KB20/KB58 Series

X-Keys

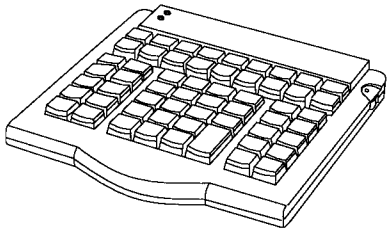
Programmable Keyboards

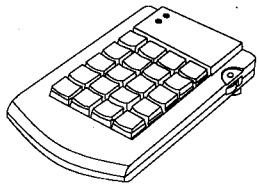
User's Manual

Programming Software Instructions

KB20/KB58

X-keys Pro & X-keys Desktop Programmable Keyboards





X-keys Pro (58 keys) and ***X-keys Desktop*** (20 keys) are fully programmable keyboards. Each key on the ***X-keys*** accepts multiple keystrokes and/or keyboard combinations and you can customize ***X-keys*** to work with a dedicated application or multiple programs and/or platforms. A switch activates program mode that allows the user to program each key independently. In addition, the board supports two layers of commands, which means that two sets of keystrokes can be assigned to each key (almost doubling the number of programmable keys!), and any key on the ***X-keys*** can be the one that toggles between layers.

X-keys are easy to program, and they work alongside standard keyboards or as standalone keyboards. In other words, both the ***X-keys*** and the standard keyboard can send keyboard codes to the computer, or the ***X-keys*** can operate as the only keyboard attached to the computer. If both keyboards are used , switching between the devices is instantaneous, because of ***Y-mouse*** technology that makes the switching operation invisible to the user. The keyboards actually appear to send keyboard signals to the computer at the same time. Whether you use it for a single application or all your most-used programs, you'll be sure to appreciate the easy programming, flexibility and time saving features of the ***X-keys***.

Installing Your ***X-keys Pro*** or ***X-keys Desktop*** Programmable Keyboard

Turn off the computer.

1. Make the ***X-keys*** compatible with your keyboard port by attaching the keyboard connector to one of the ends of the ***X-keys*** cord – either to make it a large 5-pin or a small 6-pin PS/2 connector, whichever works for your computer.
2. Plug the ***X-keys*** connector (the end with the pins) into the keyboard port on the computer.
3. Plug the standard keyboard into the other end of the ***X-keys*** cord.
   NOTE: The standard keyboard is not required for the ***X-keys*** to operate, but it is required for programming the ***X-keys***.
4. Turn on the computer and make sure the standard keyboard operates properly after complete boot-up. On the ***X-keys***, check that the top layer indicator light is on to make sure it installed properly.

Programming Your ***X-keys Pro*** or ***X-keys Desktop*** Keyboard

NOTE: Basic programming instructions are on the back of the ***X-keys***.

1. In order to program the ***X-keys*** the standard keyboard must be attached to the computer along with the ***X-keys***, so, install the ***X-keys*** between the computer and the standard keyboard as described in the installation instructions above. If the ***X-keys*** will be a standalone keyboard, remove the standard keyboard after programming is complete.
2. It is a good idea to open the application(s) that will use the programmed keys – this makes it easy to test the keys during and after programming.
3. Slide the program switch on the ***X-keys*** up to the program position (a red indicator will be visible to the left of the switch). **NOTE:** The red *or* green layer indicator light on the ***X-keys*** will blink, which lets you know which layer you are programming.
4. Tap the key on the ***X-keys*** that you want to program. **NOTE:** The red or green layer indicator light on the ***X-keys*** will double-flash.
5. Type (on the standard keyboard) the key sequence and/or key combination to program into the key on the ***X-keys***. During programming, the monitor will display any alphanumeric keys typed or if you are entering commands the application will perform the function(s) entered.
6. When the sequence is complete, tap the key on the ***X-keys*** again. **NOTE:** As in step 3, the red or green layer indicator light on the ***X-keys*** will blink. This happens whenever the ***X-keys*** is in program mode, but no key is currently selected for programming.
7. Repeat steps 4, 5 and 6 to program the rest of the keys on the ***X-keys***. If you make a mistake on a key, tap it once to stop the programming and then tap it again (step 4) and re-program it with the correct keystrokes.
8. When programming is complete, slide the program switch down to the run position. The ***X-keys*** is ready to use Enjoy!

