Radiance User Manual



This document is the copyright of Money Controls Ltd and may not be reproduced in part or in total by any means, electronic or otherwise, without the written permission of Money Controls Ltd. Money Controls Ltd does not accept liability for any errors or omissions contained within this document. Money Controls Ltd shall not incur any penalties arising out of the adherence to, interpretation of, or reliance on, this standard. Money Controls Ltd will provide full support for this product when used as described within this document. Use in applications not covered or outside the scope of this document may not be supported. Money Controls Ltd. reserves the right to amend, improve or change the product referred to within this document or the document itself at any time.

©Money Controls 2005. All rights reserved.

Contents

1.	Diar	y of Changes	. 3
2.	Intro	oduction	. 4
3.	Con	tents	. 5
4.	Insta	allation	. 6
4	1	Hardware installations	. 6
4	2	Software installation	. 7
4	3	Registering Radiance	. 8
4	4	Run levels	10
5.	Usir	ng the software	11
5	1	General Features (all run levels)	11
	5.11	History	11
	5.12	Setup	12
	5.13	About	12
	5.14	Information	12
	5.15	Read note Id's	13
	5.16	Diagnostics	13
	5.17	Diagnostics report	14
	5.18	Note handle	14
5	2	Features (run level 2 and above)	15
	5.21	Config I/O	15
	5.22	User data	17
	5.23	Fix checksum	18
	5.24	Change cctalk address	18
	5.25	Change security code	18
	5.26	Store security code	18
5	3	Features (run level 3 and above)	18
	5.31	Run macro	18
	5.32	Note program	19
5	4	Features (run level 4 and above)	21
	5.41	Datagrab	21
5	5	Features (run level 5 and above)	23
	5.51	Write firmware	23
6.	Troι	ubleshooting and support	24
6	1	Troubleshooting guide	24
6	2	USB-RS232 converters	25
6	3	Support	25
7.	Spa	res	26

Figures

Figure 1: POD reference	5
Figure 2: Lumina cable reference	5
Foure 3: PC Comms cable reference	5
Figure 4: Hardware connections	6
Foure 5: Radiance Run Levels	. 10
Figure 6: Radiance spares list	. 26

1. Diary of Changes

Issue 1.0	June 2005
1 st Issue for Radiance version 1.02	
Issue 1.1	July 2005

> Change to cross reference hyperlinks + change to text colour

2. Introduction

Radiance is a software package to support Money Controls cctalk note acceptors (also called BNV's). At the time of writing, cctalk note acceptors are:

> Lumina



MC7200 (still under development).



All aspects of the cctalk BNV's can be programmed, credit codes, timers, note tables, firmware. In addition, full diagnostics features can be performed.

3. Contents

The Radiance kit consists of the following items: -

x Carry case.
 x Software installation CD.
 x cctalk serial interface pod – abbreviated to 'POD'. (Figure 1)
 x Lumina/SR5 cable. (Figure 2)
 x SR3/Condor Plus cable.
 x PC Comms cable. (Figure 3)
 x Power cable.

Note – The Radiance and ccProgrammer kits are the same apart from the software CD.



Figure 2: Lumina cable reference



Figure 3: PC Comms cable reference



4. Installation

4.1 Hardware installations

Refer to Figure 4

- 1. Connect one end of the PC Comms cable to a free comm port on the PC, and the other end to the POD.
- 2. Connect the red and black power cables to the power supply, and the other end to the POD.
- 3. Connect the Lumina cable, from the POD to the Lumina.
- 4. Switch on the power supply and ensure the **GREEN** LED, on the POD is ON and the **RED** LED on the BNV is also on.

Figure 4: Hardware connections



4.2 Software installation

Place the Radiance installation CD into your CD ROM drive. Open the CD directory and choose 'setup.exe'

The following on-screen instructions will be displayed.

