![IEI Integration Corp. logo]

MODEL:

HTDB-100F/100FM

**Handheld Barcode Reader
with 1D, 2D Decoding Code Types,
RJ-45 to USB 2.0 Interface, 1280 x 1024, RoHS**

User Manual

Rev. 1.01 – January 23, 2018

RoHS Lead Free

Revision

Date	Version	Changes
January 23, 2018	1.01	Updated the product name, pictures, specs and utility
June 13, 2016	1.00	Initial release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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1

Introduction

1.1 Overview

HTDB-100FM

Medical-grade Handheld Barcode Reader

HTDB-100F

Handheld Barcode Reader

The HTDB-100F/100FM handheld barcode reader supports 1D and 2D barcode decoding. With the anti-bacterial outer casing, the barcode reader can be used not only for industrial purpose, but also for medical applications.

1.2 Model Variations

Model	Anti-bacterial Outer Casing	Body Color
HTDB-100FM	Yes	White + grey
HTDB-100F	No	Blue + grey

Table 1-1: Model Variations

1.3 Features

Some of the HTDB-100F/100FM barcode reader features are listed below.

- Anti-bacterial outer casing (HTDB-100FM only), providing protection against Staphylococcus aureus, Klebsiella pneumoniae, Pseudomonas aeruginosa, Escherichia coli and MRSA
- Designed to withstand 20 times of 1.8 m drops to concrete on each of the faces
- IP 41 protection class
- Supports 1D and 2D barcode decoding
- Changes the barcode settings by simply scanning the barcode symbols listed in the user manual (Chapter 4)

1.4 External Overview

An overview of the HTDB-100F/100FM is shown in **Figure 1-1**.

Figure 1-1: External Overview

1.4.1 Scan Window

The scan window contains two illumination LEDs, two aimer LEDs and the lens as shown in **Figure 1-2**.
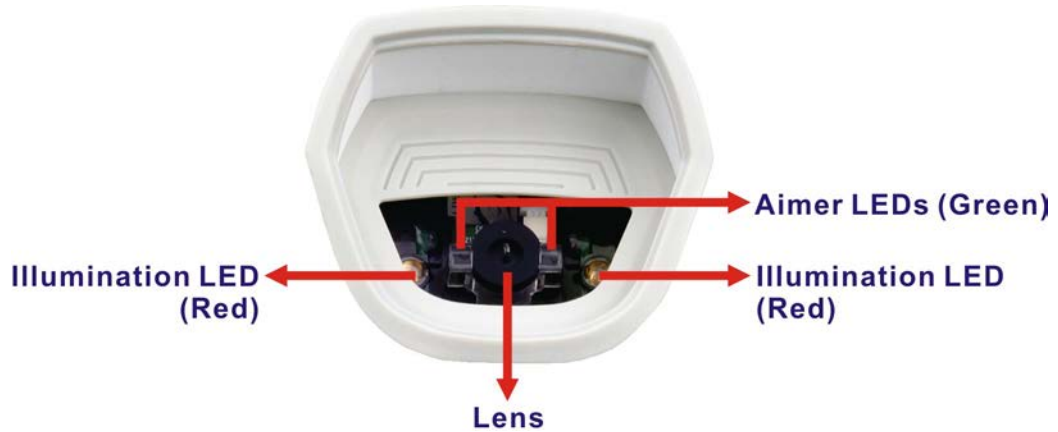
Figure 1-2: Scan Window

![warning icon] **WARNING:**

This product complies with International Standard ICE/EN 62471. The users should follow the cautionary instructions below:

- DO NOT stare at the LED or shine the LED into your eyes or those of another person.

- DO NOT allow children to use the product without adult supervision.

- DO NOT try to replace or repair the LED. These components are not user replaceable.

- DO NOT shine the LED on a reflective surface.

1.5 Specifications

The HTDB-100F/100FM specifications are listed in the table below:

ELECTRICAL	
Interface	RJ-45 to USB 2.0
Input Voltage	5 V
Operating Power	2 W ~ 3 W
MECHANICAL	
Dimensions (HxWxD)	17.5 cm x 5.9 cm x 11.2 cm
Weight	120 g
ENVIRONMENTAL	
Drop	Designed to withstand 20 times of 1.8 m drops to concrete on each of the faces
Sealing	IP 41
Operating Temperature	0°C ~ 55°C (32°F ~ 131°F)
Storage Temperature	-10°C ~ 65°C (13°F ~ 149°F)
Relative Humidity	0% ~ 95% (non-condensing)
Light Levels	0 ~ 100,000 lux (9,290 foot-candles)
LIGHT SOURCE	
Aiming Pattern	Green LED
Illumination	660 nm LED
System Requirement	
IEI HTDB UTILITY	Microsoft® Windows® 7/8.1/10 (32-bit and 64-bit)
SDK	**Windows:** Provides SDK and demo program with sample source code **Linux:** Provides SDK and demo program with sample source code (Ubuntu 16.04 LTS)

SCAN PERFORMANCE	
Scan Pattern	Area image (1280 x 1024 pixel arrary, 1.3M pixels)
Motion Tolerance	Up to 350 cm/s for 13 mil UPC at optimal focus
Depth of Field	10 mm ~ 270 mm
FOV	Horizontal: 42.4º Vertical: 34.4º Diagonal: 53º
Print Contrast	20% minimum reflectance difference
MTF	100 lp/mm (>10%)
SYMBOLOGIES	
1D	UPC/EAN, UPC/EAN with supplementals, Bookland EAN, ISSN, UCC Coupon Extended Code, Code 128, GS1-128, ISBT 128, Code 39, Code 39 Full ASCII, Code 93, Interleaved 2 of 5, Codabar, MSI
2D	MicroPDF417, PDF417, Data Matrix, QR Code, Micro QR Code
CERTIFICATION	
Electrical Safety	UL60950-1 2nd ed, CSA C22.2 No. 60950-1 2nd ed, EN60950-1/IEC60950-1 2nd ed
LED Safety	IEC/EN62471
EMI/RFI	FCC Part 15 Class B, EN55032 Class B, EN55024, Medical Electrical Equipment: EN60601-1-2, FCC Part 18
Green Compliance Certificate/Authority	WEEE, RoHS

Table 1-2: Specifications

1.6 Dimensions

The dimensions for the HTDB-100F/100FM are listed below.
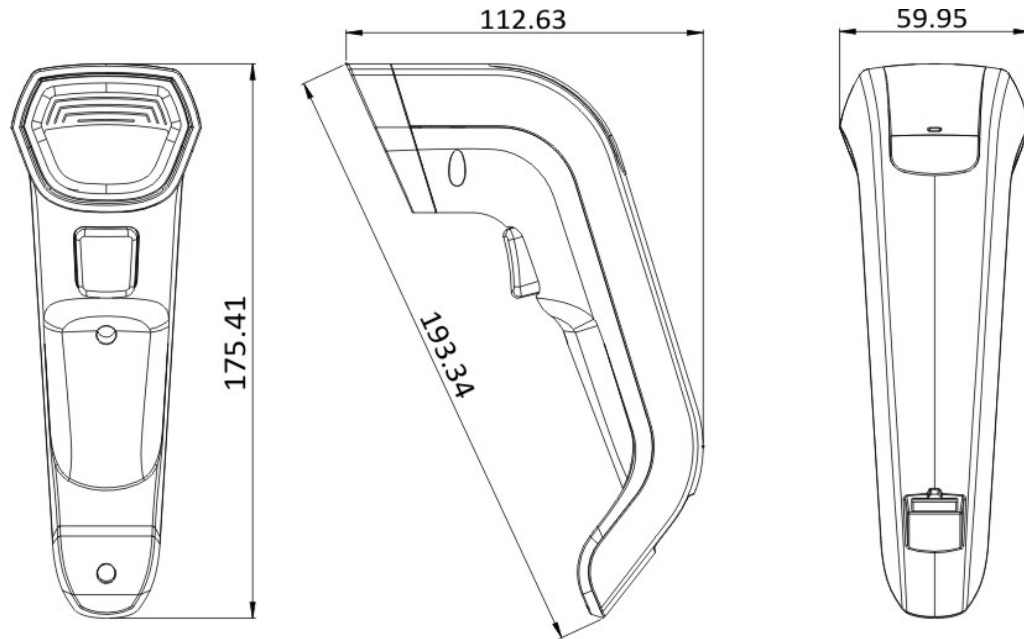
Figure 1-3: HTDB-100F/100FM Dimensions (mm)

Chapter

2

Installation

2.1 Unpacking

2.1.1 Anti-static Precautions

 WARNING:

Failure to take ESD precautions during the installation of the HTDB-100F/100FM may result in permanent damage to the barcode reader and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the barcode reader. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the barcode reader, 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 barcode reader, place it on an anti-static pad. This reduces the possibility of ESD damaging the barcode reader.

2.1.2 Unpacking Precautions

When the barcode reader is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1.1**.
- Make sure the packing box is facing upwards so the barcode reader does not fall out of the box.
- Make sure all the components listed in **Section 2.1.3** are present.