NOTE: When the ***X-keys*** is in program mode and a no key is being programmed (when either the red or green layer indicator light on the ***X-keys*** is blinking) the standard keyboard will not work. In addition, the ***X-keys*** must be in run mode (with the program switch in the down position) for the standard keyboard to work properly.

Operation

Use the standard keyboard and the ***X-keys*** at any time. The ***X-keys*** will automatically send the commands to the computer from the device in use. **NOTE:** The ***X-keys*** will not boot-up the computer in programming mode.

Additional Instructions for Special Programming Features

In addition to saving keystrokes, you may be interested in additional ***X-keys*** features like programming different layers, making repeating keys, and erasing keys. The numbers in parenthesis following most of the feature names refer to their numbers on a reference list that follows the descriptions. The first features (1-6) refer to single key programming and the rest (7-12) affect the entire keyboard.

Single Key Special Programming Features

Programming a Layer-toggle Key (1):

To switch to another layer one key must be a dedicated layer-toggle key. This may be any key including a double key, but program it *before* programming the second layer. To program a layer-toggle key:

1. If the ***X-keys*** is not already in program mode slide the program switch up to the program position.
2. Tap the key on the ***X-keys*** that you want to program.
3. Press and hold the <Esc> key on the standard keyboard.
4. While holding down the <Esc> key, tap the <2> (two) key on the alphanumeric section of the standard keyboard (above the Q).
5. Release the <Esc> key.
6. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accepted.
7. If programming the rest of the first layer is complete, slide the program switch to the down or run position.

To Program a Second Layer:

1. After programming a layer-toggle key, change to the second layer by tapping the layer-toggle key. The ***X-keys*** must be in run mode, not program mode, when changing to the second layer. The indicator LED on the ***X-keys*** will change from the top to the bottom light.
2. Slide the program switch up to the program position.
3. Continue to program this layer as described on page 2, but do not reprogram the layer-toggle key or you will not be able to access the second layer.

Programming a Layer-shift Key (2):

To switch temporarily to another layer, program a key as a layer-shift key. A layer-shift key works like the Shift key on the standard keyboard, which you hold down to type capital letters. In the case of the ***X-keys***, you hold down the layer-shift key to use the other layer of keys. The layer-shift key may be any key including a double key. If you wish to use the second layer only with a layer-shift key, rather than a layer-toggle key, change the layer-toggle key to a layer-shift key after programming the second layer. To program a layer-shift key:

1. If the ***X-keys*** is not already in program mode, slide the program switch up to the program position.
2. Tap the key on the ***X-keys*** that you want to program.
3. Press and hold the <Esc> key on the standard keyboard.
4. While holding down the <Esc> key, tap the <1> key on the alphanumeric section of the standard keyboard (above the Q).
5. Release the <Esc> key.
6. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accepted.
7. If programming the rest of the first layer is complete, return the program switch to the down or run position.

Repeating Keys (3):

Keys on the ***X-keys*** are not automatically repeating keys, but it's easy to program them to repeat like the alphanumeric keys on the standard keyboard. To make a key a repeating (typematic) key, hold down <Esc>, tap <Left-Shift> key, and release <Esc> before entering the actual text or sequence for that key.

Separate Press and Release Commands (4):

The ***X-keys*** can generate one command when a key is pressed and another when released. For example, a key c type <A> when pressed and <B> when released. A key can also repeat the same function, such as <Ctrl+B> both when pressed and released – this is useful, in this example, as an on and off bold key in programs such Microsoft Word. To program this feature:

1. While the ***X-keys*** is in program mode, tap the key to program.
2. Type the keys on the standard keyboard to send to the computer when the operator presses the key down.
3. Press and hold the <Esc> key on the standard keyboard.
4. While holding down <Esc>, tap the <Left-Ctrl> key.
5. Release the <Esc> key.
6. Type the keys to send to the computer when the operator releases the key. **NOTE:** A maximum of three keystrokes will send on the key release.

Pause (5):

The ***X-keys*** enters keystrokes quickly, faster than most can type and sometimes it may be useful to pause after c between keystrokes so the associated software can register the command. To enter a .5 second pause, press and h the <Esc> key, tap the <5> key and release the <Esc> key. If you want a longer pause, repeat the command (twic for 1 second, 3 times for 1.5 seconds, etc.). **NOTE:** Enter pauses while programming the key with the rest of the keystrokes.

