SK-200 / SK-212
Laser Barcode Scanner
User's Manual

Rev. A0

FCC Notes: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to EN55022 and 47 CFR, Part 2 and subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures to correct the interference.
For CE-countries: This scanner is in conformity with CE standards. Please note that an approved, CE-marked power supply unit should be used in order to maintain CE conformance.
Laser Safety: The laser scanner complies with safety standard IEC 60825 –1 for a Class I laser produce. It also complies with CDRH as applicable to a Class IIa laser product. Avoid long term staring into direct laser light.
Radiant Energy: The laser scanner uses one low-power visible laser diodes operating at 650nm in an opto-mechanical scanner resulting in less than 3.9μW radiated power as observed through a 7mm aperture and averaged over 10 seconds.
Do not attempt to remove the protective housing of the scanner, as unscanned laser light with a peak output up to 0.8mW would be accessible inside.
Laser Light Viewing: The scan window is the only aperture through which laser light may be observed from this product. A failure of the scanner motor, while the laser diode continues to emit a laser beam, may cause emission levels to exceed those for safe operation. The scanner has safeguards to prevent this occurrence. If, however, a stationary laser beam is emitted, the failing scanner should be disconnected from its power source immediately.
Adjustments: Do not attempt any adjustments or alteration of this product. Do not remove the protective housing of the scanner. There are no user-serviceable parts inside.
Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.
Optical: The use of optical instruments with this product will increase the eye hazard. Optical instruments include binoculars, magnifying glasses, and microscopes but do not include normal eye glasses worn by the user.
Warranty Limits: Warranty terminates automatically when any person other than the authorized technicians opens the machine. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

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P/N: 18050900040

PRODUCT INFORMATION

KIT NAME: SK-200
KIT CONTENT (Besides this guide)**:**

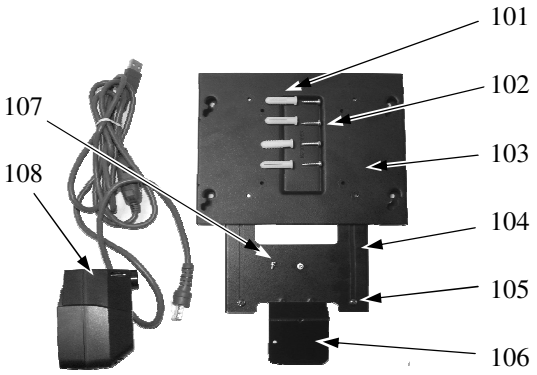


Fig. 1 Kit content besides this guide

ITEM	PART NUMBER	DESCRIPTION	Q'TY
101	10241000021	Plastic Cotter	4
102	10641040162	Self Tapping Screw 4ϕ-16L	4
103	16200123053	Wall Mount Bracket	1
104	18050101013	Fix Bracket	1
105	10684038083	Slide Adjust Screw, #6/32-8L	2
106	18050100013	Slide Bracket	1
107	10661030062	Pan Head Screw M3-6L	2
108	52626010034	Omni-directional Laser Barcode Scanner	1

Note: Items 103 to 106 are preinstalled as a bracket kit. Item 108 is delivered with interface cable separate from the main scanner unit.

If any contents are damaged or missing, please contact your dealer immediately. Please leave this user's manual within easy access of person using the scanner.

KIT APPLICATION: This kit is applicable to all 15" & 17" KS & TP series

KIT NAME: SK-212
KIT CONTENT (Besides this guide)**:**

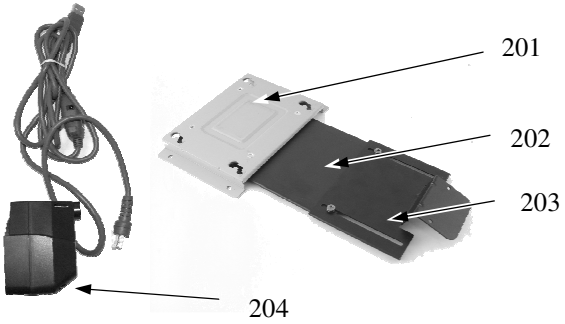


Fig. 2 Kit content besides this guide

ITEM	PART NUMBER	DESCRIPTION	Q'TY
201	36596005010	WALL MOUNT KIT	1
202	18050103013	TOP SCANNER BRACKET,B SK-212	1
203	18050104013	BOTTOM SCANNER BRACKET,B SK212	1
204	52626010034	Omnidirec Laser Code Scanner	1

Note: If any contents are damaged or missing, please contact your dealer immediately. Please leave this user's manual within easy access of person using the scanner.

KIT APPLICATION: This kit is applicable to all 12" & 10" KS terminal & LM/TM series

INSTALLATION GUIDES

FOR SK-200

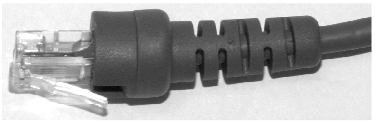


Fig. 3 RJ45 Type Modular Plug

1. Install the USB interface cable onto the scanner by inserting the 8 pin RJ45 type modular plug (**Fig. 3**) of the cable into the scanner until a firm click is heard.

