Compact Omnidirectional Laser Scanner

User's Manual

No warranty of any kind is made in regard to this material, including, but not limited to, implied warranties of merchantability or fitness for a particular purpose. We are not liable for any errors contained herein or incidental or consequential damages in connection with furnishing, performance or use of this material.

No part of this document may be reproduced, transmitted, stored in a retrieval system, transcribed, or translated into any language or computer language in any form or by any means electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without express written consent and authorization.

We reserve the right to make changes in product design without reservation and without notification. The material in this guide is for information only and is subject to change without notice.

All trademarks mentioned herein, registered or otherwise, are the properties of their various respective owners.

Radio Notice

This equipment generates uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions in this manual, it may cause interference to radio communications. The equipment has been tested and found to comply with the limits for a Class A computing device pursuant to EN55022 and 47 CFR, Part 2 and Part 15 of the FCC rules. These specifications are designed to provide reasonable protection against interference when operated in a commercial environment.

Radio and Television Interference

Operation of this equipment in a residential area can cause interference to radio or television reception. This can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.

Relocate the device with respect to the receiver.

Move the device away from the receiver.

Plug the device into a different outlet so that the device and the receiver are on different branch circuits.

If necessary the user may consult the manufacturer, and authorized dealer, or experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: “How to Identify and Resolve Radio-TV Interference Problems.” This booklet is available from the U.S. Government Printing Office, Washington, DC 20402 U.S.A., Stock No. 004000003454.

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 -1for 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.

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.

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Table of Contents

1. Instruction

The scanner is a compact hands-free omnidirectional laser scanner, and becomes a single-line laser scanner by pressing down a button. It is designed to suit both requirements for omnidirectional and single-line scanning. With the reserved mounting holes at the back of the scanner body, The scanner transforms to a scanning module to allow integration into your desirable hardware application.

The Scanner is cubic designed as compact as it can be, and with its standard holder, it certainly saves the maximum counter top space. Featured with Z-scan hardware decode technology, it guarantees the real-time decode and provide the best scanning performance you could expect. The Scanner surely has the performance inverse to its size.

The scanner includes key features as,

- Button switch in between omnidirectional and single–line scanning capability, ideal for increasing your operating efficiency.
- Powerful 20-line scan pattern yields
- 1400 scans per second for omnidirectional 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
- Instant working is ready, or can be embedded into other hardware applications via mounting holes at back.
- Optional 3D turning cradle with two joins that maximize the range of adjustment

2. Unpacking

The handheld omnidirectional scanner package contains:

1 ea.	Compact omnidirectional scanner	
1 ea.	Scanner stand	
1 ea.	Screw (to fix the stand when necessary)	
1 ea.	Adjustable stand (optional)	
1 ea.	Communication cable	
1 ea.	Power adapter (only for specific RS-232 cables as optional accessory)	
1 ea.	User's manual	

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.

3. Outline

3-1 Scanner

Description	Function
Exit Window	Reads barcodes
Object Detector	Trigger and wake up scanner when presenting barcode in its range
Beeper Hole	For beep tone indication
Function Button	**Wake up scanner** When the scanner enters into 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 is intermittently flashing Blue.
	Single -line pattern Pick up the scanner, press and release the trigger will active single line scan mode
Back Mount Holes	To fix the scanner with your host instrument.
Interface Cable Connection	For interface communication cable connection.

3-2 Stand

The stands are both designed with a fixing hole, use appropriate screws enclosed in package to fix the stands on surface if necessary.

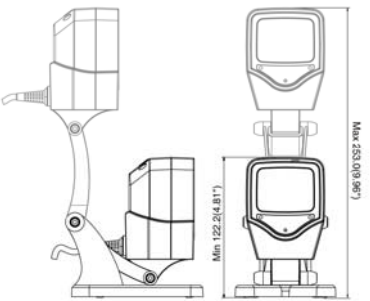
Fixed Stand

Screw Size:
Sharp screw, M4-16.0mm,
Cross shape

Adjustable Stand

Screw Size:
Sharp screw, M5-16.0mm,
Cross shape

Adjustable height illustrate as below,



4. Connecting

4-1. Power

The scanner requires a minimum of 2.5W at 5 VDC power. The interface cable that comes with the scanner supports both direct power (where the scanner takes power from the host machine) and external power (that's what the supplied power adapter is for). A sufficiently robust POS system can support a scanner successfully without external power; a POS system with a barely adequate power supply may produce erratic performance (either of the POS system itself, or of the scanner, or both) when a scanner is attached. Unless you are sure your POS system can candle such loading, it is recommended that you use the supplied power adapter. When an external adapter is connected, the scanner does not take power from the host.

The scanner turns on when power is supplied, and turns off when power is removed. There is no on/off switch on the scanner itself.