Erasing a Key (6):

Reprogramming a key on the ***X-keys*** automatically erases the previously saved keystrokes. To erase a key and leave it blank, tap the <Esc> key three times during programming.

Entire Keyboard Special Programming Features

The rest of the features (7-12) affect the entire keyboard and include changing the transmission speed, changing th Caps Lock memory and erasing the keyboard.

Slow Transmission Speed (7):

Some applications or systems have a slower response time and the default ***X-keys*** speed is too fast. To slow the rate at which the ***X-keys*** sends key commands:

1. While in program mode, tap any key on the ***X-keys***. **NOTE:** If you saved keystrokes on the key before, it will need to be re-programmed after entering the Slow Transmission Speed command.
2. Press and hold the <Esc> key on the standard keyboard.
3. While holding down the <Esc> key, tap the <3> key on the alphanumeric section of the standard keyboard (above the E).
4. Release the <Esc> key.
5. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accepted.
6. If programming the keyboard is complete, return the program switch to the down or run position.

Normal Transmission Speed (8):

Normal Transmission Speed is the default for the ***X-keys***. If you previously programmed Slow Transmission Speed and you want to return the ***X-keys*** to the default Normal Transmission Speed:

1. While in program mode, tap any key on the ***X-keys***. **NOTE:** If you saved keystrokes on the key before, it will need to be re-programmed after entering the Normal Transmission Speed command.
2. Press and hold the <Esc> key on the standard keyboard.
3. While holding down the <Esc> key, tap the <4> key on the alphanumeric section of the standard keyboard (above the R).
4. Release the <Esc> key.
5. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accepted.
6. If programming the keyboard is complete, return the program switch to the down or run position.

Caps Lock Special Programming Features

The next three features (9-11) affect how the ***X-keys*** recognizes Caps Lock and Unlock. The first two are specific to certain languages (i.e., English, French, etc.). These enable the ***X-keys*** to remember whether Caps Lock was on when saving keystrokes, which frees the user from having to pay attention to the current mode of the standard keyboard when using the ***X-keys***. Caps Lock/ Unlock Memory and Caps Lock/Shift Unlock Memory are useful if you want to save keystrokes that are case sensitive (like names and addresses). It is best to program a Caps Lock feature *before* programming the rest of the ***X-keys***.

Caps Lock/Unlock Memory (9):

Caps Lock/Unlock Memory works in languages (such as United States English, Latin American Spanish, etc.) that use the Caps Lock key both to turn Caps Lock on and off. To program Caps Lock/Unlock Memory:

1. While in program mode, tap any key on the ***X-keys***. **NOTE:** If you want to save keystrokes on this key, program it after entering the Caps Lock/ Unlock Memory command.
2. Press and hold the <Esc> key on the standard keyboard.
3. While holding down the <Esc> key, tap the <8> key on the alphanumeric section of the standard keyboard (above the U).
4. Release the <Esc> key.
5. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accepted.
6. The ***X-keys*** is now ready to program.

Caps Lock/Shift Unlock Memory (10):

Caps Lock/Shift Unlock Memory is for languages (German, French, etc.) that use the Caps Lock key to turn Ca Lock on and the shift key to turn Caps Lock off. To program Caps Lock/Shift Unlock Memory:

1. While in program mode, tap any key on the ***X-keys***. **NOTE:** If you want to save keystrokes on this key, program it after entering the Caps Lock/Shift Unlock Memory command.
2. Press and hold the <Esc> key on the standard keyboard.
3. While holding down the <Esc> key, tap the <9> key on the alphanumeric section of the standard keyboard (above the I).
4. Release the <Esc> key.
5. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was acce
6. The ***X-keys*** is now ready to program.

No Caps Lock Memory (11):

No Caps Lock Memory is the default for the ***X-keys***. If you programmed the ***X-keys*** with either of the two previous features (9 or 10) and you want to return to the default state:

1. While in program mode, tap any key on the ***X-keys***. **NOTE:** If the key was programmed before, it will ne to be re-programmed after No Caps Lock Memory is programmed.
2. Press and hold the <Esc> key on the standard keyboard.
3. While holding down the <Esc> key, tap the <7> key on the alphanumeric section of the standard keyboard (above the E).
4. Release the <Esc> key.
5. The red or green layer indicator light on the ***X-keys*** will blink which confirms that the command was accep
6. If programming the rest of the keyboard is complete, return the program switch to the down or run position.