🔀 Radiance for Lumina Setup	
Welcome to the Radiance for Lumina installation program. Setup cannot install system files or update shared files if they are in use. Before proceeding, we recommend that you close any applications you may be running.	Choose OK
OK Exit Setup	
🖞 Radiance for Lumina Setup	X
Begin the installation by clicking the button below.	to keep the default directory
Click-this button to install Radiance for Lumina software to the specified destination directory.	
Directory: C:\Program Files\Money Controls\Radiance\	
E <u>x</u> it Setup	
Radiance for Lumina - Choose Program Group Setup will add items to the group shown in the Program Group box. You can enter a new group name or select one from the Existing Groups list. Program Group: Money Controls Existing Groups: Accessories Microsoft Web Publishing Money Controls Startup Continue Cancel	oose Money Controls the default program up by clicking ntinue

©Money Controls 2005. All rights reserved. Page 7 of 27



4.3 Registering Radiance

Start Radiance by selecting it from the programs menu (Start\Programs\Money Controls\Radiance). The following screen will be displayed.

When you see this screen. Call Money Controls Technical Services on the number shown, or on technical.uk@moneycontrols.com.

If there is a problem, one of the 2 below screens may be displayed.



Once the issues are resolved, and the registration is complete, the following screen will be displayed.

👼 Rad	liance					
Power	History	Tools	Setup	About		
				Lun	nina	
					1	
<u>N</u> ot	e Handle		N <u>e</u> w Bl	٧V	<u>D</u> iagnostics	Information
<u>C</u> oni	figure I/O		Note <u>P</u> roj	gram	Read NotelD's	E <u>x</u> it

Radiance is now installed and ready to use.

4.4 Run levels

Radiance has 5 different run levels, which allow the various features to be used. Below is a spreadsheet which shows which features the run levels allow. The run level is decided when the product is registered.

Figure 5: Radiance Run Levels

Radiance Run Levels

								-	Tools											Ma Me	in			
	Registration	Power	History Show + Hide	Reset	Run Macro	Write Firmware	User Data	Diagnostic Report	Change cctalk address	Change security code	Store security code	Fix checksum	Data grab (encrypted files)*	Register	Setup	About	Note handle	New BNV	Diagnostics	Information	Configure I/O	Note Program	Read Note ID's	Exit
(Note handle)	1	Х	Х	Х				Х						Х	Х	Х	Х	Х	Х	Х			Х	Х
(Configure)	2	Х	Х	Х			Х	Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	Х	Х	Х		Х	Х
(Note program)	3	Х	Х	Х	Х		Х	Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
(Data grab)	4	Х	Х	Х	Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
(Firmware)	5	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х

5. Using the software

This manual will show each feature step by step, starting with the general features which do not depend on the access level, then showing the features which run level 1, 2, 3, 4 and 5 give. To skip directly to the desired feature/run level, use the links on the contents page.

5.1 General Features (all run levels)

Some of the more obvious features do not require screenshots.

Power/Exit – This shows a drop down menu, which gives you the option to exit.
Exit – This exits the program.
New BNV – If a new BNV is being connected or if Comms is lost to the BNV, click this button to start the process again.

Tools/reset – this resets the BNV.

Register – This returns to the registration screen.

5.11 HISTORY

This shows a log of events with times.



5.12 SETUP



5.13 ABOUT

The about screen shows the version number of Radiance, along with the time and date of creation. To access this screen, choose **About** menu from the main screen.

-	About R	adiance	×
	Web	Support for Lumina and MC7200 Written by P Kaye in Visual Basic 6	
		Version 1.02 Revision 6 17/12/2004 15:09:26	

5.14 INFORMATION

This shows various information about the BNV.



5.15 READ NOTE ID'S

This shows the notes currently programmed into the BNV.

8	Note ID's				1	
	Channel 1 Channel 2 Channel 3 Channel 4 Channel 5 Channel 6 Channel 7 Channel 8	EU0005A EU0010A EU0020A EU0050A		Channel 9 Channel 10 Channel 11 Channel 12 Channel 13 Channel 14 Channel 15 Channel 16		This example shows a Lumina which has 16 'note slots' available to program.
			ose			

5.16 DIAGNOSTICS

This feature allows diagnostics of the BNV, the below screenshot is the diagnostics feature when used on Lumina.