Fig. 4 Fix the Scanner

2. Turn the bracket kit (items 103 ~ 106) to the rear side, and match the 2 screw holes on the back of the Laser scanner (item 108) with the Laser scanner itself upside down. Apply the 2 screws (item 107) to join them as arrowed in the right picture **Fig. 4**.
3. Select a flat surface on wall of adequate strength and with proper ventilation and space condition. Please use the right material to hold the whole kit according to the wall material (Drywall, concrete, solid wood, etc). Consult with your contractor if it is necessary. A fully equipped system supported on the bracket may weigh up to 11 kg or 23 lbs. Unfold the paper template attached to last page of this manual and cut it down along the guide line to work as guide for drill pattern on the wall surface in correct orientation. Drill 4 holes in rectangular layout as marked in the template that gives a rectangular drill pattern of 6.77" or 172 mm wide (horizontal) and 3.82" or 97 mm high (vertical). Hole diameter should be 1/4" or 6.35 mm each. Hole depth should be at least 1 and 3/8" or 35 mm. Please then insert one plastic cotter (item 101) into each hole leaving the flat end with hole of the plastic cotter at the outside opening of the hole. Use a hammer to tap the plastic cotter in gently if necessary.

4. Remove the template and hold the bracket against the wall. Make sure that the wider part of each of the four matching holes faces in the upward direction. Screw (item 102) at screw holes through matching holes into plastic cotters. The result will look like the rightmost picture in **Fig. 5** below.

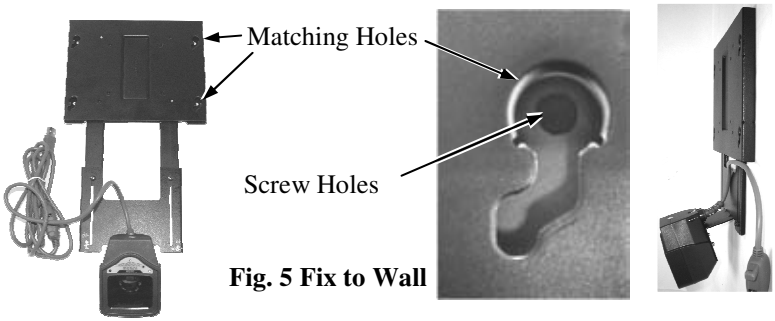


Fig. 5 Fix to Wall

5. Loosen the 2 slide adjust screws (item 105) arrowed in **Fig. 6** at right by turning counterclockwise for a quarter to half turns to lower the slide bracket with scanner. Then hang the main unit of a KS or TP series touch terminal or touch monitor on to the bracket, align the four matching pegs on the back of the main unit to the four matching holes in the bracket (marked by rectangles in the picture), allow the main unit to go down the guide by gravity, push it to the left and allow it to seat in the lowest corner of the matching holes.
6. As a remark for future removal of the main unit from the bracket, please remember to raise the main unit, move it to the right and further raise it up to allow matching pegs to come out of the matching holes.

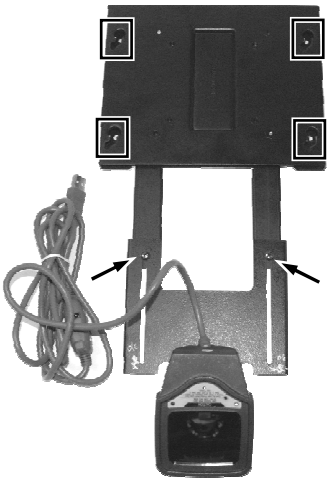


Fig. 6 To Join the Main Unit

7. Connect the USB cable to an USB port of the main unit. Do all necessary connections for the main unit. Replace the cable cover and keep the excessive part of the cable inside the cable cover as much as possible. Then slide the slide bracket up to proper position required for use. Tighten the 2 slide adjust screw. The front view of the scanner will look like **Fig. 7** at right. Peel off the protective film on scanner for ready to use after all the operations done.

Fig. 7 Mounted

FOR SK-212

1. Install the USB interface cable onto the scanner by inserting the 8 pin RJ45 type modular plug as the first step of SK-200 until a firm click is heard.

2. Turn the bracket kit (items 201 ~ 203) to the rear side, and match the 2 screw holes on the back of the Laser scanner (item 204) with the Laser scanner itself upside down. Apply the 2 screws (included in the kit's content) to join them as arrowed in the right picture **Fig. 8**.

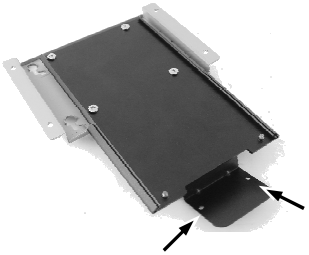


Fig. 8 Fix the Scanner

3. Select a flat surface on wall of adequate strength and with proper ventilation and space condition. Please use the right material to hold the whole kit according to the wall material (Drywall, concrete, solid wood, etc). Consult with your contractor if it is necessary. Unfold the paper template attached to last page of this manual and cut it down along the guide line to work as guide for drill pattern on the wall surface in correct orientation. Drill 4 holes in rectangular layout as marked in the template that gives a rectangular drill pattern of 5.75" or 146 mm wide (horizontal) and 2.95" or 75 mm high (vertical). Please then insert one plastic cotter (including in the Wall Mount Kit) into each hole leaving the flat end with hole of the plastic cotter at the outside opening of the hole. Use a hammer to tap the plastic cotter in gently if necessary.

4. Remove the template and hold the bracket against the wall. Make sure that the wider part of each of the four matching holes faces in the upward direction. Self Tapping Screw (including in the Wall Mount Kit) at screw holes through matching holes into plastic cotters. The result will look like the following picture in **Fig. 9** below.

