User's manual

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PREFACE

This is a high performance omni-directional presentation laser scanner. Barcode labels are read by presenting the labels to the scanner. Scanning labels with it hardly requires any arm movement. As a result with its universal stand design, only little free space on the counter top is required.

It can be fixed either on a counter surface or on a universal stand. The universal stand allows you to direct the scan pattern in a way that is optimal for your application by adjusting the scanner window forward, backward, right or left.

It reads most all-popular barcode symbologies, and with outstanding programmable sleep mode function. If the scanner is not used within a programmable period of time, the scanner turns off automatically. Pressing the switch on the top of the scanner or on the stand can wake the scanner up.

It is also equipped with multi-interface communication, which supports RS-232C, keyboard wedge as well as USB interface, and build in flash memory can update firmware via serial communication
.
This manual contains two chapters and three appendices. The first chapter describes the model and its general features. It can be installed on a counter surface or a universal stand. Instructions for both installations are described in the second chapter. The default settings can be changed with the barcode labels from the Configuration Guide that comes with the scanner. Appendix A gives the pin out configuration for the data ports of the scanner. The pin out configuration is necessary if you want to make a new cable for communication with the POS/computer. Appendix B gives an overview about the technical of specifications. Go to Appendix C for troubleshooting if the scanner is not working properly.

CHAPTER 1

1.1 UNPACKING

Take out the scanner and its accessories from the box and packing material. Make sure you have received all of the items ordered by referring to the packing list. Check if the scanner and accessories are received in good condition.

Immediately contact your dealer if there is anything missing or appears to be damaged, or if the supported interface does not correspond with the POS system interface.

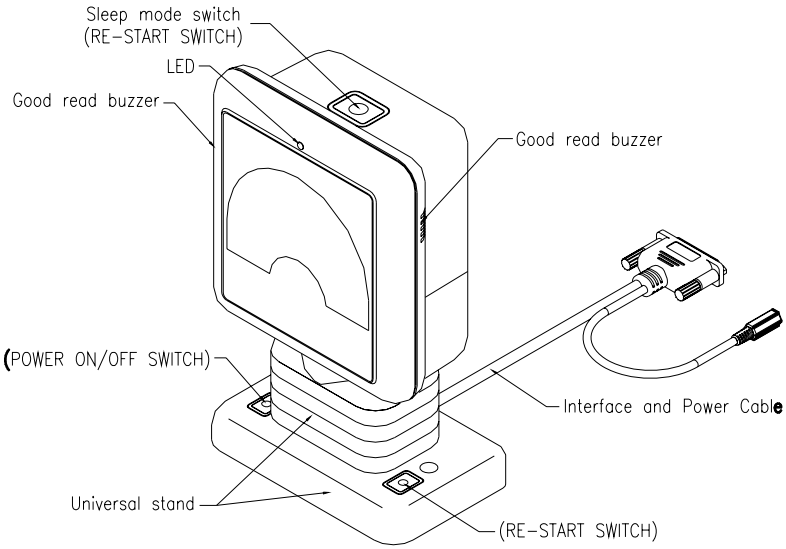


Figure 1.1

The various parts are:

ON/OFF Switch
- Control the main power

Sleep Mode Switch
- When 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 value for the sleep mode time-out is set to 30 minutes. When the scanner is in sleep mode, the LED is intermittently flashing red.

LED
- A red LED indicates the scanner is ready to read a barcode while a green LED indicates a good read.

Good Read Buzzer
- If the data is captured correctly, the buzzer will be heard. Both the volume and frequency are programmable using the menu labels from the Programming Guide.

Universal stand
- This stand allows you to direct the scan pattern in a way that is the best for your application by adjusting the scanner window forward, backward, right or left.

Power and interface cable
- Connect the external AC/DC power adaptor into the power jack on the cable. And the interface connector provides the communication the scanner and host terminal

1.2 SCANNING BARCODES

This omnidirectional laser scanner features a 7-directions of scan field with a 24 lines scan pattern. Barcode labels can be read easily by presenting them towards the scanner.

The scanner's scan volume is illustrated in figure 1.2. The density of the pattern has an optimum at 70 mm (3 inches) from the scanner window, but barcodes can be read up to 250 mm (10 inches) from the scanner window.