2.1.3 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 HTDB-100F/100FM from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The barcode reader is shipped with the following components:

Quantity	Item	Image
1	HTDB-100F/100FM handheld barcode reader	
1	RJ-45 to USB cable	
1	Quick installation guide	

Table 2-1: Package List Contents

2.2 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the HTDB-100F/100FM, installation instructions and configuration options.

- **DANGER! Disconnect Power**: Power to the HTDB-100F/100FM 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 HTDB-100F/100FM 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.

2.3 Using the HTDB-100F/100FM

The HTDB-100F/100FM is a plug and play barcode reader that allows the user to scan barcodes instantly after connecting to a computer. To use the HTDB-100F/100FM to scan barcodes, please follow the steps below:

Figure 2-1: Connecting the HTDB-100F/100FM

Step 1: Connect the RJ-45 connector of the supplied RJ-45 to USB cable to the RJ-45 port on the HTDB-100F/100FM. Ensure to push the connector to the end until the user hears a "click".

Step 2: Connect the USB Standard Type A connector of the cable to the USB Type A receptacle of a computer.

Once the HTDB-100F/100FM is connected to the computer, a beep should be generated after about four seconds and the power LED (**Figure 1-1**) turns on (yellow), indicating that the barcode reader is fed with power.

NOTE:

The HTDB-100F/100FM will enter the backup mode if the user keeps pressing the trigger button and connects the HTDB-100F/100FM to the computer. To exit the backup mode, please reconnect the RJ-45 to USB cable.

When the HTDB-100F/100FM cannot function normally or be connected to the IEI HTDB UTILITY, the user can use the backup mode to connect the HTDB-100F/100FM to the utility and update the device firmware. Then, the barcode reader can be operated normally. For firmware update procedures, please refer to **Section 3.6**.

Step 3: Open a text editor, such as Notepad or Word, then present a barcode to the HTDB-100F/100FM and press the trigger button. The HTDB-100F/100FM projects a green scan line. Please aim the green scan line to the barcode within the reading distance (refer to **Table 2-2** for the reading distance of each barcode type).

When a barcode is decoded successfully, the HTDB-100F/100FM generates a beep and the decode LED (**Figure 1-1**) flashes once. The decoded barcode data is also displayed in the text editor.

In addition, the behavior of the buzzer and decode LED for a successful decode can be changed. Please refer to **Section 4.1.2** to set up the indicator mode.

![NOTE icon] **NOTE:**

The factory default of supported barcode type includes: Codabar, Interleaved 2 of 5, Code 128, Code 93, Code 39, MSI, UPC/EAN, Data Matrix and QR Code. To scan the barcodes other than the factory default settings, please enable the barcode type manually.

2.4 HTDB-100F/100FM Decode Range

The HTDB-100F/100FM decode range is listed in the table below:

Barcode Type	Code 39	Code 128	UPCE
Symbol Density	7.5 mil	7.5 mil	13 mil
Symbol	*C39042368*	C1281903625	0 425261 4
Reading Distance	30 mm ~ 145 mm	35 mm ~ 145 mm	20 mm ~ 250 mm

Barcode Type	Data Matrix		QR Code	
Symbol Density	10 mil	20 mil	10 mil	20 mil
Symbol				
Reading Distance	35 mm ~ 170 mm	15 mm ~ 270 mm	35 mm ~ 180 mm	10 mm ~ 270 mm

Table 2-2: HTDB-100F/100FM Decode Range

Chapter

3

IEI HTDB UTILITY

3.1 Overview

The IEI HTDB UTILITY allows configuring and triggering the HTDB-100F/100FM via a computer. Please refer to the following sections to install and use the utility.

NOTE:

The IEI HTDB UTILITY supports the OS versions listed below:

- Microsoft® Windows® 7 32-bit & 64-bit
- Microsoft® Windows® 8.1 32-bit & 64-bit
- Microsoft® Windows® 10 32-bit & 64-bit

3.2 Installing the IEI HTDB UTILITY

To install the IEI HTDB UTILITY, please follow the steps below:

NOTE:

The installation screenshots in this section may vary by different utility version.

Step 1: Follow **Step 1** ~ **Step 2** in **Section 2.3** to connect the HTDB-100F/100FM to the computer.

Step 2: Go to IEI website (http://www.ieiworld.com). Click **Products → Barcode Reader**. Enter the HTDB-100F/100FM page by clicking the product photo.

Step 3: Click the **Download** button on the product page. Find and download the latest IEI HTDB UTILITY installer.

Step 4: Run the IEI HTDB UTILITY installer.

Step 5: Select the display language for the Setup Wizard (**Figure 3-1**), and then click

OK to continue.
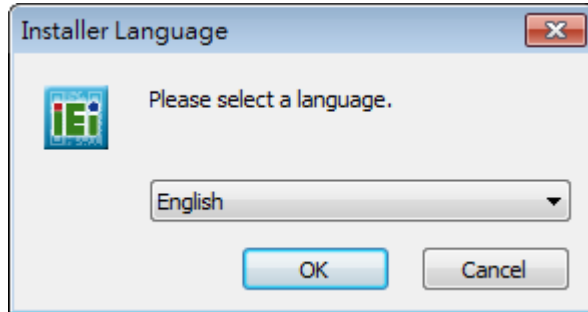
Figure 3-1: Selecting the Display Language

Step 6: The Setup Wizard welcome window appears (**Figure 3-2**). Click **Next** to

continue.
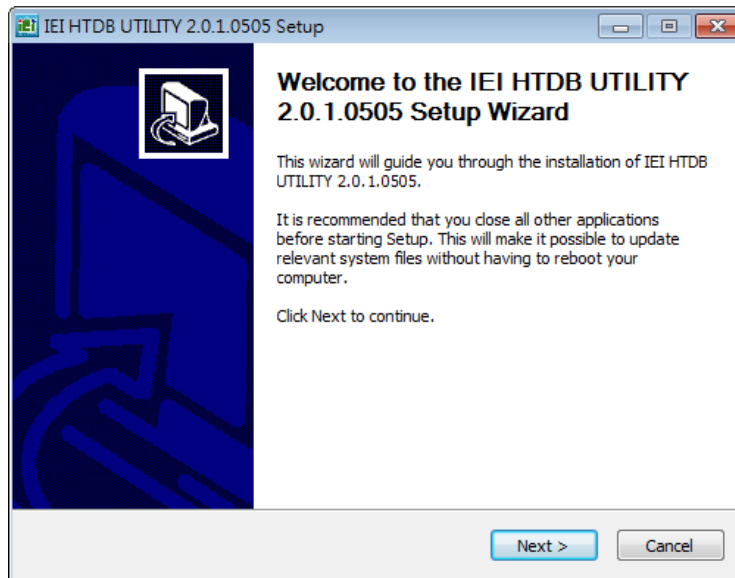
Figure 3-2: Setup Wizard Welcome Window

Step 7: The license agreement in **Figure 3-3** appears. Read the license agreement, and

then click **I Agree** to continue.
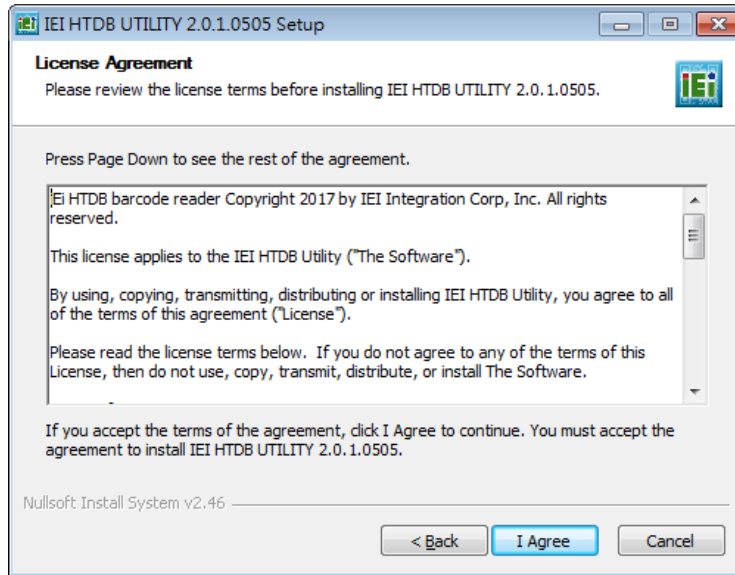
Figure 3-3: License Agreement

Step 8: Select a folder for installation (**Figure 3-4**). Click **Install** to start installation.
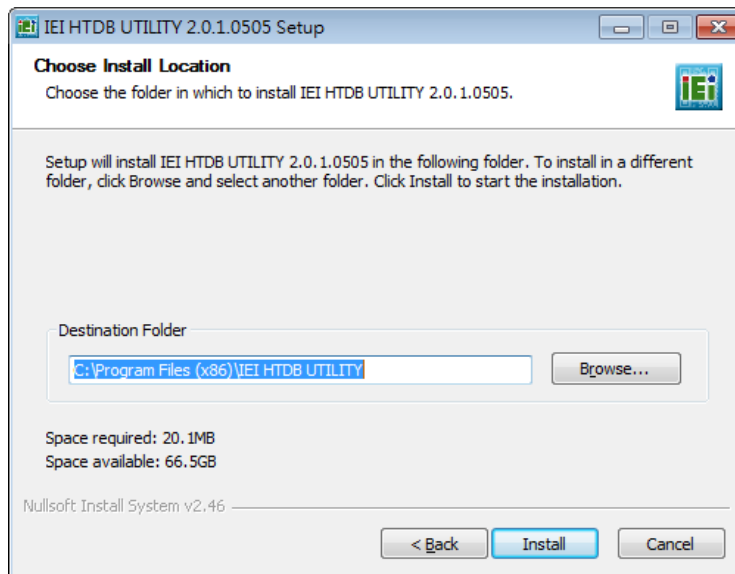
Figure 3-4: Selecting the Installation Folder

NOTE:

The device driver is also included in the installer package and is installed simultaneously during the utility installation.

