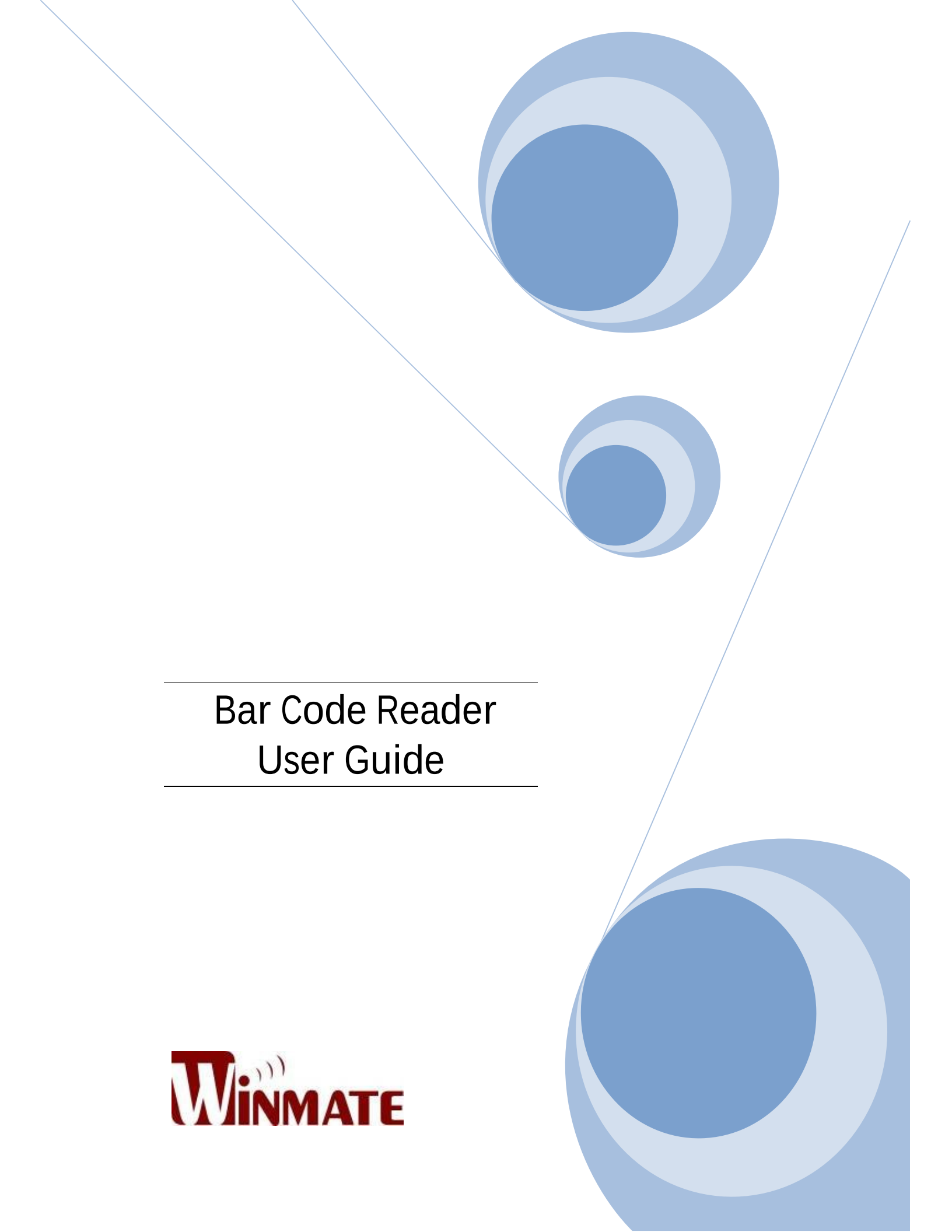


The background features three blue circles of varying sizes, each composed of concentric rings in different shades of blue. Two thin blue lines intersect at the top left, forming a large 'V' shape that frames the central text and extends towards the bottom right.

Bar Code Reader User Guide

The logo for Winmate, featuring a stylized red 'W' with three small curved lines above it, followed by the word 'INMATE' in a bold, red, sans-serif font.

Winmate

Revision History

Version	Date	Note	Author
1.0	2012.07.04	Draft Version	Sky Chen
1.1	2012.07.19	First Version	Sky Chen
1.2	2012.08.22	Add WinCE6.0	Sky Chen
1.3	2012.09.24	Add 1D Laser Reader	Sky Chen

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1. General Information

1.1 Introduction

With Winmate Bar Code Scanner Solution in hand, your staff can electronically capture and transmit virtually any type of data to your business systems. Winmate Bar Code supports four S/W solutions to help user develop Bar Code scanner to optimize its performance for particular application:

	General	Advanced
(1) DEMO AP	○	○
(2) WDC	○	○
(3) Manual Book		○
(4) SDK note		○

➤ Type of Bar Code Scanner Comparison Table

Type	Tech. Based	Outdoor Use	Scan barcode in curve	Scan Distance	Decode Speed	Support major barcode type
1D CCD	Red LED (Liner)	NO	No	Short	Normal	1D (UPC/ EAN, Code39/93/128,...), PDF-417 (in stack)
1D Laser	Laser	Good	OK	Long	Normal	1D (UPC/ EAN, Code39/93/128,...), PDF-417 (in stack)
2D/1D Camera	CMOS Camera (Image)	Best	OK	Medium	1D: Normal 2D: Fast	1D (UPC/ EAN, Code39/93/128,...), 2D: QR code, PDF-417, Aztec, DataMatrix, GS1-Databar, Composite code...