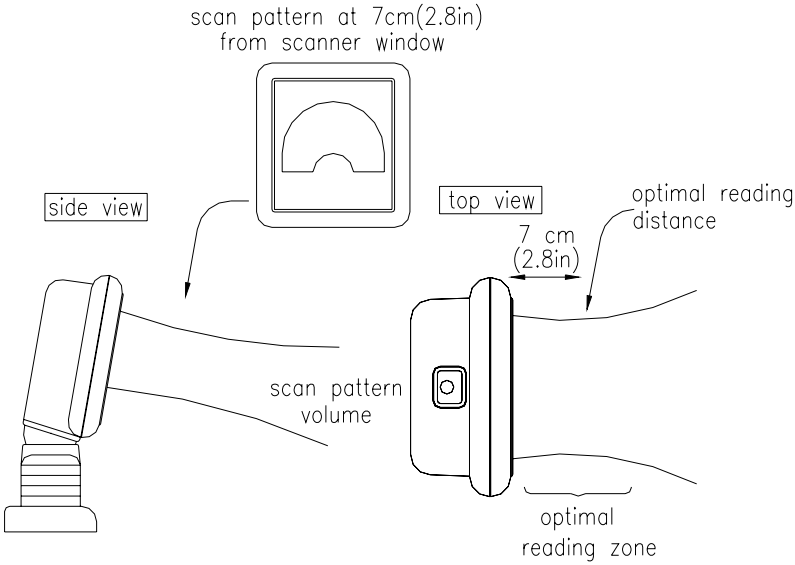


Figure 1.2

The scanner window can be adjusted forward, backward and left or right which allows you to direct the optimal reading zone in a way that suits your application most.

How to scan a barcode label: simply by presenting the label of the product to the scanner as illustrated here in figure 1.3.

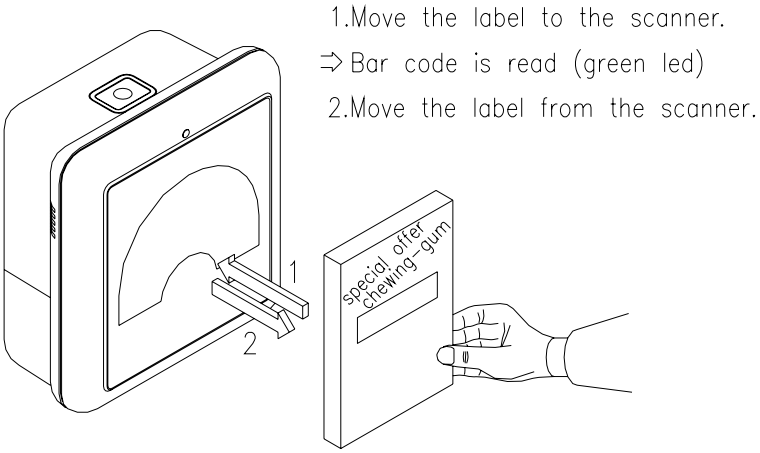


Figure 1.3

<u>Important</u>:
Please prevent from touching the scan window with the articles to be scanned. This might cause tinny scratches that consequently can have a negative influence on the scanning performance.

1.3 SCANNER LABELING

There are two labels on the housing as illustrated in figure 1.4. In addition, there is one label visible through the scanner window. All the labels are attached by the manufacturer and should not be removed.

