IEI Integration Corp.

MODEL:

ITDB-100L

2D Barcode Reader

RoHS Compliant

User Manual

Rev. 1.02 – 22 April, 2014

RoHS Lead Free

Revision

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22 April, 2014	1.02	Updated Chapter 5 for the latest setup tool version
13 March, 2014	1.01	Updated for the latest hardware, specifications and application version Added Chapter 6: Configuring the ITDB-100L via an Android Device
25 July, 2013	1.00	Initial release

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: ITDB-100L

The ITDB-100L barcode reader is able to provide high-speed decoding and robust decoding for common distortion, which is suitable for industrial purpose such as the high-speed production line. In addition, the ITDB-100L comes with a PC setup tool for configuring the barcode reader and reading barcodes.

1.2 Features

The ITDB-100L features are listed below:

- Image display: Capture/Preview
- Trigger modes: One shot/Serial shot/Batch/Presentation
- CMOS sensor configuration:
  - Automatic/Manual Exposure
  - Gain
- Image format: RAW/BMP/JPEG
- Region of interest setting
- Firmware upgradable via USB/Ethernet
- Other configurations: Target Brightness/Illumination/Decode Timeout/Decode Interval
- Supports remote monitoring and control via Android phone and tablet
- RoHS compliant

1.3 External Overview

1.3.1 Front Panel

The ITDB-100L front panel contains:

- 2 x Illumination LEDs
- 1 x Lens

An overview of the front panel is shown in **Figure 1-2**.

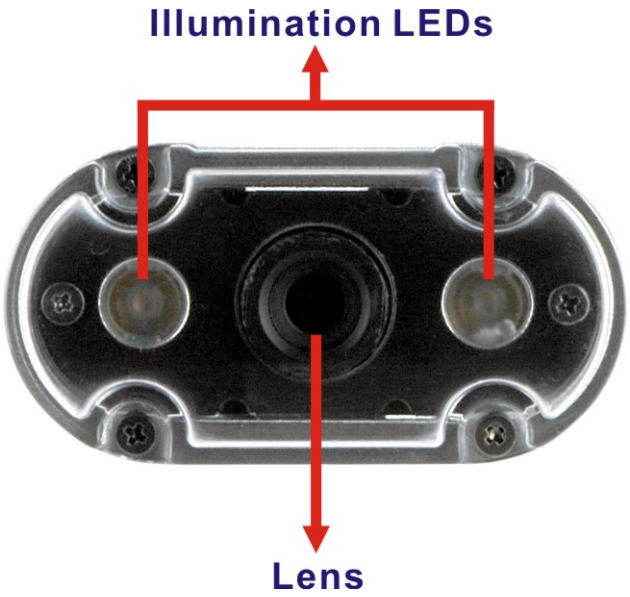


Figure 1-2: ITDB-100L Front Panel

1.3.2 Rear Panel

The ITDB-100L rear panel contains:

- 1 x 6-pin connector for trigger connection
- 1 x DC in jack
- 1 x Ethernet connector
- 1 x Micro USB port
- 1 x Power indicator
- 1 x Trigger and tuning control button

An overview of the rear panel is shown in **Figure 1-3** below.

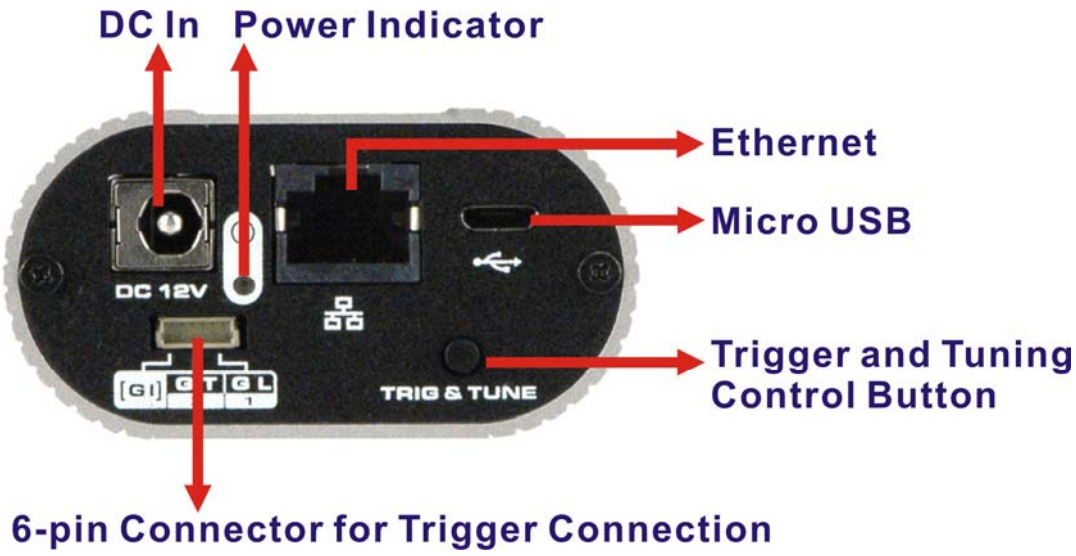


Figure 1-3: ITDB-100L Rear Panel

1.3.3 Bottom Surface

The bottom surface of the ITDB-100L contains four retention screw holes for the mounting bracket.

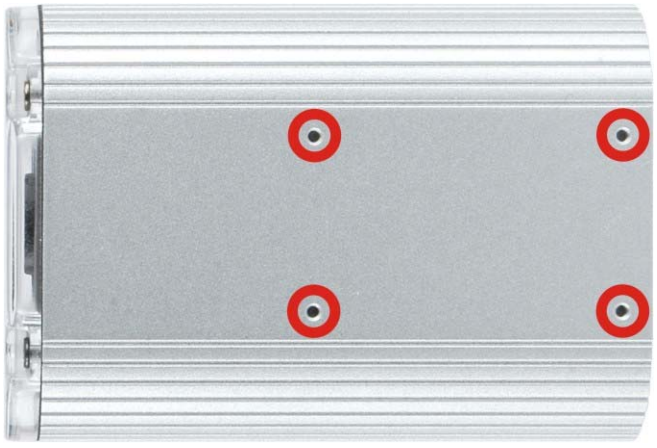


Figure 1-4: ITDB-100L Bottom Surface

1.4 Technical Specifications

The ITDB-100L technical specifications are listed in **Table 1-1**.

Specifications	
Supported 1D Symbologies	Code 39, code 93, interleaved 2 of 5, UPC/EAN (ISBN, UPCA, UPCE, EAN13, EAN8), EAN 128, code 128, MSI, codabar
Supported 2D Symbologies	PDF-417, Micro PDF-417, QR Code/microQR Code, Data Matrix
Sensor Major Specifications	Sensor: 1/3 inch CMOS with global shutter Resolution: 752 x 480 Acquisition: Max. rate 60fps
Lens Major Specifications	Focus: Fixed Code resolution: ≥0.33 mm Reading distance (at code resolution): 50 mm ~ 330 mm
Illumination Element (nm)	2 x Red LEDs Visible red light (λ = 650 nm ~ 660 nm)
I/O Interfaces	1 x Micro USB port (USB 2.0 data transmission rate: 480 Mbit/s) 1 x Ethernet port (Ethernet data transmission rate: 10/100 Mbit/s) 1 x DC in jack (Φ2.5/Φ5.5) 1 x 6-pin connector for trigger connection 1 x Trigger and tuning control button 1 x Power indicator Acoustic indicators: Beeper
Operating Limits of the 6-pin Connector for Trigger Connection	**Output of LED Flash Trigger** Current: 8mA Voltage: 3.3VDC **Input of Interrupt Trigger** Current: 1.4mA@5VDC, 4mA@12VDC, 6.2mA@18VDC Recommended operating voltage: 5VDC ~ 18VDC Absolute voltage limits: 4.5VDC ~ 24VDC

Specifications	
Power Supply	Operating voltage: 12V/3.3A Power consumption: Power on = 7.7 W Max. PD = 9.9 W
Supported OS	Microsoft® Windows® XP 32-bit & 64-bit Microsoft® Windows® Vista™ 32-bit & 64-bit Microsoft® Windows® 7 32-bit & 64-bit
Mechanical Specifications	Housing: Die-casting aluminum Housing color: Silver Front cover: Transparent plastic Weight: 290 g (without mounting bracket) Dimensions (LxWxH): 89.8 mm x 62 mm x 32 mm
Shock Resistance	EN 60068-2-27 (2009-05)
Vibration	MIL-STD-810F 514.5C-1 and IEC-60068-2-06
Environment	RoHS compliant Operating temperature: 0°C ~ 50°C Storage temperature: -10°C ~ 60°C Permissible relative humidity: 90% (non-condensing) Ambient light safety: 2,000 lx, on code

Table 1-1: Technical Specifications

1.5 Dimensions

1.5.1 ITDB-100L Dimensions

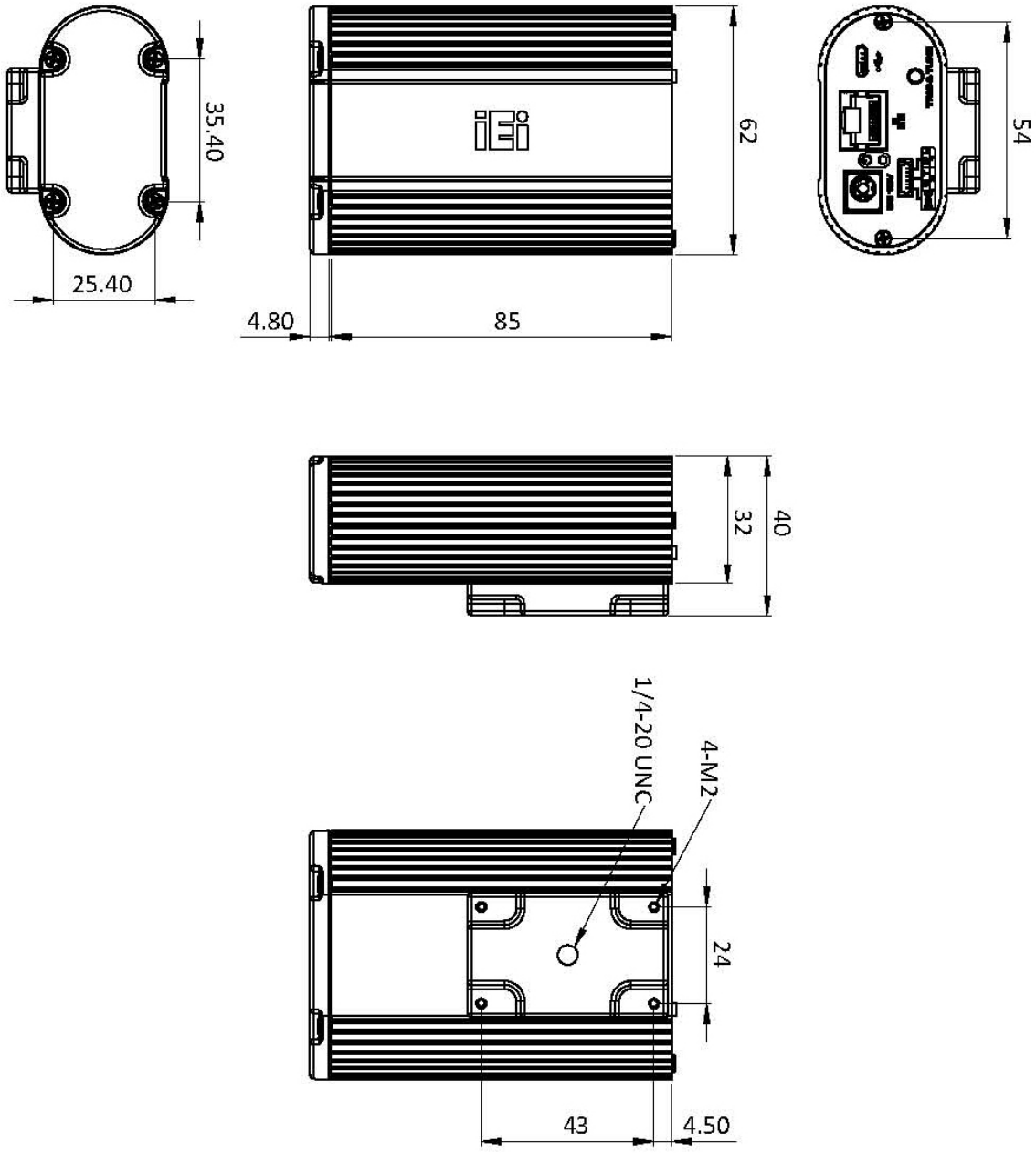


Figure 1-5: ITDB-100L Dimensions (millimeters)