1.2 Bar Code Reader Specifications

1.2.1 1D Liner Bar Code Scanner

Item	Characteristics
Optical System:	2500 Pixel Toshiba CCD sensor.
Scan Speed:	200 Scans/sec.
Light Source:	RED LED (Wave length 630~660nm)
Resolution:	0.1mm (4 mil)
PCS Value:	30% or more
Scan Angle:	43°
Scan Width:	Up to 110mm or more.(PCS90%)
Scan Distance:	350mm (PCS=90%)
Interfaces:	RS232
	HID USB

1.2.2 1D Laser Bar Code Scanner

Parameter	Specification
Light source	650 nm visible red laser diode
Scan method	Bi-directional scanning
Scan rate:	100 scans/sec
Reading pitch angle:	-35 to 0°, 0 to +35°
Reading skew angle	-50 to -8°, +8 to +50°
Reading tilt angle	-20 to 0°, 0 to +20°
Curvature	R>15 mm (EAN8), R>20 mm (EAN13)
Min. resolution at PCS 0.9: 0.127 mm / 5 mil	
Min. PCS value: 0.45	

➤ Tilt of Laser Scan Line

Maximum tilt between both ends of laser scan line: Less than 1.2° upward tilt from the scan origin.

Maximum of 3.1 mm when measured at a point 150 mm away from the scan origin. (The skew angle of this measurement was zero degrees.)

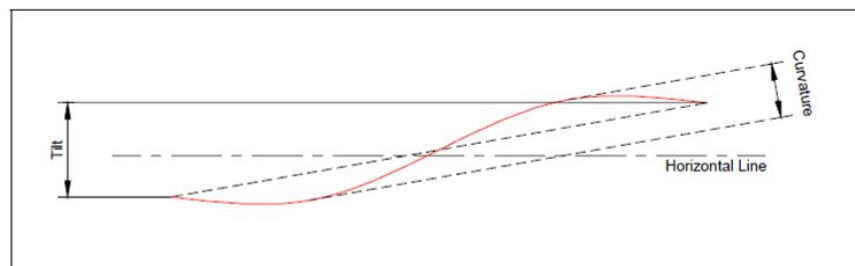
Measurement was done from the center of scan line.

➤ Curvature of Scan

Maximum gap between the straight line connecting both ends of the laser scan line and the actual laser scan line: Less than 1.27° curvature from the scan origin.

Maximum of 3.3 mm curvature when measured at a point 150 mm away from the scan origin. (The skew angle of this measurement was zero degrees.)

Measurement was done from the center of scan line.



1.2.3 2D Image Bar Code Scanner

Item		Characteristics
Scan method	CMOS area sensor (black and white)	-
Number of effective pixel	(H) × (V)	752 × 480 dot
Image capture speed (*1)	Frame rate	60 fps
Focal distance	From the front edge of scan engine	130 mm
View angle	Horizontal	Approx. 40.6°
	Vertical	Approx. 26.4°
Auxiliary light source (LED × 2)	Red LED	-
	Peak Wave Length	617 nm
	Directivity angle 2θ1/2 (*2)	60°
	Maximum radiation output (*3)	15000mcd
Light source for aiming (LED × 1)	Green LED	-
	Peak Wave Length	528 nm
	Maximum radiation output (*4)	18700mcd

Scanning is done by aiming the Scanner's Aimer to the center of a Bar Code. When scanning from a distance. The conditions for technical specifications are as follows, unless otherwise specified in each section.

<Conditions>

Ambient Temperature and Humidity	: Room temperature and Room humidity
Ambient Light	: 0 lux to 100 lux (on the surface of a bar code)
Angles	: $\alpha = 0^\circ$
Skew	: $\beta = 15^\circ$
Tilt	: $\gamma = 0^\circ$
Curvature	: $R = \infty$
Power Supply Voltage	: 3.3 and 5.0 V
PCS (1D and 2D)	: 0.9 or higher
Scanning Test	: Accept the performance with 90% success rate for 10 tries of scan

1.3 Bar Code Mode Support

- General Support - If user does not want to implement Bar Code communication, configuration and develop to his own application, Winmate provides two modes as below:
 - Virtual Keyboard as wedge mode
 - Bar Code setting AP (WDC)

- Advanced Support - If user wants to fully control Bar Code scanner operation and does not need any Winmate AP included, Winmate provide two modes as below:
 - Bar Code SDK(sample code)
 - Bar Code Manual Book

1.4 Bar Code Format Support

If default Bar Code format cannot meet your application, you can enable the reader to read a number of bar code types by command table, scanning configuration codes, or WDC AP.

It is strongly recommended to select only the required codes.

Advantages of selecting only the required codes are:

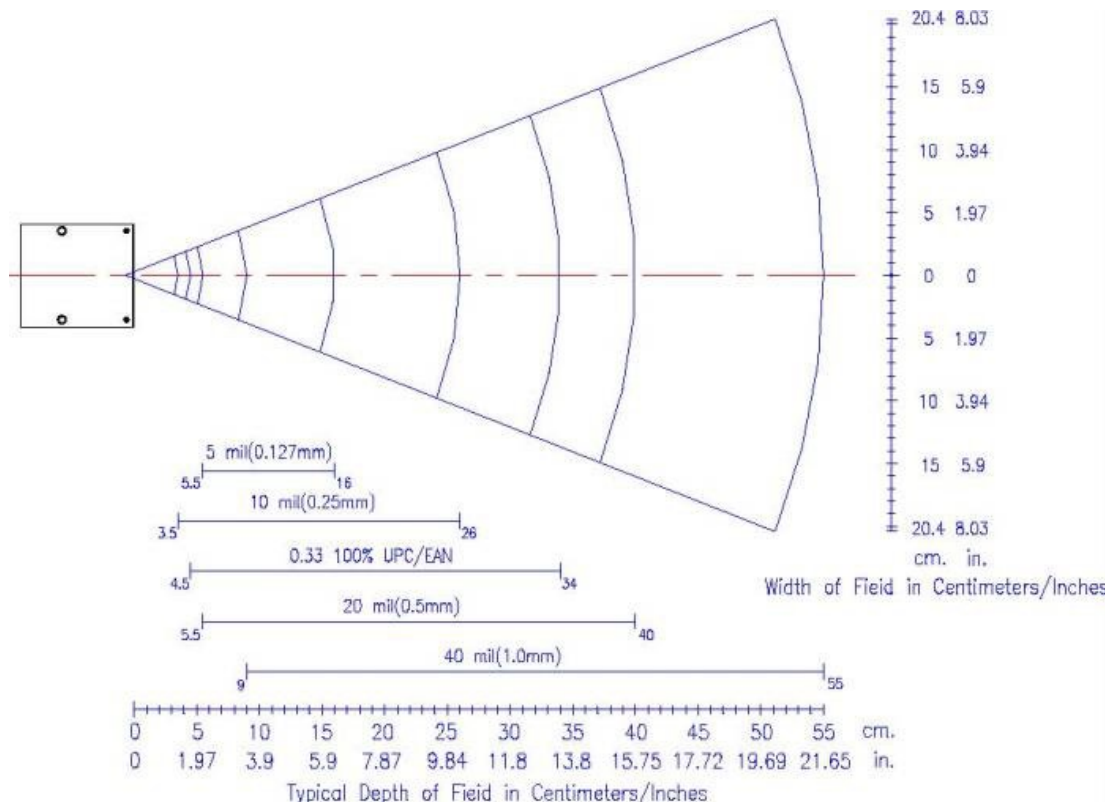
- faster reading
- reduced probability of reading errors
- no accidental scanning of unwanted bar codes