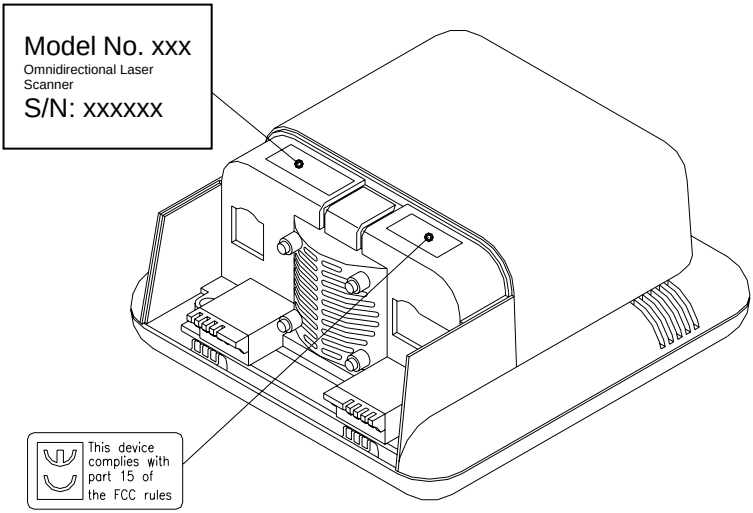


Figure 1.4

You will find a serial number on the scanner. This number is underneath the barcode label as illustrated in figure 1.4. This official registration number is strictly related to the device. The dealer can ask for this number when the scanner needs servicing.

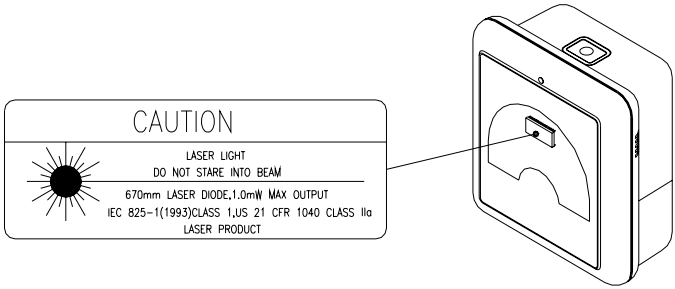


Figure 1.5

Laser Safety: The laser scanner complies with safety standard IEC 825-1 (1993) for a Class I laser product. It also complies with U.S. 21CFR1040 as applicable to a Class IIa laser product. Avoid long term viewing of direct laser light.

Optical: The use of optical instruments with this product will increase eye hazard. Optical instruments include binoculars, microscopes and magnifying glasses but do not include eyeglasses worn by the user.

Radiant Energy: It uses a low-power laser diode operating at 670nm in an opto-mechanical scanner resulting less than 0.6 mW peak output power. Laser light observed at 13cm (5.1 inches) above the window through a 7 mm (0.28 inches) aperture and averaged over 1000 seconds is less than 3.9μW PER CDRH Class IIa specification. 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 Viewer: The scanner window is the only aperture through which laser light may be observed on 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, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

1.4 MAINTAINING THE SCANNER

This laser scanner rarely needs any maintenance. Only an occasional cleaning of the scanner window is necessary in order to remove dirt and fingerprints. The cleaning of the scanner window can be done during operation with a soft lint-free cloth and a non-abrasive glass spray cleaner.

1.5 CONTROLLING THE SCANNER FROM THE POS SYSTEM

It can be controlled from the POS system via the RS-232C interface. Controlling can be accomplished by transmitting the following single byte commands to the scanner. The default setting of the commands are as follows (more details are available upon request):

ASCII Code	Function	Byte is Also Called:
OE Hex	enable (resumes disable)	Shift Out or <Ctrl-N>
OF Hex	disable	Shift In or <Ctrl-O>
05 Hex	power-up re-initialization	ENQ or <Ctrl-E>
12 Hex	sleep	DC2 <Ctrl-R>
14 Hex	wake up (resumes sleep)	DC4 <Ctrl-T>

When the scanner is disabled, the motor of the scanner will stay on until the scanner goes into sleep mode.

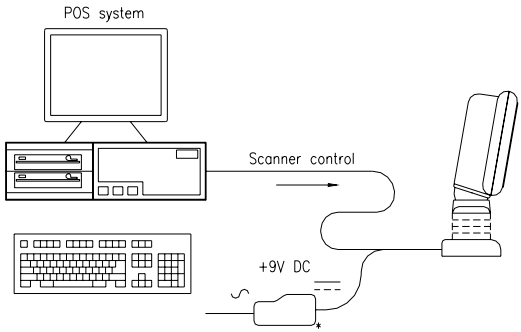


Figure 1.6

CHAPTER 2

INSTALL

There are two different ways to install depending on how you want to use it: fix it on a counter surface or on a universal stand.

To install on a counter surface, please refer to Section 2.1.
To install on the universal stand, please refer to Section 2.2.

As there are many computer devices on the market, there are a large number of communication cables as options. Make sure you ordered the right cable to connect the scanner to your POS or computer.