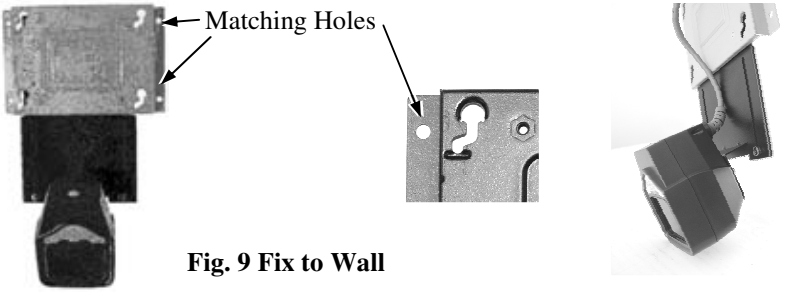


Fig. 9 Fix to Wall

5. Loosen the 2 slide adjust screws which are arrowed in **Fig. 10** at right by turning counterclockwise for a quarter to half turns to slide the bracket with scanner upper or lower. Tighten the 2 slide adjust screw right after the adjustment .Then hang the main unit of a KS or LM/TM series on to the bracket, align the four matching pegs on the back of the main unit to the four matching holes in the bracket (marked by rectangles in the picture), allow the main unit to go down the guide by gravity, push it to the left and allow it to seat in the lowest corner of the matching holes.

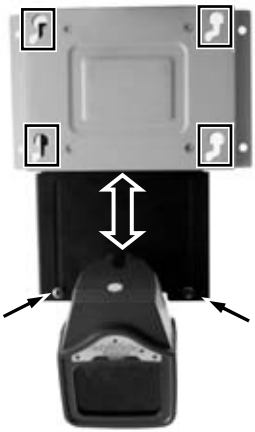


Fig. 10 To Join the Main Unit

6. As a remark for future removal of the main unit from the bracket, please remember to raise the main unit, move it to the right and further raise it up to allow matching pegs to come out of the matching holes.

7. Connect the USB cable to an USB port of the main unit. Do all necessary connections for the main unit. Then slide the slide bracket up to proper position required for use. The front view of the scanner will look like **Fig. 11** at right. Peel off the protective film on scanner for ready to use after all the operations done.

Fig. 11 Mounted

USING THE SCANNER

SCANNER INTRODUCTION

Features

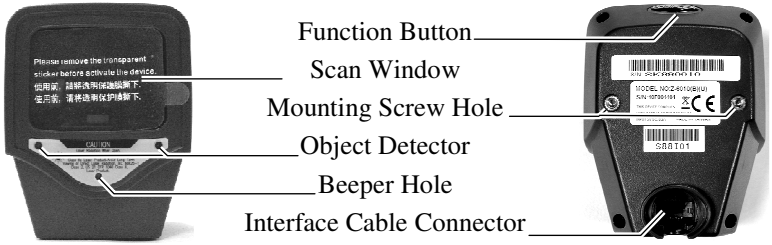
The scanner unit is a compact and space-saving hands-free omni-directional laser scanner. It can operate in a single-line laser scan mode by pressing down a button. It is installed upside down in SK-200/212. Featured with Z-scan hardware decode technology, it guarantees the real-time decode and provide the best scanning performance you could expect.

The scanner includes key features as:

- Button switch in between omni-directional and single–line scanning capability, ideal for increasing your operating efficiency.
- Powerful 20-line scan pattern yields:
  - ✓ 1400 scans per second for omni-directional scanning
  - ✓ 74 scans per second for single-line scanning
- Implement with the proprietary real-time hardware decoding technology that ensures instant recognition and decoding barcodes

Parts Identification

Each part of the scanner as indicated in the front and rear pictures below are described in the table below. Please note that the scanner unit is installed upside down on SK-200/212 bracket.



Description	Function
Scan Window	Reads barcodes
Object Detector	Trigger and wake up scanner automatically when presented with barcode in its range
Beeper Hole	For beep tone indication

Function Button (Embedded with the LED Indicator)	**Wake up scanner** When the scanner enters the sleep mode, pressing this switch can wake the scanner up. The sleep mode feature can be programmed using the menu labels from the Programming Guide. **NOTE:** The default time-out value is set to 10 minutes after laser slept, 30 minutes after motor slept. When the scanner is in sleep mode, the LED inside function button is intermittently flashing Blue.
	Single -line mode Press and release the button will activate single line scan mode.
Mounting Screw Holes	To fix the scanner onto the bracket of SK-200/212 kit.
Interface Cable Connector	For USB interface cable connection.

Operation Status

When the scanner powers up, the buzzer gives four beeps and the LED indicator in function button glows.

Present a known-good test barcode to the scanner. The scanner should issue a short beep and the LED should flash red momentarily.

Note: Refer to LED Indications and Beeper Indications sections in later part of this booklet for operation status or refer to the section on Troubleshooting Guide for diagnostic tips.

Supported Bar Code Types

Supported Bar Code (Symbol) Type	Default Status
UPC, EAN, JAN	Enabled
ITF 2 of 5	Disabled
Code 39	Enabled
Codabar	Disabled
Chinese Post Code	Disabled
MSI / PLESSY	Disabled
Code 93	Disabled
Code 128	Disabled
Code 32 (Italian Pharmacode)	Disabled
ISSN / ISBN	Disabled
EAN-128	Disabled

SCANNER SETUP (PROGRAMMING)

In most of the cases no setup is required. The default setup of the scanner makes the scanner able to detect automatically the most commonly applied bar code types as tabulated above and send the data to the host system as if they are read from an USB keyboard. To read the disabled bar code types, the programming barcodes enclosed in the later sections of this booklet are required to enable the required bar code type.

There are other advanced features like beep tone, sleep mode timings, same-code delay time, setting headers and trailers for data output and setting some particular parameters within each code type, or even some legacy settings like the communication interface type (actually only USB is applicable in SK-200/212) can be achieved by downloading the advanced programming bar codes from our web site and scanning the printed programming codes.

Individual parameters may be set at any time without affecting the other parameters.

Scan Test

With the scanner running (LED blue) and the host system on with an active window of a text editor, try to scan several known-good barcodes.

Check the results on the system screen. If the scanner is reading okay, no further setup may be necessary.

If the POS screen does not show the expected scans, go to Set Up, below.

