



Visual KeyMaker

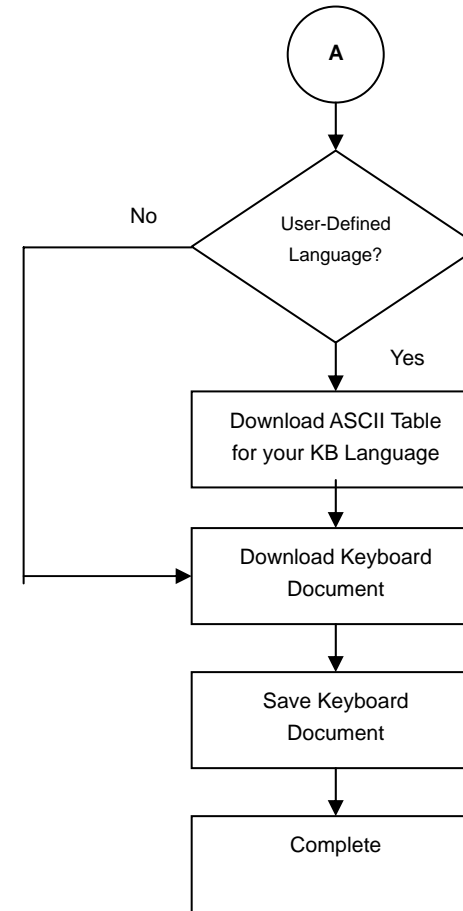
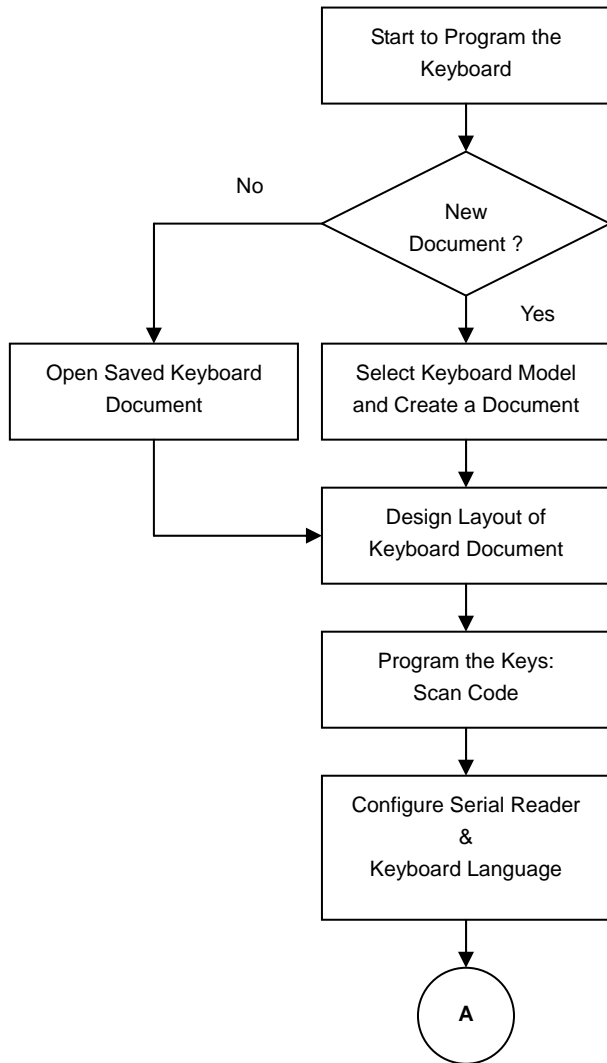
Programming Software Instructions

for TLM2260 Programmable Keyboard

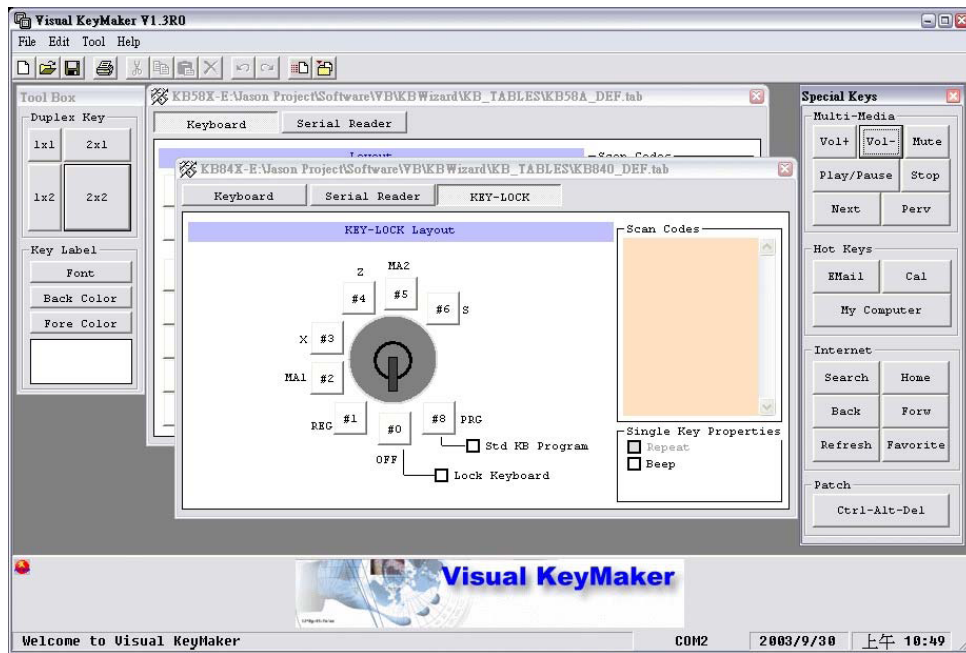
Contents

Quick Start Map	3
A Introduction	5
B Install Visual KeyMaker	6
C Connect Programmable Keyboard for Programming	7
D Create a New Keyboard Document	8
E Make a Duplex Key in keyboard document	10
F Cancel a Duplex Key	11
G Program the Keys: Scan Code	12
H Program into Special Keys	14
I Configure Serial Reader	16
J Program KEY-LOCK (for TLM2260 only)	18
K Download Keyboard Document to Programmable Keyboard	20
L Download ASCII Table for your Keyboard Language	21
M Summary Procedures of How to Program a Keyboard	22
N Change Key Labels	23
O Print Out Key Labels	25
P Duplicate from a Programmed Keyboard	26
Q Program a Keyboard with a Saved File	28
R LED Indication	29
S PIN Assignment of Serial Port	30
T Hardware Specification	31
U Software System Requirement	32
Appendix 1: Japanese ASCII 8-Bit Code Table	33
Appendix 2: Magnetic Card Output Format	34
Appendix 3: ASCII Control Code Table	35
Appendix 4: TLM2260 Interface Instruction	36
Appendix 5: Default Key Tables and Serial Reader Settings	37
Appendix 6: Editable Scan Code (For user-defined scan code)	40
Appendix 7: To program TLM2260 by standard keyboard without software	41
Appendix 8: To check TLM2260 firmware version	42
Appendix 9: In-System-Program the TLM2260	43

Quick Start Map



A. Introduction



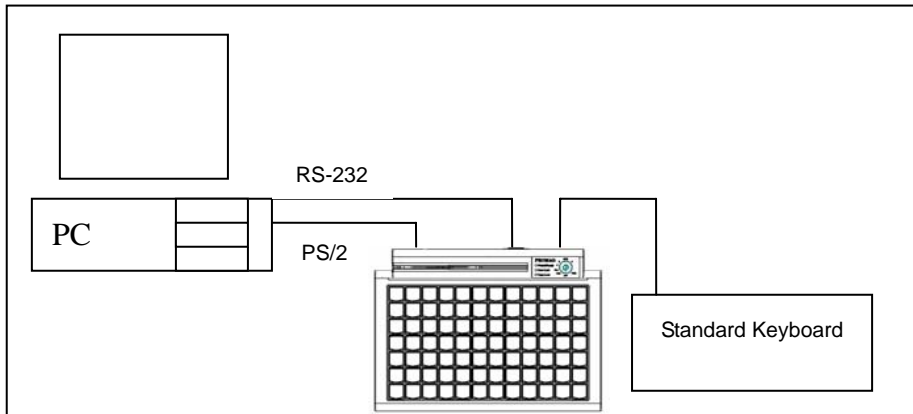
Visual KeyMaker is a vision-aided programming utility. By using simple drag-and-drop mouse operation, programming of POSline programmable keyboards (TLM2260) can be easily accomplished. Apart from programming the keys, users can also print out colorful keycap labels through printers. Each key can store up to 333 bytes of data, which is equivalent to a maximum of 111 key codes. This utility also supports the "Serial Reader" function. When using magnetic readers, users can define the parameters of each and every track of magnetic cards. Visual KeyMaker supports 139 different language layouts by allowing user to download corresponding ASCII Tables of their keyboard. This function enables input from internal or external ASCII Serial reader through desired keyboard emulation.