Notice:

- ***It is our advice to turn off your POS system before starting the installation of the scanner. By following this precaution, you can avoid your computer from electronically being damaged.***
- ***It is also our advice to install the scanner in an air-circulated place out of the direct sunlight.***

2.1 INSTALLING THE SCANNER ON A COUNTER SURFACE

You are advised to mount the scanner in a fixed counter surface position by following the procedure here below.

1. Locate the small hole at the back cover of the scanner. Press it with the tip of a stick to remove the back cover of the scanner as illustrated in figure 2.1.

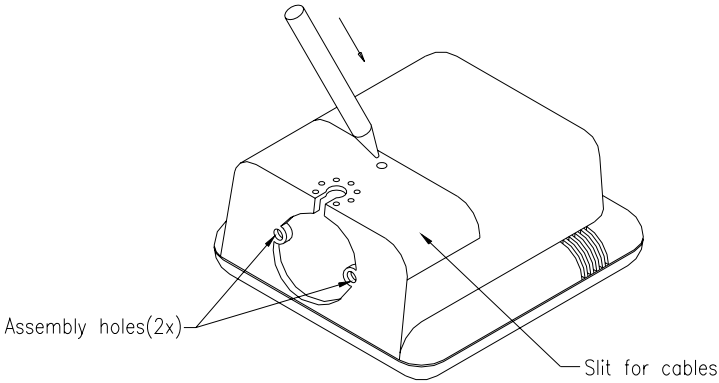


Figure 2.1

2. If the POS system is the RS-232C or USB interface, plug the communication cable with the 8 pin modular jack into Data port 1, or if the POS system interface is Keyboard Wedge, plug the communication cable into Data port 2. Plug the other end of the cable into the appropriate serial port of your POS or computer. Use the universal power supply. Lead the cables through the scanner as illustrated in figure 2.2.

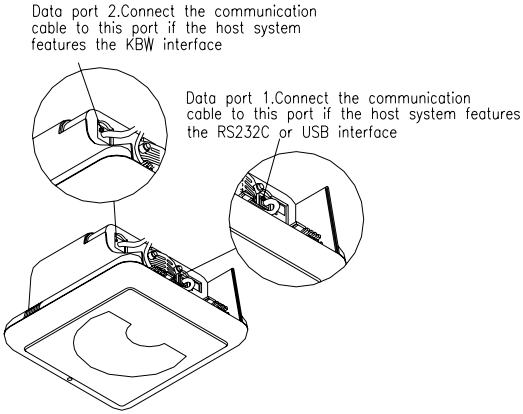


Figure 2.2

3. Use the back cover as a template to mark the places for the mounting holes at the counter surface and bore two holes.
4. Lead the communication cable through the slit. Then use the two screws to fasten the back cover to the surface as illustrated here follows:

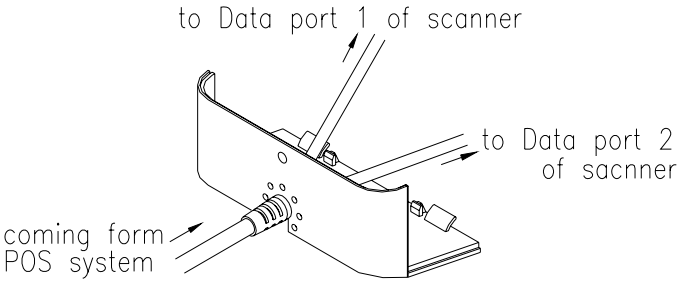


Figure 2.3

5. Place the scanner as illustrated in figure 2.4 and rotate the scanner around the cover. Make sure the connectors and cables are placed properly as illustrated in the figures to allow easy attachment of the scanner to the back cover. Press the scanner until a “click” is heard.
6. Turn on the POS system.

