



AI-6821/AI-6821HD

2D Scanner

User Guide



Regulatory Compliance

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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.

-Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

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RF EXPOSURE WARNING:

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

警告：電池若未妥善處理，可能會導致爆炸。

請勿拆卸電池，或用火銷毀電池。請將電池放置於兒童拿不到的地方。請使用專用充電器充電，並請依照當地政府或法律規定妥善處理廢棄電池。

CAUTION: EXPLOSION HAZARD

Do not disassemble, short circuit, heat the battery or dispose of in fire. Store battery pack in a proper place. Do not expose to temperature above 60°C/140°F. Use specified charger only. Please dispose of the used batteries following the rules or laws issued by the local government.



Note All brands and trademarks shall belong to their respective owner.



Note Specification is subject to changes without notice.

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1 Introduction

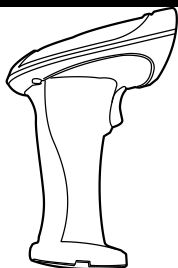
AI-6821/AI-6821HD is a 2D cordless scanner that can read bar codes on objects or on screens. The high performance scanning engine delivers high speed and high readability, making it an ideal scanning solution for business.

- **High decoding performance** Fast and easy scan for 1D and 2D bar codes.
- **Water resistant and dust-tight** With the IP65 rating, your scanner can be used in various environment without being damaged by water and dust.
- **High optical resolution** Your scanner reads high density bar codes up to 3 mil.
- **Distortion processing** Even if your bar code is distorted, AI-6821/AI-6821HD still recognizes it.

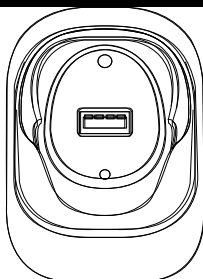
1.1 Unpacking

Make sure all following items are included in your package.

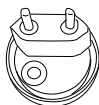
Scanner



Cradle

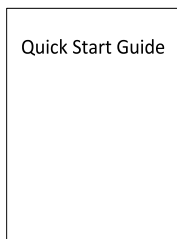


Plug

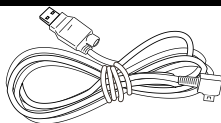


It comes with the power supply. The plug varies according to your country.

Quick Start Guide

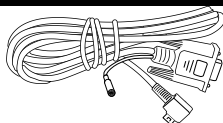


USB Cable

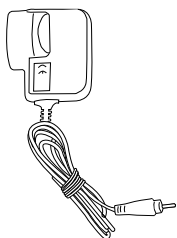


or

RS-232 Cable



Power Supply



- For USB packs, it is optional.
- For RS-232 packs, it is standard.

When you receive your scanner, open the package immediately and inspect for shipping damage. If you discover any damage, contact the shipping company and file a claim. Argox is not responsible for any damage incurred during shipping. Save all package materials for the shipping company to inspect.

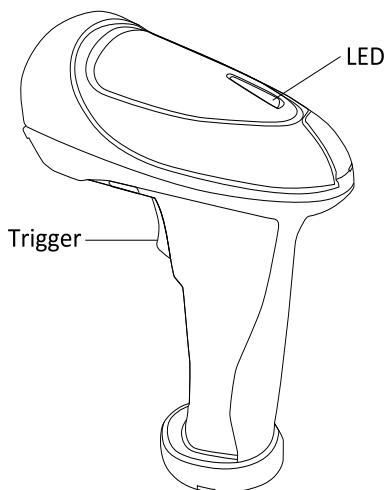


Note If any item is missing, please contact your local dealer.

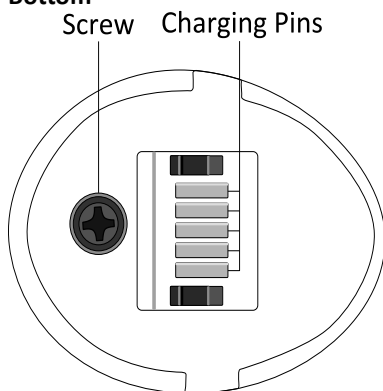
1.2 Understand your scanner

1.2.1 Scanner

■ Perspective

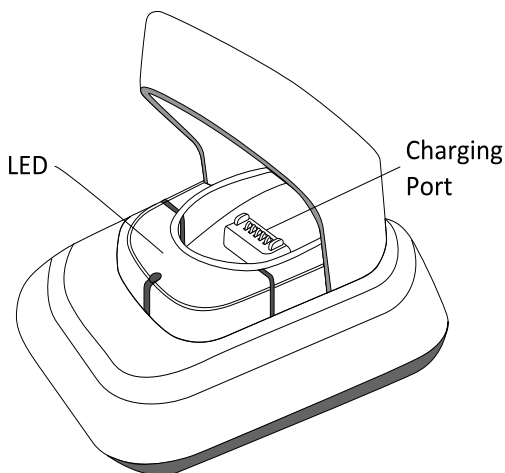


■ Bottom

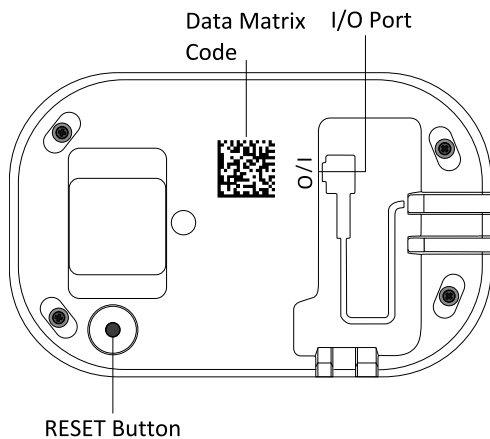


1.2.2 Cradle

■ Perspective



■ Bottom



1.3 Indicators

1.3.1 Status lights

Status lights (LED) are helpful for checking your scanner's status. Both your scanner and cradle have LEDs, and each of them have four colors: blue, green, red and amber. The table below shows the LED behavior and the status it indicates.

| Status | Scanner LED | Cradle LED |
|-----------------------------|---|---|
| Scanner Connected | Flash blue at 1-second intervals | Flash blue at 1-second intervals |
| Scanner Disconnected | Off | Off |
| Good Scan | Flash green once | Flash green once |
| Cradle ACK Timeout | Flash red every 0.5 second until timeout | N/A |
| Firmware Update | Flash amber fast | Flash green fast |
| Cradle Inquiry | N/A | Flash amber slowly |
| Cradle Inquiry and Charging | N/A | Flash amber , green and red slowly |
| Charging | Solid red | Flash green every second |
| Battery Full | Off | Solid green |

1.3.2 Status sound

In addition to status lights, your scanner and your cradle make sounds to indicate the status it is in.

| Status | Scanner Sound | Cradle Sound |
|----------------------|--------------------------|--|
| Scanner Connected | Sound 1 | N/A |
| Scanner Disconnected | Sound 2 | N/A |
| Good Scan | A short beep | N/A |
| Cradle Inquiry | N/A | Beeps five times at 1-second intervals |
| Cradle ACK Timeout | Beeps once in low tone | A short beep |
| Battery Low | Three short beeps (fast) | N/A |
| Memory Full | Sound 3 | N/A |
| Programming | Two short beeps | N/A |
| Interface Ready | N/A | Sound 4 |
| Power On | A long beep | A long beep |
| Reset | N/A | Sound 5 |

1.3.3 Vibration

Your scanner vibrates in certain status.

| Status | Scanner |
|----------------------------|---------|
| Power On | Vibrate |
| Wake up from Sleep Mode | Vibrate |
| Good Scan | Vibrate |

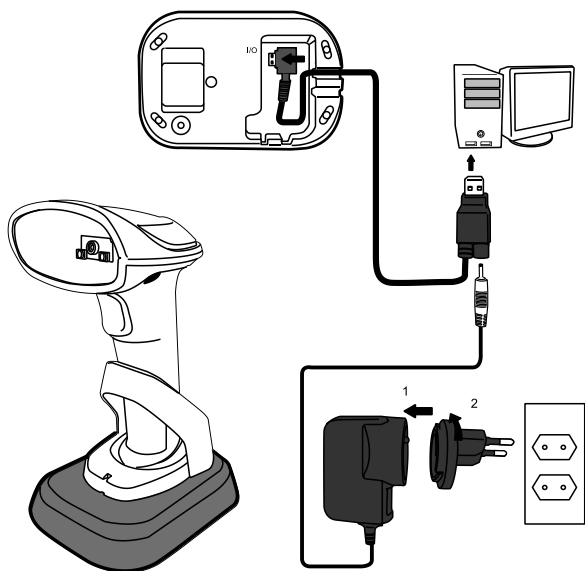
2 Get started

This chapter provides information about how to install, connect and use your scanner to do your work, and how to charge and replace your battery.

