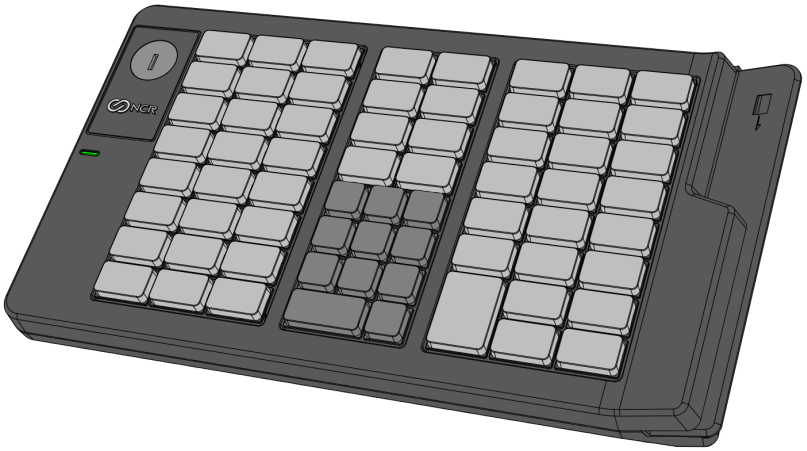
User Guide

NCR RealPOS 64-Key (6932) Keyboard

Release 1.0



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Issue B

To maintain the quality of our publications, we need your comments on the accuracy, clarity, organization, and value of this book. Please use the link below to send your comments.

Email: FD230036@ncr.com

Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

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Radio Frequency Interference Statements
Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used 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 interference in which case the user will be required to correct the interference at his own expense.

NCR is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by NCR. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The user is cautioned that changes or modifications not expressly approved by NCR may void the user’s authority to operate the equipment.

Canadian Department of Communications

This Class A digital apparatus complies with Canadian ICES-003.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectriques édicté par le ministrère des Communications du Canada.

Voluntary Control Council For Interference (VCCI)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

International Radio Frequency Interference Statement

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Out of Box Failure (OBF)

If you experience an out of box failure (OBF) during installation or staging related to a missing, wrong or defective unit or item, simply provide NCR with a detailed description of the issue and the item will be replaced free of charge. For assistance with this process send an email to *CustomerSat.Retail@ncr.com* with the following details:

- NCR Sales Order # (Sales Order # are located on the box)
- Date of Product Installation
- Product Model #
- Unit Serial #
- NCR part # of defective/missing/wrong component
- Description of Failure (please be specific. For example: “display will not power on”)
- Customer/Requestor’s contact name, phone number and/or e-mail address
- Address to ship replacement part(s)

Transport the product in its original packaging to prevent impact damages.

If you do not have access to a computer, you may leave a voice message at: 1-800-528-8658 (USA), or (International) +1-770-623-7400. When leaving a message, please provide a phone number and/or an email address so NCR can contact you if additional details are needed.

Note: Used equipment that experiences a failure does not qualify as an OBF and should go through the NCR warranty process.

Warranty

Warranty terms vary by region and country.

All parts of this product that are subject to normal wear and tear are not included in the warranty. In general, damages due to the following are not covered by the warranty.

- Improper or insufficient maintenance
- Improper use or unauthorized modifications of the product.

For detailed warranty arrangements please consult your contract documents.

Returning Defective Hardware for Service

Use the following procedure to report/return defective hardware.

Call the *NCR Customer Care Center* at 1-800-262-7782 and have the following information available when you place the call.

- Class/Model number of the defective equipment
- Serial Number of the defective equipment
- Equipment location in the store
- Description of the problem, including any system error codes, error condition, or guidance to the area of failure.

The NCR Agent will provide you with a work order number, which serves as your Return Material Authorization (RMA). Please provide the RMA on the outside of the shipping box.

Note: A work order must be opened for each device that is shipped for repair.

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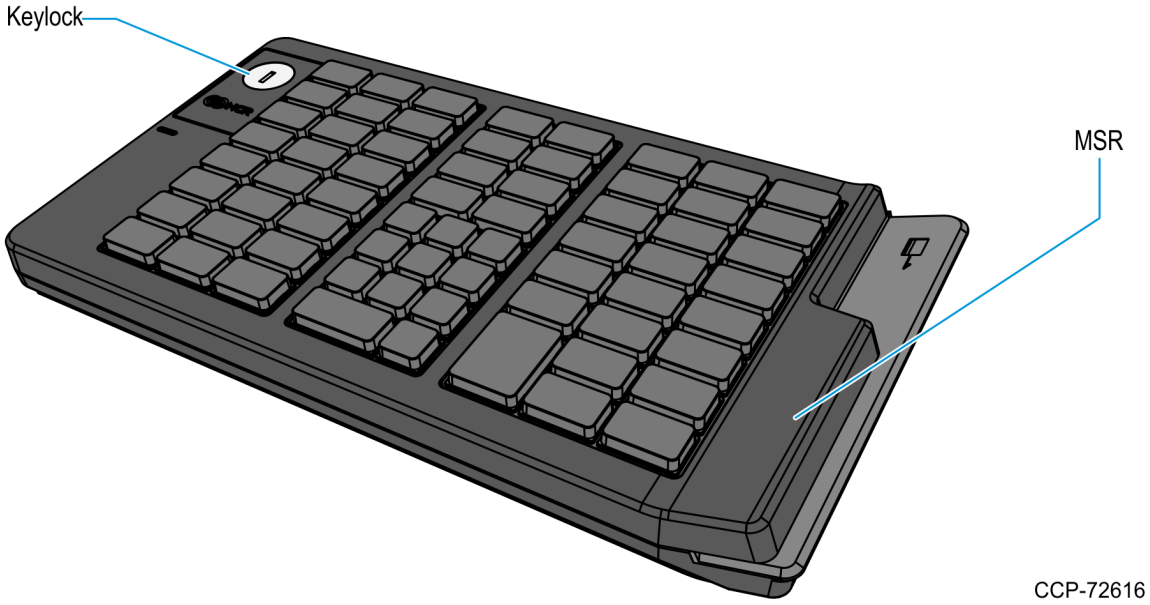
Revision Record

Issue	Date	Remarks
A	Jan 2018	First Issue
B	Sept 2018	Added new PID 6932-2204-9090

Chapter 1: Product Overview

Introduction

The NCR 6932-2XXX 64–Key Keyboard is designed for Point–of–Service (POS) applications. This keyboard connects to either a PS/2 or a USB port of a computer. It includes 56 assignable function keys, which are programmable.



The fifty–five keys are blank from the factory and must be programmed using the Matrix Maker Utility. To download the utility, follow these steps:

1. Go to the NCR Web Site: http://www.ncr.com.
2. Select the **Support** tab.
3. Select **Drivers and Patches → Retail Support Files → NCR RealPOS and SelfServ Peripherals → Keyboards → 6932 -2XXX**.

Model Numbers

Product ID	Description
6932-2202-9090	NCR RealPOS 64-Key POS Keyboard, Keylock, No MSR (Black)
6932-2302-9090	NCR RealPOS 64-Key POS Keyboard, Keylock, MSR (Black)
6932-2201-9090	NCR RealPOS 64-Key POS Keyboard, Keylock, No MSR (Beige)
6932-2301-9090	NCR RealPOS 64-Key POS Keyboard, Keylock, MSR (Beige)
6932-2204-9090	NCR RealPOS 64-Key POS Keyboard, Keylock, No MSR (White)

Features

This section provides information on available features for NCR 6932 64–Key keyboard.

Standard features

- POS matrix layout
- Numeric keypad
- 56 POS function keys
- LED status indicator
- RS-232 scanner port

Optional features

- 4-position key lock
- 3-track ISO MSR
- PS/2 or USB cable

Extra Ports

An extra serial port underneath the keyboard allows customers to connect any peripheral device such as a scanner or a cash drawer.

When the keylock is in “L” position, the MSR and serial port can be disabled or enabled by keylock configuration option under software control.

Note: When the keyboard disables the serial port, the keyboard cuts OFF the power line for the serial device.

Keylock

The keyboard may include 4–position Keylock. The Keylock switch can be rotated between specific positions by using 3 keys. These keys provide differential access to keyboard functions.

The following table explains the keyboard positions.

Abbreviation	Position	Description
Ex	Exception	Allows customers or service representatives to perform low–level programming such diagnostics, configuration, and loading of the POS terminal
L	Locked	Locks keyboard input to prohibit use of normal functions. It can also be programmed to lock or not lock the MSR, and external USB port. The default setting is to lock all of those devices.
R	Register	Allows normal retail mode functions
S	Supervisor	Allows supervisors to provide the highest level of POS terminal control such as refunds and running totals

The following table explains the keys used for the keylock.

Key Label	Description
Ex	Can be inserted and removed only in the “Locked” position and allows the keylock to be moved only to the “Exception” position.
R	Can be inserted and removed from the “Locked” or “Register” positions and allows the keylock to be moved between these positions. This key is often used by operators to lock the keyboard when leaving the station.
S	Can be inserted and removed only in the “Locked” and “Register” positions. This key allows access to the “Supervisor” position but not to the “Exception” position. This key is typically used by store supervisors to perform supervisory functions.

Speaker

The programmable speaker provides audible key clicks and error tones for feedback in both integrated and modular configurations. Keyboards are often located remotely from the POS terminal. Thus, an integrated keyboard speaker is important for maximum productivity.

The following table shows the speaker characteristics.

Characteristic	Standard
Resonant Frequency	600 ± 20% Hz
Frequency Range	600 to 20,000 Hz
Power Rating	0.5 W
Sound Pressure Level (at the power level of 0.5 W and the distance of 0.5 meter)	85 ± 2 dBA (at 0.8 kHz, 1.0 kHz, 1.2 kHz, and 1.5 kHz)

Note: The user programmable speaker tone function on the USB keyboards is not supported when the keyboard is connected to a standard PC. The standard PC keyboard voltage tolerance is not sufficient to handle the extra power requirements of the programmable speaker tone. Only the default key click and error tones are supported on a PC.

System Status Indicators

This feature provides the present state of the keyboard. The indicator is a dual color Red/Green LED. A signal from the keyboard microcontroller selects the status of the LED.

The following table explains the LED colors and their corresponding status indication.

LED Color	Description
Green	The system is generally working properly
Off	The system is Off.
Alternately Flashing Green and Red	The keyboard is in the special PC SETUP mode. **Note:** In PC SETUP mode, the keyboard is used to run PC setup routines such as PC BIOS and other configuration or diagnostics software.

Magnetic Stripe Reader

The Magnetic Stripe Reader (MSR) is an optional feature that provides support for reading magnetically coded data cards. The NCR 6932 keyboards support a 3–track ISO MSR.