Resetting the Keyboard (12):

To erase the entire keyboard, tap any key on the ***X-keys*** when the keyboard is in program mode and type, <Esc <Backspace> <Esc> <Esc> <Esc> on the standard keyboard. This will remove all programming from all keys on both layers and return the keyboard to a completely un-programmed state.

Programming Errors:

1. If the ***X-keys*** encounters programming errors, the red and green layer indicator LEDs will blink simultaneo on and off. Turn the programming switch off and back on to reset the ***X-keys*** to programming mode.
2. Errors can occur if:
   a) There is an unreliable cable connection, check all cords for proper connection.
   b) The computer is not operating in a mode to accept the entered keys (for example, pressing <Ctrl>, <Alt> and <Delete> may cause a computer reboot and the ***X-keys*** will not boot-up in programming mode).
   c) You tried to save too many keystrokes into the ***X-keys***. This is unlikely, but if you think that too many commands were entered, retry with a shorter key sequence.

Special Programming Features Table

Once you become familiar with the previously described special programming features, the following list of keystrokes may be a useful reference.

Command Symbol Legend

- ⇩ indicates when to press and hold a key down
- ∀ indicates when to tap a key
- ⇧ indicates when to release the key.

NOTE: Numbers between chevrons (< >) are on the alphanumeric section of the keyboard not the number pad.

Single Key Programming Features	
Feature	**Associated Keystrokes**
1) Layer-toggle	⇩<Esc> ∀<2> ⇧<Esc>
2) Layer-shift	⇩<Esc> ∀<1> ⇧<Esc>
3) Repeating Key	⇩<Esc> ∀<Left-Shift> ⇧<Esc>
4) Separate Press and Release	⇩<Esc> ∀<Left-Ctrl> ⇧<Esc>
5) Pause	⇩<Esc> ∀<5> ⇧<Esc>
6) Erasing a Key	∀<Esc> ∀<Esc> ∀<Esc>
Entire Keyboard Programming Features	
Feature	**Associated Keystrokes**
7) Slow Transmission Speed	⇩<Esc> ∀<3> ⇧<Esc>
8) Normal Speed	⇩<Esc> ∀<4> ⇧<Esc>
9) Caps Lock/Unlock Memory	⇩<Esc> ∀<8> ⇧<Esc>
10) Caps Lock/Shift Unlock Memory	⇩<Esc> ∀<9> ⇧<Esc>
11) No Caps Lock Memory	⇩<Esc> ∀<7> ⇧<Esc>
12) Resetting the Keyboard	∀<Esc> ∀<Backspace> ∀<Esc> ∀<Esc> ∀<Esc>

Horizontal and Vertical Double-keys:

Horizontal and/or vertical double-keys can replace two single keys. Remove the single key with the key-puller that comes with the ***X-keys*** by positioning the key-puller teeth under the key and pulling straight up on the key cap. Press the double-key in place over the two exposed switch stems. **NOTE:** If the individual keys were programmed before, erase both before installing a double-key.

FC Tested to Comply With FCC Standards FOR HOME OR OFFICE USE

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital devic pursuant to Part 15 of the FCC Rules . These limits are designed to provide reasonable protecti against harmful interference when the equipment is operated in a commercial environment . Th equipment generates , uses , and can radiate radio frequency energy and , if not installed and us in accordance with the instruction manual , may cause harmful interference to radio communications .

Operation of this equipment in a residential area is likely to cause harmful interference in whic case the user will be required to correct the interference at his own expense .

KB20/KB58 X-Keys

Programming Software Instructions :

A. Software Installation

B. Introduction of Programming X-Keys

C. How to Program X-Keys KB58

D. How to Clear X-Keys KB58

E. How to Program Many Keyboards with the Same Keycodes

F. How to Duplicate X-Keys from a Programmed Keyboard

G. How to Modify the Keycodes on Some Keys

H. How to Change the Options Settings

I. How to Program the X-Keys from the Previously Saved File

J. About X-Keys KB20 20-Key Keyboard

A. Software Installation

1. Put the software CD into disk drive of your computer.
2. If your computer is under Win 95 or Win98 with Explorer, the setup program should run automatically. Otherwise, run " Autorun.exe " on the CD-ROM.
3. Follow the instructions on the screen to install the software until setup is finished.
4. Exit the software and shut down the computer after the software installation is finished. Then restart the computer and run the software.