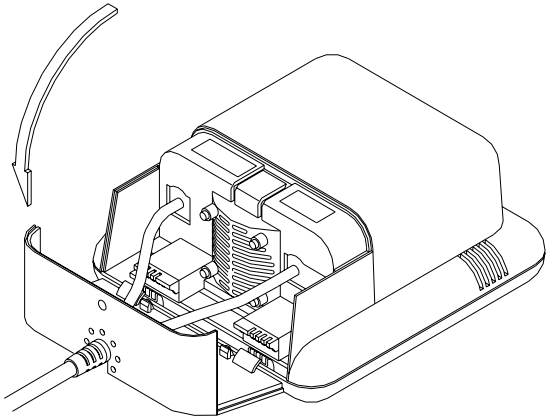


Figure 2.4

You may start scanning barcodes as soon as the scanner is installed. If you want to change the default setting of the scanner, go to the “Programming Guide” that is included with the scanner

※The scanner is a multi-interface communication scanner. If you had ordered only the one type of interface, the factory will change the initial interface configuration to the interface requested as default, i.e. RS-232C, keyboard wedge, or USB. But if you had ordered as multi-interface, the initial interface configuration will be set as keyboard wedge (PC/AT); if needed to change to other interface, you need to set up from a programming guide.

2.2. INSTALLING THE SCANNER USING THE US-6030 UNIVERSAL STAND

To install the scanner on a universal stand, the cables should be led through the central hold of the stand to be connected to the scanner. The stand should be mounted to the counter top first and then the scanner to the stand.

> ***Notice:***
> ***We strongly suggest you to use two screws to mount the scanner on the counter surface.***

Follow the next few steps to mount the stand on a counter:

1. If you prefer to mount the stand with two screws, on the counter top where the scanner is to be installed, mark the two places for the mounting holes. Refer to the figure for the relative position and the diameter. Do not mount the stand to the counter top yet.

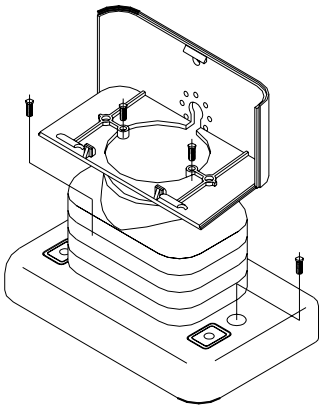


Figure 2.5

2. Lead the communication cable with the 8 pin modular jack and the power supply cable from the bottom through the stand. Refer to figure 2.6 to locate the hole through which the cable should be led.
3. Press the small hole at the back cover of the scanner with the tip of a stick to remove the back cover, as illustrated in figure 2.1.
4. Plug the communication cable with the 8 pin modular jack in the appropriate Data port of the scanner. Refer to figure 2.2 for the Data port applicable to the interface used. Plug the other end of the cable into the appropriate serial communication port of the POS system.

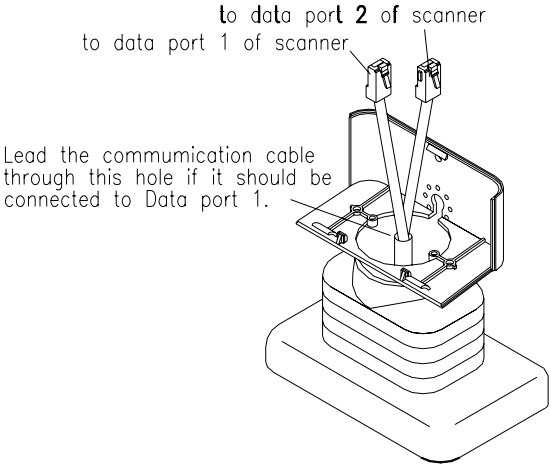


Figure 2.6

5. Use either screws or the double-sided tape to fasten the stand at the bottom of the plate.

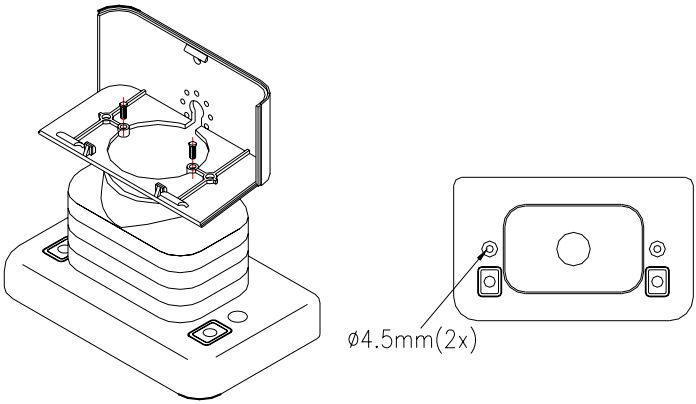


Figure 2.7

6. Place the scanner onto the universal stand and rotate the scanner as shown in figure 2.8. Make sure that the connectors and cables are placed as indicated in the figures, such to allow easy attachment of the scanner to the back cover. Press the scanner until a “click” is heard**.**