2.1 Installation

This section describes how to set up your scanner.

2.1.1 Set up your scanner



1. Connect the USB or the RS-232 cable to your cradle. Lay the cable into the notch on the cradle edge.

2. Connect the USB or the RS-232 cable to your computer.

Note 1 If you've purchased the USB pack, you can charge your scanner by connecting the USB cable to your computer. You can also charge it by connecting a power supply (optional) to your USB cable. The charging time is shorter with a power supply.

Note 2 If you've purchased the RS-232 pack, connect the power supply to the RS-232 cable and the wall outlet.

| Charging by | Full Charge Time |
|--------------|------------------|
| Power Supply | 4.5 hours |
| USB Cable | 6.5 hours |

3. Place your scanner on your cradle to charge it to full (cradle's LED glows green).
4. Scan the Data Matrix code at the bottom of your cradle to establish the connection between your scanner and cradle.
5. To test your scanner, start a text processing program like Notepad or Word. Scan a bar code and see if the data can be sent to your computer. If it's successful, you'll hear a beep and the bar code data shows in the program.

2.1.2 How to scan

AI-6821/AI-6821HD emits a cross pattern when it is scanning. Any bar code in the range of the cross could be read. Typically, the bar code closest to the center will be read first, but if the quality of this bar code is poor, your scanner might read other bar code first.



If you want to scan a bar code in a small area that contains multiple bar codes, it would be better to cover other bar codes in the range of the cross, in case your scanner scans the bar code you don't need.



2.1.3 Work with the ASCII table

Sometimes, you might need to send some control characters that can't be typed, or enter characters without a keyboard. You can do it using ASCII codes.

In *Appendix B*, you'll find the ASCII table. Both column and row numbers are hexadecimal. The ASCII code of a character is the combination of a column and a row number, where the column comes first. For example, the ASCII code of BEL is "07" and the number sign (#) is "23." You can use the bar codes in *Appendix D* to scan ASCII codes.

2.1.4 Search your scanner

Sometimes you might leave your scanner somewhere and can't find it. In this case, press and hold the **RESET** button at the bottom of your cradle, until you receive a long beep from your scanner, and you can locate it by the beep sound.

2.2 Battery

AI-6821/AI-6821HD contains a lithium-ion battery that is partially charged at the factory. You might want to charge it to full before your use it. The battery life varies depending on usage.

2.2.1 Charge the battery

You can charge the battery by connecting the USB cable to your computer, or by using a power supply, which charges the battery faster. When your scanner is fully charged, your cradle's LED turns to green.

| Charging by | Full Charge Time |
|--------------|------------------|
| Power Supply | 4.5 hours |
| USB Cable | 6.5 hours |

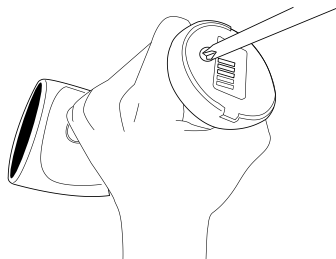


Caution Keep the charging pins dry when you put your scanner on your cradle to charge the battery. Wet charging pins may cause water seeping into your cradle and shortening its life.

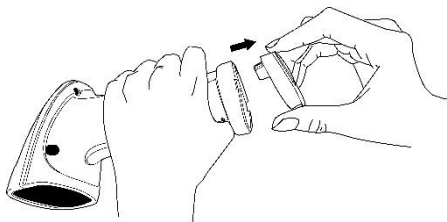
2.2.2 Replace the battery

The battery's life is consumed as you use and charge it. You need to replace the battery when it wears out.

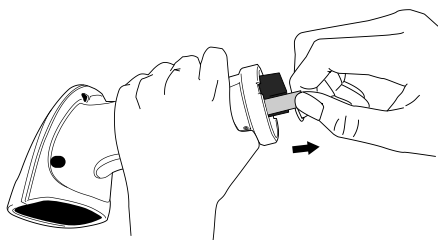
1. Loosen the screw at the bottom of your scanner.



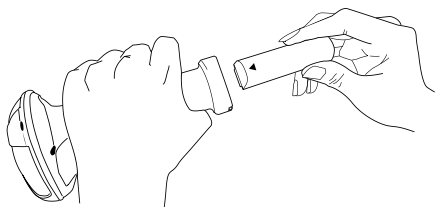
2. Remove the battery cap.



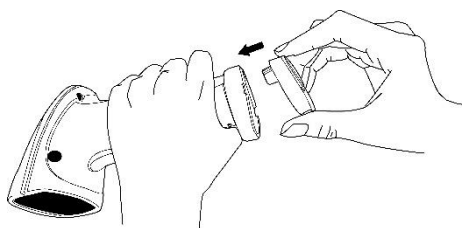
3. Pinch the tape at the top of the battery and pull the battery out.



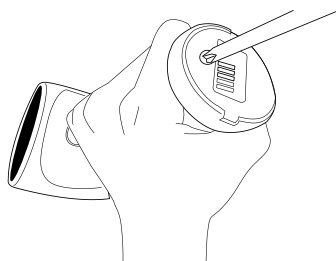
4. Insert the new battery into your scanner in the direction of the arrow printed on the battery.



5. Put the battery cap back to your scanner.
Make sure the angle of cap is the same as below.



6. Tighten the screw to secure the cap.




2.3 Connection

Your scanner can connect to three types of devices: your cradle, a Bluetooth adapter or a mobile device.

2.3.1 Connect to your cradle again

If your scanner has connected to other device, and you want it to connect to your cradle again, do this:

1. Scan the following bar code.

| Option | Description | Bar Code |
|---------|---|---|
| SPP/COM | Connect your scanner back to your cradle. |  |


2. Scan the Data Matrix code at the bottom of your cradle.

2.3.2 Connect to a Bluetooth adapter

If your computer has a Bluetooth adapter, you can connect your scanner to your computer without a cradle.

To connect your scanner to a Bluetooth adapter:

1. Scan the **PC/Android** bar code.

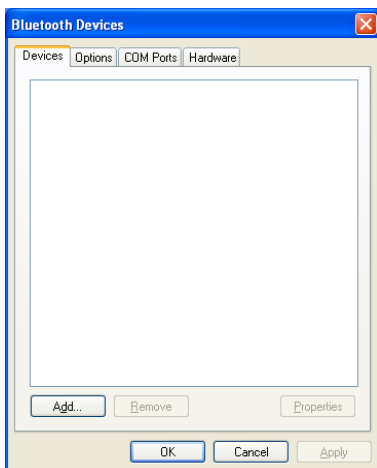
| Option | Description | Bar Code |
|------------|---------------------------------------|---|
| PC/Android | Connect to a PC or an Android device. |  |

2. Click the Bluetooth icon in the notification area.

Note Your computer needs to be Bluetooth-enabled.



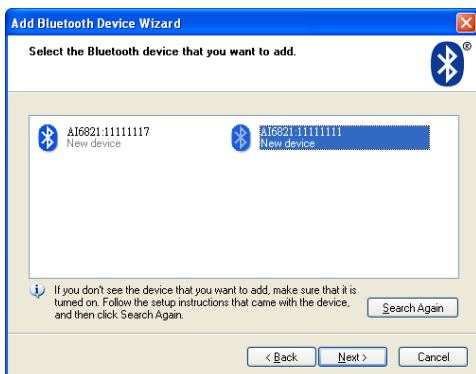
3. In the Bluetooth Devices dialog box, click **Add**.



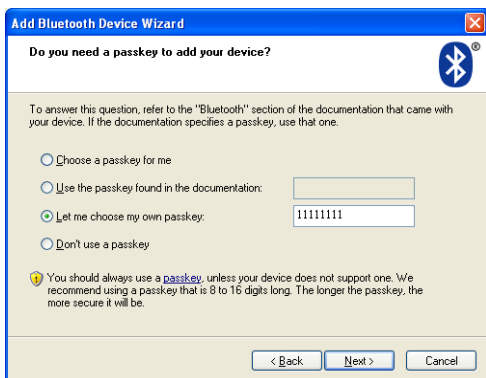
4. In the **Add Bluetooth Device Wizard** dialog box, select the **My device is set up and ready to be found** check box, and click **Next**.



