

ΚΟΛΜΤΑΣ 

KDC350 User Manual

(Rev 2.85.Q/2.86.Q/3.04.Q)

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May be covered under one or more pending and/or US Patents, US Pat. Nos. 7,769,917; 7,954,710; 8,126,399; UK Pending Patent App. No. 1203882.4.

KDC® is a registered trademark and property of KoamTac, Inc.

KoamTac® is a registered trademark and property of KoamTac, Inc.

KTSync® is a registered trademark and property of KoamTac, Inc.

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO ANY TYPE OF MOISTURE. DO NOT LOOK DIRECTLY INTO LASER OR POINT THE LASER INTO ANOTHER PERSON'S EYES. EXPOSURE TO THE BEAM MAY CAUSE EYE DAMAGE.

CAUTION:

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Regulatory Compliance



FCC ID:VH9KDC350

This equipment has been tested and found to comply with the limit of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation; if this equipment does cause harmful interference to radio or television reception, which 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:

1. Reorient / Relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

WARNING:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



Products intended for sale within the European Union are marked with a CE Mark which indicates compliance to applicable Directives and European Normes (EN), as follows. Amendments to these Directives or ENs are included: Normes (EN), as follows:

Applicable Directives:

- Radio and Telecommunications Terminal Equipment Directive 1999/5/EC



Article 2-1-19, 2.4GHz Wide Band low power data communication system



LARN8-IO2A2402/2480TR0.003F1DG1D79

Laser Compliance.



Complies with US 21 CFR 1040.10 and 1040.11 except for deviations pursuant to laser notice no. 50, dated June 24, 2007 and IEC 60825-1 (Ed. 2.0)

Complies with IEC60825-1:1993 + A1:1997 + A2:2001

Battery Warning:

- Your device contains a rechargeable NiMH battery. Never throw the battery into a fire, as that could cause the battery to explode.
- Never short-circuit the battery by bringing the terminals in contact with another metal object. This could cause personal injury or a fire, and could also damage the battery.
- Never dispose of used battery with other ordinary solid wastes. Batteries contain toxic substances.
- Dispose of used battery in accordance with the prevailing community regulations that apply to the disposal of batteries. Cover the metal terminals with insulating tape. (This is to prevent accidental short-circuiting).
- Never expose the battery to any liquid.
- Always keep the battery out of reach of infants or small children.
- Never shock the battery by dropping it or throwing it.
- Dispose of a spent or damaged battery promptly.

WARNING: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Product Disposal

Your device should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

Bluetooth

Core Specification: 2.1+EDR

Apple

Made for iPhone, Made for iPod, Made for iPad

Samsung

Compatible with Galaxy Series

1. INTRODUCTION

Congratulations on purchasing KoamTac's revolutionary barcode scanner and data collector.

Lightweight and compact, with a user-friendly design and superior functionality, KoamTac's KDC works in a variety of portable applications. Use it independently or as an accessory to your PC, PDA, or smartphone. To find out more about KoamTac, Inc. and our family of products, visit us at www.koamtac.com.

FEATURES	KDC100	KDC200	KDC250	KDC300	KDC350	KDC400
USB CONNECTIONS	2	1	1	1	1	1
RECHARGEABLE BATTERY	YES	YES	YES	YES	YES	YES
SCAN ENGINE	Laser	Laser	Laser	Imager	Laser/ Imager	Laser/ Imager
AUTOMATIC DATA UPLOAD	YES	YES	YES	YES	YES	YES
STORES 10,000+ BARCODES	YES	YES	YES	YES	YES	No
KTSYNC® SOFTWARE	YES	YES	YES	YES	YES	YES
SDK FOR DEVELOPERS	YES	YES	YES	YES	YES	YES
SUPPORTS MICROSOFT® WINDOWS XP, VISTA, 7 & MOBILE 5.0+	YES	YES	YES	YES	YES	YES
ANDROID, BLACKBERRY, IOS	NO	YES	YES	YES	YES	YES
BLUETOOTH	NO	YES	YES	YES	YES	YES
GPS	NO	NO	YES	NO	YES	NO

Table 1 - Features of KDC

1.1 KDC Package

The standard KDC package contains:

1. One KDC Barcode Data Collector
2. One USB Cable
3. One Lanyard (KDC100/200/250/300/350) or One Hand Strap (KDC400)
4. KoamTac Installation CD with
 - KTSync[®] for Microsoft Windows XP, Vista, 7 and Mobile 5.0+
 - KDC Device Driver
 - User Manual
5. One Protective KDC Rubber Case (KDC100/200/250/300/350) or One Smartphone Protective Rubber Case (KDC400)

NOTE: Depending on your region or distributor, package contents may vary.



Figure 1 – KDC Package

1.2 KDC Characteristics

Before you use your KDC, please become familiar with its physical characteristics. Refer to Figure 2 and Figure 3 below which indicate placement of scan and scroll buttons, OLED display, LEDs, and ports on your KDC. All KDC models are similar except for the KDC100 which includes an additional USB connector.

KDC100 Barcode Reader and Data Collector

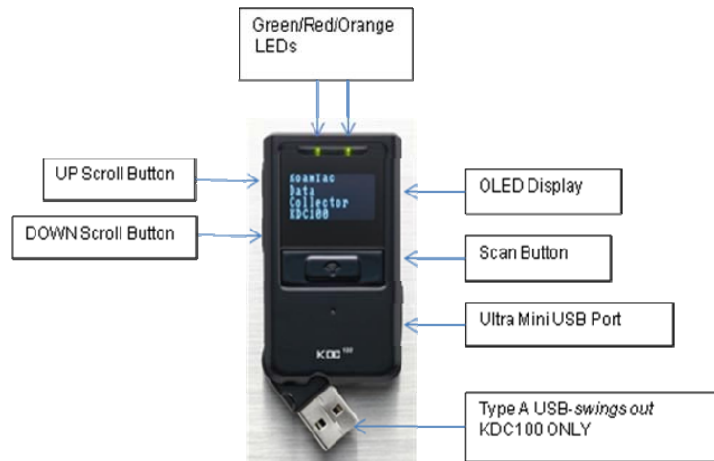


Figure 2 - Characteristics of KDC100

KDC200 / KDC250 / KDC300/KDC350 Barcode Reader and Data Collector



KDC200



KDC250/300



KDC350

Figure 3- Characteristics of KDC200 / KDC250 / KDC300 / KDC350



KDC400

Figure 4 - Characteristics of KDC400

1.3 KDC350 Specifications

Specification	Item	Descriptions
Physical Characteristics	Size	93.6(L) x 43(W) x 23.9(H) mm
	Weight	84.65g
Electrical Characteristics	Battery	Lithium-Ion(3.7V DC, 1200mAh)
	Charging	USB connector
	Typical Operating Current	170mAh@3.3V
User Environment	Drop	1.5m
	Temperature	Operating: 0C - 45C Storage: -20C - 45C
	Humidity	5% - 80%(Noncondensing)
Performance	Scanning	100 scnas/sec
	Bluetooth	Bluetooth V2.1+EDR, Class2 HID/SPP/MFi(Optional 2 ports)
	Memory	Flash ROM: 256K + 4MB RAM: 64KB

2. Installation

2.1 KoamTac Installation Wizard

Windows XP

WARNING: DO NOT CONNECT KDC TO USB PORT PRIOR TO INSTALLATION

1. Insert KoamTac Installation CD into your computer's CD drive.
2. Click **Start** icon then **My Computer** icon. A listing of devices on your computer will be displayed including the disk drive containing the KoamTac Installation CD.
3. Click on the KoamTac Installation CD icon then click on the Setup directory. Click on the PC_Setup.exe file which executes the KTSync Setup Wizard.

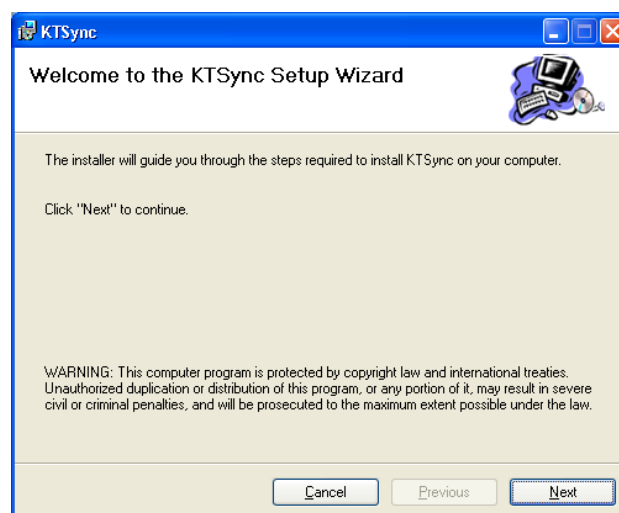
NOTES

- If KTSync Setup Wizard locates an older version of KTSync on your computer, you will be prompted to remove the older program before installing the new version. Select Remove KTSync then click Finish. When removal is complete, click Close. Go to Step 2 to run KTSync Setup Wizard.
- If you have any problems, please refer to the Manual Installation section.

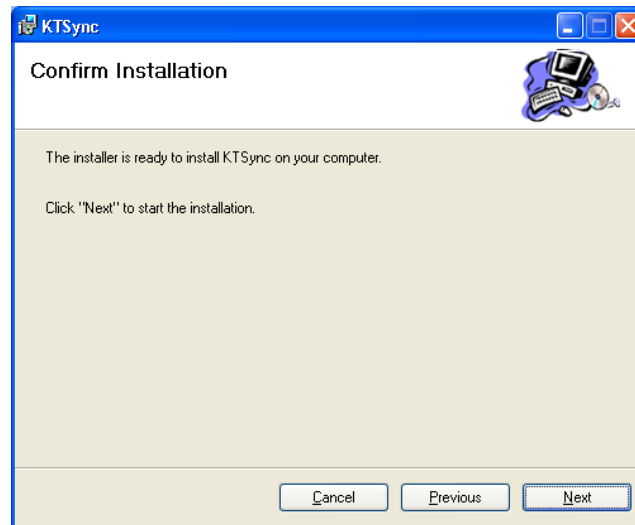
KTSync Setup Wizard

Below are the screen images you will see during the installation of KTSync.

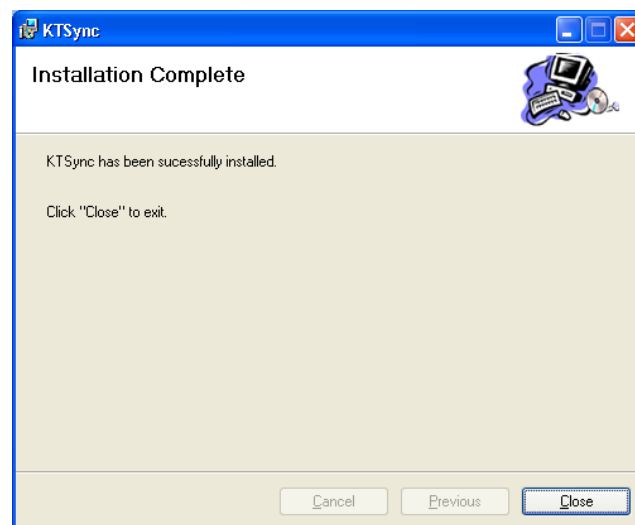
- Click **Next** icon in KTSync Setup Wizard window



- Click **Next** icon in KTSync Confirm Installation window



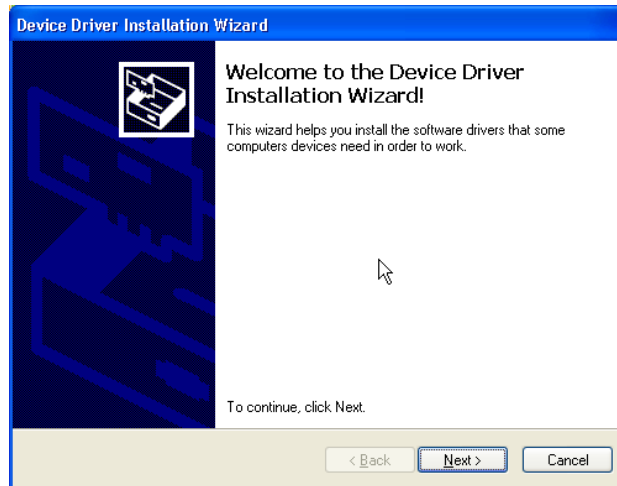
- Within a few minutes, installation of KTSync will be complete. Click **Close** icon and wait for the Device Driver Installation Wizard to load.



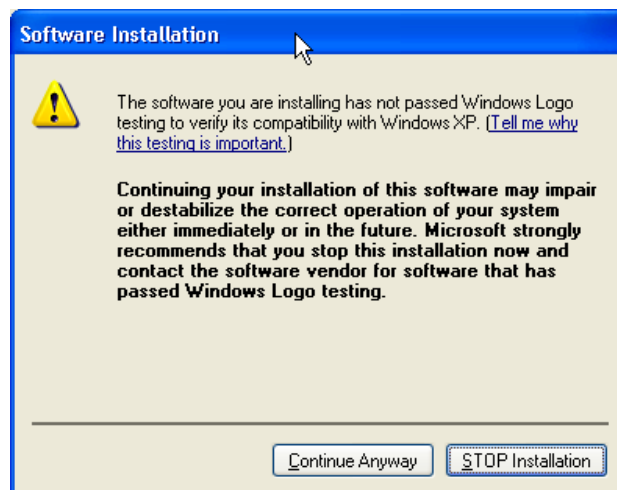
Device Driver Installation Wizard

Below are the screen images you will see during the installation of the KDC Device Driver.

- Click **Next** icon in Device Driver Installation Wizard window



- Click **Continue Anyway** icon in Software Installation Logo testing window



- Click **Finish** icon in Device Driver Installation Wizard window



Connect KDC to Computer

Using the USB cable included with the KDC, follow the directions below.

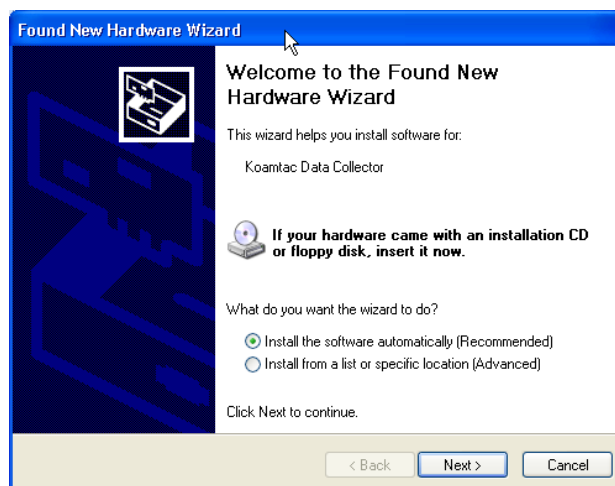
- Connect the cable's ultra mini USB connector to the KDC.
- Connect the cable's Type A USB connector to your PC.
- Wait until your computer beeps and/or displays the message *Found New Hardware*.

Found New Hardware Wizard

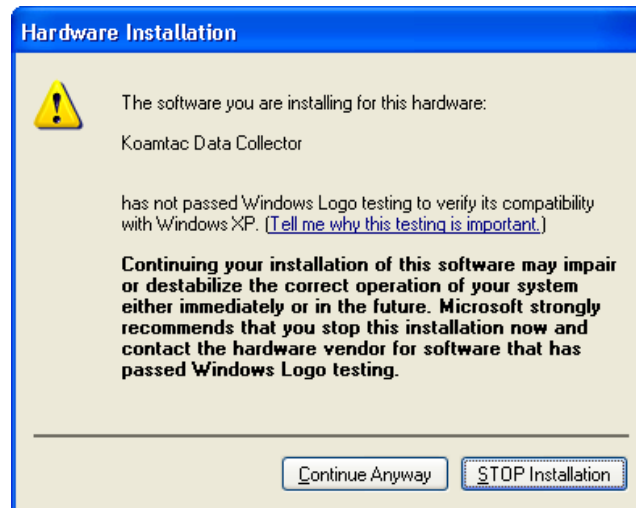
- Select "No, not this time" option in Found New Hardware Wizard and click Next if your PC pops up the following Found New Hardware Wizard.



- Select "Install the software automatically (Recommended)" option in Found New Hardware Wizard and click Next if your PC pops up the following Found New Hardware Wizard.



- Click **Continue Anyway** icon in Software Installation Logo testing window

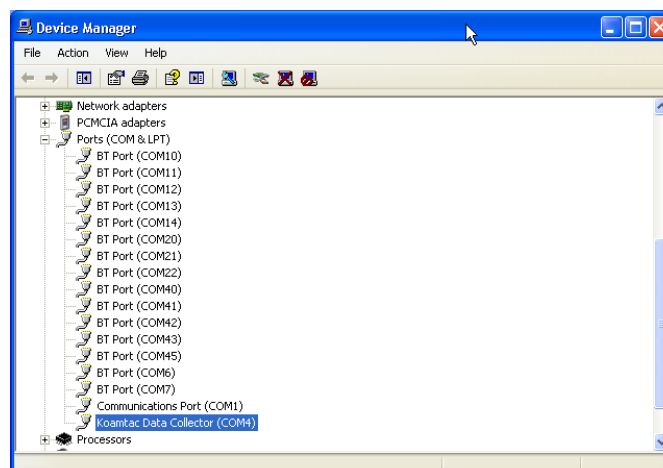


- Click **Finish** icon in Found New Hardware Wizard window



Verify COM Port Address

- User can verify installed COM Port in Device Manager



Vista and Windows 7

WARNING: DO NOT CONNECT KDC TO USB PORT PRIOR TO INSTALLATION

1. Insert KoamTac Installation CD into your computer's CD drive.
2. Click **Start** icon then **My Computer** icon. A listing of devices on your computer will be displayed including the disk drive containing the KoamTac Installation CD.
3. Click on the KoamTac Installation CD icon then click on the Setup directory. Click on the PC_Setup.exe file which executes the KTSync Setup Wizard.

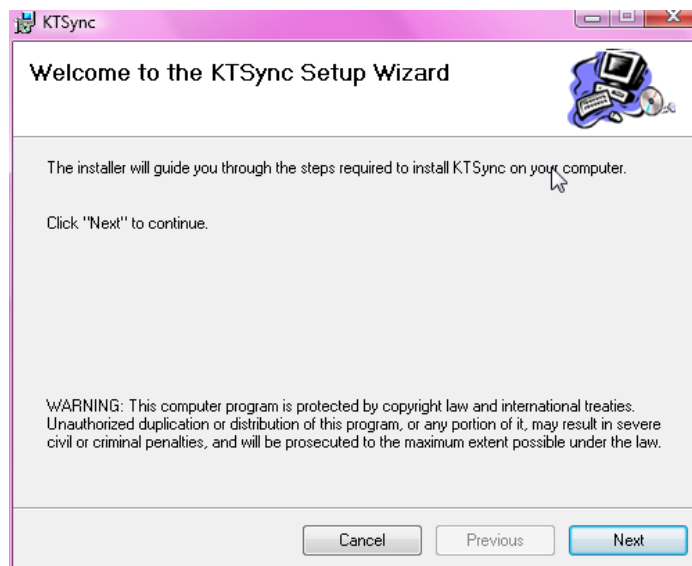
NOTES

- If KTSync Setup Wizard locates an older version of KTSync on your computer, you will be prompted to remove the older program before installing the new version. Select Remove KTSync then click Finish. When removal is complete, click Close. Go to Step 2 to run KTSync Setup Wizard.
- If you have any problems, please refer to the Manual Installation section.

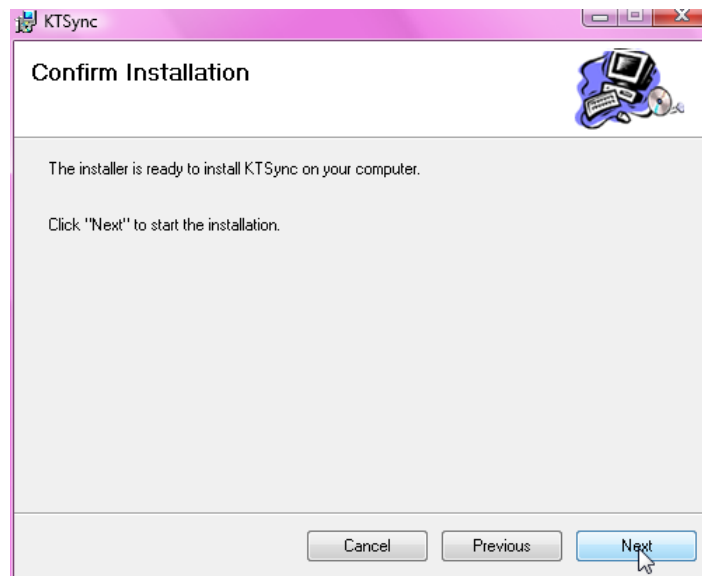
KTSync Setup Wizard

Below are the screen images you will see during the installation of KTSync.