Chapter 2: Hardware Installation

Environmental Conditions

This section lists the physical and electrical environments required for the NCR 6932-2XXX 64–Key Keyboard.

Warning: Condensation may occur when keyboard is transferred from cold areas to warm areas during shipment. If condensation has occurred, ensure that the keyboard has undergone a drying process before its use.

Physical Environment

Operating Range

Condition	Range
Temperature	0ºC to +45ºC
Relative Humidity	10% to 90%
Dew Point	26ºC

Storage Range

Condition	Range
Temperature	-10ºC to +50ºC
Relative Humidity	10% to 90%
Dew Point	N/A

Transit Range

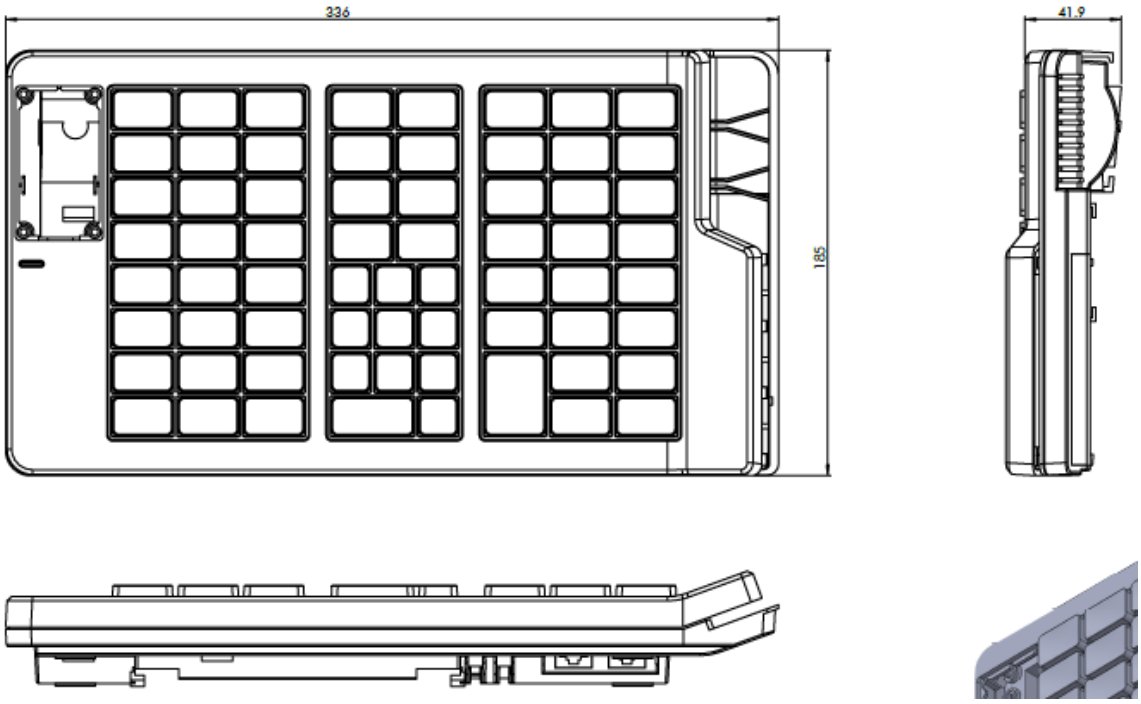
Condition	Range
Temperature	-40ºC to +60ºC
Relative Humidity	5% to 95%
Dew Point	N/A

Electrical Environment

The electrical environment required for the keyboard module is listed as follows:

	PS/2	USB
Power Supply	+5V/DC±10%	+5V/DC±5%
Current Input	<500mA	<500mA

Dimensions



Weight

0.9Kg (1.98 lb)

Cable Connection

A PS/2 or USB cable are required for use of the keyboard. The USB cable has a Standard A plug on one end and the PS/2 cable has a PS/2 connector. Both cables have an RJ45 on the opposite end. The PS/2 or USB Standard A plug is connected to the POS terminal and the RJ45 connector is connected to the keyboard.

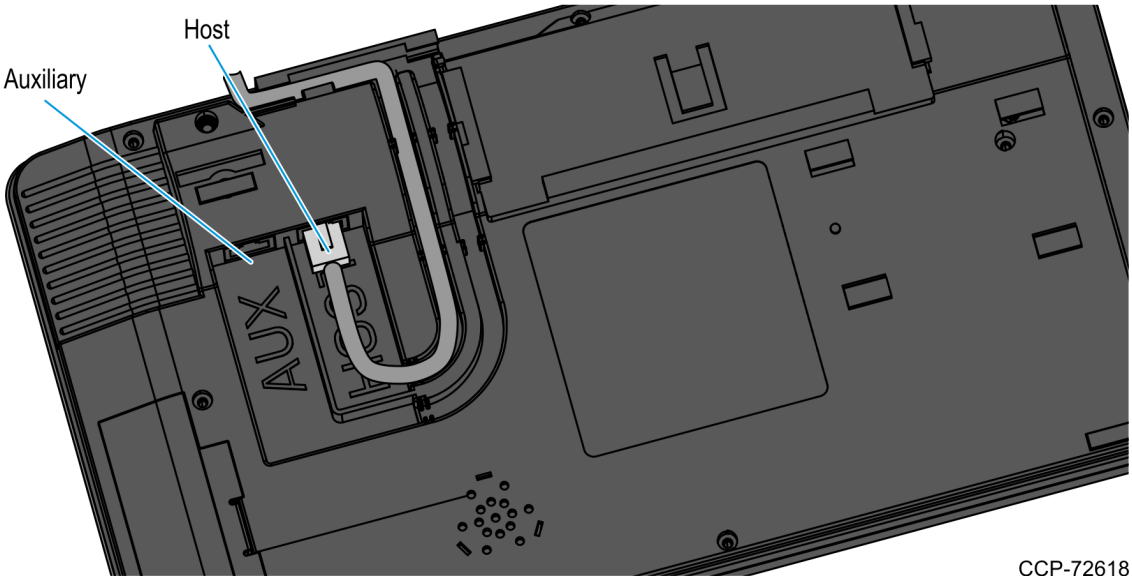
The keyboard also provides an additional RJ45 port to connect a peripheral device such as a scanner or a cash drawer device attachment.

The following NCR cables can be used to establish connection between the NCR 6932–6xxx 64–Key Keyboard and the POS terminal.

Part Number	Description
1432-C792-0015	Cable, USB, 1.5 m, black
1432-C792-0040	Cable, USB, 4 m, black
1432-C793-0015	Cable, PS/2, 1.5 m, black
1432-C793-0040	Cable, PS/2, 4 m, black

Connect the cable to the appropriate RJ45 port and route the cable out of the keyboard through the cable management features.

- Auxiliary—to connect serial devices
- Host—to connect to a POS terminal



Powering up the Workstation

Caution: Before plugging in the keyboard, make sure to turn off the PC or POS terminal. “Hot plugging” can result in damage to the PC or POS terminal due to the increased power requirements of the keyboards.

1. Turn off the POS terminal.
2. Connect the keyboard to the appropriate port on the POS terminal.
3. Turn on the POS terminal.

Key Tips and Lens Accessories

Key tip and lens accessories are included with each NCR 6932 Keyboard.

Keyboard Model	Accessories
6932-2202 6932-2302	• (1) key check sheet • (56) 1.5x1-inch key tip lenses • (3) 1.5x2-inch key tip lenses • (1) 1x1-inch "00" keytip - Black (BLK7) • (2) 1.5x2-inch keytip - Black (BLK7)
6932-2201 6932-2301	• (1) key check sheet • (56) 1.5x1-inch key tip lenses • (3) 1.5x2-inch key tip lenses • (1) 1x1-inch "00" keytip - Beige (G11) • (2) 1.5x2-inch keytip - Beige (G11)

Key Check Sheet

The key check sheet included with the keyboard provides labels for customized keys on the keyboard.

Tip: When placing labels on the key tips, make sure that the key tip is clean and dry. Use tweezers to precisely position the labels on the key tips.

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Quantity (X)	Void	Tax Except. 1	Clear	/ For	Gift Cert. Redeem	Cash Tendered
Bank Card 1	Bank Card 2	Bank Card 3	Gift Certificate	Check Tendered	Discount	Tax Except. 2
Total	% Off	$ Off	Void During	Non-Cash Med Tend	Price Change	Subtotal
Tax Mod Line Item	Bank Card Tendered	Date	Multi. SKU QTY	Misc. Acct.	I D	Payment
Misc Payment						
UPC Enter	Suspend	Shoppers Charge	Master Card	VISA	Discover	Diners Club
Storage Charge	American Express	Traveler's Check	Tax Exception	Fee	Cash Deposit	Mrkdwn.
Employee Discount	End Return	LID	Misc. Credit	Charge Deposit	Trans. Discount	Item Correct
Multiple Fields	Dept. No.	Dept. 1	Dept. 2	Dept. 3	Dept. 4	Dept. 5
Dept. 6	Dept. 7	Dept. 8	Dept. 9	Dept. 10	Dept. 11	Dept. 12
Dept. 13	Dept. 14	Dept. 15	Dept. 16	Dept. 17	Dept. 18	Dept. 19
Enter						

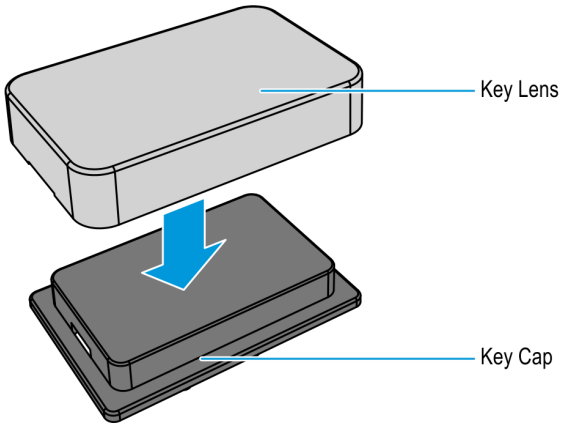
Key Lenses

Key Lenses protect labels on key tips. When customizing cappable keys, key lenses and customer–specified labels can be used. A label is placed on top of a cappable key to identify the function or name assigned to that key. A key lens is then snapped onto the top of the cappable key to cover the label.

Installing the Key Lens

Position the Key Lens over the Key Tip and then gently press the lens until it snaps and locks into place.

Note: The snaps on the lens must be aligned with the indentations on the key tip.