Step 9: When the installation is completed, the following window appears. Click **Finish**

to exit.
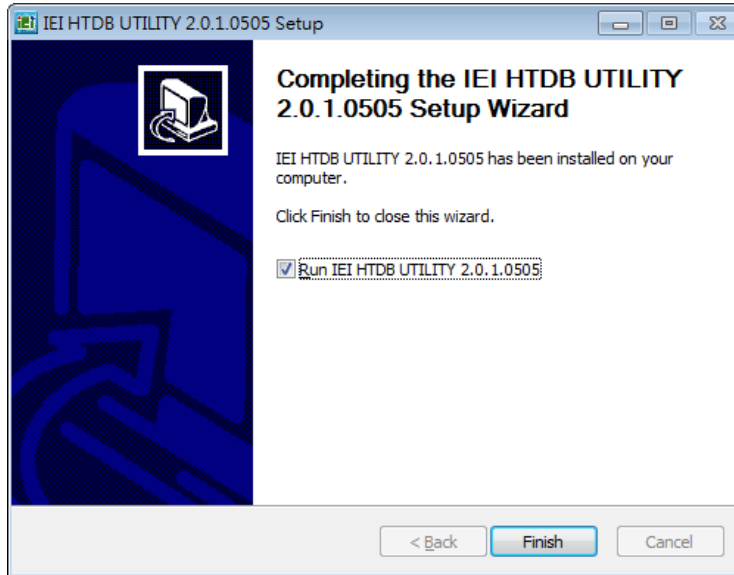
Figure 3-5: Installation Complete

3.3 Activating the IEI HTDB UTILITY

Step 1: Ensure that the HTDB-100F/100FM is connected to the computer.

Step 2: If the IEI HTDB UTILITY is installed to the connected computer, an **IEI HTDB**

UTILITY icon (**Figure 3-6**) should appear on the Windows desktop. Double click

the icon to launch the utility.

Figure 3-6: IEI HTDB UTILITY Icon

Step 3: The main menu of the IEI HTDB UTILITY appears. Click **Connect** to activate the

utility (**Figure 3-7**).
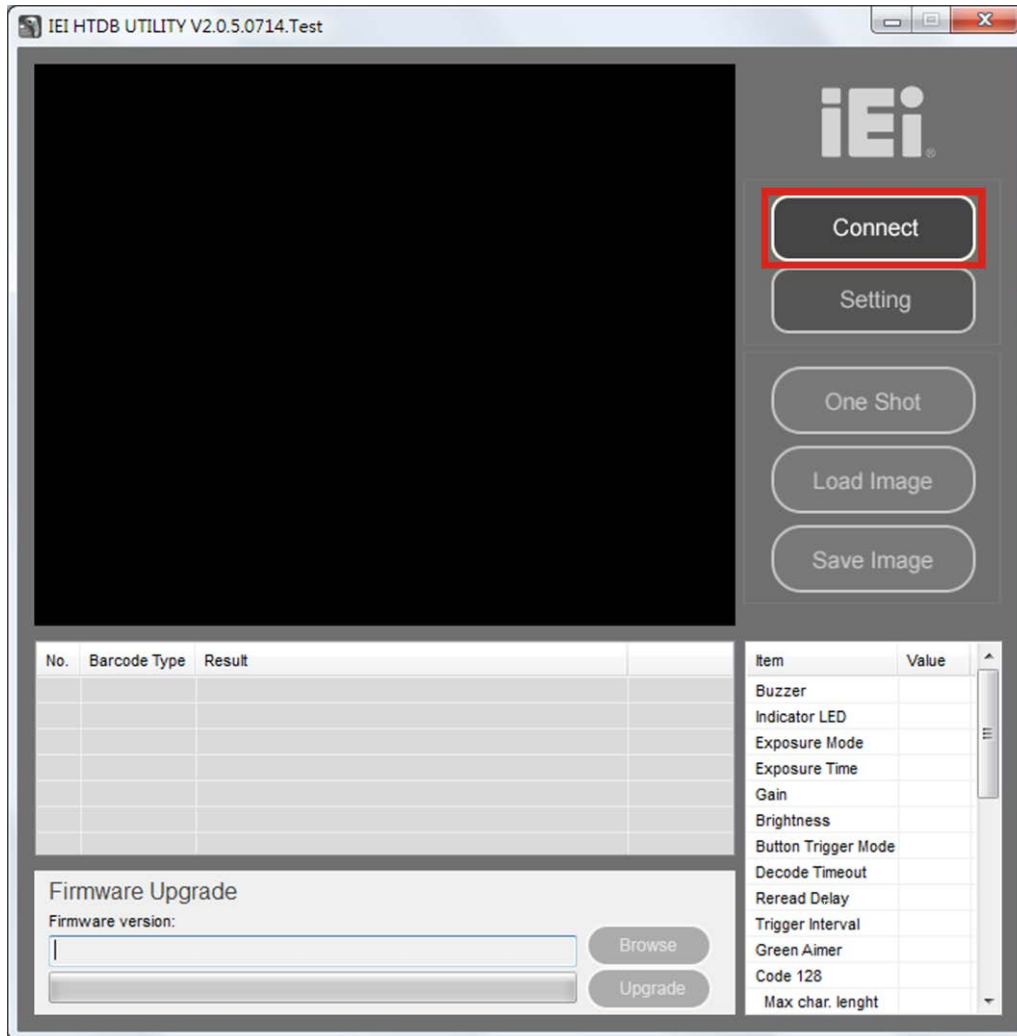
Figure 3-7: Activating the IEI HTDB UTILITY

![NOTE icon] **NOTE:**

When the IEI HTDB UTILITY is activated, the trigger button on the
HTDB-100F/100FM (**Figure 1-1**) will be disabled, and the user can
trigger the barcode reader only by clicking the **One Shot** button in the
utility.