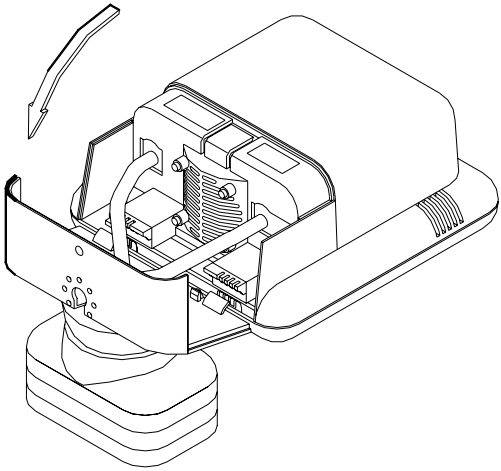


Figure 2.8

7. Switch on the POS and power up the device.

8. Sets correct the communication interface or parameter according to your host. (Refer to the programming guide)

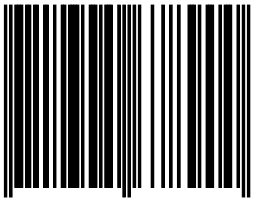
※This scanner is a multi-interface communication scanner. If you had ordered only the one type of interface, the default setting of the initial interface configuration will be changed to the interface requested, i.e. RS-232C, keyboard wedge, or USB. But if you had ordered as multi-interface, the initial interface configuration will be set as keyboard wedge (PC/AT); if needed to change to other interface, you need to set up from a programming guide.

You may start scanning barcodes as soon as the scanner is installed. If you want to change the default setting of the scanner, go to the “Programming Guide” that is included with the scanner.

2.3 Verify the Scanning Operation

Before installing your scanner, follow the procedures below. This will help to proceed for scanning properly

1. Plug the DC plug of the power adaptor into the jack on the power link cable
2. Plug the AC end of the power adaptor into an AC outlet.
3. Press the power button on the stand.
4. When the scanner powers up, LED lights in green and the buzzer sound with 3-string-long-beep sound. When the self-test is complete the LED status will return red.
5. Present the “test barcode” below to the scanner. If the scanner is functioning properly, it will issue a short beep and a green LED indicates a good read than remove the “test barcode”



Note:
If the scanner does not perform any or correct beep sound, or without any LED indication when powers-up, powers down the scanner and refer to Appendix B for troubleshooting.

APPENDIX A

CONNECTOR TYPES AND PIN OUT CONFIGURATION

A.1. PINOUT CONFIGURATION FOR THE DATA PORT OF THE SCANNER

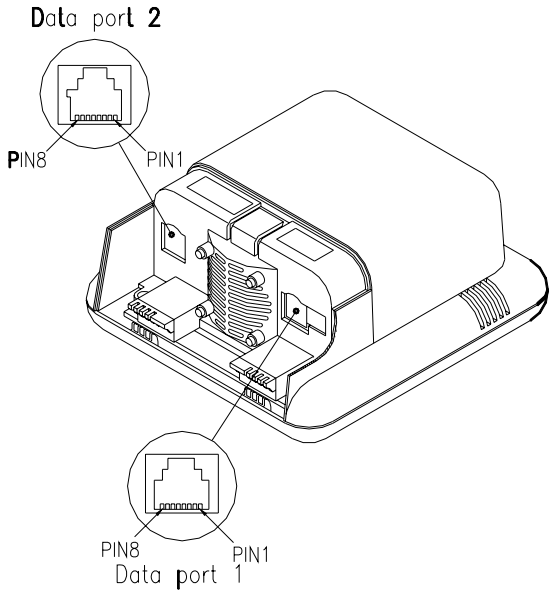


Figure A.1

RS-232C Interface Data Port 1		
Pin	**Description**	**Direction**
1	CTS	INPUT
2	RD	INPUT
3	TX	OUTPUT
4	RTS	OUTPUT
5	GND	-
6	DC IN 6~12V DC@600mA	INPUT-
7	Wake up	INPUT
8	For factory use only	

KB Wedge Interface Data Port 2		
Pin	**Description**	**Direction**
1	DC in 6~12V @600mA	input
2	KB_DATA	output
3	KB_CLCK	input
4	PC_DATA	input
5	PC_GND	input
6	PC_ CLCK	input
7	PC_5V	input
8	n.c	n.c.