B. Install Visual KeyMaker

1. Insert POSline Visual KeyMaker CD-ROM, and it will automatically run the CD-Explorer.
2. Select POSline TLM2600.exeInstaller from CD-Explorer Window.
3. Double Click to begin the installation.

C. Connect Programmable Keyboard for Programming

1. Plug the PS/2 (or USB) cable into the PC PS/2 (or USB) port.
2. Use the enclosed RS-232 cable (WAS-1455) to connect Programmable Keyboard's RS-232 port with PC's RS-232 port.



Note: Keyboard power is from PC's PS/2 port.

3. Start Visual KeyMaker software, and then it will automatically scan all RS-232 ports to search for the Programmable Keyboard.
4. If the connection and search are successful, Visual KeyMaker will show the RS-232 Port with which the keyboard is connected in the Status Bar as below.



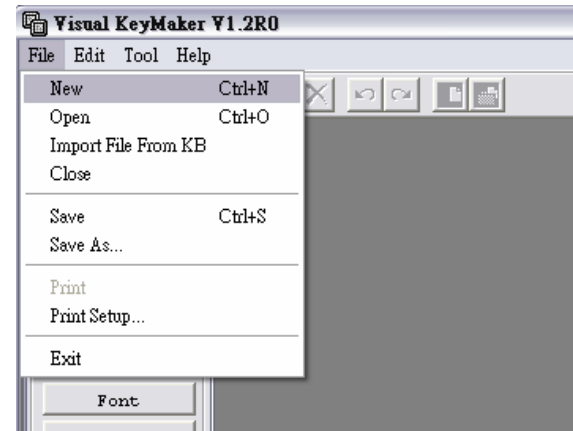
5. Also, you can click Main menu's [Tool] to auto detect the keyboard at any time.

Remark:

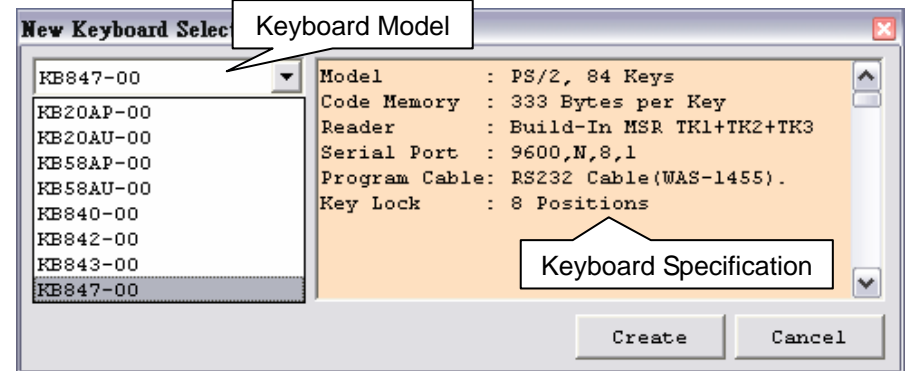
1. The WAS-1455 cable is for programming only; you need to connect the Keyboard with PC's PS/2 (or USB) port for keyboard power, and then plug in WAS-1455 cable for programming. When keyboard programming is finished, you should remove the RS-232 cable (WAS-1455) from keyboard for normal use.
2. TLM2260 Firmware version V1.1R1 or later can programming without WAS-1455 cable.

D. Create a New Keyboard Document

1. Click Main menu's [File] and select [New] to create a new Keyboard document.



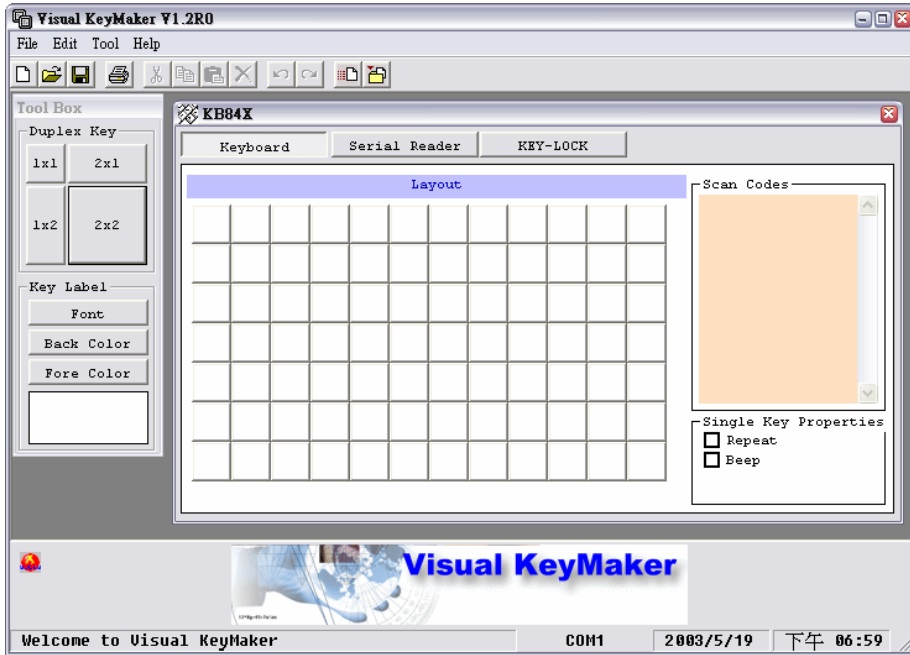
2. Select "Keyboard Model" for a corresponding keyboard layout template.



And then click [Create] to create a new keyboard document for the selected model.

3. Create a new keyboard document after selecting the keyboard model.

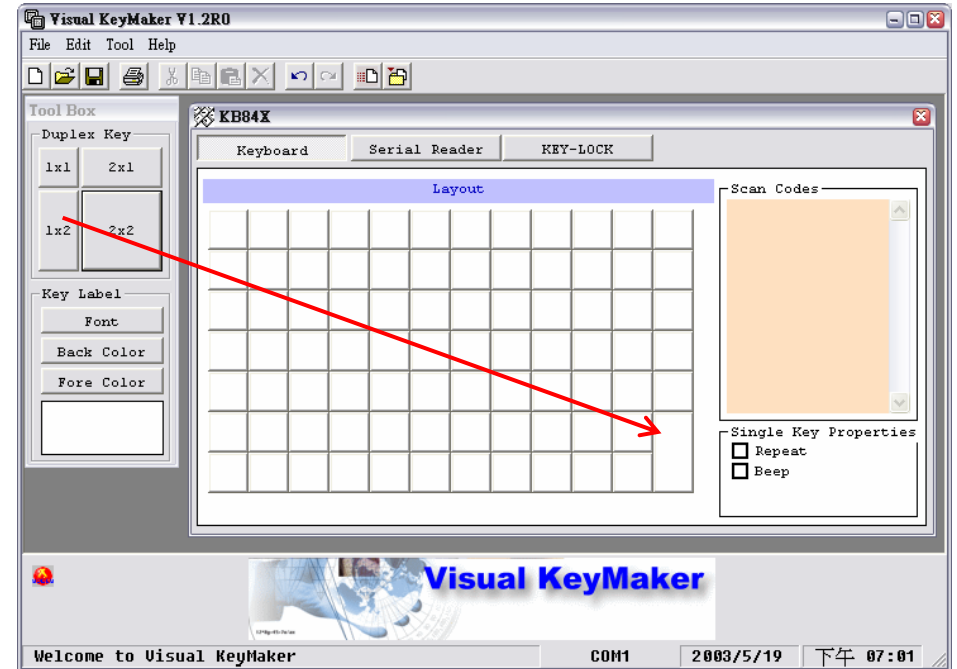
Example: Select and create a new document for TLM2260 as below.



E. Make a Duplex Key in keyboard document

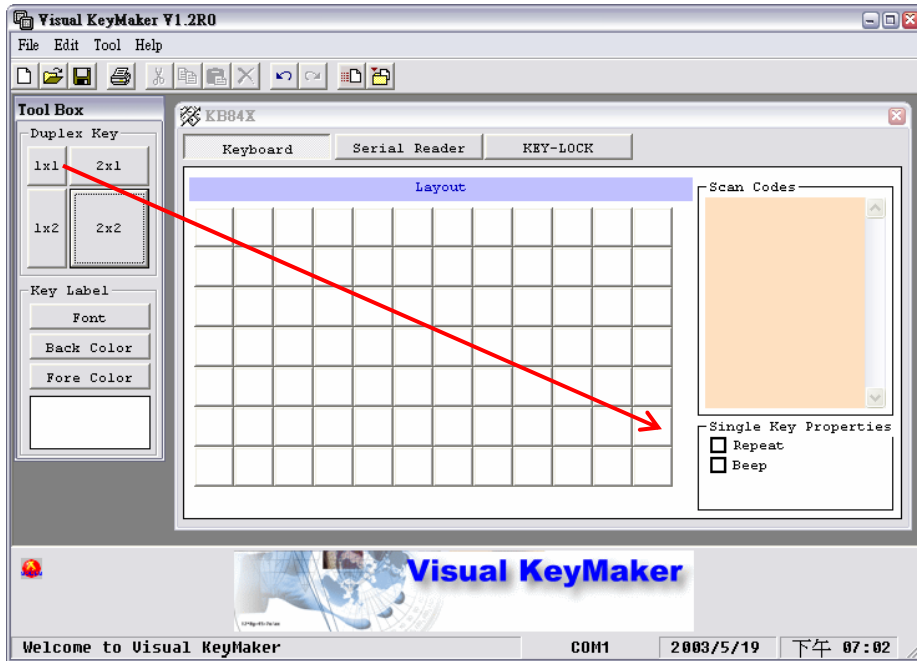
Select a Duplex Key from Tool Box window, then press and hold the left mouse button and drag the selected duplex key to keyboard layout where you want to change to duplex key.