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Removing the Key Lens

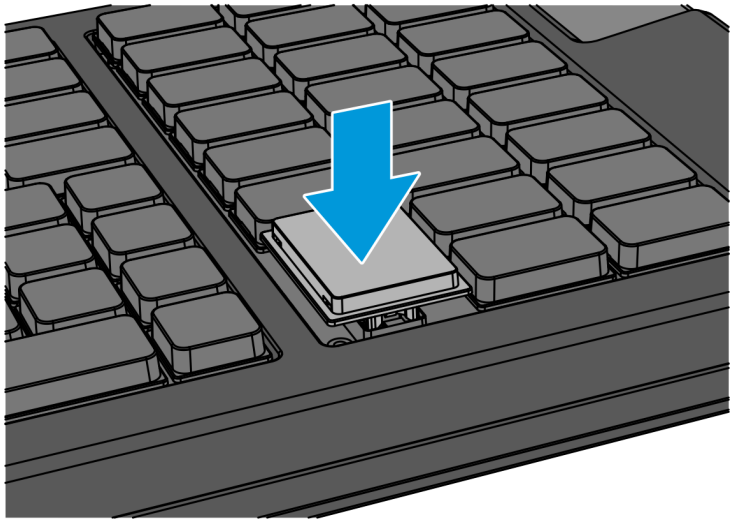
To remove the Key Lens, slide any thin object under the corner of the Key Lens and gently pop it off the Key Cap.

Key Tip

The 1.5x2 key tip is used when two vertical adjacent POS function keys are configured into a Double High Key. For more information on how to configure a Double High Key, refer to *Configuration* on page 17.

Installing a Key Tip

Place the Key Tip over its position on the keyboard and press the key until it snaps into place.



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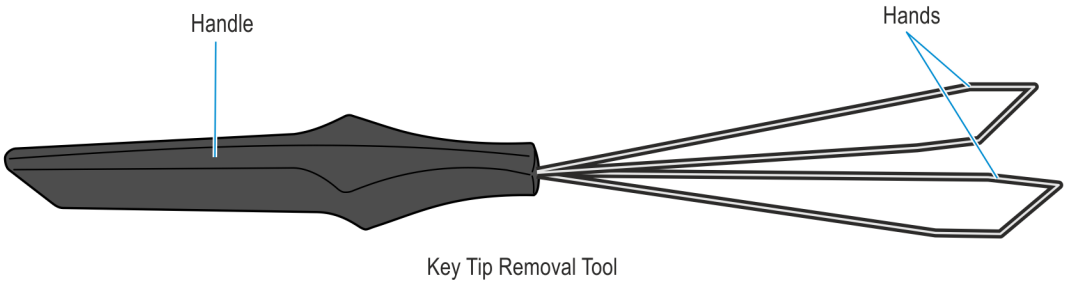
Removing a Key Tip

Use a Key Removal Tool to remove a Key Tip from the keyboard.



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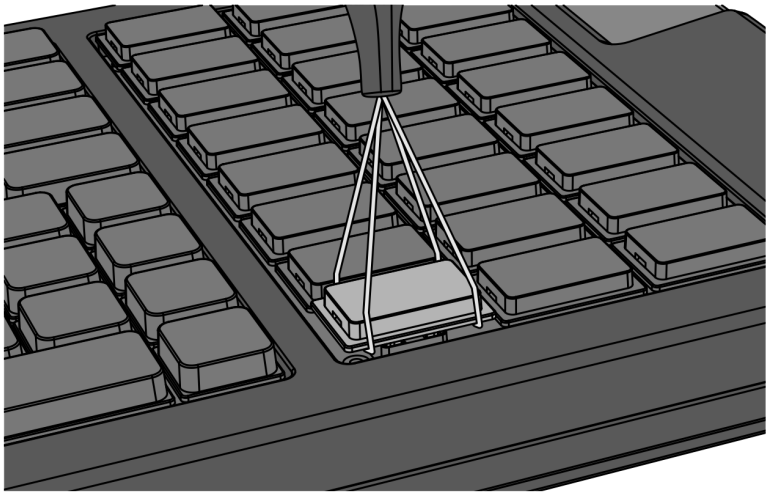
Insert the hands of the removal tool under each side of the Key Tip and carefully pull the tool upward until the Key Tip pops off its retainer clips.



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Chapter 3: Configuration

System Requirements

Before configuring the NCR 6932–2xxx 64-Key Keyboard, ensure that it is connected to the POS terminal and ensure that the requirements listed below are met.

Operating System

NCR NCR 6932-2xxx 64-Key Keyboard requires either one of the following operating systems:

- Linux
- POSReady 2009
- Windows 7
- Windows 10

Note: Contact the local NCR 6932-2xxx 64-Key Keyboard supplier for a copy of the configuration software.

PS/2 Keyboard and MSR Driver Setup

When using the PS/2 Keyboard or Magnetic Stripe Reader (MSR) in Windows XP® (POSReady 2009), Windows 7 (POSReady 7), and Windows 10 environments, make sure to run the driver for the keyboard.

- PS/2 driver supports for 32–bit OS (Windows XP®, Windows 7 and Windows 10). Therefore, it is NOT permitted to program PS/2 keyboards or MSR card readers that are 64–bit OS.
- For USB keyboards or MSR card readers, as no driver is needed, it is permitted to program USB devices under 32 bit or 64 bit OS.

Note: For more information, refer to Manual Setup of the Keyboard Driver in this chapter.

Linux Environment

For Linux users, utilization of the Windows GUI is required to create the key map file.

Configuration Access

Utility Applications

The following Utility Applications can be downloaded, as appropriate for Operating System, and used to configure the NCR 6932-2xxx 64-Key keyboard.

Operating System	Utility Application	Description
Windows	*Windows Command Line Firmware Update Utility*	A command line tool that updates the firmware of the keyboard using the command prompt.
	Windows GUI Firmware Update Utility	A Graphical User Interface (GUI) application that is used to update the keyboard firmware.
	Windows Command Line Configuration Utility	A command line tool that flashes and updates the keymap settings of a keyboard using a `.dat` configuration file created by the NCR Matrix Maker utility.
Windows	*Windows Configuration Utility (Matrix Maker)*	Permits users to perform the following during configuration: • Detect the NCR RealPOS Compact Alphanumeric (6932) Keyboard • Set the keyboard configurations to the flash memory in the keyboard or RAM • Set the keyboard to factory default state • Set the key mapping and/or keyboard configuration with the configuration data file • Generate configuration data file • Define the key mappings • Define the keyboard configurations • Define programmable keys • Manage speaker control
Linux	*Linux GUI Configuration Utility (Matrix Maker)*	

Operating System	Utility Application	Description
Linux	*Linux Command Line Flash and Configuration Utility* **Note:** There are two versions of this utility, one each for a 32-bit system and a 64-bit system. Make sure to download the correct version for your system.	A command line tool that updates the firmware and keymap of the keyboard using a command prompt.

Downloading the Utility Applications

To install the NCR Matrix Maker utility, perform these steps:

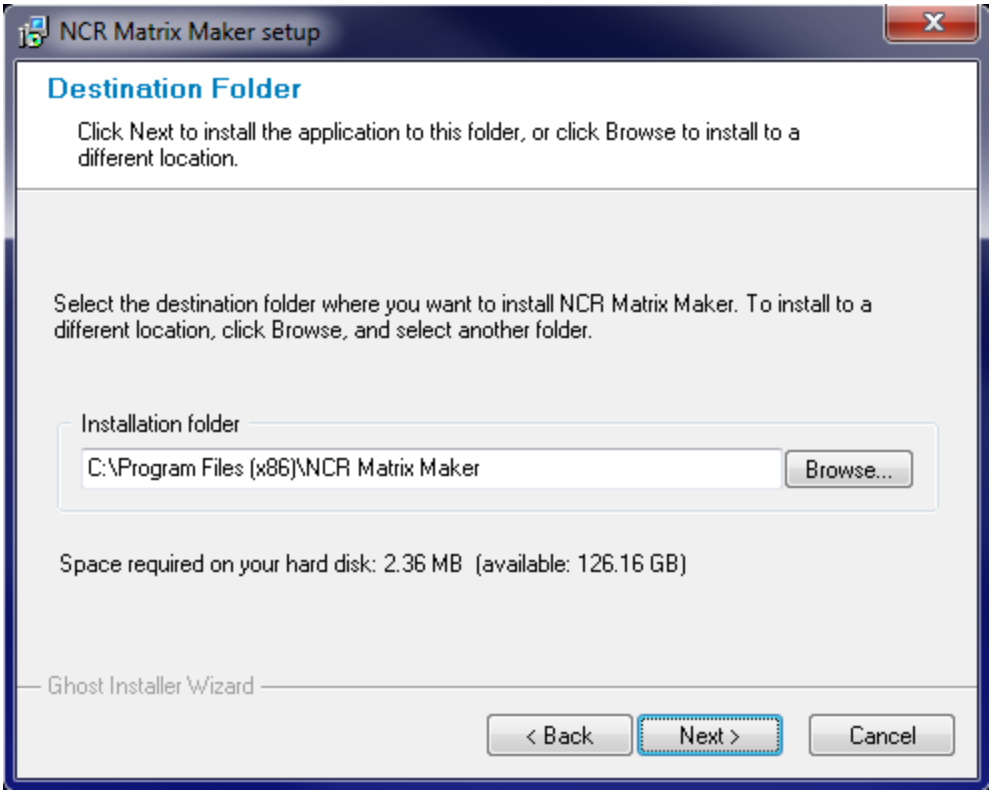
1. Go the NCR website: *http://www5.ncr.com/support/support_drivers_patches.asp*.
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPS/JavaPOS), BIOS, etc.)**.
3. Select **NCR RealPOS and SelfServ Peripherals (Firmware, Drivers, Utilities)**.
4. Select **Keyboards**.
5. Select **6932-2xxx** (USB 64-Key, PS/2 64-Key).
6. As appropriate for the Operating System, select the **Utility** file to download.
7. Follow the on–screen instructions to download the utility application.

Note: For concerns regarding the configuration software installation, please contact the local NCR 6932–2xxx Keyboard supplier.

NCR Matrix Maker Utility

Installing the NCR Matrix Maker Utility

1. Run the NCR Matrix Maker installer. The NCR Matrix Maker setup is displayed.
2. At the welcome screen, select **Next**. The following window is displayed.