3.4 Main Menu
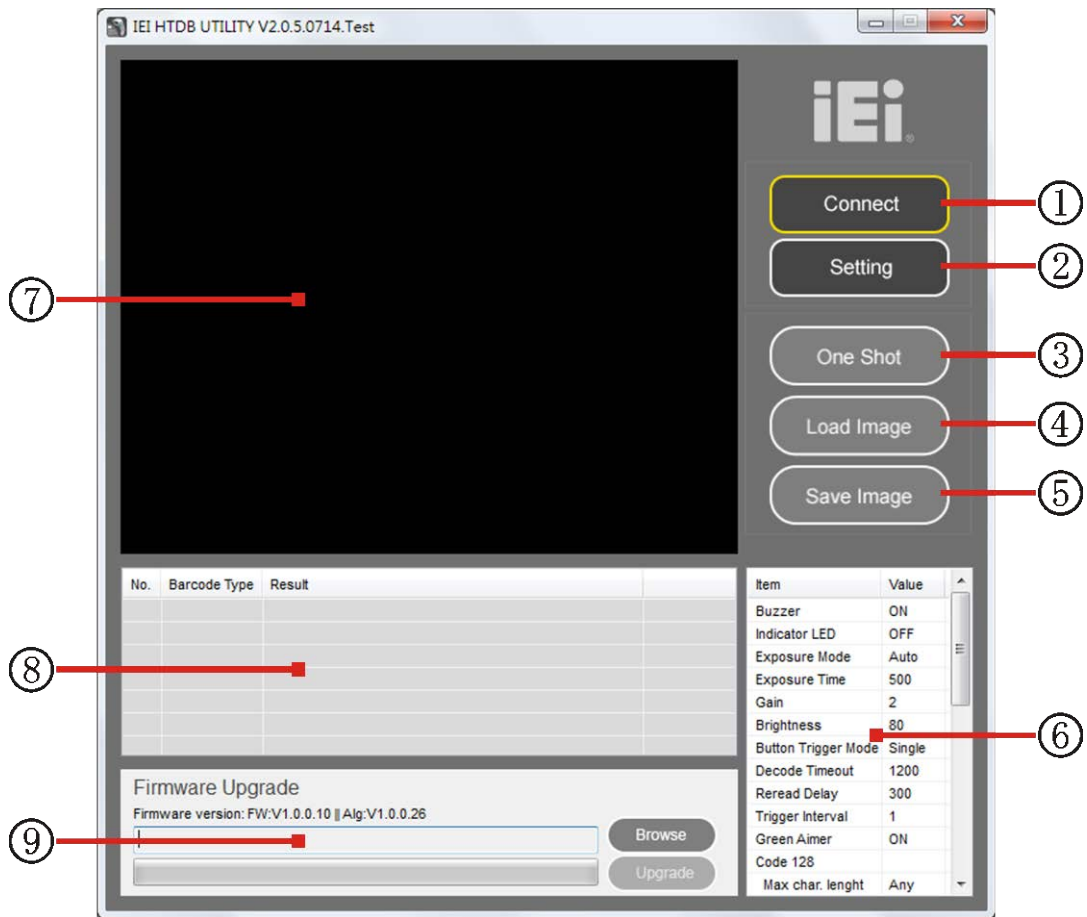
Figure 3-8: Main Menu

①	**Connect**: When the IEI HTDB UTILITY is activated, click this button to disconnect the HTDB-100F/100FM from the utility, so that the user can trigger the barcode reader using its trigger button (**Figure 1-1**).
②	**Setting**: Click this button to bring up the Option Setting menu. Please refer to **Section 3.5** for detailed information.
③	**One Shot**: Click this button to trigger the HTDB-100F/100FM once.
④	**Load Image**: Click this button to load a saved image to the utility. **NOTE:** The format of the uploaded images must be BMP or JPG with resolution of 1280x1024 and gray scale.
⑤	**Save Image**: Click this button to save the current displayed image to a designated location.
⑥	This field displays the current setting parameters of the barcode reader.

⑦	This field displays the scanned barcode image.
⑧	This field displays the decode result of the scanned barcodes.
⑨	**Firmware Upgrade**: This field allows the user to check the firmware version and upgrade the device firmware to the latest version. Please refer to **Section 3.6** for detailed information.

3.5 Setting Menu

In the **Setting** menu, the user can configure the symbology and HID settings, and restore all settings to factory default. Please follow the steps below to proceed with settings.

Step 1: Follow **Step 1** ~ **Step 3** in **Section 3.3** to activate the utility.

Step 2: The main menu of the IEI HTDB UTILITY appears. Click **Setting** in the main menu to bring up the **Option Setting** menu.

Step 3: For configuring the symbology settings, the user can check the **Select All** box to enable support of all barcode types or set up each barcode support separately (**Figure 3-9**).
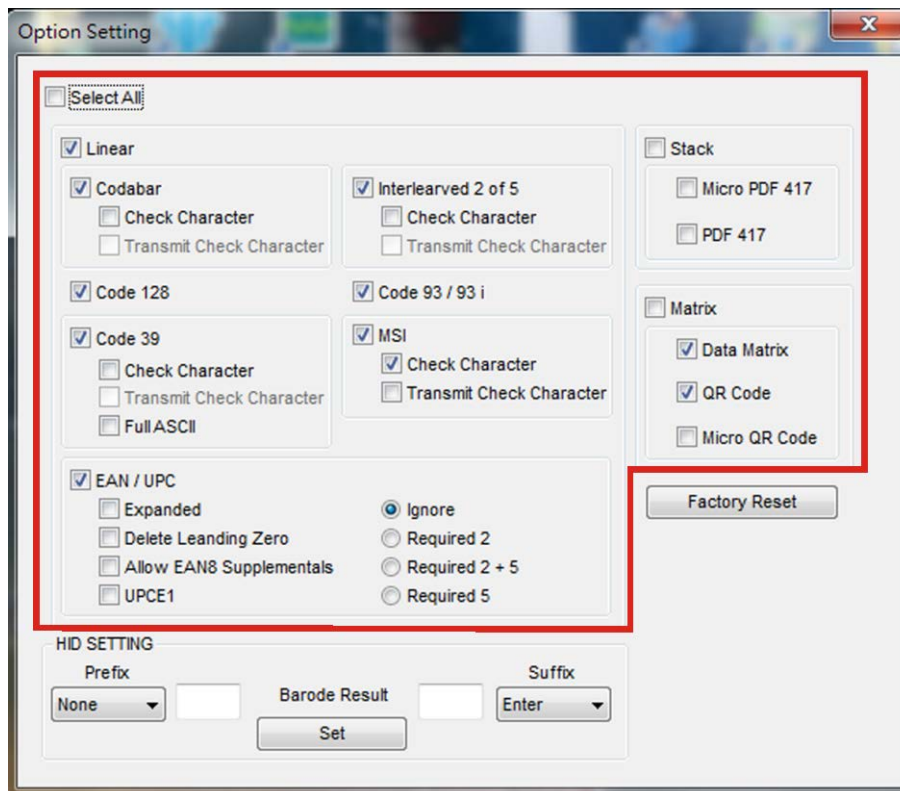
Figure 3-9: Option Setting Menu – Symbology Setting

Step 4: For configuring the HID settings (editing the decode result), the user can key in the prefix and suffix characters, and select **None**, **Enter**, **Tab** or **Space** as the prefix/suffix control character (**Figure 3-10**). After configuration, click **Set** to apply the settings.

![NOTE icon] **NOTE:**

The number of prefix/suffix characters must be less than (including) three.
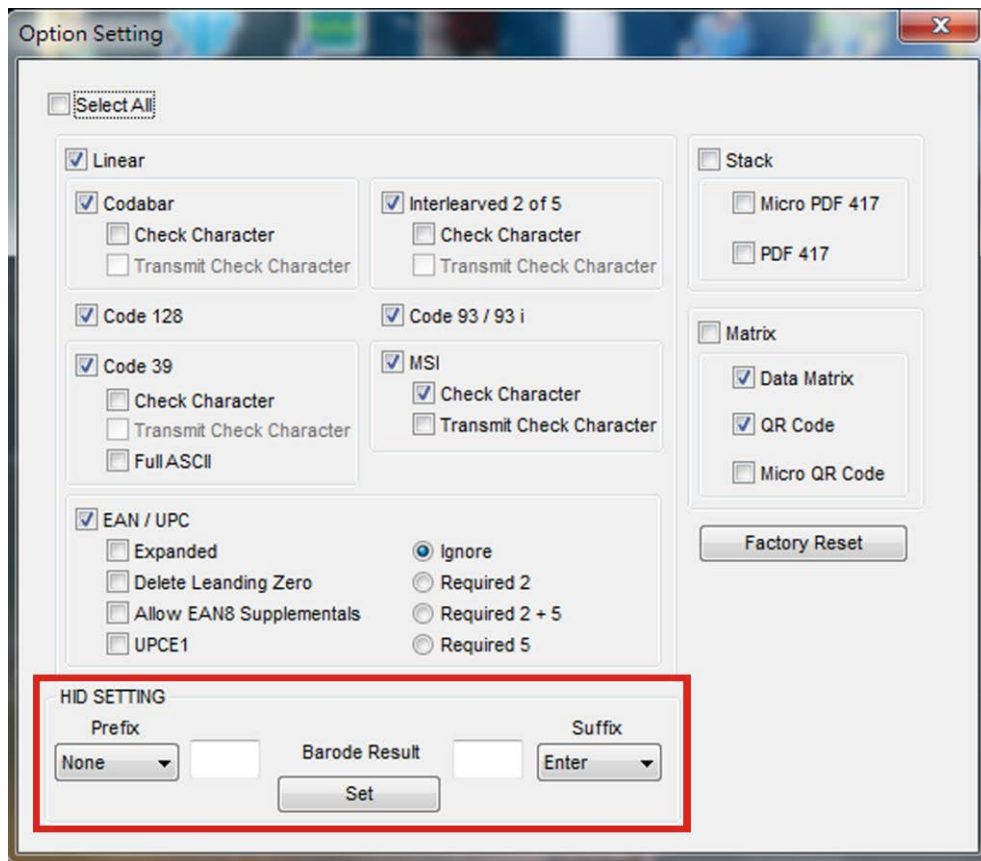
Figure 3-10: Option Setting Menu – HID Setting

Step 5: The user can click **Factory Reset** to reset the barcode reader.

The warning message in **Figure 3-11** will appear, reminding you that all

configuration settings will be restored to factory default. Click **Yes** to confirm to

reset the device.
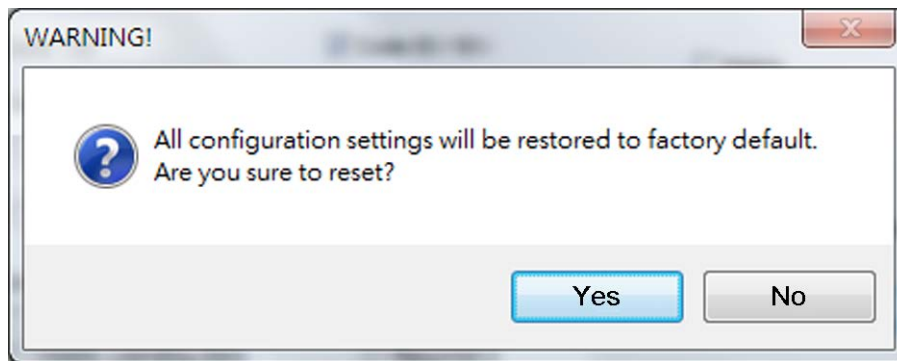
Figure 3-11: Restoring to Factory Default

3.6 Saving or Loading an Image

The IEI HTDB UTILITY allows the user to save the scanned barcode images, and even upload the saved images to view the barcode data. To save/load an image, please follow the steps below:

Step 1: Follow **Step 1 ~ Step 3** in **Section 3.3** to activate the utility.