1.5.2 Mounting Bracket Dimensions

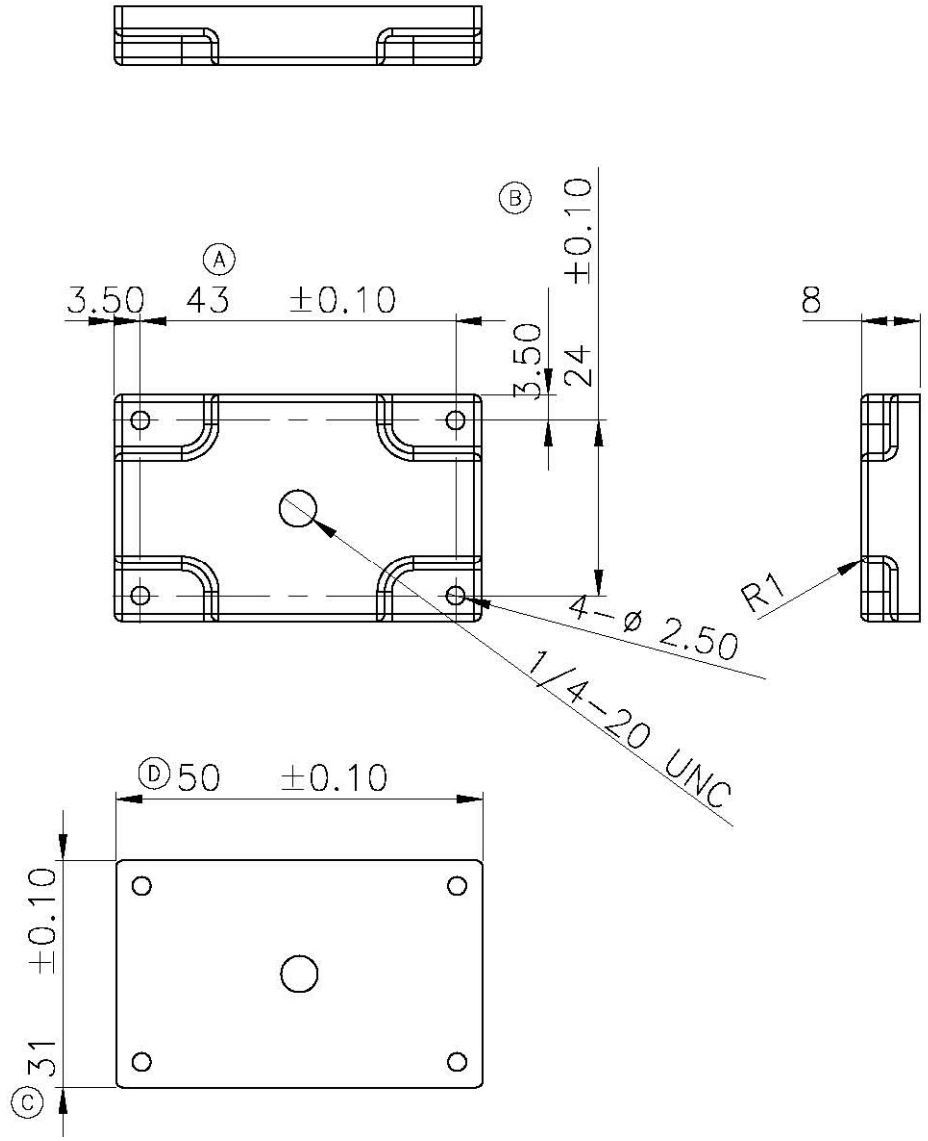


Figure 1-6: Mounting Bracket Dimensions (millimeters)

1.6 ITDB-100L Function Compatibility Guideline

Function	USB Connection (via API)	LAN Connection* (via API)	USB Keyboard Wedge (HID)	Transfer to Database	Built-in Web Management
USB Connection (via API)		O	X	O	X
LAN Connection* (via API)	O		X	O	X
USB Keyboard Wedge (HID)	X	X		X	X
Transfer to Database	O	O	X		X
Built-in Web Management	X	X	X	X	

O: Compatible X: Incompatible

* LAN connection interface includes the PC setup tool, Android app or QNAP NAS app. The users can only choose one to connect to the ITDB-100L.

Chapter

2

Unpacking

2.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the ITDB-100L and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the ITDB-100L. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ITDB-100L or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the ITDB-100L, place it on an antic-static pad. This reduces the possibility of ESD damaging the ITDB-100L.

2.2 Unpacking Precautions

When the ITDB-100L is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the ITDB-100L does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

2.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the ITDB-100L from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The ITDB-100L is shipped with the following components:

Quantity	Item	Image
Standard		
1	ITDB-100L	
1	Power adapter (**P/N**: 63000-FSP040DGAA1106-RS)	
1	Power cord (US) (**P/N**: 32701-000700-100-RS)	
1	Power cord (EU) (**P/N**: 32702-000200-100-RS)	
1	Micro USB cable (**P/N**: 32001-008501-100-RS)	
1	Ethernet cable (**P/N**: 32000-113100-RS)	

Quantity	Item	Image
Standard		
1	Mounting bracket (**P/N**: 42110-0172C0-00-RS-N)	
4	Mounting bracket screw (**P/N**: 44045-020061-RS)	
1	Trigger connection cable	
1	User manual and utility CD	

Chapter

3

Installation

3.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the ITDB-100L, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the ITDB-100L must be disconnected during the installation process. Failing to disconnect the power may cause severe injury to the body and/or damage to the system.
- **Qualified Personnel**: The ITDB-100L must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.

3.2 Mounting the ITDB-100L

The ITDB-100L is shipped with a mounting bracket that allows the ITDB-100L to be mounted onto an object with corresponding mounting screw, such as a tripod. To mount the ITDB-100L onto an object using the mounting bracket, please follow the steps below.

Step 1: Attach the mounting bracket to the bottom panel of the ITDB-100L. Secure the bracket to the ITDB-100L with the four supplied retention screws. See **Figure 3-1**.

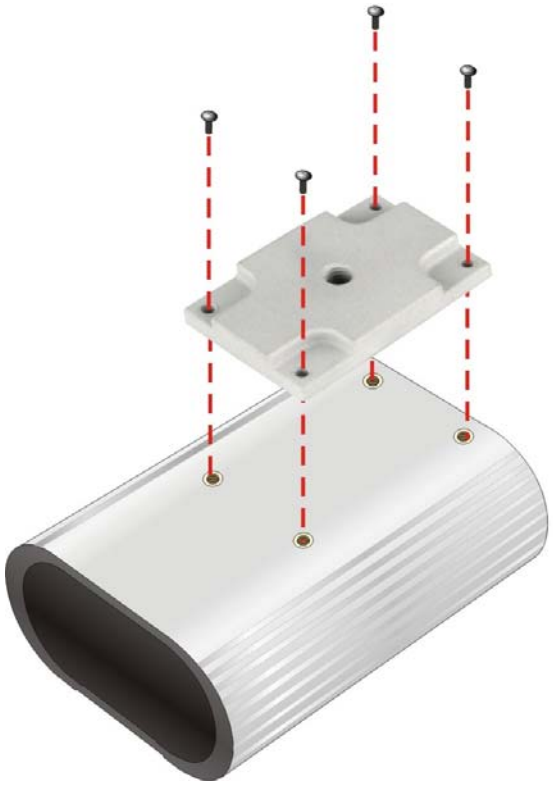


Figure 3-1: Securing the Mounting Bracket to the ITDB-100L

Step 2: Mount the ITDB-100L to an object with corresponding mounting screw, for example, a tripod. Align the threaded hole on the mounting bracket with the mounting screw, place the ITDB-100L over the object, and then spin the ITDB-100L until it is secure to the object (**Figure 3-2**).

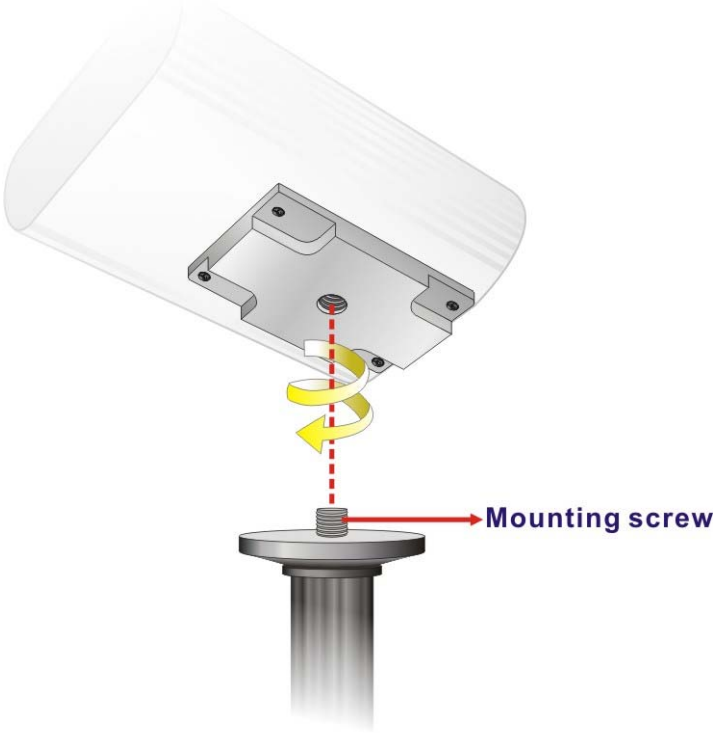


Figure 3-2: Mounting the ITDB-100L

Step 3: To avoid reflection and glare from the scanned object and label surfaces, it is recommended to mount the barcode reader at a 15º angle from vertical to the scanned object (**Figure 3-3**).

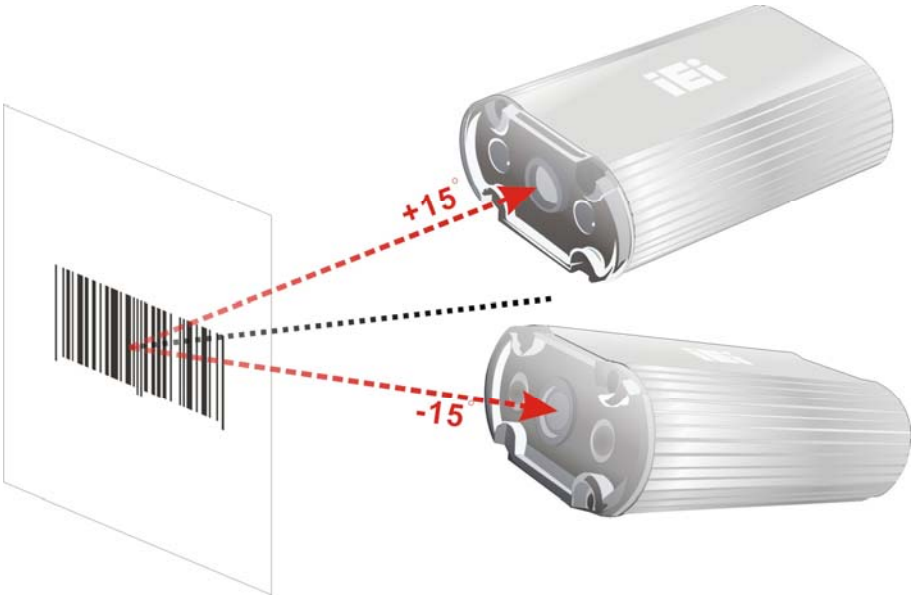


Figure 3-3: Adjusting the ITDB-100L

3.3 External Peripheral Interface Connectors

The ITDB-100L has the following connectors. Detailed descriptions of the connectors can be found in the subsections below.

- 6-pin connector for trigger connection
- Ethernet
- Micro USB
- Power input

3.3.1 6-Pin Connector for Trigger Connection

The 6-pin connector on the rear panel allows connection to an external trigger device or a sensor. The user can use the supplied trigger connection cable to connect the ITDB-100L to an external device.

Step 1: **Locate the 6-pin connector**. The location of the 6-pin connector is shown in **Figure 1-3**.

Step 2: **Align the connectors**. Align the 6-pin plug on the trigger connection cable with the 6-pin connector on the ITDB-100L. See **Figure 3-4**.

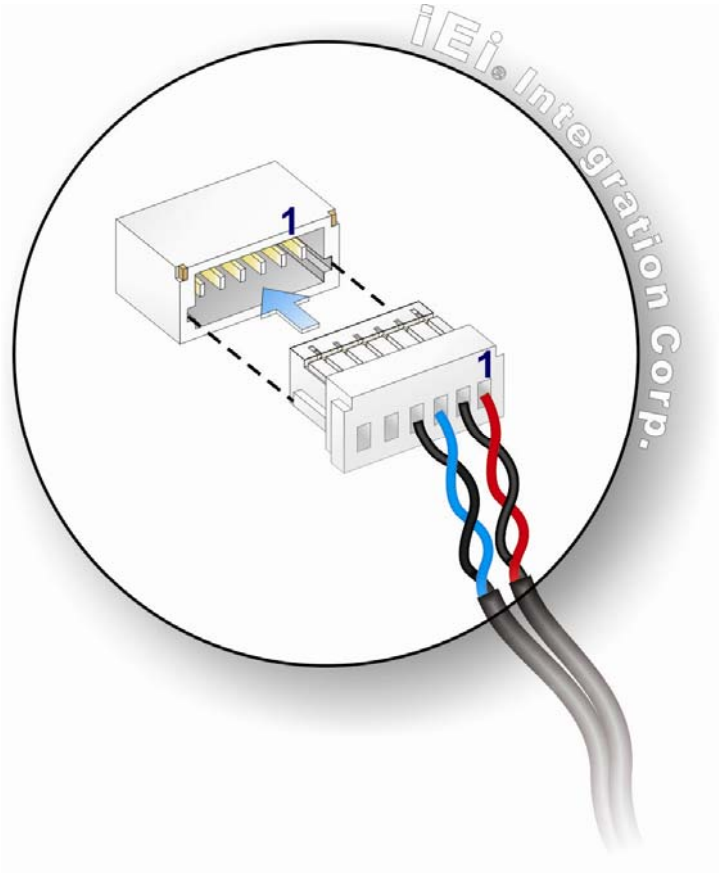


Figure 3-4: Trigger Connection

Step 3: **Insert the trigger connection cable 6-pin plug**. Once aligned, gently insert the trigger connection cable 6-pin plug into the 6-pin connector on the ITDB-100L.

Step 4: Connect the other end of the trigger connection cable to an external device.