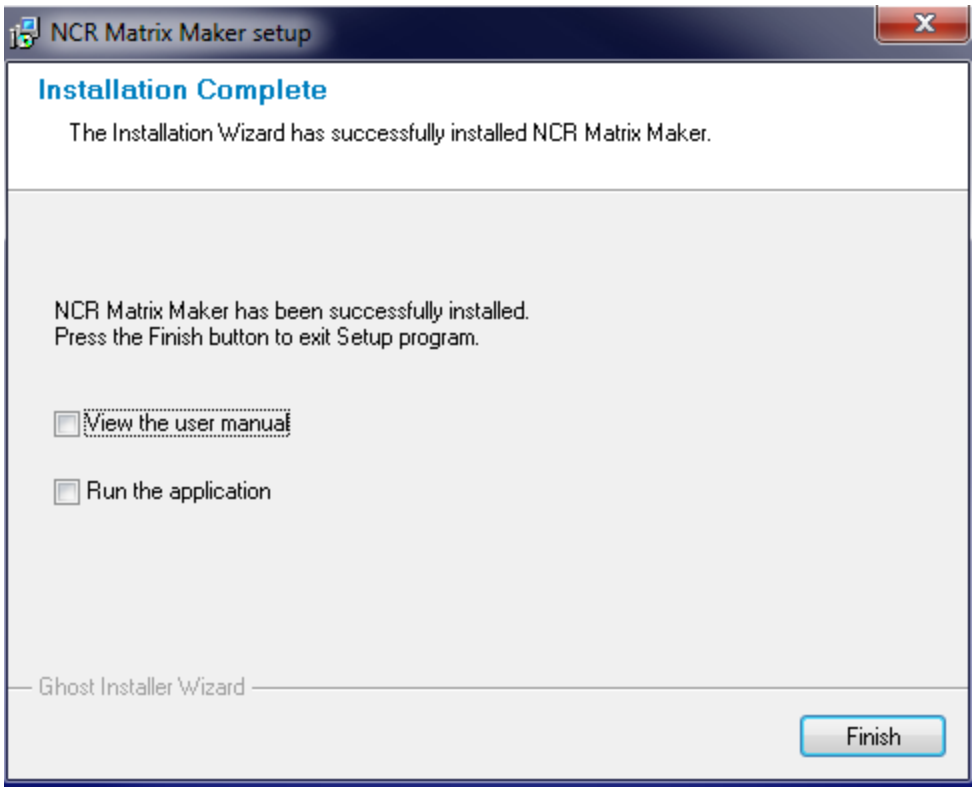
3. Select **Browse** to specify the destination directory of the software to be installed, and then select **Next** to continue.

Note: The default installation location of `NcrMatrixMaker.exe` is the following:

- For 32-bit operating systems, `C:\Program Files\NCR Matrix Maker\Programmable Keyboard`
- For 64-bit operating systems, `C:\Program Files (x86)\NCR Matrix Maker\Programmable Keyboard`

4. Select **Next**.

5. Select **Next** to start the installation process. When the software finishes the installation, the Installation Complete window is displayed.



6. Select **Finish** to exit the installation.

Menu Options

This section provides information on the functions of each menu option in the Matrix Maker Utility. Refer to the following sections for functions and descriptions of the Matrix Maker menu options:

- *File*
- *Keyboard*
- *Diagnostic*

File

This option permits the user to perform the following actions:

- **New**
  - **Category**—takes the user back to the Keyboard Category window
  - **Keymap**—refreshes the Matrix Maker utility and creates a new keymap
- **Open**—imports a Matrix Maker settings file.

Note: An error may occur if you choose a file of a newer version on the Matrix Maker software with an older version.

- **Save**—saves all changes to the current Keymap file.
- **Save As**—permits user to save the current Keymap file with a new name.
- **Exit**—closes the Matrix Maker utility

Keyboard

This option provides the following actions that permit keyboard configuration modifications:

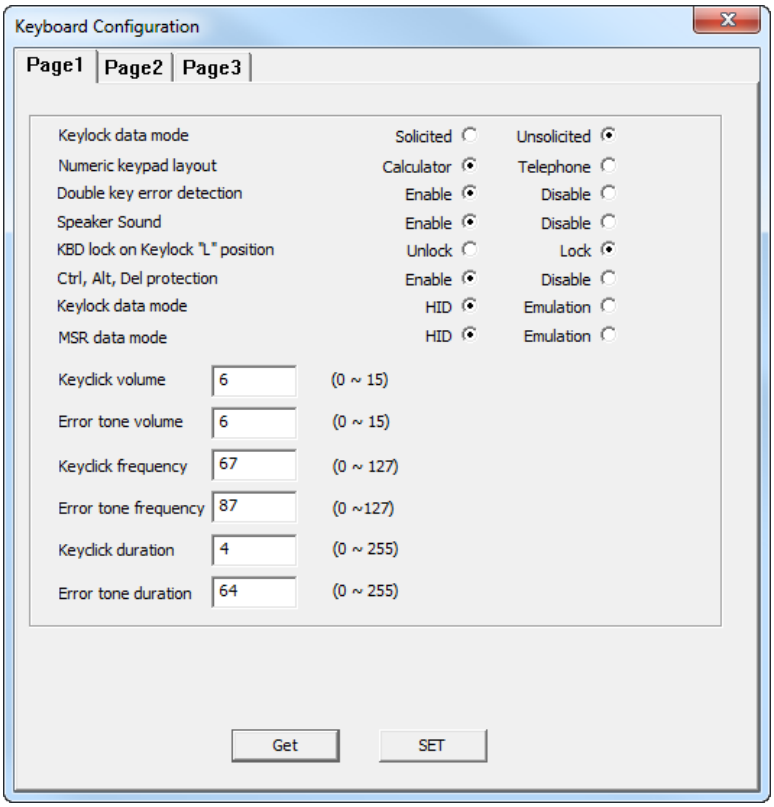
- **Update Whole Keyboard**—sends the settings of the entire keyboard, which includes the settings of the MSR, Keyboard, and Key Mapping.
- **Update Key Mappings**—This option enables the user to send the Key Map settings to the keyboard.
- **Retrieve Keyboard**—This option enables the user to retrieve the data currently programmed to the keyboard device, which includes the settings of the MSR, Keyboard, and Key Mapping.

Caution: During the updating process, strictly follow these measures:

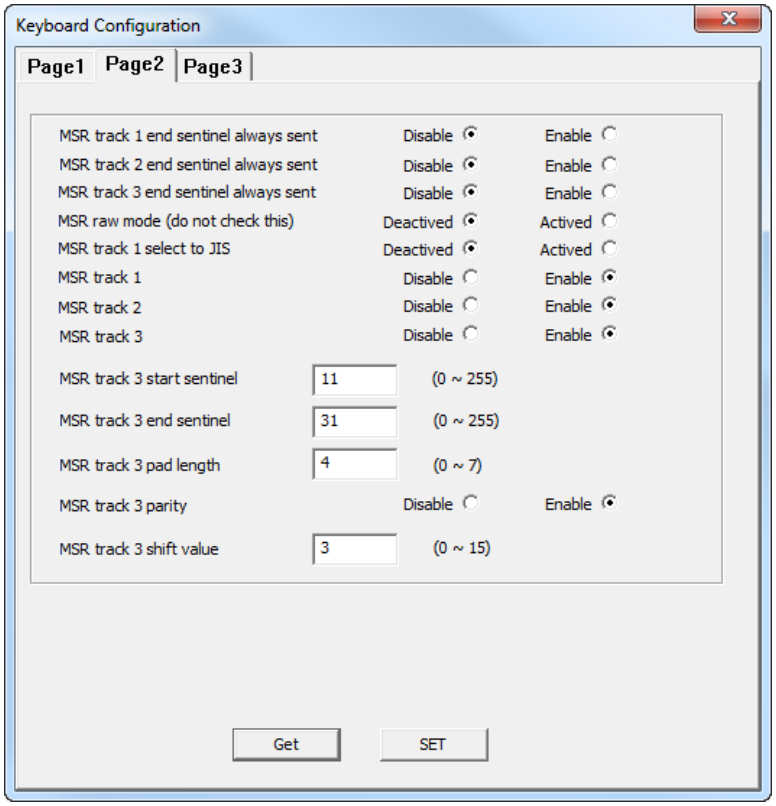
- Do not press any keys on the keyboard.
- Do not click the mouse.
- Do not touch the Touch panel.

- **Write All to Flash**—saves all configurations and key mapping to flash memory.

- **RS232 Control**—This window enables the user to modify RS232 control settings of the keyboard.
- **Keyboard Configuration**—opens a window with three tabs that enable the user to modify the configuration of the keyboard.
  - **General Parameters Tab**—permits the user modify options for the following parameters:
    - Keylock data mode
    - Numeric keypad layout
    - Double key error detection
    - Auto detection of blocking keys
    - Speaker control parameters
    - Keyboard, MSR, Touch, and USB setting on Keylock L position
    - Ctrl+Alt+Del protection
    - MSR and Keylock data modes

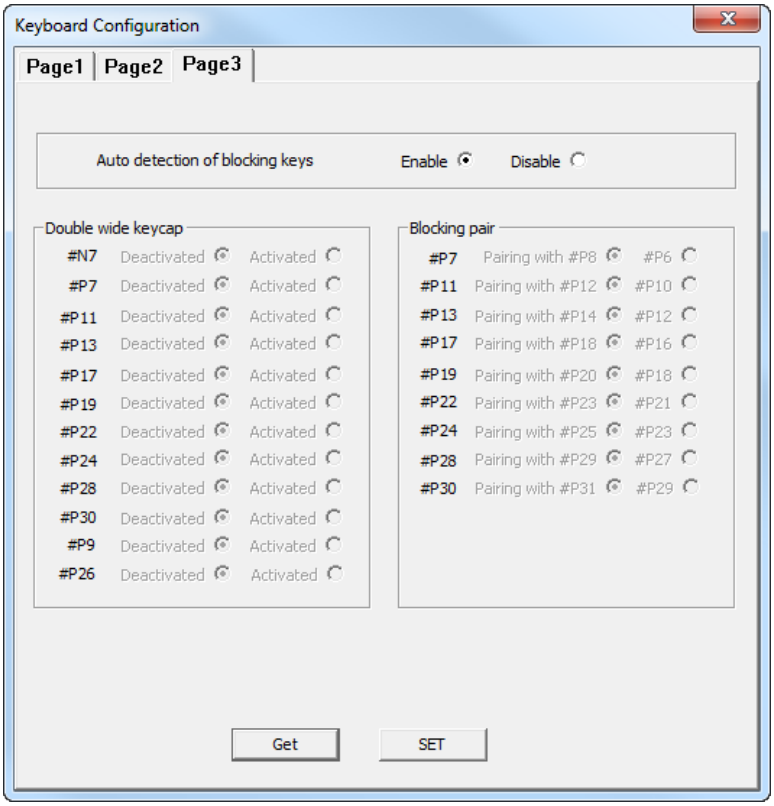


- **MSR Control Tab**—This tab enables the user to define options for MSR control.