1.4.1 1D Liner Bar Code Scanner

Bar code types	Default
UPC A	○
UPC E	○
UPCA Add-on 2	
UPCA Add-on 5	
UPC E Add-on 2	
UPC E Add-on 5	
EAN(JAN)	○
EAN13	○
EAN13 add-on 2	
EAN13 add-on 5	
EAN8	○
EAN8 add-on 2	
EAN add-on 5	
Code 39	○
Full ASCII cod 39	
Codabar(NW7)	○
Industrial 2 of 5	
Interleaved 2 of 5	○
Code 128	○
EAN 128	
Code 93	○
MSI/Plessey	
Matrix 2 of 5	
Chinese Post Matrix 2 of 5	
Code 32	
Code 11	

➤ Scan Area and Depth of Field

The scan area is measured from the front edge of the camera module.



1.4.2 1D Laser Bar Code Scanner

➤ 1D Symbology

Bar Code Type	Default
UPC	○
UPC add-on 2	
UPC add-on 5	
EAN(JAN)	○
EAN add-on 2	
EAN add-on 5	
EAN-13	○
EAN -13 add-on 2	
EAN-13 add-on 5	
EAN-8	○
EAN-8 add-on 2	
EAN-8 add-on 5	
Code 39	○
Tri-Optic	○
Codabar(NW7)	○
Industrial 2 of 5	○
Interleaved 2 of 5	○
S-code	
Code 128	○
Cod 93	○
IATA	○
MSI/Plessey	
UK/Plessey	
Telepen	
Code 11	
Matrix 2 of 5	
Chinese Post Matrix 2 of 5	
Korean Postal Authority	

➤ GS1-DataBar

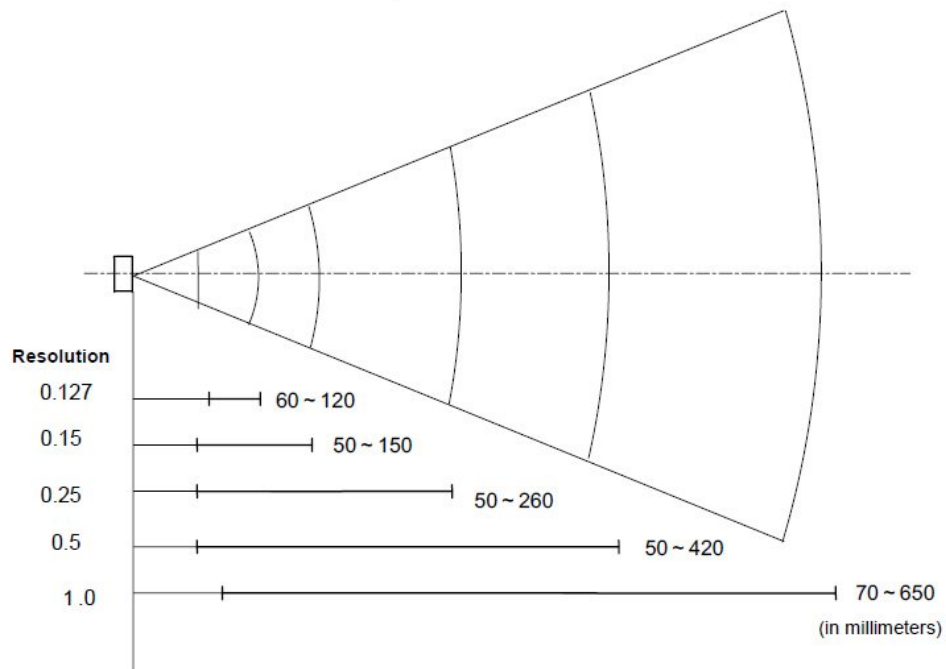
Bar Code Type	Default
GS1-DataBar -GS1-DataBar Omnidirectional -GS1-DataBar Truncated -GS1-DataBar Stacked -GS1-DataBar Stacked Omnidirectional	☐
GS1-DataBar Limited	☐
GS1-DataBar Expanded -GS1-DataBar Expanded -GS1-DataBar Expanded Stacked	☐

➤ 2D Symbology

Bar Code Type	Default
PDF417	☐
MicroPDF417	
Codablock F	

➤ Scan Area and Depth of Field

The scan area is measured from the front edge of the camera module.



1.4.3 2D Image Bar Code Scanner

➤ 1D Symbology

Bar Code Type	Default
UPC	○
UPC add-on 2	
UPC add-on 5	
EAN(JAN)	○
EAN add-on 2	
EAN add-on 5	
EAN-13	○
EAN -13 add-on 2	
EAN-13 add-on 5	
EAN-8	○
EAN-8 add-on 2	
EAN-8 add-on 5	
Code 39	○
Tri-Optic	○
Codabar(NW7)	○
Industrial 2 of 5	○
Interleaved 2 of 5	○
S-code	
Code 128	○
Cod 93	○
IATA	○
MSI/Plessey	
UK/Plessey	
Telepen	
Code 11	
Matrix 2 of 5	
Chinese Post Matrix 2 of 5	
Korean Postal Authority	
Intelligent mail Bar Code	
POSTNET	