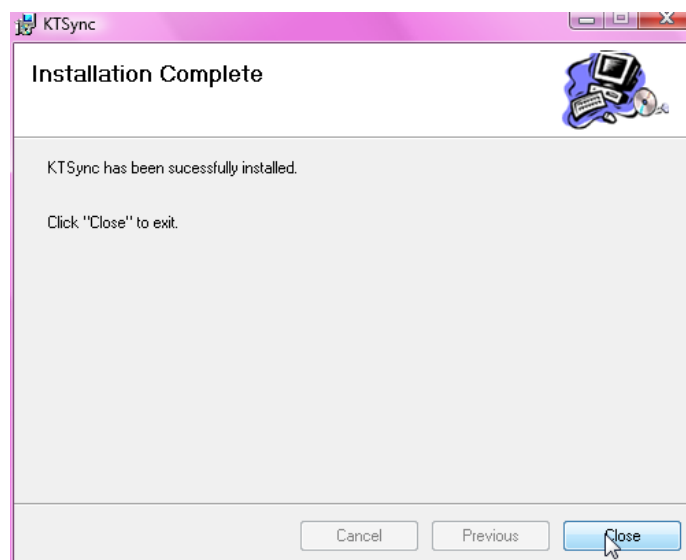
- Click **Next** icon in KTSync Setup Wizard window



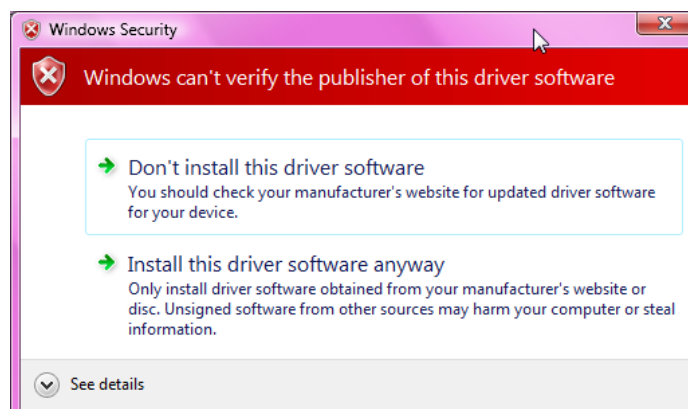
- Click **Next** icon in KTSync Confirm Installation window



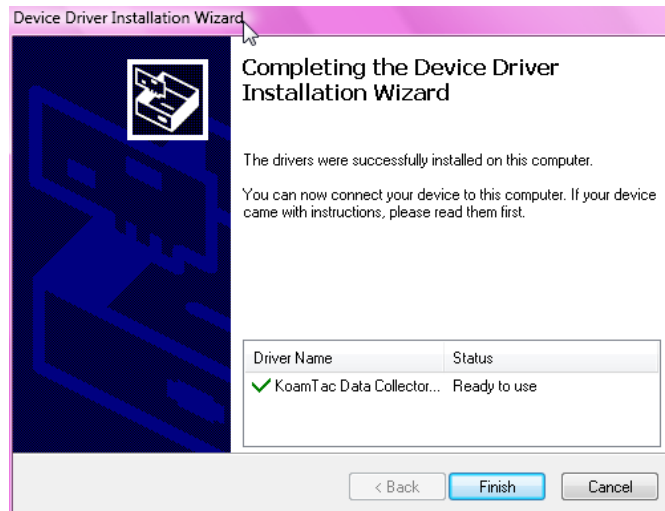
- Click **Close** icon in KTSync Installation Complete window and wait for Device Driver Installation Wizard



- Click **Install this driver software anyway** in Windows Security window



- Click **Finish** icon in Device Driver Installation Wizard window



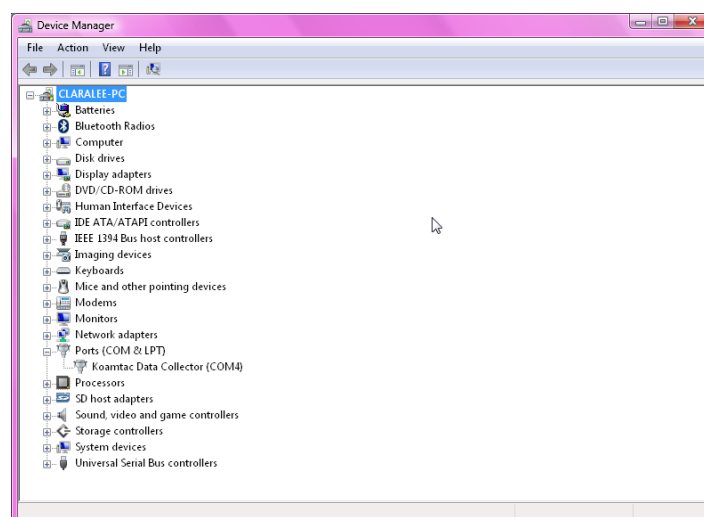
Connect KDC to Computer

Using the USB cable included with the KDC, follow the directions below.

- Connect ultra mini USB connector to the KDC.
- Connect Type A USB connector to your PC.
- Wait until your computer beeps and/or displays the message *Found New Hardware*.

Verify COM Port Address

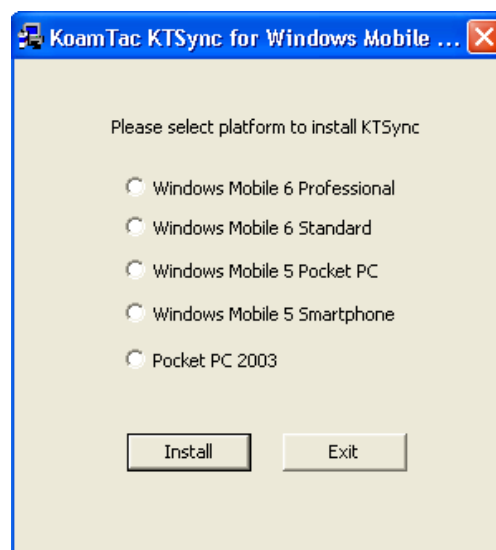
- User can verify installed COM Port in Device Manager



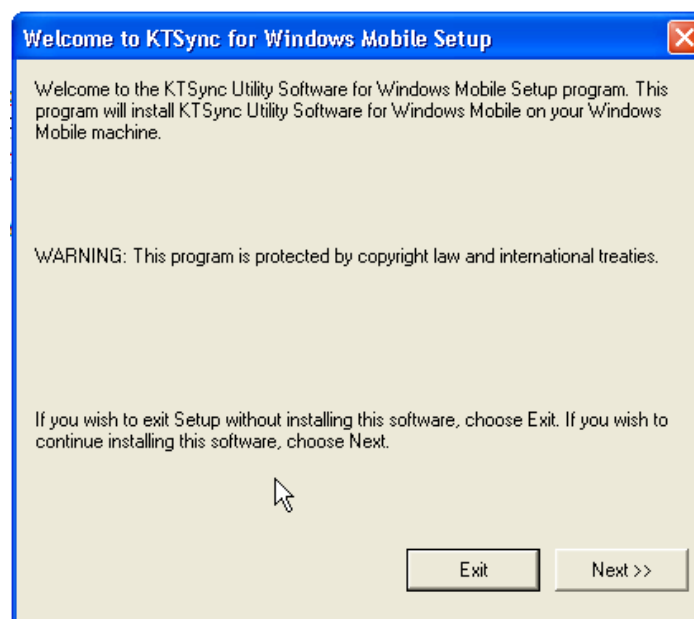
Windows Mobile 5.0+

WARNING: PLEASE CONNECT PDA TO PC PRIOR TO INSTALLATION

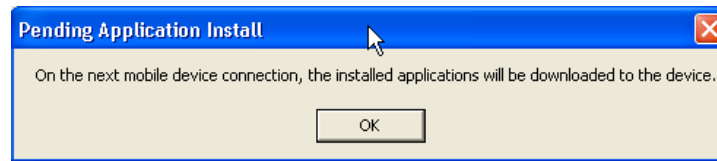
1. PC_Setup.exe creates Mobile_Setup.exe file under C:\Program Files\KoamTac\KTSync\Windows.Mobile directory
 2. Execute Mobile_Setup.exe
- Select Windows Mobile version to install.



- Click Next icon.



- Click **OK** icon in Pending Application Install window



- Follow the instructions on PDA screen

COM port Assignment

- User should assign a COM port for KDC before using pKTSync.
- User should pair KDC with PDA using PDA *Bluetooth* manager and assign a COM port for *Bluetooth* communication
- Please refer to the PDA manual for the details of COM port assignment method

Android

- Download and install aKTSync from the Android Market.
http://www.androidzoom.com/android_applications/productivity/ktsync_luxv.html

Blackberry

- Download and install bKTSync from the Blackberry App World.
<http://appworld.blackberry.com/webstore/content/16861?lang=en>

iPad/iPhone/iPod touch

- Download and install iKTSync from the Apple App Store.
<http://itunes.apple.com/us/app/ktsync/id372916602?mt=8>



2.2 Manual Installation

NOTE: *If you have the KDC100, it has two ports, Ultra Mini and standard Type A which swings out. See Figure 2 for more details.*

Windows XP, Vista, and 7

1. Insert the KoamTac Installation CD into your computer's disk drive.
2. Create a directory called KoamTac on your computer.
3. Copy XP.Vista.7 directory from KoamTac CD to KoamTac directory. The XP.Vista.7 directory contains KTSync® programs for Microsoft® Windows XP, Vista, Windows 7 and user manuals.
4. Connect KDC cable to ultra mini USB connector on the KDC.
5. Connect KDC cable to Type A USB connector on your computer. Wait until your computer beeps and/or displays the message *New Hardware Found*. You will be prompted to search for a device driver for KDC.
6. Browse then select *KTReader.inf* file from the KoamTac directory created in Step 2. Follow screen prompts to continue with the device driver installation.

NOTE: *KTReader.inf is the device driver for 32bit Microsoft® Windows XP, Vista, and Windows 7. If you have a 64bit computer, use KTReader.inf file from XP.Vista.64bit folder in the KoamTac directory.*

Windows Mobile 5.0+

Please connect your Windows Mobile PDA to your computer before software installation.

- Create a directory and name it KoamTac on the PDA.
- Copy Mobile5.0_6.0 directory from KoamTac CD to PDA KoamTac directory.
- Mobile5.0_6.0 contains KTSync® programs for Microsoft® Windows Pocket PC 2003, Mobile 5.0, Mobile 6.0 Standard, and Mobile6.0 Professional. It also includes KDC User Manual.

3. OPERATING THE KDC

3.1 Getting Started

Attach Lanyard to KDC

To prevent possible damage to the KDC, we **strongly** recommend wearing it around your neck by the included Lanyard. Also, please don't swing KDC by the Lanyard because contact with another object may cause it to malfunction or become damaged.

To attach the Lanyard:

1. Fit the thin end of Lanyard through the pillar of the KDC.
2. Loop the thick end of strap through the thin loop
3. Pull the strap tight to secure

Charge KDC Battery

Prior to using the KDC, you must charge its battery. To charge the battery, follow these directions.

1. Connect the KDC cable to the ultra mini USB connector on the KDC.
2. Connect the KDC cable to Type A USB connector on your computer.
3. Your KDC battery will begin charging. Within a few minutes, two small LEDs on the front panel will illuminate orange. When the battery is fully charged, the LEDs will illuminate green.

<i>KDC100</i>	<i>KDC200</i>	<i>KDC250/300</i>	<i>KDC350</i>	<i>KDC400</i>
<i>2 Hours</i>	<i>2 Hours</i>	<i>4 Hours</i>	<i>5 Hours</i>	<i>5 Hours</i>

Table 2 – Approximate Time to Charge KDC Battery

Configure KDC

The KDC is designed to meet the data collection requirements of many different industries in a variety of dynamic situations. To perform well in these diverse environments, the KDC is designed to be configured easily and quickly. But, to perform at its maximum level, the KDC must be configured properly. Until you are familiar with configuring the KDC, it is recommended that you DO NOT modify the KDC settings. The KDC can be configured in three different methods which are explained in Section 3.3 – KDC Menus(KDC100/200/250/300/350 only), Chapter 4 –Synchronization, and Appendix C – Special Barcodes.

CONFIGURATION METHODS FOR THE KDC100/200/250/300/350

- KDC Menu
- KTSync® Software
- Special Barcodes



Figure 3 - Location of Scroll Buttons

CONFIGURATION METHODS FOR THE KDC400

- KTSync® Software
- Special Barcodes

3.2 Basics

Reading Barcodes

Reading a barcode is simple. Point the KDC at a barcode and press the scan button. Be sure to point the scan engine at the barcode, not at your face, and make sure to position the light beam on the barcode. If the barcode is scanned successfully, you will hear one beep and the LEDs will illuminate in green. The scanned barcode data will be displayed along with the scan time and battery level.

Depending on the configuration of your KDC, other information may also be displayed.

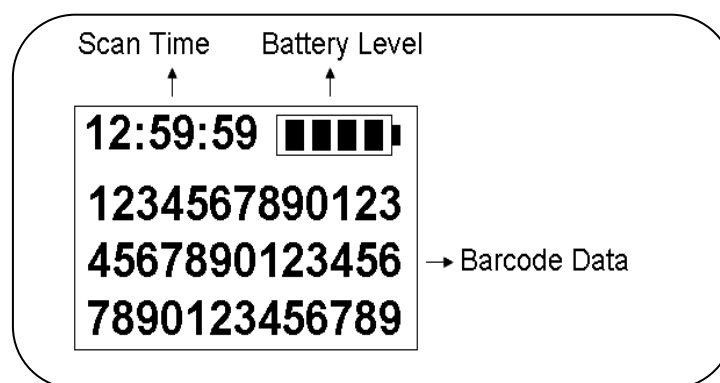


Figure 4 - KDC Display

If the scan was unsuccessful, you will hear two beeps, the LEDs will illuminate in red, and the message **Failed reading...** will display. If you have problems scanning a barcode, try the following suggestions while pointing the KDC at the barcode and depressing the scan button.

- Modify the angle of the KDC in relation to the barcode, making the angle bigger or smaller as needed.
- Modify the distance between the barcode and the KDC, moving closer or further away as needed.
- Check option settings defined in the KDC menu section and change options as needed.

Check that the barcode's width does not exceed the light beam's width and vice versa.

Synchronizing Barcode Data to PC

Use the KTSync[®] program to synchronize barcode data from the KDC to your PC. Please refer to Chapter 4 for details.

3.3 KDC Menus

Top Menu	Sub Menu	Options	KDC350
KDC Mode	Normal		Default
	Application		Custom Application
View Data	View/Delete		View/Delete Data
Set Barcodes (100/200/25/350)	EAN13 Enabled/Disabled		Enable
	EAN8 Enabled/Disabled		Enable
	UPCA Enabled/Disabled		Enable
	UPCE Enabled/Disabled		Enable
	CODE39 Enabled/Disabled		Enable
	ITF14 Enabled/Disabled		Enable
	CODE128 Enabled/Disabled		Enable
	I2of5 Enabled/Disabled		Enable
	CODABAR Enabled/Disabled		Enable
	GS1-128 Enabled/Disabled		Enable
	CODE93 Enabled/Disabled		Enable
	CODE35 Enabled/Disabled		Enable
	BooklandEAN Enabled/Disabled	Disabled Disable	
	EAN13withAddon Enabled/Disabled		Disable
	EAN8withAddon Enabled/Disabled		Disable
	UPCAwithAddon Enabled/Disabled	Disable	
UPCEwithAddon Enabled/Disabled	Disable		
Set Barcodes (300)	1D Symbology	Codabar	N/A
		Code 11	N/A
		Code 32	N/A
		Code 39	N/A
		Code 93	N/A
		Code 128	N/A
		EAN-8	N/A
		EAN-13	N/A
		GS1 Composite	N/A
		I2of5	N/A
		Matrix 2of5	N/A
		MSI	N/A
		Plessey	N/A
		PosiCode	N/A
		GS1 Omni	N/A
		GS1 Limited	N/A
		GS1 Expanded	N/A
		S2of5 Ind	N/A
		S2of5 IATA	N/A
		TCL39	N/A
		Telepen	N/A
		Trioptic	N/A
		UPCA	N/A
		UPCE0	N/A
	UPCE1	N/A	
	2D Symbology	AztecCode	N/A
		AztecRunes	N/A
		CodablockF	N/A
		Code16K	N/A
		Code49	N/A

		DataMatrix	N/A
		MaxiCode	N/A
		MicroPDF	N/A
		PDF417	N/A
		QRCode	N/A
		HanXin Code	N/A
	Postal Codes	Postnet	N/A
		PlanetCode	N/A
		UK Post	N/A
		Canada Post	N/A
		Kix Post	N/A
		Australia Post	N/A
		Japan Post	N/A
	OCR OCR	China Post	N/A
		Korea Post	N/A
Off		N/A	
OCR A		N/A	
OCR B		N/A	
OCR USC		N/A	
Barcode Options (100/200/250/350)	OCR MICR	N/A	
	OCR SEMI	N/A	
	CodaBar_NoStartStopChars	Enabled/Disabled Disable	
	UPCE_as_UPCA Enabled/	Disabled Disable	
	EAN8_as_EAN13 Enabled/Disabled		Disable
	UPCE_as_EAN13 Enabled/Disabled	Disable	
	ReturnCheckDigit Enabled/Disabled		Disable
	VerifyCheckDigit Enabled/Disabled		Disable
	UPCA_as_EAN13 Enabled/Disabled	Disable	
	I2of5_VerifyCheckDigit Enabled/Disabled		Disable
	Code39_VerifyCheckDigit	Enabled/Disabled Disable	
	I2of5_ReturnCheckDigit Enabled/Disabled		Disable
	Code39_ReturnCheckDigit	Enabled/Disabled Disable	
	UPCE_ReturnCheckDigit	Enabled/Disabled Enabled	
UPCA_ReturnCheckDigit	Enabled/Disabled Enabled		
EAN8_ReturnCheckDigit	Enabled/Disabled Enabled		
EAN13_ReturnCheckDigit	Enabled/Disabled Enabled		
Barcode Options (300)	Codabar Tx	StartStop(Enable/disable)	N/A
		Check Digit(DoNotVerify/VerifyDONotTX/VerifyDoTx)	N/A
		Concatenate(Disable/Enable/Required)	N/A
	Code39 Tx	StartStop(Enable/disable)	N/A

	Check Digit(DoNotVerify/VerifyDONotTX/VerifyDoTx)	N/A
	Append(Enable/Disable)	N/A
	Full ASCII(Enable/Disable)	N/A
l2of5	Check Digit(DoNotVerify/VerifyDONotTX/VerifyDoTx)	N/A
Code11	Check Digit(2 digits/1 digit)	N/A
Code128 Concatenate	(Disable/Enable)	N/A
Telepen Output	(Original/AIM)	N/A
UPCA Verif	yChkDgt(Enabled/Disabled)	N/A
	NumberSys(Enabled/Disabled)	N/A
	2DgtAddenda(Enabled/Disabled)	N/A
	5DgtAddenda(Enabled/Disabled)	N/A
	Req. Addenda(Enabled/Disabled)	N/A
	Sep. Addenda(Enabled/Disabled)	N/A
	Coupon Code(Enabled/Disabled)	N/A
UPCE Expand	(Enabled/Disabled)	N/A
	Req. Addenda(Enabled/Disabled)	N/A
	Sep. Addenda(Enabled/Disabled)	N/A
	Check Digit(Enabled/Disabled)	N/A
	NumberSys(Enabled/Disabled)	N/A
	2DgtAddenda(Enabled/Disabled)	N/A
	5DgtAddenda(Enabled/Disabled)	N/A
EAN-13 Verif	yChkDgt(Enabled/Disabled)	N/A
	2DgtAddenda(Enabled/Disabled)	N/A
	5DgtAddenda(Enabled/Disabled)	N/A
	Req. Addenda(Enabled/Disabled)	N/A
	Sep. Addenda(Enabled/Disabled)	N/A

		ISBN Trans.(Enabled/Disabled)	N/A
	EAN-8 Verif	yChkDgt(Enabled/Disabled)	N/A
		2DgtAddenda(Enabled/Disabled)	N/A
		5DgtAddenda(Enabled/Disabled)	N/A
		Req. Addenda(Enabled/Disabled)	N/A
		Sep. Addenda(Enabled/Disabled)	N/A
	MSI Tx	CheckChar(Enabled/Disabled)	N/A
	PosiCode	A and B/A&B Limited/A&B LimitedB	N/A
	GS1 UPCEAN	Ver.(Enabled/Disabled)	N/A
		GS1 Emulation(No Emulate/GS1 128 Emul/GS1 Emulate)	N/A
	PostNet Tx	CheckChar(Enabled/Disabled)	N/A
	PlanetCode Tx	CheckChar(Enabled/Disabled)	N/A
Scan Options	Scan Angle	Narrow/Wide	Wide
	Filter Normal/High		Normal
	Time Out	.5 seconds to 10 seconds	2 second(s)
	Min. Barcode Length	2 to 36 characters	4 chars
	Min. Barcode Length	2 to 48 characters	N/A
	Security Level	1 to 4 level	2 level
	Image Capture	Enabled/Disabled	N/A
	Auto Trigger	Enabled/Disabled Disable	
	Reread Delay	Continuous, Short, Medium, Long, Extra Long	Medium
	Finger Trigger	Enabled/Disabled Enabled	
	Partial Display	Start Position	
No. of Char(s)			0 chars
Action Select			
Data Process	Wedge / Store	Wedge Only	
		Wedge & Store Always	Default
		Store Only	
		Save if Sent	
		Save if Not Sent	
	Data Format	Barcode only	Default
		Packet Data	
	Data Editor/Prefix	Delete	Delete
Data Editor/Suffix	Delete	Delete	

	Data Editor/AIM ID	None/In Prefix/In Suffix	None
	Data Editor/Partial Data	Start Position	1
		No. of Char(s)	0 chars
		Action	Select
	Handshake Enable/Disable	Disable	
	Terminator	None, CR, LF, CR+LF, Tab	CR+LF
	Chk Duplicate	Enabled/Disabled	Disable
BT Config	ConnectDevice (200/250/300/350/400)	SPP Default	
		HID iOS	
		SPP2.0	
		HID normal	
	ConnectDevice (200i/250i/300i/350i/400i)	SPP	
		iPhone Default	
	Auto Connect	Enabled/Disabled Disabled	
	Auto Power On	Enabled/Disabled Disabled	
	Auto Power On/Power On Time	Disable, 1sec to 10second(s) Disabled	
	Auto Power Off	Enabled/Disabled	N/A
	Auto Power Off/Beep Warning	Enabled/Disabled Enabled	
	Auto Power Off/Power Off Time	1 to 30 minutes	5 minutes
	PowerOff Msg	Enabled/Disabled Disabled	
	MAC Address	12 Characters <i>Bluetooth</i> MAC Address	
	BT FW Version	Bluetooth Firmware Version	
	Wakeup Nulls	Enabled/Disabled Disabled	
	BT Toggle		Enabled
	HID AutoLock	Disabled,1,2,3,4,5,10,15 minutes	1 minutes
	HID Keyboard	English,German,French,Italian, Spanish	US
	HID Delay/Initial	Disabled, 1,2,3,5,10 secs	Disabled
HID Delay/Inter char	Disabled,10, 20, 30, 50, 100msec	Disabled	
HID Ctrl Char	Disabled, Alt+Numpad, ^+Character	Disabled	
BT Service	Power Enabled/Disabled		Enabled
	Pairing	Pairing neighboring Bluetooth devices	
	Discovering	Discovering neighboring <i>Bluetooth</i> devices	
	Connecting to	View Connect to <i>Bluetooth</i> device	
	HID Sync		
GPS Config	GPS Power	Enabled/Disabled	Disabled
	Power Mode	Normal/Power Save	Normal
	Bypass Data	Enabled/Disabled	Disabled
	Acquire Test		

System Config	Reset GPS		
	Memory Size	0.5/3.5, 1/3, 2/2, 3/1, 4/0	0.5/3.5
	Memory Status	No. of Stored Barcodes	
		Free Memory Available	
	Reset Memory	Memory(Empties Data)	
		Application Memory	
		BT Registry(KDC100 Not use)	
	Auto Erase	Enabled/Disabled Disable	
	Sleep Timeout	Disable, 1sec to 10minute(s)	5 second(s)
	Auto PowerOff	Bluetooth, GPS, Pwr Off Time	Disabled/ Disabled/ 1 hour
	Date / Time	YYYY:MM:DD &	
		HH:MM:SS	
	Battery	% of Battery Charge Available	
	Version	Firmware Version & Serial No.	
	Button Lock	Enabled/Disabled	Disable
	Beep Sound	Enabled/Disabled	Enable
	Beep Volume	Low/High	High
	MFi Mode	Enabled/Disabled	Enable
	Auto Exit	Enabled/Disabled	Enable
	Port Status	Enabled/Disabled	Enable
	Display Format	Time & Battery / Type & Time / Type & Battery / Memory Status / GPS Data(KDC250 only)/Barcode Only	Time & Battery
	Menu Barcode	Enable/Disable	N/A
	Scrolling Enabled/Disabled		Enable
	Brightness	1 to 15 level(8 level)	8 level
	Factory Default	Restores Default Settings	

Table 3 - KDC Menu Options

KDC Mode Menu

The KDC Mode Menu has two options – Normal and Application modes.