Simple poll is used to check that the Lumina is talking correctly in software.

Self test is used to check that the eeprom (sometimes called E2 or e-squared) is not corrupted. A problem with the eeprom would be indicated here.



5.17 DIAGNOSTICS REPORT

This is the same as the above report. This can be found under the tools menu.

5.18 NOTE HANDLE

This is basically the test feature, which tests the acceptance of the BNV.

🕷 Ra	diance					
Power	History	Tools	Setup 4	About		
				Lun	nina	
		_				
<u>N</u> ot	e Handle		N <u>e</u> w BN	V	<u>D</u> iagnostics	Information
<u>C</u> on	figure I/O		Note Prog	ram	Read NotelD's	E <u>x</u> it

Click on the Note Handle button, the below screen will appear.

Radiance	×
Do you want to	set the inhibits ?
Yes	No

Click **Yes** to see the 'Set inhibits' screen.

Choose **No** to enable all programmed notes.

If Yes is clicked, the below screen will appear.

👼 Set Inhibits	5		X		
Inhibits					
Channel 1	EU0005A	Г г	Channel 9		
Channel 2	EU0010A	Г Г	Channel 10		
Channel 3	EU0020A	「 「	Channel 11		A checked box indicates that the note i
Channel 4	EU0050A	- T	Channel 12		enabled; an unchecked box indicates that
Channel 5	GB0020D	Г Г	Channel 13	L I '	a note is disabled. Once all the inhibit
Channel 6	— — 	「「	Channel 14		have been set, click OR to proceed.
Channel 7	□ □	· · · · · · · · · · · · · · · · · · ·	Channel 15	T L	
Channel 8	□ □	· · · · · · · · · · · · · · · · · · ·	Chapmel 16		Enable All = Enables all the notes.
		·/			Inhibit All = Inhibits all the notes.
E.	nable All F	lip Inhibi	it All		Flip This inverses the surrout colection
					Fip = This inverses the current selection.
					Flip = This inverses the current selection.
		Close			Fip = This inverses the current selection.
E Radiance		<u>C</u> lose		L 	Once the note is inserted, the Lumin
E Radiance Power History 1 Accented 10001	Tools Setup About	Close	Bejected : 0100] ∟]	Once the note is inserted, the Lumin will accept or reject the note. This is a
Radiance Power History 1 Accepted: 0001	Tools Setup About		Rejected : 0000		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note
Radiance Power History 1 Accepted : 0001	Tools Setup About		Rejected : 0000		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note
Radiance Power History Accepted: ()() () Abort	Tools Setup About EU0005A New BNV	<u>Close</u> credited	Rejected : 0000		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note
Radiance Power History Accepted: () () () Abort Configure I/0	Tools Setup About EU00054 New BNV Note Program	Close Credited Diagnostics Read NoteID's	Rejected : 0000 Information		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note
Radiance Power History Accepted: 0001 Accepted: 0001 Accepted: 0001 Configure I/D	Tools Setup About EU0005A Ngw BNV Note Program	Close Credited Diagnostics Read NotelD's	Rejected : 0000		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note
Radiance Power History Accepted: ()()() Abort Configure 1/0 Radiance	Tools Setup About Fools Setup About EU00054 New BNV Note Program	Close Credited Diagnostics Read NoteID's	Rejected : 0000		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note This is an example message for
	OK Cools Setup About EU00054 New BNV Note Program Cools Setup About	Close Credited Diagnostics Read NoteID's	Rejected : 0000 Information Exit		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note This is an example message for rejected note.
	Tools Setup About	Close Credited Diagnostics Read NotelD's	Rejected : 0000 Exit		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note This is an example message for rejected note.
	Tools Setup About Cools Setup About New BNV Note Program Cools Setup About III returned III	Close Credited Diagnostics Read NoteID's	Rejected : 0000 Exit		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note This is an example message for rejected note. Click Abort to return to the main screen.
	Image: Cools Setup About Image: Cools Setup About	Close	Rejected : 0000 Information Exit		Once the note is inserted, the Lumin will accept or reject the note. This is a example message for an accepted note This is an example message for rejected note. Click Abort to return to the main screen

5.2 Features (run level 2 and above)

5.21 CONFIG I/O

This refers to all the settings stored in eeprom – Binary codes, pulse lengths, inhibit settings etc.