Use only an AC/DC power adapter approved for the scanner. Use of other power supplies may cause damage to the scanner, and void the factory warranty.

4-2. Verifying Scanner Operation

Please follow the procedure below to verify scanning operation.

1. Insert the 8 pin modular plug of the Interface cable into the scanner until a firm click is heard.
2. Plug the power adapter into the jack on Interface cable if necessary.
3. Plug the AC end of the power adapter into an AC outlet, or plug the other end of cable into host if

power adapter is not needed. The scanner powers up, the buzzer sounds four beeps and the LED indicator glows.

4. Present a known-good test barcode to the scanner. The scanner should issue a short beep and the LED should flash red momentarily. [if the scanner is connected to a USB for this test, it should read one barcode, beep, then remain with a red LED indicating light. This is normal when the USB is not connected to a live host terminal.]

Note: if the scanner does not produce any beeps, or produces the wrong beeps, or the LED does not light up, remove the power connection and refer to the section on Troubleshooting.

4-3. Connecting to the Host

The interface cable comes with different host-end connectors, depending on the host. Follow the steps below to connect the interface cable to the host.

1. Make sure that the power of the host system is off.
2. Connect the host end of the interface cable to the appropriate connector on the host system.
3. For those cases where external power is used, plug the external AC power adapter into the jack on the interface cable.
4. Turn on the host system.

5. Setting up the Scanner

In certain cases no setup is required. The scanner is either pre-programmed to suit the situation, or it automatically detects and is ready to go. In other cases the scanner must be informed about what kind of system it is connected to. This can be done in a few moments using the programming barcodes enclosed in the later sections of this booklet.

The programming section may be used to set a number of parameters on the scanner: communication interface type (RS-232, Keyboard, USB), beep tone, sleep mode timings, same-code delay time, enable/disable decoding of numerous code types, and more advanced things like set headers and trailers.

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

5-1. Scan Test

1. With the scanner running (LED blue) and the host system on, try to scan several known-good barcodes.
2. Check the results on the POS screen. If the scanner is reading okay, no further setup may be necessary.
3. If the POS screen does not show the expected scans, go to Set Up, below.

5-2. Set Up

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

scanner is in programming mode.

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

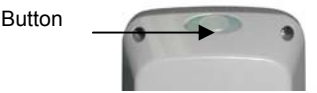
Test again with known-good barcodes. If results are good, you are done setting up. Otherwise, return to step 1 and try again.

6. Operating the Scanner

The scanner can read barcodes in either omnidirectional or single-line mode to accommodate different requirements. This scanner is truly omnidirectional while single-line mode is usually used for better aiming on the specific barcode on the same sheet of more than one barcode printed closely.

6-1 Single Line Scan Mode

In this mode the scanner can emit a single line pattern for user to handheld scanning of hard to read or multiple barcodes on one object, sales clerks could switch it to single line scan option simply by pressing one button.



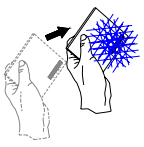
1. Pick up the scanner
2. Press and then release the top button, a line pattern appears, it allows you to aim at the barcode. Ensure the scan line crosses every bar and space of the symbol.

3. Press the button to decode and transmit the barcode, the good read beeps once.

- **If the button is released, it automatically switch back to omnidirectional scan in 5 seconds. Press down again to switch to single-line scan when necessary.**

6-2 Presentation Mode

As if the scanner is on the stand, the scanner will always stay active in Presentation Mode. In other words, the scanner always has multi-lines, and will not switch to single-line scan when press down the button.



6-3 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 Purple 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.

6-4 Beeps

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.

6-5 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 into “Sleep Mode”, the blue status LED blinks once as indication. To wake up the scanner, simply present an object close to the exit window, or press the trigger 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,

6-6 Change Beeper Volume Using Function Button

The beep tone, volume and duration are programmable.
And the beep volume is adjustable by pushing the function button.
The volume has 3 different levels, low, medium, loud, follow the following steps to tune the volume.

1. Always keep the scanner in the stand
2. Press and hold down the function buttons for about 3 seconds, the scanner will enter (medium—low---loud) beeper cycle, every level of setting beeps twice.
3. Release the button when you hear the right beeps.
4. The scanner beeps accordingly.

Note:
The volume setting is not saved in non-volatile memory. In words, the change will lost by powered-off and reset to the configured setting.
If you wish to keep the changed the volume setting, use the programming guide to set the changes.

7. 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.

7-1. 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.

7-2. Replacing the 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.

1. Make sure that the power of your computer is switched off, and if a power adapter is used, disconnect it from the scanner cable.
2. Disconnect the old scanner cable from the computer system.
3. Press down at where indicated below, and gently pull out the cable.
4. Insert the new interface cable into the bottom of the scanner until it clicks.

5. Plug the new cable into the host.
6. If a power adapter is used, plug the power adapter into the jack on the interface cable.