Example: Drag the 1x2 duplex key from Tools Box window to keyboard layout.



F. Cancel a Duplex Key

You can cancel a duplex key by dragging the 1x1 key (Single Key) from Tool Box window to replace the duplex key (1x2, 2x1 or 2x2) and change it back to 1x1 single key.



G. Program the Keys: Scan Code

1. Click to select a Key on keyboard layout that you want to program.
2. Enter key strokes from PC's standard keyboard, and then Visual KeyMaker will keep the Scan Codes of every input key to keyboard document.

Example: Input "123" into the keyboard layout.

Note:

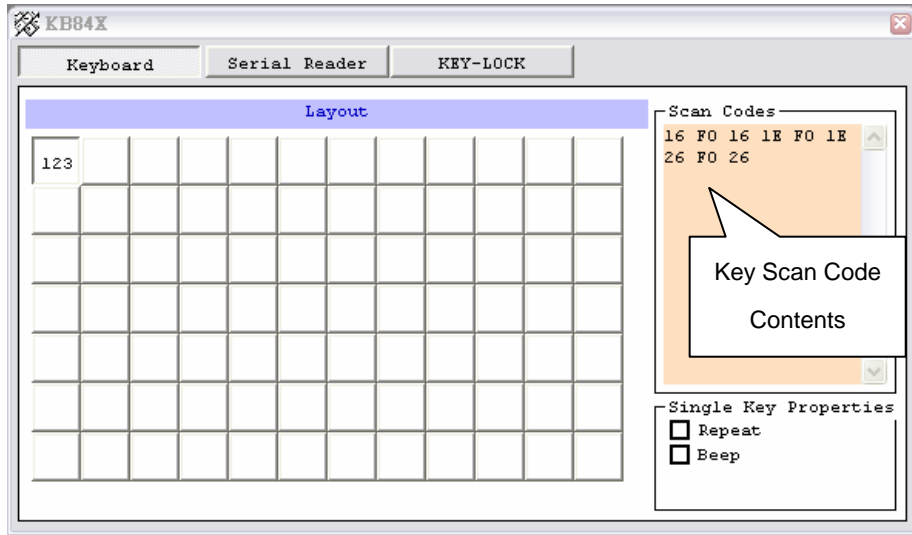
- (a) During programming, use the **Toolbar** (see point 6 below) instead of the functioning keys of PC's standard keyboard (e.g. Delete, Back Space, etc.) to modify (delete, undo, and etc.) the input of the selected key because every input is to be recorded.
- (b) Do not mess it up with the text box at Tool Box window on the left side of the document layout. Modifying the Text Box changes the key label only. Details please refer to Paragraph N.

Example:

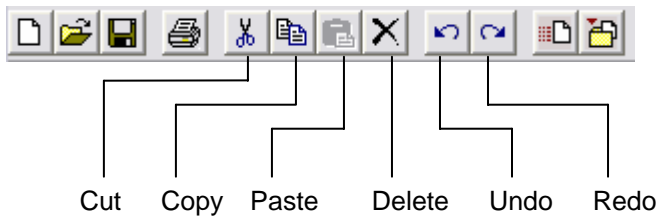
Input "123" to a selected key; the Scan Codes frame on the right side keeps the scan codes of "123" and in the mean time the text box at Tool Box window on the left side shows "123" as key label. And then modify the text box on the left side to "12"; you will find that the scan codes column remains unchanged. When pressing the selected key, the output is still "123" although the key label has been changed to "12".

3. Select "Repeat" check box from "Single Key Properties" frame to enable repeat for the selected key, if you want this key with repeat function when pressing the key.
4. Select "Beep" check box from "Single Key Properties" frame to enable beep for the selected key, if you want this key with beep sound when pressing the key.

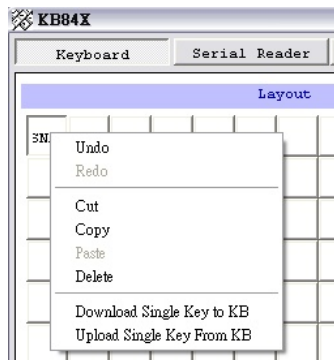
5. Repeat the above steps 1~4 to program the next key.



6. Use the **Toolbar** to edit or modify the selected key.



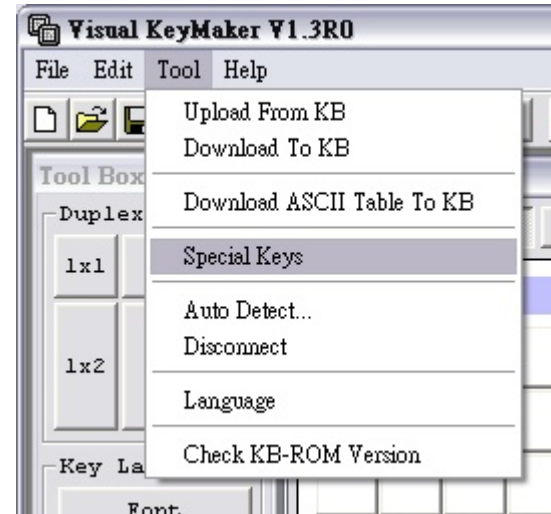
7. Use the Pop-up Menu to quickly edit or modify the selected key.



Click mouse right button on the selected key.

H. Program into Special Keys

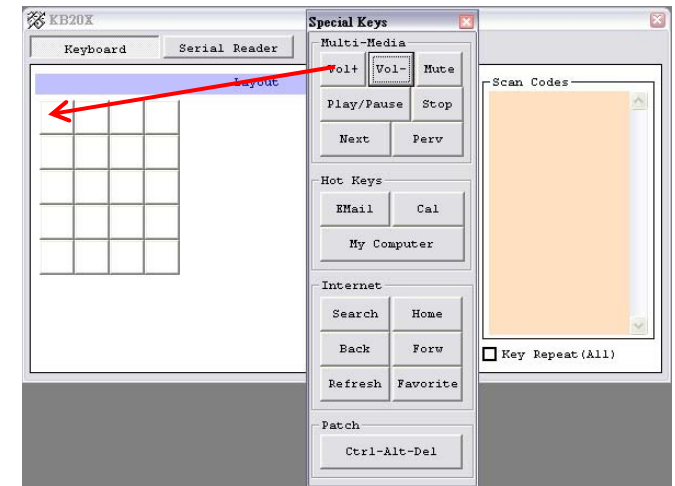
1. Select Main menu's [Tool] and click [Special Keys], the Special Keys window is then opened.



2. Drag the multi-media key from Tool Box window to Keyboard layout.

You can program Multi-Media Keys to keyboard to control multimedia function, such as Play, Stop, Volume +, Volume – or Internet and Hot Keys and so on. Example: Program Mute control key to KB20. Just drag the [Mute] key to KB20 keyboard layout.

3. Use the Toolbar to delete or modify the layout (see page 13)



Multi-Media Keys:

Vol+ : Volume Up

Vol- : Volume Down

Mute : Mute the media

Play / Pause : Play or Pause the media

Stop : Stop the media

Next : Scan the Next Track

Prev : Scan the Previous Track

Hot Keys:

E-Mail: Open E-Mail utility

Calculator: Open Windows "Calculator" (Support Win Me/XP Only)

My Computer: Open Windows "My Computer" (Support Win Me/XP Only)

Internet Keys:

Search : Open Search window

Home : Open Internet Browser and go to Home Page

Back : Go back to Internet Page

Forward : Go Forward to Internet Page

Refresh : Refresh current Internet Page

Favorite : Open Favorites

Patch :

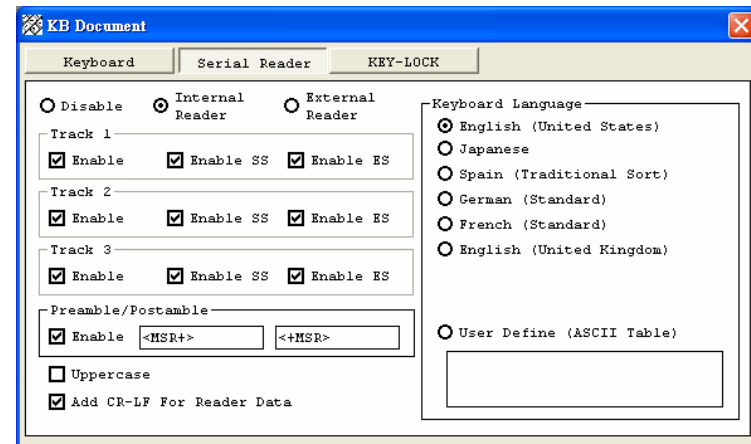
Ctrl-Alt-Del : This is a windows system Logon/Logout Hot Key, and Visual KeyMaker can not capture the hot-key, so use the patch for programming it.