B. Introduction of Programming X-Keys

1. Connect X-Keys between the computer and the standard keyboard. Set the manual " Programs Switch " at normal operation position.
2. Run Software " X-Keys " from " Programs " you have installed.
3. It will show " X-Keys " Main Menu with 58-Key position table diagram and with functions " File ", " Edit ", " Options " and " Help ".
4. It will show " 58 Key Xkey Detected " on the screen when the X-Keys is detected. Otherwise, you may click " Detect KB " to detect X-Keys.
5. Click " Read KB " when you want to get the data from the X-Keys.
6. After X-Keys is detected, double click a key on which you want to program, for example, you double click " 0,0 " key, then " Edit key 0, 0 " dialog box will be shown.
7. **About " Edit Key X , X " dialog box**

1). First of all, you should select "Key Type "

a). Scan Code Key – select this when you want to program the key to become normal scan code key.

b). Layer Toggle key – select this when you want to program the key to become layer-toggle-key.

c). Layer Shift Key – select this when you want to program the key to become layer - shift-key.

Note: If you want to program the keyboard with two layers, you should at least program one specific key to become layer-toggle-key or layer-shift-key depending on your application.

d). Unused part of Double Key – select this when you want to program the key to become unused part of double key or quadruple key.

2). Select " Key Protection "

If you want the programmed key cannot be changed from hardware by Program Switch, you should select " Key Protection " for each key when you program it.

Note: This "Key Protection" is for individual key protection when " Program Switch " is set "Enabled". If "Program Switch" has been set as " Disabled " at "Options ", setting all the keys are protected and it is not necessary to set individual key protection and no one can change key codes by " Program Switch " hardware.

3). " Show Key As " – When you are typing the key or keys you want for keycode programming , you can select what you want to be shown on the display window "Layer 1" and "Layer 2", such as "ASCII Text", " Key Codes " or " Scan Codes ".

4). Select "Repeat" when you want the key to be programmed with " Repeat" function.

5). " Layer 1 " and " Layer 2 " display windows. This two display windows are used to display key codes (or key characters if ASCII Text is selected) when you are typing and editing the key codes (or characters) for programming the key you select.

6). Click OK to complete editing.

Note: Key position index number will become green color after editing key codes is complete.

8.. Click " Program KB " to start programming the data into X-Keys after editing keycodes and setting " Options ".

9. Click " Clear KB " when you want to clear all the data from X-Keys.

10. About X-Keys Main Menu

a. " File " has three features :

1). Select " Open " to open the old files which you had saved previously.

2). Select " Save As " to save the file which you have edited. You can save this file for future use.

3). Select " Exit " to exit this software.

b. " Edit " has two features:

1). Select " Copy " when you want to edit another key with the same key codes as you have edited for the selected key.

2). Select " Delete " when you want to delete the key code from the selected key.

c. " Options " has six features:

1). Select " Assign User ID " when you want to assign an ID number for the X-Keys. (Default : 0)

2). Select " Program Switch " when you want to " Enable " or " Disable " the Program Switch on the X-Keys for hardware programming. (Default : Enabled)

3). Select " Hardware Clear " when you want to " Enable " or " Disable " the hardware clear function at hardware programming. (Default : Enabled)

4). Select " Transmission Delay " to set keyboard transmission speed to meet your application or systems. (Default : Normal 5 msec.)

5). Select " Caps Lock Memory " to set how the X-Keys recognizes Caps Lock and Unlock. Caps Lock / Unlock Memory and Caps Lock / Shift Unlock Memory are useful if you want to save keystrokes that are case sensitive (like names and addresses).

- Select " Caps – Caps " for United States English or Latin American Spanish keyboards and so on.
- Select " Shift-Caps " for German or French keyboards and so on.

- Select " OFF " if your application is not case sensitive.(Default : OFF, no Caps Lock Memory)

6). Select " Set Defaults " when you want to set all the " Options " with Defaults.