Reset to Default Status

Since there is a legacy feature in scanner firmware development history to support other interface than USB which is the only applicable interface for SK-200/212, when you want to reset the scanner to default status, please scan <Enter/Exit programming mode>, <.RESET>, <Return to USB default> (or <Return to customer default> if a customer preference has been saved previously) and <Enter/Exit programming mode> consecutively.

Set Up

When the scanner is powered on (LED blue), present the <Enter/Exit programming mode> barcode, found in the Programming Codes section, to the scanner. The scanner gives two beeps: low and high, and the LED turns red. The scanner enters programming mode.

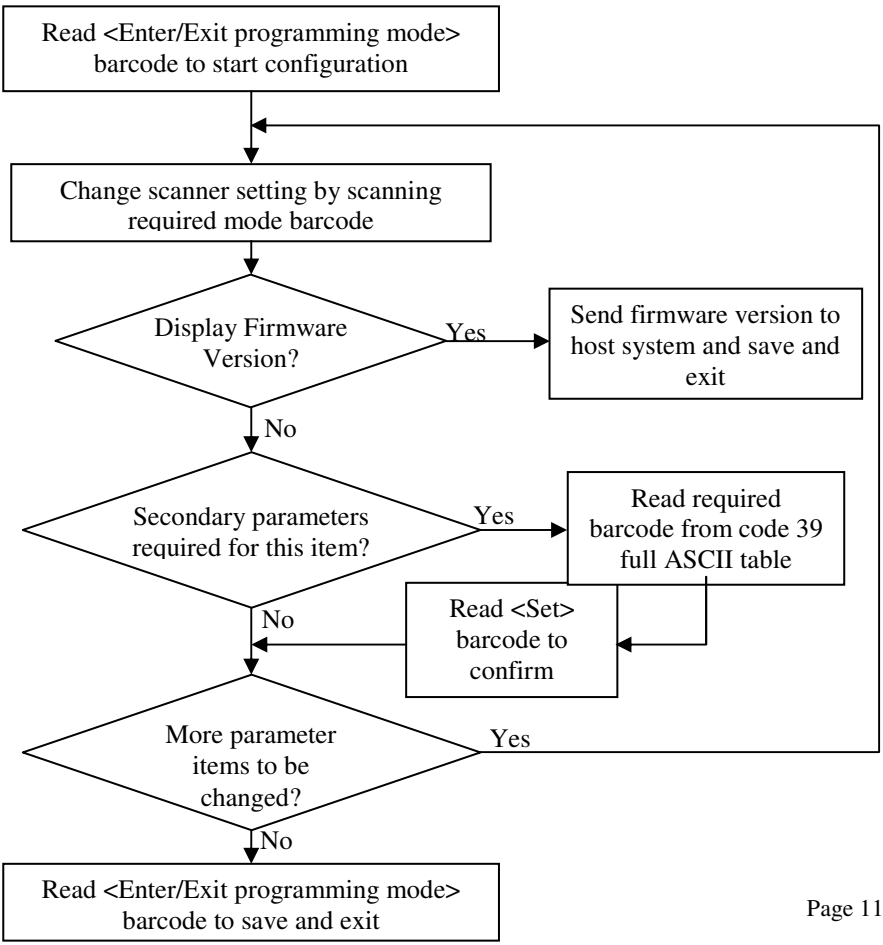
Decide which parameters are required and find their barcodes in the programming codes section.

Cover unwanted codes with your hand and present the desired codes, one by one, to the scanner, the scanner beeps once as it accepts each code.

When done, again present the <Enter/Exit programming mode> barcode. The scanner beeps twice, once long and once short, and the LED returns to blue. The scanner has been programmed. Of course you may also read the <Abort> to exit the programming mode if the changes made are not desired.

Test again with known-good barcodes. If results are good, you are done setting up. Otherwise, return to step 1 and try again.

A demonstrative process flow chart is given below to illustrate the whole setup process.



SCANNER OPERATION

Operating the Scanner

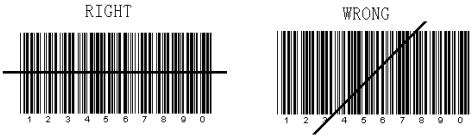
The scanner reads barcodes in omni-directional scan mode as regular practice. It can also operate in single-line mode for a better aiming on a specific barcode that is printed on a surface with more than one barcode printed closely.

Single Line Scan Mode

In this mode the scanner can emit a single line pattern for user to selectively scan at a barcode among multiple barcodes on one object. It can be achieved simply by pressing one button.

Press and then release the function button (where the indicator LED resides), a line pattern appears, it allows you to aim at the barcode. However, for SK-200/212, please first pick the scanner unit up from the stand if the stand is used before pressing function button to enter this mode.

Ensure the scan line crosses every bar and space of the symbol code as indicated in the right.

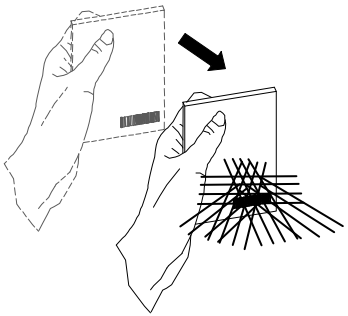


Press the function button to decode and transmit the barcode, the good read beeps once. For consecutive single line scan, present the next barcode and press the function button within 5 seconds.

When the function button is released, it automatically switches back to omni-directional scan mode in 5 seconds. Press the button again to switch to single-line scan when necessary.

Omni-Directional Scan Mode

The scanner will always stay active in Omni-Directional Scan mode in normal operation. In other words, the scanner will always emit multiple scan lines for the convenience in reading a barcode. To have successful barcode reading in this mode, the barcode must be presented in the way that there is at least one of the scan lines crosses every bar and space of the symbol code as indicated in the right.