The pinouts of the 6-pin connector are shown below:

Pin	Color	Signal
1	Red	Output of LED Flash Trigger
2	Black	Ground for the Output of LED Flash Trigger
3	Blue	Input of Interrupt Trigger
4	Black	Ground for the Input of Interrupt Trigger

Pin	Color	Signal
5		N/A (Reserved)
6		N/A (Reserved)

Table 3-1: Connector Pinouts

3.3.1.1 Digital Output Wiring

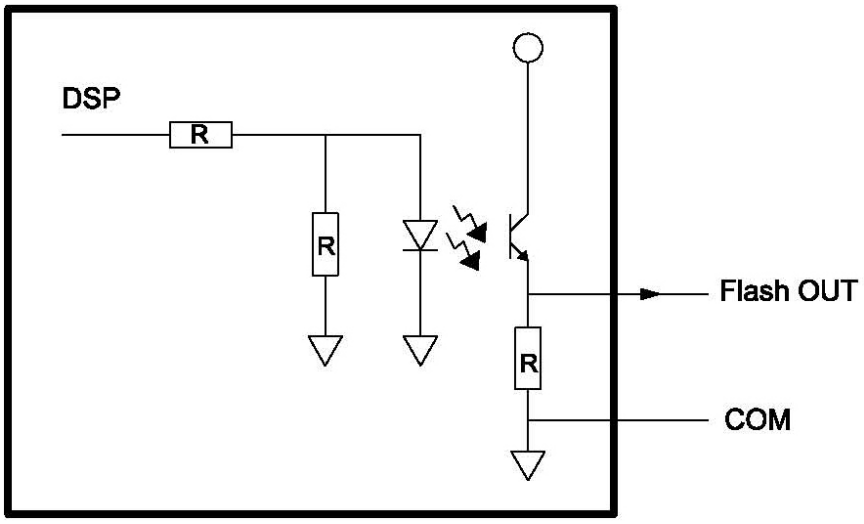


Figure 3-5: Digital Output Wiring

3.3.1.2 Digital Input Wiring

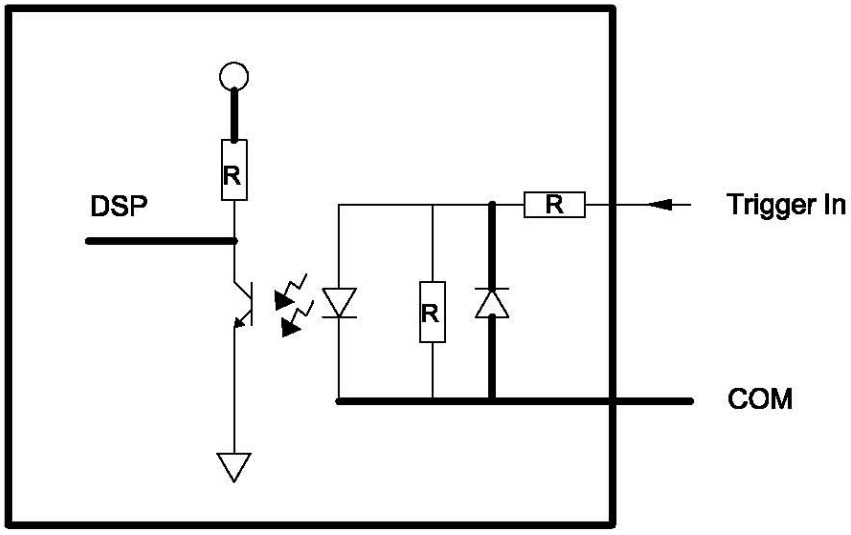


Figure 3-6: Digital Input Wiring

3.3.1.3 Digital Input and Output Connection

The below figure demonstrates a possible way of digital input and output connection.

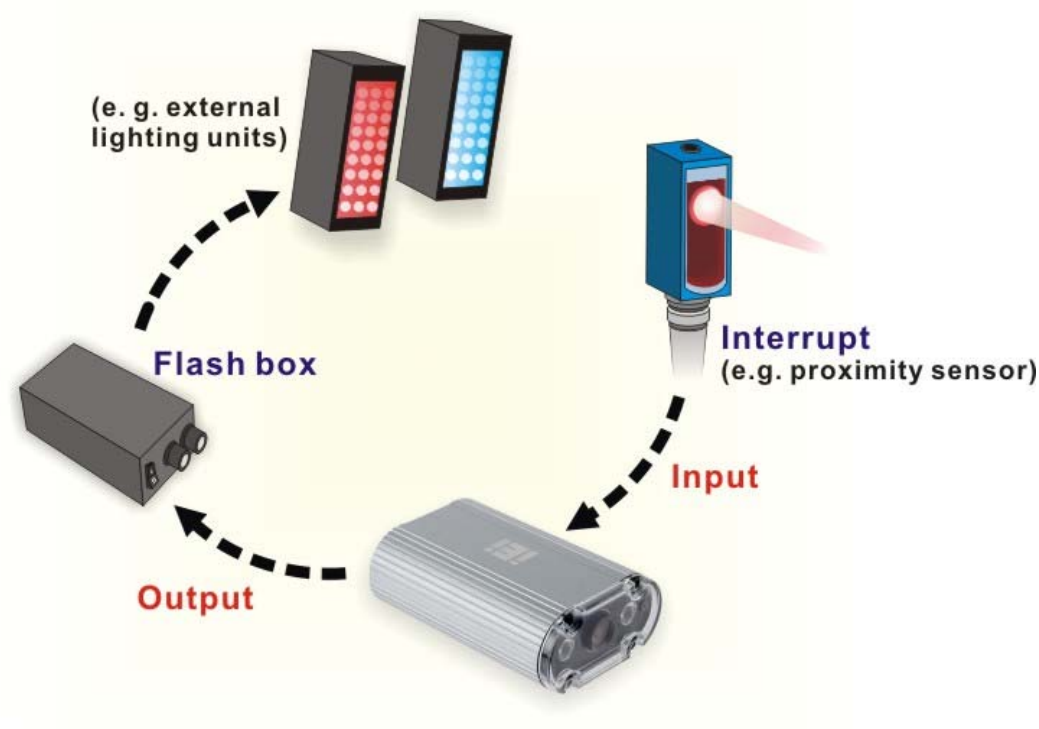


Figure 3-7: Digital Input and Output Connection

3.3.2 Ethernet Connector

The ITDB-100L is equipped with an Ethernet connector that allows connection to a computer/network hub. Follow the steps below to connect the ITDB-100L to a computer/network hub by using the supplied Ethernet cable.

Step 1: **Locate the Ethernet connector**. The location of the Ethernet connector is shown in **Figure 1-3**.

Step 2: **Align the connectors**. Align the Ethernet connector on the LAN cable with the Ethernet connector on the ITDB-100L. See **Figure 3-8**.

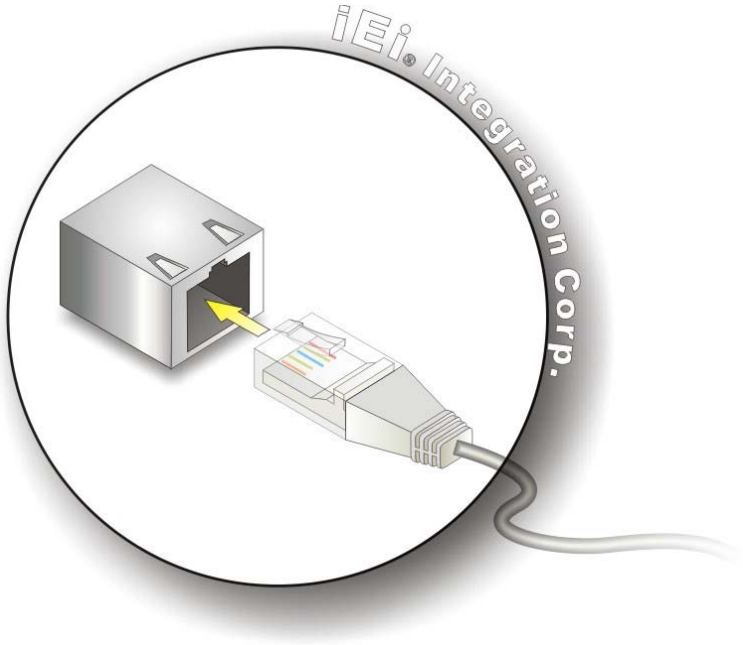


Figure 3-8: Ethernet Connection

Step 3: **Insert the LAN cable Ethernet connector**. Once aligned, gently insert the LAN cable Ethernet connector into the Ethernet connector on the ITDB-100L.

Step 4: Connect the other end of the Ethernet cable to the Ethernet connector of a computer/network hub.

3.3.2.1 Network Connection

The below figure demonstrates a possible way of network connection.

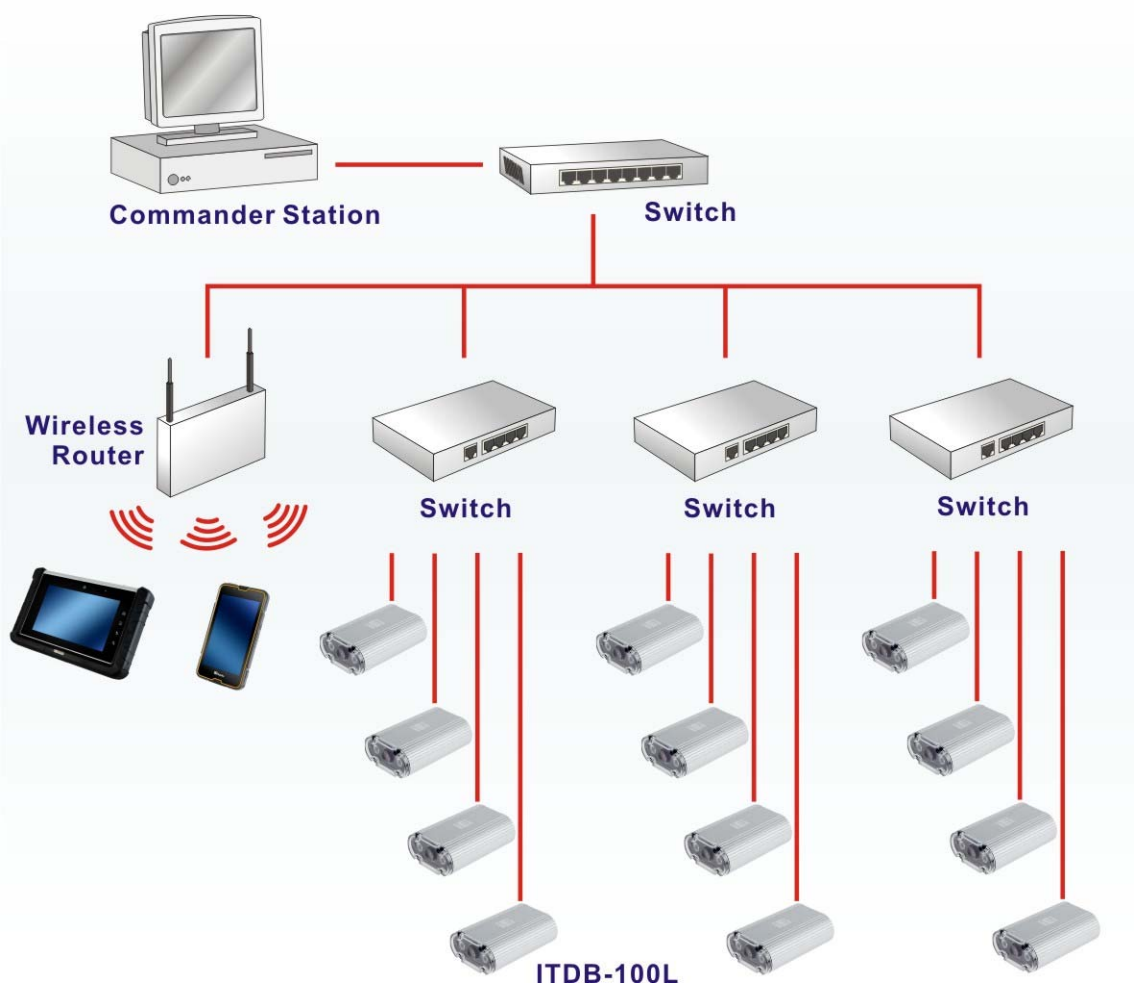


Figure 3-9: Network Connection

3.3.3 Micro USB Connector

The ITDB-100L is equipped with a Micro USB connector that allows connection to a computer. Follow the steps below to connect the ITDB-100L to a computer by using the supplied Micro USB cable.

Step 1: **Locate the Micro USB connector**. The location of the Micro USB connector is shown in **Figure 1-3**.

Step 2: **Align the Micro USB connectors**. Align the Micro USB connector on the Micro USB cable with the Micro USB connector on the ITDB-100L. See **Figure 3-10**.

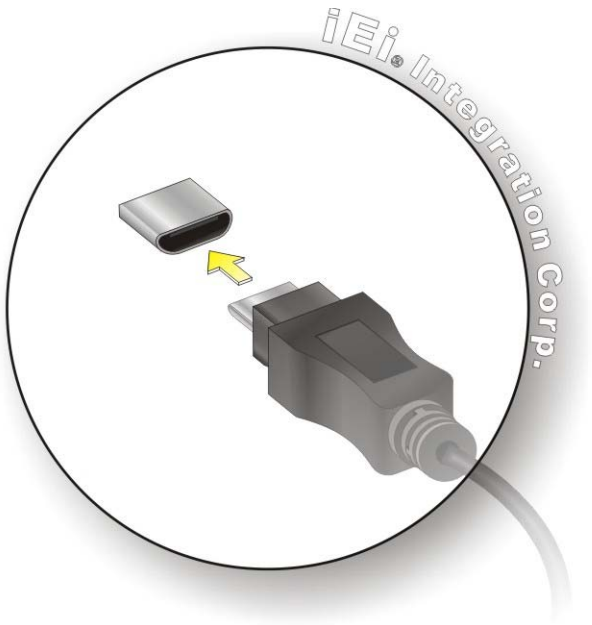


Figure 3-10: Micro USB Connection

Step 3: **Insert the Micro USB cable Micro USB connector**. Once aligned, gently insert the Micro USB cable Micro USB connector into the Micro USB connector on the ITDB-100L.

Step 4: Connect the other end (USB Standard Type A) of the Micro USB cable to the USB Type A receptacle of a computer. See **Figure 3-11**.

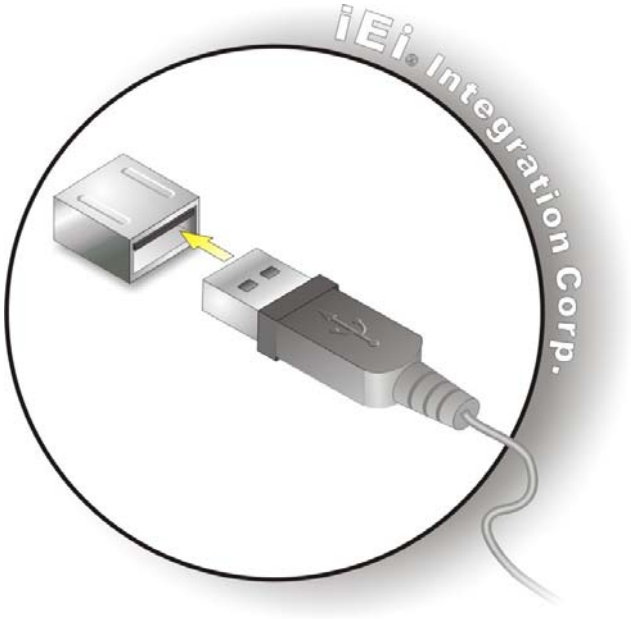


Figure 3-11: USB Standard Type A Connection

3.3.3.1 USB Keyboard Wedge

After connecting the ITDB-100L to the USB port of a computer, the ITDB-100L will be recognized by the computer as a second keyboard. When the ITDB-100L scans a barcode without any API opened, the barcode data goes into the computer just as if it were being typed on a keyboard.