A.2. CONNECTOR TYPES AND PIN-OUT CONFIGURATION FOR THE STAND AND INTERNAL CABLE ADAPTOR

The pin-out of the D-Sub 25pin communication port varies according to the interface versions of the stand. Please refer to next page for detailed information.

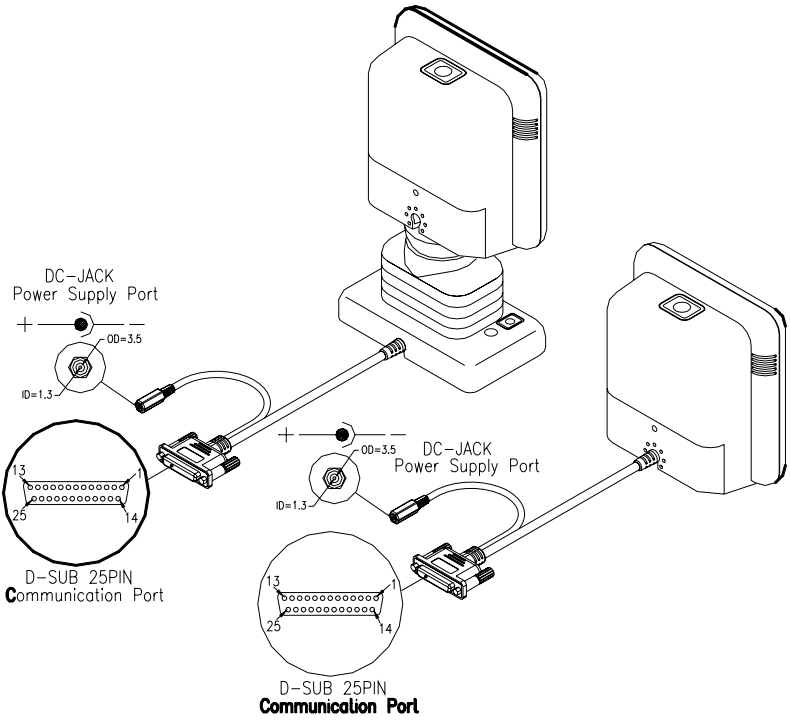


Figure A.2 *Figure A.3*

D-Sub 25 Pin Communication Port

RS-232 Interface		**Keyboard Wedge interface**	
Pin	**Description**	**Pin**	**Description**
1	Shield Gnd		
2	TXD	12	PC CLOCK
3	RXD	13	KB CLOCK
4	RTS	14	PC DATA
5	CTS	15	KB DATA
		25	PC 5V OUT
7	GND		
18	Wake up input		
23	DC input ,6~12V @600mA		
11	For factory use only		
NC:6,8,9,10,16,17,19,20,21,22,24			

APPENDIX B

TECHNICAL SPECIFICATION

SPECIFICATIONS

OPERATIONAL

Light Source	650nm Visible Laser Diode
Depth of Field	0 – 200mm
Width of Field	128mm @ 200mm of depth
Number of Scan Lines	24
Scan Speed	2,400 scans per second
Scan Pattern	7 directions of scan field
Minimum Bar Width	5 mil @ PCS 90%
Print Contrast	40% @ UPC/EAN 100%
Indicators	Two color LED (Red & Blue)
Beeper Operation	Programmable tone & beep time
System Interface	Keyboard, RS-232C, USB 1.1