- Normal: This is the default mode which provides basic barcode scanning. In Normal mode barcode data can be manipulated directly through the KDC or using KTSync® during the synchronization process.
- Application: This mode allows you to run the user application created by Application Generation Tool described in Chapter 6.

View Data Menu

This menu option allows you to view and/or delete barcodes stored in the KDC.

Set Barcodes Menu

This menu lists all the barcode symbologies supported by your KDC and allows you to select the barcode symbologies you will be scanning. For maximum scan performance, you should select only the symbologies you are scanning. Please refer to Appendix A.1 – Symbologies for a detailed listing of symbologies supported by your KDC.

Code Options Menu

Your KDC supports various Code Options including Transmission of Start and Stop Characters, Symbology Conversion, Verification of Optional Check Character, and Transmission of Check Digit. Please refer to Appendix A.2 Options for a detailed explanation of each option.

Scan Options Menu

- Scan Angle: Allows you to configure the laser beam angle to the barcode. Wide is 54° and Narrow is 27°. The default is Wide.
- Filter: Allows you to change the Filter mode from Normal to High for poor quality barcodes. The default is Normal.
- Timeout: Allows you to set the length of time before the KDC will stop scanning a barcode from .5 second up to 10 seconds. The default is 2 seconds.
- Minimum Barcode Length: Allows you to set a barcode length from 2 characters to 36 characters. It is strongly recommended that you maximize the minimum barcode length setting to prevent possible errors. The default is 4 characters.
- Security Level: Allows you to ensure an accurate barcode reading by setting the number of times

the KDC will read a barcode. Security Level is set from 1 up to 4. The higher security level means more reliable readings though some performance degradation is likely. For poor quality barcodes, we recommend increasing the security level. The default is 2.

- Auto Trigger: Allows users to scan a barcode automatically once Auto Trigger is enabled. User can adjust Reread delay from Continuous to Extra Long. Auto Trigger mode always enables duplicate check option.

[Note1] USB cable insertion requirement is removed from FW2.85/86.0 and FW 3.02.

[Note2] Users can exit the auto trigger mode by pressing the scan button for 3 seconds.

- Reread Delay: Users can adjust Reread delay from Continuous to Extra Long. Auto Trigger mode always enables duplicate check option.
- Partial Display: Allows you to display partial data. User defines the start position and number of characters to be displayed.

Data Process Menu

Wedge/Store - The KDC provides five modes of data transmission in keyboard wedging mode.

- Wedge Only: Barcode data is NOT stored in memory but transmitted to the host.
- Wedge & Store Only: Barcode data is stored in memory and transmitted to the host.
- Store Only: Barcode data is stored in memory but NOT transmitted to the host.
- Save if Sent: If data transmission is successful, barcode data is stored in memory.
- Save if Not Sent: If data transmission is NOT successful, barcode data is stored in memory.

Data Format - The KDC provides two data formats, Barcode Only and Packet Data.

- Barcode Only: KDC transmits scanned barcodes only. User may incorporate proper data transmission error detection and correction mechanism in this mode.
 - KDC supports various termination characters for barcode only format.
 - User can select <NONE>, <CR>, <LF>, <CR+LF> or <TAB> as the termination character.
- Packet Data: KDC transmits packet data with checksum to minimize transmission errors.
 - KTSync[®] sets Data Format to Packet Data format upon execution.
 - User may change Data Format to Barcode only if user prefers to use Barcode only mode but either KTSync program terminates abnormally or user disconnects KDC without exiting KTSync program normally.

[Note] Barcode Index: KDC200i/250i/300i/350i/400i add 4 bytes barcode index to maintain last

synchronized barcode information. This optional index would be added if data format is “Packet Data” and

- (1) 4 bytes index would be added before “@” when responding to “p” command
- (2) 4 bytes index plus “@” character would be added after checksum byte if user scan a barcode and wedging to the host

Data Editor - KDC provides various data editing options.

- **Prefix** - Allows you to add a prefix to scanned data which can then be stored in KDC or wedged to the host. The Prefix format must be defined in the data format menu of KTSync. The maximum length for a Prefix is 11 characters.
 - ✓ **NOTE:** This Prefix option is different from the Prefix option in KTSync which appends the prefix to data during synchronization.
 - ✓ **NOTE:** User can also define prefix by scanning characters defined in Appendix C.18 ~ C.22 between following special barcodes

Prefix Enter Start



Prefix/Suffix Enter Finish



- ✓ **NOTE:** User can also delete or display current prefix by scanning following special barcodes

Delete Prefix



Display Prefix



- **Suffix** - Allows you to add a suffix to scanned data which can then be stored in KDC or wedged to the host. The Suffix must be defined in the data format menu of KTSync. The maximum length for a Suffix is 11 characters.

- ✓ **NOTE:** This Suffix option is different from the Suffix option in KTSync which appends the suffix to data during synchronization.
- ✓ **NOTE:** User can also define suffix by scanning characters defined in Appendix C.18 ~ C.22 between following special barcodes

Suffix Enter Start



Prefix/Suffix Enter Finish



- ✓ **NOTE:** User can also delete or display current suffix by scanning following special barcodes

Delete

Suffix



Display Suffix



- **AIM ID** - Allows you to add AIM ID to scanned data which can then be stored in KDC or wedged to the host. AIM ID must be defined in data format menu of KTSync. AIM ID is either added to the end of Prefix or Suffix.
- **Partial Data**: Allows you to store and/or transfer partial data. User defines the start position and number of characters to be stored and/or transferred.
 - Select the **x** characters from **y** position
 - ◆ Set Partial Data Start Position to **y**, Partial Data Length to **x**, Partial Data Action to Select
 - ◆ Partial Data Length **0** means Select all characters from **y** position.
 - Erase the **x** characters from **y** position
 - ◆ Set Partial Data Start Position to **y**, Partial Data Length to **x**, Partial Data Action to Erase
 - ◆ Partial Data Length **0** means Erase all characters from **y** position.

Handshake - KDC provides Handshake mode when Data Format is set to Packet Data.

- Handshake Mode will increase the reliability of barcode data transmission.
- The default mode for Handshake is Disabled.
- Data transmission speed is slower when Handshake Mode is Enabled.

Terminator – KDC supports various termination characters when the Data Format mode is set to Barcode Only. This option allows you to select <NONE>, <CR>, <LF>, <CR+LF>, or <TAB> as the termination character. The default terminator is <CR+LF>. Up/Down/Left/Right arrow terminator is also available for HID mode.

Chk Duplicate – This option allows you to prevent collecting duplicated data.

BT Config Menu - KDC200/250/300/350/400

The KDC supports *Bluetooth* Ver2.1+EDR. Before utilizing the advantages of Bluetooth functionality with the KDC, you should become familiar with Bluetooth connectivity and its impact on your host environment.

To configure your KDC for Bluetooth functionality, you must use the KDC Menus. To access the menus, simultaneously press the UP and DOWN scroll buttons on the side of the KDC. Use the DOWN button to scroll to Bluetooth then press the Scan button.

Below is a listing of the Bluetooth options and their settings. The default settings for these options have been set to increase the usability of Bluetooth technology without compromising the KDC battery usage. **IMPORTANT:** We strongly recommend NOT changing these settings until you have fully tested the Bluetooth connection between the KDC and the host device.

For more detailed information regarding Bluetooth functionality with the KDC, please refer to Chapter 4.

- ConnectDevice
 - HID normal (KDC200/250/300/350/400)
 - HID iOS (KDC200/250/300/350/400)
 - SPP2.0 (KDC200/250/300/350/400)
 - SPP (KDC200/200i/250/250i/300/300i/400/400i)
 - iPhone (KDC200i/250i/300i/400i)
- Auto Connect - Enabled or Disabled
- Auto Power On - Enabled or Disabled
 - PWR On Time – Disabled, 1 to 10 seconds
- Auto Power Off - Enabled or Disabled (KDC250 should use option in system menu)
 - Beep Warning - Enabled or Disabled
 - PWR Off Time - 1 to 30 Minutes
- PowerOff Msg – Enabled or Disabled
- MAC Address – 12 characters *Bluetooth* MAC Address
- FW Version – Display *Bluetooth* Firmware Version
- Wakeup Nulls – Enabled or Disabled
- Autolock Time – 0, 1, 2, 3, 4, 5, 10, 15 minutes
- BT Toggle – Enable or Disable HID soft keyboard or iPhone mode connection On/Off toggle.
- HID AutoLock - Disabled, 1, 2, 3, 4, 5, 10, 15 minutes
- HID Keyboard – English, German, French, Spanish, Italian
- HID Initial Delay
 - Define the initial delay between 1sec to 10sec before data transmission in HID mode
- HID Inter-character Delay
 - Define the inter-character delay between 10msec to 100msec in HID mode
- HID Control Character
 - Map control characters to either **ALT+Numlock** or **^+Character**

BT Service - KDC200/250/300/350/400

- Power
 - Enable or Disable Bluetooth Power
- Pairing Mode
 - KDC enters pairing mode so that host *Bluetooth* device can search KDC.
 - KDC exits pairing mode either by pressing the scan button or it fails to pair with *Bluetooth* host device in 90sec.
- Discovering
 - Search neighborhood *Bluetooth* devices
- Connecting To
 - Inquiry to registered *Bluetooth* devices
- HID Sync
 - KDC transmits all stored data to the host over HID profile if HID Sync option is enabled

GPS Config - KDC250 / KDC350

- GPS Power
 - Enable or Disable GPS Power
- Power Mode
 - Normal or Power Save
- Bypass Data
 - Enabled or Disabled
- Acquire Test
 - Acquiring time test of GPS signal
- Reset GPS
 - Reset GPS parameters

System Menu

- Memory Size (3.0 version only)
 - User can select normal data and application database memory partition size.
 - KDC will erase all stored data upon changing the partition size.
 - User should enter the following key sequence to change the partition.
 - <Up key> + <Up key> + <Down key> + <Down key> + <Scan button>
- Memory Status: Checks the number of stored barcodes and memory usage.
- Reset Memory: Resets KDC memory by erasing all stored barcodes, application and BT registry.
- Auto Erase: Erases all stored barcodes upon reaching buffer full condition if Enabled is selected
- Sleep Timeout: Sets amount of time KDC waits, when not being used, before going to *sleep*.
- Auto Power Off (KDC250 only)
 - Bluetooth: Enabled/Disabled
 - GPS: Enabled/Disabled
 - Power Off Time:0(Never), 5, 10, 20, 30, 60, 120 seconds
- Date/Time: Sets the date and time of KDC which can also be set using KTSync®

- Battery: Shows current status of battery power level.
- Version: Shows KDC firmware version and serial number.
- Button Lock: Locks or unlocks KDC scan and scroll buttons.
- Beep Sound: Enables or disables KDC beep sound.
- Beep Volume: High or low.
- MFi Mode(KDC200i,250i,300i,350i,400i): Enables or disables MFi mode. MFi mode supports SPP and iPhone Bluetooth profiles. Non-MFi mode supports SPP, SPP2.0, HID iOS and HID normal.
- Auto Exit: Enables KDC to automatically exit KDC Menus.
- Port Status: Enables or disables KDC port messages.
- Display Format: Selection of display format - Time & Battery, Type & Time, Type & Battery, Memory Status and Barcode only
- Menu Barcode: Enables or disables Honeywell special barcodes
- Scrolling : Enables or disables display scrolling for a barcode with more than 40 characters
- Brightness: Adjusts display brightness
- Factory Default: Resets KDC options to factory default settings.

Pair and connect KDC200i/250i/300i/350i/400i and iOS4.0+ in HID mode

[NOTE 1] Users have to disable MFi option in System > MFi menu to use HID Bluetooth profiles

[NOTE 2] Users have to RESET the iPhone/iPad/iPod touch to change “HID to iPhone mode” or “vice versa” after removing previous KDC connection.

[NOTE 3] KDC with Bluetooth Spec2.1+EDR doesn't prompt Pin code entry menu.

[Note 4] KDC with Bluetooth Spec. 2.1+EDR stack doesn't require 4 or 6 digits PIN digits entry

Go to the KDC System > MFi menu.

1. Change MFi option to disabled.
2. Change KDC to pairing Mode
3. The iPhone/iPad/iPod touch will find a new device as “Keyboard”.
4. Click "Keyboard" device
5. Please skip following steps if iPhone/iPad/iPod touch doesn't ask for the PIN number.
 - A. Click “Keyboard” device- the iPhone/iPad/iPod touch will ask for the PIN number. The iPad will ask for 6 digits and the iPhone/iPod touch will ask for 4 digits
 - B. As soon as the iPhone/iPad/iPod touch asks for the PIN number, KDC will display the PIN digits selection menu. By default, it is 6 digits.
 - C. Press the scan button to select the 6 digit PIN code for the iPad. Press the side down button and press the scan button to select the 4 digit PIN code for the iPhone/iPod touch.
 - D. The iPhone/iPad/iPod touch will display the PIN code that users should enter into the KDC.
 - E. By default the KDC displays pin codes 555555(5555). Users can change the PIN code by using the side UP button to increase numbers, side DOWN button to decrease numbers, and the SCAN button to confirm and move to next digit
 - F. Once the last PIN number is entered, press and hold the SCAN button for a few seconds. KDC will display “HID connected” and the iPad/iPhone/iPod touch will display “Connected” if paired successfully

iOS Soft Keyboard toggling using BT Toggle option

1. Users need to select the option to use this feature in the BT Config > BT Toggle.
2. Press the DOWN button to disconnect the HID connection and bring a soft keyboard.
3. Press the UP button to connect HID
4. The BT toggle is a useful feature if users desire to use both the KDC and soft keyboard.

3.4 LED Status

KDC100/200/250/300/350

LED Color	Status
Green	<ul style="list-style-type: none"> • Successful Reading • USB is connected and battery is fully charged
Orange	<ul style="list-style-type: none"> • Low battery • USB is connected and battery is charging
Red	<ul style="list-style-type: none"> • No reading • Empty battery

KDC400

LED Color	Status
Green	<ul style="list-style-type: none"> • Successful Reading • USB is connected and battery is fully charged • iPhone mode
Orange	<ul style="list-style-type: none"> • Low battery • USB is connected and battery is charging • HID mode
Red	<ul style="list-style-type: none"> • No reading • SPP mode

Table 4 - Explanation of LEDs

3.5 Empty Battery

The KDC will display the message **Empty Battery Connect USB** when the battery is empty. Please charge the KDC IMMEDIATELY to prevent data collecting interruption.

3.6 Buffer Full

The KDC will display the message **Buffer Full** when the size of collected data reaches 60KB (85 version)/160KB(86 version) or the number of collected barcodes is 10,240. To prevent the loss of data, you should synchronize the data then reset the memory when this message displays.

4MB version KDC reaches Buffer Full condition as follows:

- 0.5MB Partition - Collected data size reaches 0.5MB or collected number is 25,600
- 1MB Partition - Collected data size reaches 1MB or collected number is 51,200
- 2MB Partition - Collected data size reaches 2MB or collected number is 102,400
- 3MB Partition - Collected data size reaches 3MB or collected number is 153,600
- 4MB Partition - Collected data size reaches 4MB or collected number is 204,800

3.7 Reset Feature

The Reset feature lets you restart the KDC if necessary without losing any stored barcode data or option settings. To reset the KDC, follow these steps.

1. Press DOWN scroll button and SCAN button simultaneously for 5 seconds.
2. When the LEDs illuminate yellow, release the buttons.
3. The KDC initial screen, **KoamTac Data Collector KDC** displays when reset is complete.

Note:

The KDC stores collected data into flash memory and will not lose data or the KDC settings during the reset process.

3.8 Replace Battery

KDC200 comes with a rechargeable, Lithium-Polymer battery. The battery is recharged from any USB port and can be recharged about 300 times before it needs to be replaced.

KoamTac recommends replacing the battery every six months as a declining battery will cause noticeable performance degradation in KDC200. Replacement batteries can be purchased from a KoamTac distributor. Batteries should be disposed of properly.

Step One - Place KDC200 face down on a firm surface. On the back, locate the small black screw in the middle of KDC. This screw secures the battery cover.



Step Two - Press a small Phillips head screwdriver firmly into the screw while simultaneously turning counterclockwise and loosen the screw. The battery cover will pop open. Remove the cover, keeping the screw intact. Store cover with screw in a safe place for later.

Step Three - *Gently* lift the battery to locate a wire connector underneath the battery. The wire connector is attached to the red and black wires on the battery. It is also attached to a connector on KDC. Remove the battery using a flat head screwdriver to disengage the connectors, being careful not to damage the connector on KDC.



Step Four – Use a small flat head screwdriver to reattach the new battery. Connect the white connector attached to the red and black wires on the replacement battery to the connector on the KDC. Gently press the battery down, fitting it inside the KDC. Replace the battery cover. With the Phillips head screwdriver securely tighten the battery cover screw.

Step Five – The replacement battery must be charged before KDC can be used.

4. BLUETOOTH - KDC200/250/300/350/400

The KDC200/250/300/350/400 support HID (Human Interface Device) normal, HID iOS, SPP (Serial Port Profile) and SPP2.0 profiles. KDC200i/250i/300i/350i/400i support SPP and iPhone(Made for iPhone) profiles. They are compatible with the following Bluetooth stacks.

- BlueSoleil
- Broadcom (Widcomm)
- Microsoft Windows XP, Vista, 7, and Mobile5.0+
- Toshiba

KDC200/250/300/350 can configure *Bluetooth* options using KDC menu and special barcodes. KDC400 can configure Bluetooth options using PC KTSync and special barcodes.

Bluetooth Config

4.1 ConnectDevice

KDC supports both Serial Port Profile (SPP) and Human Interface Device Profile (HID). User can choose SPP2.0, SPP(2.1), HID normal, HID iOS profiles to communicate with the host device. Additional iPhone (Made for iPhone) option is available for KDC200i/KDC250i/300i/350i/400i models.

User can connect and disconnect Bluetooth connection with the host device by pressing Up and Down key if BT Toggle option in BT Config menu is enabled. It normally takes 3 seconds to connect and 1 second to disconnect.

This is a very useful feature for iPhone and iPad application. User can enable and disable iPhone and iPad soft key instantly using this BT Toggle option.

Up key shows Bluetooth connection status and Down key shows time if KDC is connected using SPP profile.

[NOTE] User should unpair the KDC first from the Bluetooth host to change the Connect Device setting on the scanner to other Bluetooth profile.

4.2 Auto Connect

This feature allows the KDC to connect automatically to the host device when the KDC is powered on.

IMPORTANT: Until the host device and KDC have been fully tested, it is strongly recommended that this feature be set to Disable because a host device that does not support this feature can cause problems such as power loss or upload delays.

[Note] KDC tries to connect automatically to the host 10 times during two minutes if *Bluetooth* power is ON, *Bluetooth* is disconnected, Auto Connect is enabled and system Sleep Timeout is set to 5 seconds

4.3 Auto Power On

The Auto Power On option allows the KDC to automatically power on Bluetooth when the SCAN

button is depressed. The default setting is Disabled. NOTE: The host may have to open the COM port before reconnecting with the KDC. Power on time determines the scan button pressing time to activate auto power on feature.

4.4 PWR ON Time

The PWR On Time option works in conjunction with the Auto Power On option. Default value is Disabled. If KDC Bluetooth power is off, user can turn on Bluetooth power by pressing the scan button for PWR On Time option value.

4.5 Auto Power Off

The Auto Power Off option works in conjunction with the PWR Off Time option. This option allows the KDC to power off Bluetooth automatically when the KDC is NOT CONNECTED to the host for the time duration specified in the PWR Off Time option.

The default for this option is Enabled. It is strongly recommended to keep it enabled to maximize the operation time of the KDC. If Auto Power Off is enabled, Bluetooth can be manually powered off before specified time in PWR Off Time option.

4.6 Beep Warning

The KDC beeps to acknowledge the status of the Bluetooth connection as follows:

1. One high short beep when Bluetooth is connected.
2. One low short when Bluetooth is disconnected.
3. Five short beeps if:
 - "Beep Warning is ENABLED"
 - "Auto Power Off is DISABLED"
 - "KDC200/250/300/350/400 is DISCONNECTED from HOST"
 - "Bluetooth power is ON"

4.7 PWR OFF Time

The PWR Off Time option works in conjunction with the Auto Power Off option. If Auto Power Off is Enabled, the KDC powers off Bluetooth when the time duration specified in the PWR Off Time option is met and the KDC is NOT CONNECTED to the host. The time setting for this option is from one (1) minute to 30 minutes. The default is five (5) minutes.

4.8 PowerOFF Msg

KDC sends Bluetooth power off message “BTOFF” to host if PowerOFF message option is enabled.

4.9 MAC Address

User can verify KDC Bluetooth MAC Address.

4.10 FW Version

User can verify KDC Bluetooth firmware version in BT FW menu.

4.11 Wakeup Nulls

The KDC sends three leading Null bytes to wake up connected *Bluetooth* device. This feature can be disabled if connected *Bluetooth* device doesn't require additional bytes to wake up.

4.12 Autolock Time

iPhone/iPad/iPod touch loses incoming Bluetooth data in sleep mode. Users can set KDC Autolock time to the same Autolock time of your iPhone/iPad/iPod touch to use automatic wakeup feature in HID mode to prevent data loss. There would be a one second delay of barcode transmission if Autolock time is set to more than one minute and the barcode scan interval is larger than auto lock time. The autolock time would be set as 0, 1, 2, 3, 4, 5, 10, 15 minutes. 0 means iPhone/iPad/iPod touch never enters sleep mode.

4.13 HID Keyboard

User can select international keyboard – English, German, French, Spanish and Italian.

4.14 HID Initial and Inter-Character Delay

Certain application can't process HID input fast enough and lose some characters during transmission. Users would increase initial and inter-character delay to prevent data lose during HID transmission

- HID Initial Delay
 - Define the initial delay between 1sec to 10sec before data transmission in HID mode
- HID Inter-character Delay

- Define the inter-character delay between 10msec to 100msec in HID mode

4.15 Control character transmission in HID mode

Control characters between ASCII value 0x00 and 0x1F can be replaced by ALT+Numpad or ^+Character.