➤ GS1-DataBar

Bar Code Type	Default
GS1-DataBar	
-GS1-DataBar Omnidirectional	
-GS1-DataBar Truncated	
-GS1-DataBar Stacked	
-GS1-DataBar Stacked	
Omnidirectional	○

GS1-DataBar Limited	☐
GS1-DataBar Expanded	
-GS1-DataBar Expanded	☐
-GS1-DataBar Expanded Stacked	

➤ 2D Symbology

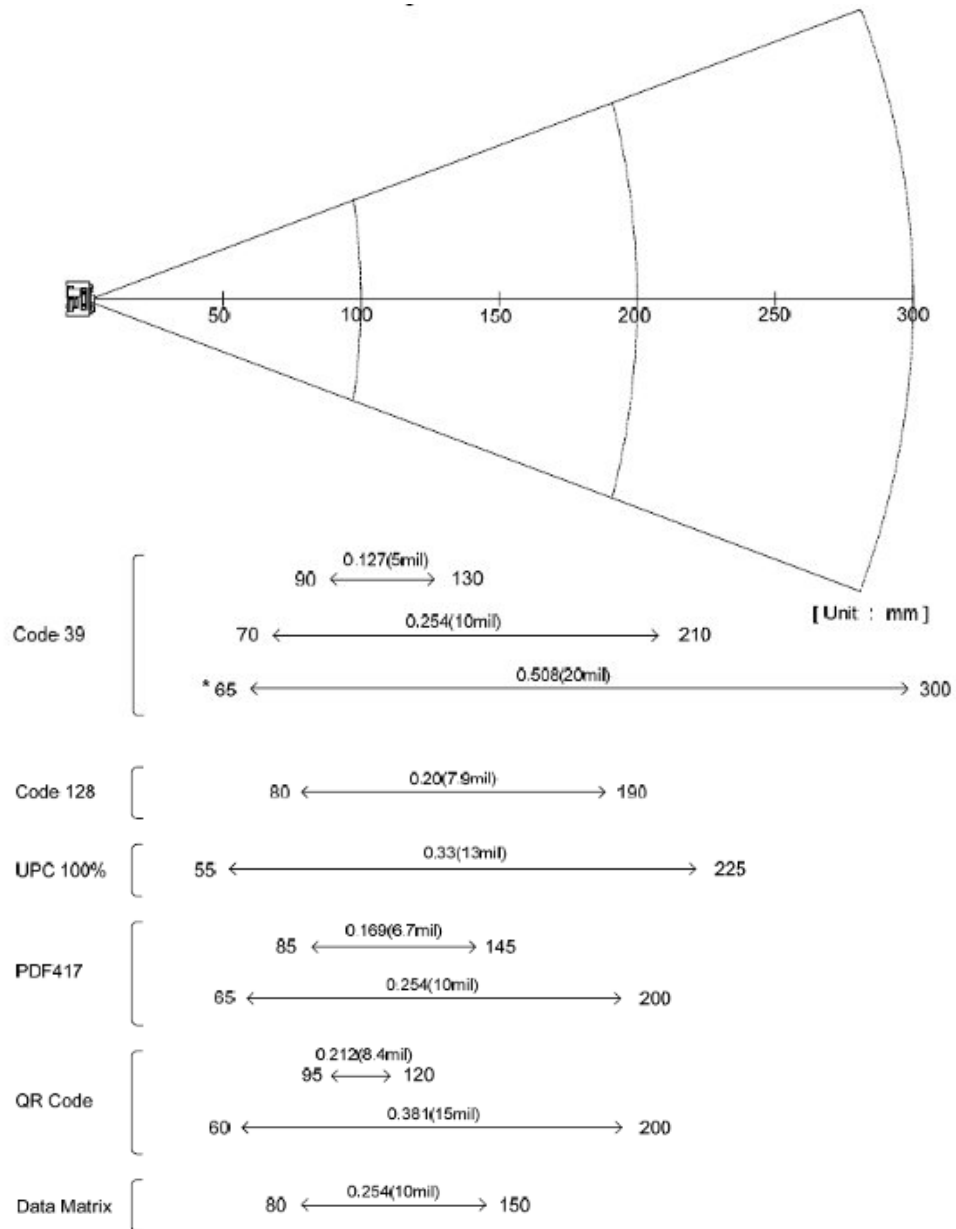
Bar Code Type	Default
PDF417	☐
MicroPDF417	
Codablock F	
QR Code	☐
Micro QR	☐
Data Matrix (ECC 200)	☐
Data Matrix (ECC 000-140)	
Aztec Code	☐
Aztec Runs	
Chinese Sensible code	
Maxi Code	

➤ Composite code

Bar Code Type	Default
Composite GS1-DataBar	
-CCA	
-CCB	
-Limited CCA	
-Limited CCB	
-Expanded CCA	
-Expanded CCB	
Composite GS1-128	
-CCA	
-CCB	
-CCC	
Composite EAN	
-EAN 13 CCA	
-EAN 13 CCB	
-EAN 8 CCA	
-EAN 8 CCB	
Composite UPC	
-UPC-A CCA	
-UPC-E CCB	
-UPC-A CCA	
-UPC-E CCB	

➤ Scan Area and Depth of Field

The scan area is measured from the front edge of the camera module.



2 H/W and S/W Configuration

2.1 Hardware Block Diagram

Winmate portable products build-in compact Bar Code scan engine which enables high speed scanning of linear (1D) and 2D symbologies in the industry. Winmate Bar Code reader supports symbologies such as GS1 DataBar (Old: RSS), Aztec Code, EAN, UCC Composite Bar Code and so on.