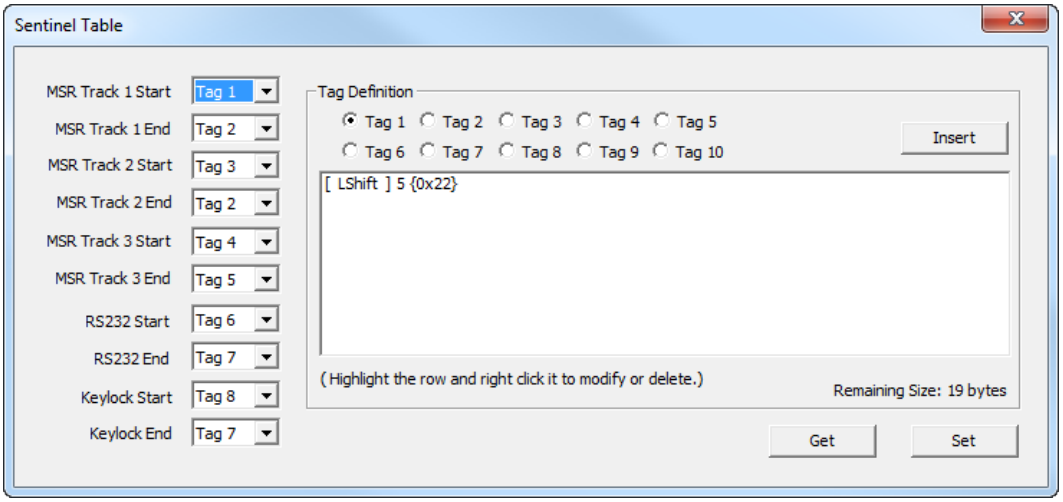
- **Blocking Keys Tab**—This tab permits users to define options for blocking keys.

Note: Disable the auto detection of blocking keys before defining the blocking keys options. The blocking keys option is only applicable when the auto detection of blocking keys option is disabled. When the auto detection of blocking keys option is enabled, the keyboard firmware during keyboard operation dynamically defines the options.



- **Sentinel Table**—permits user to modify MSR, RS232, and keylock sentinels.

Warning: This section is for advanced users and developers. Improper settings may cause an unexpected keyboard operation.



Diagnostic

- **Enter Test Mode**—enables the application to display the position of the key the key is pressed.
- Press any key and the application shows the position of that key. This feature is applicable only when testing the keyboard.

Note: If the keyboard provides the Keylock feature and the Repeat Enable option is activated, the application continuously outputs the Keylock position to the terminal. To stop this continuous output, press any other key.

- **Exit Test Mode**—enables the application to display the code program to a key when the key is pressed.
- **Load Factory Setting**—reloads the default factory setting to the device.

Note: Re–plug the keyboard and close the software after successfully executing this function.

- **Reset**—Resets the keyboard.

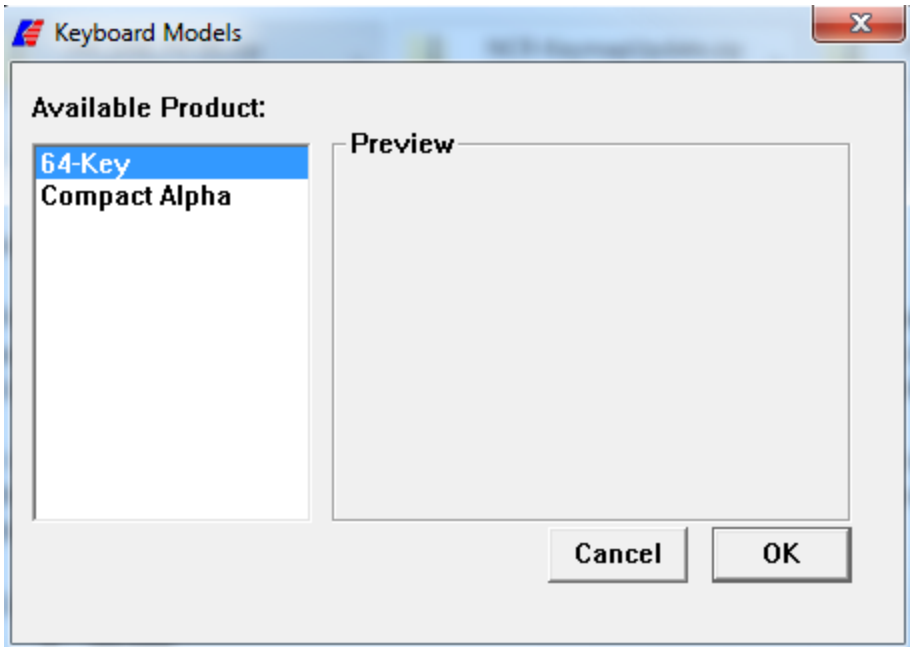
Note: This feature is applicable only when testing the keyboard.

- **Firmware Version**—displays the current version of the firmware.
- **Get Status**—displays the Keylock and drawer status of the device.

Using the Matrix Maker Utility

1. To launch the Matrix Maker Utility, do any of the following steps:
   - From the Start menu, go to **Start→All Programs→NCR Matrix Maker→NCR Matrix Maker**.
   - Select the Matrix Maker icon in the desktop.

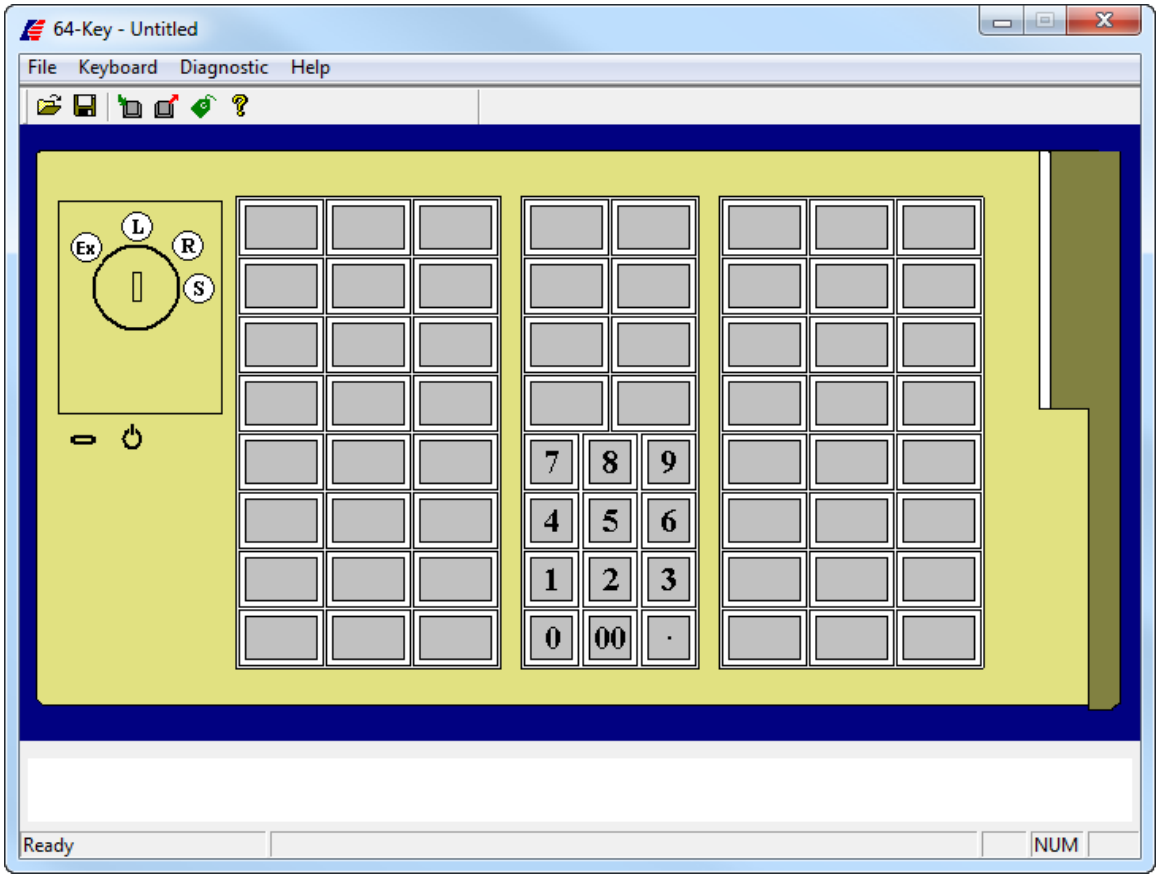
   The Matrix Maker application displays the Keyboard Category window.



2. Select the keyboard to be programmed from the Available Product menu, and then select **OK**.

   Upon start–up, the application displays the initial window that includes menu options and a virtual simulation of the programmable keyboard. To know the assigned code(s) to a key, hover the mouse pointer over the key. The Code Legend panel displays the code(s).

64–Key User Interface



Assign Code(s) to a Key using Key Code

Using the Key Code, you can map up to 256 codes to a single key position.

Caution: When assigning code(s) using the Key Code, remember the following restrictions:

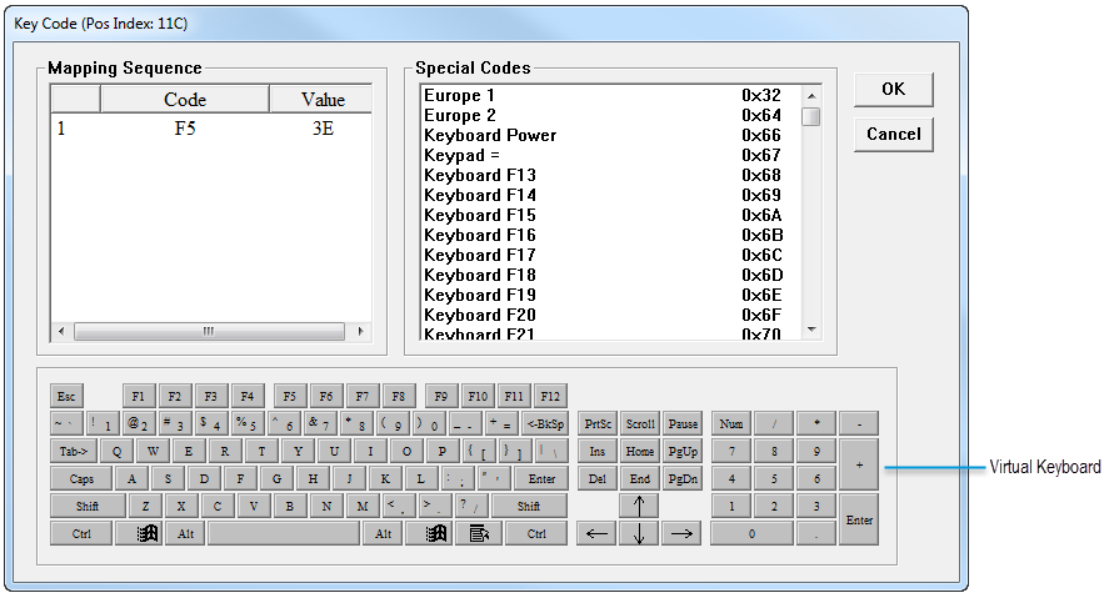
- Pay special attention when using the Shift, Alt, and Ctrl keys as they provide two states: down and up.