7). " Set Xkey Type " - Generally this software will automatically detect the X-Keys KB58 connected with the computer when you start running this software as long as the X-Keys connection is correct. So you do not need to set " Xkeys Type ". However, when you start the " Xkeys " software and " X-Keys " Main Menu is showing " No Xkeys Detected " and " X-Keys Type : None Found " (most often this would occur for KB 20, 20-key keyboard), you should select " Options " to set " Xkeys Type " as " PS / 2 58 key " for both KB58 and KB20. This means you should also select " PS/2 58 key " for KB20 when " No Xkeys Detected " occurs at KB20 20-key keyboard connection.

(But you should also check whether the cable connection is correct or not.)

Then the screen would show " 58 Key Xkeys Detected " and " X-Keys Type : PS/2 58 Key " for KB58 and KB20 as long as the cable connection is correct.

Note : It depends on your computer. Sometimes the software could detect 20-Key keyboard when KB20 is connected. If 20-Key could be detected, the screen would show " 20 Key Xkeys Detected " and " Xkeys Type : PS/2 20 Key ". You just run 20-Key normally once 20-Key has been detected, do not need to Set " Xkeys Type ".

C. How to Program X-Keys KB58

1. Install the X-Keys KB58 between the computer and the standard keyboard and slide the program switch down to the normal run positions.(But do not connect KB20 before you start the software.)
2. It is helpful to open the applications that will use the programmed keys – this makes it easy to program and test the keys during and after programming.
   (Make an application list or map you want for each key before you start programming.)
3. Start " Xkeys " software to get " X-Keys " Main Menu.
4. Make sure that " 58 Key Xkeys Detected " is shown on the screen when the X-Keys is detected.
   Note: " No Xkeys Detected " will be shown if no X-Keys is detected. You should check the keyboard cable connection.
5. Select " Options " to set " Assign User ID " "Program Switch " " Hardware Clear " " Transmission Delay " " Caps Lock Memory " or " set Defaults ".
   Note: " Set Xkey Type"-It is not necessary to set for KB58. This software will automatically detect the X-Keys connected for KB58. But for KB20 , you should also select and set" PS/2 58 key ".

6. After " Options " has been set (actually has been edited at this point), you may start setting (editing) each key – Double click a key to get " Edit Key : 0 , 0 " dialog window after you have double clicked key position " 0 , 0 " for example.
7. At " Show Key As ", you may select " ASCII Text " or " Key Codes " or " Scan Codes ". Suggest to select " Scan Codes " for all keys.
8. At " Key Protection ", you may select " Key cannot be changed from hardware by Program Switch " if you do not want this programmed key to be changed by Program Switch. However, if you have already set " Program Switch : Disabled " at " Options ", it will disable the Program Switch for the whole keyboard, then you do not need to set " Key Protection " for each individual key.
9. At " Key Type "
   a. Select " Layer Toggle key " and then click OK, if you want to program this selected key as a Layer Toggle Key.
   b. Select " Layer Shift key " and then click OK, if you want to program this selected key as a Layer Shift key.
   c. Select " Unused Part of Double Key " and then click OK, if you want to program this selected key as a Unused key of Double key or Quadruple key.

   Note: 1. For programming a Double – Key, you only can program one key with the keycode you want, the other key must keep blank as unused part of the Double – Key.
   2. For programming a Quadruple – Key, you also only can program one key with the keycode you want, all the other three keys must keep blank as unused part of the Quadruple – Key.

   d. Select " Scan Code Key " if you want to program this selected key as a normal Scan Code Key.
10. For normal Scan Code Key, you can set " Repeat " if you want this selected key to be programmed with " Repeat " function.
11. For normal Scan Code Key programming, move the cursor to the Layer 1/Layer2 display window and then you should input the key codes you want for " Layer 1 " and " Layer 2 " of this selected key, by typing the standard keyboard , then click OK to finish editing this key. The key position index number of this key changes color to Green after editing is complete.

    Note: 1. You can input as many key codes as you want for one key. Also inputing any combination keys is possible.
    2. If you input the wrong key code, you may click " Clear " to clear them on " Layer 1 " or " Layer 2 " , then input the correct ones again.
12. Select next key for programming, double click the next key to get " Edit Key: X,X " dialog window and then repeat the above Step 7, 8, 9, 10 and 11 to finish editing the next key.
13. Repeat step 12 to finish editing all the keys on X-Keys.