Step 2: To save the current displayed image to a designated location, click **Save Image** from the main menu.

Step 3: To load a saved image to the utility, click **Load Image** from the main menu, then select the image file to be uploaded. The uploaded image and its data will be shown on the main menu (**Figure 3-12**).
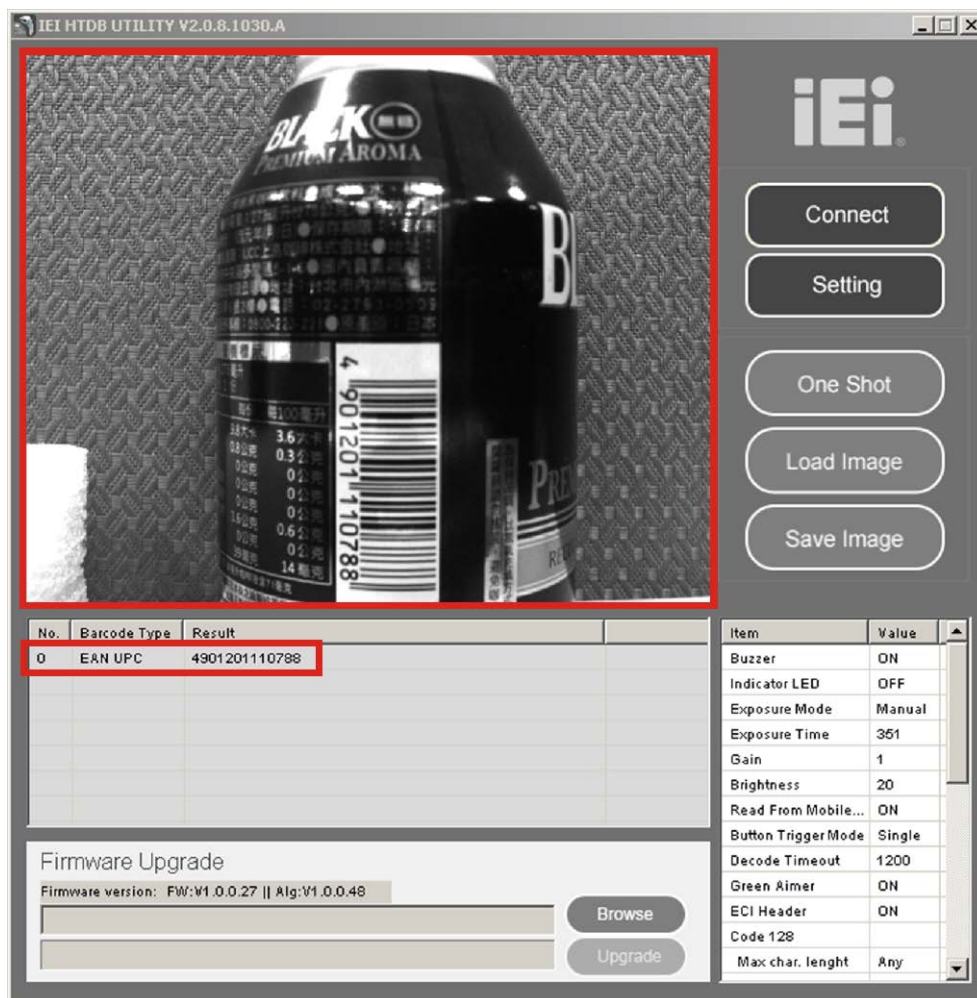
Figure 3-12: Main Menu – Uploaded Image and its Data

 NOTE:

The format of the uploaded images must be BMP or JPG with resolution of 1280x1024 and gray scale. If the image format does not meet the above spec, the message as shown in **Figure 3-13** will appear.

Figure 3-13: Uploading Image is Failed

3.7 Upgrading the HTDB-100F/100FM Firmware

The user might need to upgrade the device firmware to the latest version. To upgrade the HTDB-100F/100FM firmware, please follow the steps below:

 NOTE:

To obtain the latest firmware file, please visit the IEI website (http://www.ieiworld.com), and then click **Products → Barcode Reader → HTDB-100F/100FM → Download**.

Step 1: Follow **Step 1 ~ Step 3** in **Section 3.3** to activate the utility.

Step 2: The user can see the current firmware version from the main menu (**Figure 3-14**).

Click **Browse** to locate the firmware file for upgrade.
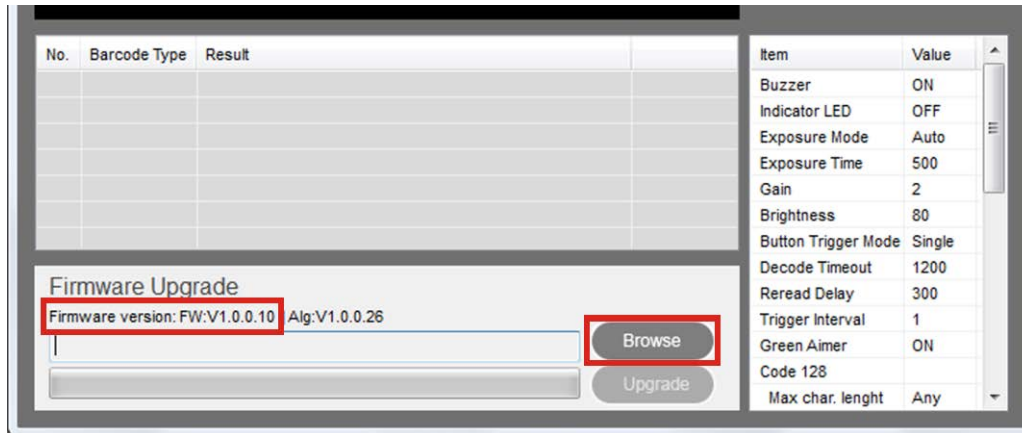
Figure 3-14: Main Menu – Firmware Upgrade

Step 3: When the new firmware file is selected, click **Upgrade** to start updating the

device firmware (**Figure 3-15**).
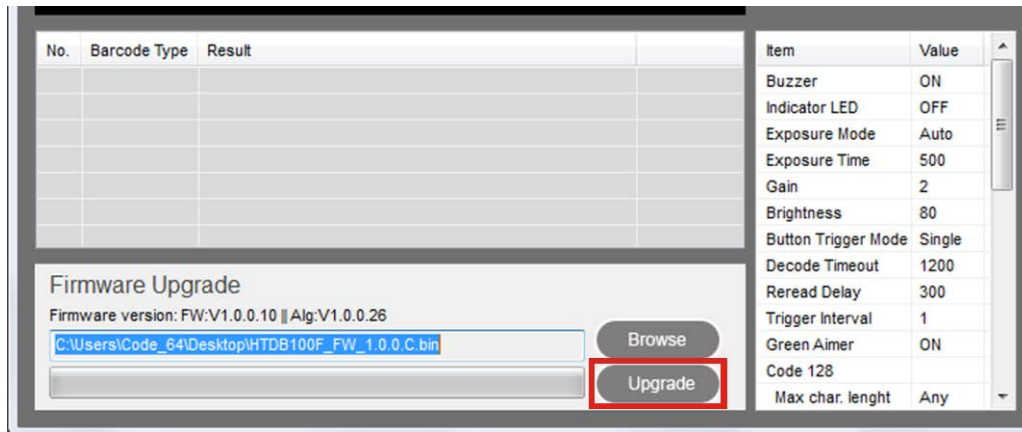
Figure 3-15: Upgrading Firmware

Step 4: When the firmware upgrade is complete, the latest firmware version will be

shown on the main menu (**Figure 3-14**).

Chapter

4

Barcode Preference and Symbology Setting

4.1 Barcode Preference Setting

If the user needs to change the settings for the barcode reader, simply scan the corresponding barcode symbols listed in this section.

4.1.1 Setting Defaults

Scan below barcode to reset all features to defaults.

@SETR!

(Restore Defaults)

Scan below barcode to set the current settings as the custom defaults.

@SETC!

(Custom Settings)

4.1.2 Decode LED Indicator and Buzzer Setting

The decode LED indicator (orange) is located on the back side of the barcode reader (**Figure 1-1**). When the decode LED indicator is turned on, it will flash once for a successful decode; when the buzzer is turned on, it will generate a beep for a successful decode.

Scan below barcodes to set the indicator mode for a successful decode.

@IDCE0!

(Buzzer Off & LED Indicator Off)

@IDCE1!