Example: If the left Shift key is pressed once in the Virtual Keyboard area, the user gets a down code which keeps the key in a down state. If this programming is kept, it would behave as if the left Shift key was pressed down continuously.

- For USB interface, the following codes cannot be assigned with other codes. On the other hand, if other code is assigned, the codes cannot be appended.
  - <Wake>
  - <Sleep>
  - <Power>
  - <Vol Up>
  - <Vol Down>
  - <Media Select>
  - <Mail>
  - <Calculator>
  - <My Computer>
  - <WWW Search>

To assign code(s) to a key using the Key Code, perform these steps:

1. Select the key to program, and then select **Key Code**. The application displays the following window.



The Key Code window enables the user to assign each key with a custom code(s).

- Mapping Sequence—displays the assigned code(s) in sequential order.
- Virtual Keyboard—displays a keyboard, which functions as an actual keyboard.
- Special Codes—displays the special codes that may not be included in the Virtual Keyboard

2. To assign the code(s) for the selected key, do any of the following steps:
   - Select the code from the Virtual Keyboard section, and then select **OK**.
   - Select the code from the Special Codes section, and then select **OK**.
3. To update the keyboard with the assigned codes, do any of the following steps:
   - From the main menu, select **Keyboard→Update Key Mappings**
   - From the shortcuts toolbar, select the icon.

Saving the Keyboard Matrix

The keyboard assignments that are set using the Matrix Maker utility can be exported to a DAT file. The DAT file serves as a backup and can also be used to update a keyboard to the same configuration. To generate a DAT file for the current keyboard matrix set in the Matrix Maker, follow these steps:

1. From the main menu, go to **File→Save As**. The Save As window is displayed.
2. Browse to the folder in which to save the file.
3. Input the file name, and then press **Save**.

Updating Keyboard Configuration Using a DAT file

The keyboard can be updated using a DAT file that is generated using Matrix Maker. For more information about generating DAT files, refer to *Saving the Keyboard Matrix* on the previous page.

To update the keyboard configuration using a DAT file, follow these steps:

1. Do one of the following steps:
   - From the main menu, go to **File**→**Open**.
   - Select the icon.
2. Browse to the folder where the DAT file is located.
3. Select the file, and then select **Open**.
4. To update the keyboard, do any of the following steps:
   - From the main menu, select **Keyboard**→**Update Key Mappings**
   - From the shortcuts toolbar, select the icon.

Windows Command Line Configuration Utility

The Windows Command Line Configuration utility is a command line tool that flashes and updates the keymap settings of a keyboard using a `.dat` configuration file created by the NCR Matrix Maker utility.

To use the command line configuration utility, perform the following steps:

1. Install the Microsoft package for the Visual Studio 2010 runtime libraries included in the download package.
   Double-click the `vcredsit_x86.exe` file and follow the on-screen instructions.
2. Open a Command Prompt window as an Administrator.

   Right-click on a Command Prompt shortcut→select **Run As Administrator**→select **Yes**.
3. Navigate to the directory where the `NCR-KeymapUpdate.exe` file is located.

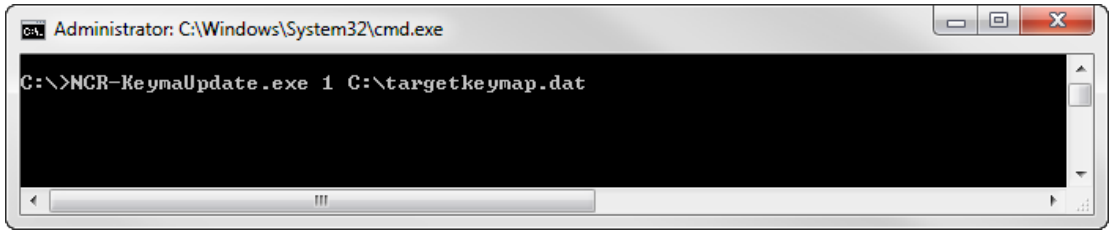
Note: Make sure that the `HYHidLib.dll` file included in the utility download package is located in the same directory as the `NCR-KeymapUpdate.exe` file.

4. At the command prompt, enter the following command:

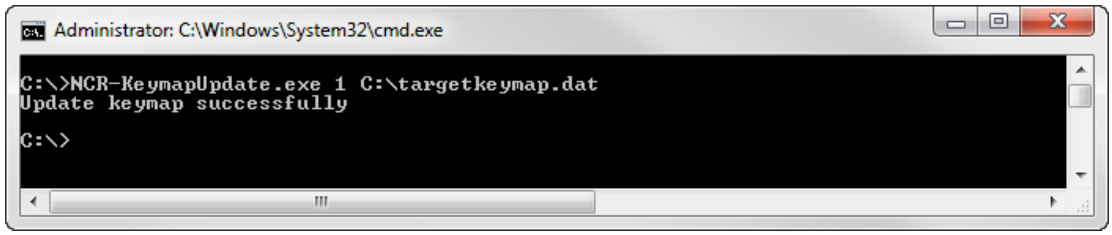
   ```
   NCR-KeymapUpdate.exe <1 or 2> <DAT file name>
   ```

   Where:

   - 1 – indicates a 105-Key Compact Alphanumeric Keyboard
   - 2 - indicates a 64-Key Keyboard
   - DAT file name – indicates the file name of the keymap configuration file to be installed to the keyboard. This file is created using the NCR Matrix Maker.

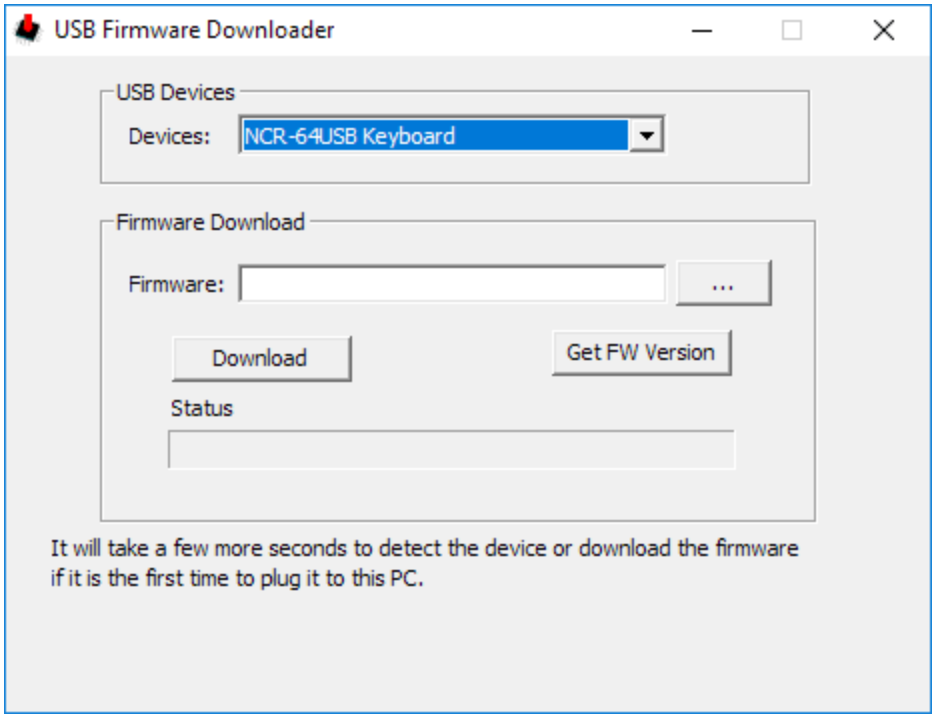


5. The window displays a command line to indicate a successful keymap update.



Windows GUI Firmware Update Utility

1. Connect the keyboard to a USB port.
2. Locate the `HY_USB_FD.exe` file specified during the Utility download.
3. Double-Click the `HY_USB_FD.exe` file to run and open the utility. The main window displays and automatically detects the keyboard.



4. In the Firmware Download section, select **...** to locate and select the firmware file to be installed to the keyboard.
5. Select **Download** to flash and install the firmware to the keyboard.
6. Select **OK** after the firmware has been successfully installed.
7. Select **Get FW Version** to retrieve and check the current keyboard firmware version.

Windows Command Line Firmware Update Utility

The Windows Command Line Firmware Update Utility is a command line tool that updates the firmware of the keyboard using the command prompt.

To use the Windows Command Line Firmware Update utility, perform the following steps:

1. Open a Command Prompt window as an Administrator.

   Right-click on a Command Prompt shortcut→select **Run As Administrator**→select **Yes**.

2. Navigate to the directory where the `HY-FirmwareUpdate.exe` file is located.
3. At the command prompt, enter the following command:

```
NCR-FirmwareUpdate.exe 2 <firmware file path>
```

Linux Command Line Flash and Configuration Update Utility

The Linux Command Line Flash and Configuration Update Utility gets the current keyboard firmware version and installs firmware and keymap updates to the keyboard using a command prompt.

This utility has two versions, for a 32-bit system and a 64-bit system, make sure to use the correct version for your system.

The "libusb" library is required to use Command Line Flash and Configuration utility.

To install the libusb library, perform the steps below:

1. Add the "oss" repository. Enter the following command:

   ```
   zypper addrep
   http://download.opensuse.org/distribution/11.4/repo/oss/ oss
   ```

2. Search if the libusb library is present or not in the oss repository. Enter the following command:

   ```
   zypper search --repo oss | grep libsub
   ```

3. Install the libsub0-1.0-devel library. Enter the following command:

   ```
   zypper install libusb-1_0-devel
   ```

To upgrade the firmware and keymap or get the firmware version using this utility, run the program as Root using the command format listed below.