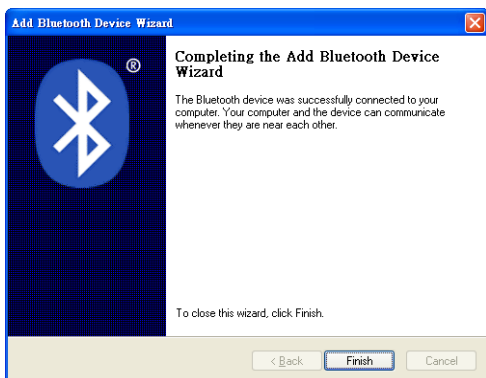
5. If it detects your scanner, it shows “A16821:XXXXXXXX” (X is your scanner’s serial number) in the list. Click your scanner, and click **Next**.



6. Click **Let me choose my own passkey**.
The default key is your scanner's serial number (at the bottom of your cradle).
After entering the key, click **Next**.



7. The computer will try to connect to your scanner. If it succeeds, you'll see the successful message. Click **Finish**.



2.3.3 Connect to a mobile device

AI-6821/AI-6821HD is able to connect to an iOS or Android device that you can use to process bar codes.

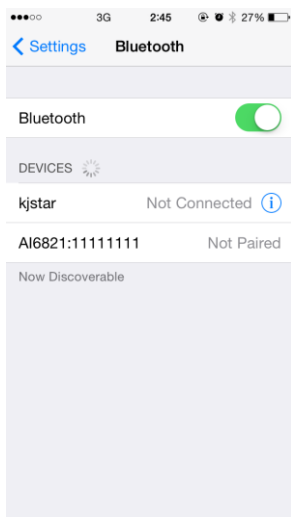
Connect to an iOS device

You can connect your scanner to an iOS device, such as iPhone, iPad or iPod touch. The setup screen may vary depending on your device. In this section, we use an iPhone as an example.

1. Scan the **MAC/HID** bar code.

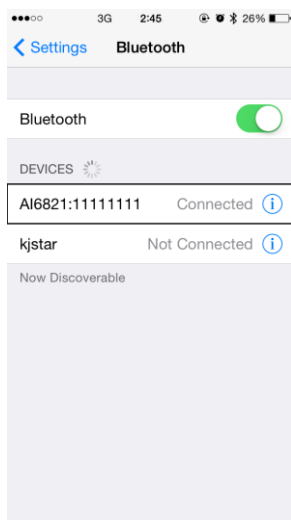
| Option | Description | Bar Code |
|---------|---------------------------|---|
| MAC/HID | Connect to an iOS device. |  |

2. On your iPhone, Go to **Settings** > **Bluetooth**. Turn on Bluetooth, and your iPhone searches other Bluetooth devices automatically. If it detects your scanner, it shows "AI6821:XXXXXXXXX" (X is your scanner's serial number) under **DEVICES**. Tap your scanner to connect

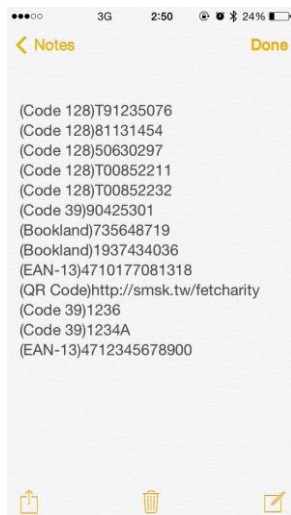




it.

3. When it connects successfully, the status of your scanner is changed to **Connected**.



4. Tap **Notes** to open a new note. Use your scanner to scan bar codes and the data shows in the note.




| Option | Description | Bar Code |
|--------|--------------------|---|
| Show | Show iOS keyboard. |  |
| Hide | Hide iOS keyboard |  |

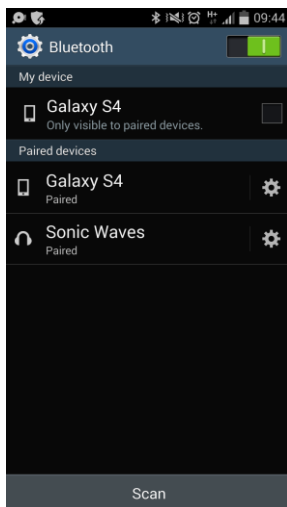
Connect to an Android device

You can connect your scanner to an Android device, such as a smartphone or tablet. The setup screen may vary depending on your device. In this section, we use a smartphone as an example.

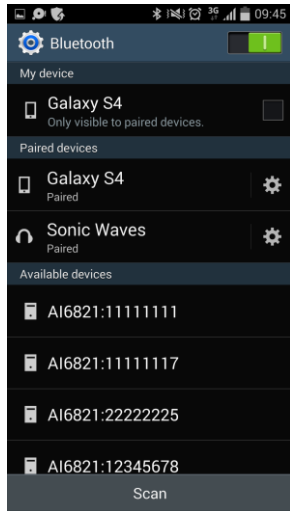
1. Scan the **PC/Android** bar code.

| Option | Description | Bar Code |
|------------|---------------------------------------|---|
| PC/Android | Connect to a PC or an Android device. |  |

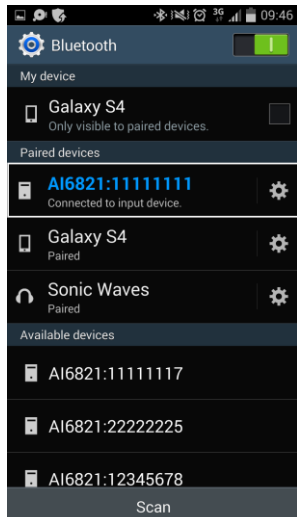
2. On your Android smartphone, go to the Bluetooth setting screen. Turn on Bluetooth.



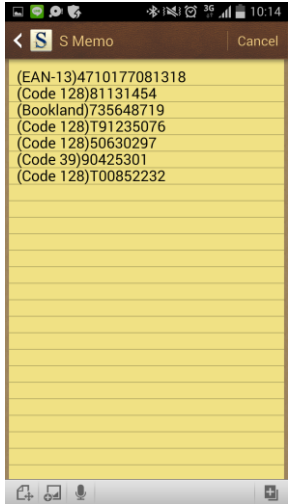
3. Tap **Scan** to search Bluetooth devices. If it detects your scanner, it shows “AI6821:XXXXXXXXX” (X is your scanner’s serial number) in the list. Tap your scanner to connect it.



4. When it connects successfully, your scanner is shown under **Paired devices**.



5. Tap a memo App to open a new memo. Use your scanner to scan bar codes and the data shows in the memo.



3 Controls and settings

Customize your scanner to work efficiently. AI-6821/AI-6821HD offers many features to match your preferences. This chapter provides information about how to change controls and settings of your scanner.



Important Settings marked as “**cradle only**” are only configurable when your scanner connects to your cradle.



3.1 Data transmission

You might want to display additional information in bar codes for your system, so you can track your products or spot problems. This section describes how to manage the data transmission of your bar code.

3.1.1 Character length

It shows the number of the character length at the beginning of a bar code. For example, if your bar code is “Argox,” the result is “0005Argox.” The maximum character length of the bar code varies between bar code types. If the number is smaller than 1000, it pads the number with leading zeros.



(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| On | Show the number of the character length at the beginning of a bar code. |  |
| *Off | Turn off this feature. |  |

3.1.2 Name of the bar code type

It shows the name of a bar code type at the beginning of a bar code. For example, if your bar code type is Code 128, and your bar code is "Argox," the result is "(Code 128)Argox."



(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| On | Show the name of a bar code type at the beginning of a bar code. |  |
| *Off | Turn off this feature. |  |

3.1.3 AIM symbology ID

It shows the AIM symbology ID at the beginning of a bar code.

(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| *Off | Turn off this feature. |  |
| AIM | Show the AIM symbology ID at the beginning of a bar code. |  |

3.1.4 Acknowledge timeout








When you connect your scanner to your cradle and start to scan bar codes, you might wonder if your cradle receives bar code data. Acknowledge timeout can help you confirm data receipt.

When you turn on this feature, you'll hear two beeps after scanning a bar code. The first beep is a good scan beep, the second beep indicates that your cradle has notified your scanner that data had been acknowledged. Acknowledge timeout determines how long your scanner waits your cradle to notify it.

You can only scan the next bar code *after* data has been acknowledged. If you don't wait the second beep and keep scanning, you'll hear error beeps.

If timeout is set to 0, it is turned off. You can keep scanning without waiting your cradle to acknowledge data, but data might be lost if you scan too fast.