14. Click "Program KB" to start programming X-Keys after editing all the keys is complete. The Green LED and Red LED are switching on and off during programming if you are programming both Layer 1 and Layer 2 on each key and screen will be showing " Writing to key 1 ..... 58 ". After the programming is complete, the screen will show " Ready ".

    Note: 1. If you are only programming Layer 1, the Green LED will keep lighting up all the time during programming.
    2. If you are only programming Layer 2, the Red LED will light up during programming. After the Layer 2 programming is complete, the Red LED will turn off and the Green LED will turn on again.
    3. After programming is complete, you may select " File " and " Save As " to save this file for future use if you wish.

D. How to Clear X-Keys KB58

1. At " X-Keys " Main Menu, click " Clear KB " to clear all X-Keys Keycodes. The screen will show " Clearing Xkey Data..... " during clearing keyboard and will show " Xkeys Cleared " after clearing keyboard is complete.
2. In order to make sure if clearing keyboard is complete, click " Read KB " to see if there is any Keycodes existed in the keyboard. After " Read KB " is done, all the key position index numbers should become red color if " Clear KB " is complete.

   Note: 1. " Clear KB " process will not clear " Options " settings. It only clear Keycodes.
   2. The Green LED and Red LED will be switching on and off during clearing KB.

E. How to Program Many Keyboards with the Same Keycodes

1. First of all, you must follow the procedures described on Paragraph C: " How to Program X-Keys " to program the first unit of X-Keys keyboard.
2. After the first unit of X-Keys keyboard has already been programmed, you may save this file for future use, but X-Keys Main Menu with the programming data is still existing on the screen.
3. Unplug the first unit from the computer and plug the 2nd unit with the computer.
4. Click " Program KB " to program the 2nd keyboard.
5. Repeat the above Step 3,4 to program the 3rd, 4th .... keyboards with the same keycodes.

   Note: After you plug the 2nd unit, 3rd unit with the computer and if the screen would show " No Xkeys Detected ", you should click " Detect KB " to detect X-Keys before clicking " Program KB " .

F. How to Duplicate X-Keys from Programmed Keyboard

1. Plug the programmed keyboard with the computer.
2. Run " Xkeys " software to get " X-Keys " Main Menu.
3. Click " Read KB " to get the data from the programmed keyboard. The Green LED and Red LED will be switching on and off during reading KB.

4. Check " Options " settings and set them again to meet what you want.

Note: It depends on the computer you are using. The " Options " setting data shown on the screen very often would not exactly the same as the X-Keys you just read. So you should set " Options " again to meet what you want.

5. Unplug the programmed keyboard and plug the new keyboard.
6. Click " Program KB " to shart programming the new X-Keys.
7. Repeat steps 5, 6 to duplicate the 2nd, 3rd ... keyboards.

G. How to Modify the Keycodes on Some Keys

When you want to make some keycode modification, you can use this procedure.

1. Plug the X-Keys keyboard with the computer.
2. Run " Xkeys " software to get " X-Keys " Main Menu.
3. Click " Read KB " to get the data from the X-Keys.

Note: It depends on the computer you are using. The " Options " setting data shown on the screen very often would not exactly the same as the X-Keys you just read. So you should set " Options " again to meet what you want.

4. Check " Options " settings and set them again to meet what you want.
5. Double Click the key position that you want to modify, for example, key position 2 ,0
6. At " Edit key: 2 , 0 " dialog box, clear the old keycodes on Layer1 and Layer 2 display windows and input new keycodes and any new other settings then click OK.
7. Repeat Step 5 , 6 to make modification for other key positions you want.
8. Click " Program KB " to start programming (modifying).

Note: Reprogramming a key on the X-Keys automatically erases the previously saved keycodes. But you still need to clear the old keycodes on Layer 1 and Layer 2 display windows and then enter the new keycodes, during editing the new keycodes.

H. How to Change the Options Settings

There are " Options " settings on the X-Keys, such as " Program Switch "," Hardware Clear ", " User ID # ", " Transmission delay " and " Caps Lock Memory ". When you want to change some " Options " settings on the X-Keys, you Can use this procedure.

1. Plug the X-Keys keyboard with the computer.
2. Run " X-Keys " software to get " X-Keys " Main Menu.
3. Click " Read KB " to get the data from the X-Keys.
4. Check " Options " settings, set them again to meet what you want.
5. Click " Program KB " to start programming (changing).