- Disable d → Transmit the original control character
- Alt+Num pad → Transmit Alt+ ASCII value from Numpad.
- ^+Character → Control characters would be substituted as following table.

Control Char	Transmit Chars	Control Char	Transmit Chars	Control Char	Transmit Chars	Control Char	Transmit Chars
0x01 ^A		0x0B ^K		0x14 ^T		0x1D ^]	
0x02 ^B		0x0C ^L		0x15 ^U		0x1E ^^	
0x03 ^C		0x0E ^N		0x16 ^V		0x1F ^_	
0x04 ^D		0x0F ^O		0x17 ^W			
0x05 ^E		0x10 ^P		0x18 ^X			
0x06 ^F		0x11 ^Q		0x19 ^Y			
0x07 ^G		0x12 ^R		0x1A ^Z			
0x09 ^I		0x13 ^S		0x1C ^\			

4.16 Function key transmission in HID mode

Users can send F1 to F12 function keys by scanning special barcodes in HID mode.

4.17 Disconnect/Reconnect/BT(HID) Toggle

Users can disconnect or reconnect the Bluetooth connection or toggle soft keyboard using side buttons.

Bluetooth Profile	UP Key	DOWN Key
SPP Reconnect		Disconnect if pressing more than 3sec
HID iOS	Reconnect	Soft Keyboard Toggle if pressing less than 3sec, Disconnect if pressing more than 3sec
iPhone	Reconnect	Disconnect if pressing more than 3sec
SPP 2.0	Reconnect	Disconnect if pressing more than 3sec
HID normal	Reconnect	Disconnect if pressing more than 3sec

Bluetooth Service

4.18 Power

The POWER option allows you to Enable or Disable the Bluetooth functionality of the KDC. To use Bluetooth, this option must be set to Enable. However, like all devices enabled for Bluetooth, the KDC will search constantly to connect with a Bluetooth host when set to enable. Constant searching uses battery power. Unless you are using Bluetooth with your KDC, this option should be set to Disable.

IMPORTANT: To prevent unnecessary power problems, it is strongly recommended that the POWER option be set to Disable if the KDC is idle for an extended period of time.

4.19 Pairing

Before you are able to use Bluetooth, the KDC must be paired with the host device. This pairing process only needs to be completed once with each host device. After pairing, the host device will always recognize the KDC as a Bluetooth device unless the Bluetooth configuration is modified. If it is modified, you may need to pair the devices again.

IMPORTANT: The host device must be configured for Bluetooth before it can be paired to the KDC.

[NOTE] KDC with Bluetooth Spec2.1+EDR doesn't prompt Pin code entry menu

To pair the KDC with the host, follow these instructions.

1. Select Pairing from the Bluetooth menu. The message "**Pairing started...**" will displayed.
 2. When prompted by the host device, enter the Security PIN "0000".
 3. The "**Pairing success**" message will display when the Bluetooth connection is successfully established. The connection must be established before the pairing timeout which is 60 seconds.
- If "**Pairing failed...**" message displays, the Bluetooth connection with the host device failed. If the message "**Connected**" displays, a Bluetooth connection was established.
 - It is possible for the message "**Pairing failed...**" to display on the KDC while the host device displays "**Connected**" message. If this occurs, a Bluetooth connection is established.

4.20 Discovering

KDC200/250/300/350/400 starts to search neighboring *Bluetooth* device if this Discovering menu is executed. It would take about 30 seconds to finish search and lists available neighboring *Bluetooth* devices. Use may enter corresponding Bluetooth MAC address in KTSync Bluetooth menu instead of searching neighborhood *Bluetooth* devices.

4.21 Connect To

This option lets you easily connect KDC to *Bluetooth* devices either previously registered in KTSync under the File Menu or discovered/connected from KDC *Bluetooth* Service menu

[Note] There could be an interoperability issue depending on corresponding device *Bluetooth* stack. Master *Bluetooth* device may request to follow master *Bluetooth* device security procedure if KDC tries to connect to the master *Bluetooth* device.

4.22 HID Sync

User can synchronize stored barcode data over HID using HID Sync option. KDC starts to transmit all stored barcode data upon executing HID Sync option.

5. SYNCHRONIZATION

When barcode data is collected, it must be uploaded to your application. KTSync[®], which is bundled with the KDC, is software that allows barcode data to be uploaded to any PC, PDA, or smartphone running Android 2.1+, Apple iOS3.1.3+, Blackberry, Mac and Windows XP/Vista/7/Mobile 5.0+. It has three major functions. Windows XP/Vista/7 version supports all of the following features. Tablet, PDA and Smartphone versions support only limited features of PC KTSync.

- Synchronization - Provides data upload functionality to your applications.
- Keyboard Emulator - Allows scanned data to upload directly into your application as if the data were being entered manually on a keyboard.
- Application Generation - Allows user to create custom applications or download predefined applications such as Master-Slave, Pick/Bin, DB Lookup and Inventory.

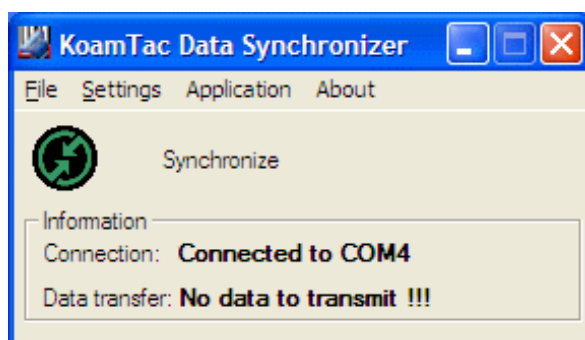
Additional functions include:

- Prefix and Suffix add-ons to eliminate manual data entry.
- Symbology and Scan Option selections.
- Barcode Wedging options.

5.1 KTSync Menu

KTSync[®] was installed on your PC during the initial installation process. Before data can be uploaded to any host device, KTSync[®] must be launched on the host and configured to recognize the KDC. The following screen displays when KTSync[®] is launched.

KDC100/200/250/300/350



KDC400

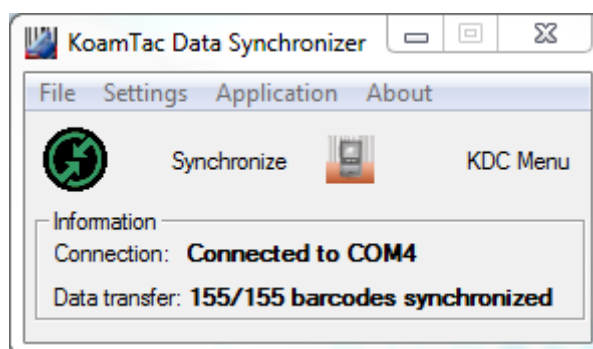


Figure 5 - KTSync[®] Synchronizer Menu

File Menu

- **Connect:** This option displays the Serial port (COM#) assigned to KDC. You can also use this option to manually assign the Serial port. The Serial port assigned to KDC can be found under Windows Device Manager. The port assignment is used by KTSync® for synchronizing data from the KDC to the host.
- **Synchronize:** This option manually tells the KDC to synchronize data with the host. While data is being synchronized, KTSync menu options are unavailable. **NOTE: Please do not use your computer during data synchronization.**
- **Bluetooth:** This option is not available on KDC100. User can register MAC address to be directly connected by KDC200/250/300/350/400.
- **Exit:** This option ends the KTSync program. You must re-run KTSync before you can synchronize data on the KDC.

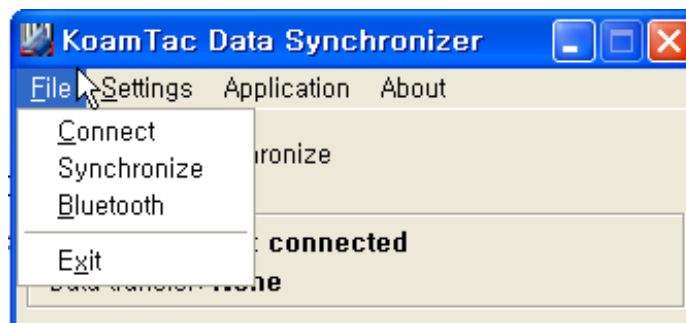


Figure 6 – File Menu

Settings Menu

- **Synchronization:** Select Synchronize options.
- **Barcode & KDC:** Select Barcode and KDC options.
- **Others:** Select Auto Connection and/or Synchronization Confirmation options.



Figure 7 – Setting Menu

Application Menu

- Generation: Create user application or download predefined application.
- DB Lookup: Allows users to download DB into KDC and display barcode description field
- Master/Slave: User defines a master barcode for comparison with one or more slave barcodes
- Pick/BIN: User defines Pick ID and the barcode symbology for comparison with a defined Bin
- Inventory: Users can count inventories. Inventory description would be displayed if inventory DB is downloaded into KDC.

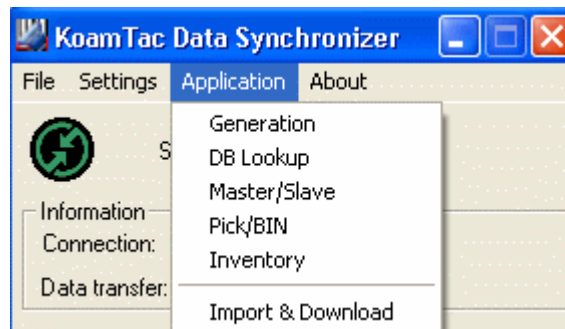


Figure 8 – Application Menu

About Menu - KTSync® - Version Information

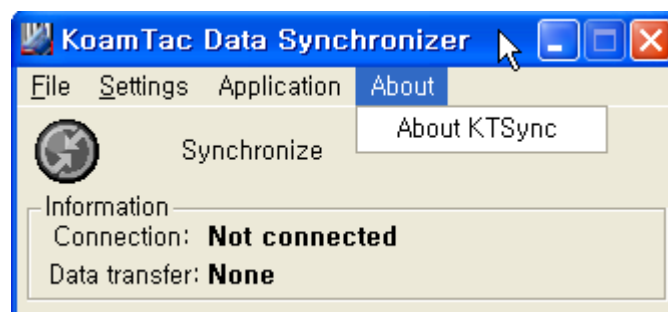


Figure 9 – About Menu

5.2 File Menu

Connect to KDC

The KDC connects to a COM port automatically when connected to your PC's USB port. **You can manually assign the KDC COM port using KTSync® Connection submenu under File menu if needed.**

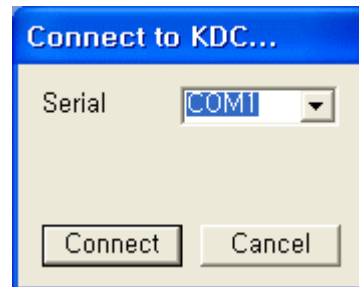


Figure 10 - COM Port Selection for KDC

- The COM port assignment is found in the Windows Device Manager.
- KTSync® will not connect to the KDC if it is in KDC Menu. You must EXIT from the KDC Menu.
- If KTSync® fails to connect automatically to the KDC, please follow these directions.
 1. Exit KTSync®.
 2. Check that you have connected the KDC to a USB port on your PC.
 3. Make sure to use the cable provided with the KDC.
 4. Check that the KDC is not in KDC Mode Menu.
 5. Restart KTSync®.

NOTE: You can manually assign the COM port using KTSync® Connect option under the File menu.

Synchronize

Under the File Menu, this option allows you to manually synchronize data on KDC with host. This option is similar to clicking on the Synchronize button in the KoamTac Data Synchronizer box.

Bluetooth

This menu option allows you to register up to ten Bluetooth devices including their MAC address, PIN #, and optional prefixes or suffixes. This option enables direct Bluetooth connection between KDC and other Bluetooth devices such as *Bluetooth* printer. User should choose *Bluetooth* device to be connected in "Connect to" menu in KDC *Bluetooth* Service menu.

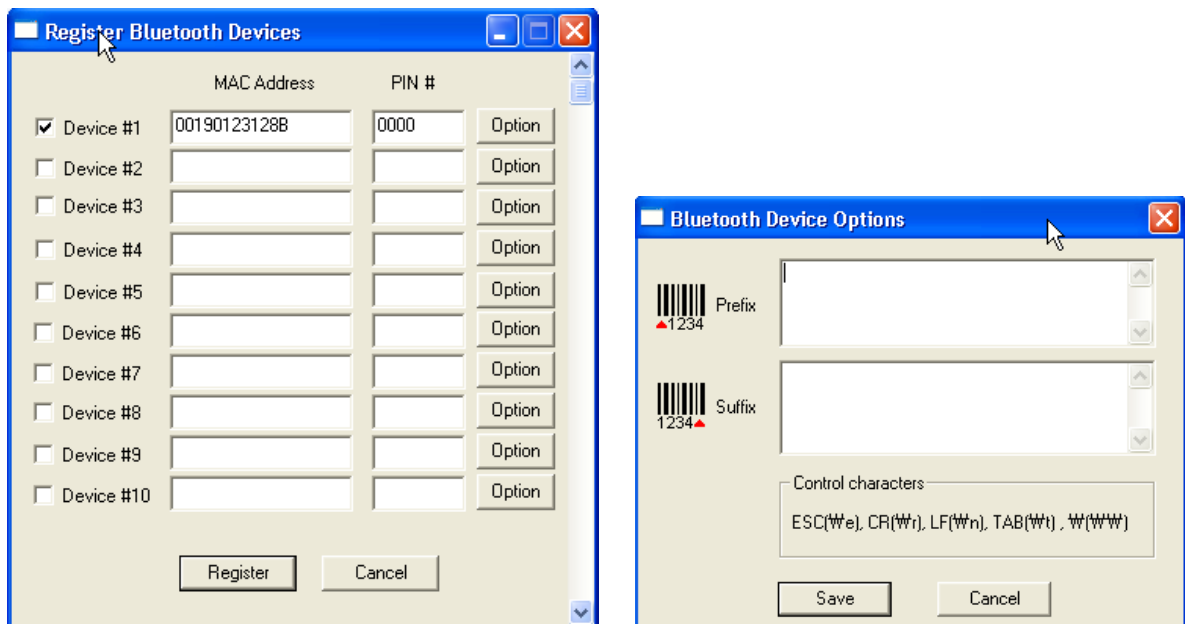


Figure 11 - Bluetooth Device Registry

5.3 Synchronization Settings

KTSync® provides several synchronization options for synchronizing data from your KDC to host devices such as your PC, PDA, or smartphone running Windows XP, Vista, Windows 7, or Mobile 5.0+.

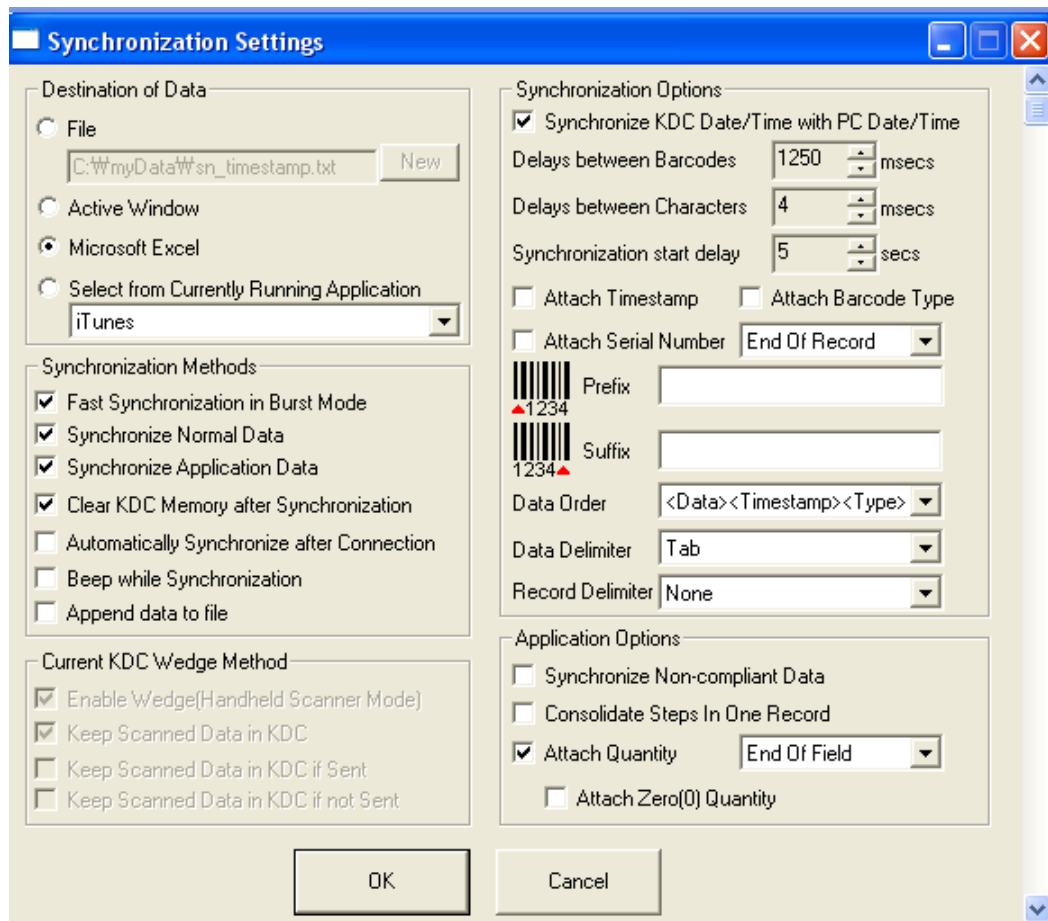


Figure 12 - KTSync® Synchronization Settings

Destination of Data

When barcode data is uploaded to the host device, you must assign a destination for the data. Destination of Data options include:

- **File** - This option means data will be saved in the assigned filename. You can select a different target directory by clicking the New icon. C:\MyData\sn_timestamp.txt is the default directory. If this directory is not created, you will be prompted to create it before data can be uploaded to a file.
- **Active Window** - This option means scanned barcode data is sent directly to the active program running on your device as if the data was being entered directly from a keyboard.
- **Microsoft Excel** - This option means barcode data is being imported directly into Microsoft's Excel. Various parameters can be set when uploading data to Excel.

- Select from Current Running Application – This option allows you to select a currently running application for data synchronization.

Note:

- Data synchronization begins immediately if *Automatically After Connection* is selected. If not selected, data synchronization is started manually by the user.
- Users **SHOULD NOT** operate the PC during the synchronization process. It can interrupt the process causing unreliable results.

Synchronization Methods

Fast Synchronization in Burst Mode

The KDC can synchronize data to a host device in Burst mode or Sequential mode. Burst mode provides the fastest synchronization process but could result in error in a poor *Bluetooth* environment. Fast synchronization in burst mode is only recommended with USB connection.

Synchronize Normal Data

The KDC will synchronize Normal Data only in KDC memory if Synchronize Normal Data option is selected. If you want all data in KDC memory synchronized, you should select Synchronize Normal Data **and** Synchronize Application Data.

Synchronize Application Data

The KDC will synchronize Application Data only in KDC memory if Synchronize Application Data option is selected. If you want all data in KDC memory synchronized, you should select Synchronize Normal Data **and** Synchronize Application Data.

Clear KDC Memory after Synchronization

The stored barcode data is cleared from the KDC memory after synchronization if this option is selected. The KDC can store a total of 10,240 barcodes or 80KB(86 version)/180KB(85 version) of barcode data.

- It is important to clear the KDC memory periodically to prevent Buffer Full message which will prevent the KDC from storing additional data.
- Stored barcode data can also be deleted using the Reset Memory feature on the KDC.

Automatically Synchronize after Connection

This option lets you automatically synchronize collected data to your computer immediately when the

KDC is connected to the host.

- **IMPORTANT:** Remember to configure all options properly before selecting this option.
- Data synchronization can be done manually by clicking the synchronize icon if this option is not selected.

Beep while Synchronization

You can enable or disable the beep tone during the synchronization process. A beep is sounded each and every time barcode data is synchronized if this option is selected. The KDC beeps 5 times when the synchronization process is complete.

Append data to File

KTSync would append data to the existing file instead of creating a new file if user has specified file name and Append data to File option is enabled.

Current KDC Wedge Method

The KDC can be configured in one of five Wedge/Store modes -

- **Wedge Only** - Scanned data is transmitted to the host. The KDC does not store scanned data.
- **Wedge & Store** - Scanned data is stored in the KDC and transmitted to the host.
- **Store Only** - Scanned data is stored in the KDC but NOT transmitted to the host.
- **Save if Sent** - Scanned data is stored in the KDC ONLY if transmission to the host is successful.
- **Save if Not Sent** - Scanned data is stored in the KDC ONLY if transmission to the host is unsuccessful.

Enable Wedge (Handheld Scanner Mode) - This option will be checked if Wedge Only or Wedge & Store option is selected.

Keep Scan Data in KDC - This option will be checked if Store Only or Wedge & Store option is selected.

Synchronization Options

Synchronize KDC Time with PC Time when Connected

This option enables you to synchronize the KDC date and time with the host date and time. Synchronization of date and time occurs after the data is uploaded to the host device.

Delays

You can set transmission delays between barcodes and characters during the synchronization process. It is important to set proper delays to prevent errors during the transmission of collected barcodes. Some Windows applications such as Excel require longer delay times.

Attachments

Timestamp, Barcode Type, and Serial Number can be attached to the scanned barcode by selecting these options. The Serial Number of the KDC can be attached to the Start or End of Record.

Prefix and Suffix

- Enter the characters you want appended to the front (Prefix) or back (Suffix) of the barcode in the Prefix and Suffix fields.
- The character set is any combination of ASCII characters including alphanumeric, line feed (“\n”), and carriage return (“\r”).

Order and Delimiter

- Select Order of Data – Type, Data, and Timestamp
- Select the Delimiter between Data – Tab, Space, Comma, and Semicolon
- Select the Delimiter between Records – None, LF, CR, Tab, and <LF & CR>

Application Options

Synchronize Non-Compliant Data

The KDC will synchronize both compliant and non-compliant data (filtered data) if Synchronize Non-Compliant Data option is Enabled.

Consolidate Steps in One Record

KTSync will consolidate the data collected in Step 1 with the data collected in Step 2 and/or Step 3. Data will be consolidated into one record instead of individual data records for each step when Consolidate Steps in One Record is Enabled. Non-complete records, i.e. three steps were defined but data was only collected for two steps; would be discarded if this option is Enabled.

Attach Quantity

Quantity would be attached to the left or right of the data if this option is Enabled.