(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| 0 sec | Your scanner won't wait your cradle to notify it that data has been acknowledged. Data might be lost if scanning too fast. |  |
| 1 sec | Your scanner waits 1 second for your cradle to notify it that data has been acknowledged. |  |
| *2 sec | Your scanner waits 2 seconds for your cradle to notify it that data has been acknowledged. |  |
| 3 sec | Your scanner waits 3 seconds for your cradle to notify it that data has been acknowledged. |  |
| 4 sec | Your scanner waits 4 seconds for your cradle to notify it that data has been acknowledged. |  |
| 5 sec | Your scanner waits 5 seconds for your cradle to notify it that data has been acknowledged. |  |
| 6 sec | Your scanner waits 6 seconds for your cradle to notify it that data has |  |

| Option | Description | Bar Code |
|--------|-------------|----------|
|--------|-------------|----------|

been acknowledged.

3.1.5 Prefix and suffix

You can add a character at the beginning or the end of a bar code. To add a character, do this:

1. Scan the prefix or the suffix bar code.
2. Scan the hexadecimal bar codes in *Appendix D* to enter the ASCII codes that corresponding to the character you want to add. For more information about ASCII codes, see *Appendix B*.
3. Scan the **Save** bar code in *Appendix D*.

■ Prefix

Add one character at the beginning of your bar code.


| Option | Description | Bar Code |
|--------|-------------|----------|
|--------|-------------|----------|

00-FF Prefix length: one
character
Default: 0x00




■ Suffix 1

Add one character at the end of your bar code.

| Option | Description | Bar Code |
|--------|---|---|
| 00-FF | Suffix length: one character Default: 0x0D |  |

■ Suffix 2

Add one character at the end of Suffix 1.

| Option | Description | Bar Code |
|--------|---|---|
| 00-FF | Suffix length: one character Default: 0x0A |  |


3.2 Volume and vibration

When you use your scanner, you might want to adjust its volume or vibration to adapt to your workplace. This section describes how to use them.

3.2.1 Good scan beep duration

You can decide how long your scanner beeps after it gets a good scan. The duration is from 0.1 to 0.9 second.

(*) Default





| Option | Description | Bar Code |
|--------|------------------|---|
| *1 | 0.1 second (MIN) |  |






| Option | Description | Bar Code |
|--------|------------------|---|
| 2 | 0.2 second |  |
| 3 | 0.3 second |  |
| 4 | 0.4 second |  |
| 5 | 0.5 second |  |
| 6 | 0.6 second |  |
| 7 | 0.7 second |  |
| 8 | 0.8 second |  |
| 9 | 0.9 second (MAX) |  |

3.2.2 Inquiry beep (cradle only)

When your cradle doesn't connect to any scanner, it alerts you with beeps. You can decide the frequency of the beep sound.

(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| Mute | Your cradle won't beep when it doesn't connect to any scanner. |  |
| 1 | You cradle beeps every 10 seconds when it doesn't connect to any scanner. |  |
| 2 | You cradle beeps every 20 seconds when it doesn't connect to any scanner. |  |
| 3 | You cradle beeps every 30 seconds when it doesn't connect to any scanner. |  |

| Option | Description | Bar Code |
|------------------|---|---|
| 4 | You cradle beeps every 40 seconds when it doesn't connect to any scanner. |  |
| 5 | You cradle beeps every 50 seconds when it doesn't connect to any scanner. |  |
| 6 | You cradle beeps every 60 seconds when it doesn't connect to any scanner. |  |
| 7 | You cradle beeps every 70 seconds when it doesn't connect to any scanner. |  |
| *8 (continue) | Your cradle continues to beep when it doesn't connect to any scanner. |  |

3.2.3 Scan volume

You can adjust the beep volume of your scanner.




(*) Default

| Option | Description | Bar Code |
|--------|---------------|---|
| 0 | Mute |  |
| 1 | Level 1 (MIN) |  |
| 2 | Level 2 |  |
| 3 | Level 3 |  |
| 4 | Level 4 |  |
| 5 | Level 5 |  |
| 6 | Level 6 |  |
| *7 | Level 7 (MAX) |  |

3.2.4 Vibration

Vibration provides two modes. You can choose one of them or turn off vibration.



(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| 0 | Turn off vibration. |  |
| 1 | Vibrate after a scan. |  |
| *2 | Vibrate after your cradle acknowledges a scan. |  |

3.2.5 Power on alert

You can decide whether your scanner beeps when you put a battery into it.

(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| *On | You scanner beeps when you put a battery into it. |  |
| Off | You scanner doesn't beep when you put a battery into it. |  |



3.3 Operating mode






AI-6821/AI-6821HD offers some operating modes that help prevent data loss and extend battery life. This section describes how to use these modes.

3.3.1 Handcuff mode

You can decide how long your scanner beeps after it lost Bluetooth connection.

(*) Default



| Option | Description | Bar Code |
|--------|--|---|
| *Off | You scanner doesn't alert when it lost Bluetooth connection. |  |
| 10 sec | You scanner beeps for 10 seconds after it lost Bluetooth connection. |  |

| Option | Description | Bar Code |
|--------|--|--|
| 20 sec | You scanner beeps for 20 seconds after it lost Bluetooth connection. |  |
| 30 sec | You scanner beeps for 30 seconds after it lost Bluetooth connection. |  |
| 40 sec | You scanner beeps for 40 seconds after it lost Bluetooth connection. |  |
| 50 sec | You scanner beeps for 50 seconds after it lost Bluetooth connection. |  |
| 60 sec | You scanner beeps for 60 seconds after it lost Bluetooth connection. |  |

3.3.2 Batch mode

You can decide whether your scanner stores data in its storage when it lost Bluetooth connection. The storage size is 7 KB. If the storage is full, you'll hear an error beep when your scanner tries to store data in it.

(*) Default



| Option | Description | Bar Code |
|--------|---|---|
| *On | You scanner stores data in its storage when it lost Bluetooth connection. |  |
| Off | No data is stored. |  |

3.3.3 Sleep mode

To save battery power, you can put your scanner into sleep if it doesn't work in a certain amount of time. To wake it up, just pull the trigger. Note that your scanner needs 2-3 seconds to wake up, since the engine needs a little time to start.

Time to sleep (cradle)




(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| *0 | Turn off the Sleep mode. |  |
| 1 | Go to sleep after being idle for 10 minutes. |  |

| Option | Description | Bar Code |
|--------|--|---|
| 3 | Go to sleep after being idle for 30 minutes. |  |
| 6 | Go to sleep after being idle for 60 minutes. |  |
| 9 | Go to sleep after being idle for 90 minutes. |  |

Time to sleep (mobile device)

(*) Default



| Option | Description | Bar Code |
|--------|---|---|
| *0 | Turn off the Sleep mode. |  |
| 1 | Go to sleep after being idle for 1 minute. |  |
| 5 | Go to sleep after being idle for 5 minutes. |  |

Sleep partial

You can choose to keep Bluetooth connection while scanner goes to sleep. It can wake the

scanner sooner into work but save lower battery power.



(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| *Off | Turn off the Bluetooth and 2D engine (default). |  |
| On | Keep Bluetooth connection and turn off 2D engine. |  |

3.3.4 Auto-sensing mode

It automatically detects and decodes bar codes in your scanner's field of view. You can turn on this mode when you want to decode bar codes without pulling the trigger.

(*) Default





| Option | Description | Bar Code |
|--------|------------------------|---|
| On | Auto-sensing mode on. |  |
| *Off | Auto-sensing mode off. |  |

3.4 Interface selection (cradle only)

AI-6821/AI-6821HD supports RS-232, USB HID

and virtual COM. By default, your cradle is able to detect the interface automatically. When it detects USB, it selects HID as your scanner's interface.

(*) Default

| Option | Description | Bar Code |
|--------|-------------|--|
| 1 | RS-232 |  |
| 3 | USB HID |  |
| *4 | Auto |  |
| 5 | Virtual COM |  |

3.4.1 HID setting

When you connect your cradle via the USB port, your computer recognizes it as a human interface device (HID), which you use to interact with your computer, like the keyboard or mouse. The following bar codes are HID settings that help you optimize your data input.

Country (cradle only)


You can use it to change your keyboard

layout, so your scanner can scan bar codes of different languages. This setting is available only when you use USB HID as your interface.

When you set a different country keyboard, the decoder automatically resets and you'll hear the startup sound.

| Option | Description | Bar Code |
|--------|-------------|---|
| 0 | USA |  |
| 1 | Belgium |  |
| 2 | Denmark |  |
| 3 | France |  |
| 4 | Germany |  |
| 5 | Italy |  |



| Option | Description | Bar Code |
|--------|----------------|---|
| 6 | Portugal |  |
| 7 | Spain |  |
| 8 | Sweden |  |
| 9 | Switzerland |  |
| 10 | United Kingdom |  |
| 11 | Latin America |  |
| 12 | Japan |  |
| 13 | BiG5 |  |

| Option | Description | Bar Code |
|--------|-------------|---|
| 14 | UTF-8 |  |

Caps Lock (cradle only)

It determines whether the state of the Caps Lock key affects the output of bar codes.