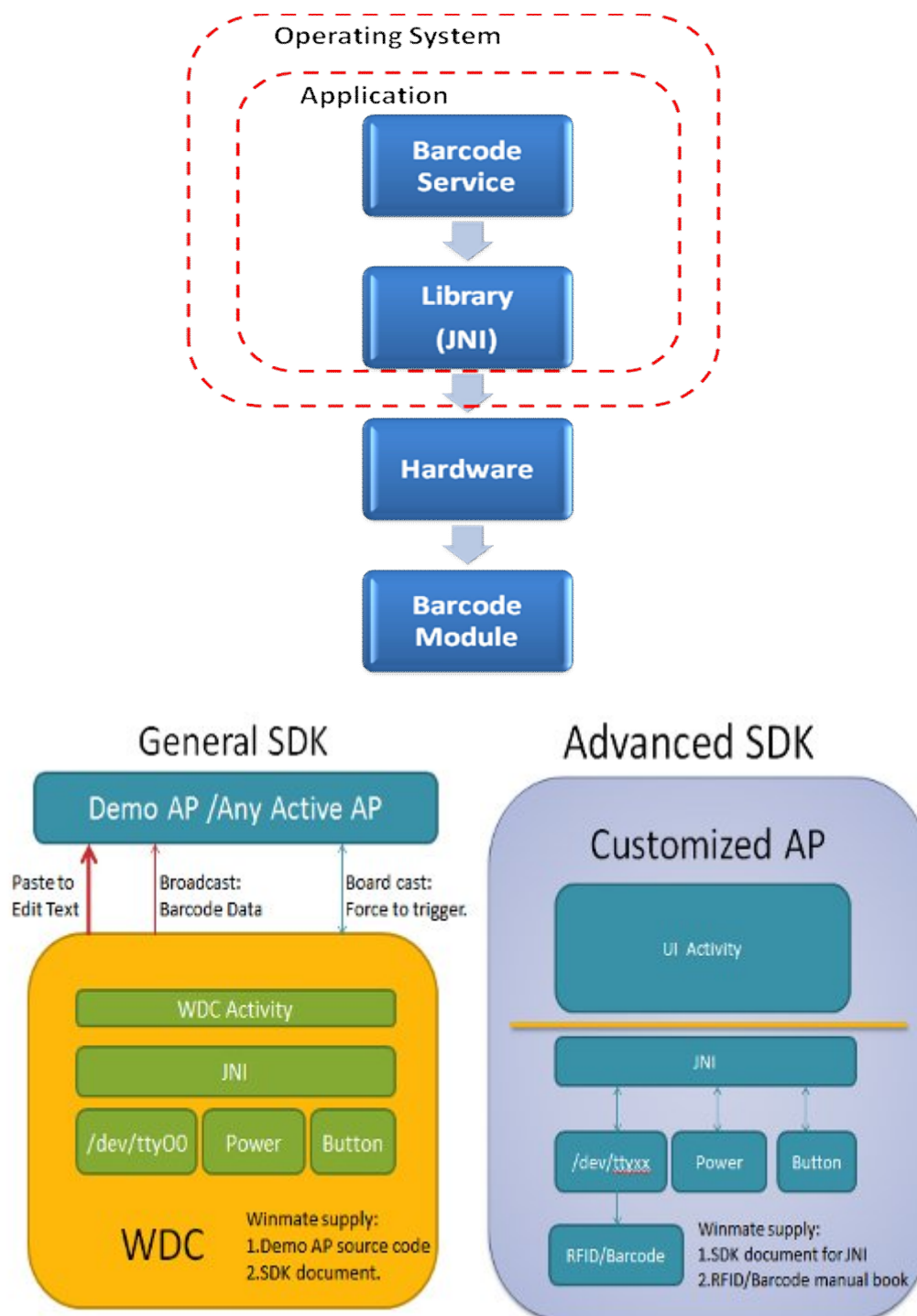
➤ X86



➤ ARM

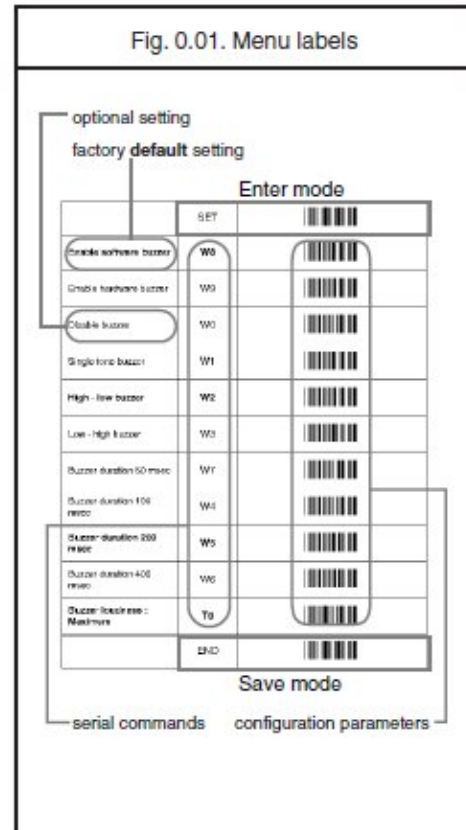
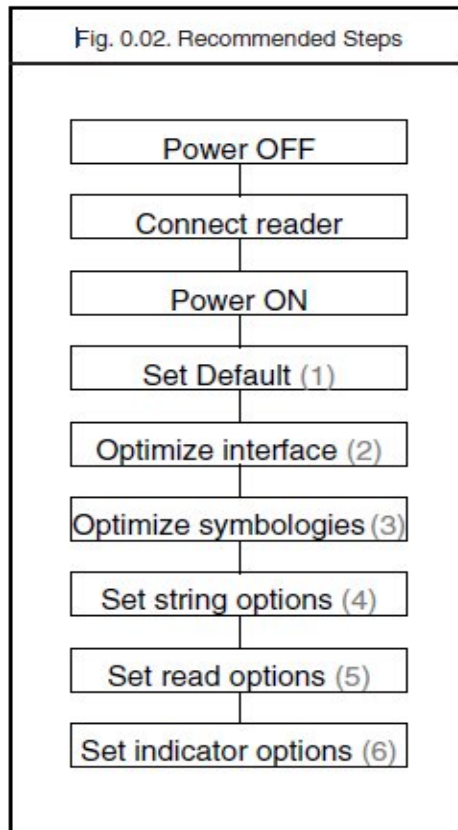