Note: 1. If you wish, you also can make some modification on some keys before clicking " Program KB " to start changing.

2. " Options " Default settings are:

a. X-keys Type : PS/2 58 key (always, even for KB20)

b. Caps Lock Memory: Disabled

c. User ID # : 0

d. Transmission delay: 5

e. Program Switch: Enabled

f. Hardware Clear: Enabled

3. After " Porgram Switch " is set as Disabled, the Program Switch becomes no function and then nobody can use " Program Switch " to change the X-Keys.

I. How to Program the X-Keys with the Previously Saved File

1. Plug the X-Keys " keyboard with the computer.
2. Run " Xkeys " software to get " X-Keys " Main Menu.
3. Select " File " and " Open " to open the file you saved previously.
4. Check " Options " settings and set them to meet what you want and make some changes on keycodes if necessary.
5. Click " Program KB " to start programming.
6. Unplug the first unit and plug in the 2nd unit and then click " Program KB " to start programming the 2nd unit.
7. Repeat step 6 to program more units.

J. About X-Keys KB 20 20-Key Keyboard

a. All the above instructions are also applicable to KB20 20-key keyboard except the key position numbers are only 20 keys instead of 58 keys.

b. During software programming, most often you should still set " Xkeys Type" as "PS/2 58 key" for KB20 20-keys. But only the most left upper 20 keys are applicable to KB20 20-key keyboard. They are the most left 4 columns and the most upper 5 lines (4 x 5 keys). The key position index numbers used for KB20 are as below. The rest are not used. **Because KB20 uses the same CPU and firmware as KB58, but with only 20 Keys.**

0 , 0	0 , 1	0 , 2	0 , 3
1 , 0	1 , 1	1 , 2	1 , 3
2 , 0	2 , 1	2 , 2	2 , 3
3 , 0	3 , 1	3 , 2	3 , 3
4 , 0	4 , 1	4 , 2	4 , 3

Note: It depends on your computer. Sometimes the software could detect 20-key keyboard when KB20 is connected. At this situation you just run 20-key normally and do not need to set " Xkeys Type".

c. In order to run programming software for KB20, you should follow the procedures as below :

1. **Do not connect KB20 with the computer before you start the " X-Keys " programming software.**
2. The screen will show " X-Keys " Main Menu with " No XKeys Detected " and " X-Keys Type: None Found " after you start the " X-Keys " programming software with no KB20 connected.
3. **Do not turn off the computer and do not exit the " X-Keys " Main Menu, then unplug the normal keyboard and connect the KB 20 between the computer and the normal keyboard.**
4. Select " Options " and set " X-Keys Type: PS/2 58 Key ", then the screen will show " X-Keys Type: PS/2 58 Key " and " 58-Key XKeys Detected " and the " 58-Key " key position table.
5. Click " Read KB " to read and detect KB 20 instead of clicking " Detect KB ". The screen will show the data read from KB20.

   Note: 1. For KB20, always click " Read KB " instead of " Detect KB ". Never click " Detect KB " for KB20 during programming.

   2. It depends on your computer. After you click " Read KB " to read KB20, the " Options " setting data shown on the screen very often would not exactly the same as the KB20 you just read. You should select " Options " to set them to meet what you want. However, the keycodes data is exactly the same as the KB20 you just read and you may reprogram them.
6. Now you may start programming KB20 by following the procedures described on Paragraph C.D.E.F.G.H. and I.

   But the procedures to be continued from here for KB20 are as below:

   1). from Step 5 to Step 14 on Paragraph C
   2). from Step 1 to Step 2 on Paragraph D
   3). from Step 1 to Step 5 on Paragraph E
   4). from Step 3 to Step 7 on Paragraph F
   5). from Step 3 to Step 8 on Paragraph G
   6). from Step 3 to Step 5 on Paragraph H
   7). from Step 3 to Step 7 on Paragraph I

   Note: 1.Reprogramming a key will automatically erase the previously saved keycodes. However, during editing the new keycodes, you still need to clear the old keycodes on Layer 1 and Layer 2 display windows on the screen and then input the new keycodes you want.

   2. Do not connect KB20 with the computer before you start the programming

software. You should connect KB20 with the computer after you have started the software to have the Main Menu. This procedure is different from KB58.(KB58 is connected before running the software.)