3.3.4 Power Input Connector

Step 1: Locate the power input connector. The location of the power input connector is shown in **Figure 1-3**.

Step 2: Connect the supplied power adapter to the power input connector of the ITDB-100L.

Step 3: Connect the power adapter to a power source by using the supplied power cord.

Step 4: A beep should be generated, indicating that the ITDB-100L is fed with power.

3.4 Reading Distance and Field of View

The following figure provides the supported reading distances and field of view for the ITDB-100L.

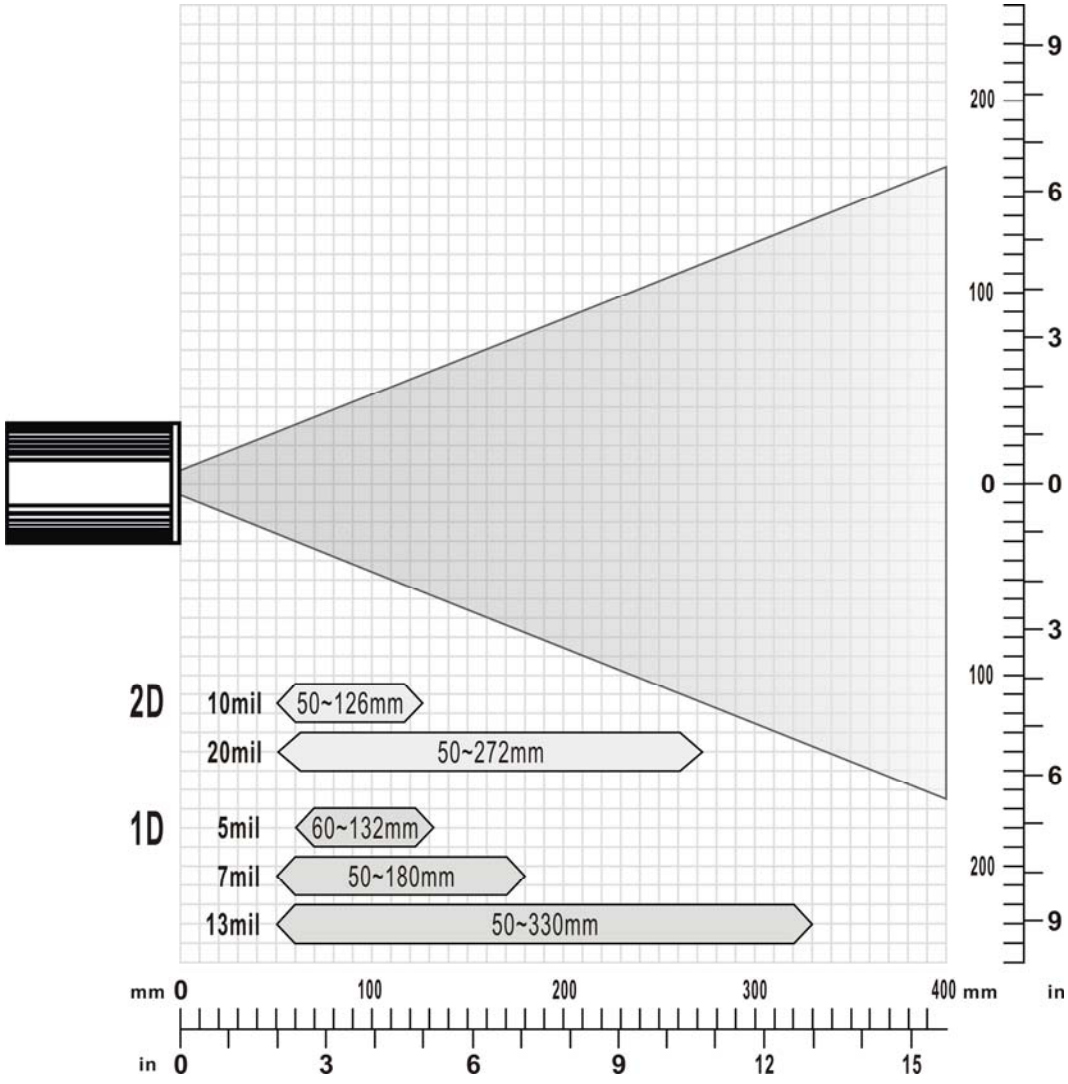


Figure 3-12: Reading Distance and Field of View

Chapter

4

Driver and PC Setup Tool Installation

4.1 Overview

A CD is shipped with the barcode reader. The CD contains the device driver and application setup file. The driver must be installed to the connected computer so that the barcode reader can be recognized by the system.

4.2 Driver Installation

To install the device driver, please follow the steps below.

Step 1: Connect the ITDB-100L to the computer and power supply. A beep should be generated when the ITDB-100L is fed with power.

Step 2: Go to **Control Panel** > **System** > **Hardware** > **Device Manager**. A list of system hardware devices appears.

Step 3: Right-click **ITDB-100L FW(x.xx)** which has question mark next to it (this means Windows does not recognize the device).

Step 4: Select **Update Driver…** (**Figure 4-1**).

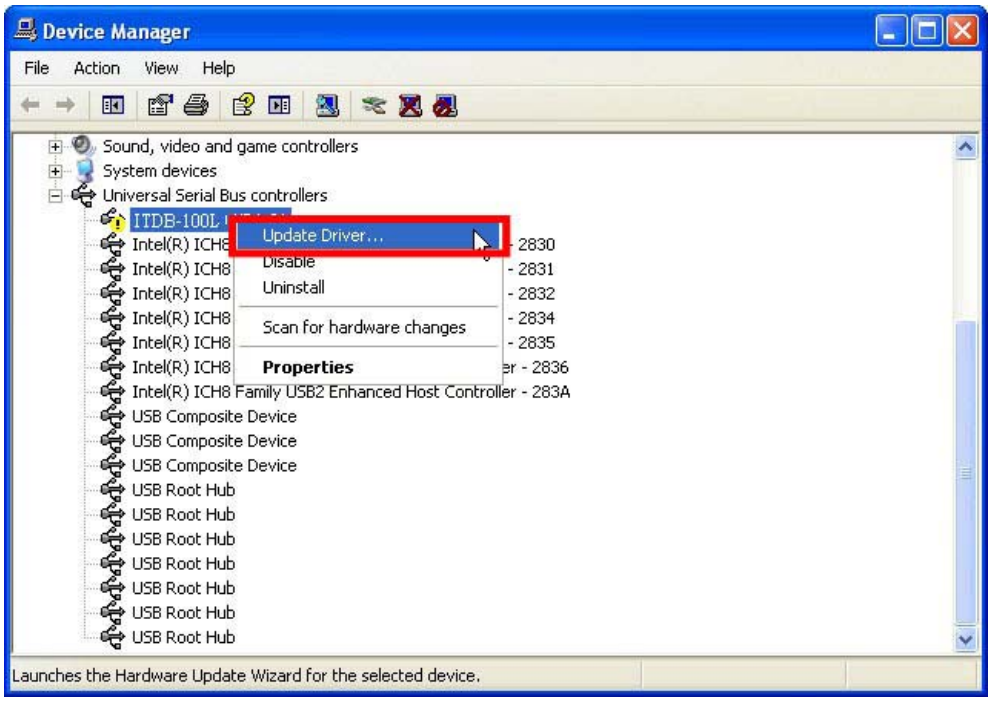


Figure 4-1: Device Manager

Step 5: The Found New Hardware Wizard appears (**Figure 4-2**). Select **No, not this time**, then click **Next** to continue.

Figure 4-2: Found New Hardware Wizard

Step 6: Select **Install from a list or specific location**, then click **Next** to continue. (**Figure 4-3**).

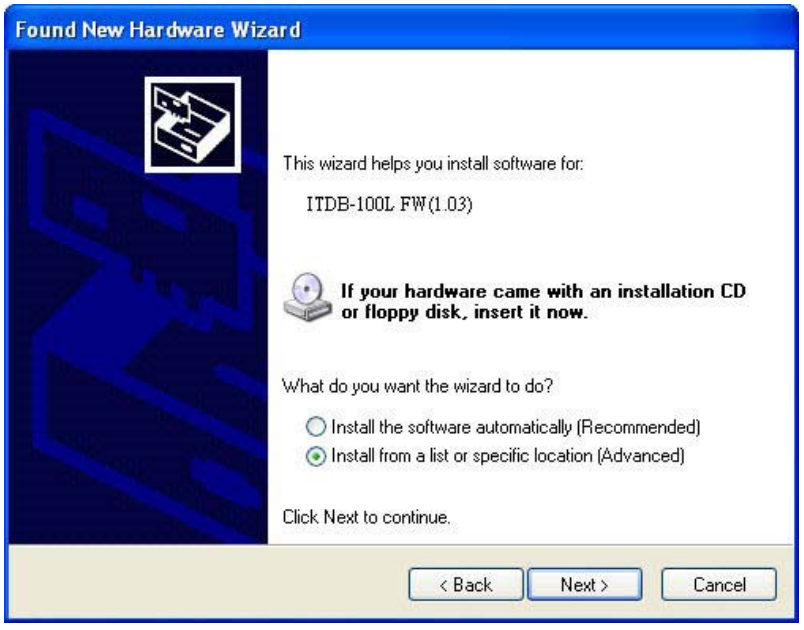


Figure 4-3: Install from Specific Location

Step 7: Insert the driver CD into an optical disk drive connected to the system.

Step 8: Select **Include this location in the search** (**Figure 4-4**).

Step 9: Click **Browse** to select "**X:**" directory in the **Locate File** window, where "**X:\"** is the system CD drive.

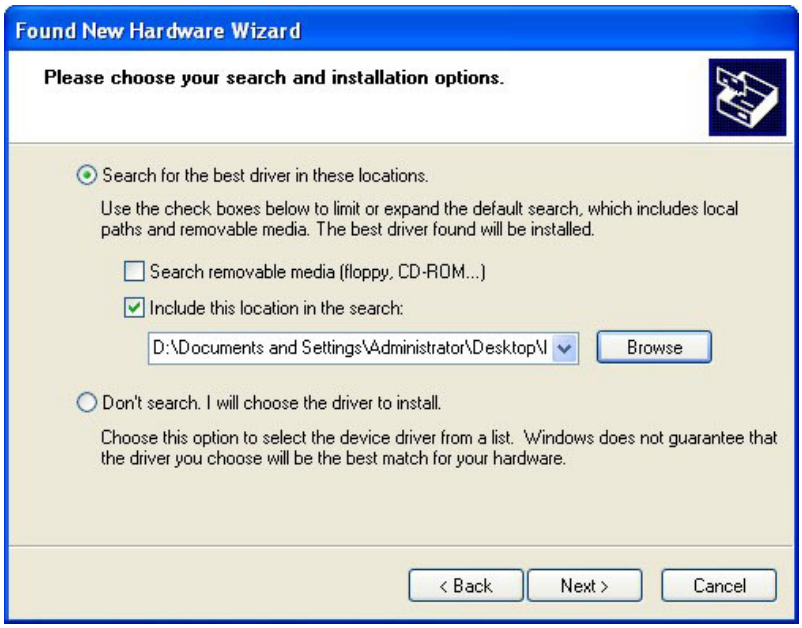


Figure 4-4: Locate Driver Files

Step 10: Click **Next** to continue.

Step 11: Driver Installation is performed as shown in **Figure 4-5**.

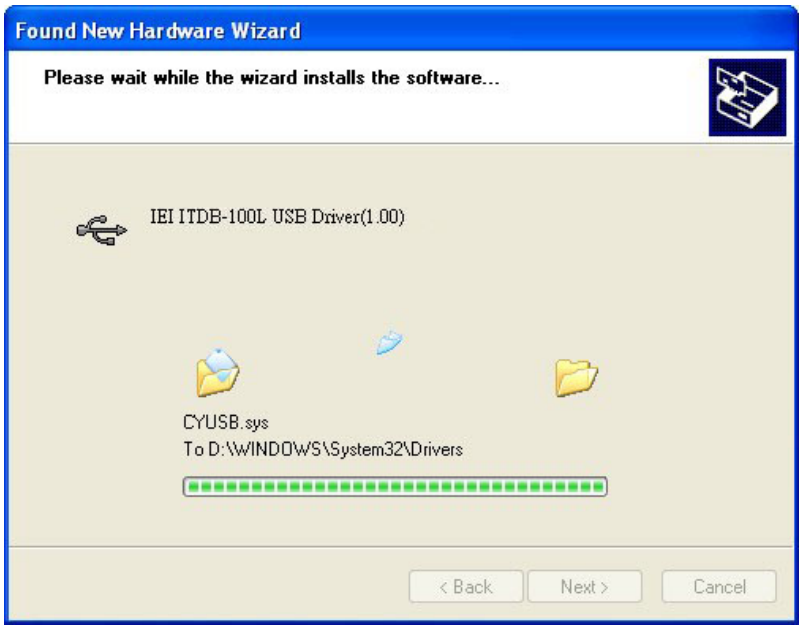


Figure 4-5: Driver Installation

Step 12: When the driver installation is completed, the following window appears. Click **Finish** to exit.

Figure 4-6: Driver Installation Complete

4.3 Setup Tool Installation

To install the barcode reader setup tool, please follow the steps below.

NOTE:

The setup tool supports the following OS versions:

- Microsoft® Windows® XP 32-bit and 64-bit
- Microsoft® Windows® Vista™ 32-bit and 64-bit
- Microsoft® Windows® 7 32-bit and 64-bit

Step 1: Ensure that the ITDB-100L is connected to the computer and power supply. If the barcode reader cannot be recognized by the computer, install the device driver. Refer to **Section 4.2** for details.

Step 2: Insert the driver CD.