- To upgrade the keyboard firmware, enter the following command:

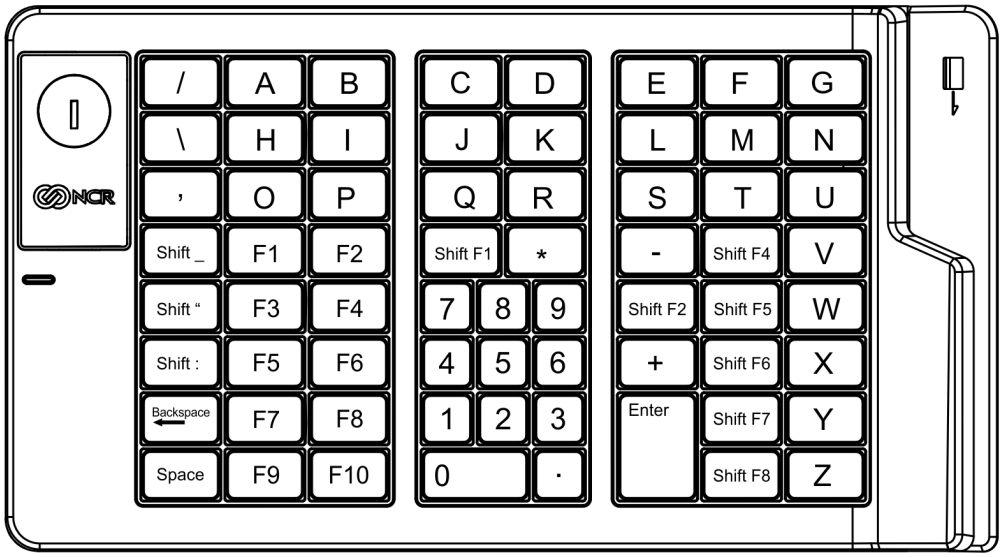
  ```
  ./update 2 1 <firmware_bin_file_name>
  ```

Keyboard Physical Layout

The NCR NCR 6932-2xxx 64-Key Keyboard has the following physical layout:

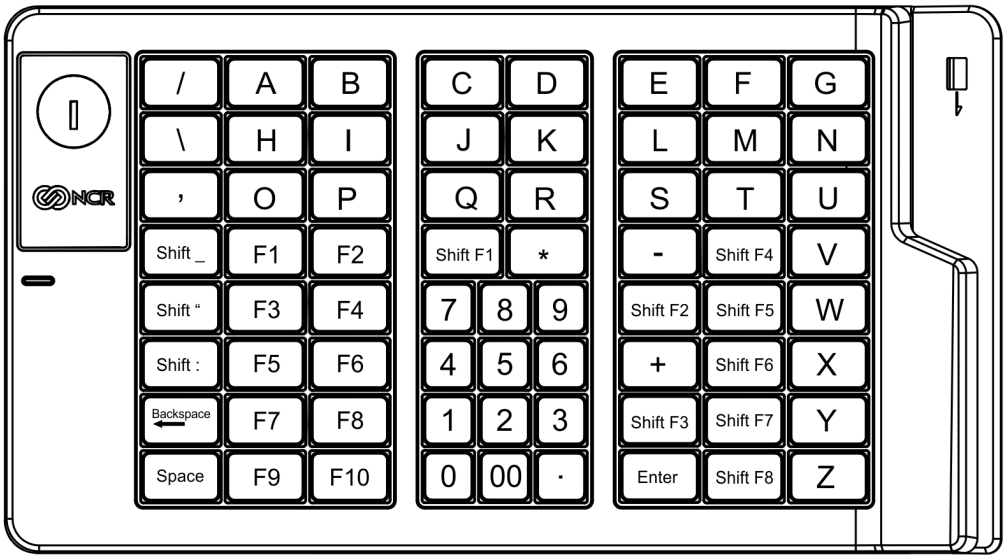
- Default Configuration—uses double–wide zero key and double–high Enter key.
- Optional Configuration—uses two single–wide zero keys (“0” and “00”), and single–high Shift F3 and Enter keys.

Default Configuration



CCP-72619

Optional Configuration



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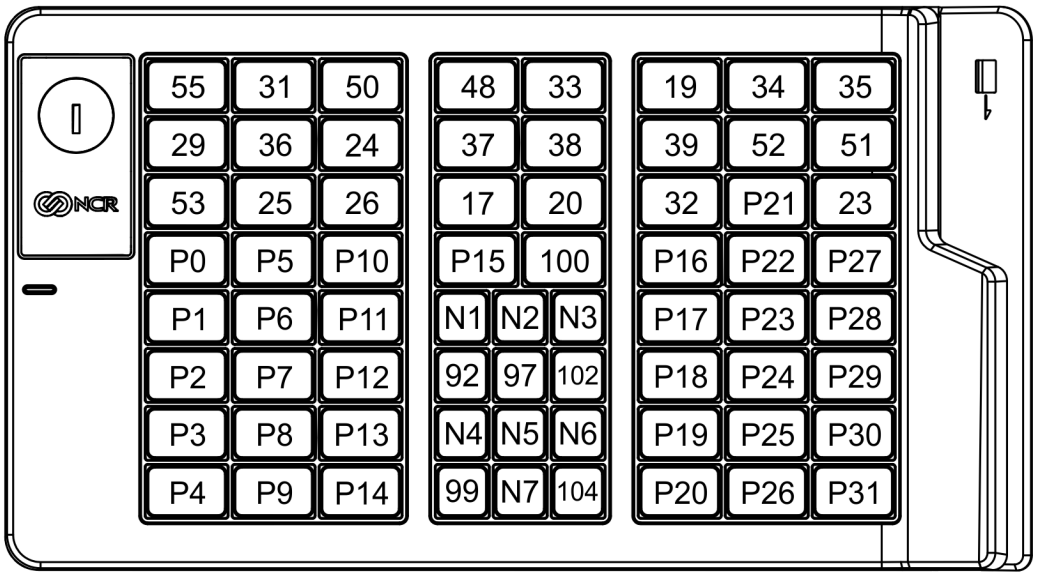
Key Position Number



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Note: The key position number is based on the IBM PS/2® keyboard standard key position number, however, some keys are unique in keyboard which are P0~P31 and N1~N7.

Unique POS Capabilities

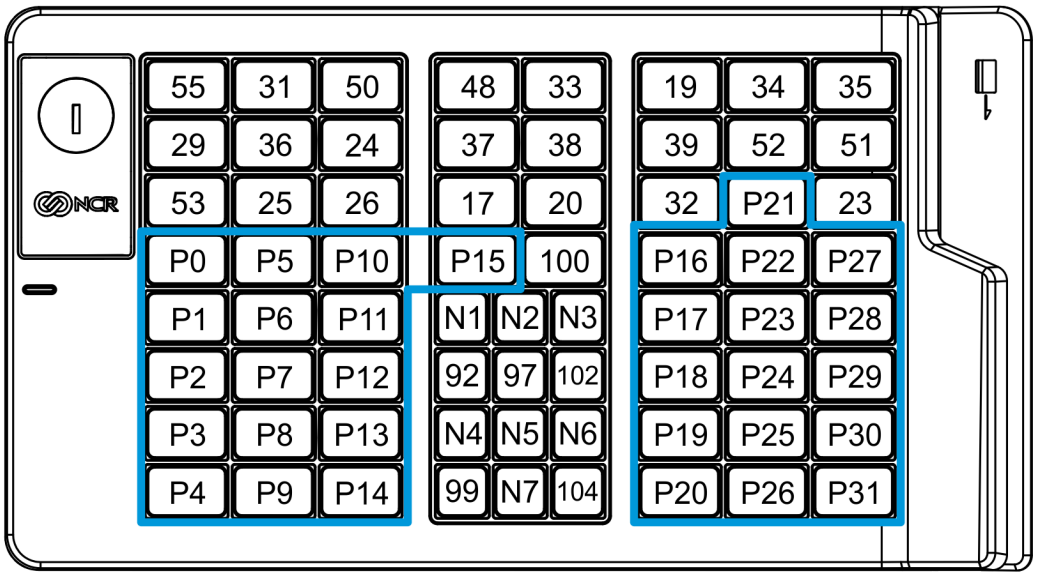
The keyboard firmware supports the following POS–specific extensions to the standard PC firmware:

- 32 Programmable POS Keys
- Numeric Keypad Layout
- Double High/Wide Keys
- Num Lock Operation
- Data Flash Subsystem

32 Programmable POS Keys

The NCR 6932-2xxx 64-Key Keyboard has 32 programmable keys that can be programmed to generate any standard keyboard key.

The highlighted area on the image below is the programmable key section.

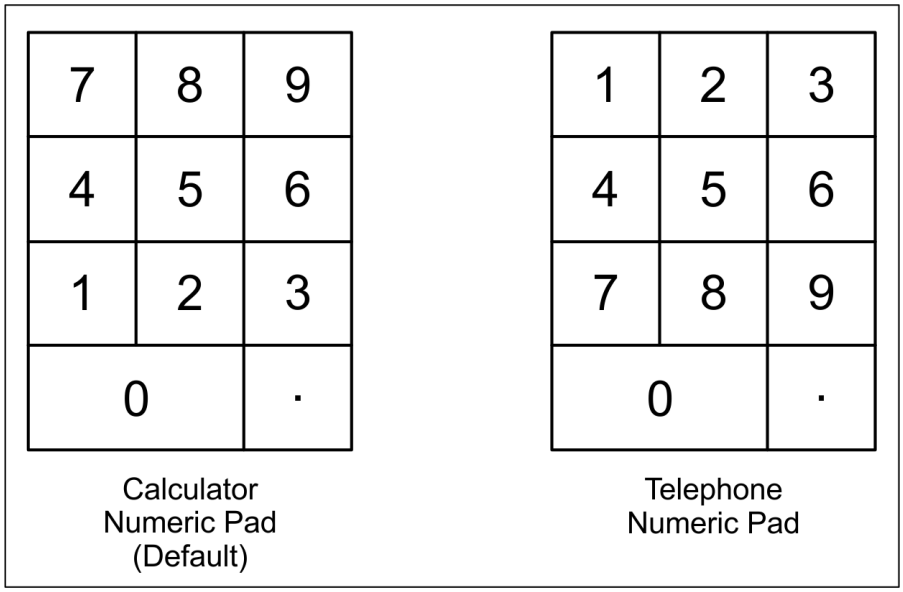


CCP-72622

Numeric keypad layout

The layout of the numeric keypad on the keyboard can be switched from the traditional "calculator" layout to a "telephone" layout.

Upon setting the Calculator/Telephone layout option flag in configuration data, the keyboard firmware switches from the default "calculator" numeric keypad layout to the "telephone" numeric keypad layout. If the host needs to restore the default "calculator" layout, the Calculator/Telephone layout option flag is cleared in configuration data.