Reading Entire Currency	Table	
	Ø	
Reading E	Entire Currend	cy Table

Radiance reads all the notes programmed and the current configuration of the connected BNV.



Once the desired changes have been made, save this configuration by clicking the **Save** button. The following screen will then appear.



Saved I/O files can be loaded using the Load button. The following screen will appear.



Once the settings are ready to be programmed. Click the **Program** button, after a short time, a 'Write successful' message will be shown.

🍣 Configure Input / Output		
Binary Dip Switches (A1 - A4) Pulses Inhibits (s1 - s5)		
EU0005A 1000 4 1 1 10010 V	Pulse 7mer Pulse On (ms) Pulse Off (ms)	
EU0010A 1000 • 10 2 • 11000 • EU0020A 0100 • 20 3 • 00100 •	50 50 C	
EU0050A 1100 50 . 4 . 01100	200 250 •	
	Binary Pulse (ms) : 100	Click Close to return to the
	Rotor OFF C DIP Switch 5 C	main screen.
	Rotor ON C	/
	Save Load Program Close	
Write successful		

5.22 USER DATA

There is a block of data, which is available for a customer to write their own data (serial numbers etc). Various information types (decimal, ASCII, hex) can be used. The below screen will be seen. This can be found under the tools menu.

💐 User Data Area 🛛 🗙	
Information Number Base Memory Type : Permanent Read blocks : 2 Write blocks : 2 Write block size : 8 Block Editor Data Block Editing Block [1] Block 1 Bytes Used : 4 Write Close	Type the information in the 2 'blocks'. Once complete, click the Write button to write the data.

©Money Controls 2005. All rights reserved. Page 17 of 27

5.23 FIX CHECKSUM

If the eeprom of the Lumina becomes corrupted (possibly because of a power fail during programming or Comms) you will get an error message in the main screen. Click the **Fix checksum** button and the Lumina should return to normal.

5.24 CHANGE CCTALK ADDRESS

This is used to change the cctalk address of the BNV. The STD address for cctalk BNV's is 40. The following screen will be shown.



5.25 CHANGE SECURITY CODE

This allows the user to change the 6-digit security code of the BNV.



5.26 STORE SECURITY CODE

Once the number has been changed, it needs to be stored. This extra step has been included so the number isn't changed by mistake. If the security code has been changed, but not stored – it will be lost when Radiance is closed.

When the **Store security code** button is clicked, there is no indication on the screen.

5.3 Features (run level 3 and above)

5.31 RUN MACRO

Macros are used to change values in eeprom. Typically they are not needed, but from time to time Money Controls may release a macro to correct an issue. The macros are stored in the following directory.

C:\Program Files\Money Controls\Common\Macros\



After a short time, the macro should be written successfully, as shown below.

💐 Ra	liance				
Power	History 1	ools Setup	About		
	Ma	icro su	ces	s <mark>fully exe</mark> cu	ited
<u>N</u> ot	e Handle	N <u>e</u> w B	NV	<u>D</u> iagnostics	Information
<u>C</u> on	figure I/O	Note <u>P</u> ro	ogram	Read NoteID's	E <u>x</u> it

5.32 NOTE PROGRAM

This is used to program notes into the BNV. This feature is restricted to run levels 3 and above. The note tables can be obtained via the Spectacle software from the Money Controls website (see TSP128 Spectacle User Manual for details).

Click the Note Program button and you will see the below screen.