Sleep Mode

After the scanner has been inactive for a period of time, the laser automatically turns off; then the motor will turn off and the scanner will enter the “Sleep Mode”, the blue status LED keeps blinking as indication. To wake up the scanner, simply

present an object close to the exit window, or press the function button.

Note: The scanner includes a motion sensor that detects activity in front of the scan window. The detecting distance is up to about 15cm (6 inches) from the scan window.

Change Beeper Volumn Using Function Button

The beep tone, volume and duration are programmable by advanced programming codes. And the beep volume is adjustable by pressing the function button

The volume has 3 different levels, low, medium, loud, follow the following steps to tune the volume.

Always keep the scanner operating.

Press and hold down the function button for about 3 seconds, the scanner will enter (medium --- low --- loud) beeper cycle, every level of setting beeps twice.

Release the button when you hear the right beeps.

The scanner beeps accordingly.

Note: .The volume setting in this way is not saved in non-volatile memory. In other words, the change will be lost by power-off and reset to the configured setting. Use the advanced programming guide to set the changes if you wish to keep the changed volume setting.

LED Indications

A dual color red-blue LED indicates operating status as follows:

LED status	Indication
Off	No power supplied to the scanner
Steady blue light	The scanner is on and ready to scan
One red flash	A barcode has been successfully decoded.
Steady red light	A barcode has been successfully decoded, but the object is not removed from the scan window.
	The scanner is in programming mode.
Flashing blue light	The scanner is in sleep mode.
Steady red and blue light	This indicates the scanner has a motor or laser failure. For motor failure, a periodic beep is sounded. Return the unit for repair.
Alternate flashing red and blue light	The scanner detects failing power. Please check the power supply.

Beeper Indications

A beeper gives audible feedback on scanner operation.

Beeps	Indication
One beep	A barcode has been successfully decoded.
Four beeps in series	This indicates the scanner passed the power on self-test and is operating properly.
Two beeps: low-high	The scanner has entered programming mode.
Two beeps: same tone	Scanner has returned from programming to normal mode.
Continuous tone	This is a failure indication. Return the unit for repair.

SCANNER MAINTANTENCE

Maintaining the Scanner

The scanner is designed for long-term trouble-free operation and rarely requires any maintenance. Only an occasional cleaning of the scanner window is necessary in order to remove dirt and fingerprints.

Cleaning the Scan Window

Wipe the scan window with a soft lint-free cloth and a non-abrasive cleaner to avoid scratching and damaging the scan window. The scan window may be cleaned while the scanner is running.

Replacing Interface Cable

The standard interface cable is attached to the scanner with an 10-pin modular connector. When the connector is properly seated, it is secured in the scanner by a flexible retention tab. The cable is designed to be field replaceable.
Replacement cables can be obtained from your authorized distributor.
To replace the cable, take the following steps.
Make sure the power of both host computer and the scanner is switched off.
Disconnect the old scanner cable from the computer system.
Press down the retention tab, and gently pull out the cable.
Insert the new interface cable into the bottom of the scanner until it clicks.
Plug the new cable into the host.

TROUBLE SHOOTING GUIDE

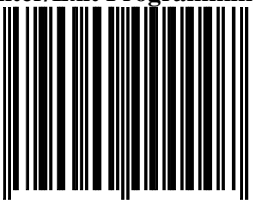
This section contains information about how to solve problems that you may encounter when operating the scanner. If troubles occur, please refer to the following diagnostic tips as a mean to solve the trouble. However, before referring to the tips, make sure that the scanner is installed as instructed in this manual and that all cables are properly connected. If the problem remains, contact your dealer.

Problem	Diagnostic Tips
The scanner is on but cannot read barcodes. The LED stays blue	The scanner window is dirty. Clean the scanner window as described in the Maintenance section.
	The presented barcode type is not enabled. Use the Programming Guide to tell the scanner to accept that type of barcode.
	The host has disabled the scanner. Check host setup.
	The barcode type presented is not supported by the scanner.
The scanner is on, but the motor is not running; the facet wheel is not rotating. A barcode cannot be read. The LED is intermittently flashing blue.	The scanner has entered into the sleep mode. Press the function button to wake up the scanner, or present an object close to the scan window.
The LED remains red and blue (purple).	Possible failure of the scanning safeguard circuit. Disconnect the scanner from its power source immediately and contact your dealer.
The scanner does not accept more than two or three bar-code labels.	There is no proper handshaking with the POS system. Check connection and communication settings of the host POS system.
	A stray barcode is sitting somewhere in the scanner field of view. Remove all barcode labels from the scanner's scan volume and try again.
	The scanner cannot send the data to the POS system. Make sure that all cables are connected and your host POS system is ready to receive data.
A barcode is read by the scanner but not accepted by the POS system.	The communication settings of the system and scanner do not match. Adjust the settings so they match.
	The communication cable used is incorrect. Contact your dealer for the correct communication cable.
	The software running on the POS system does not support the data format of the barcode label.

PROGRAMMING CODES

All framed barcode names represent as default settings.

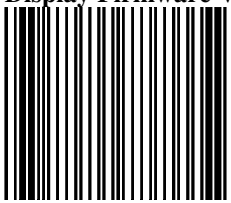
Enter/Exit Programming Mode



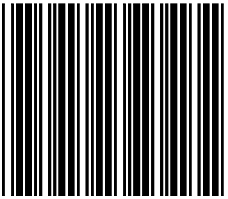
Note: This code to enter and exit programming mode is also printed on the last page of this section for ease of application.

Note: The reading of the "Display Firmware Version" label will show firmware version and exit the programming mode.