I. Configure Serial Reader

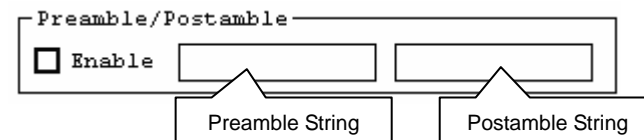
Note: This procedure needs to be done only when your keyboard is with integrated MSR or is connected with an external serial MSR (or Barcode Reader).

In order to ensure the correct input of the internal or external serial reader through the keyboard emulation you want, you have to configure the correct keyboard language for the serial reader first, if your keyboard is with serial reader.

1. Click "Serial Reader" tab to configure the serial reader input.
2. Select Reader Type (Internal Reader or External Reader or Disable the serial reader; TLM2260 Firmware version V1.1R1 or later can select both type at the same time).
3. Configure Track 1~3 of Magnetic Card Reader as Enable or Disable.



4. Enable Preamble and Postamble:



Preamble is the data string which you would like to append in front of the serial reader data string. (Max 32 characters)

Postamble is the data string which you would like to append after the serial reader data string. (Max 32 characters)

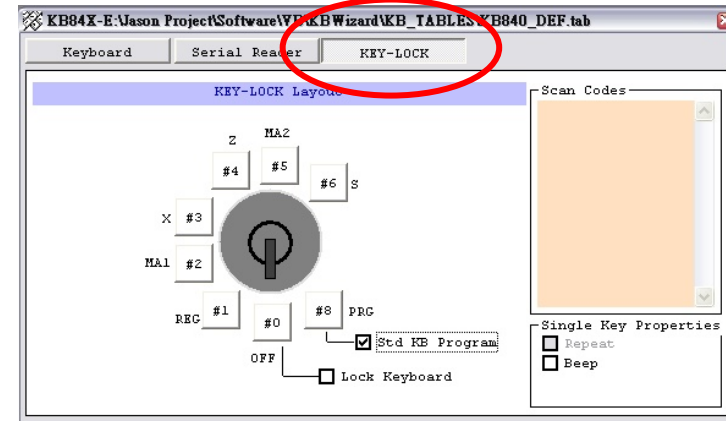
Remark: The Preamble/Postamble strings allow ASCII range between 20h~7Fh.

5. Enable “Uppercase” to convert the serial data to uppercase.
6. Enable “Add CR-LF to Reader Data” to append “Carriage Return and Line Feed” after reader data.
7. Select Keyboard Language for your keyboard layout. Or you can select “User Define” to download the ASCII conversion table. (See Paragraph L)

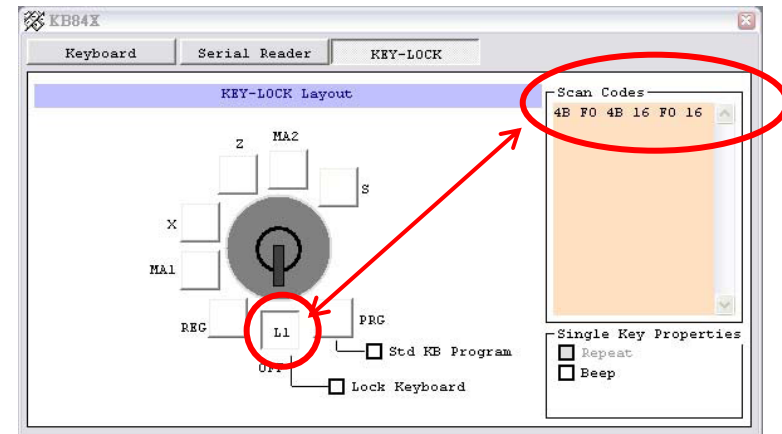
Note: After you finish editing the programming of all the key scan codes, the multi-media keys and the serial reader configuration of the keyboard document, you have to click Main menu’s [File] and select [Save] or [Save as...] to save the edited keyboard document for the programming of the next keyboard unit or for future use.

J. Program KEY-LOCK (for TLM226 0 series only)

1. Click [KEY-LOCK] tab in keyboard document.

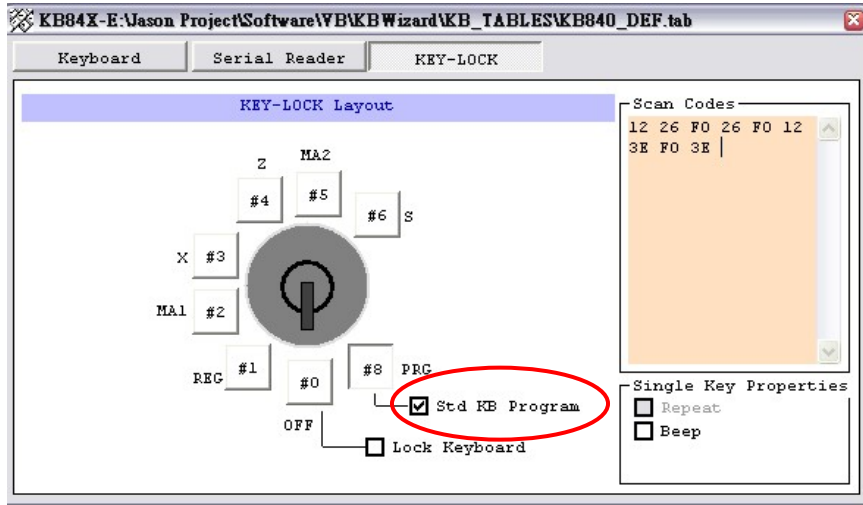


2. Select Key-Lock position button to program key scan code (same as programming key scan code in keyboard layout). Example: Input “L1” into position “OFF”.



3. Enable “Beep” in “Single Key Properties” frame, if you want to have beep sound in this key position when turning the lock to this position.
4. The “Lock Keyboard” function supports key position “OFF” only. If “Lock Keyboard” function is enabled, the keyboard will be locked when the lock is in “OFF” position.

5. The “Std KB Program” function support to program a key scan codes from standard keyboard without Visual KeyMaker: **(Default Enable)**



- A) Enable the [Std KB Program] at the Key-Lock “PRG” position and download it to TLM2260.
- B) Connect the standard keyboard to the TLM2260 PS/2 port.
- C) Turn the Key-Lock to “PRG” position. (Ready LED off)
- D) Click any single key on TLM2260 where you want to program from standard keyboard. (Ready LED flashing)
- E) Enter the text from the standard keyboard to program the selected single key of TLM2260.
- F) Click the same selected key of TLM2260 again to finish the programming. (Ready LED off)

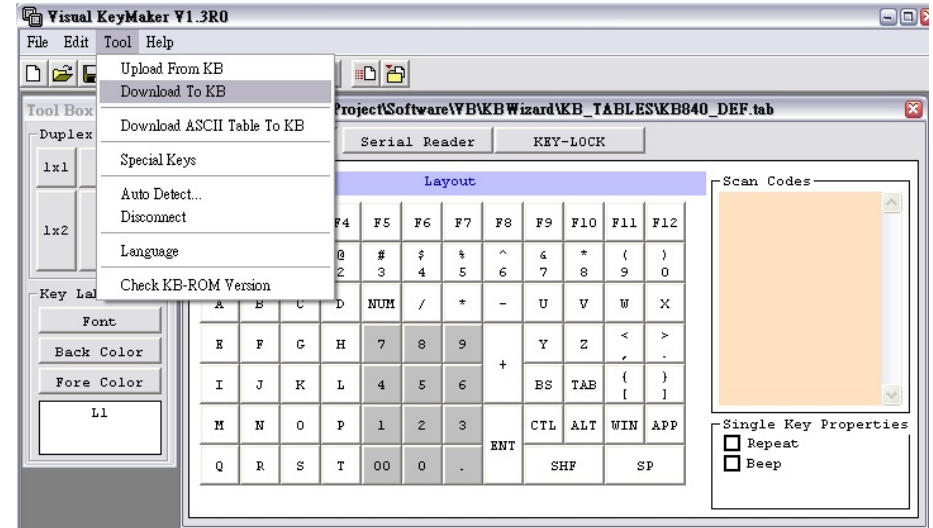
Remarks:

- Only one single key can be programmed at a time. Please use the Software *Visual KeyMaker* to program the Duplex Keys (1x2, 2x1, 2x2).
- Be careful when you use the standard keyboard to program the TLM2260. When it is in programming mode (Key-Lock at “PRG” position), any first click on the keys of TLM2260 will erase the originally saved text automatically no matter new text is entered or not.