Step 3: Locate the **ITDB Barcode Verifier** file in the driver CD. Double click the setup file to start the installation.

Step 4: The InstallShield Wizard welcome window appears. Click **Next** to start.

Figure 4-7: InstallShield Wizard

Step 5: Select a folder for application installation (**Figure 4-8**). Click **Next** to continue.

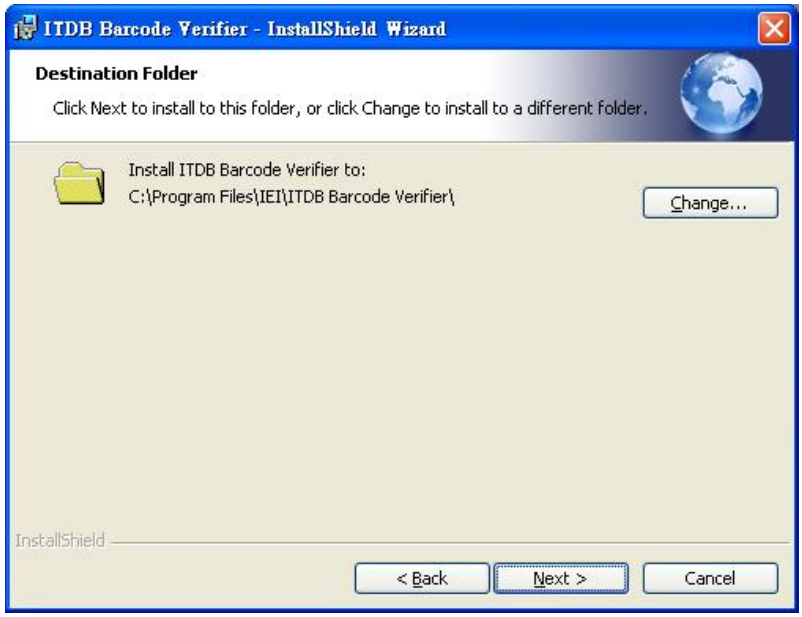


Figure 4-8: Select Installation Folder

Step 6: The following screen appears. Click **Install** to start the installation.

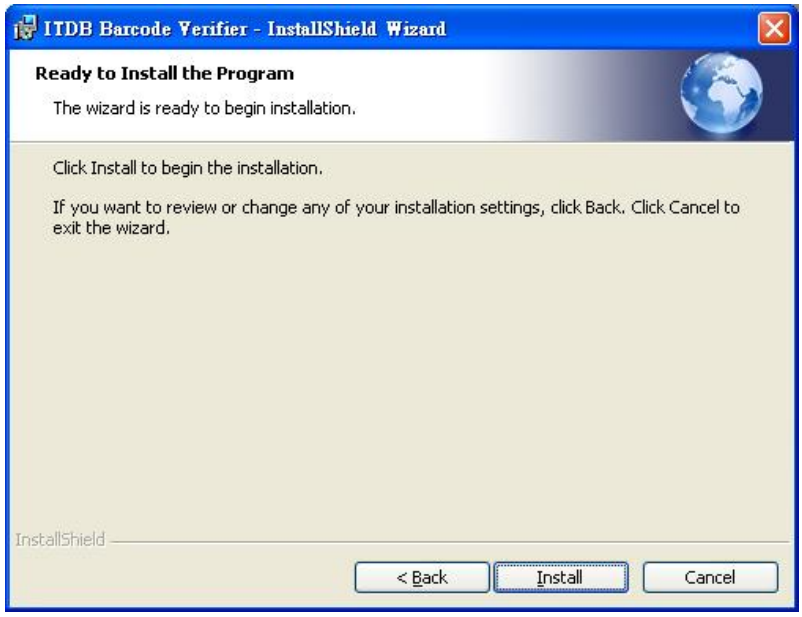


Figure 4-9: Ready for Installation

Step 7: The system starts installing the application.

Step 8: When the application installation is completed, the following window appears.

Click **Finish** to exit.

Figure 4-10: Installation Complete

Chapter

5

Barcode Reader Setup Tool

5.1 Overview

The barcode reader setup tool allows configuration of the ITDB-100L via a computer. Refer to the following sections for detailed information.

NOTE:

The setup tool supports the OS versions listed below:

- Microsoft® Windows® XP 32-bit & 64-bit
- Microsoft® Windows® Vista™ 32-bit & 64-bit
- Microsoft® Windows® 7 32-bit & 64-bit

5.2 Launching the Setup Tool

Step 1: Ensure that the ITDB-100L is connected to the computer and power supply. A beep should be generated when the ITDB-100L is fed with power.

Step 2: If the setup tool is installed to the connected computer, an **ITDB Barcode Verifier** (**Figure 5-1**) icon should appear on the Windows desktop. Double click the icon to launch the barcode reader setup tool.

Figure 5-1: Setup Tool Icon

5.3 Initial Screen

After double-clicking the **ITDB Barcode Verifier** icon on the Windows desktop, the initial screen of the setup tool appears (**Figure 5-2**). Click **Sync Settings & Decode Now** to enter the SETTING menu. When using the setup tool for the first time, refer to Section **5.4**.

Figure 5-2: Initial Screen

5.4 Initial Setting

Step 1: When using the setup tool for the first time, click **Initial Setting** in the initial screen (**Figure 5-2**).

Step 2: The system detects the available connection type (**Figure 5-3**).

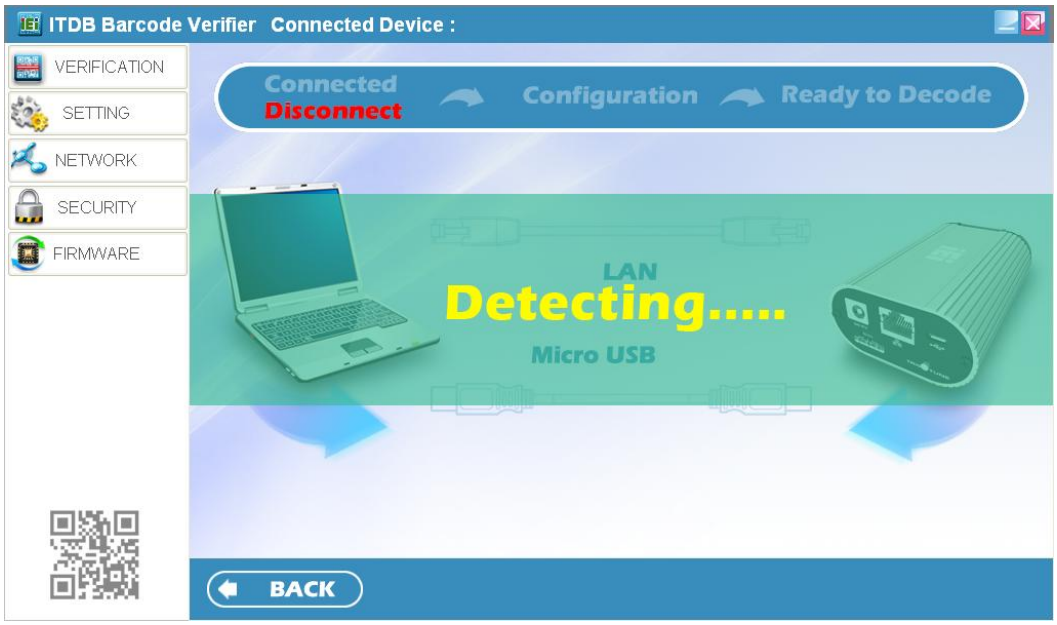


Figure 5-3: Detecting the Available Connection Type

Step 3: Click **LAN** or **Micro USB** depending on the connection type to the computer (**Figure 5-4**). A confirmation dialog screen should appear. Click **OK** to confirm the selection.

Figure 5-4: Connection Type Selection

Step 4: When the connection is complete, two beeps should be generated, and the connection status field displays **Connected** as shown in **Figure 5-5**.

Figure 5-5: Connection Status

Step 5: In the Configuration page (**Figure 5-5**), click **Manual Setup** to enter the **SETTING** menu to configure the barcode reader settings manually.

For automatic setup, refer to **Section 5.5** for details.

5.5 Automatic Setup

The user may select automatic setup to allow the ITDB-100L to adjust to the optimal settings for decoding an image successfully. Follow the steps below to use the automatic setup.

Step 1: Click **Auto Setup** in the **Configuration** page (**Figure 5-6**).

Figure 5-6: Auto Setup

Step 2: Automatic setup is performed as shown in **Figure 5-7**.

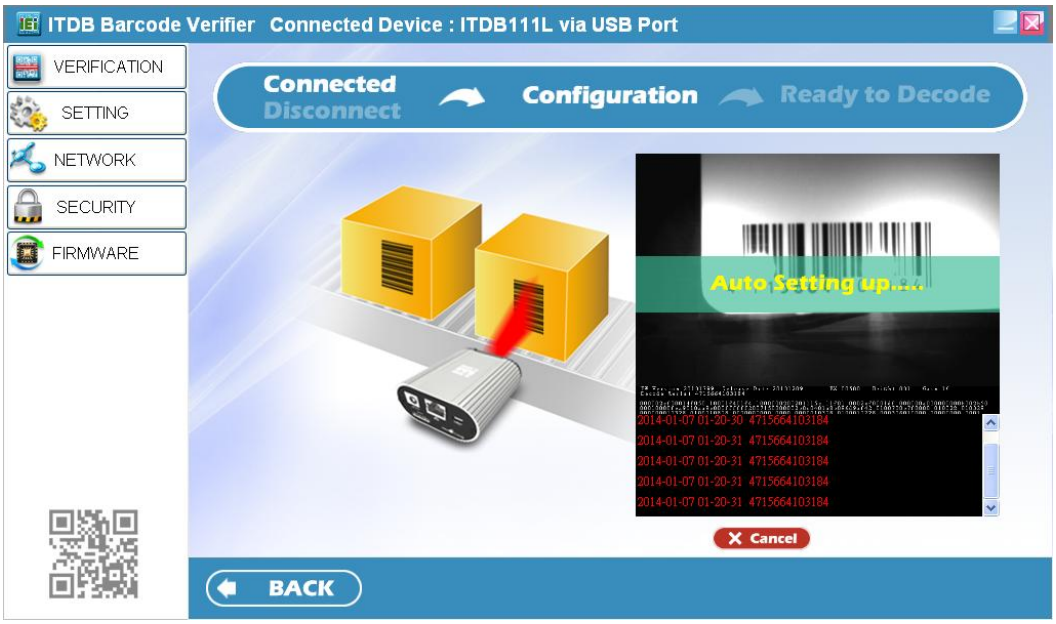


Figure 5-7: Automatic Setup

Step 3: When the setup is complete, the screen in **Figure 5-8** appears. Click **NEXT** to enter the VERIFICATION menu.

If automatic setup is failed, click **Retry** to start automatic setup again.

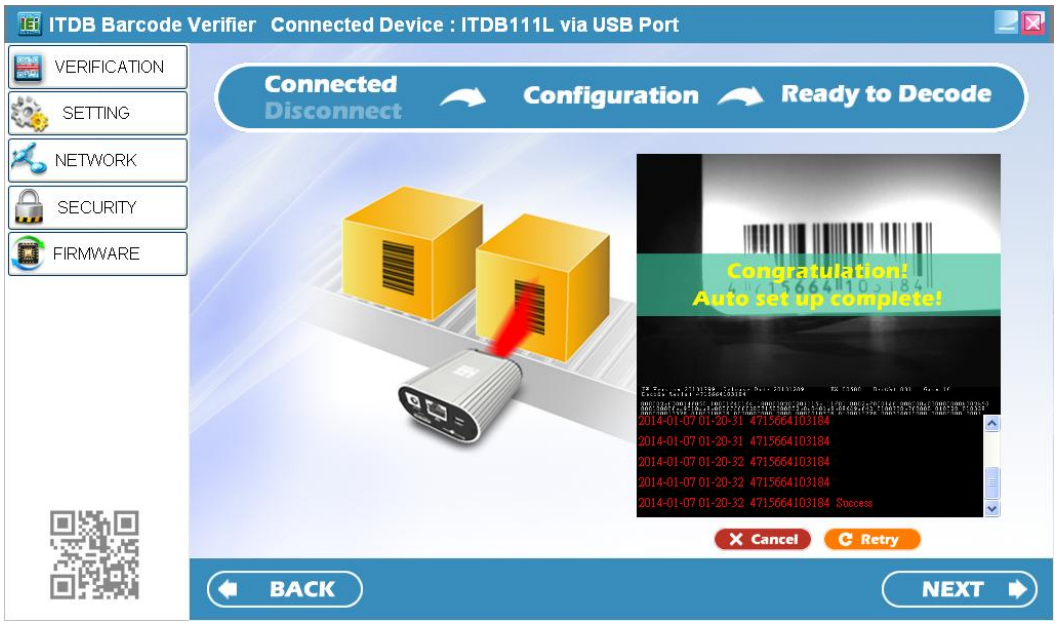


Figure 5-8: Setup Complete

5.6 Verification Menu

In the VERIFICATION menu, the user can set up the trigger behavior, scanned result format and region of interest, load scanned images, and set a barcode image to training mode.

Figure 5-9: Verification

- **Trigger mode**:
  The user can set the trigger behavior as **One Shot**, **Serial Shot**, **Batch** or **Presentation**. When setting to **Serial Shot**, the ITDB-100L scan images continuously until an image is decoded successfully.
- **Decode result format**:
  The user can set the scanned result format as **Image & Decode**, **Image** or **Decode**.
- **Trigger button**:
  The user can click the button to trigger the ITDB-100L.

5.6.1 Region of Interest

The Region of Interest (ROI) item allows setting the scan area of the barcode reader. Follow the steps below to use the ROI function.

Step 1: Click the check box to enable the ROI function (**Figure 5-10**).

Step 2: Draw a frame to select the desired scan area (**Figure 5-10**).

Figure 5-10: Setting the Region of Interest

Step 3: To lock the ROI setting, right-click the screen, and then select **Lock** (**Figure 5-11**). The frame turns into green, indicating that the ROI setting is locked.

The user can select **Full Screen** to set the ROI to full screen mode.

Figure 5-11: Locking the ROI Setting

5.6.2 Training Mode

The user can set a scanned barcode as a sample image so that the barcode reader decodes only the same barcode type and size. Follow the steps below to set a barcode image to training mode.