2.2 Software Block Diagram



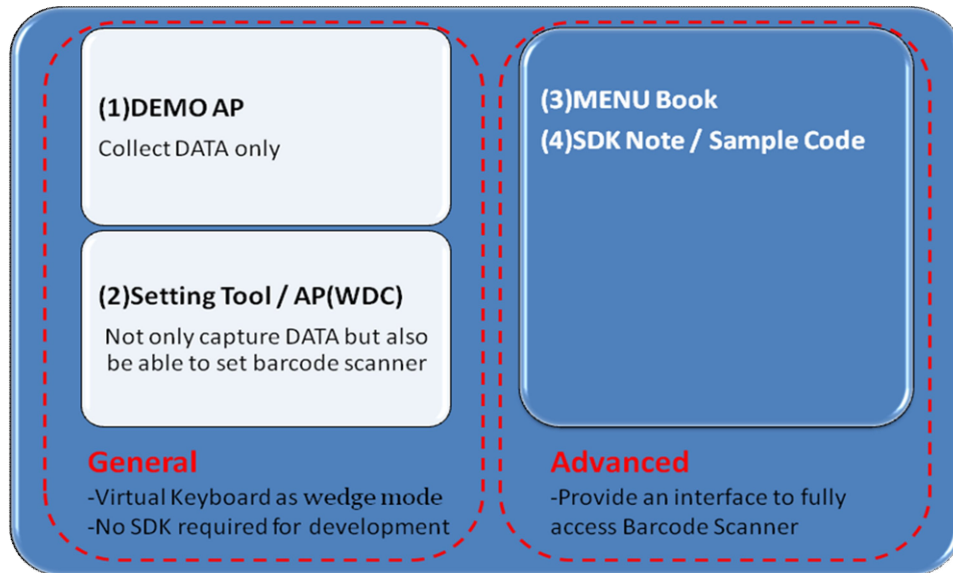
3 How to configure Bar Code reader (X86)

For X86 product line, Winmate offers Manual Book only, and the scanner can be set by reading the Label via Recommended Steps as below:



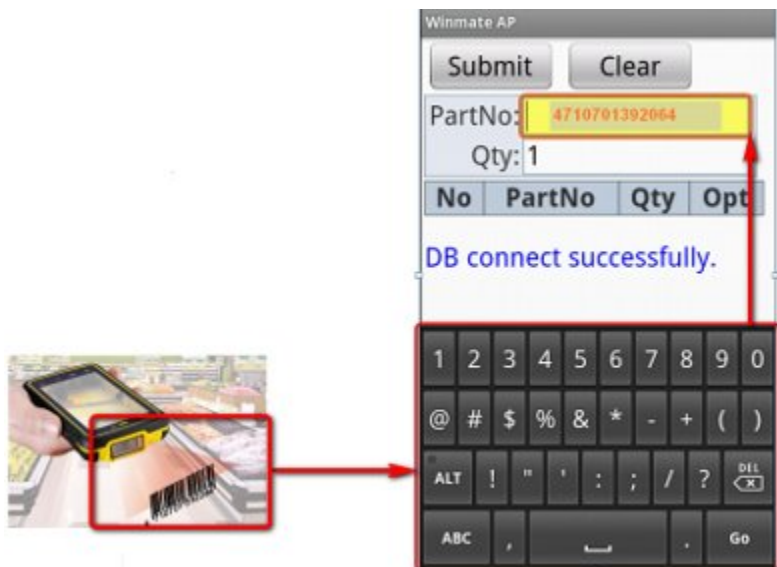
4 How to configure Bar Code reader (ARM-Android)

Winmate offers four type of services to customer under Android:



4.1 DEMO AP (embedded)

Winmate DEMO AP is an example to collect the data from the Bar Code, user can easily export the Bar Code data by it. This application is based on web page with java script technology as long as the software component can accept the keystroke, it could easily to develop for Bar Code application.



1 DEMO AP Quick Start Guide:

- 1) Turn on the E430 series PDA.
- 2) Press  to open App list.
- 3) Tap  to open Winmate Barcode and RFID test AP. The UI will show up as the following picture.

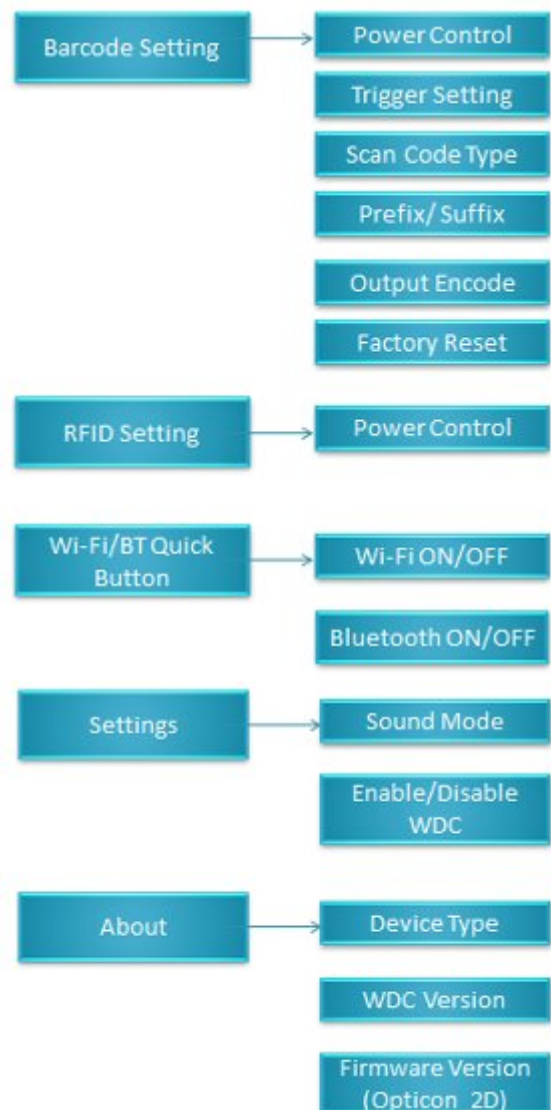
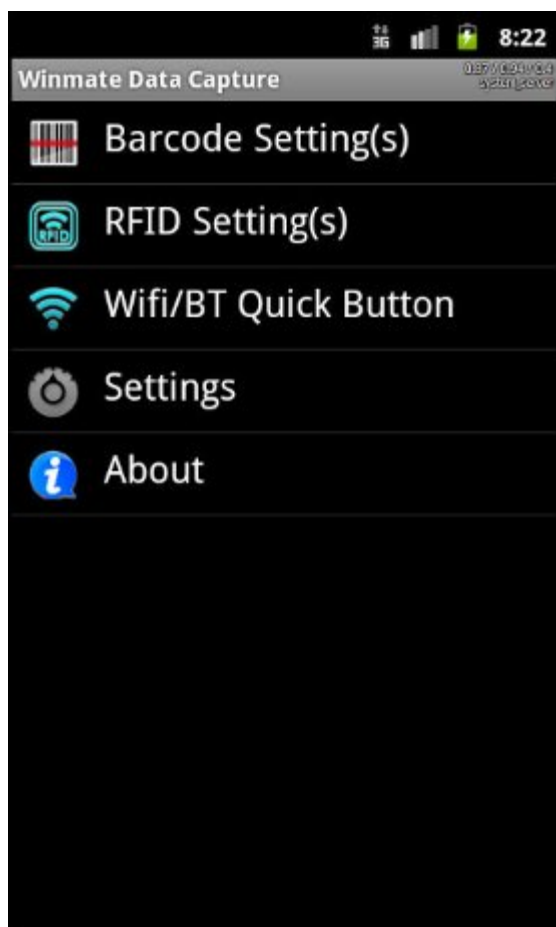