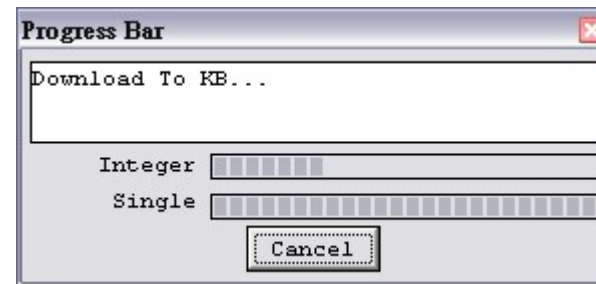
K. Download Keyboard Document to Programmable Keyboard

After you finish editing the keyboard document including individual key scan codes, multi-media keys and serial reader configuration, you have to download the edited keyboard document to programmable keyboard to complete the programming.

1. Select Main Menu's [Tool] and Click [Download to KB].



2. Begin to download the edited keyboard document to programmable keyboard and show the progress window.



3. Unplug the programmed keyboard and plug in the next keyboard then repeat the above steps 1~2 to program the next keyboard, if there is no “User Define” language for the serial reader configuration.
4. If you just want to download one selected key, you can select “Download single key to KB” from [Tool] menu.

L. Download ASCII Table for your Keyboard Language

Note: This procedure needs to be done only when your keyboard is with integrated MSR or is connected with an external serial MSR (or Barcode Reader) and you have selected “User Define (ASCII Table)” on Configuring Serial Reader (See Paragraph I. Configure Serial Reader)

If the keyboard language you want is not in the list of keyboard language option, you have to select “User Define” for keyboard language and download the ASCII Table to the programmable keyboard.

1. Select Main Menu's [Tool] and click the [Download ASCII Table to KB] function.
2. Select Keyboard Language from Language List window.



3. Click [Download] button to begin to download the language ASCII Table.
4. Unplug the programmed keyboard and plug in the next keyboard, then repeat Paragraph K and L to program the next keyboard if you have “User Define” language for the serial reader configuration.

Remark:

When you select the [User Define ASCII Table] from Keyboard Language List and download it to the programmable keyboard (See Page 15), your Windows system must support the keyboard language you select, otherwise you cannot download the language you want.

M. Summary Procedures of How to Program a Keyboard

1. Create a new Keyboard Document (See Paragraph D)
2. Make a Duplex Key in keyboard document (See paragraph E) if needed.
3. Program the Keys: Scan Code (See Paragraph G)
4. Program into Multi-Media Keys (See Paragraph H) if needed.
5. Configure Serial Reader (See Paragraph I) if needed.
6. Program KEY-LOCK for TLM2260 series (See Paragraph J) if needed.
7. Download Keyboard Document to programmable keyboard (See Paragraph K)
8. Download ASCII Table for your keyboard language if you have selected “User Define” for keyboard language (See Paragraph L)
9. Select Main Menu's [File] and [Save] or [Save as...] to save the programmed keyboard document to a file for the programming of the next keyboard and for future use.

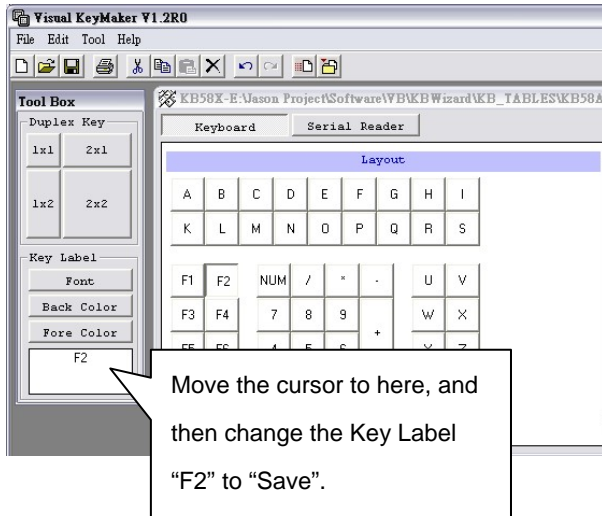
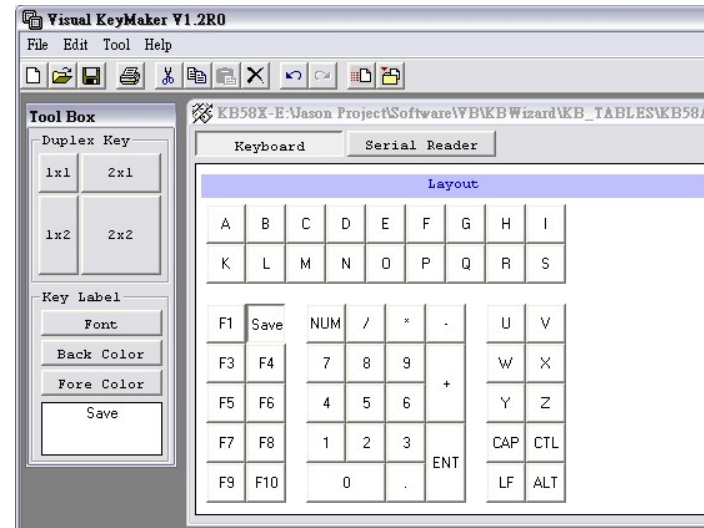
N. Change Key Labels

The key label is input to Keyboard Document at the same time when the keys are programmed. The labels can be changed at Tool Box window. However, changing the label won't change the key scan codes.

1. Select a key that you want to change the label.
2. Move the cursor to the Text Box in Key Label frame at Tools Box window.
3. Modify the label content you want for the key label.

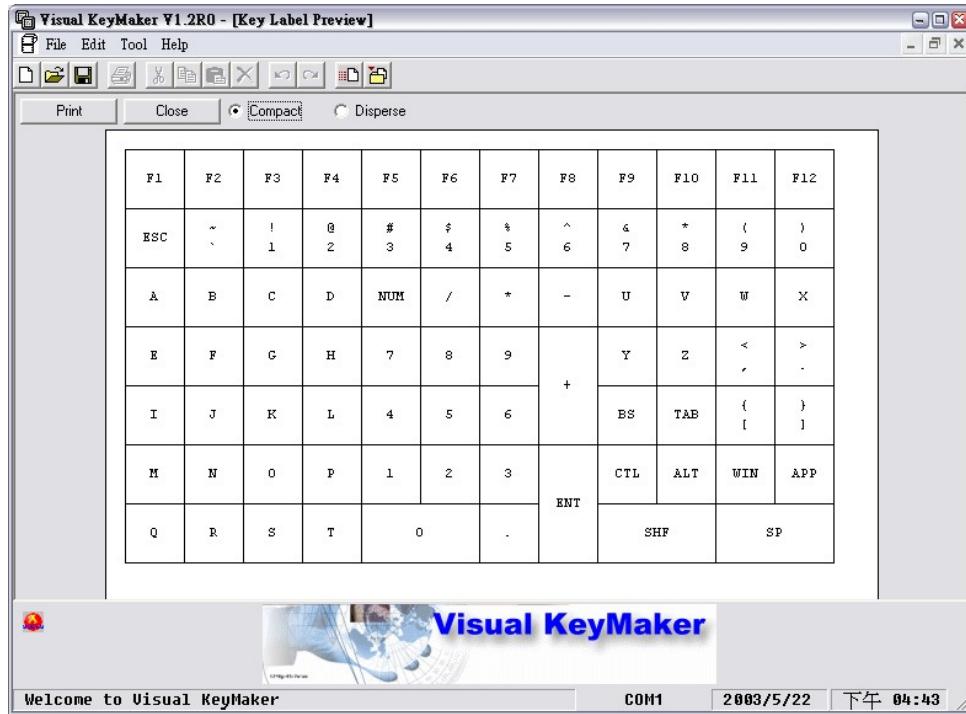
Example:

Change key label of Function Key [F2] to "Save". The output of the key is still function "F2".



O. Print Out Key Labels

You can print out the Key Label by printer after you finish programming and configuring the keyboard. Select Main Menu's [File] and click the [Print] function. The Visual KeyMaker will show the print preview window.



1. Select "Compact" to compact the key label layout.
2. Select "Disperse" to disperse the key label layout.
3. Click [Print] button to print out the keyboard label.

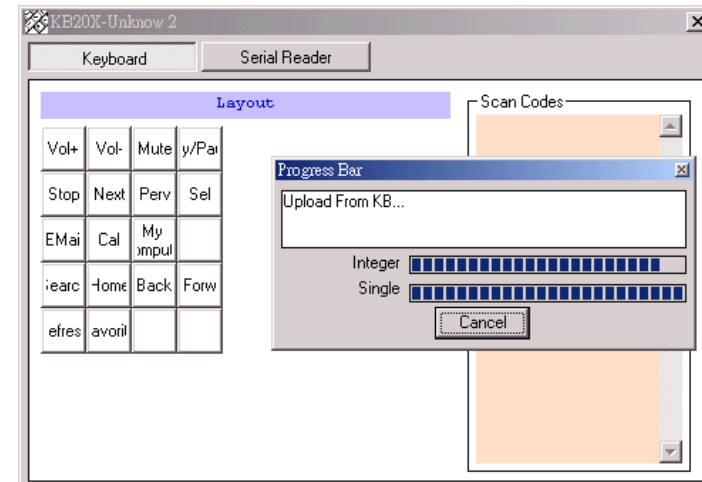
Remark:

If the key label is not what you want, you may follow Paragraph N to change the key label before printing.