POWER

Input Voltage	DC – 9V
Power Consumption	4.0 Watts
Operating Current	450mA

REGULATORY

Laser Class	CDRH Class iia; IEC 60825-1: Class 1
EMC	CE & FCC DOC Compliance

ENVIRONMENTAL

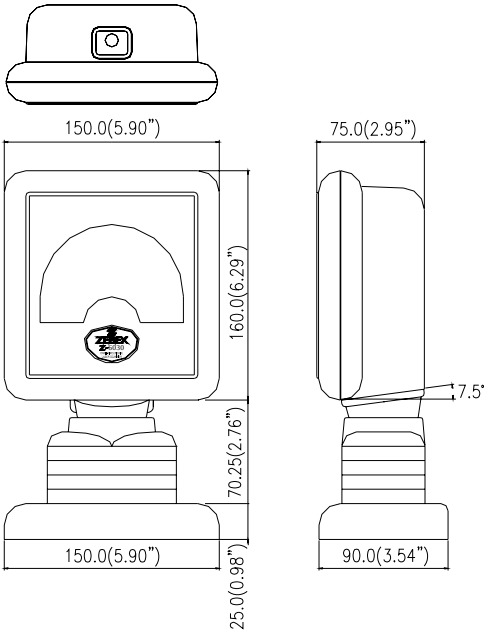
Operating Temperature	0°C – 40°C (32°F – 104°F)
Storage Temperature	-20°C – 60°C (-4°F – 140°F)
Humidity	5% – 95% RH (non-condensing)
Light Levels	Max. 4,000 Lux (fluorescence)
Shock	Designed to withstand 1 m drops

DECODING

Barcode Types	UPC/EAN/JAN, UPC/EAN with supplementary, JAN 8 & JAN 13, ISBN/ISSN, Japanese Bookland EAN, Code 39, Code 39 with full ASCII, trioptic Code 39, Codabar (NM7), Code 128, Code 128 with full ASCII, Code 93, Interleaved 2 of 5 (ITF), Addendum 2 of 5, MSI/Plessy, China Postal Code, Code 32 Optional: IATA Code, Industrial 2 of 5, Standard 2 of 5, Discrete 2 of 5, Matrix 2 of 5, Code 11, UPC/EAN RSS, RSS Variants

PHYSICAL

Height	210.0 mm
Depth	57.5 mm
Width	128.0 mm
Weight	712g (stand excluded)
Cable	Standard 2m straight
Tilt	10° forward; 10° backward



APPENDIX C

TROUBLE-SHOOTING

C.1 Trouble-shooting

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 Chapter 2 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 is red.	◆ The scanner window is dirty. Clean the scanner window as described in the Maintenance section. ◆ The presented barcode type is not enabled. Select the barcode type with the Configuration Guide. ◆ The host disables the scanner. Refer to Section 1.5. ◆ The barcode type you presented to the scanner is not supported
The scanner is on, but the motor is not rotating. A bar code cannot be read. The LED is intermittently flashing red.	◆ The scanner has entered into the sleep mode. Press the switch on the top or front of the scanner to wake up the scanner (or use the wake protocol. Refer to section 1.5)
The LED is alternating red/green and beeps are heard.	◆ Possible failure of the scanning safeguard circuit. Disconnect the scanner from its power source immediately and contact your dealer.

Problem	Diagnostic Tips
The LED remains green.	◆ The scanner is continuously seeing a barcode. Remove all bar-code labels out of the scan volume of the scanner and try again. ◆ The scanner cannot send the data to the POS system. There is no proper handshaking between the scanner and the host. Make sure that all cables are connected and your POS system is ready to receive data.
The scanner does not accept more than two or three barcode labels.	◆ There is no proper handshaking with the POS system. Switch on the POS system and check connection and communication settings.
The LED is orange.	◆ The laser in not functioning. The laser is either defect or switched off by the temperature protection circuit. Turn off the scanner for 5 minutes and try again. Make sure the scanner has enough air ventilation and is not placed in direct sunlight.
A barcode is read by the scanner but not accepted by the POS system.	◆ The communication cable is not connected to the serial port of your POS system. Refer to the manual of your POS system to locate the serial port. ◆ The communication settings of the system and scanner do not match. Adjust the settings in order to be equal for both device. ◆ The communication cable does not suit your POS system. Contact your dealer for the correct communication cable. ◆ The software running on the POS system does not support the data format of the label.