Display Firmware Version

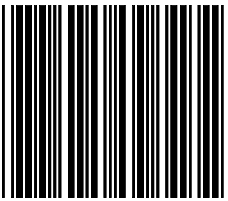


RESET

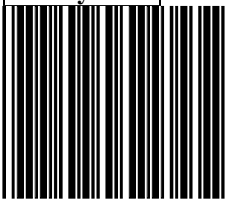


Note: The reading of the “RESET” label turns all the parameters back to default values but leaving the interface mode unchanged. It is suggested to scan also the “Return to USB default” label after this for SK-200/212 scanners.

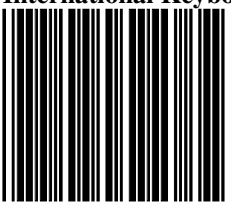
Return to USB default



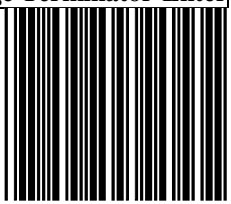
US Keyboard



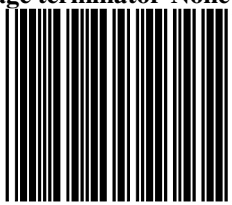
International Keyboard (ALT method)



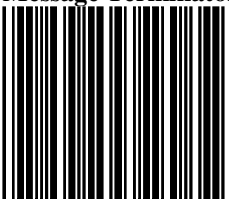
Message Terminator-Enter



Message terminator-None

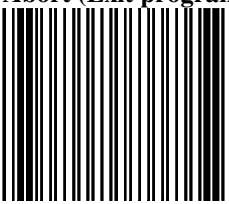


Message Terminator-H.tab

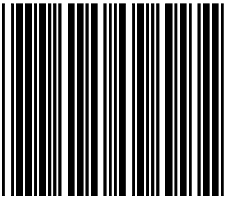


Note: The reading of the "ABORT" label discards all the parameters changed previously. However the reading of the "Enter/Exit of Programming" label is still required to exit the programming mode.

Abort (Exit programming mode)



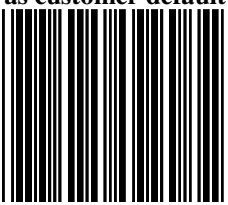
Return to customer default



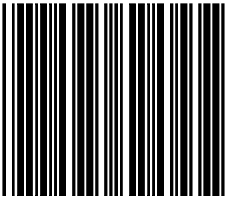
Note: The reading of the label will recover all parameter back to customer default.

Note: The reading of below label allows the current settings to be saved as a customer default.

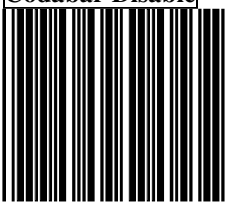
Save as customer default



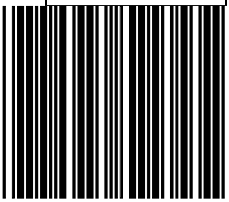
Codabar Enable



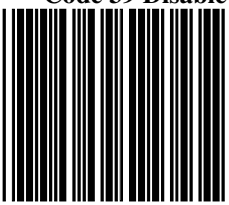
Codabar Disable



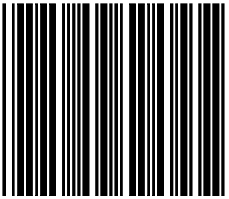
Code 39 Enable



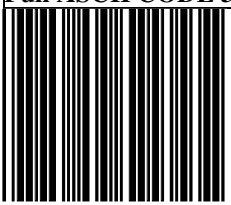
Code 39 Disable



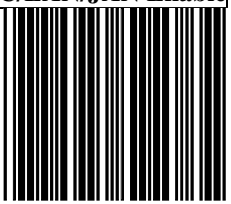
Full ASCII CODE39 Enable



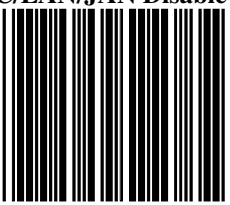
Full ASCII CODE 39 Disable



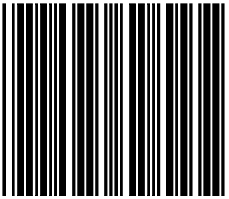
UPC/EAN/JAN Enable



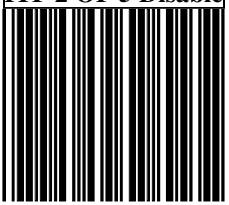
UPC/EAN/JAN Disable



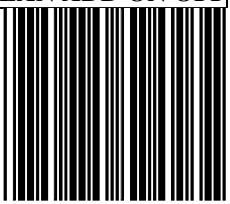
ITF 2 of 5 Enable



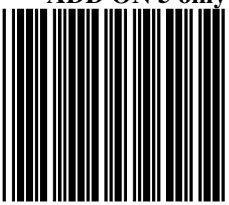
ITF 2 OF 5 Disable



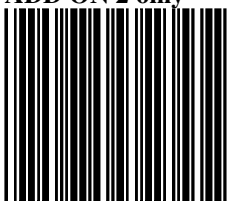
UPC/EAN ADD ON OFF



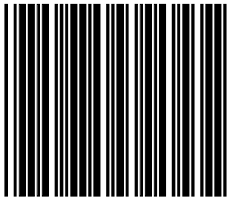
ADD ON 5 only



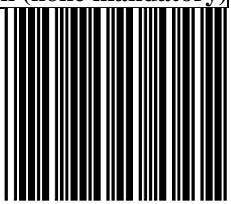
ADD ON 2 only



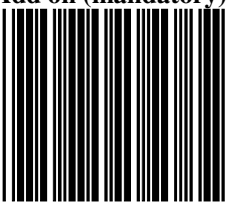
ADD ON 2 or 5



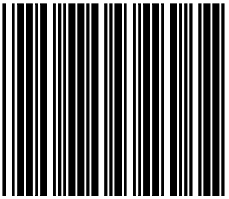
EAN/UPC +Add on (none mandatory)