P. Duplicate from a Programmed Keyboard

It is possible to upload a keyboard document from a programmed keyboard, and save it to a file to download to another keyboard of same model; or to modify it and download back to the keyboard or other keyboards.

1. Connect programming cable with keyboard and PC. (See Paragraph C).
2. Click [Import file form KB] in [File] menu.
3. Visual KeyMaker will automatically create a new keyboard document and upload Key Scan Code from the programmed keyboard to this new document.
Example: Upload the document from KB20A



4. When the uploading from the programmed keyboard is completed, select Main Menu's [File] and [Save] to save this keyboard document to a file.
5. Unplug the programmed keyboard from the computer and then plug in the new keyboard (connection as shown in Paragraph C) you want to duplicate.
6. Select Main Menu's [Tool] and click [Download to KB] to program the new keyboard.
7. Repeat the above steps 5-6 to make a duplication of the next keyboard.

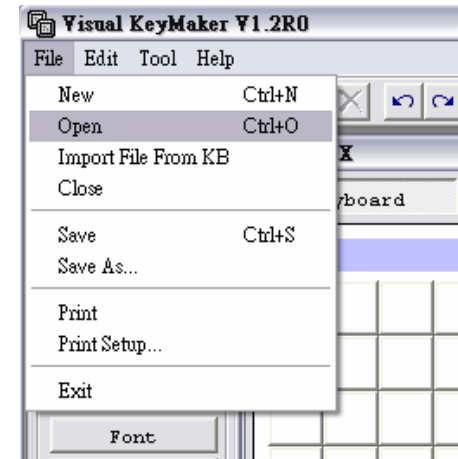
Note:

If the programmed keyboard is with the user-defined ASCII Language Table for the keyboard language, this keyboard language would not be uploaded from the programmed keyboard. You must follow Paragraph L to set the keyboard language for your new keyboard after you have programmed the keyboard layout, if you need the same keyboard language setting as the programmed keyboard.

Q. Program a Keyboard with a Saved File

You can also program the keyboard by opening a previously saved keyboard document file and download it directly to programmable keyboard.

Select Main Menu's [File] and Click [Open] to open a previously saved keyboard document file and then select Main Menu's [Tool] and [Download to KB] to program the new keyboard.



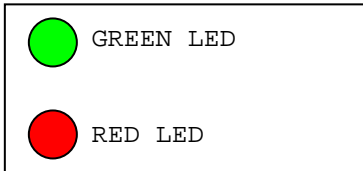
R. LED Indication

TLM2260

0 Series:

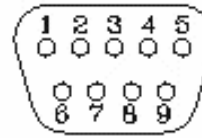
Status \ LED	Unlock	Lock	Programming	Num Lock	Caps Lock
Ready	ON	OFF	Blinking		
Num Lock				ON	
Caps Lock					ON

KB58A/KB20A



LED	Operator Mode	Self-Test Mode	Communication Mode
GREEN	ON	Blinking	Blinking
RED	Num Lock	OFF	Blinking

S. PIN Assignment of Serial Port



1. PIN assignment is the same as the RS-232 of PC.
2. PIN 4 (DTR): Power Output for Serial Reader.
3. N/C: No Connect

PIN	I/O	Description
1		N/C
2	IN	RXD
3	OUT	TXD
4	OUT	DTR , Power Output (5VDC/200mA)
5		GND
6		N/C
7	OUT	RTS
8	IN	CTS
9		N/C

Note:

MSR Reader for KB58A/20A: (Optional)

MSR25xR is magnetic card reader, support KB58A/20A and PC's RS-232 port.

And power is from RS-232 DTR signal.

1. MSR252R-00 : TK2 only
2. MSR253R-00 : TK1 + TK2
3. MSR257R-00 : TK1 + TK2 + TK3

T. Hardware Specification:

Items	TLM2260 Series	KB58A/KB20A
Key type	Cherry Mechanical Key	Cherry Mechanical Key
Number of Keys	84	58 / 20
Key Pitch	19.05mm	19.05mm
Key Stroke	4mm	4mm
Operating Force	60 ± 20g	60 ± 20g
Rollover Method	Pseudo N-Key rollover	Pseudo N-Key rollover
Key Contact Resistance	typ. 20m OHMS	typ 20m OHMS
Key Switch Lifetime	20 million operations per key	20 million operations per key
Key – Lock	8 Positions	No Support
Scan Code Memory	333 bytes per key	480 byte per key
Magnetic Card Reader	Built-In (ISO format) TLM2260 : TK2 KB843 : TK1+ 2 KB847 : TK1+ 2 + 3	External Serial Reader Support (Option : MSR25xR)
Serial Port	RS-232 / 5Vdc 200mA Output	RS-232 / 5Vdc 200mA Output
Interface	PS/2	USB: KB58AU/KB20AU PS/2: KB58AP/KB20AP
Power Consumption	5Vdc / Min 100mA	5Vdc / Min 100mA
Environment	Operation/Storage Temperature: 5~45 Degree C / -10~60 Degree C Humidity: 10~90% relative	Operation/Storage Temperature: 5~45 Degree C / -10~60 Degree C Humidity: 10~90% relative
Dimension	W260mm x L190mm x H43mm, 980g	KB58A : W200mm x L230mm x H42mm, 820g. KB20A : W108mm x L177mm x H37mm, 280g

U. Software System Requirement

1. USB HID Interface System Requirement:

Windows® 98SE/Me/2000/XP:

(HID Driver supported by Windows® Install CD of Microsoft®)

DOS (Supported by PC BIOS ,enable USB Keyboard in BIOS).

2. Software Visual KeyMaker System Requirement:

Windows® 98SE/Me/2000/XP, Memory: min 64MB

Remark :

Visual KeyMaker support to capture the Windows® Hot-Key Scan Code in WinNT/2000/XP.

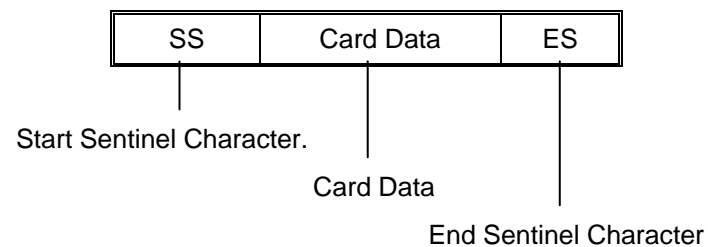
Appendix 1: Japanese ASCII 8-Bit Code Table (ECU-JP)

	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
0				一	た	み		
1			。	あ	ち	む		
2			「	い	つ	め		
3			」	う	て	も		
4			、	え	と	や		
5			・	お	な	ゆ		
6			を	か	に	よ		
7			あ	き	ぬ	ら		
8			い	く	ね	り		
9			う	け	の	る		
A			え	こ	は	れ		
B			お	さ	ひ	ろ		
C			や	し	ふ	わ		
D			ゆ	す	へ	ん		
E			よ	せ	ほ	ゝ		
F			っ	そ	ま	ゝ		

Japanese Hiragana-KANA, support Japanese keyboard language only.

Appendix 2: Magnetic Card Format

Track data is sent in following order: SS, Card Data, and ES. The format in which data is transmitted (in track order) after a card is successfully read is as follows:



SS and ES Track Symbols:

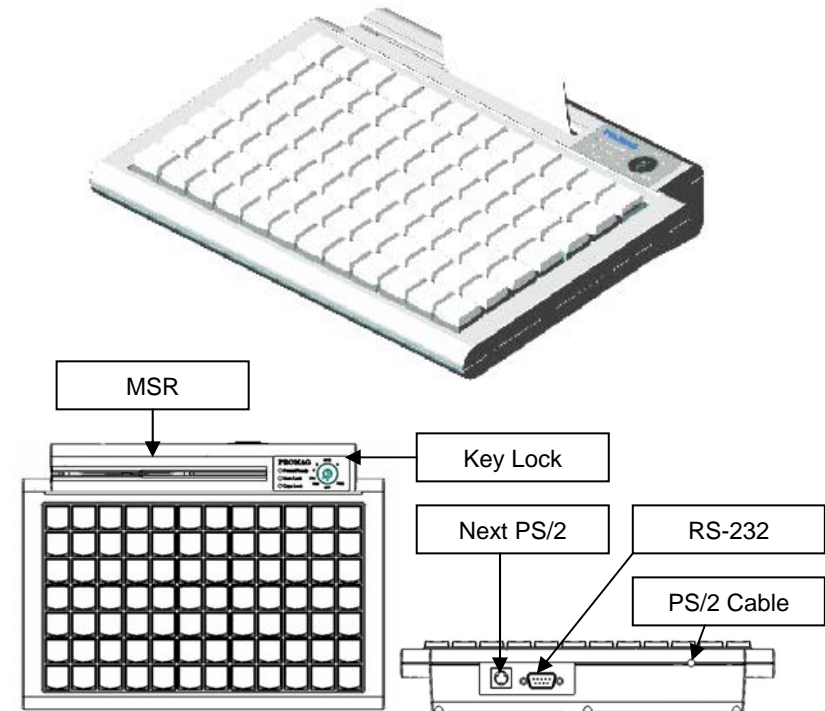
Start Sentinel	End Sentinel	Description
%	?	Track 1
;	?	Track 2
+	?	Track 3