(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| On | The Caps Lock key affects the output of bar codes. |  |
| *Off | The Caps Lock key doesn't affect the output of bar codes. |  |

Function key (cradle only)



It maps function keys to ASCII codes, so you can scan bar codes in place of the function key input. For example, if you scan the numeric bar code “1” and then “2,” your scanner will send the specific character to your computer as though you press F2. The code mapping range is from 01 to 1F. For more information about ASCII codes, see ASCII table in *Appendix B*.


(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| *On | Simulate the function key input while you scan the bar codes that correspond to the ASCII code of a function key. |  |
| Off | Turn off function key simulation. |  |

Alphanumeric keys (cradle only)

There are three key modes for data input. When you scan bar codes, your scanner will send bar code data as though you press keys on a keyboard in the selected mode to enter data.

| Option | Description | Bar Code |
|-------------------|---|---|
| Alphanumeric Keys | Alphanumeric keys are at the center of the keyboard, including alphabet keys and the numeric keys above them. |  |
| Numeric Keypad | The keypad is located to the rightmost of a keyboard. You need to select this mode if your program only accepts numerals. |  |

| Option | Description | Bar Code |
|--------------------|--|---|
| Alt+Numeric Keypad | <p>Enter special character by pressing “Alt+number.” For example, “Alt+128” is the Euro sign (€).</p> <p>This option is only available on Windows.</p> |  |




3.4.2 RS-232 settings


RS-232 settings provide options that can be used to control data flow.

Flow control (cradle only)

Flow control determines how your computer and cradle control their communication.

(*) Default




| Option | Description | Bar Code |
|----------|---|---|
| *None | Your computer and cradle only use TxD and RxD signals for communication. No hardware or software flow control is used. |  |
| RTS/CTS | It is hardware flow control. If your scanner is ready to send bar code data to your computer, it sends an RTS signal, and waits to receive a CTS signal from your computer. If your scanner doesn't receive a CTS, you'll hear an error beep from it. |  |
| Xon/Xoff | It is software flow control. When your computer is unable to receive data, it sends an Xoff signal to |  |








| Option | Description | Bar Code |
|---------|---|---|
| | notify your scanner to stop sending data; it sends an Xon signal when it's ready. | |
| ACK/NAK | You scanner sends data after it received an ACK signal from your computer, and will resend data if it receives an NAK signal. |  |

Response delay (cradle only)

If you use RTS/CTS or ACK/NAK for flow control, you can decide how long your cradle waits your computer to acknowledge the data transmission.

(*) Default









| Option | Description | Bar Code |
|--------|--|---|
| 0 | Your cradle doesn't wait your computer to acknowledge the data transmission. |  |
| 10 | Your cradle waits 1 second. |  |
| *20 | 2 seconds |  |

| Option | Description | Bar Code |
|--------|-------------|---|
| 30 | 3 seconds |  |
| 40 | 4 seconds |  |
| 50 | 5 seconds |  |
| 60 | 6 seconds |  |
| 70 | 7 seconds |  |
| 80 | 8 seconds |  |
| 90 | 9 seconds |  |

Baud (cradle only)

Baud is the rate of the signal transmitted per second. It ranges between 1200 and 115200. The higher the baud, the faster the speed.








(*) Default



| Option | Bar Code | Option | Bar Code |
|--------|---|---------|---|
| 1200 |  | 2400 |  |
| 4800 |  | 9600 |  |
| 19200 |  | 38400 |  |
| 57600 |  | *115200 |  |

Parity check (cradle only)

A parity bit is added at the end of a string of data bits to check if data is correct.

(*) Default

| Option | Description | Bar Code |
|--|--|---|
| 7 data bits 1 stop bit parity even | The total number of “ones” in your data plus parity bit is an even number. |  |
| 7 data bits 1 stop bit parity odd | The total number of “ones” in your data plus parity bit is an odd number. |  |
| 7 data bits 1 stop bit parity none | No parity bit is used. |  |
| 7 data bits 2 stop bit parity even | The total number of “ones” in your data plus parity bit is an even number. |  |
| 7 data bits 2 stop bit parity odd | The total number of “ones” in your data plus parity bit is an odd number. |  |
| 7 data bits 2 stop bit parity none | No parity bit is used. |  |
| 8 data bits 1 stop bit parity even | The total number of “ones” in your data plus parity bit is an even number. |  |

| Option | Description | Bar Code |
|---|--|---|
| 8 data bits 1 stop bit parity odd | The total number of “ones” in your data plus parity bit is an odd number. |  |
| *8 data bits 1 stop bit parity None | No parity bit is used. |  |

3.5 Update firmware

Updating firmware improves functionalities and performance for your scanner. If you want to update the firmware of AI-6821/AI-6821HD, you need to update your cradle's firmware first. After that, your cradle will reset and try to connect to your scanner. Once they establish the connection, your cradle will update your scanner's firmware.

■ USB connection

To update the firmware of your cradle and scanner, do this:

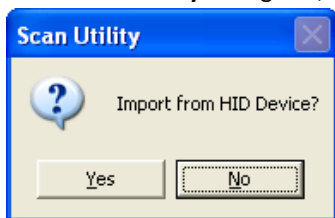
1. Start Scan Utility.
2. On the **File** menu, click **New**.



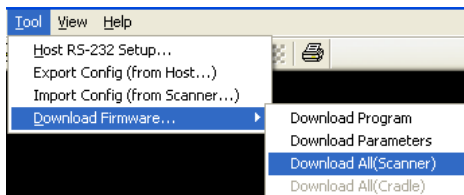
3. In the **NEW** dialog box, select **AI6821** from the **Select Model** list, and click **OK**.



4. In the **Scan Utility** dialog box, click **No**.

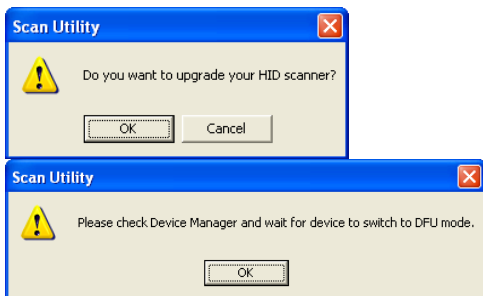


5. On the **Tool** menu, click **Download Firmware > Download All (Scanner)**.
Your cradle will flash green after it enters the firmware update mode.

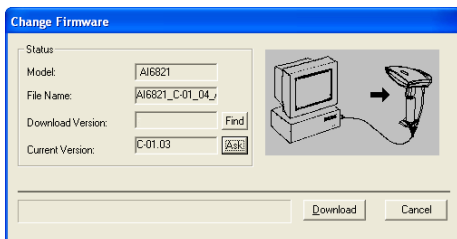


6. Scan Utility will ask if you want to

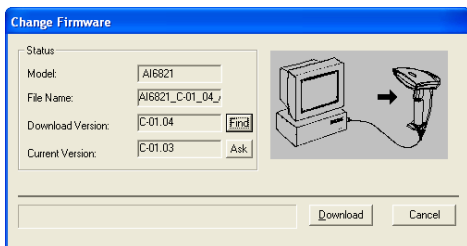
upgrade your scanner, click **OK**. In the next dialog box, click **OK**. Then, you need to wait 7 seconds for the system to switch your scanner to the DFU mode.



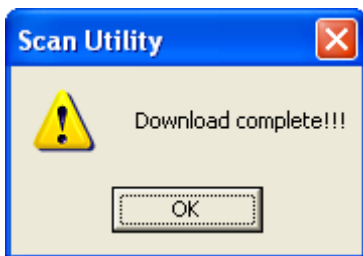
7. In the **Change Firmware** dialog box, click **Ask** to get the current firmware version of your cradle.



8. Click **Find** to load the firmware file. The firmware version in this file needs to be different from the current firmware version of your cradle. After loading the file, click **Download** to update the firmware of your cradle.



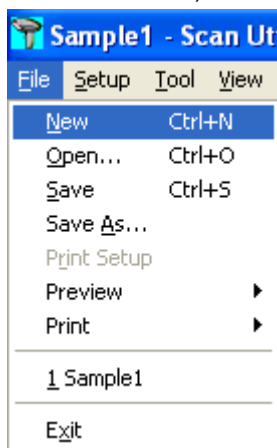
9. After the update is completed, click **OK**. Your cradle will restart and try to connect to your scanner. Once they establish the connection, your cradle will update your scanner's firmware.



