interface products, a bypass cable may be needed (contact Money Controls for details).

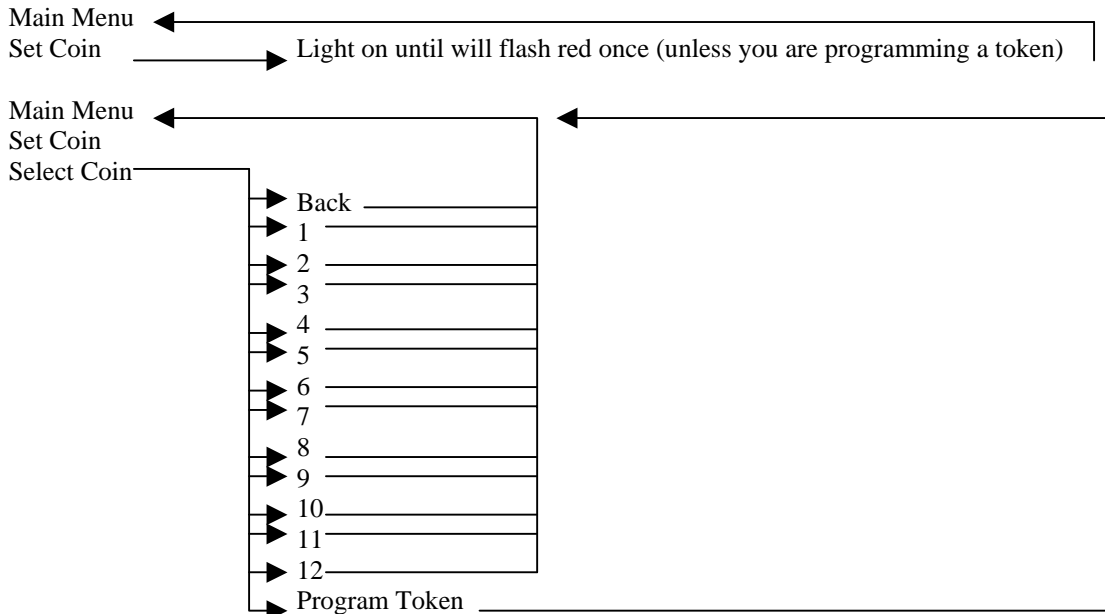
16.3 Enabling A Coin

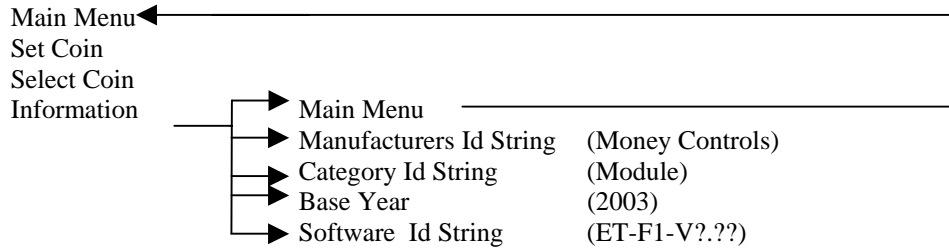
Coins can be enabled by first choosing a coin from the “Select Coin” menu. Then chosen coin can be enabled in the product by selecting the “Set Coin” menu option. When this option is selected the green indicator light on the unit will flash red once if the operation has been successful.

16.4 Programming a token

Tokens can be programmed into a unit by first selecting the “Program Token” option on the “Select Coin” menu. The user must then select the “Set Coin” menu option. The green indicator on the unit will then turn red. The user must then insert approximately 8 identical tokens into the unit, when enough tokens have been inserted the indicator will flash green/red once and return to green. This indicates the operation has been successful.

16.5 Menu Structure





17. Mitz Flasher Operating Instructions

17.1 Introduction

The Mitz Flasher module provides the facility to upgrade Mitsubishi processor based products in the field.

17.2 Starting Up

Remove power from product. Insert connector 2 and the ccTalk connector into the product. Power is to be supplied to the ccTools via connector 5.

17.3 Downloading Firmware

New firmware versions can be downloaded by first selecting the “Select Firmware” option from the main menu. Select the desired version of firmware by scrolling through the menu then pressing [Enter]. Select the “Upgrade Device” option from the main menu, the ccTools will then attempt to download a new version of the firmware to the connected product.

The ccTools will give the following sequence of visual indicators, as to the progress of the current operation.

“Connecting”;
 “Connected”;
 “Id Code”;
 “Erased”;
 “Downloading”;
 “Verify”;
 “Verified”;

If the operation is aborted due to a problem with upgrade one of the following errors will be displayed.

"No Response" : Indicates that the unit cannot establish communications.

"Id Not Found": Indicates that you are attempting to download an incompatible version of firmware.

"Not Verified": Indicates that the upgrade has been unsuccessful and the firmware in the product is now corrupted.

17.4 Menu Structure