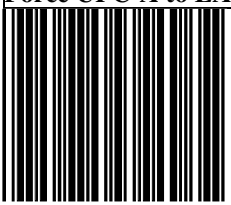
EAN/UPC + Add on (mandatory)



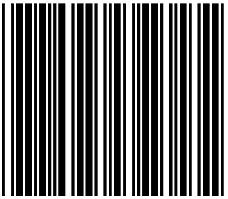
Force UPC-A to EAN-13 format enable



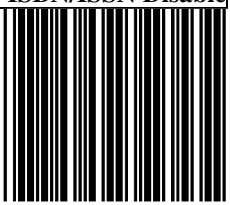
Force UPC-A to EAN-13 format disable



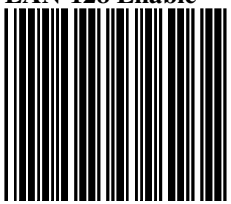
EAN-13 Convert to ISBN/ISSN Enable



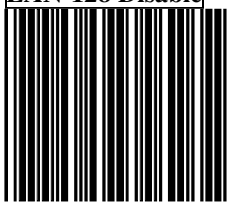
EAN-13 Convert to ISBN/ISSN Disable



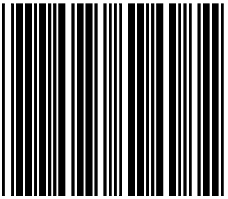
EAN-128 Enable



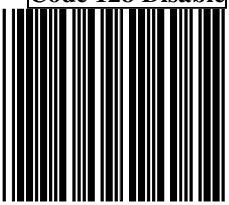
EAN-128 Disable



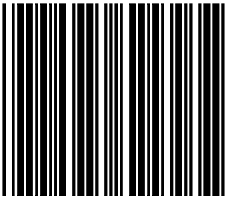
Code 128 Enable



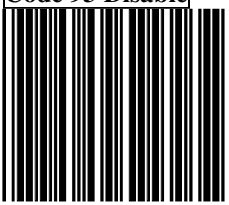
Code 128 Disable



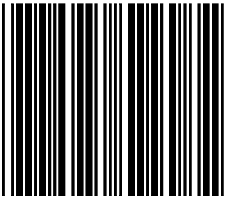
Code 93 Enable



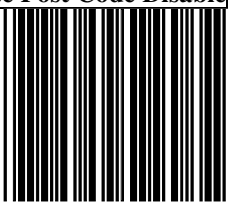