5.4 Barcode & KDC Settings

KTSync® allows you to configure the KDC Scan Options and Barcode Settings. The configuration options for the KDC using KTSync® are similar to the Set Barcodes, Code Options, Data Editing and Scan Options on the KDC Menu. Please refer to Appendix A for proper barcode settings for your application.

NOTE: You must configure barcode and scan options properly for optimal KDC performance.

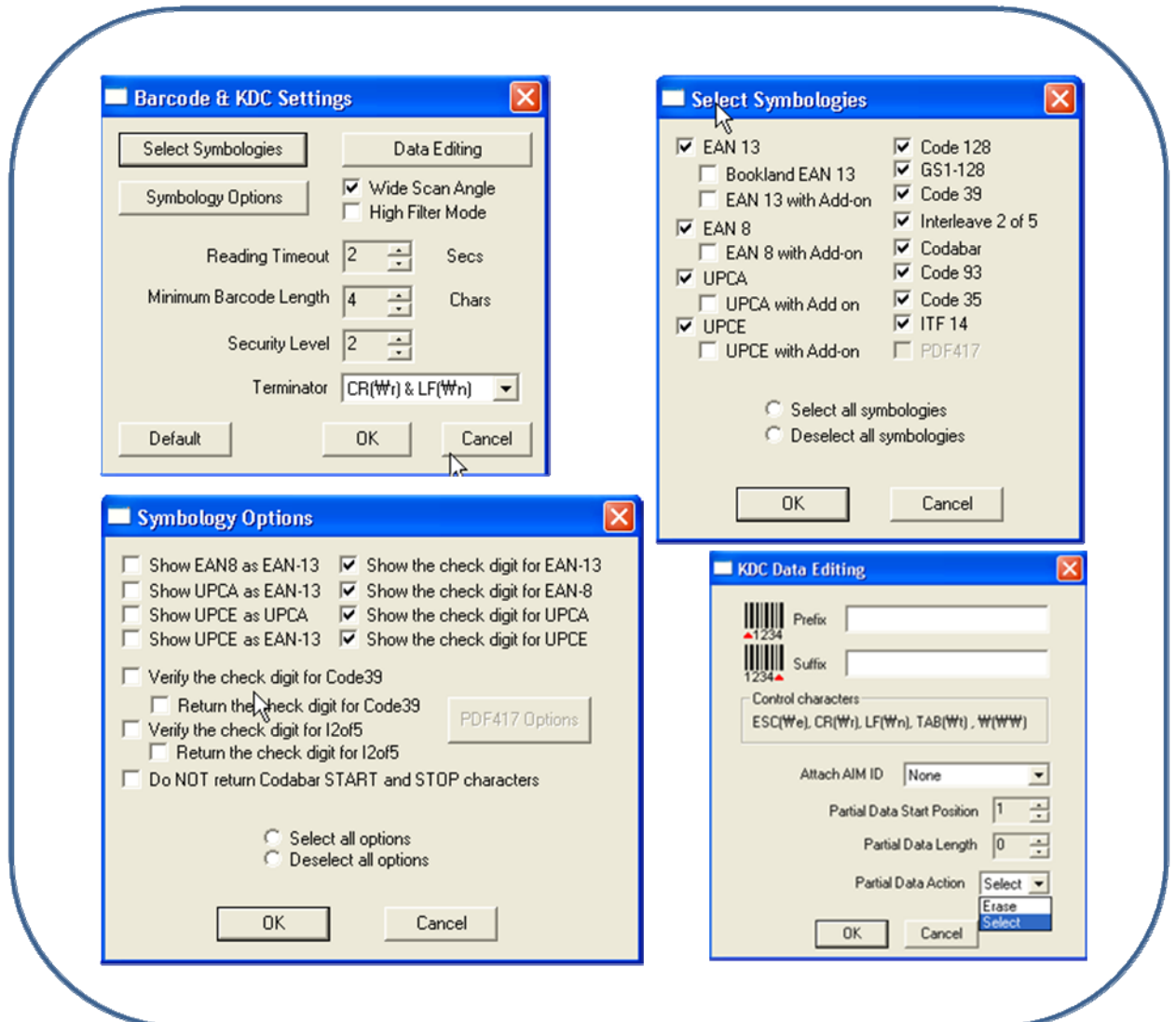


Figure 13 - Barcode & KDC Settings, Symbologies, Data Editing and Scan Options

Select Symbologies and Symbology Options

The process for scanning and reading barcodes is delicate and complicated. Although your KDC is equipped with a high performance scan engine, if configured incorrectly it may not perform at its peak performance level. To ensure its high performance, the KDC comes configured to optimize its scan engine technology. Unless you clearly understand the impact of your changes to the KDC settings, please do not change factory default settings. Please refer to Appendix A for details. Pressing the Default icon will reset all symbology related options to factory default settings.

Data Editing Option

Prefix - Allows you to add a prefix to scanned data which can then be stored in KDC or wedged to the host. The Prefix format must be defined in the data format menu of KTSync. The maximum length for a Prefix is 11 characters. **NOTE:** This Prefix option is different from the Prefix option in KTSync which appends the prefix to data during synchronization.

Suffix - Allows you to add a suffix to scanned data which can then be stored in KDC or wedged to the host. The Suffix must be defined in the data format menu of KTSync. The maximum length for a Suffix is 11 characters. **NOTE:** This Suffix option is different from the Suffix option in KTSync which appends the suffix to data during synchronization.

AIM ID - Allows you to add AIM ID to scanned data which can then be stored in KDC or wedged to the host. AIM ID must be defined in data format menu of KTSync. AIM ID is either added to the end of Prefix or Suffix.

Partial Data: Allows you to display and store partial data. User defines the start position and number of characters to be displayed and stored.

- Select the **x** characters from **y** position
 - ✓ Set Partial Data Start Position to **y**, Partial Data Length to **x**, Partial Data Action to Select
 - ✓ Partial Data Length **0** means Select all characters from **y** position.
- Erase the **x** characters from **y** position
 - ✓ Set Partial Data Start Position to **y**, Partial Data Length to **x**, Partial Data Action to Erase
 - ✓ Partial Data Length **0** means Erase all characters from **y** position.

5.5 Others Settings

Other options under the Settings menu allows you to select four additional settings.

- **Ask Confirmation before Trying Auto Connection** prevents unintentional launch of KTSync.
- **Ask Confirmation before Starting Auto Synchronization** prevents unintentional synchronization of data.
- **Minimize KTSync on Start** will minimize KTSync and send to the tray upon execution.
- **Keep Checking Bluetooth Connection** allows reconnection of KDC once *Bluetooth* signal is detected. This feature is useful when moving from *Bluetooth* host device frequently. KTSync will automatically reconnect *Bluetooth* connection when you enter an effective *Bluetooth* network range. *(Not Available on KDC100)*

To select any of these settings, click on the box to the left of the setting. A check mark (✓) will display next to the setting to indicate that it is selected.

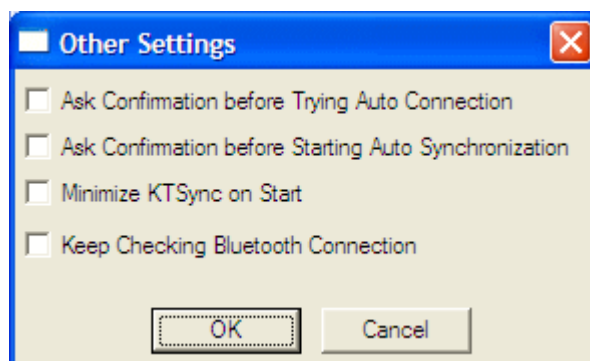
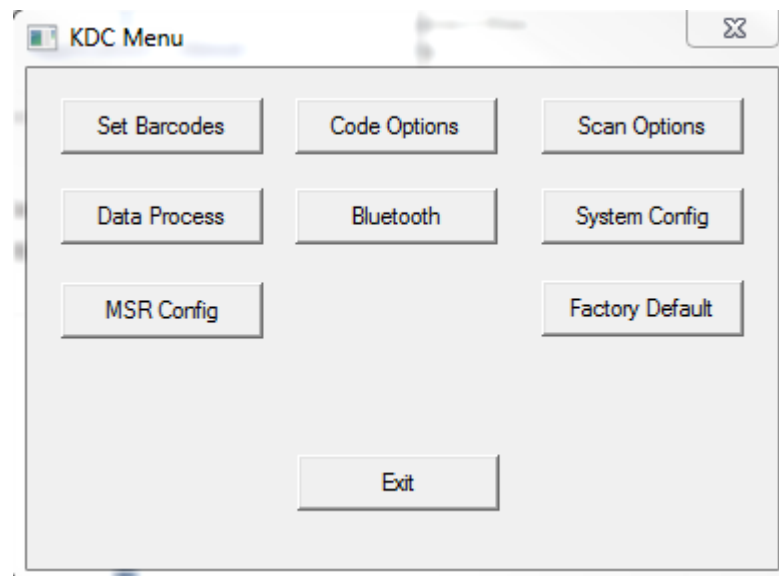


Figure 14 - KTSync® Confirmation Settings

5.6 KDC Menu (KDC400)

KDC Menu allows users to configure KDC400 settings.



5.7 Mobile pKTSync

pKTSync provides limited functionality for Pocket PC 2003 and Mobile 5.0+ users.

1. Synchronization - Provides data upload functionality to your applications.
2. Keyboard Emulator - Allows scanned data to be uploaded directly into your application as if the data were being entered manually on a keyboard.

For detailed explanations of these functions, please refer to earlier sections of this chapter.

WARNING: The user must assign the correct COM port to KDC prior to use pKTSync. Please refer to your mobile device manual for details on *Bluetooth* pairing and COM port assignment methods.

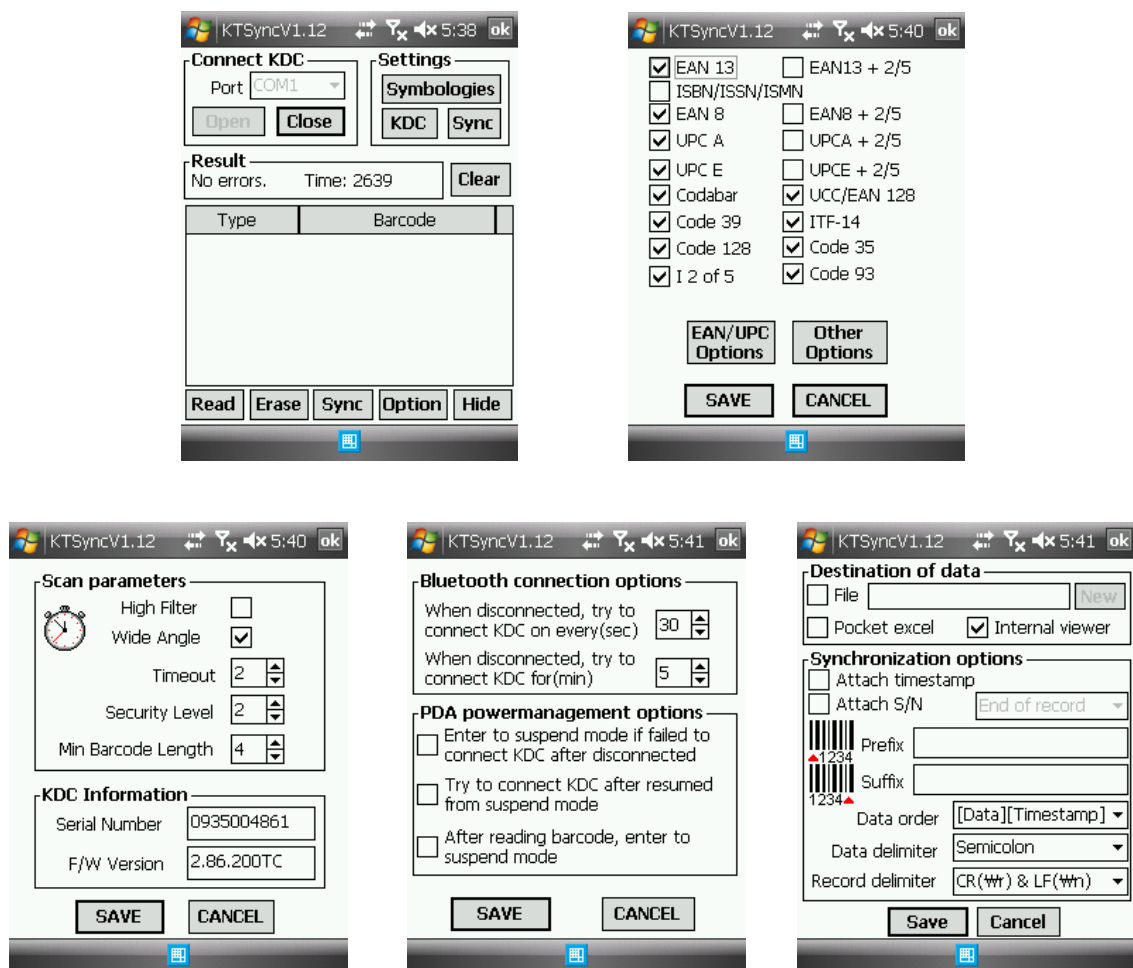


Figure 15 – Mobile pKTSync

5.8 Android aKTSync

The aKTSync provides limited functionality of PC KTSync to Android users.

[NOTE 1] aKTSync only supports Android devices with 2.1+ OS version and that are compatible with BluetoothChat application.

[NOTE 2] KDC with *Bluetooth* Spec2.1+EDR doesn't prompt Pin code entry menu

KDC and Android Pairing

1. Pairing

- Select "SPP" Bluetooth profile from KDC ConnectDevice submenu in BT Config menu.
- Search KDC200/200i/300/300i/350/350i from Android and pairing two devices.
- KDC200/200i/300/300i/350/350i PIN code is "0000"

2. Connection

- Click "Connect" icon in aKTSync
- Android would list up paired *Bluetooth* devices and user should select the target KDC.

3. Synchronization - Provides data upload functionality to your applications.

4. Settings – User can change various Synchronization options in settings menu.

5. Wedging – User can wedge barcode data to any Android application. Press home key and launch the target application.

Launch KTSync

1. Download and install aKTSync from the Android Market.
http://www.androidzoom.com/android_applications/productivity/ktsync_luxv.html
2. Change KDC Bluetooth "ConnectDevice" option to "SPP"
3. Execute Android *Bluetooth* device scan option and KDC *Bluetooth* pairing option
 - A. Execute KDC *Bluetooth* "Pairing" option
 - B. Launch "Settings" on the Android device
 - C. Select "Wireless and Networks"
 - D. Click on "Bluetooth Settings"
 - E. Click on "Scan devices"
 - F. The Android device will display the KDC model and 6 digits of the serial number.
4. Press the KDC list entry, enter "0000" PIN code and press "OK"
5. When paired, the Android device will display "Paired but not connected".
6. Launch aKTSync program
 - A. Press menu key and select the "Connect" option on the top left
 - B. From the list of paired devices, choose the KDC to use

- C. On the top menu bar of aKTSync, you will see “connecting” then “connected”.
- D. On the KDC display, you will see “Pairing Succeeded!!!” then “Bluetooth Connected”
- E. Select “Settings” option on the bottom left to change aKTSync setting

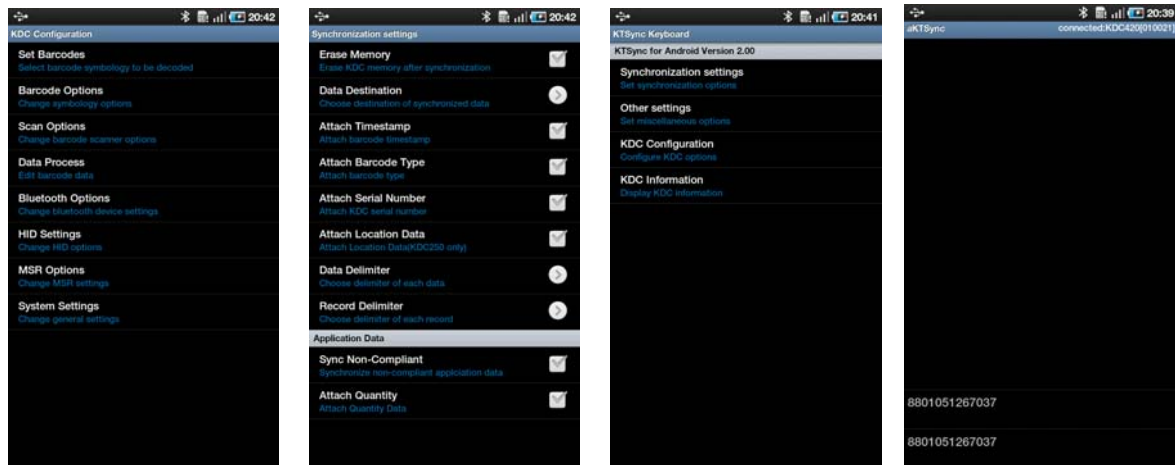


Figure 16 – Android aKTSync

7. Keyboard Wedge

- A. Launch “Settings” on the Android device
- B. Select “Language and Keyboard (or Input method)”
- C. Select “KTSync Keyboard”
- D. Launch the application and touch the input box to give focus to it
- E. Barcode would be wedged to the input box upon scanning a barcode

5.9 iPad/iPhone/iPod touch KTSync

The KTSync for iPad/iPhone/iPod touch provides limited functionality of PC KTSync for iPad, iPhone and iPod touch users.

KDC200i/250i/300i/350i/400i and iPhone/iPad/iPod touch connection instructions

1. The KDC200i/250i/300i/350i/400i supports “SPP” and “iPhone” Bluetooth profiles.
2. The iPhone/iPad/iPod touch should use “iPhone” Bluetooth profiles. “iPhone” is the default profile.
3. Download the KTSync program from the App Store.
4. Enable the iPhone/iPad/iPod touch Bluetooth power from the Setting > General > Bluetooth menu

[NOTE 1] Users have to disable MFi option in System > MFi menu to use HID Bluetooth profiles

[NOTE 2] Users have to RESET the iPhone/iPad/iPod touch to change “HID to iPhone mode” or “vice versa” after removing previous KDC connection.

[NOTE 3] KDC with Bluetooth Spec2.1+EDR doesn't prompt Pin code entry menu.

KDC200i/250i/300i/350i/400i connection using iPhone mode

1. Download and install iKTSync from the Apple App Store.
 - A. [http://itunes.apple.com/us /app/ktsync/id372916602?mt=8](http://itunes.apple.com/us/app/ktsync/id372916602?mt=8)
2. Press the two KDC side buttons together to enter menu mode
3. Scroll down to “Bluetooth” menu using KDC Down button
4. Press the front middle scan button
5. Scroll down to “Discovering” and press the front middle scan button
 - A. “Discovering Started ...” message will be displayed on KDC screen
 - B. Discovering will take about 30 seconds.
6. Select discovered iPhone/iPod touch device name and press the front middle scan button
 - A. [Pin Code] User Default/Enter PinCode will be displayed
 - B. Press the front middle scan button to select the “Use Default” option
 - C. “Connecting to iPhone/iPod touch device name” will be displayed
 - D. iPhone/iPad/iPod touch will ask for the PIN number.
 - E. Please enter “0000” and hit “connect” icon
 - F. “iPhone Connected” message will be displayed

7. Launch KTSync and configure Settings

iKTSync Settings

iKTSync provides following Settings menu.

- Synchronization - User can configure Synchronization options such as destination of data, data formation and delimiters.
- Other settings - Users can configure KDC250 GPS module, disconnection options and soft trigger button.



Figure 17 – iPad/iPhone/iPod touch KTSync

How to connect and reconnect iPhone mode using UP keys

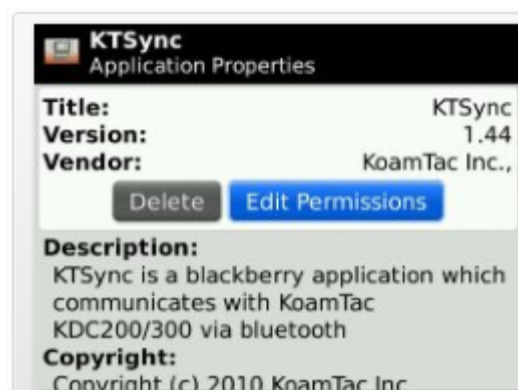
1. Users needs to select the option to use this feature in the BT Config > BT Toggle
2. Press the UP button to connect or reconnect to the iPhone/iPad/iPod touch

5.10 Blackberry bKTSync

The bKTSync provides limited functionality of PC KTSync for Blackberry users.

[NOTE] KDC with Bluetooth Spec2.1+EDR doesn't prompt Pin code entry menu

1. Download and install bKTSync from the Blackberry App World.
<http://appworld.blackberry.com/webstore/search/ktsync?lang=en>
2. Go to Blackberry Options > Applications menu and Enable "Input Simulation" option
3. Change KDC Bluetooth profile in "ConnectDevice" option to "SPP"
4. Execute Blackberry *Bluetooth* manager and KDC *Bluetooth* pairing option
 - A. Execute KDC *Bluetooth* "Pairing" option
 - B. Launch the Blackberry *Bluetooth* manager and select "Search". The KDC model and 6 digits of the serial number would be displayed.
 - C. Highlight the KDC and press the Enter or Select Key
 - D. Enter "0000" PIN code and press the Enter or Select Key
 - E. The Blackberry will display "Pairing with KDC"...complete."
 - F. Close the Blackberry Bluetooth manager
5. Go to Downloads folder and execute KTSync
6. User can configure KDC options in KDC settings and Symbologies Settings menu
7. Go to KTSync Synchronization Settings and select Destination. To send collected barcode as an email attachment, choose "Email Attachment" as destination, enter email address, subject and body message. You can enter multiple email addresses using the semicolon(;) separator.
8. To scan barcodes into any application (like email, notes, worksheet or web browser), press the menu key and select "Running in the background" option. bKTSync will maintain the connection and place the scanned barcode data where ever the cursor is flashing.