Step 1: Click the **Train Code** item (**Figure 5-12**) to start the training mode function. The user can also press and hold the trigger and tuning control button for four seconds to start the function. Refer to **Figure 1-3** for the location of the button.

NOTE:

The **Train Code** item can also be found in the **SETTING** and **Symbology Setting** menus

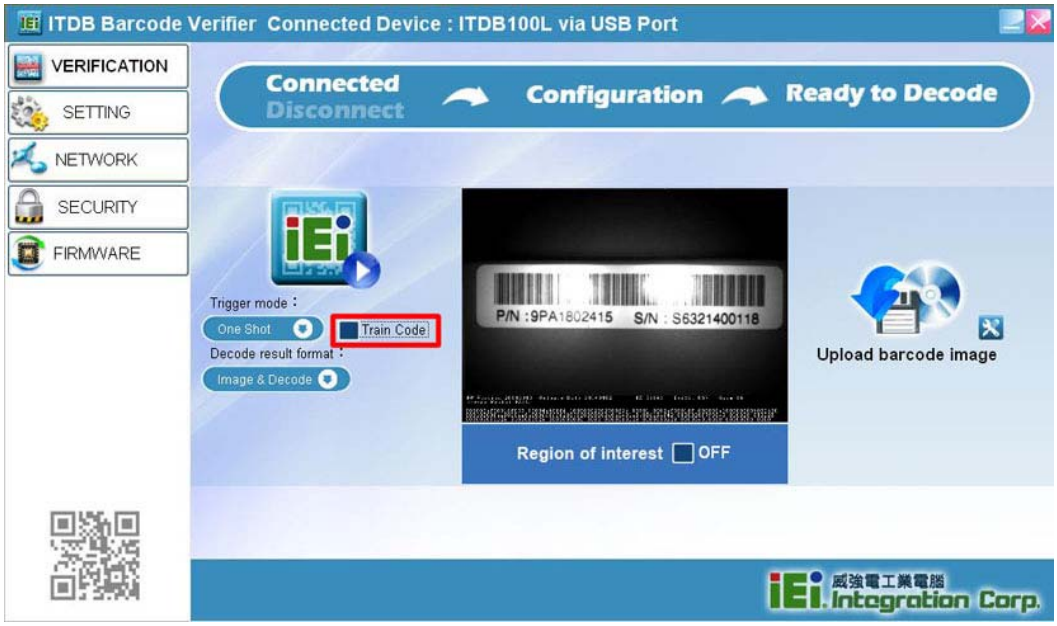


Figure 5-12: Train Code Item

Step 2: Four beeps are being generated, the illumination LEDs start to flash and the screen in **Figure 5-13** appears, indicating that the training mode timer is started.

Figure 5-13: Training Mode Timer is Started

Step 3: The user has to click the **Click And Train** button (**Figure 5-13**) to trigger the ITDB-100L within twelve seconds after the timer is started.

The user can also trigger the ITDB-100L by pressing the trigger and tuning control button once or even through an external sensor.

Step 4: When a barcode is set as a sample image successfully, two beeps should be generated and the **Train Code** item displays ☑.

If the barcode training is failed, four beeps will be generated.

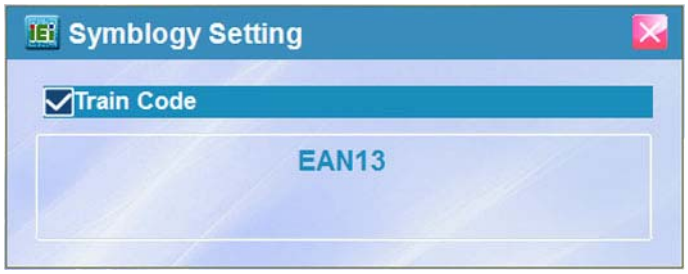


Figure 5-14: Trained Mode

Step 5: To disable the training mode, click the **Train Code** item or press and hold the trigger and tuning control button for four seconds.

5.6.3 Loading Saved Images

The user can load the saved images to view their detailed information. When a scanned barcode is being saved, it should be stored to the **Save Image** folder located at the same folder where the setup tool has been installed.

- **To load an image**:
  To load an image at once, click the icon indicated in **Figure 5-15**, and then select the image to upload to the setup tool.

Figure 5-15: Loading an Image

- **To load all the images of a folder or selected images**:
  To load all the images of a folder or selected images, click the icon indicated in **Figure 5-16**, and then select to load images by folder or by selection.

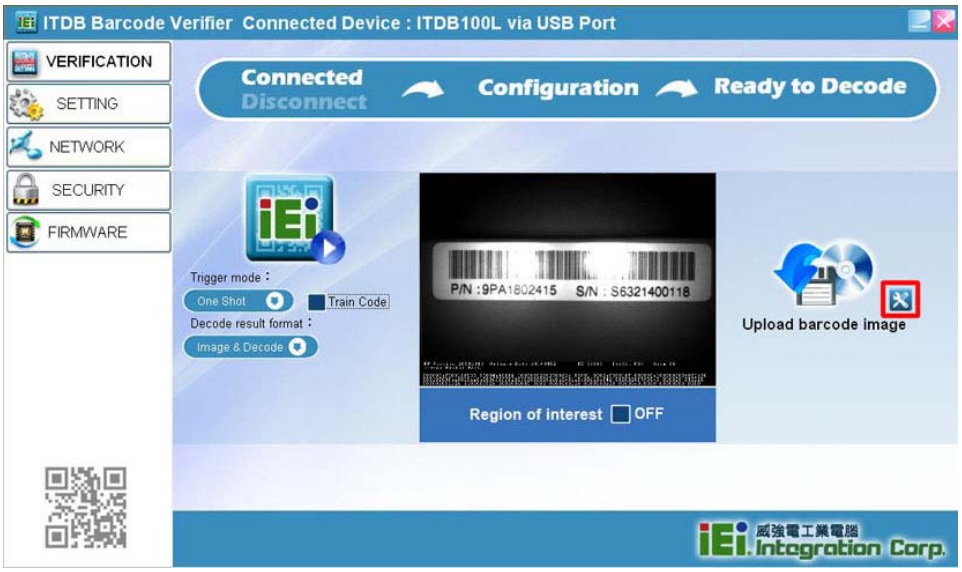


Figure 5-16: Loading Images

5.7 Settings Menu

Click **SETTING** to display the Settings menu (**Figure 5-17**). In this menu, the user can configure detailed settings for the barcode reader.

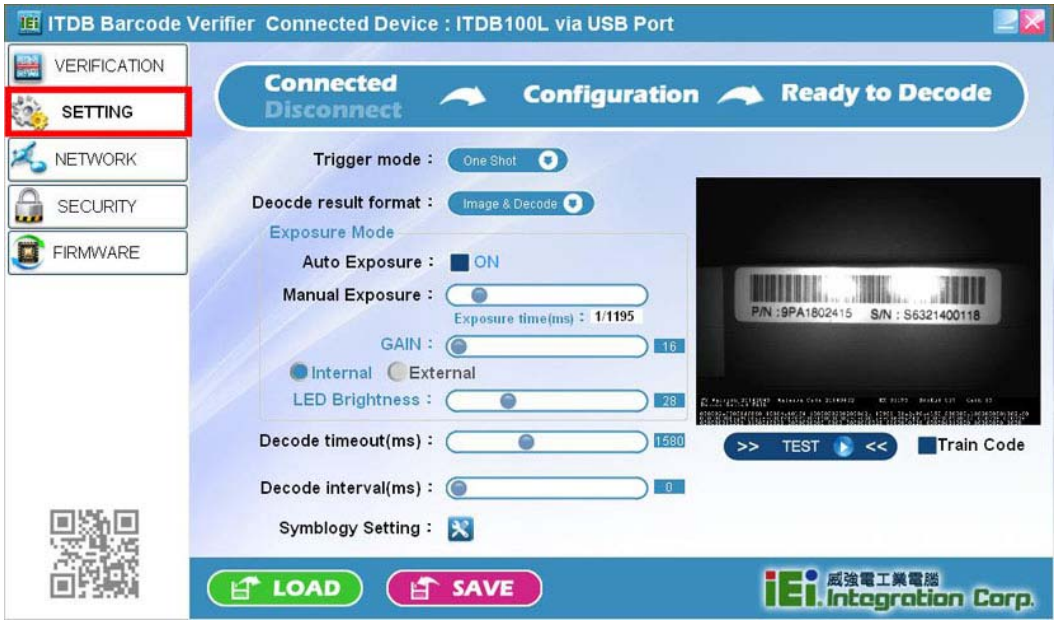


Figure 5-17: Settings

- **Trigger mode**:
  The user can set the trigger behavior as **One Shot**, **Serial Shot**, **Batch** or **Presentation**. When setting to **Serial Shot**, the ITDB-100L scans images continuously until an image is decoded successfully.
- **Decode result format**:
  The user can set the scanned result format as **Image & Decode**, **Image** or **Decode**.
- **Auto Exposure**:
  Check the **ON** box to let the device adjust the exposure value automatically.

NOTE:

When the **Auto Exposure** function is turned on, the **Manual Exposure**, **GAIN** and **LED Brightness** items will not be available to set up.

- **Manual Exposure**:
  Move the slide bar or enter the value to set the exposure time.
- **GAIN**:
  Move the slide bar or enter the value to adjust the gain setting.
- **LED Brightness**:
  Move the slide bar or enter the value to adjust the LED brightness.
- **Decode timeout(ms)**:
  Move the slide bar or enter the value to adjust the decode time-out setting.
- **Decode interval(ms)**:
  Move the slide bar or enter the value to adjust the decode interval setting.
- **Train Code**:
  Refer to **Section 5.6.2** for details.
- **TEST button**:
  Click the **TEST** button to scan a barcode by using the current settings
- **SAVE button**:
  Click the SAVE button to save the current settings as a setting file.
- **LOAD button**:
  Click the LOAD button to load a saved setting file to the ITDB-100L.
- **Symbology Setting**:
  Click the icon to bring up the Symbology Setting menu (**Figure 5-18**) which allows the user to select the supported barcode types and train a barcode image. When a barcode is being trained, the user cannot select the supported barcode types. For using the training mode, refer to **Section 5.6.2** for details.

NOTE:

The user can click the icon located in front of a barcode to configure its properties.

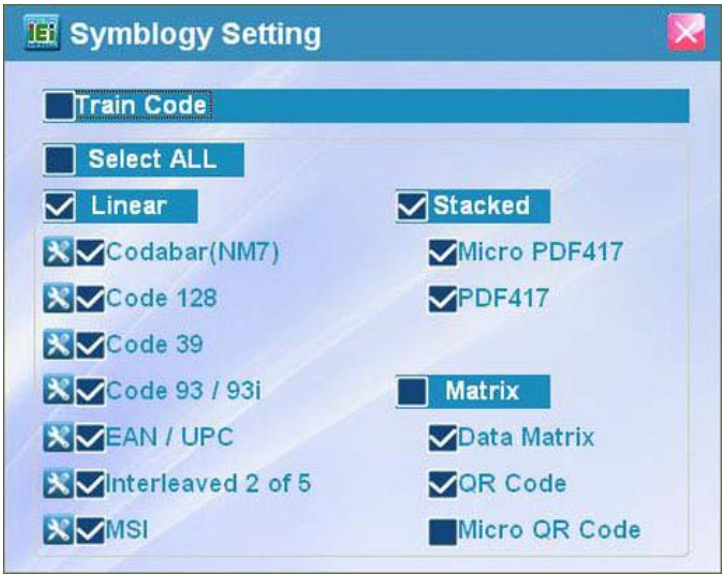


Figure 5-18: Symbology Settings

5.8 Network Menu

Click **NETWORK** on the left pane of the setup tool to bring up the Network Setting menu (**Figure 5-19**). In this menu, the user can configure network settings and set up a device name for the barcode reader.

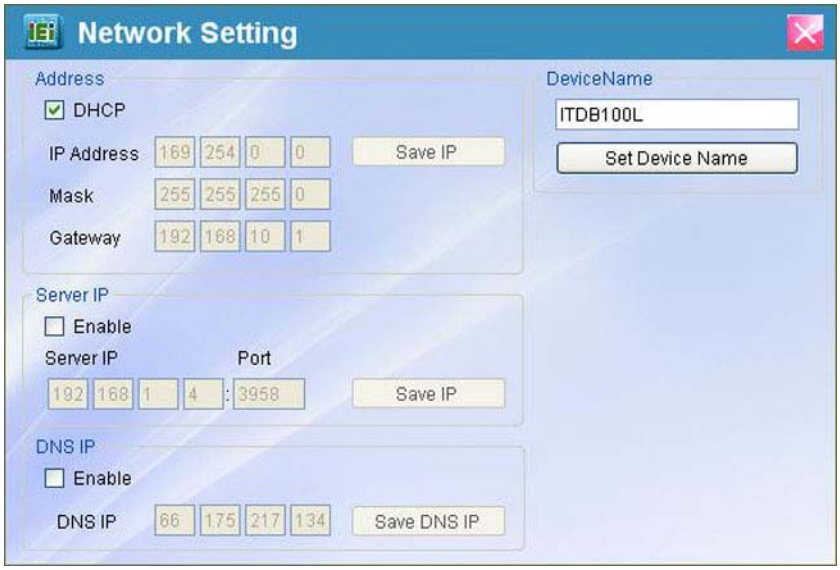


Figure 5-19: Network Setting

- **Address**:
  Click **DHCP** to enable the DHCP function or set up the IP address, mask and gateway manually.
- **Server IP**:
  Click **Enable**, enter the server IP, and then click **Save IP** to save the keyed-in server IP.
- **DNS IP**:
  Click **Enable**, enter the DNS IP, and then click **Save DNS IP** to save the keyed-in DNS IP.
- **Device Name**:
  Enter a name and click **Set Device Name** to set up a device name for the barcode reader.

5.9 Security Menu

Click **SECURITY** on the left pane of the setup tool to bring up the Change Password menu (**Figure 5-20**). In this menu, the user can set up a 1- to 4-digit number (0~9999) as the password for the ITDB-100L. When a password is set, the user has to enter the password before connecting to the barcode reader.