Appendix 3: ASCII Control Code Table

Hex	Control Key	Code Assignment	Description
00	^@	NUL	Null (end string)
01	^A	SOH	Start of Heading
02	^B	N/A	Sart of Text
03	^C	N/A	N/A
04	^D	EOT	End of Transmission
05	^E	ENQ	Enquiry
06	^F	ACK	N/A
07	^G	BEL	Bell
08	^H	N/A	N/A
09	^I	N/A	N/A
0A	^J	N/A	N/A
0B	^K	VT	Vertical Tab
0C	^L	FF	Form Feed
0D	^M	N/A	N/A
0E	^N	SO	Shift Out
0F	^O	SI	Shift In
10	^P	DLE	Data Line Escape
11	^Q	DC1	Device Ctrl 1(X-ON)
12	^R	DC2	Device Ctrl 2
13	^S	DC3	Device Ctrl 3(X-OFF)
14	^T	DC4	Device Ctrl 4
15	^U	NAK	N/A
16	^V	SYN	Synchronous Idle
17	^W	ETB	End of Transmit Block
18	^X	CAN	Cancel
19	^Y	EM	End of Medium
1A	^Z	SUB	Substitute
1B	^[N/A	N/A
1C	^\ ^]	FS	File Separator
1D	^] ^]	GS	Group Separator
1E	^^	RS	Record Separator
1F	^_ ^_	US	Unit Separator

N/A = Not Available

Appendix 4: TLM2260 Interface Instruction



PS/2 Cable	Connect with Host (PC) PS/2 port
MSR	Built-in magnetic card reader
RS-232 Port	Connect with external serial reader or programming cable
Next PS/2 Port	Connect with external keyboard wedge reader or standard keyboard for programming
Key-Lock	8-position key-lock

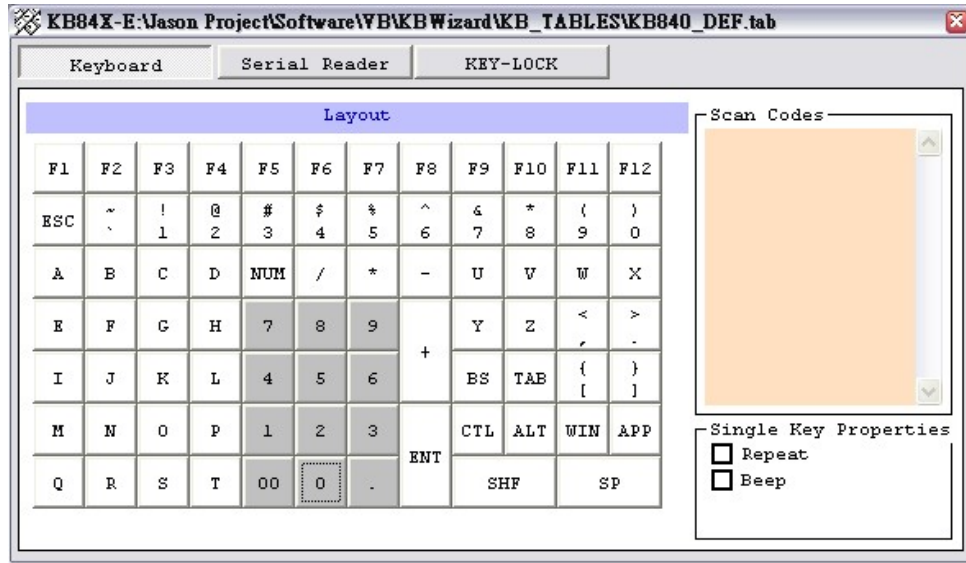
Note:

The Key-Lock positions are programmable same as key code programming. Program the Key-Lock positions at [Key-Lock] tab of keyboard document.

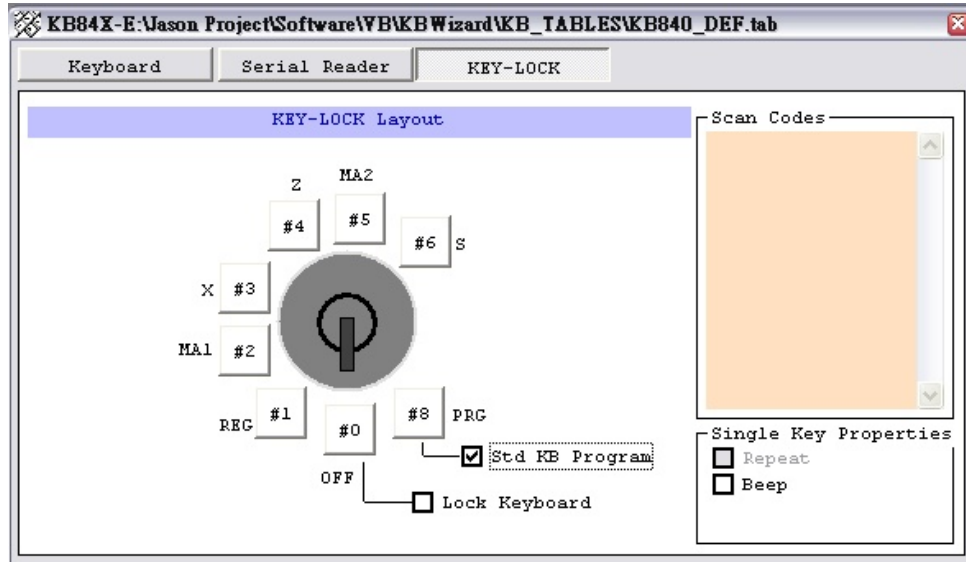
Appendix 5: Default Key Tables and Serial Reader Settings

FILE: TLM2260_DEF.tab

Default Keyboard Layout for TLM2260.

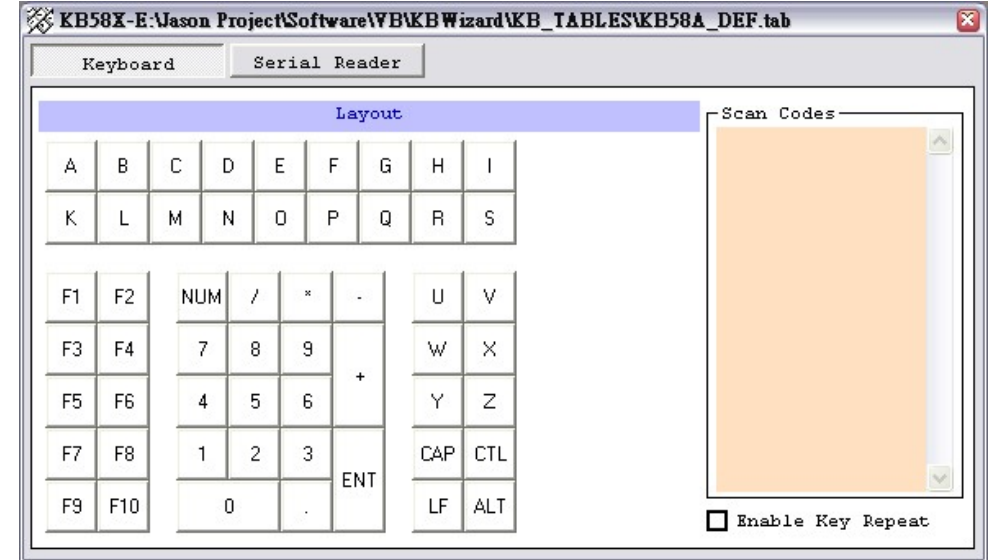


Default KEY-LOCK Positions.