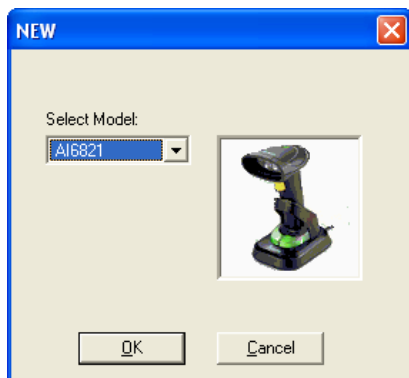
■ RS-232 connection

To update the firmware of your cradle and scanner, do this:

1. Start Scan Utility.
2. On the **File** menu, click **New**.



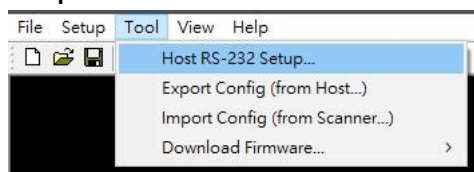
3. In the **NEW** dialog box, select **AI6821** from the **Select Model** list, and click **OK**.



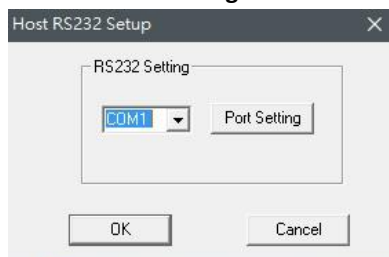
4. In the **Scan Utility** dialog box, click **No**.



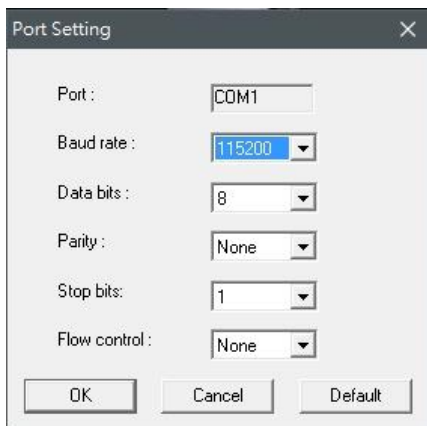
5. On the **Tool** menu, click **Host RS-232 Setup**.



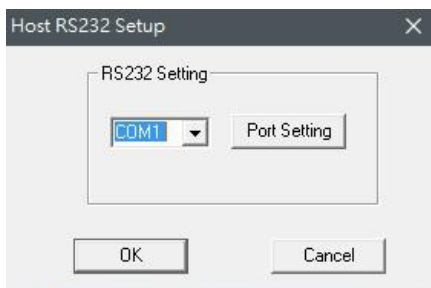
6. In the **Host RS-232 Setup** dialog box, select the COM port your scanner is using and click **Port Setting**.



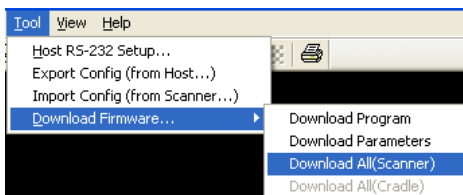
7. In the **Port Setting** dialog box, in the **Baud rate** list, select **115200** and click **OK**.



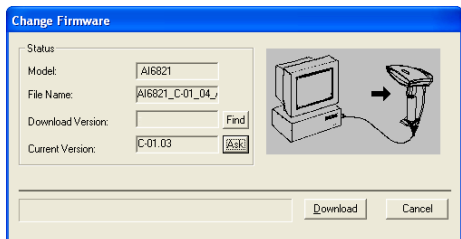
8. In the **Host RS-232 Setup** dialog box, click **OK**.



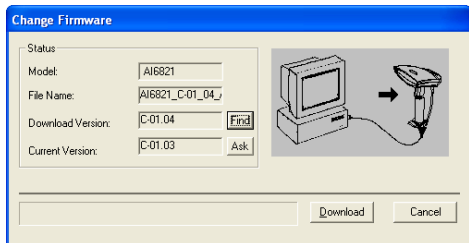
9. On the **Tool** menu, click **Download Firmware > Download All (Scanner)**.
Your cradle will flash green after it enters the firmware update mode.



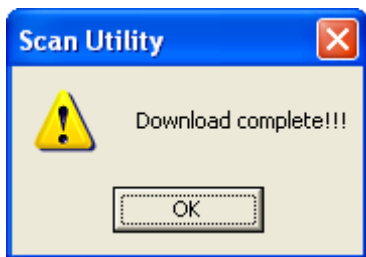
10. In the **Change Firmware** dialog box, click **Ask** to get the current firmware version of your cradle.



11. Click **Find** to load the firmware file. The firmware version in this file needs to be different from the current firmware version of your cradle. After loading the file, click **Download** to update the firmware of your cradle.





12. After the update is completed, click **OK**. Your cradle will restart and try to connect to your scanner. Once they establish the connection, your cradle will update your scanner's firmware.



■ Auto Update

Every time your cradle connects to your scanner, Auto Update checks the firmware version of your cradle and scanner, and automatically updates your scanner's firmware if its version is different from your cradle's.

(*) Default

| Option | Description | Bar Code |
|--------|--|---|
| *Off | Turn off auto update. |  |
| On | Update your scanner's firmware if its version is different from your cradle's. |  |


■ Force Update

Force Update is used to force your scanner to update its firmware. Once you scan the **Force Update** bar code, your scanner immediately downloads the firmware from your cradle, even if its firmware version is the same as your cradle.

Remember, if you use Force Update, Auto Update will be turned off. If you want to use Auto Update again, you need to turn it on.



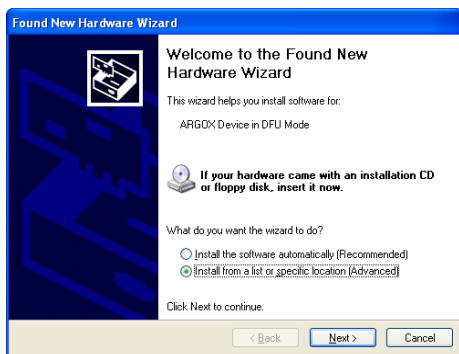
Caution Make sure your cradle is idle and connected to your scanner when you use Force Update, because your cradle does one thing at a time only.

| Option | Description | Bar Code |
|--------------|---|--|
| Force Update | Force your scanner to update its firmware |  |

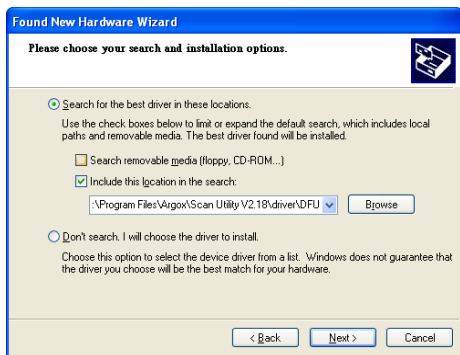
Install driver

If you're using the USB cable to connect your scanner and your operating system is Windows XP, the system may ask you to install the driver for AI-6821/AI-6821HD during the firmware updating process. Take the following steps to install it.

1. In the **Found New Hardware Wizard** dialog box, click **Install from a list or specific location (Advanced)**, and click **Next**.



2. Select the **Include this location in the search** check box, and click **Browse**. The default path of driver of AI-6821/AI-6821HD is C:\Program Files\Argox\((Your Scan Utility version)\driver\DFU. After setting the path, click **Next**.



3. The system starts to install the driver. After it is completed, click **Finish**.





3.6 Miscellaneous

This section describes settings that give you finer control over your scanner.

3.6.1 Status lights control

The status lights glow when you scans a bar code and get acknowledged from your cradle. You can turn off all the lights using this setting, except for the light that indicates a Bluetooth connection is established between your scanner and cradle.

(*) Default

| Option | Description | Bar Code |
|--------|---|---|
| *On | The status lights glow according to the operation. |  |
| Off | The status lights don't glow except for Bluetooth connection. |  |

3.6.2 Fill-in light intensity

When you turn on the aiming pattern, you'll notice that the pattern is encompassed by the fill-in light, which helps your scanner see bar codes clearly.

You can adjust the intensity of the fill-in light if you feel it is too bright, but it affects the “sight” of your scanner. The lower the intensity, the harder your scanner sees bar codes.