- 4) Touch the red square to have the data inputted to this area.
- 5) Keep the top of the PDA around 15cm from the barcode, and press FN key.
- 6) The sensor on the top of PDA will project a green light bar. Aim the green light bar to the barcode that you are going to scan.
- 7) Approach the E430 PDA to the barcode till hearing a “beep” sound.
- 8) The data scanned will be shown on your PDA.

4.2 Setting Tool / AP (WDC) (embedded)

WDC is an service running in the Android background. It receives the Bar Code data and convert to keystroke, user can easily set up the trigger mode, scan format, and decoder types.

- 2 General SDK
 1. Get data from EditText
 2. Get data from broadcast from WDC
 - force to scan.
 - receive the WDC data content



4.3 Manual Book (password needed)

The manual book is intended for setting up your Bar Code reader to optimize its performance for your particular application. The reader can be returned to factory default by reading the default label.

Download Link:

http://www.winmate.com.tw/TabletPC/rugged_tablet_4.3handheld.htm?showblock=Support#

4.4 SDK Note / Sample Code (password needed)

Please refer to "Winmate Android 2.3 Bar Code Control Note" documentation. The topics are as below:

1. Enable/disable WDC
2. RFID/ Barcode power control
3. Function button broadcast
4. How to access comport

Download Link:

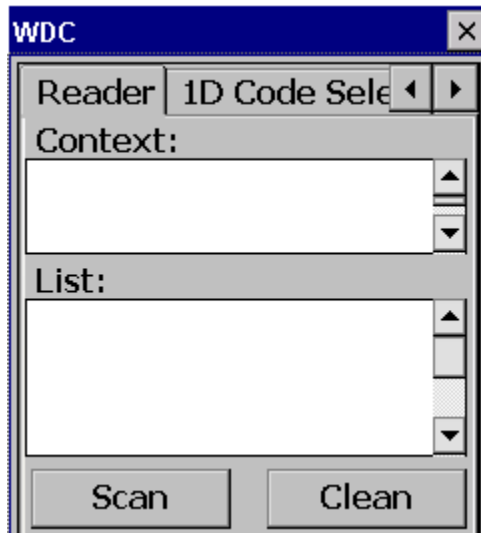
http://www.winmate.com.tw/TabletPC/rugged_tablet_4.3handheld.htm?showblock=Support#

5 How to configure Bar Code reader (ARM-WinCE6.0)

5.1 Setting Tool / DEMO AP(WDC) (embedded)

3 Application Introduce

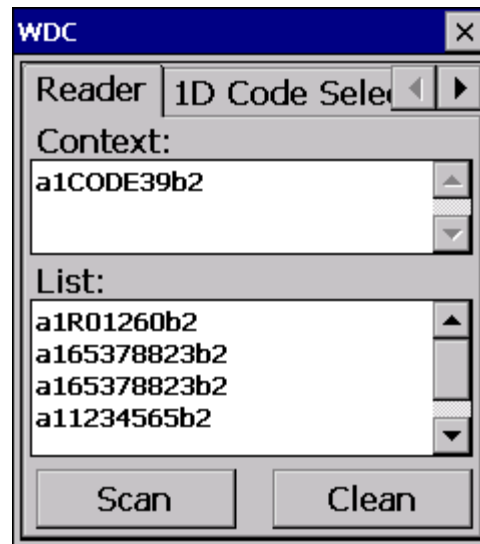
Open WDC Application



You can use the Scan button to scan the barcode or RFID card

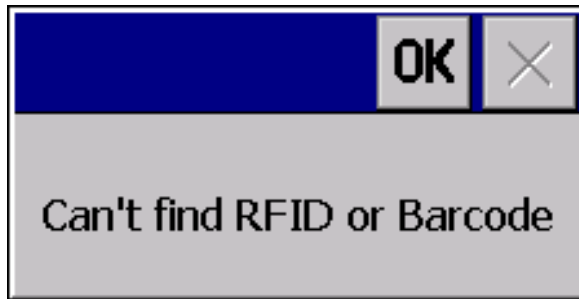
The Context Area is the data that you just scan or read

The List Area is the history you scan

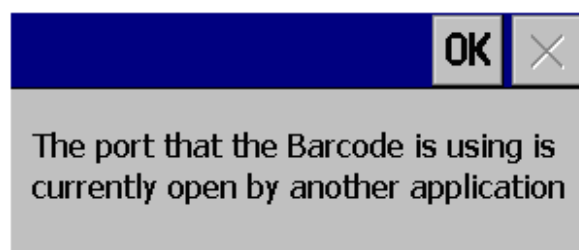


Open WDC Application failed

If you see the error message when you open WDC as below, that means no Barcode and RFID device detected.