(Buzzer On & LED Indicator Off)

@IDCE2!

(Buzzer Off & LED Indicator On)

||||||||||||||||||||||||||
@IDCE3!

(Buzzer On & LED Indicator On)

4.1.3 Capture Image Setting

The user can set the exposure settings of the barcode reader as automatic mode or manual mode. In order to obtain a successful decode quickly, it is recommended to set the barcode reader to automatic mode. However, the user can set the barcode reader to manual mode, adjusting the exposure time, gain and LED brightness settings manually.

When setting to automatic mode, the barcode reader will automatically adjust the exposure time, gain and LED brightness settings to the optimum values according to the ambient light. When changing to manual mode, the exposure time, gain and LED brightness will remain at the last setting values of automatic mode.

Scan below barcodes to set the barcode reader to automatic mode or manual mode.

||||||||||||||||||||||||||
@EXPA1!

(Automatic Mode)

||||||||||||||||||||||||||
@EXPA0!

(Manual Mode)

When setting to manual mode, please follow below procedures to set up the barcode reader manually.

```
                    ┌─────────────────────────┐
                    │ Scan Manual Mode barcode │
                    └─────────────────────────┘
                                │
                          ╱─────────────╲
                         │    Select     │
                         │  parameters   │
                          ╲─────────────╱
              ┌───────────────┼───────────────┐
              ▼               ▼               ▼
        ┌──────────┐   ┌──────────┐   ┌──────────────┐
        │   Scan   │   │   Scan   │   │     Scan      │
        │  Manual  │   │  Manual  │   │    Manual     │
        │ Exposure │   │   Gain   │   │  Brightness   │
        │(50 ~ 2000)│  │ (1 ~ 16) │   │  (0 ~ 100)    │
        └──────────┘   └──────────┘   └──────────────┘
              │               │               │
              └───────────────┼───────────────┘
                              ▼
                       ┌─────────────┐
                       │ Scan 0 ~ 9  │
                       └─────────────┘
                              │
                        ╱─────────────╲
                       │    Save/      │
                       │   Discard     │
                        ╲─────────────╱
              ┌───────────────┴───────────────┐
              ▼                               ▼
        ┌──────────┐                    ┌──────────────┐
        │Scan Save │                    │ Scan Discard │
        └──────────┘                    └──────────────┘
```
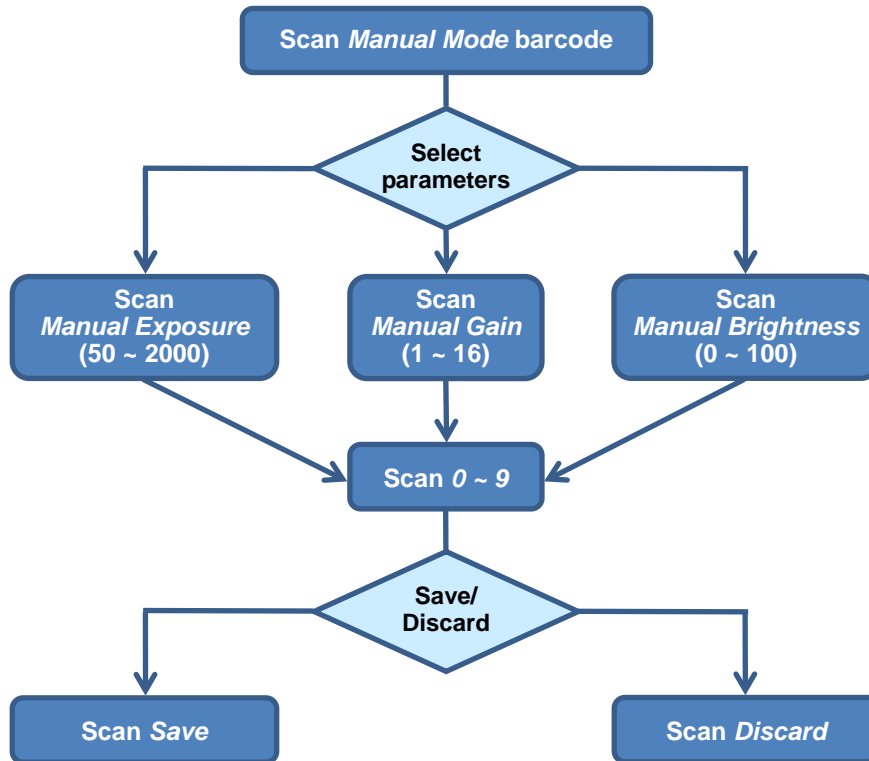
4.1.3.1 Manual Exposure Setting

Scan below barcode to start the exposure parameter setting. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the exposure time (range: 50 ~ 2000), and scan the **Save** barcode to apply the setting.

@EXPM!

(Manual Exposure)

4.1.3.2 Manual Gain Setting

Scan below barcode to start the gain parameter setting. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the gain value (range: 1 ~ 16), and scan the **Save** barcode to apply the setting.

@EXPG!

(Manual Gain)

4.1.3.3 Manual Brightness Setting

Scan below barcode to start the LED brightness setting. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the brightness level (range: 1 ~ 100), and scan the **Save** barcode to apply the setting.

@ILMB!

(Manual Brightness)

4.1.3.4 An Example of Setting the Barcode Reader Manually

Below is an example of how to set the exposure time to 200.
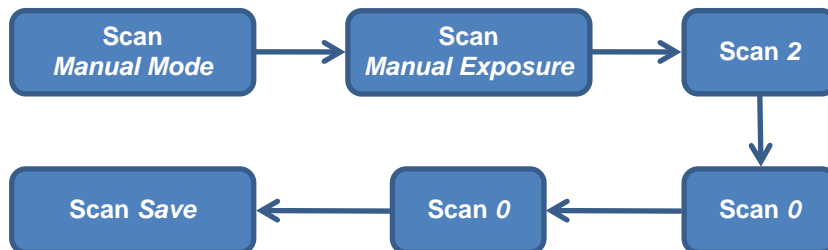
4.1.4 Trigger Button Setting

Scan below barcodes to set the trigger button behavior. In **Single Trigger Mode**, the barcode reader scans once when the trigger button is pressed; in **Multiple Trigger Mode**, the barcode reader scans continuously until the trigger button is released.

‖‖‖‖‖‖‖‖‖‖‖‖
@TRIM1!

(Single Trigger Mode)

‖‖‖‖‖‖‖‖‖‖‖‖
@TRIM2!

(Multiple Trigger Mode)

4.1.5 Read Timing Setting

The user can configure the decode timeout, re-read delay and trigger interval settings by following below procedures.

```
┌─────────────────┐   ┌─────────────────┐   ┌─────────────────┐
│      Scan       │   │      Scan       │   │      Scan       │
│  Decode Timeout │   │  Re-read Delay  │   │ Trigger Interval│
│   (80 ~ 4000)   │   │   (300 ~ 3000)  │   │    (1 ~ 5000)   │
└─────────────────┘   └─────────────────┘   └─────────────────┘
            ↘               ↓                ↙
            ┌───────────────────────────┐
            │        Scan 0 ~ 9         │
            └───────────────────────────┘
                         ↓
                   ╱───────────╲
                  │    Save/     │
                  │   Discard    │
                   ╲───────────╱
              ↓                        ↓
    ┌─────────────────┐      ┌─────────────────┐
    │    Scan Save    │      │  Scan Discard   │
    └─────────────────┘      └─────────────────┘
```
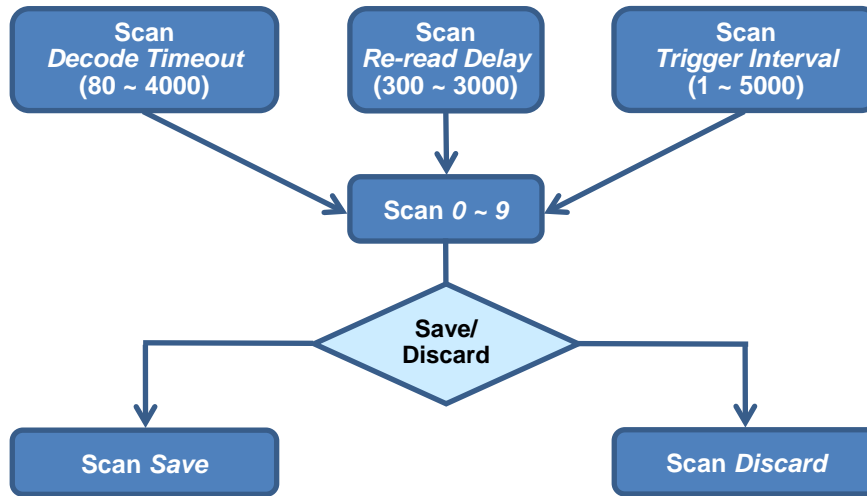
4.1.5.1 Decode Timeout Setting

Scan below barcode to start setting the maximum decode time while decoding. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the timeout duration (range: 80 ~ 4000), and scan the **Save** barcode to apply the setting.

@RDYT!