🗟 Note File Dath	
Select Drive and Folder containing Note Files	Choose the correct product and note table you wish to use.
Drive : C: Program Files Money Controls Common Notes Lumina Std Type of Data Entire Currency C Individual Notes	The default path for installed note tables is C:\Program Files\ Money Controls\Common\Notes Choose 'individual notes' or 'entire currency' (the default is 'individual notes). Then click OK .
OK <u>C</u> ancel	

If programming Individual notes, the following screen will be displayed.

	SProgram Note Slot	X
Each programmed note is shown in 16 'note slots'.	Note Selection EU0005A Ignore Eu0010A Ignore Erase EU0020A EU0020A	Choose the note to be programmed for each note slot.
	EU0010A1 Ignore Ignore Ignore Ignore Ignore	

Ignore – This keeps the current note programmed in the note slot.

Erase – This erases the current note programmed in the note slot.

Erase all – This is quick way of choosing **Erase** in all 16 note slots, it is still necessary to click the **Program** button.

Once all 16-note slots are set as desired, click the **Program** button. The following screen will be displayed to show the progress.

Programming Note in Slo	t 1	
	5	<u></u>
Writing EU	0005A1 to C	hannel 1

Once completed, the note programming screen will be displayed again but with the new notes programmed in the note slots. A green check mark indicates the note has been programmed successfully.

-	Program Not	e Slot					X			
Γ	Note Selection —									
	EU0005A	Ignore	💽 🔽	\[\[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\] \[\[\] \[\[\] \[Ignore	–				
	EU0010A	Ignore	- 🗸		Ignore	-				
	EU0020A	Ignore	- 🗸	· · · · · · · · · · · · · · · · · · ·	Ignore	-				
	EU0050A	Ignore	- /		Ignore	-				
		Ignore	-		Ignore	-		Г	Chasse Class to return to	
		Ignore	-		Ignore	-			choose close to return to	
	·····	Ignore	-		Ignore	-			the main screen.	
		Ignore	-		Ignore	•		- L		_
	E	rase All	Pr	ogram	<u>C</u> lose					

If programming Entire currency, then an alternative screen will be displayed.

🕏 Select Entire Currency 🛛 🔀						
Select Entire Currency file :						
CY01.tab CZ01.tab CZ05.tab DK01.tab EU01.tab EU02.tab EU02.tab EU05.tab EU05.tab						
Program Cancel						

Choose the desired entire currency file (.tab) and click the **Program** button.

During programming, the following screen will be shown.

Programming Entire Currency				
😑 🎽 🧰				
Writing Entire Currency : EU05.tab				

The status bar shows the progress. Once the bar is full, the programming is almost complete.

When the programming is complete, Radiance will return back to the main screen.

5.4 Features (run level 4 and above)

5.41 DATAGRAB

This is a method of collecting data from the notes. This information can then be sent to Money Controls for creation/modification of note tables.

🦉 Grab Note 🛛 🔀	Enter the name of the note you are
Note Name : €20	data-grabbing and also the country.
Country : EURO	
Notes Linserted :	Choose the note orientation. (Face up left, face up right etc).
Note Orientation Face Up Left Face Up Right C Face Down Left Face Down Right C	Next, choose Start to begin the data grab.
Saye Close	

The status bar will turn green and show 'Waiting for note'. Enter the note/s one at a time.



Every time a note is entered you will see the status bar turn red and the message 'Processing note' will be shown, it will then return to green. Also, the 'notes inserted' box will display the number of 'grabbed' notes.

Once the desired number of notes has been entered. Choose **Stop**, and then **Save**.

Save As				?×		
Save in: My Recent Documents Desktop	DataGrabs		* * Ⅲ •			The default save directory will be automatically chosen. Click Save to save the data grab file.
My Documents						
My Computer					/	
S						
My Network Places	File name: Save as type:	Data Grab Files (*.ldg)		Save		

Note – The data grab file will have a suffix relating to the note face.

Face up left = -0 Face up right = -1 Face down left = -2 Face down right = -3

The data grab files are encrypted, and can only be read by Money Controls.