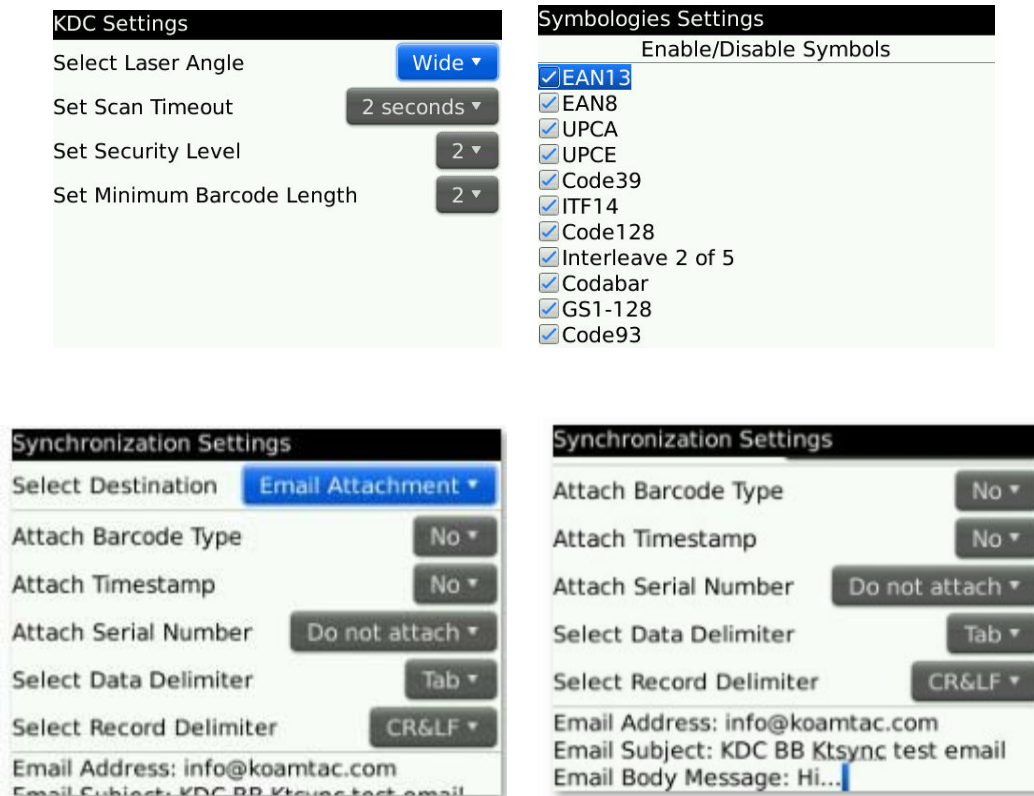


Figure 18 – Blackberry bKTSync

5.11 KTSync for Mac OS X

The KTSync Mac OS X version provides limited functionality of PC Windows KTSync for Mac OS X users.

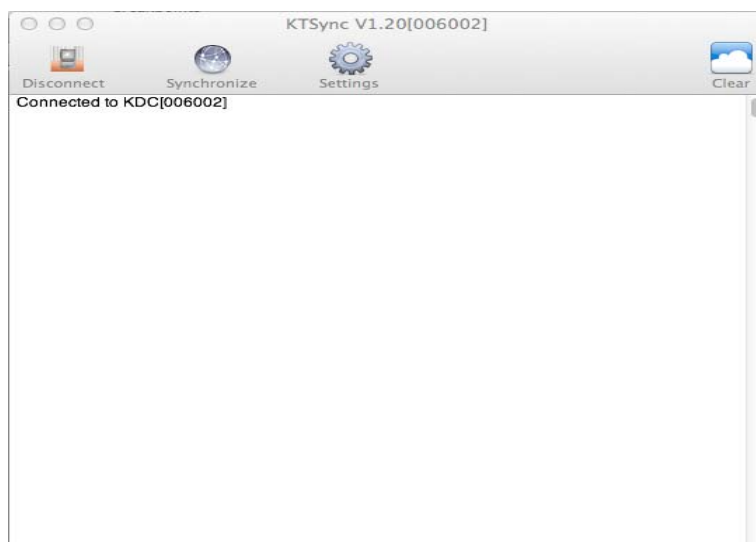
[NOTE 1] KTSync for Mac OS X version supports both Bluetooth SPP profile and USB connection. User should pair KDC with Mac before using the KTSync program via Bluetooth connection.

[NOTE 2] Mac OS X version KTSync is built as a X86 binary application and works with the Intel-based Mac. It is verified on Mac PC running Mac OS X 10.6.5 and later versions.

KTSync Mac OS X version supports the following features:

- ✓ Keyboard wedge function to a file, internal viewer, active window and user application.
- ✓ Synchronization to a file, internal viewer, active window and user application.
- ✓ Automatic connection and disconnection on USB port.

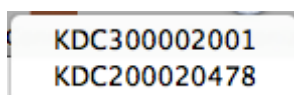
User will see the following initial KTSync screen upon launching the program. KTSync will connect automatically if KDC is plugged on USB port or KDC is paired.



Connect Button



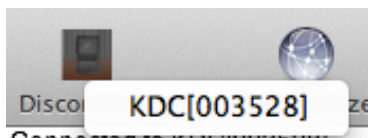
User can connect the Mac with the KDC that is paired or plugged into the USB port by clicking the Connect button. The following screen will be displayed when this button is pressed and KTSync will start to connect to the selected KDC.



Disconnect Button



KTSync changes Connect button to Disconnect button once the KDC is connected. User can disconnect the KDC manually by selecting connected KDC on the following screen.



Synchronize Button

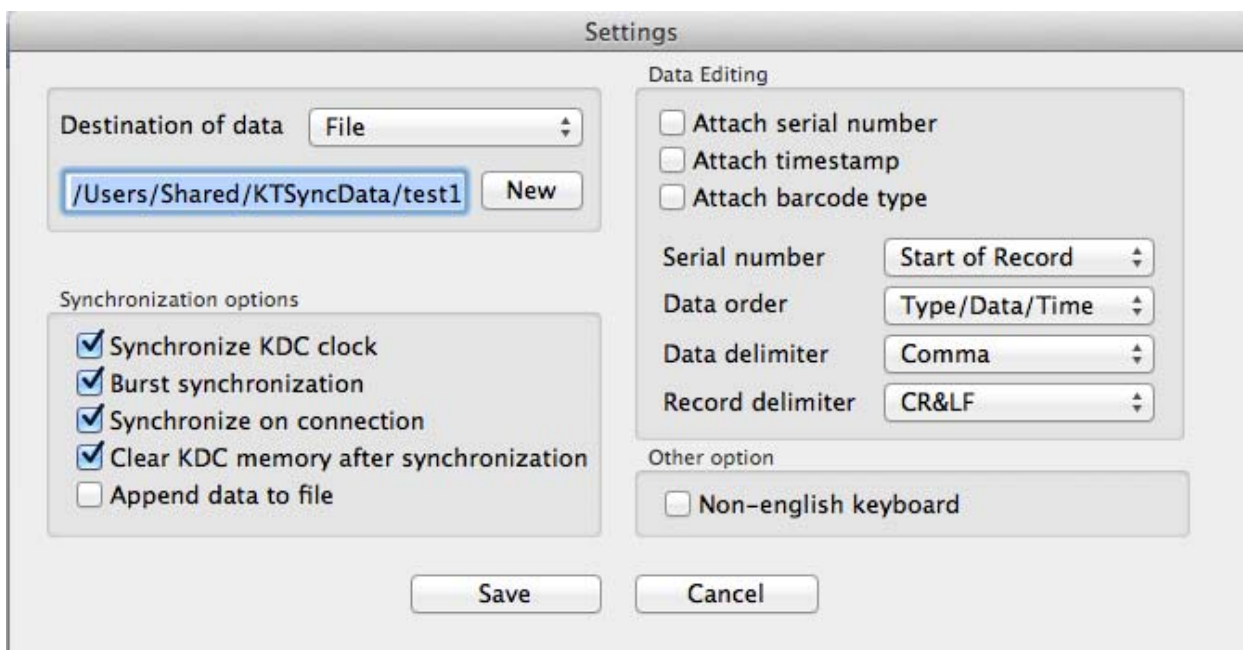


User can start the synchronization process by pressing the Synchronize button.
User can select the destination of barcode data in the settings menu. There are 4 selectable destinations: File, Internal viewer, Active window and User application.

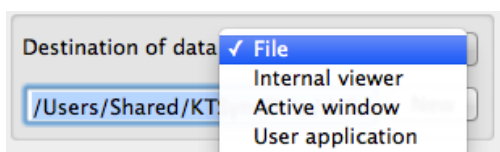
Settings Button



User can configure synchronization options on the following screen by pressing the Settings button.



- Destination of data
 - The KTSync program wedges or downloads barcode data to one of the following four destinations:



- ✓ File: The KTSync makes file name based on 3.11 if file name is specified as a "sn_timestamp.txt". The default directory is /Users/Shared/KTSyncData directory. User can define other directory or other filename by clicking "New" button. The maximum file path length is 128 characters.
 - ✓ Internal viewer: The KTSync displays barcode data in KTSync internal text viewer.
 - ✓ Active window
 - The KTSync sends barcode data to current active window if Active window option is selected.
 - ✓ User application
 - User can define the target application by pressing "New" button. The maximum application name path length is 128 characters.
- Synchronize KDC clock
 - KTSync will set the KDC's date and time with Mac PC date and time when the KDC is connected to Mac if this option is enabled.
- Burst synchronization

KTSync will synchronize barcode data from KDC in the burst mode if this option is enabled. Otherwise, KTSync will synchronize barcode data one by one. This option is enabled by default and can't be disabled.

- Synchronization on connection

If this option is enabled, KTSync will automatically synchronize barcode data from the KDC when the KDC is connected.

- Clear KDC memory after synchronization

KTSync clears barcode data stored in the KDC's memory once synchronization has finished if this option is enabled.

- Append data to file

KTSync appends synchronized data to existing file specified on destination. If file doesn't exist then KTSync creates a new file.

- Attach serial number

The KTSync would add a KDC serial number to barcode data if this option is enabled. This option is enabled by default and can't be disabled.

- Attach time stamp

The KTSync would add timestamp to barcode data if this option is enabled. This option is enabled by default and can't be disabled.

- Attached barcode type

The KTSync would add barcode type to barcode data if this option is enabled. This option is enabled by default and can't be disabled.

- Serial number

When "Attach serial number" is enabled, this option determines when to attach serial number. "Start of record" means to attach at the front of record and "End of record" means to attach to the end of record.

- Data order

This option specifies the order of data (Barcode Type, Barcode Data and Timestamp) in the record.

- Data delimiter

This option is used to select a character to be added between barcode data, serial number and timestamp and/or barcode type. User can select one of the following: "None", "Tab", "Space", "Comma" and "Semicolon" as the data delimiter. The "Comma" is selected by default and can't be changed.

- Record delimiter

This option is used to select a character to be added at the end of the barcode record. User can select one of "None", "CR", "LF", "TAB", and "CR&LF" as the record delimiter. The "CR&LF" is selected by default and can't be changed.

- Non-English keyboard

This option is used when the barcode data has non-English characters and a non-English keyboard.

Clear Button



User may press this button to clear the KTSync internal viewer.

6. APPLICATION GENERATION

[NOTE] KDC FW2.85.200.x doesn't support the Application Generation feature. Users should upgrade FW2.85.200.x to FW2.86.200.x to use Application Generation feature

When you select Application menu from the KTSync, you can choose from the following five Applications – Generation, DB Lookup, Master/Slave, Pick/BIN, and Inventory. Users can also download saved programs using Import & Download option.

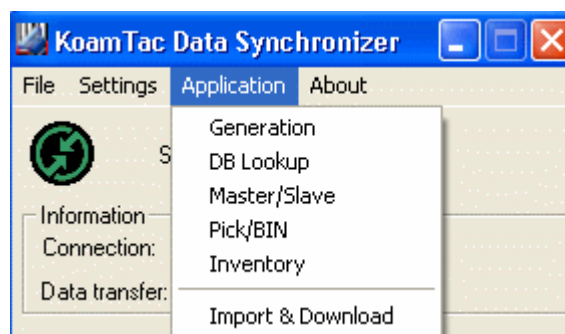


Figure 19 – Application Menu

When the Application tool is selected, the KDC will beep once to acknowledge a connection between the KDC and the Application tool. KTSync would popup the following warning window if downloaded application in KDC doesn't match with KTSync application tool.

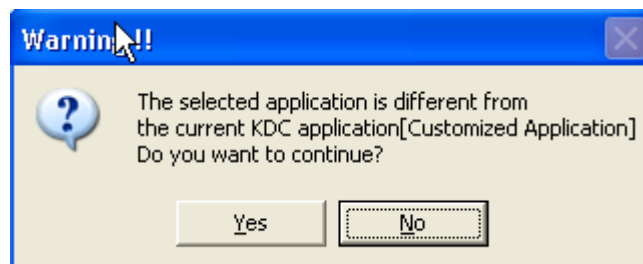


Figure 20 – Application Warning Window

[Note] KDC would wedge barcode data to the host in application mode if “wedge and store always” option in data process menu is selected and KDC firmware version is higher than 2.86.xxx.G.

6.1 Application Generation

KDC Application Generation tool is a robust feature that allows you to create custom applications for collecting and managing barcode data. To create a custom application, select the Generation submenu from the Application menu in KTSync®.

Figure 21 – Application Generation Menu

Generate Application

Generate step 1 - To generate a custom application, click on the Generate Step 1 box which enables you to define the user prompts and data collection settings for Step 1 of your custom application. Below is a description of each field. These prompts are the same when selecting Generate step 2 and Generate step 3. **NOTE: Your custom application can include only Step 1.**

- **First line**
Enter up to 13 characters which will display on the first line of the KDC
- **Second line**
Enter up to 13 characters which will display on the second line of the KDC

- **Starting quantity**

Enter a predefined start quantity for each scanned barcode. The start quantity can be defined from 1 to 128 and is modifiable using up or down side key.

- **Waiting to scan**

Enter the number of seconds the KDC pauses before the user prompts display. During this timeout period, the user can modify the quantity. If this field is set to zero, the quantity field cannot be adjusted. This field can be defined from “-1” to “30” seconds. “-1” second enables infinite waiting of user quantity input.

- **Enable data filter**

Click on this box to enable the data filtering option. Data filtering allows you to predefine different aspects of the barcode data you are collecting.

Data Filter Settings

When you select Enable data filtering, you must click on the Settings box to select the Data filter setting. The option for the data filter settings are the same for Step1, Step 2, and Step 3.

The screenshot shows a dialog box titled "Data Filter Settings". It contains the following elements:

- Barcode Type:** Select Symbols
- Minimum Data Length:** 4 Chars
- Maximum Data Length:** 256 Chars
- Barcode Collation:** Start Position 1 Chars, Data String
- Collect Partial Data:** Start Position 1 Chars, Data Length 1 Chars
- Check for Duplicated Data:**
 - Previous Scanned Data
 - All Stored Data
- Don't Save Non-compliant Data**

Buttons: Save, Cancel

Figure 22 – Data Filter Settings

- **Barcode Type**

This field allows you to select the type of barcodes the KDC will collect. When you click on the box, Select Symbols is enabled. A listing of the symbologies supported by the KDC displays. To select a barcode symbology, click on the box associated with the symbology.

- **Minimum Data Length**

This field allows you to define the minimum length of the scanned barcode. The length can be between 2 and 36 characters. If a user scans a barcode whose length is less than the defined length, the barcode data is not collected.

[Note] The default KDC minimum barcode length defined in scan option is 4. Therefore, users should change KDC minimum barcode length to 2 or 3 to define minimum data length to 2 or 3.

- **Maximum Data Length**

This field allows you to define the maximum length of a scanned barcode. The defined length can be between 2 and 256 characters. If a user scans a barcode whose length is greater than the defined length, the barcode data is not collected.

[Note] The default KDC minimum barcode length defined in scan option is 4. Therefore, users should change KDC minimum barcode length to 2 or 3 to define maximum data length to 2 or 3.

- **Barcode Collation**

This option enables you to define a data string that the KDC will use to compare scanned barcodes.

- Starting Position – This is the start position of the scanned barcode data to be compared with the defined data string.
- Data String – This is the defined value to be compared with scanned barcode data. This value can be up to 32 characters

- **Collect Partial Data**

This option allows you to define partial barcode data to be collected when a barcode is scanned. Only the partial data will be stored in the KDC.

- Start position – This is the starting position that the KDC will use when collecting scanned barcode data.
- Data Length – This is the length of partial data to be stored by the KDC

- **Check for Duplicated Data**

This option allows you to prevent collecting duplicated data.

- Previous Scanned Data – This option allows you to compare the scanned barcode with the previously scanned barcode and treat it as non-compliant data if you scanned the same barcode twice.

- All Stored Data – This option allows you to compare the scanned barcode with stored barcode data and treat it as non-compliant data if the same barcode already scanned and stored.

- **Don't Save Non-Compliant Data**

This field tells the KDC how to manage non-compliant data based on the defined data filtering fields. If this field is enabled, non-compliant data is NOT stored in the KDC. If this option is not enabled, non-compliant data is stored.

Generate step 2

To include another step in your data collection process, click the box, Generate step 2. This step has the same options as Step 1. In this step, you have the option of repeating step 2 by clicking the box, Repeat Step. NOTE: This field is disabled when your application has three steps.

Generate step 3

To include a third step, click the box, Generate step 3. This step has the same options as step 1 and 2. However, in this step you have the option to repeat steps 2 or 3.

Application Download and Execution

Prior to running your application, it must be downloaded to KDC.

- Click "Download" icon from Application Generation Window.
- Change KDC from Normal mode to Application mode.
 - Press two side buttons simultaneously to enter menu mode
 - Select KDC mode and enter scan button
 - Change to Application mode
 - Save and exit from menu mode
- KDC will run in normal mode if you don't change to Application mode after downloading the application.

6.2 Predefined Applications

KTSync provides four Predefined Applications – Master/Slave, Pick/Bin, DB Lookup and Inventory.

Master/Slave

Master/Slave predefined application allows you to define a **master** barcode for comparison with one or more **slave** barcodes. The predefined application can be run once or continuously and within either setting, you can define a substring for comparison of master and slave barcodes.

- **Master/Slave Onetime**
Define one **master** barcode and compare it with one **slave** barcode.
- **Master/Slave Continuous**
Define one **master** barcode and compare it with multiple **slave** barcodes.
- **Collation Options**
Works in either Onetime or Continuous Mode to compare a substring within the master and slave barcodes.
 - ✓ Master start position - Select the numeric position of start substring character in Pick barcode, 1 to 255
 - ✓ Slave start position - Select the numeric position of start substring character in Pick barcode, 1 to 255
 - ✓ Comparing Barcode Length - Number of characters to be compared, 0 to 255. 0 means all characters.

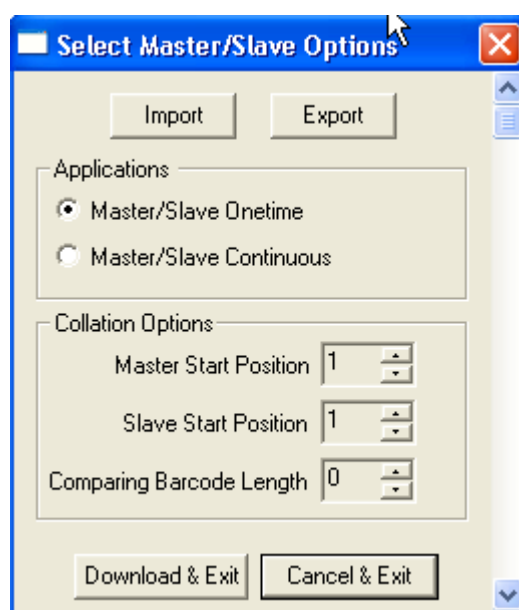


Figure 23 – Master/Slave Application Settings

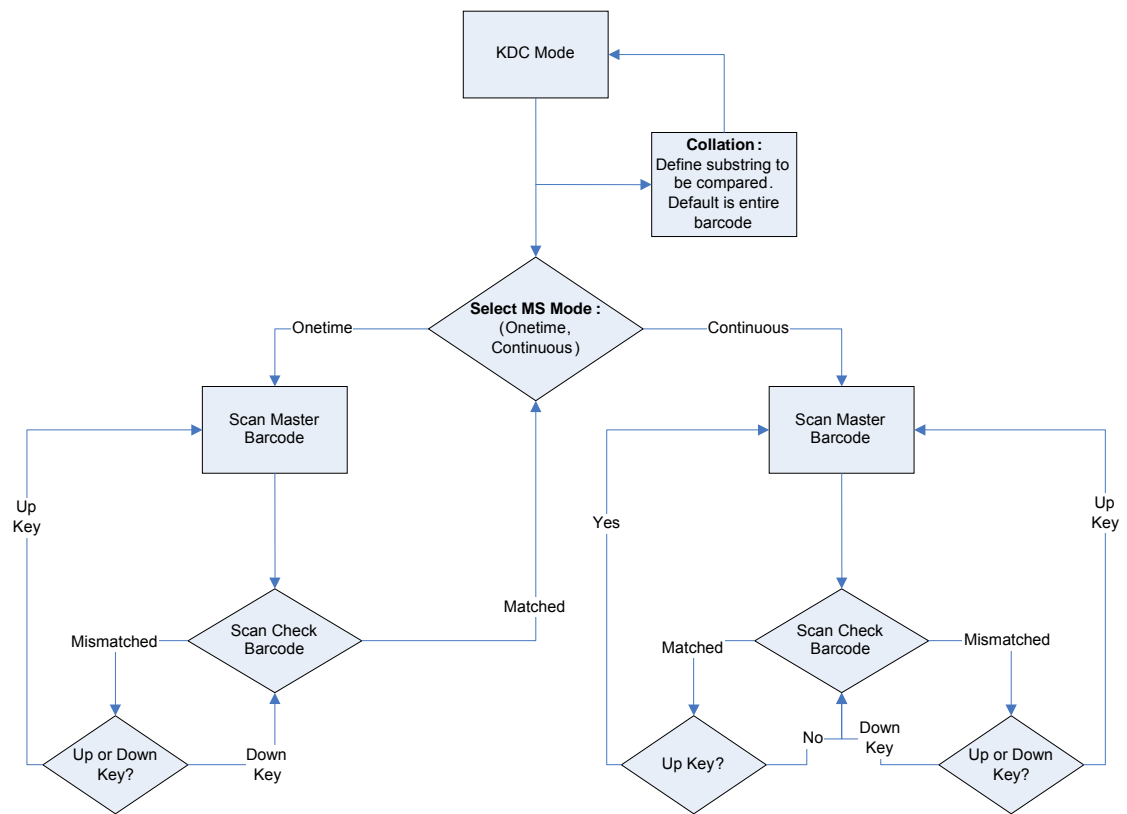


Figure 24 – Master/Slave Application Flow Chart

Pick/Bin

The Pick/Bin predefined application is a special version of the Master/Slave predefined application. The Pick/Bin application allows you to define Pick ID and the barcode symbology for comparison with a defined Bin.

- **Number of ID and Symbology**

Define Pick ID characters from 1 to 32 and the barcode symbology.

- **Pick Start Position and Symbology**

Select numeric position of start substring character in Pick barcode from 1 to 255 and the barcode symbology.

- **Bin Start Position and Symbology**

Select the numeric position of start substring character in Bin barcode from 1 to 255 and the barcode symbology.