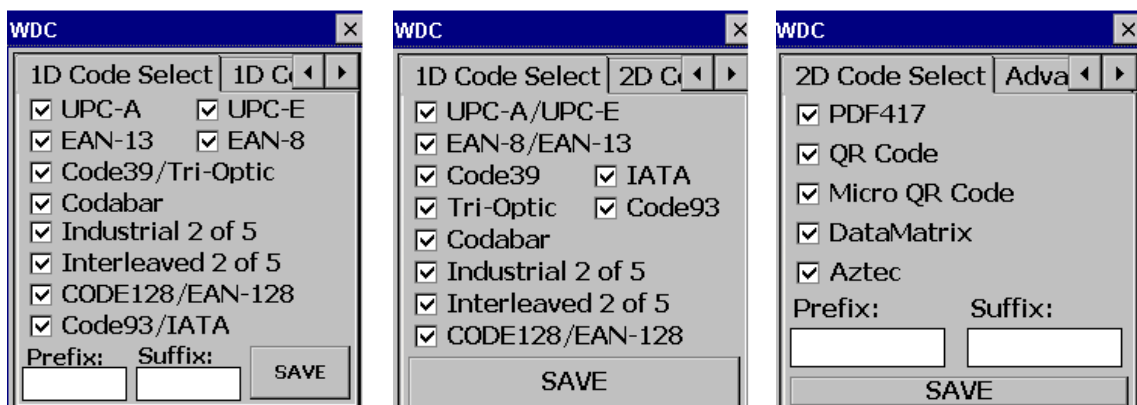


If you see the error Message as below, that means COM port has been occupied, please check your COM port connection then open the application again.



Barcode Scanner Selection

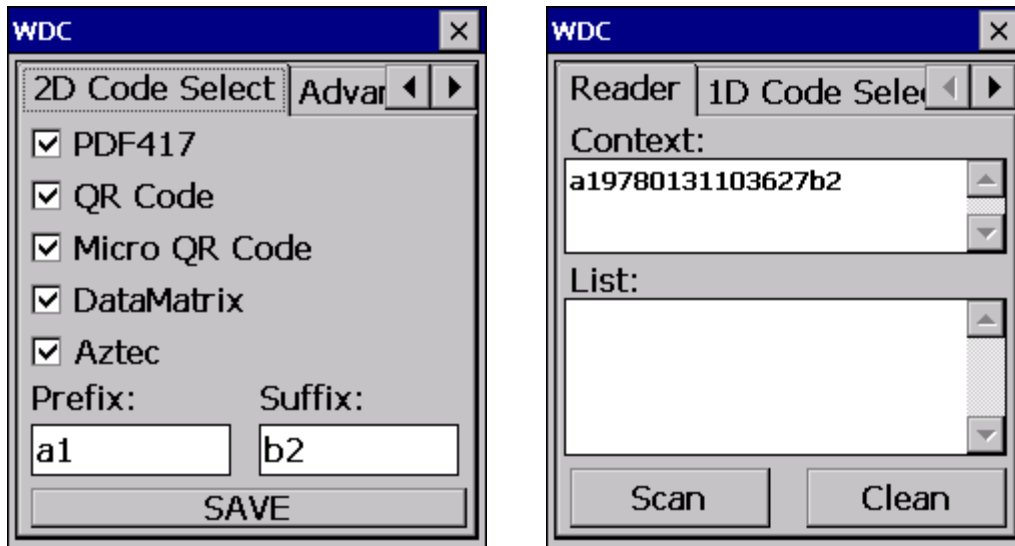
1D Barcode Device Screen 2D Barcode Device Screen in 1D 2D Barcode Device Screen in 2D



You can select the barcode what you need, and press SAVE button to save the setting. The setting will be saved in barcode device; even you reboot or close the AP.

Set Prefix and Suffix

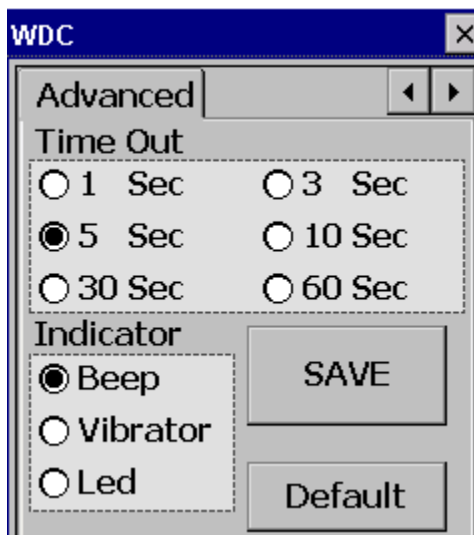
You can key in the message or character what you like to show on the Prefix and Suffix text area. Press the SAVE button to save them to your barcode device. The setting will be saved in barcode device; even you reboot or close the AP.



Extend read time and indicator in advanced setting

You can set extend read time and Indicator in your device.

(PS: 2D barcode device support only)



e.(1) Extend Read Time Setting

WDC has 6 different extend read time sections that you can set from 1 second to 1 minute. Press SAVE, the setting will be saved in your device. Read time in single read, after the trigger is pressed or the read command is sent, can be extended. Reading operation stops when no data is output within the specified time.

e.(2) Indicator Setting

The setting supports three indicators: Buzzer beep, Vibration, and LED light when code was successfully decoded and the data was output.

Default Setting

You can restore all the setting to be factory mode by Default Setting.

PS: it's not support RFID device.

5.2 Manual Book (password needed)

The manual book is intended for setting up your Bar Code reader to optimize its performance for your particular application. The reader can be returned to factory default by reading the default label.

Download Link:

http://www.winmate.com.tw/TabletPC/rugged_tablet_4.3handheld.htm?showblock=Support#

5.3 SDK Note / Sample Code (password needed)

Please refer to "Winmate WinCE6.0 Bar Code Control Note" documentation.

Download Link:

http://www.winmate.com.tw/TabletPC/rugged_tablet_4.3handheld.htm?showblock=Support#

6 Trouble Shooting

The trouble shooting diagram can be of help if your reader does not operate as expected. If any problem is not covered or solved with this diagram you need to contact with our sales window.

Whether the reader operates or not can be checked in the following way:

- 4 It should beep after the power has been switched ON
- 5 It should either react on a trigger(if any) or it reader (LEDs)