Repeat the same process for all 4 note faces. Remember to save the data after every note face. Once all the data has been saved, e-mail the files to Money Controls.

5.5 Features (run level 5 and above)

5.51 WRITE FIRMWARE

This allows the flash device of the BNV to be reprogrammed with the core firmware. This is restricted to the highest access level as improper use can result in a faulty BNV. The firmware files can only be obtained via your local Money Controls office. Please do not be offended if you are refused access to this feature!

Choose Tools and Write Firmware, the following screen should appear.

Open Firmware File Look in: C Lumina	<mark>?</mark> ⊠ • ■ • • • • •	Choose the firmware file and click Open to
₫ <u>57×2035_06_15.bin</u>		proceed.
My Hecent Documents		
Deskton		
My Documents		
Mu Computer		
My Network File name: 57x2035_06_15.bin Places	• Open	
Files of type: Firmware Files (*.bin)	Cancel	
Dadiance 🕅		
Programming firmware will erase all notes. Please check all settings after completion.	Screen will appea Yes to proceed.	r. Choose
Do you want to continue ?		
Yes No		

The following screen indicates the progress of the firmware writing process.

NOTE – The process takes approx 3-5 minutes depending on various factors. Do not have any other applications running at the same time (MS Outlook, Acrobat etc) as this may cause issues with the writing of firmware.

Programming Firmware	
Writing Firmware to Lumina	
 	

Once complete, the display will return to the main screen.

6. Troubleshooting and support

6.1 Troubleshooting guide

Note: This is not a troubleshooting guide for Lumina itself. Please refer to TSP019 Lumina Technical Manual for this information. This can be obtained (free of charge) from the Money Controls website www.moneycontrols.com

Error	Possible reason	Solution
Slave is not responding	no comms from BNV to PC	Check connections
Error - some RX bytes seem to be missing	checksum/eeprom corrupt	Fix checksum feature
CRC checksum error	checksum incorrect	Fix checksum feature
Error - all comms are dead	BNV not connected	Connect BNV
	faulty cable	Replace cable
Lumina not found	Address set to 80	Change address to 40 in SETUP screen

6.2 USB-RS232 converters

Money Controls have experienced issues when using RS232-USB converters with Radiance. RS232-USB converters need to be used if there is no comm port on the PC.

When using the below features, Comms issues can occur which may result in a faulty BNV:

Note program Write firmware

Radiance has been modified to take account of these Comms issues from version 1.02 and above.

Money Controls recommend only using USB-RS232 converters with Radiance 1.02 and above. If possible, a PC with a 9 way comm port should be used, which will eliminate the need to use a USB-RS232 converter.

Any questions regarding USB-RS232 converters with Radiance should be directed towards your local Money Controls Technical Services dept (see <u>Support</u>).

6.3 Support

For support using this software, please contact your local Money Controls Technical Services office.

Money Controls UK - Technical Services

Tel: +44 (0) 161 955 0124

E-mail: technical.uk@moneycontrols.com

Website: http://www.moneycontrols.com/support/technical_support.asp

7. Spares

For price and availability please contact your local Money Controls Customer Services Dept:

Money Controls UK - Customer Services

Tel: +44 (0) 161 955 0176

E-mail: orders@moneycontrols.com

Website: http://www.moneycontrols.com/support/customer_support.asp

Figure 6: Radiance spares list

Radiance Spares List

Part	Part number
Radiance FULL KIT	ASERLAXX00007
Radiance black 'Pod'	SCTALKXX00001
Radiance red 'Pod'	SCPROGXX00001
Lumina cable	SASRLAXX00002
Power cable	SASPIIXX00019
Comms cable	SASRLAXX00010

This manual is intended only to assist the reader in the use of this product and therefore Money Controls shall not be liable for any loss or damage whatsoever arising form the use of any information or particulars in, or any incorrect use of the product. Money Controls reserve the right to change product specifications on any item without prior notice.