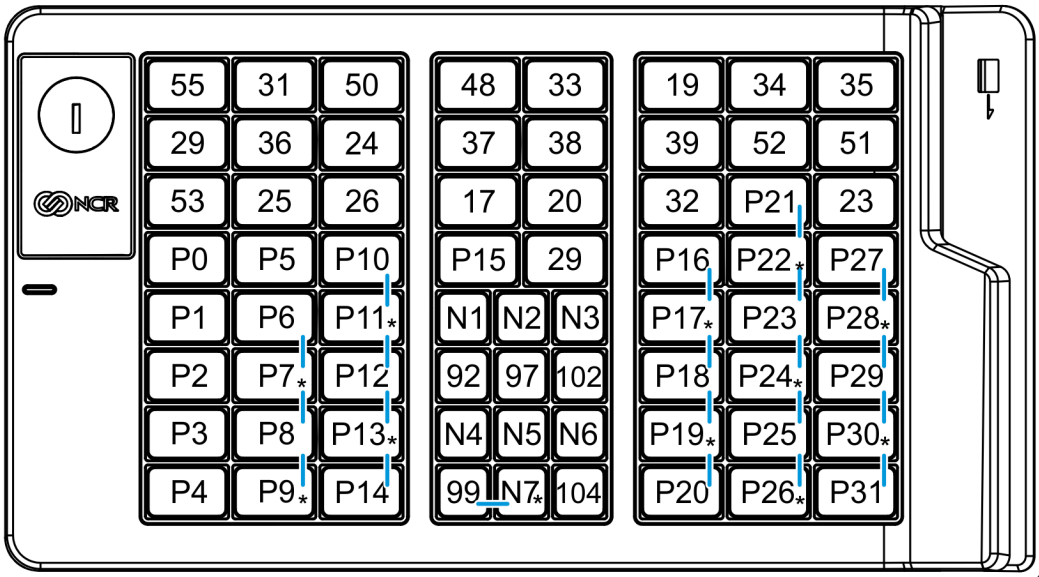


Note: Changing the numeric keypad layout also requires physically removing and swapping the key caps on the first and third rows of the keypad. The key codes for the numeric keypad are the same as those on a standard keyboard.

Double High/Wide Keys

Several keys on the keyboard can accept optional key tips that cover two keys to produce double high or double wide keys. When a double high/wide key tip is pressed, the keyboard firmware sends the key code for only one of the two keys.

In the following image, the bar on the keys indicates that a double high/wide keycap may be installed on the two adjacent keys. The asterisk (*) symbol indicates key locations that do not generate a key code when pressed simultaneously with another key.



CCP-72623

The keyboard supports the following methods of double high/wide key operation:

1. Auto Detection of Double High/Wide Key (factory default state)
2. User configurable Double High/Wide Key by configuring of configuration data

Double Key Error Detection

All the keys in 64 Key POS keyboard have a double key error detection capability which generates an error tone when two or more keys are depressed within 18mS.

When Double Key Error Detection is enabled and two or more keys are detected within an 18 millisecond period, the keyboard firmware will indicate an error condition in the same manner as a Buffer Overflow (01 Hex). The multiple keys detected within the 18 millisecond period will be ignored by the keyboard and not sent to the host system. Only the Buffer Overflow Indication will be sent to the system.

In case auto detection of double height/wide key is enabled, if two keys are depressed with 18mS and those two keys position is a valid blocking key pair, the keyboard will not generate an error tone, instead, the keyboard firmware regards this as a blocked key which is a double height/wide key.

When Double Key Error Detection is disabled, the keyboard firmware will not perform Double Key Error Detection and will transmit all key entries. This allows for system diagnostic and configuration software to receive two key codes for double size keys for initialization of the keyboard. Once the double size keys are defined, the configuration software will then activate the double key error detection feature while programming the keyboard for Blocking Keys.

Num Lock operation

When the keyboard is reset or powered up, the firmware send the NUM LOCK make and break codes to the terminal during the initialization. The firmware then monitors for the terminal to turn on the NUM LOCK indicator by using the Set/Reset Mode Indicator command.

During normal operation, when a key on the numeric keypad is pressed, the keyboard firmware examines the current state of the NUM LOCK and performs one of the following:

- **NUM LOCK Flag Clear**—the firmware sends the NUM LOCK make and break keycodes, and then sends the make code for the depressed numeric key to the host.
- **NUM LOCK Flag Set**—the firmware simply sends the make code for the numeric key pressed without sending a NUM LOCK keycode.

The NUM LOCK make or break code is sent before the code for each key on the numeric keypad until the NUM LOCK indicator is turned on by the terminal.

Chapter 4: Maintenance and Troubleshooting

Safety Reminders

Carefully follow these safety requirements before servicing the keyboards.

- The keyboard does not contain any user serviceable parts and should only be serviced by a qualified service technician.
- Before servicing the keyboard, plug your ground strap into a proper grounding outlet. Failure to do so may damage it. Also, disconnect the power cord from the POS terminal to which the keyboard is connected and disconnect the cables from the POS terminal to the keyboard.
- To protect the internal circuitry from damage, unplug the power cord and then momentarily press the power switch to drain the power supply capacitance.
- The power cord is used as the main disconnect device. Ensure that the socket outlet is located or installed near the equipment and is easily accessible.
- The keyboard should only be powered by a Safety Extra Low Voltage (SELV) power supply source with an available power level of 5 amperes or less, and suitable for the country of installation. The power source must be certified by the appropriate safety agency for the country of installation.
- If the peripheral does not have a fuse, it must be powered by an SELV power supply source.
- If the peripheral has a fuse, replace only with the same type and ratings of fuse for continued protection against risk of fire.

Troubleshooting the Keyboard

NCR offers both on–site and mail–in service for the keyboard. Before calling for service or mailing in your unit for repair, read the following troubleshooting tips to ensure the keyboard needs repair. These tips include actions that can be used to correct specific problems without the aid of a trained technician.

Note: For problems that are not listed in this section and those that are not resolved by the suggested solutions, call for service.

Keyboard is not working

Probable Cause	Possible Solution
The keyboard is not powered.	Check the POS terminal power.
The keyboard cable is not connected.	Connect the cable to the keyboard and connect the keyboard cable to the keyboard port of the POS terminal.
The keylock is in “L” position (LED green).	Turn the keylock to another position.
The keyboard is defective.	Call for service.

Some keys on the keyboard are not working

Probable Cause	Possible Solution
The keyboard cable is not connected.	Connect the keyboard cable to the PC keyboard port and to the back of the keyboard.
The keyboard is configured incorrectly.	Reconfigure the keyboard through the configuration software.
The keyboard is “hot–plugged” into the POS terminal while the POS terminal is powered on.	Reboot the system.
The keyboard is defective.	Call for service.

Numeric keypad is returning wrong keys

Probable Cause	Solution
The numeric keypad is not set up correctly.	Configure the keyboard numeric keypad for either **calculator** or **telephone** layout.
The keyboard is defective.	Call for service.

Speaker is not working

Probable Cause	Solution
The speaker function is not programmed correctly.	Verify that the speaker settings are correct.
The speaker harness is not connected.	Call for service.
The keyboard is defective.	Call for service.

MSR is not working

Probable Cause	Solution
The MSR card is not oriented properly.	Ensure that the magnetic stripe is oriented properly.
The keylock is in "L" position.	Turn the keylock to another position.
The MSR is not programmed correctly.	Verify that the MSR settings are correct.
The MSR harness is loose or broken.	Call for service.
The MSR is defective.	Call for service.

Scanner is not working

Probable Cause	Solution
An unsupported scanner is connected to the unit.	Ensure that the scanner is a serial scanner.
The keyboard is defective.	Call for service.

Keylock is not working

Probable Cause	Solution
The keylock ribbon cable is not connected.	Call for service.
The keylock is defective.	Call for service.

Cleaning the Keyboard

Perform the following actions to clean keyboard:

1. Turn off the POS terminal properly.
2. Unplug the cable from the keyboard.
3. Spray liquid cleaner (such as window cleaner spray or a product designed for cleaning office computer equipment) onto a soft cloth to wipe the keys and keyboard housing clean.

Caution: Do not spray liquid cleaners directly onto the keyboard.

4. Let the keyboard dry completely.
5. Use either a canned air type office supply cleaning equipment or a small vacuum to remove dust or foreign objects between the keys.
6. Plug in the keyboard cable. Keyboard is now ready for use.

Cleaning the MSR

MSR Cleaning Cards and MSR Treatment Cards may be purchased from NCR-Direct at http://www.ncr-direct.com. Customers who are participating in the NCR Partnership Services Program can also purchase cards through NCR Services using the NCR Part Numbers.

MSR Cleaning and Treatment Cards

Part	Part Number	NCR Part Number
MSR Cleaning Card, Dry		998-0052929
MSR Cleaning Card, Wet	520522	603-9014730 (box of 50)
MSR Treatment Card	9346-2446	497-0453056 (box of 20)

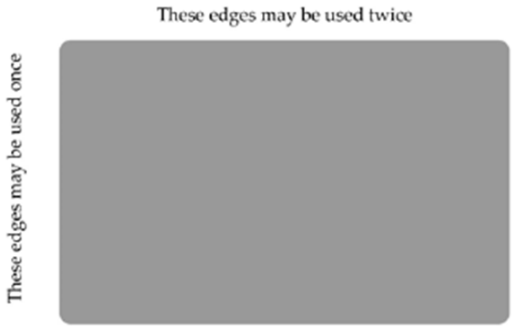
MSR Treatment Card

The MSR Treatment Card is used to assist in protecting Magnetic Stripe Readers from Electrostatic Discharge (ESD), which can cause failures when swiping cards that have metallic hologram stripes.

Swipe the card through the MSR in a smooth motion. Only swipe it down ONCE and up ONCE. Allow the device to dry for 5 minutes before swiping any other cards.

For two–headed readers, swipe the card through one head, turn the card over, and then swipe through the other head.

Note: Each long side of the card may be used twice. Each short side of the card may be used only once. Thus, a single card can treat 6 MSR devices with one UP and one DOWN swipe per MSR device. These limits should not be exceeded due to the possibility of spreading contaminants from machine to machine and/or reducing ESD protection.



Note: If all six up/down swipes are not used on a fresh card it should be placed in a sealed (Ziploc) bag for future use.

Cleaning and Treatment Frequency

New MSR

Prior to placing in operation, the MSR device should be swiped with the MSR Treatment Card.

Existing MSR

An existing MSR should be cleaned using an MSR Cleaning Card before treating it with a MSR Treatment Card. For low use retail establishments, the cleaning and treatment procedures should be followed at least once per month. In areas of extremely high traffic (in excess of 500 swipes per day) or an operating environment that is high in contaminants, such as found in the food service industry, a weekly cleaning and treatment should be performed.