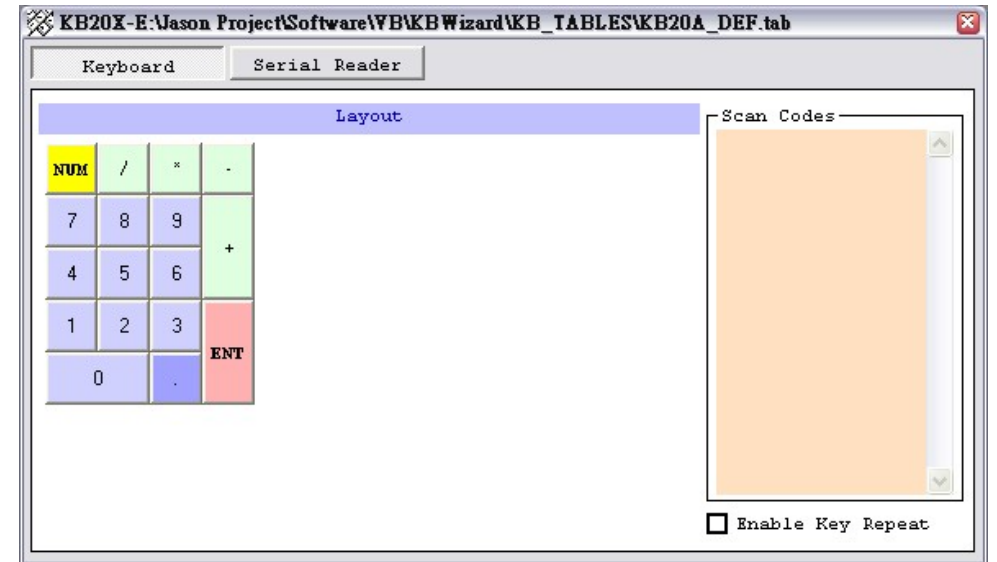
FILE: KB58A_DEF.tab

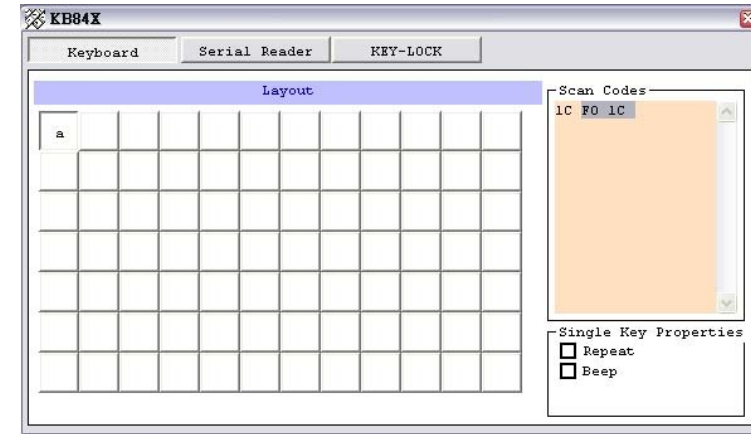
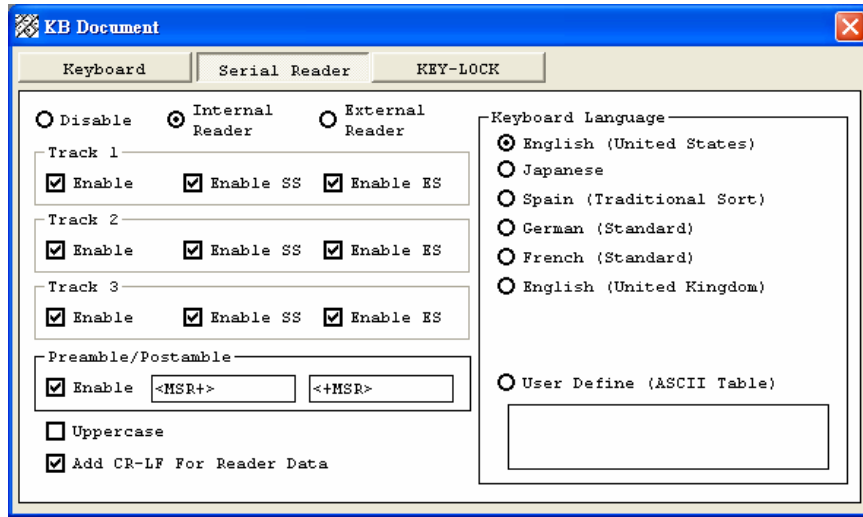
Default Keyboard Layout for KB58A



FILE: KB20A_DEF.tab

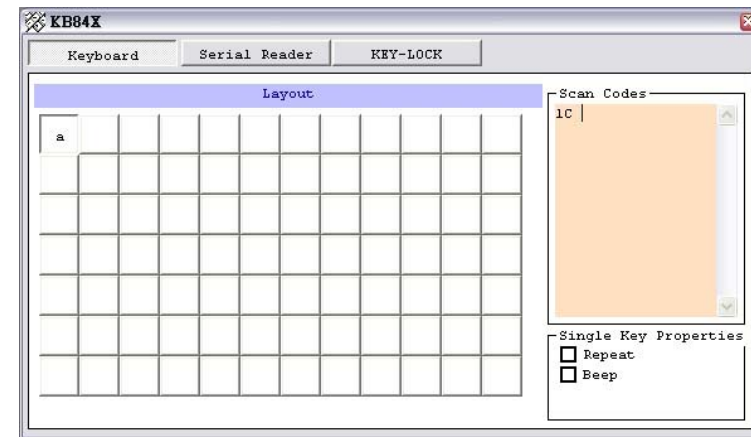
Default Keyboard Layout for KB20A





Example to make "A" key and Make-Code only.

1. Move cursor to "Scan Codes" frame.



2. Delete the Break-Code "F0 1C"

Remarks:

You must follow the format below when editing the scan codes.

[Hi Hex Value] [Low Hex Value] [Space]

For example: the scan codes of "A" are "1C F0 1C".

Each code has 3 characters as above (e.g. "1C[space]") and each letter/symbol (e.g. "A") is made up of 3~5 codes (e.g. "1C F0 1C")

Appendix 7: To program TLM2260 by standard keyboard without software

- 1).In order to program the TLM2260, the standard keyboard must be used. So install the TLM2260 between the computer and the standard keyboard. Remove the keyboard after the programming is complete.
- 2).It is a good idea and it is strongly recommended that you open the application which will use the programmed keys – this makes it easy to test the keys during and after programming.(Make an application key map before programming)
- 3).Use PRG key to turn the keylock to the “PRG”(PROGRAM) position, the “Power/Ready” LED will turn OFF, which let you know that the TLM2260 is in Program Mode.
- 4).Tap the key on the TLM2260 that you want to program.

Note: The “Power/Ready” LED will start blinking after you tap the key.

- 5).Type (on the standard keyboard) the key sequence and / or key combination to program into the key on the TLM2260.During the programming.
- 6).When the sequence is complete, tap the key on the TLM2260 again, then the “Power/Ready” LED will stop blinking. “
- 7).Repeat steps 4.5 and 6 to program the rest of the keys on the TLM2260. If you make a mistake on a key, tap it to stop the programming and then tap it again (step 4) and re-program it with the correct keystrokes.”

Remark :

First of all, You must to enable the ”Std KB Program” function by Visual-KeyMaker (See Chapter J, Default Enable).

Appendix 8: To check TLM2260 firmware version

Click “Check KB-ROM Version“ to get the firmware version from TLM2260.



Example : Show firmware version from TLM2260.

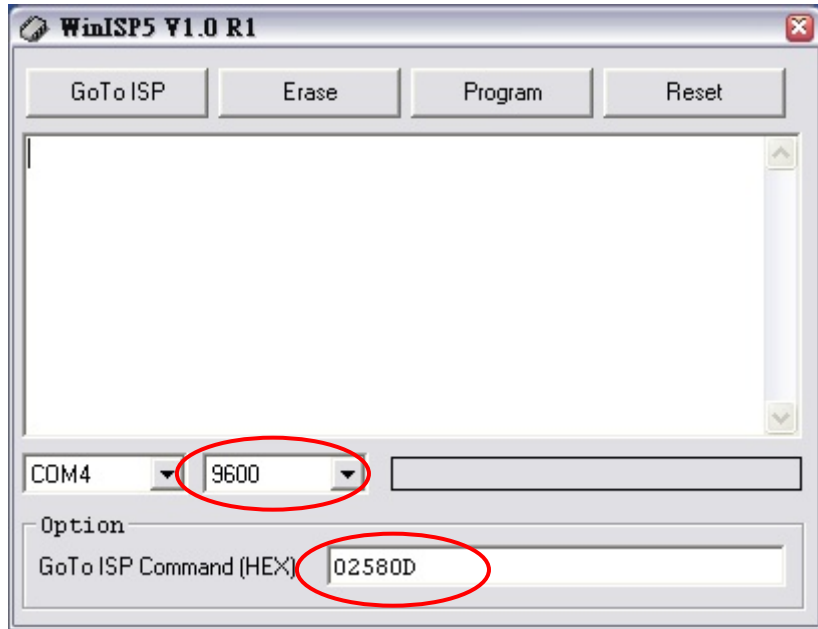
Note:

030922, firmware built in September 22,2003.

Appendix 9: In-System-Program the TLM2260 firmware

A) Install WinISP51 (include in CD) utility in your computer.

B) Open the WinISP51



C) Connect TLM2260 with PS/2 port and RS232 port.

D) Select "Comm Port" in WinISP51.

E) Select "Baudrate" as 9600

F) Input ISP Command "02580D"

G) Click [GoTo ISP] to turn the TLM2260 into the ISP mode.

H) Click [Erase] to erase the original Firmware ROM in TLM2260.

I) Click [Program] and Select the new Firmware File (Hex or Bin).

J) Click [Reset] to return to the regular App Mode when firmware ROM programming is finished.

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