(Decode Timeout)

4.1.5.2 An Example of Setting the Decode Timeout

Below is an example of how to set the decode timeout to 600.

```
┌─────────────────┐   ┌─────────┐   ┌─────────┐   ┌─────────┐   ┌─────────┐
│      Scan       │→  │ Scan 6  │→  │ Scan 0  │→  │ Scan 0  │→  │  Scan   │
│  Decode Timeout │   │         │   │         │   │         │   │  Save   │
└─────────────────┘   └─────────┘   └─────────┘   └─────────┘   └─────────┘
```

4.1.6 Aimer LED Setting

Scan below barcodes to control the green aimer LED.

(Turn Off Green Aimer LED)

(Turn On Green Aimer LED)

4.1.7 Decoding Symbology Capability

4.1.7.1 ECI Header

 NOTE:

> Using the IEI SDK can support the ECI function of QR Code and Data
> Matrix. However, the ECI function is not supported in the HID mode.

Scan below barcodes to enable/disable ECI Header.

`@SYMH1!`
(On)

(Default)
`@SYMH0!`
(Off)

4.1.7.2 Enabling/Disabling Symbology Types

@SYME0!

(Turn Off All Symbologies)

@SYME1!

(Turn On All Symbologies)

@SYMM0!

(Turn Off All 1D Symbologies)

@SYMM1!

(Turn On All 1D Symbologies)

(Turn Off All 2D Symbologies)

@SYMQ0!

(Turn On All 2D Symbologies)

@SYMQ1!

(Turn Off All Stacked Symbologies)

@SYMP0!

(Turn On All Stacked Symbologies)

@SYMP1!

4.1.8 Data Editing

4.1.8.1 Suffix Setting

Scan below barcode to add a tab after the barcode decoding result.

(Add Tab Suffix)

Scan below barcode to add a space after the barcode decoding result.

(Add Space Suffix)

Scan below barcode to add an "enter" after the barcode decoding result, so that every decoding result occupies a new line.

(Add New Line Suffix)

Scan below barcode to remove the suffix setting.

(Remove Suffix)

4.1.8.2 Prefix Setting

Scan below barcode to add a tab before the barcode decoding result.

(Add Tab Prefix)

Scan below barcode to add a space before the barcode decoding result.

(Add Space Prefix)

Scan below barcode to add an "enter" before the barcode decoding result, so that every decoding result occupies a new line.

(Add New Line Prefix)

Scan below barcode to remove the prefix setting.

(Remove Prefix)

4.1.9 Automatically Adjusting the Barcode Reader to Read Barcodes on a Mobile Phone

4.1.9.1 Disabling to Read Barcodes on a Mobile Phone

If the user doesn't need to use the barcode reader to read barcodes on a mobile phone/tablet, please remember to scan below barcode to disable this function.

(Disable to Read Barcodes on a Mobile Phone)

4.1.9.2 Enabling to Read Barcodes on a Mobile Phone

If the user needs to use the barcode reader to read barcodes on a mobile phone/tablet, please scan below barcode to enable this function.

(Enable to Read Barcodes on a Mobile Phone)

This function can be effective only when the exposure settings are set to automatic mode (refer to **Section 4.1.3**). If the exposure settings are set to manual mode, the barcode reader cannot proceed with automatic adjustment.

After enabling this function, the first time when reading a barcode on a mobile phone, the barcode reader will fine-tune its settings. Therefore, the decode time will be increased slightly.

4.2 Barcode Symbology Setting

This chapter describes barcode symbology features and provides barcode configuration for the symbology.

![checkmark icon] **NOTE:**

> The factory default of supported barcode type includes: Codabar, Interleaved 2 of 5, Code 128, Code 93, Code 39, MSI, UPC/EAN, Data Matrix and QR Code. To scan the barcodes other than the factory default settings, please enable the barcode type manually.

4.2.1 Code 128

4.2.1.1 Default Setting

Scan below barcode to restore all Code 128 default settings.

@128D!

(Default Setting)

4.2.1.2 Enable/Disable Code 128

Scan below barcodes to enable or disable Code 128 decoding.

@128E1!   (Default)

(On)

@128E0!

(Off)

4.2.1.3 Code 128 Message Length - Auto

Scan **Turn On Auto Length** barcode to enable any message length (range: 1 ~ 84) of Code 128. When setting to **Turn On Auto Length**, the maximum and minimum length parameters will be ignored.

@128A1!   (Default)

(Turn On Auto Length)

@128A0!

(Turn Off Auto Length)

4.2.1.4 Code 128 Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan above **Turn Off Auto Length** barcode) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

![NOTE icon] **NOTE:**

> The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

@128X!

(Maximum Message Length)

@128N!

(Minimum Message Length)

4.2.2 UPC/EAN

4.2.2.1 Default Setting

Scan below barcode to restore all UPC/EAN default settings.

@EAND!

(Default Setting)

4.2.2.2 Enable/Disable UPC/EAN

Scan below barcodes to enable or disable UPC/EAN decoding.

@EANE1!

(On)

@EANE0!

(Off)

4.2.2.3 UPC/EAN Expand

Scan **On** barcode to expand the UPC-E code to the "n" digit.

@EANP1!

(On)

(Default)

@EANP0!

(Off)

4.2.2.4 Supplemental

To present with UPC/EAN plus symbol, scan below barcodes to ignore or decode the supplemental characters.

(Ignore)

(Required 2)

(Required 5)

(Required 2+5)

4.2.2.5 Delete Leading Zero

 (Default)
(Off)

(On)

4.2.2.6 Allow EAN8 Supplemental

 (Default)
(Off)

(On)

4.2.2.7 UPCE_1

(Default)

(Off)

(On)

4.2.3 Code 39

4.2.3.1 Default Setting

Scan below barcode to restore all Code 39 default settings.

(Set Default)

4.2.3.2 Enable/Disable Code 39

Scan below barcodes to enable or disable Code 39 decoding.

(On)

(Off)

4.2.3.3 Check Code 39 Checksum

Scan "**On**" barcode to allow the barcode reader to read data and check the character, but not transmit the data.

(On)

(Default)

(Off)

4.2.3.4 Transmit Code 39 Checksum Character

When the **Check Code 39 Checksum** and **Transmit Code 39 Checksum Character** are set to **On**, reading a Code 39 barcode will transmit the character at the end of the scan data.

@C39T1!

(On)

@C39T0!

(Default)

(Off)

4.2.3.5 Full ASCII

When the Full ASCII Code 39 decoding is enabled, additional punctuation characters and control characters are represented by sequences of two characters of Code 39.

Code Details										
Nr	Character	Encoding	Nr	Character	Encoding	Nr	Character	Encoding	Nr	Character	Encoding
0	NUL	%U	12	FF	$L	24	CAN	$X	36	$	/D
1	SOH	$A	13	CR	$M	25	EM	$Y	37	%	/E
2	STX	$B	14	SO	$N	26	SUB	$Z	38	&	/F
3	ETX	$C	15	SI	$O	27	ESC	%A	39	'	/G
4	EOT	$D	16	DLE	$P	28	FS	%B	40	(	/H
5	ENQ	$E	17	DC1	$Q	29	GS	%C	41	)	/I
6	ACK	$F	18	DC2	$R	30	RS	%D	42	*	/J
7	BEL	$G	19	DC3	$S	31	US	%E	43	+	/K
8	BS	$H	20	DC4	$T	32	[space]	[space]	44	,	/L
9	HT	$I	21	NAK	$U	33	!	/A	45	-	-
10	LF	$J	22	SYN	$V	34	"	/B	46	.	.
11	VT	$K	23	ETB	$W	35	#	/C	47	/	/O

‖C39F1‖

(On)

‖C39F0‖

(Default)

(Off)

4.2.3.6 Code 39 Message Length - Auto

Scan **Turn On Auto Length** barcode to enable any message length (range: 1 ~ 80) of Code 39. When setting to **Turn On Auto Length**, the maximum and minimum length parameters will be ignored.

‖C39A1‖ (Default)

(Turn On Auto Length)

‖C39A0‖

(Turn Off Auto Length)

4.2.3.7 Code 39 Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan **Turn Off Auto Length** barcode on the previous page) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

NOTE:

The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

@C39X!

(Maximum Message Length)

@C39N!

(Minimum Message Length)

4.2.4 Code 93

4.2.4.1 Default Setting

Scan below barcode to restore all Code 93 default settings.

(Set Default)

4.2.4.2 Enable/Disable Code 93

Scan below barcodes to enable or disable Code 93 decoding.

(Enable)

(Disable)

4.2.4.3 Code 93 Message Length - Auto

Scan **Turn On Auto Length** barcode to enable any message length (range: 1 ~ 80) of Code 93. When setting to **Turn On Auto Length**, the maximum and minimum length parameters will be ignored.

(Turn On Auto Length)

![barcode @C93A0!]

(Turn Off Auto Length)

4.2.4.4 Code 93 Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan above **Turn Off Auto Length** barcode) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

![NOTE icon] **NOTE:**

> The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

![barcode @C93X!]

(Maximum Message Length)

![barcode @C93N!]