- **Comparing Barcode Length**

Select the number of characters to be compared from 0 to 255. 0 means all characters.

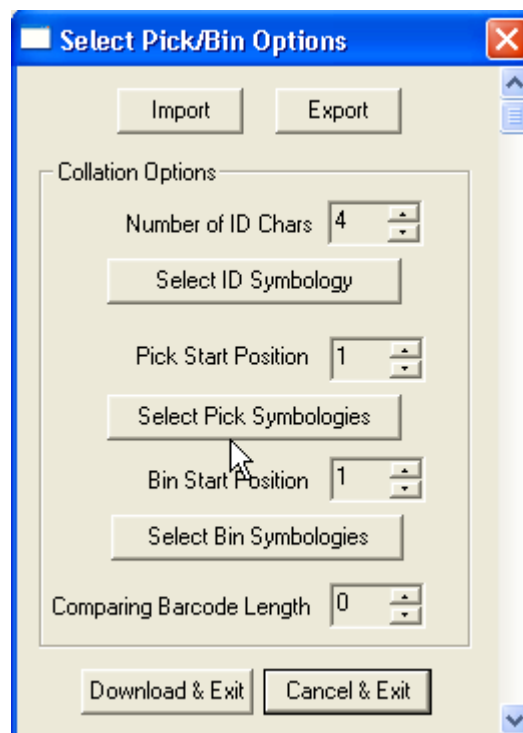


Figure 25 – Pick/BIN Application Menu

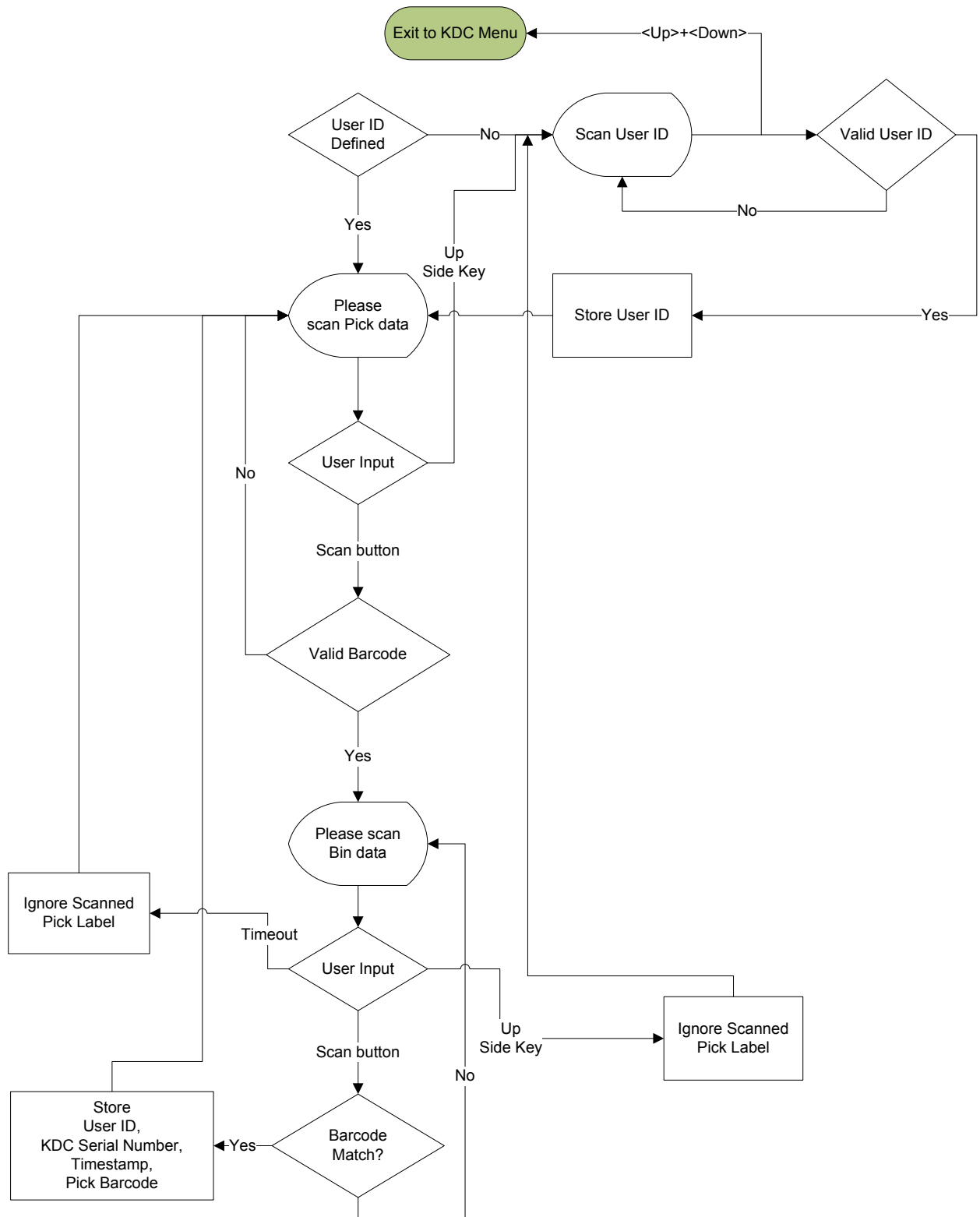


Figure 26 – Pick/BIN Application Flow Chart

DB Lookup Application

The DB Lookup application allows you to download a database to the KDC which can then be utilized for advanced AUTO-ID applications like displaying additional data after scanning a barcode. For example, using our DB Lookup application, you could download a product database including information such as description, price, and stock quantity. With the advanced data functionality built-in to the KDC, you could easily display product price, description, and stock level after the product's barcode is scanned.

Functionality of DB Lookup Application

- The database size cannot exceed 800 records.
- The maximum record size is 128 bytes.
- Each record can have up to 4 fields including the barcode which is the primary key.
- The maximum field size is 39 characters.
- Quantities can be entered by pressing the UP or DOWN scroll buttons after DB fields displayed.
- Quantity can be 1 to 128.
- User can create a database using Microsoft Excel.
 - Excel file must be saved as .txt.
 - Records should be separated by CR/LF
 - Fields should be separated by TAB.
 - Database should end with CR/LF.
 - Last 4 bytes of database should be CR/LF/CR/LF.

DB Lookup Fields and Settings

- **Download DB to KDC** - Downloads user created database to KDC.
- **Starting Quantity** - Enter predefined start quantity for each scanned barcode. The start quantity can be defined from 1 to 128 and is modifiable using up or down scroll buttons.
- **Barcode Field** - Select the position of barcode field in database from 1 to 4.
- **Stored Barcode Start Position** - Select the numeric position of start substring character of barcode in database from 1 to 39.
- **Scanned Barcode Start Position** - Select the numeric position of start substring character of scanned barcode from 1 to 39.
- **Comparing Barcode Length** - Number of characters to be compared from 0 to 255 where 0 is all characters.
- **Display on KDC** - Define database fields to be displayed on KDC. KDC can display one to three fields. KDC will display one field in two or three lines if same field is specified in line entering option.

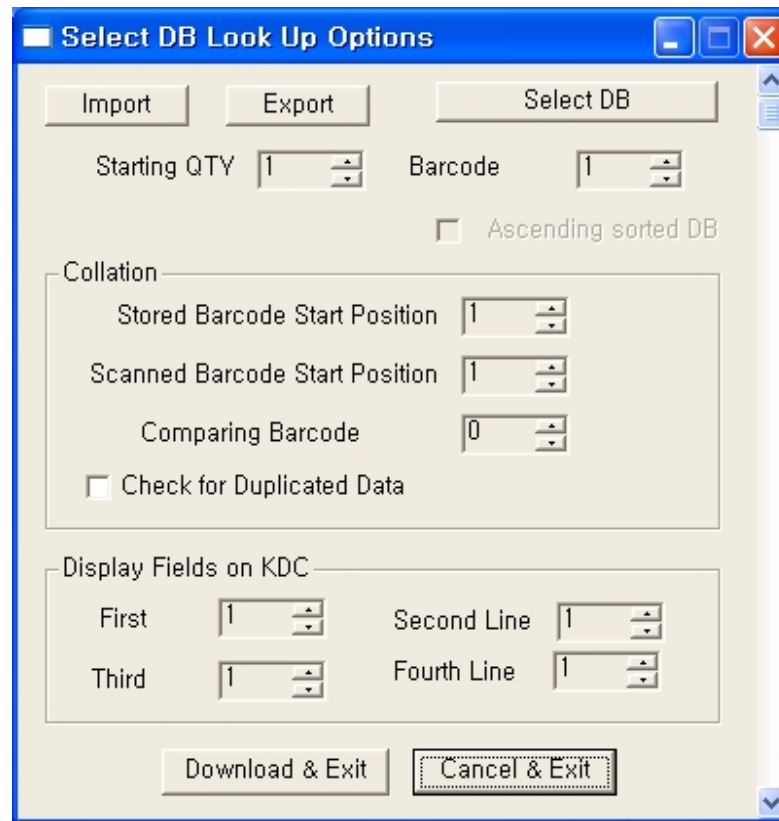


Figure 27 – DB Lookup Application Menu

Inventory Application

The Inventory application allows you to count inventories by scanning inventory barcodes. This application will increase inventory item count if the same item is scanned. Users can also download an inventory database to the KDC. KDC will display inventory description after scanning a barcode if inventory DB is downloaded.

Functionality of Inventory Application

- The inventory cannot exceed 800 items.
- The maximum record size is 128 bytes.
- Each record can have up to 4 fields including the barcode which is the primary key.
- The maximum field size is 39 characters.
- Quantities 1 to 32786 can be entered by pressing the UP or DOWN scroll buttons after inventory is scanned.
- Starting Quantity can be 1 to 128.
- Min/Max. Data Length is between 2 to 256 (KDC100/200) or 4 to 256 (KDC300)
- Barcode Collation Start Position is between 1 to 256
- The length of Collation Data String is between 1 to 30
- Collect Partial Data Start Position is between 1 to 256
- Collect Partial Data Length is between 1 to 256
- Users can create an inventory database using Microsoft Excel.
 - Excel file must be saved as .txt.
 - Click User Inventory DB option to display inventory description
 - Click Do not add non-existing item into DB if one do not wish to add new items into inventory DB
 - The number of Barcode Data Field is between 1 to 4
 - The position of Display Filed is between 1 to 4

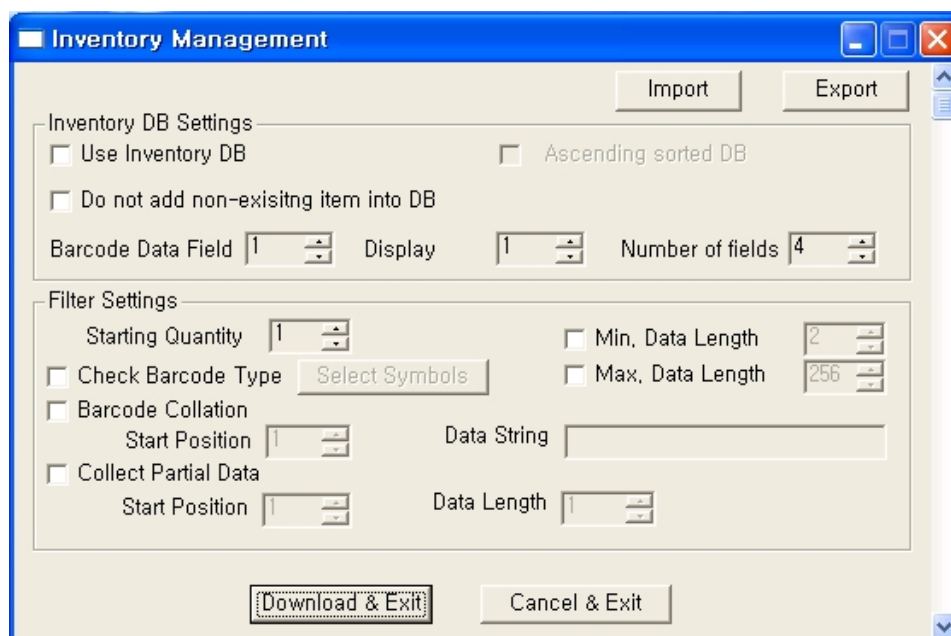


Figure 28 – Inventory Application Menu

7. Troubleshooting

PROBLEM	CAUSE	SOLUTION
KDC not working	Dead battery	<ul style="list-style-type: none"> ● Charge battery by connecting KDC to your PC using the included cable
	Hardware failure	<ul style="list-style-type: none"> ● Contact distributor for technical support
KDC not charging	Bad battery	<ul style="list-style-type: none"> ● Replace battery – Contact Local Distributor
	Poor USB port	<ul style="list-style-type: none"> ● USB port doesn't supply proper current to KDC - Charge KDC using a different USB port on your PC
Failed reading	Damaged barcode	<ul style="list-style-type: none"> ● Scan a different barcode
	Out of scan range	<ul style="list-style-type: none"> ● Move the scanner closer to barcode ● Move scanner farther from the barcode
	Incorrect angle	<ul style="list-style-type: none"> ● Change the angle of scanner to barcode
	Symbology not supported	<ul style="list-style-type: none"> ● Contact KoamTac - www.koamtac.com for possibility of custom symbology support
	Scan options	<ul style="list-style-type: none"> ● Check scan option settings
	Dirty scan window	<ul style="list-style-type: none"> ● Clean scan window
	Damaged scan window	<ul style="list-style-type: none"> ● Replace scan window
KDC reads wrong barcode	Dirty scan window	<ul style="list-style-type: none"> ● Clean scan window
	Damaged scan window	<ul style="list-style-type: none"> ● Replace scan window
	Poor quality barcode	<ul style="list-style-type: none"> ● Select only necessary barcodes ● Increase minimum barcode length ● Increase security level
Can't communicate with PC, PDA, or smartphone	USB cable is not connected properly	<ul style="list-style-type: none"> ● Check cable connection between KDC and host device
	Software is not working properly	<ul style="list-style-type: none"> ● Reload the software
	COM configuration	<ul style="list-style-type: none"> ● Check COM port configurations
LED blinks yellow	Low battery power	<ul style="list-style-type: none"> ● Charge the battery by connecting KDC to PC. ● KDC will lose collected data if the battery is empty.
Buffer Full Message	Full Memory	<ul style="list-style-type: none"> ● Clear the Memory using Synchronization program
Empty Battery Message	Empty battery	<ul style="list-style-type: none"> ● Connect USB immediately. ● Synchronize the collected data and charge KDC
Abnormal KTSync Operation on DELL PC	Quickset Utility	<ul style="list-style-type: none"> ● Disable Quickset Utility before using KTSync. ● Dell Quickset utility interrupts normal KTSync operation
	WSED Utility	<ul style="list-style-type: none"> ● Disable WSED Wireless enable/disable utility ● delete the folder C:\Program Files\WSED, which contains a file WSED.exe, with the same icon as in the taskbar ● Delete the registry entry KEY_LOCAL_MACHINE \SOFTWARE\Microsoft\Windows\CurrentVersion\Run\WSED

Table 5 - Troubleshooting Techniques

8. Warranty

LIMITED WARRANTY AND DISCLAIMERS

BY OPENING THE PACKAGE OF THIS PRODUCT YOU AGREE TO BECOME BOUND BY THE LIABILITY AND WARRANTY CONDITIONS AS DESCRIBED BELOW.

UNDER ALL CIRCUMSTANCES THIS MANUAL SHOULD BE READ ATTENTIVELY, BEFORE INSTALLING AND OR USING THE PRODUCT.

Serial Number

A serial number appears on the KDC label. This official registration number is strictly related to the device purchased. Make sure that the serial number appearing on your KDC is not removed. Removing the serial number will affect the warranty conditions and liability disadvantageously, so please maintain the label with serial number on the KDC. Units with the serial number label removed should not be operated.

Warranty/Warranty Period/Liability

KoamTac, Inc. ("Koam Tac") manufactures its hardware products in accordance with industry-standard practices. Unless otherwise agreed in a contract, KDC is warranted for a period of one year after purchase, covering defects in material and workmanship except rechargeable battery. KoamTac will repair or, at its opinion, replace products that prove to be defective in material or workmanship under proper use during the warranty period. KoamTac will not be liable in cases (i) in which the unit has been repaired or altered unless done or approved by KoamTac, (ii) in which the unit has not been maintained in accordance with any operating or handling instructions supplied by KoamTac, (iii) in which the unit has been subjected to unusual physical or electrical stress, misuse, abuse, power shortage, negligence or accident or (iv) in which the unit has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of the customer and is not covered under this warranty. Under no circumstance will KoamTac be liable for any direct, indirect, consequential or incidental damages arising out of use or inability to use either the hardware or software, even if KoamTac has been informed about the possibility of such damages.

Warranty Coverage and Procedure

During the warranty period, KoamTac will repair or replace defective products returned to KoamTac warehouse. International customers should contact the local KoamTac office or support center. If warranty service is required, KoamTac will issue a Return Material Authorization Number. Products must be shipped in the original or comparable package, shipping and insurance charges prepaid. KoamTac will ship the repaired or replacement product freight and insurance prepaid. Customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

9. CONTACT INFORMATION

The logo for KOAMTAC features the company name in a bold, black, sans-serif font. The letter 'C' is stylized with a green triangle pointing to the right, integrated into its right side.

CORPORATE HEADQUARTERS

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For more information, visit our website - www.koamtac.com

APPENDIX A - Barcode & Scan Options

The process for scanning and reading barcodes is delicate and complicated. Although your KDC is equipped with a high performance scan engine, if configured incorrectly it may not perform at its peak performance level. To ensure its high performance, the KDC comes configured to optimize its scan engine technology. Unless you clearly understand the impact of your changes to the KDC settings, please do not change factory default settings.

A.1 Symbologies

KoamTac's KDC products support most major barcode symbologies including 1D, 2D, Postal, and OCR-Fonts. Below is a list of the barcode symbologies supported by the KDC with respect to each models particular area of support. To ensure superior scan performance, remember to select only the required symbologies.

	<i>KDC100/200/250/410/415</i>	<i>KDC300/420/425</i>
<i>1D Barcodes</i>	EAN13, EAN8, UPCA, UPCE, Bookland EAN, EAN13 with Addon, EAN8 with Add-on, UPCA with Add-on, UPCE with Add-on, Interleave 2 of 5, ITF14, Code128, Codabar, GS1-128, Code39, Code93, & Code35	Codabar, Code11, Code32, Code39, Code128, EAN8, EAN13, GS1-128, I2of5, MSI, Plessey, PosiCode, GS1 DATABAR OMNI, GS1 Limited, GS1 Expanded, S2of5IA, S2of5ID, TLC39, Telepen, Trioptic, UPCA, & UPCE
<i>2D Barcodes</i>	<i>N/A</i>	AztecCode, AztecRunes, CodablockF, Code 16K, Code49, DataMatrix, MaxiCode, MicroPDF, PDF417, & QRCode and HanXin Code
<i>Postal Barcodes</i>	<i>N/A</i>	AusPost, CanadaPost, ChinaPost, JapanPost, KoreaPost, KixPost, Planet Code, Postnet (US), & UKPost
<i>OCR Fonts</i>	<i>N/A</i>	OCR-A, OCR-B, OCRUSCurrency, OCRMICRE13B, & OCRSEMIFONT

Table 6 - Symbologies Supported by KDC

Bookland EAN vs. EAN-13

Bookland EAN which includes ISBN, ISSN, and ISMN, is supported by the KDC. This group of symbologies is essentially an EAN-13 barcode with fixed prefixes; 977 for ISSN, 978 for ISBN, and 979 for ISMN. If EAN-13 and Bookland EAN are both enabled, Bookland EAN takes precedence. Bookland EAN does not have any options. The Bookland EAN barcode does not contain any groupings – that is, there are no hyphens or separators. Thus, the ISBN 957-630-239-0 is transmitted as 9576302390.

Add-on Symbologies

By default, the 2 or 5 digit add-on symbols with a UPCE, UPCA, EAN-8, and EAN-13 barcode is neither decoded nor transmitted. Transmission for these specific symbologies is enabled by setting the appropriate *withAddon* options. There are 4 *withAddon* options, one for each symbology:

- **UPCEwithAddon**
- **UPCAwithAddon**
- **EAN8withAddon**
- **EAN13withAddon**

The decoding of add-on symbols is typified by the following table, which explains the process for EAN-13 symbols.

Mode	Behavior	Value of flags	
		EAN13	EAN13withAddon
Auto-discrimination	If add-on symbol is present, then it is also decoded; otherwise only the EAN-13 symbol is decoded.	true	true
With add-on	Only EAN-13 barcodes with 2 or 5 add-on symbol are decoded.	false	true
Without add-on	The add-on symbol is ignored.	true	false

Table 7 - Add-on for EAN-13 Symbology

The add-on symbol is appended to the EAN-13 barcode. The process is similar for UPCE, UPCA, and EAN-8 barcodes. Note that all the UPCE, UPCA, EAN-8, and EAN-13 formatting and conversion options are in effect. The following table should help explain the effect of various options for EAN-8 barcode 12345670 + 12.

Barcode	EAN8_as_EAN13	EAN8_ReturnCheckDigit	EAN13_ReturnCheckDigit
1234567012	False	True	N/A
123456712 False			
00000123456712	True	N/A	false
000001234567012 true			

Table 8 - Add-on for EAN-8 Symbology

The add-on symbol neither contains check digit nor a terminating guard band. Every effort has been made to reduce the decoding error; however, it is likely to decode a partial scan of a 5-digit add-on symbol as a 2-digit add-on symbol. It is strongly recommended that the minimum security level is set at 2 while decoding add-on symbols. Since the decoder takes a conservative view on the add-on symbols, it is likely that the add-on symbol will be missed in the auto-discrimination mode. Auto-discrimination mode should then be avoided.

A.2 Code Options

The KDC supports the following barcode options:

- Transmission of start and stop characters
- Reverse direction
- Symbology conversion
- Verification of optional check character
- Transmission of check digit
 - Transmission of Start and Stop Characters

For Codabar symbols you can choose not to transmit the start and stop symbols, the NOTIS Editing. By default, they are transmitted. Setting the field **CodaBar_NoStartStopChars** to true disables the transmission.

Reverse Direction

This option may be selected if direction oriented symbologies are selected such as Code35.

Symbology Conversion

By default the EAN-8, UPCE, and UPCA symbols are transmitted in their native format. It is possible to show them in a different format. You can choose to display UPCE symbols as either UPC-A or EAN-13 symbols, EAN-8 symbols as EAN-13 symbols, or UPC-A symbols as EAN-13 symbols. The following table shows the effect of setting various options.