NOTE:

The default password is **1234**. When setting to 1234, the user does not have to enter the password before connecting to the barcode reader.

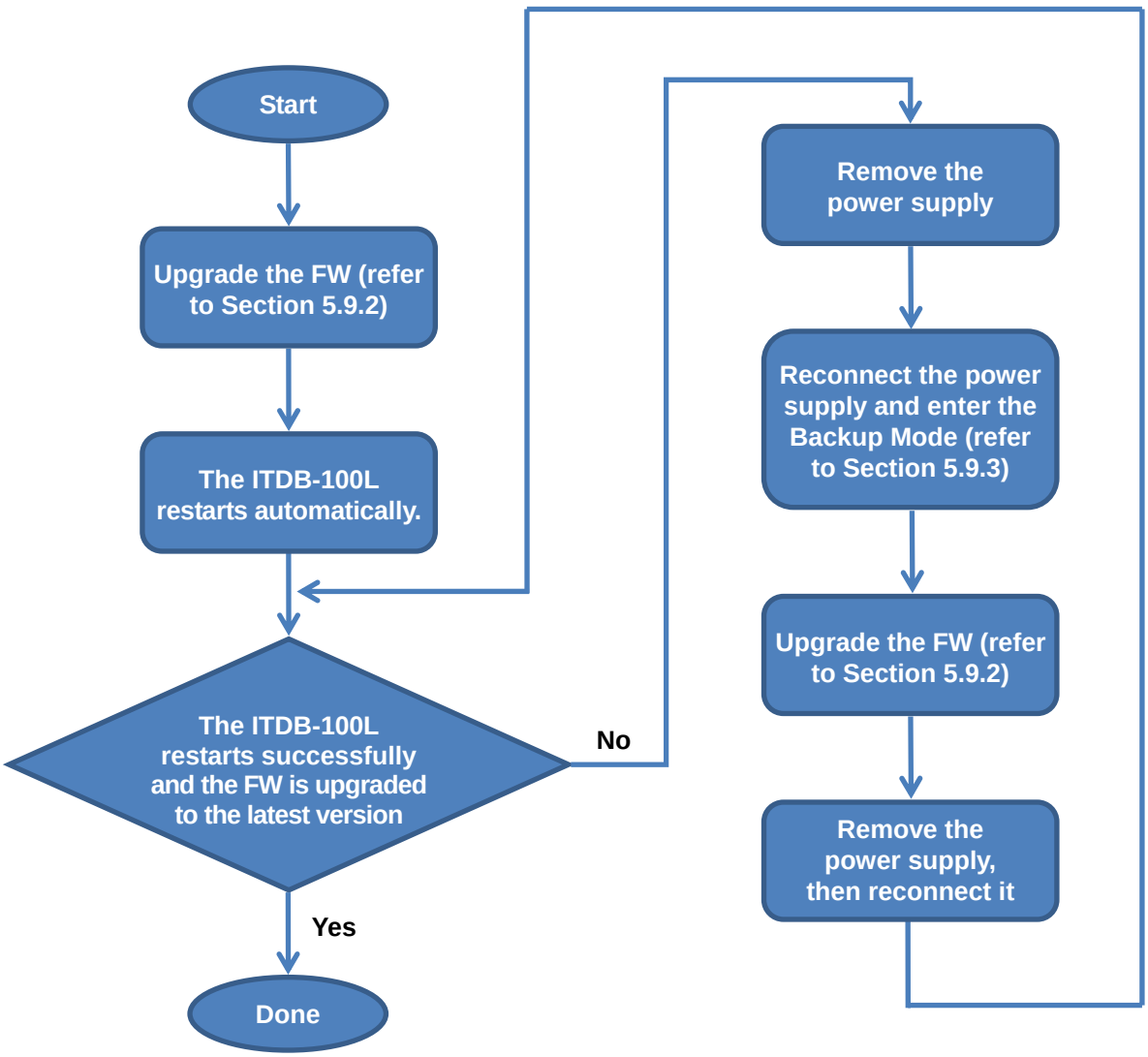
If the user forgets the password, it is necessary to enter the Backup Mode to reset the password. Refer to **Section 5.10.3** on how to enter and exit the backup mode.

Figure 5-20: Change Password

5.10 FW Upgrade and Backup Mode

This section covers how to upgrade the device FW and enter the backup mode when the FW upgrade is failed or the ITDB-100L is failed to restart.

5.10.1 FW Upgrade Flow Chart



5.10.2 Upgrading the FW

Follow the steps below to upgrade the FW.

Step 1: Click **FIRMWARE** on the left pane of the setup tool to bring up the Firmware Upgrade menu (**Figure 5-21**).

The user can check the current firmware version from the menu.

Step 2: Click **Path** to locate the firmware file.

Step 3: Click **Upgrade F/W** to start updating the firmware.

Figure 5-21: FW Upgrade

Step 4: When the FW upgrade is complete, the ITDB-100L restarts automatically.

Step 5: If the FW upgrade is failed or the ITDB-100L is failed to reboot, the user needs to put the ITDB-100L into the backup mode and upgrade the device FW in the backup mode. Refer to **Section 5.10.3** on how to enter and exit the backup mode.

5.10.3 Backup Mode

When the FW upgrade is failed or the ITDB-100L is failed to reboot, the ITDB-100L needs to enter the backup mode and upgrade the FW in the backup mode. Follow the steps below to enter and exit the backup mode.

Step 1: Before the ITDB-100L is connected to the power supply, press and hold the trigger and tuning control button. Refer to **Figure 1-3** for the location of the button.

Step 2: Connect the ITDB-100L to the power supply. When a beep is generated from the ITDB-100L, release the trigger and tuning control button. The ITDB-100L is in backup mode now.

Refer to S**ection 5.10.2** on how to upgrade the device FW.

Step 3: To exit the backup mode, remove the power supply, and then reconnect it to the ITDB-100L.

Chapter

6

Configuring the ITDB-100L via an Android Device

6.1 Overview

The barcode reader settings can be configured by an Android device. Refer to the following sections for detailed information.

NOTE:

The screenshots in this chapter may vary by different Android devices and are for reference purposes only.

6.2 Installing and Launching the Android App

NOTE:

It is recommended to install the app to the Android OS 4.1.2 and above.

To install and launch the Android app, please follow the steps below.

Step 1: Download the **ITDB Barcode Reader QuickSet** app from Google Play and install it to the Android device.

or

Scan the QR code (**Figure 6-1**) with the Android device to go to Google Play and download the **ITDB Barcode Reader QuickSet** app for installing.

Figure 6-1: QR Code

Step 2: When the app is installed, the **BarCode Reader** icon will be shown on the application page (**Figure 6-2**).

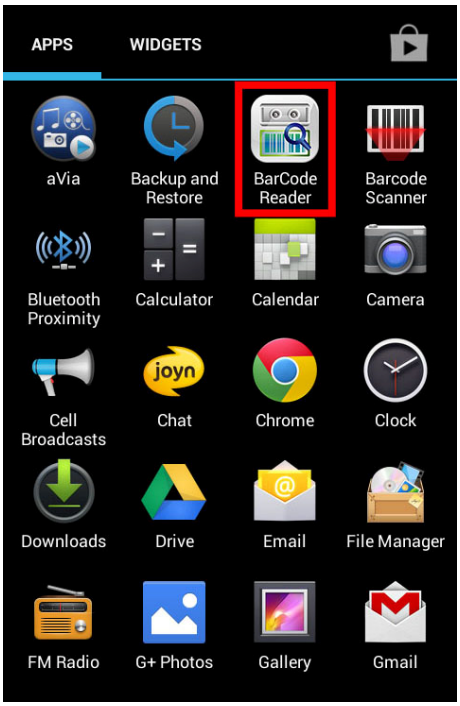


Figure 6-2: App Icon

Step 3: Tap the app icon to launch it.

6.3 Settings Menu

The initial screen of the app is a settings menu, allowing the user to set up the captured image format and the maximum quantity of captured images (**Figure 6-3**). When the settings are done, tap **OK** to enter the barcode reader list screen.

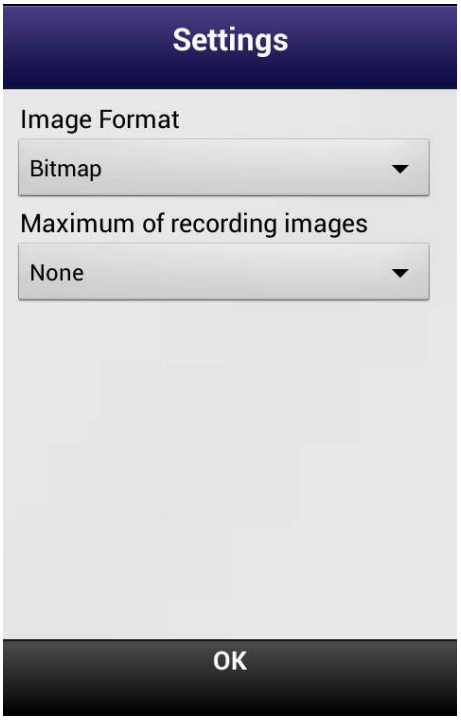


Figure 6-3: Settings Menu

- **Image Format**:
  Sets up the captured image format between **Bitmap** or **Jpeg**.
- **Maximum of recording images**:
  Sets up the maximum quantity of captured images.

6.4 Barcode Reader List

NOTE:

Ensure that the DHCP Server function of the wireless router is turned off. To disable the DHCP Server function, refer to the user manual of the wireless router.

The barcode reader list screen displays the ITDB-100L barcode readers found by the Android device and allows the user to select a barcode reader to configure its settings.

Figure 6-4: Barcode Reader List

6.5 Configuring the Barcode Reader to Decode an Image Successfully

When a barcode reader is selected in the barcode reader list screen, the screen in **Figure 6-5** will be shown. Refer to the following subsections to configure the selected barcode reader so that a barcode image can be decoded successfully.

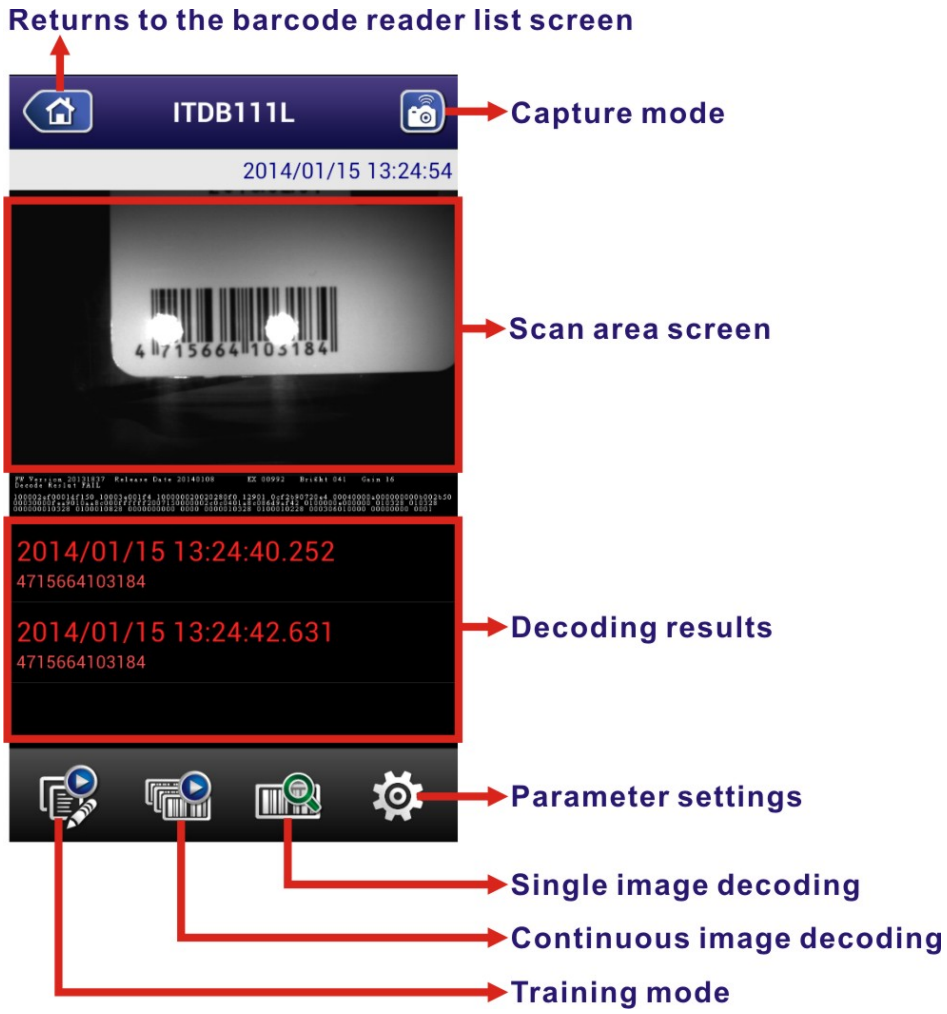


Figure 6-5: Decoding Image Screen

6.5.1 Live View Function

The live view function allows the user to preview the barcode. Follow the steps below to use the live view function.

Step 1: Switch the capture mode icon to .

Step 2: Adjust the barcode reader or scanned object until the barcode is shown on the scan area screen.

6.5.2 Using the External Sensor to Trigger the Barcode Reader

Follow the steps below to use the external sensor to trigger the barcode reader.

Step 1: Switch the capture mode icon to .

Step 2: When the external sensor triggers the barcode reader, the captured image and decoding result will be shown on the screen.

6.5.3 Single Image Decoding

Follow the steps below to proceed with single image decoding.

Step 1: Switch the capture mode icon to .

Step 2: Tap to start single image decoding.

Step 3: If the barcode is successfully decoded, the decoding process will stop. Otherwise, the decoding process will continue.

Step 4: During decoding, tap any icon on the screen as shown in **Figure 6-5** or the Back key on the Android device to stop decoding.

6.5.4 Continuous Image Decoding

Follow the steps below to proceed with continuous image decoding.

Step 1: Switch the capture mode icon to .

Step 2: Tap to start continuous image decoding. During decoding, tap to stop.

6.5.5 Setting an Image to Training Mode

The user can set a scanned barcode as a sample image so that the barcode reader decodes only the same barcode type and size. Follow the steps below to set a barcode image to training mode by using the Android app.