Code 93 Disable



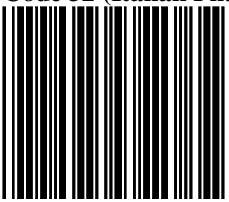
Chinese Post Code Enable



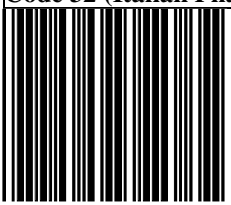
Chinese Post Code Disable



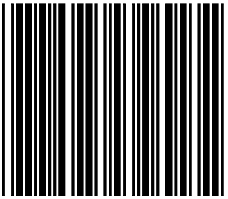
Code 32 (Italian Pharmacy Code) Enable



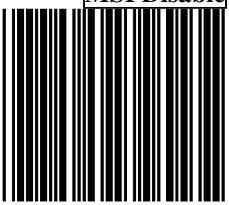
Code 32 (Italian Pharmacy Code) Disable



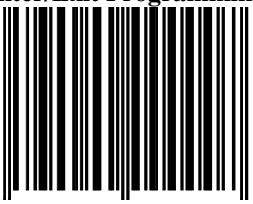
MSI enable

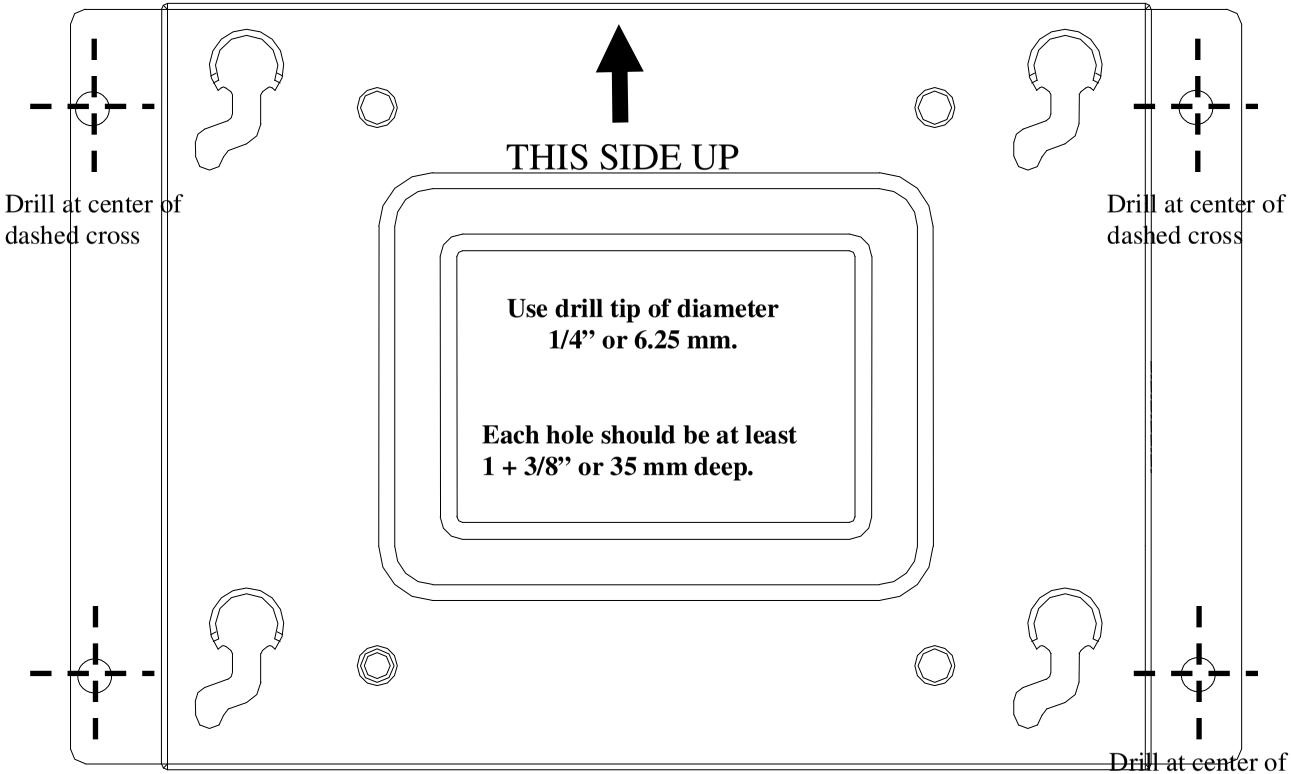


MSI Disable

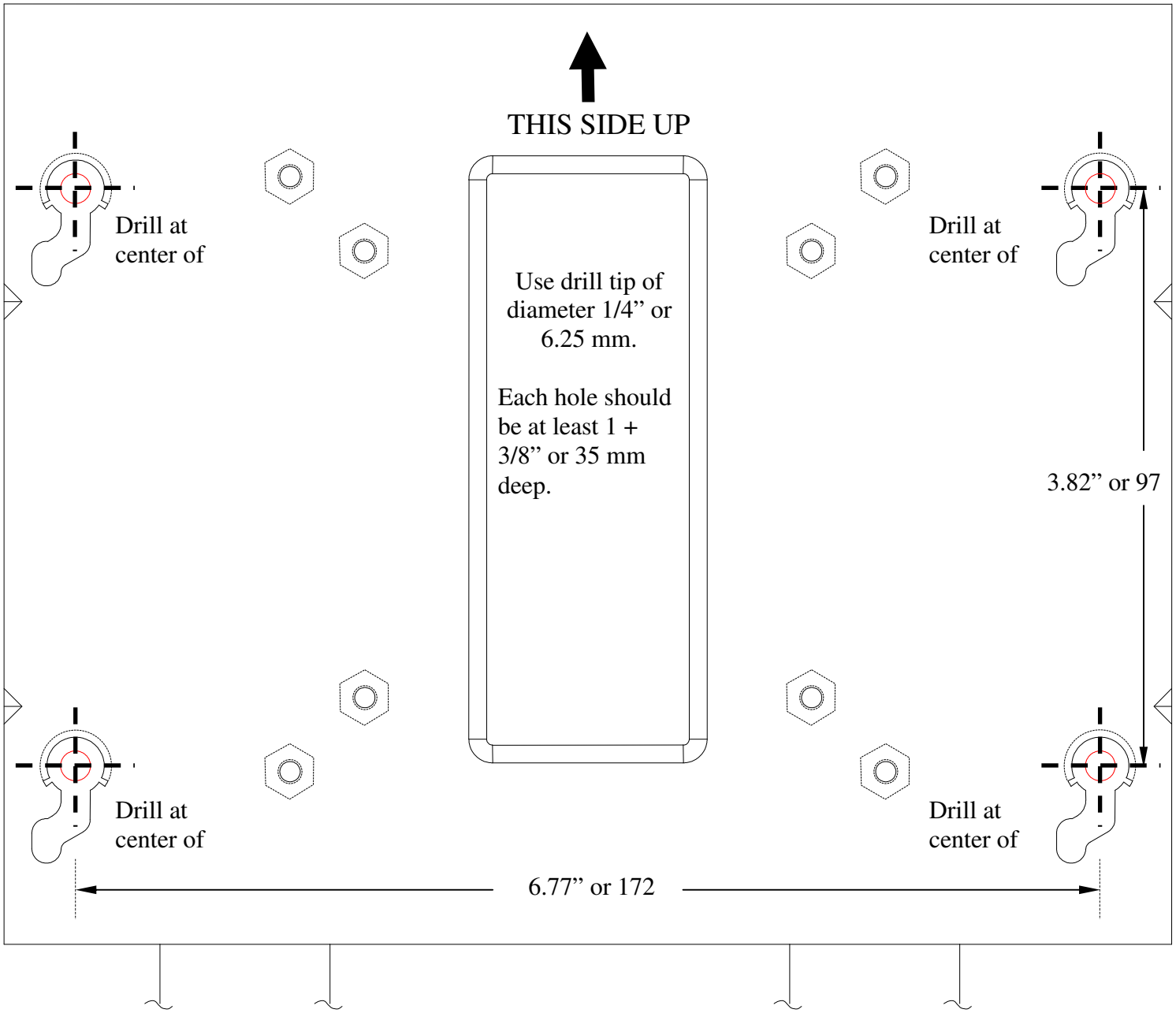


Enter/Exit Programming Mode





Template for WB-6812


THIS SIDE UP
Drill at center of
Drill at center of
Use drill tip of diameter 1/4” or 6.25 mm.
Each hole should be at least 1 + 3/8” or 35 mm deep.
3.82” or 97
Drill at center of
Drill at center of
6.77” or 172