Option	EAN-8	UPC-A	UPC-E	All others
EAN8_as_EAN13	Converted to EAN-13	No effect	No effect	No effect
UPCA_as_EAN13	No effect	Converted to EAN-13	No effect	
UPCE_as_EAN13	No effect	No effect	Converted to EAN-13	
UPCE_as_UPCA	No effect	No effect	Converted to UPC-A	

Table 9 - Symbology Conversion

Verification of Optional "Check Digit"

Code39 and Interleave 2 of 5 have an optional check digit, which, by default, is not verified. Their verification can be enabled by selecting the option **VerifyCheckDigit** to true or you can enable the verification for individual symbologies. If the check digit verification fails then the barcode is not transmitted.

Option Selected	Verify Code39 check digit	Verify I2of5 check digit
VerifyCheckDigit Yes		Yes
Code39_VerifyCheckDigit Yes		No effect
I2of5_VerifyCheckDigit No	effect	Yes

Table 10 - Verification of Optional "Check Digit"

Transmission of "Check Digit"

By default, the check digit – optional or mandatory – is not transmitted. Its transmission can be enabled for all symbologies by enabling **ReturnCheckDigit** option.

Option Selected	Is the check digit returned?					
	EAN-13	EAN-8	UPC-A	UPC-E	Code39	I2of5
ReturnCheckDigit	Yes	Yes	Yes	Yes	Yes	Yes
EAN13_ReturnCheckDigit	Yes	No effect	No effect	No effect	No effect	No effect
EAN8_ReturnCheckDigit No	effect	Yes	No effect	No effect	No effect	No effect
UPCA_ReturnCheckDigit	No effect	No effect	Yes	No effect	No effect	No effect
UPCE_ReturnCheckDigit N	o effect	No effect	No effect	Yes	No effect	No effect
Code39_ReturnCheckDigit No	o effect	No effect	No effect	No effect	Yes	No effect
I2of5_ReturnCheckDigit	No effect	No effect	No effect	No effect	No effect	Yes

Table 11 - Transmission of "Check Digit"

Resolution of Inconsistencies

Three types of inconsistencies could arise in the assignment of symbology options. The decoder has pre-defined strategies to resolve these inconsistencies: If **UPCE_as_EAN13** is true, then **UPCE_as_UPCA** is ignored.

If symbology conversion is selected but the target symbology is not enabled, then the decoder still outputs the symbol in the target symbology. For example, suppose UPC-E is enabled and **UPCE_as_EAN13** is true but EAN-13 is disabled. All UPC-E symbols will be shown as EAN-13 and EAN-13 options (if specified) will be applied. For the two symbologies that have optional check digits, Code39 and Interleave 2 of 5, the decoder will always transmit the check digit if the verification is disabled.

Verify Check Digit	Return Check Digit	Description
Disabled	Enabled or Disabled	Check digit is not verified but is transmitted
Enabled	Disabled	Check digit is verified but is not transmitted
Enabled	Enabled	Check digit is verified and is transmitted

Table 12 - Resolution of Inconsistencies

A.3 Miscellaneous Barcode Information

Height of a Linear Barcode

Industry standards suggest a height of either 6.5mm or 15% of the symbol length, whichever is greater. Symbols of less than recommended heights may cause recognition problems.

Check Characters

Yes, we recommend the use of check-characters in barcodes. Operating without check-characters is not safe and will lead to errors that are costly to correct. Using check-characters positively affects data integrity especially when character density is at the limits and/or image quality is not at its best.

Prevent Interleave 2 of 5 Partial Reading

A partial scan of an Interleave 2 of 5 symbol may decode and cause incorrect data to be read. To prevent partial scans on long symbols, you should include bearer bars. These are bars that run along the top and bottom edges of the barcode in the scanning direction. If a partial scan of the barcode occurs, the scanning beam will hit the bearer bar and will not decode. The bearer bar must touch the top and bottom of all the bars and must be at least 3 times as wide.

Another solution for the short scanning problem is to fix all Interleave 2 of 5 symbols to a set number of digits. Zeros can be used to pad the data to the set number of digits. The application program would then be set to only accept scans of the correct number of digits.

Finally, a check digit may be used. The Interleave 2 of 5 symbology has an optional check character which uses a weighted Modulo 10 scheme. The check character is the last character in the symbol and should be checked by the decoder and then transmitted with the data. Since Interleave 2 of 5 must always have an even number of digits, the leftmost character may need to be a zero when the check character is added. The standard check digit is calculated by assigning alternating 3,1,3,1... weights to respective data digits. These weights are then multiplied by their respective data digits and the products are summed. The check digit is the digit needed to be added to the sum to make it an even multiple of 10. An example would be if the sum of the products was 37, then the check digit would be 3.

Equation to Determining Potential Number of Stored Barcodes

The number of barcodes that can be stored in the KDC memory depends on the size of the barcodes.

Example: *If only UPCA barcodes are scanned and the check digit is not transmitted, then each barcode takes up 11 (barcode data) + 2 (added bytes) + 2 (length and type) + 4 (time stamp) = 19 bytes. The maximum number of UPCA barcodes that can be saved is $204,800/19 = 10,778$. However, KDC has limited the maximum number of barcode as 10,240 and users can't store more than 10,240 barcodes in 2.85/86 version. 3.0x version allows user to store maximum 204,800 barcodes.*

Data Buffer Full

When the data buffer is full, the KDC displays a message, **Buffer Full**, ignoring any command to scan barcodes. You must reset the data buffer to continue data collection.

Appendix B – FAQ

B.1 Symbology

Q: What barcode symbologies are supported by the KDC200?

A: The KDC200 supports most major 1D barcode symbologies. Below is a list of the 1D symbologies supported by the KDC200.

<i>KDC300/420/425</i>	<i>KDC100/200/250/410/415</i>
<u>2D Barcodes</u>	<u>1D Barcodes</u>
AztecCode, AztecRunes, Codablock, Code16K, Code49, DataMatrix, MaxiCode, MicroPDF, PDF417, and QRCode	EAN13 EAN8 UPCA UPCE Bookland EAN EAN13 with Add-on EAN8 with Add-on UPCA with Add-on UPCE with Add-on Interleave 2 of 5 ITF14 Code128 Codabar GS1-128 Code39 Code93 Code35
<u>1D Barcodes</u>	
Codabar, Code11, Code32, Code39, Code128, EAN8, EAN13, GS1-128, I2of5, MSI, Plessey, PosiCode, GS1 DATABAR OMNI, GS1 Limited, GS1 Expanded, S2of5IA, S2of5ID, TLC39, Telepen, Trioptic, UPCA, and UPCE	
<u>Postal Barcodes</u>	
AusPost, CanadaPost, ChinaPost, JapanPost, KoreaPost, KixPost, Planet Code, Postnet (US), and UKPost	
<u>OCR Fonts</u>	
OCR-A, OCR-B, OCRUSCurrency, OCRMICRE13B, and OCRSEMIFONT	

Table 13 - Symbologies Supported by KDC

B.2 Host Interface

Q: What interface ports are supported by the KDC200?

A: The KDC200 has one ultra mini USB port which supports serial and USB-Serial. It also supports *Bluetooth* profiles.

Q: What *Bluetooth* protocol stacks are supported by KDC200?

A: The KD200 has *Bluetooth* HID and SPP profiles. KDC200i/250i/300i/350i/400i also supports "Made for iPhone" *Bluetooth* profile.

B.3 Battery

Q: How long will the KDC200 battery last before it needs to be replaced?

A: The battery on the KDC200 can be charged at least 300 times before it needs to be replaced.

Q: How long does it take to charge the KDC200?

A: It takes about 2 hours to fully charge the KDC200 from an empty battery status to a fully charged status.

Q: How many barcodes can a fully charged KDC200 scan?

A: The KDC200 can scan more than 10,000 barcodes when fully charged. Using *Bluetooth*, it can scan more than 7,500 barcodes. KDC200i would scan less barcodes than KDC200.

Q: How long will the KDC200 battery lasts in the sleep mode?

A: KDC200 last several days with *Bluetooth* connection. KDC200i last less than KDC200.

Q: Can I replace the KDC200 battery?

A: Yes. The KDC200 has a separate compartment for the battery which can be opened easily with a screw driver. Contact your distributor for a replacement battery.

B.4 Memory

Q: How many barcodes can be stored in the KDC200?

A: KDC200 have basic 180KB data memory and optional 4MB extended memory. 180KB can store more than 10,000 UPC barcodes and 4MB can store more than 100,000 product database. FW86 version uses 100KB for database area and user data memory is 80KB.

Q: Can I download stored barcodes or wedge barcodes to my application?

A: Yes. KTSync[®] is keyboard wedging, application generation, DB look up and inventory program bundled with the KDC100/200/300 which supports host devices running on Android[®], iPhone/iPad/iPod touch, Blackberry[®], Windows[®] XP/Vista/7/Mobile5.0+.

Q: Does the KDC200 support *Android*[®], *iPhone/iPad/iPod touch*[®], *Blackberry*[®], *Mac*[®] and *Windows*[®] devices?

A: KTSync[®] supports Android[®], iPhone/iPad/iPod touch, Blackberry[®], Mac[®] and Windows[®] devices currently.

B.5 Programming

Q: Can the KDC200 be programmed by a KoamTac partner?

A: Yes. KoamTac's Application Generation tool provides an enhanced programming environment for developing custom applications for the KDC.

1. KDC supports, at most, three step data collection processes including the ability to perform various data functionality features.
2. KDC's database lookup function provides enhanced data processes enabling the KDC to display database results with or without scanned barcode data.
3. KDC can display a message from Host enabling two way communications and a messaging application.

Q: Does KoamTac provide customization services for the KDC200?

A: Yes. Custom applications or projects can be developed by KoamTac engineers. This service is provided for an additional fee to KoamTac. For more information regarding this service, please contact KoamTac.

Q: Can a partner develop a PC or Smartphone application for the KDC200?

A: A software development kit for Windows[®] XP/Vista/7/Mobile5.0+, Android is available on KoamTac support page. Android[®], iPhone/iPad/iPod touch, Blackberry[®], Mac[®] SDK are available through KoamTac authorized distributors.

APPENDIX C - SPECIAL BARCODES

C.1 Set Symbologies (KDC100/200/250/350)

Enable EAN13



Disable EAN13



Enable EAN8



Disable EAN8



Enable UPCA



Disable UPCA



Enable UPCE



Disable UPCE



Enable Code39



Disable Code39



Enable ITF14



2000020

Disable ITF14



2100020

Enable Code128



2000040

Disable Code128



2100040

Enable I2 of 5



2000080

Disable I2 of 5



2100080

Enable Codabar



2000100

Disable Codabar



2100100

Enable EAN128



2000200

Disable EAN128



2100200

Enable Code93



2000400

Disable Code93



2100400

Enable Code35



2000800

Disable Code35



2100800

Enable Bookland EAN



2001000

Disable Bookland EAN



2101000

Enable EAN13 with Addon



2002000

Disable EAN13 with Addon



2102000

Enable EAN8 with Addon



2004000

Disable EAN8 with Addon



2104000

Enable UPCA with Addon



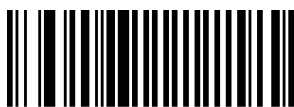
2008000

Disable UPCA with Addon



2108000

Enable UPCE with Addon



2010000

Disable UPCE with Addon



2110000

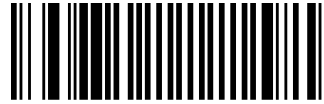
C.2 Barcode Options (KDC100/200/250/350)

Codabar - do NOT transmit start/stop



3000000001

Codabar - transmit start/stop



3100000001

Convert UPCE to UPCA



3000000200

Do NOT convert UPCE to UPCA



3100000200

Convert EAN8 to EAN13



3000000400

Do NOT Return Check Digit



3100001000

Convert UPCE to EAN13



3000000800

Do NOT Verify Check Digit



3100002000

Return Check Digit



3000001000

Do NOT convert EAN8 to EAN13



3100000400

Verify Check Digit



3000002000

Do NOT convert UPCE to EAN13



3100000800

Convert UPCA to EAN13



300080000

Do NOT Convert UPCA to EAN13



310080000

Verify check digit for I2of5



300040000

Do NOT verify check digit for I2of5



310040000

Verify check digit for Code39



300080000

Do NOT verify check digit for Code39



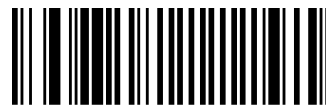
310080000

Return check digit for I2of5



300400000

Do NOT return check digit for I2of5



310400000

Return check digit for Code39



300800000

Do NOT return check digit for Code39



310800000

Return check digit for UPCE



301000000

Do NOT return check digit for UPCE



311000000

Return check digit for UPCA



3020000000

Do NOT return check digit for UPCA



3120000000

Return check digit for EAN8



3040000000

Do NOT return check digit for EAN8



3140000000

Return check digit for EAN13



3080000000

Do NOT return check digit for EAN13



3180000000

C.3 Delete Last Scanned Barcode (KDC100/200/250/350)



80001

C.4 Scan Options (KDC100/200/250/350)

Wide scan angle



Narrow scan angle



Normal filter mode



High filter mode



Auto Trigger Enable



Auto Trigger Disable



Continuous



Short



Medium



Long



Extra Long



C.5 Scan Timeout (KDC100/200/250/350)

Timeout = 500msec



Timeout = 1sec



Timeout = 2sec



Timeout = 3sec



Timeout = 4sec



Timeout = 5sec



Timeout = 6sec



Timeout = 7sec



Timeout = 8sec



Timeout = 9sec



Timeout = 10sec



C.6 Minimum Barcode Length (KDC100/200/250/350)

Minimum Length = 2



Minimum Length = 3



Minimum Length = 4



Minimum Length = 5



Minimum Length = 6



Minimum Length = 7



Minimum Length = 8



Minimum Length = 9



Minimum Length = 10



Minimum Length = 11



Minimum Length = 12



Minimum Length = 13



Minimum Length = 14



Minimum Length = 15



Minimum Length = 16



Minimum Length = 17



Minimum Length = 18



Minimum Length = 19



Minimum Length = 20



014

Minimum Length = 21



015

Minimum Length = 22



016

Minimum Length = 23



017

Minimum Length = 24



018

Minimum Length = 25



019

Minimum Length = 26



01A

Minimum Length = 27



01B

Minimum Length = 28



01C

Minimum Length = 29



01D

Minimum Length = 30



01E

Minimum Length = 31



01F

Minimum Length = 32



020

Minimum Length = 33



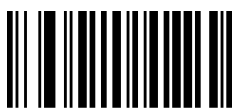
021

Minimum Length = 34



022

Minimum Length = 35



023

Minimum Length = 36



024

C.7 Security Level (KDC100/200/250/350)

Security level = 1



Security level = 2



Security level = 3



Security level = 4



C.8 Data Process - Wedge/Store (KDC100/200/250/350)

Wedge Only



Wedge & Store



Store Only



Wedge & Store if Sent



Wedge & Store if Not Sent



C.9 Data Process – Data Edit (KDC100/200/250/350)

Prefix Enter Start



Suffix Enter Start



Prefix/Suffix Enter Finish



Prefix/Suffix Enter Cancel



Delete Prefix



Delete Suffix



Display Prefix



Display Suffix



AIM ID None



AIM ID In Prefix



AIM ID In Suffix



C.10 Data Process - Data Format – Handshake (KDC100/200/250/350)

Data format - Barcode only



Data format - Packet data



Enable Handshake



Disable Handshake



C.11 Data Process - Termination Character & Duplicate Check (KDC100/200/250/350)

None



88000

CR



88001

LF



88002

CR+LF



88003

Tab



88004

Check Duplicate Enabled



89001

Check Duplicate Disabled



89010

C.12 Bluetooth (KDC200/250/350)

Enable Bluetooth Power



Disable Bluetooth Power



Enter Pairing Mode



Discovering Enable



Discovering Disable



Connect To Last



Connecting to



Disconnect



HID Sync



Bluetooth Device type SPP



Bluetooth Device type HID iOS



Bluetooth Device type IPHONE



6A002

Bluetooth Device type SPP2.0



6A003

Bluetooth Device type HID Normal



6A004

Enable Auto Connect



62001

Disable Auto Connect



62010

Enable Auto Power On



66001

Disable Auto Power On



66010

Enable Auto Power Off



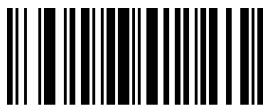
64001

Disable Auto Power Off



64010

Enable Beep Warning



68001

Disable Beep Warning



68010

Enable Power Off Msg



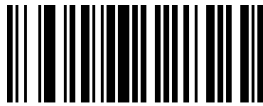
63001

Disable Power Off Msg



63010

BT MAC Address



63100

BT FW Version



63200

Enable Wakeup Nulls



63401

Disable Wakeup Nulls



63410

Confirm To Send Enabled



63501

Confirm To Send Disabled



63510

BT Toggle Enable



6B001

BT Toggle Disable



6B010

C.13 Bluetooth Auto Power On Time (KDC200/250/350)

Auto Power On Time Disabled



Auto Power On Time 1sec



Auto Power On Time 2sec



Auto Power On Time 3sec



Auto Power On Time 4sec



Auto Power On Time 5sec



Auto Power On Time 6sec



Auto Power On Time 7sec



Auto Power On Time 8sec



Auto Power On Time 9sec



Auto Power On Time 10sec



C.14 Bluetooth PWR Off Time (KDC200/250/350)

1min



69001

2min



69002

3min



69003

4min



69004

5min



69005

6min



69006

7min



69007

8min



69008

9min



69009

10min



6900A

11min



6900B

12min



6900C

13min



6900D

14min



6900E

15min



6900F

16min



69010

17min



69011

18min



69012

19min



69013

20min



69014

21min



69015

22min



69016

23min



69017

24min



69018

25min



69019

26min



6901A

27min



6901B

28min



6901C

29min



6901D

30min



6901E

C.15 Auto lock Time (KDC200/250/350)

0 min (Never)



1 min



2 min



3 min



4 min



5 min



10 min



15 min



C.16 HID Keyboard layout (KDC100/200/250/350)

US



German



French



Italian



Spanish



C.17 HID Initial Delay (KDC200/250/350)

Disabled



1 second



2 seconds



3 seconds



5 seconds



10 seconds



C.18 HID Character Delay (KDC200/250/350)

Disabled



H1000

10 msec



H100A

20 msec



H1014

30 msec



H101E

50 msec



H1032

100 msec



H1064

C.19 HID Control Character (KDC200/250/350)

Disabled



H2000

Alt+Numpad



H2001

^+Character



H2002

Replace with '['



H2003

C.20 System (KDC100/200/250/350)

0.5M / 3.5M 1M



/ 3M



2M / 2M 3M



/ 1M



4M / 0M Confirm



Memory size change



Memory Status Reset



Memory



Erase Memory Re



set App data



Reset BT Registry



SPP Sync



Auto Erase Enable



Auto Erase Disable



Date/Time Battery



Version



Button Lock Button



Unlock



Enable Beep Sound Disable



Beep Sound



High Beep Volume Low



Beep Volume



Enable Auto Menu Exit Disable



Auto Menu Exit



MFi Mode Enable



6M001

MFi Mode Disable



6M010

Enable Port Status



58101

Disable

Port Status



58100

Time & Battery



58200

Type

& Time



58201

Type & Battery



58202

Memory

Status



50001

GPS Data (KDC250/350)



58205

Barcode Only



58204

Enable Scrolling



59001

Disable Scrolling



59010

Factory Default



57001

Disable Buttons



A0004

Enter Menu



A0005

C.21 Sleep Timeout (KDC100/200/250/350)

Disable



1sec



2sec



3sec



4sec



5sec



10sec

20sec



30sec



1min



2min



5min



10min



51258

C.22 ETC (KDC100/200/250/350)

Reverse Direction Enable



Return check digit Enable



Verify check digit Enable



Reverse Direction Disable



Return check digit Disable



Verify check digit Disable



C.23 Function (KDC100/200/250/350)

F1



7001

F2



7002

F3



7003

F4



7004

F5



7005

F6



7006

F7



7007

F8



7008

F9



7009

F10



700A

F11



700B

F12



700C

C.24 Number (KDC100/200/250/350)

0



1



2



3



4



5



6



7



8



9



C.25 Lower Case Alphabet (KDC100/200/250/350)

a



b



c



d



e



f



g



h



i



j



k



l



m



716D

n



716E

o



716F

p



7170

q



7171

r



7172

s



7173

t



7174

u



7175

v



7176

w



7177

x



7178

y



7179

z



717A

C.26 Upper Case Alphabet (KDC100/200/250/350)

A



B



C



D



E



F



G



H



I



J



K



L



M



714D

N



714E

O



714F

P



7150

Q



7151

R



7152

S



7153

T



7154

U



7155

V



7156

W



7157

X



7158

Y



7159

Z



715A

C.27 Control Character (KDC100/200/250/350)

BS



7108

TAB



7109

LF



710A

VT



710B

CR



710D

ESC



711B

Space



7120

DEL



717F

C.28 Symbol Character (KDC100/200/250/350)

!



7121

“



7122

#



7123

\$



7124

%



7125

&



7126

‘



7127

(



7128

)



7129

*



712A

+



712B

,



712C

-



712D

.



712E

/



712F

:



713A

;



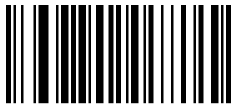
713B

<



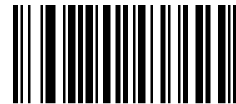
713C

=



713D

>



713E

?



713F

@



7140

[



715B

\



715C

]



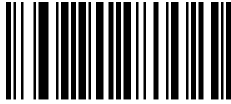
715D

^



715E

-



715F

,



7160

{



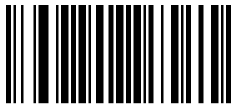
717B

|



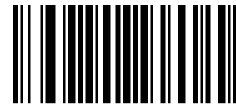
717C

}



717D

~



717E

Start-String



7201

Stop-String



7210

Note:

- *You can compose a string up to 16 characters.*
- *A string would be composed by scanning the “Start-String”, number/alphabet/special characters, and “Stop-String” special barcodes.*
- *The KDC will abort string composition if you do not scan “Stop-String” in one minute after scanning “Start-String” and number/alphabet/special characters.*

C.29 GPS (KDC250/350)

GPS Power Enabled



G0001

GPS Power Disabled



G0010

GPS Bypass Data Enabled



G1001

GPS Bypass Data Disabled



G1010

Reset GPS Module



G2000

GPS Acquire Test



G2001

GPS Power Save Mode(Normal)



G2002

GPS Power Save Mode(Power Saving)



G2003

GPS Auto Power Off Enabled



G3001

GPS Auto Power Off Disabled



G3010

C.30 Auto Power Off Timeout (KDC250/350)

0 min (Disabled)



5 min



10 min



20 min



30 min



60 min



120 min



Display Format = GPS Data



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