NOTE:

The training mode function can also be enabled by using the PC setup tool or the trigger and tuning control button. Refer to **Section 5.6.2** for details.

Step 1: Tap to start the training mode function.

Step 2: Four beeps are being generated, the illumination LEDs start to flash and the training mode button turns to , indicating that the training mode timer is started.

Step 3: The user has to tap or to trigger the ITDB-100L within twelve seconds after the timer is started.

Step 4: When successfully set a barcode as a sample image, two beeps should be generated and the training mode button turns to ,

If the barcode training is failed, four beeps will be generated.

Step 5: To disable the training mode, tap .

6.5.6 Parameter Settings

Tap to bring up the parameter settings bar at the bottom of the screen as shwon in **Figure 6-6**.

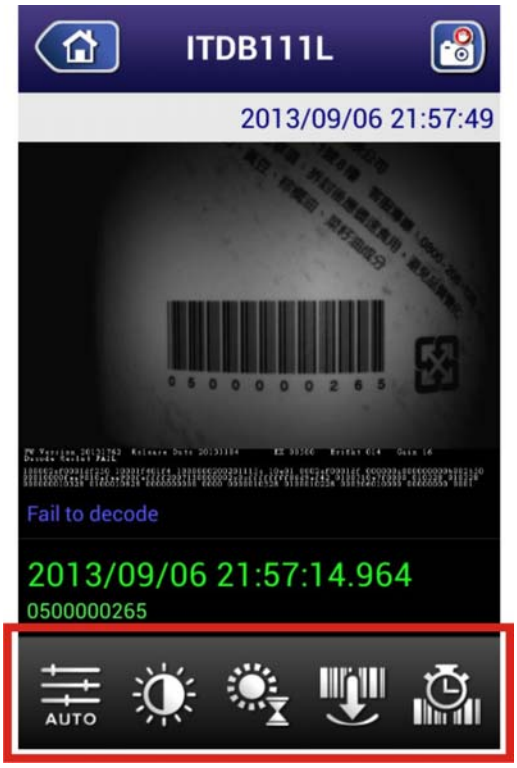


Figure 6-6: Parameter Settings

6.5.6.1 Automatic Setting

The (automatic) option allows the barcode reader to adjust to its optimal settings according to the barcode reading environment.

Step 1: Tap to start automatic setting.

Step 2: Tap to stop automatic setting.

Step 3: When the automatic setting is done, the message will appear, and the atutomatic setting process will stop. Tap or the Back

key on the Android device to return to the barcode reader list screen. Then the automatic setting parameters will be stored to the barcode reader.

Step 4: When the automatic setting is failed, the Failed to Auto Detect message will appear, and the atutomatic setting process will stop. Then all the parameters will be restored to the last-saved settings.

6.5.6.2 LED Brightness

The (LED brightness) option allows the user to adjust the LED brightness.

Step 1: Tap , then drag the slider at the bottom of the screen (**Figure 6-7**) to adjust the percentage of the LED brightness.

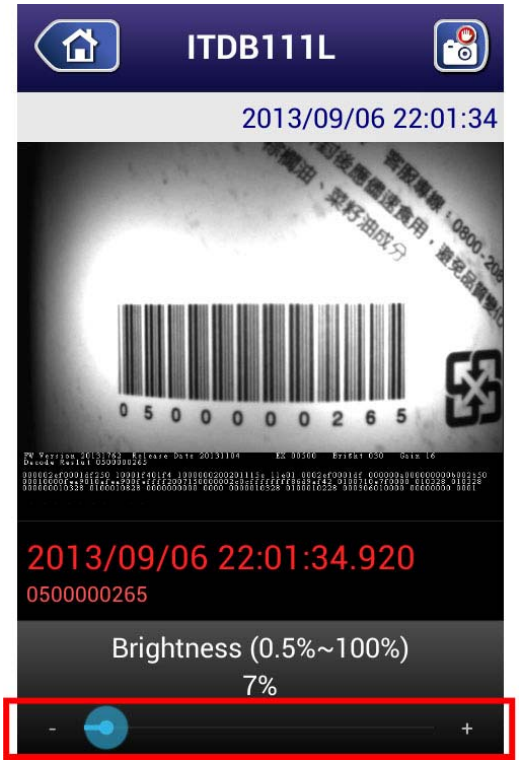


Figure 6-7: Percentage of LED Brightness

Step 2: Tap or the Back key on the Android device to return to the barcode reader list screen. Then the brightness parameter will be stored to the barcode reader.

6.5.6.3 Exposure Time

The (exposure time) option allows the user to adjust the exposure time.

Step 1: Tap , then drag the slider at the bottom of the screen (**Figure 6-8**) to adjust the exposure time.

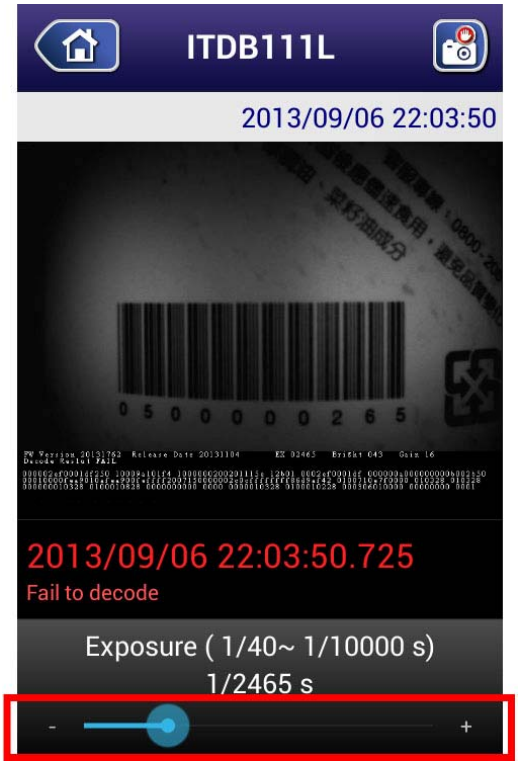


Figure 6-8: Exposure Time

Step 2: Tap or the Back key on the Android device to return to the barcode reader list screen. Then the exposure time parameter will be stored to the barcode reader.

6.5.6.4 Gain Parameter

The (gain) option allows the user to adjust the gain parameter.

Step 1: Tap , then drag the slider at the bottom of the screen (**Figure 6-9**) to adjust the gain parameter.

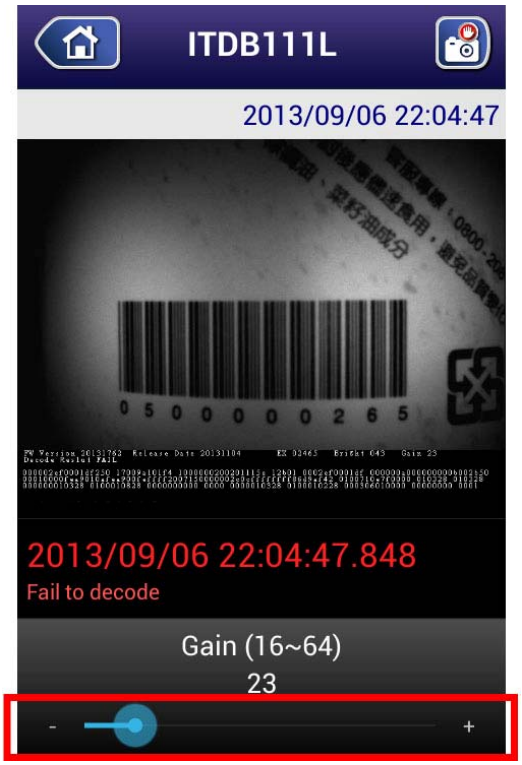


Figure 6-9: Gain Parameter

Step 2: Tap or the Back key on the Android device to return to the barcode reader list screen. Then the gain parameter will be stored to the barcode reader.

6.5.6.5 Decoding Time

The user may need to increase the decoding time when the scanned barcode is complicated or the reading environment is bad.

Step 1: Tap , then drag the slider at the bottom of the screen (**Figure 6-10**) to adjust the decoding time.

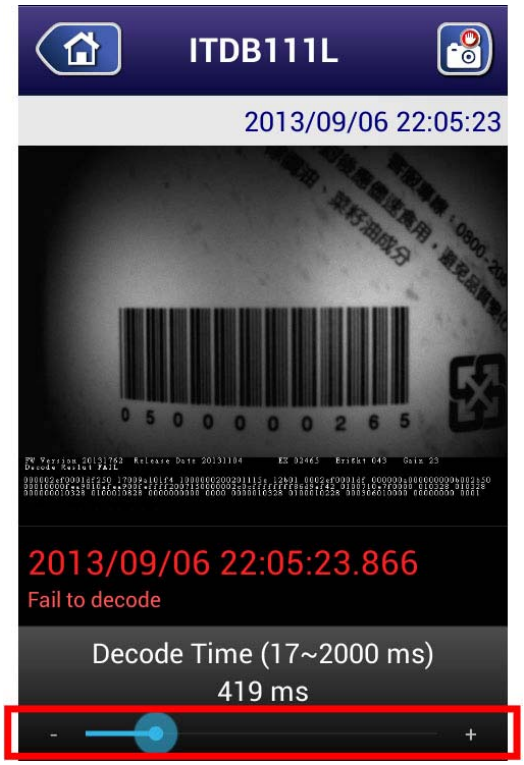


Figure 6-10: Decoding Time

Step 2: Tap or the Back key on the Android device to return to the barcode reader list screen. Then the decoding time parameter will be stored to the barcode reader.

6.6 Checking the Decoded Images

The parameter values of each captured image are displayed below the image (**Figure 6-11**).

6.6.1 Checking Captured Images

Follow the steps below to check the captured images stored in the Android device.

Step 1: Tap the All Apps button on the home screen of the Android device.

Step 2: In the application page, find and tap **Gallery** to launch it.

Step 3: Tap **barcode** to display the captured images.

The captured images are stored in **/storage/sdcard0/Pictures/barcode** of the Android device.

Step 4: Tap an image to check its parameter values.

The parameter values of each captured image are displayed below the image (**Figure 6-11**).

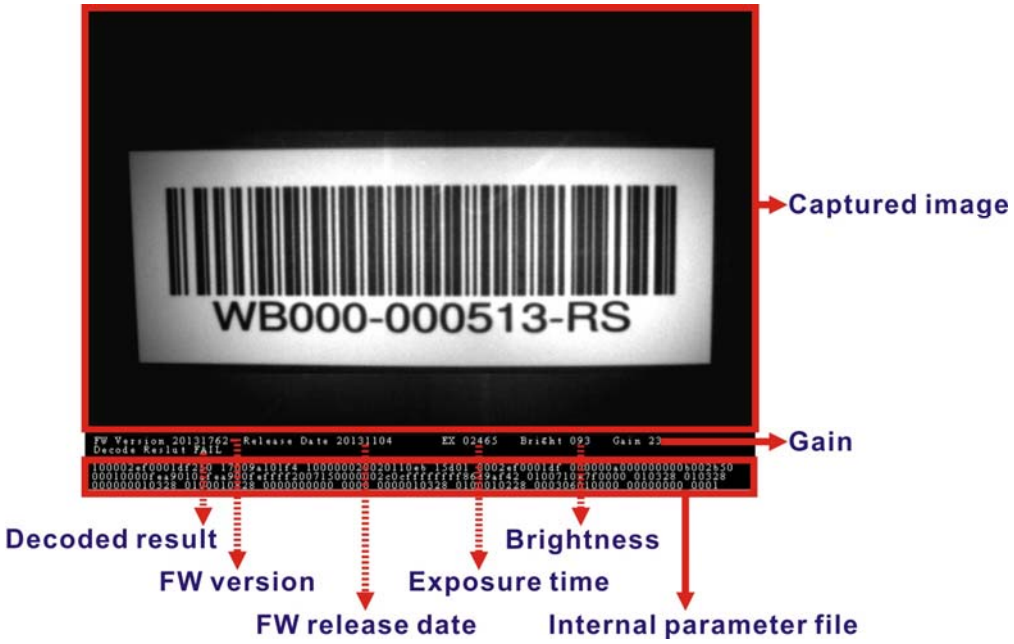


Figure 6-11: Parameter Values

6.6.2 Sending an Captured Image to IEI

The user might need to report a failed-decoded image to IEI for analyzing. Follow the steps below to complete the task.

NOTE:

Ensure the captured image to be sent to IEI is stored in Bitmap format.

Refer to **Section 6.3** to set up the captured image format.

Step 1: Repeat **Step 1** ~ **Step 4** in previous section.

Step 2: Tap the image to bring up the toolbar.

Step 3: Tap **Share**, then select **e-mail** to send the selected image to IEI.

Appendix

A

Safety Precautions

A.1 Safety Precautions

WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the ITDB-100L.

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Make sure the power is turned off and the power cord is disconnected*** when moving, installing or modifying the system.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if opened while still powered on.
- ***Do not drop or insert any objects*** into the ventilation openings.
- ***If considerable amounts of dust, water, or fluids enter the system***, turn off the power supply immediately, unplug the power cord, and contact the system vendor.
- **DO NOT**:
  - Drop the system against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the ITDB-100L may result in permanent damage to the ITDB-100L and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the ITDB-100L. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ITDB-100L is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

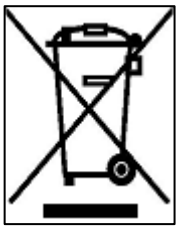
A.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the ITDB-100L, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the ITDB-100L, please read the details below.

- The interior of the ITDB-100L does not require cleaning. Keep fluids away from the ITDB-100L interior.

- Be cautious of all small removable components when vacuuming the ITDB-100L.
- Turn the ITDB-100L off before cleaning the ITDB-100L.
- Never drop any objects or liquids through the openings of the ITDB-100L.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the ITDB-100L.
- Avoid eating, drinking and smoking within vicinity of the ITDB-100L.

A.2.2 Cleaning Tools

Some components in the ITDB-100L may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the ITDB-100L.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the ITDB-100L.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the ITDB-100L.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the ITDB-100L as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the ITDB-100L. Dust and dirt can restrict the airflow in the ITDB-100L and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

Hazardous Materials Disclosure

B.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						