(Minimum Message Length)

4.2.5 Interleaved 2 of 5 (I25)

4.2.5.1 Default Setting

Scan below barcode to restore all I25 default settings.

(Set Default)

4.2.5.2 Enable/Disable I25

Scan below barcodes to enable or disable I25 decoding.

(Enable)

(Disable)

4.2.5.3 Check I25 Checksum

Scan "**On**" barcode to allow the barcode reader to read data and check the character, but not transmit the data.

(On)

(Default)

(Off)

4.2.5.4 Transmit I25 Checksum Character

When the **Check I25 Checksum** and **Transmit I25 Checksum Character** are set to **On**, reading a I25 barcode will transmit the character at the end of the scan data.

(On)

(Default)

(Off)

4.2.5.5 I25 Message Length - Auto

Scan **Turn On Auto Length** barcode to enable any message length (range: 1 ~ 80) of I25. When setting to **Turn On Auto Length**, the maximum and minimum length parameters will be ignored.

 (Default)

(Turn On Auto Length)

(Turn Off Auto Length)

4.2.5.6 I25 Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan above **Turn Off Auto Length** barcode) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

 NOTE:

> The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

(Maximum Message Length)

(Minimum Message Length)

4.2.6 Codabar

4.2.6.1 Default Setting

Scan below barcode to restore all Codabar default settings.

(Set Default)

4.2.6.2 Enable/Disable Codabar

Scan below barcodes to enable or disable Codabar decoding.

(Default)

(On)

(Off)

4.2.6.3 Check Codabar Checksum

Scan **On** barcode to allow the barcode reader to read data and check the character, but not transmit the data.

(On)

(Default)

(Off)

4.2.6.4 Transmit Codabar Checksum Character

When the **Check Codabar Checksum** and **Transmit Codabar Checksum Character** are set to **On**, reading a Codabar barcode will transmit the character at the end of the scan data.

(On)

(Default)

(Off)

4.2.6.5 Codabar Message Length - Auto

Scan **Turn On Auto Length** barcode to enable any message length (range: 1 ~ 80) of Codabar. When setting to **Turn On Auto Length**, the maximum and minimum length parameters will be ignored.

 (Default)

(Turn On Auto Length)

(Turn Off Auto Length)

4.2.6.6 Codabar Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan above **Turn Off Auto Length** barcode) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

 NOTE:

> The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

(Maximum Message Length)

(Minimum Message Length)

4.2.7 MSI

4.2.7.1 Default Setting

Scan below barcode to restore all MSI default settings.

(Set Default)

4.2.7.2 Enable/Disable MSI

Scan below barcodes to enable or disable MSI decoding.

(On)

(Off)

4.2.7.3 Check MSI Checksum

Scan **On** barcode to allow the barcode reader to read data and check the character, but not transmit the data.

@MSIC1!

(On)

(Default)   @MSIC0!

(Off)

4.2.7.4 Transmit MSI Checksum Character

When the **MSI Check Character** and **MSI Transmit Check Character** are set to **On**, reading a MSI barcode will transmit the character at the end of the scan data.

@MSIT1!

(On)

(Default)   @MSIT0!

(Off)

4.2.7.5 MSI Message Length - Auto

Scan **On** barcode to enable any message length (range: 1 ~ 80) of Codabar. When setting to **On**, the maximum and minimum length parameters will be ignored.

 (Default)

(Turn On Auto Length)

(Turn Off Auto Length)

4.2.7.6 MSI Message Length - Manual

To set the maximum and minimum message length, please turn off the automatic length setting (scan above **Turn Off Auto Length** barcode) and scan below barcodes. Then, scan a numeric barcode from **Section 4.3** (Numeric Barcodes) to set the length, and scan the **Save** barcode to apply the setting.

 NOTE:

> The number of characters of the scanned barcodes should be between the minimum and maximum message length settings. If the number of characters of the scanned barcode is not within the range, the barcode cannot be decoded.

(Maximum Message Length)

(Minimum Message Length)

4.2.8 PDF417 and MicroPDF417

4.2.8.1 Enable/Disable PDF417

Scan below barcodes to enable or disable PDF417.

(Enable)

(Disable)

4.2.8.2 Enable/Disable MicroPDF417

Scan below barcodes to enable or disable MicroPDF417 decoding.

(Enable)

(Disable)

4.2.9 Data Matrix

4.2.9.1 Enable/Disable DataMatrix

Scan below barcodes to enable or disable DataMatrix.

(Enable)

(Disable)

4.2.10 QR Code and Micro QR Code

4.2.10.1 Enable/Disable QR Code

Scan below barcodes to enable or disable QR Code.

(Enable)

(Disable)

4.2.10.2 Enable/Disable Micro QR Code

Scan below barcodes to enable or disable Micro QR Code.

(Enable)

(Disable)

4.3 Numeric Barcodes

Scan the appropriate numeric barcode for parameter requiring. For example, to decode a Code 128 barcode that can contain up to 20 characters, scan the "**code128 – Maximum Message Length**" barcode, scan the "**2**" and "**0**" barcodes, and then scan the **Save** barcode to apply the setting.

(0)

(1)

(2)

(3)

‖‖‖‖‖‖‖‖‖‖
@PAMV4!

(4)

‖‖‖‖‖‖‖‖‖‖
@PAMV5!

(5)

‖‖‖‖‖‖‖‖‖‖
@PAMV6!

(6)

‖‖‖‖‖‖‖‖‖‖
@PAMV7!

(7)

‖‖ ‖‖‖‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖
@PAMV8!

(8)

‖‖ ‖ ‖‖‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖‖
@PAMV9!

(9)

‖‖ ‖ ‖‖‖‖‖ ‖ ‖‖ ‖‖‖ ‖
@PAMS!

(Save)

‖‖ ‖ ‖‖‖‖‖ ‖ ‖‖ ‖‖‖ ‖
@PAMD!

(Discard)

4.4 Extended Channel Interpretation (ECI) Encoding Table

ECI	Reference
000000	Represents the default encodation scheme
000001	Represents the GLI encodation scheme of a number of symbologies with characters 0 to 127 being identical to those of ISO/IEC 646: 1991 IRV (equivalent to ANSI X3.4) and characters 128 to 255 being identical to those values of ISO 8859-1
000002	An equivalent code table to ECI 000000, without the return-to-GLI 0 logic. It is the default encodation scheme for encoders fully compliant with this standard.
000003	ISO/IEC 8859-1 Latin alphabet No. 1
000004	ISO/IEC 8859-2 Latin alphabet No. 2
000005	ISO/IEC 8859-3 Latin alphabet No. 3
000006	ISO/IEC 8859-4 Latin alphabet No. 4
000007	ISO/IEC 8859-5 Latin/Cyrillic alphabet
000008	ISO/IEC 8859-6 Latin/Arabic alphabet
000009	ISO/IEC 8859-7 Latin/Greek alphabet
000010	ISO/IEC 8859-8 Latin/Hebrew alphabet
000011	ISO/IEC 8859-9 Latin alphabet No. 5
000012	ISO/IEC 8859-10 Latin alphabet No. 6
000013	ISO/IEC 8859-11 Latin/Thai alphabet
000014	Reserved
000015	ISO/IEC 8859-13 Latin alphabet No. 7 (Baltic Rim)
000016	ISO/IEC 8859-14 Latin alphabet No. 8 (Celtic)
000017	ISO/IEC 8859-15 Latin alphabet No. 9
000018	ISO/IEC 8859-16 Latin alphabet No. 10
000019	Reserved
000020	Shift JIS (JIS X 0208 Annex 1 + JIS X 0201)
000021	Windows 1250 Latin 2 (Central Europe)
000022	Windows 1251 Cyrillic
000023	Windows 1252 Latin 1
000024	Windows 1256 Arabic
000025	ISO/IEC 10646 UCS-2 (High order byte first)
000026	ISO/IEC 10646 UTF-8 (See information above)
000027	ISO/IEC 646:1991 International Reference Version of ISO 7-bit coded character set
000028	Big 5 (Taiwan) Chinese Character Set
000029	GB (PRC) Chinese Character Set
000030	Korean Character Set

Table 4-1: Extended Channel Interpretation (ECI) Encoding Table

<div style="text-align:center">

Appendix

A

</div>

Regulatory Compliance

DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with specifications for CE marking. If the user modifies and/or installs other devices in the equipment, the CE conformity declaration may no longer apply.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

■	This device may not cause harmful interference, and
■	This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Federal Communication Commission Interference Statement

This equipment complies with Part 18 of the FCC Rules.

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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Appendix

B

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 – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.
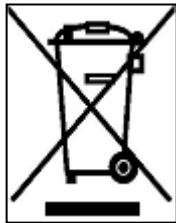
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your device, 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.

Appendix

C

Hazardous Materials Disclosure

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 below table.

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 (now replaced by GB/T 26572-2011). 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 (now replaced by GB/T 26572-2011).						

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/T 11363-2006 (现由GB/T 26572-2011取代) 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/T 11363-2006 (现由GB/T 26572-2011取代) 标准规定的限量要求。						