(*) Default

| Option | Description | Bar Code |
|--------|-------------|---|
| 02 | Low |  |
| 05 | Medium |  |
| *10 | High |  |

3.6.3 PIN code setting

When you connect your scanner to your cradle, you need to scan the Data Matrix code at the bottom of your cradle, or scan **Enter PIN code** and scan eight digits of your cradle’s PIN number using bar codes in *Appendix D*.



You can simplify the PIN code to 0000 by scanning **PIN Code:= 0000**.

| Option | Description | Bar Code |
|----------------|---|---|
| PIN Code:=0000 | The Bluetooth PIN code of your scanner. |  |

3.6.4 Mobile phone mode


It improves reading performance of your scanner with target bar codes displayed on mobile phones and other electronic displays.

(*) Default

| Option | Description | Bar Code |
|--------|-----------------------------|---|
| On | Turn on mobile phone mode. |  |
| *Off | Turn off mobile phone mode. |  |

3.6.5 Disconnection

Scan the following bar code to disconnect your scanner from your cradle.



| Option | Description | Bar Code |
|---------------|---|---|
| Disconnection | Disconnect your scanner from your cradle. |  |

3.6.6 Aiming pattern

By default, your scanner projects the aiming

pattern during the scan. You can turn it off.



(*) Default

| Option | Description | Bar Code |
|--------|------------------------------|---|
| *On | Turn on the aiming pattern. |  |
| Off | Turn off the aiming pattern. |  |

3.6.7 Align mode

Decode only the bar codes aligned under the center of the aiming pattern.

(*) Default

| Option | Description | Bar Code |
|--------|--------------------------|---|
| On | Turn on the Align mode. |  |
| *Off | Turn off the Align mode. |  |


3.6.8 Reset your scanner

By resetting your scanner, you can return your scanner to the state it was in when you receive it. This can help you solve some problems caused by settings changed between scans.

There are two ways to reset your scanner.

■ Scan the bar code

Scan the following bar code to reset your scanner.

| Option | Description | Bar Code |
|---------------|---|---|
| Reset scanner | Restore your scanner to factory settings. |  |

■ Press and hold the RESET button

Press and hold the **RESET** button until you hear the startup sound.


Remember the following when resetting your scanner:

1. If your scanner is connected to your cradle, when you scan the **Reset scanner** bar code or press the **RESET** button, you reset both of your scanner and cradle.
2. If your scanner is *not* connected to your cradle, when you scan the **Reset scanner** bar code, you only reset your scanner; when you press the **RESET** button, you only reset your cradle.

3.6.9 Scanner information

It displays your scanner's information on the screen.

| | |
|----------------------------------|--|
| AI6821 | Model name |
| Ver: S-01.00 | Firmware version |
| SN: 11111111 | Serial number |
| Pin: 11111118 | PIN code |
| Battery: MEDIUM | Battery status: full, medium or low |

| Option | Description | Bar Code |
|--------------------------|---|---|
| Scanner's Information | Display your scanner's information. |  |

3.7 Data Magic

Data Magic offers 10 commands for you to customize text strings of bar codes. Each command can be specified in a rule. Data Magic allows up to 10 rules to be applied. With the flexibility Data Magic provides, you can define data as you want.

There are two ways to use Data Magic: scanning bar codes, or using Scan Utility. By scanning bar codes, you can quickly change the settings without using a program; by using Scan Utility, you can see the settings at a glance and change them through the easy-operated user interface. Choose the method that meets your need.

Data Magic commands

InsertF

Definition

Insert a character or characters from the left of a text string.

Attributes

- Position: The position you want to insert the character.
- String: The specified group.

InsertB

Definition

Insert a character or characters from the right of a text string.

Attributes

- Position: The position you want to insert the character.
- String: The specified group.

CutF

Definition

Remove a character or characters from the left of a text string.

Attributes

- From: The start position of the text to be removed.
- To: The end position of the text to be removed.

CutB

Definition

Remove a character or characters from the right of a text string.

Attributes

- From: The start position of the text to be removed.
- To: The end position of the text to be removed.

KeepF

Definition

Keep a character or characters from the left of a text string.

Attributes

- From: The start position of the text to be kept.
- To: The end position of the text to be kept.

KeepB

Definition

Keep a character or characters from the right of a text string.

Attributes

- From: The start position of the text to be kept.
- To: The end position of the text to be kept.

FindF

Definition

Remove a certain length of the string from the left.

Attributes

- String: The specified group.
- Include: Remove everything before the specified string.
- Exclude: Remove the specified string and everything before it.

FindB

Definition

Remove a certain length of the string from the right.

Attributes

- String: The specified group.
- Include: Remove everything before the specified string.
- Exclude: Remove the specified string and everything before it.

Replace

Definition

Replace the text in the original text string with a different text string.

Attributes

- String: The text in the original text string.
- With String: The string that replaces the specific text.

Erase

Definition

Remove the specified rule.

Attributes

None.

Position Range: 0-99

Cut Range: From: 1-99, To: 1-99





Note If you use Data Magic by scanning bar codes, you don't need the Erase command.

3.7.1 Bar code scanning

Bar code scanning is a quick way to work with Data Magic. Just scan the bar codes in specific order and you can customize your string in seconds.

To use Data Magic, scan the **On** bar code:

(*) Default

| Option | Description | Bar Code |
|--------|----------------------|---|
| On | Turn on Data Magic. |  |
| *Off | Turn off Data Magic. |  |

Data format

Data Magic provides 10 rules for you to set. To set a rule, follow this data format to scan bar codes:

Rule + Command + Attribute 1 +

Attribute 2 + Save

| Item | Description |
|-------------|--|
| Rule | The rule number. The lower the number, the higher the priority. The rule with the high priority will be applied first. |
| Command | The command you specify in the rule. |
| Attribute 1 | The attribute varies according to the command. |
| Attribute 2 | The attribute varies according to the command. |

| Command | Attribute 1 | Attribute 2 |
|---------|-------------|--------------------|
| InsertF | Position | String |
| InsertB | Position | String |
| CutF | From | To |
| CutB | From | To |
| KeepF | From | To |
| KeepB | From | To |
| FindF | String | Include or Exclude |
| FindB | String | Include or Exclude |
| Replace | String | With String |
| Erase | - | - |

To set an InsertF rule with the sample data, scan the following bar codes:



Rule 1



InsertF



0



0



0



5



0



0



0



4










Save

Bar codes

- Rules





To set a rule, scan one of the following bar codes.







| Option | Description | Bar Code |
|--------|-------------|---|
| Rule 1 | Rule 1 |  |
| Rule 2 | Rule 2 |  |
| Rule 3 | Rule 3 |  |
| Rule 4 | Rule 4 |  |
| Rule 5 | Rule 5 |  |
| Rule 6 | Rule 6 |  |
| Rule 7 | Rule 7 |  |

| Option | Description | Bar Code |
|---------|-------------|---|
| Rule 8 | Rule 8 |  |
| Rule 9 | Rule 9 |  |
| Rule 10 | Rule 10 |  |

■ Clear rules


To clear a rule, scan its bar code.









| Option | Description | Bar Code |
|--------|--------------|---|
| Rule 1 | Clear Rule 1 |  |
| Rule 2 | Clear Rule 2 |  |
| Rule 3 | Clear Rule 3 |  |
| Rule 4 | Clear Rule 4 |  |

| Option | Description | Bar Code |
|---------|---------------|---|
| Rule 5 | Clear Rule 5 |  |
| Rule 6 | Clear Rule 6 |  |
| Rule 7 | Clear Rule 7 |  |
| Rule 8 | Clear Rule 8 |  |
| Rule 9 | Clear Rule 9 |  |
| Rule 10 | Clear Rule 10 |  |

■ Commands

The bar codes below are Data Magic commands.






| Option | Description | Bar Code |
|---------|--|---|
| InsertF | Insert from the <u>left</u> of a string. |  |






| Option | Description | Bar Code |
|---------|---|---|
| InsertB | Insert from the <u>right</u> of a string. |  |
| CutF | Remove from the <u>left</u> of a string. |  |
| CutB | Remove from the <u>right</u> of a string. |  |
| KeepF | Keep from the <u>left</u> of a string. |  |
| KeepB | Keep from the <u>right</u> of a string. |  |
| FindF | Remove a certain length of the string from the <u>left</u> . |  |
| FindB | Remove a certain length of the string from the <u>right</u> . |  |
| Replace | Replace the text with a different text string. |  |

■ Strings

To set a string:



1. Scan a string bar code, such as **String1**.
2. Find your characters in the ASCII table, and scan their ASCII codes using bar codes in *Appendix D*. See *Appendix B* for ASCII codes of characters.
3. Scan the **Save** bar code in *Appendix D*.









| Option | Description | Bar Code |
|---------|------------------|---|
| String1 | Insert String 1. |  |
| String2 | Insert String 2. |  |
| String3 | Insert String 3. |  |
| String4 | Insert String 4. |  |
| String5 | Insert String 5. |  |


| Option | Description | Bar Code |
|----------|-------------------|--|
| String6 | Insert String 6. |  |
| String7 | Insert String 7. |  |
| String8 | Insert String 8. |  |
| String9 | Insert String 9. |  |
| String10 | Insert String 10. |  |

■ Clear strings

To clear a string, scan its bar code.


| Option | Description | Bar Code |
|---------|-----------------|---|
| String1 | Clear String 1. |  |
| String2 | Clear String 2. |  |

| Option | Description | Bar Code |
|----------|------------------|---|
| String3 | Clear String 3. |  |
| String4 | Clear String 4. |  |
| String5 | Clear String 5. |  |
| String6 | Clear String 6. |  |
| String7 | Clear String 7. |  |
| String8 | Clear String 8. |  |
| String9 | Clear String 9. |  |
| String10 | Clear String 10. |  |

| Option | Description | Bar Code |
|------------------|--------------------|---|
| Clear Strings | Clear all strings. |  |


■ Info

Display the current Data Magic settings.

| Option | Description | Bar Code |
|--------|--|---|
| Info | Display the current Data Magic settings. |  |

■ Clear All

Remove all values from Data Magic settings. (except strings)

| Option | Description | Bar Code |
|--------------|------------------------------------|---|
| Clear All | Clear all values. (except strings) |  |

Example

Original Text String: ARGOX89121121

Group 1: ARGOX

Group 2: argox

Group 3: GOX

Group 4: Tel:

InsertF

Insert Group 4 (Attr 2) into the fifth (Attr 1) position from the left side of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 1 | InsertF | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 4 | |

Data: ARGOX89121121

Result: ARGOXTel:89121121

InsertB

Insert Group 4 (Attr 2) into the eighth (Attr 1) position from the right of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 2 | InsertB | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | |

Data: ARGOX89121121

Result: ARGOXTel:89121121

CutF

Remove first 5 characters from the left of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 3 | CutF | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | |

Data: ARGOX89121121

Result: 89121121

CutB

Remove first 8 characters from the right of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 4 | CutF | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | |

Data: ARGOX89121121

Result: ARGOX

KeepF

Keep the characters from (Attr1) to (Attr2) from the left of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 5 | KeepF | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | |

Data: ARGOX89121121

Result: GOX891

KeepB

Keep the characters from (Attr1) to (Attr2) from the right of the string.

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 6 | KeepB | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | |

Data: ARGOX89121121

Result: 891211

FindF

Remove Group 3 (Attr 1) and everything before it from the left of the string. Attribute 2 can be "0000" or "0001."

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 7 | FindF | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | |

0000: Include

0001: Exclude

Data: ARGOX89121121

Data: ARGOX89121121

Result: GOX89121121

Result: 89121121

FindB

Remove Group 3 (Attr 1) and everything before it from the right of the string. Attribute 2 can be "0000" or "0001."

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 8 | FindB | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | |

0000: Include

0001: Exclude

Data: ARGOX89121121

Data: ARGOX89121121

Result: ARGOX

Result: AR

Replace

In the original string, replace the Group 1 (Attr1) with Group 4 (Attr2).

| Rule | Command | Attribute 1 | | | | Attribute 2 | | | | Save |
|------|---------|-------------|---|---|---|-------------|---|---|---|------|
| 9 | Replace | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | |

Data: ARGOX89121121

Result: Tel:89121121

3.7.2 Scan Utility

Scan Utility provides a simple, clear interface that you can easily view and change Data Magic settings, and import or export the settings to your scanner. Currently, Scan Utility uses RS-232 for data transmission. If your scanner is connected using the USB cable, you need to install Virtual COM for Scan Utility for data transmission. For more information about installing Virtual COM, see *Virtual COM*.

To use Data Magic, start Scan Utility and do this:

1. On the **File** menu, click **New**.
2. In the **NEW** dialog box, select **AI6821** from the **Select Model** list, and click **OK**.
3. In the **Scan Utility** dialog box, click **No**.
4. On the **Setup** menu, click **Scanner Setup**, and click the **Data Magic** tab.
5. In the **Data Magic** tab, select the **Data Magic** check box.
6. Click one of the rules you want to set. For example, if you want to set **Rule 1**, select its **Enable** check box. In the command list, click the command you want, such as **InsertF**. In the **position** box, type a position number. In the **string** list, click the group you want.

7. Repeat the previous step until you set all the rules you need, and click the **String** tab.
8. In the **String** tab, there are 10 string boxes: **Insert G1-G10 chars setting**. Each box corresponds to the group you've selected in the **string** list in the **Data Magic** tab. Depending on your selection, type the text you want in the specific box. For example, if you've selected **Group1**, type in the **Insert G1 chars setting** box. The string box accepts up to 12 single-byte characters. When you're done, click **OK**.
9. On the **Tool** menu, click **Export Config (from Host)**, and click **Export**. If the data is exported successfully, you'll hear a long beep.



Note The bar codes types available in Data Magic are the same as those you've turned on. For more information about how to turn on bar codes types, see *Chapter 4*.

In the **Data Magic** tab, you'll find 10 rules.
Each rule can be set to one of the commands.
The table below describes how to use those commands.

The screenshot shows the 'Scanner Setup' dialog box with the 'Data Magic' tab selected. It contains 10 rules, each with a set of options for enabling, command type, and parameters.

- Rule 1:** ☒ Enable, **InsertF**, position: 1, string: Group2
- Rule 2:** ☒ Enable, **InsertB**, position: 1, string: Group2
- Rule 3:** ☒ Enable, **CutF**, from: 2, to: 4
- Rule 4:** ☒ Enable, **CutB**, from: 2, to: 4
- Rule 5:** ☒ Enable, **Replace**, string: Group1, with string: Group2
- Rule 6:** ☒ Enable, **KeepF**, from: 4, to: 6
- Rule 7:** ☒ Enable, **KeepB**, from: 4, to: 6
- Rule 8:** ☒ Enable, **FindF**, string: Group3, Include/Exclu: Include
- Rule 9:** ☒ Enable, **FindB**, string: Group3, Include/Exclu: Exclude
- Rule 10:** ☒ Enable, **Erase**, Ignore: Ignore

| Command | Example |
|---------|---|
| InsertF | Position: 1 String: Group 2 Group 2: Argox Original String: 12345678 Result: 1 <u>Argox</u> 2345678 |
| InsertB | Position: 1 String: Group 2 Group 2: Argox Original String: 12345678 Result: 1234567 <u>Argox</u> 8 |
| CutF | From: 2 To: 4 Original String: 1 <u>234</u> 5678 Result: 15678 |
| CutB | From: 2 To: 4 Original String: 1234 <u>56</u> 78 Result: 12348 |

| Command | Example |
|---------|--|
| Replace | String: Group1 With String: Group 2 Group 1: 456 Group 2: Argox Original String: 123 <u>45</u> 678 Result: 123 <u>Argox</u> 78 |
| KeepF | From: 2 To: 4 Original String: 123 <u>45</u> 678 Result: 234 |
| KeepB | From: 2 To: 4 Original String: 1234 <u>56</u> 78 Result: 567 |
| FindF | String: Group 3 Group 3: 45 Original String: 1234 <u>56</u> 78 Include/Exclu: Include ■ Result: <u>45</u> 678 Include/Exclu: Exclude ■ Result: 678 |
| FindB | String: Group 3 Group 4: 45 Original String: 1234 <u>56</u> 78 Include/Exclu: Include ■ Result: 123 <u>45</u> Include/Exclu: Exclude ■ Result: 123 |
| Erase | In Rule 10, In the command list, click Erase , and Rule 10 will be removed. You can also clear the Enable check box to remove the rule. |

Virtual COM

You can configure Virtual COM to transmit data to a computer via a virtual COM port. After installing Virtual COM, your scanner will be assigned a virtual COM port, which you can use to receive or send data.

To configure Virtual COM on Windows XP and set up a virtual COM port in Scan Utility:

1. Connect your scanner to your computer.
2. Use the bar code in *Interface Selection* to switch the interface to **Virtual COM**. If the interface is set successful, you'll hear a long beep, and **Found New Hardware Wizard** will appear on screen.
3. In the **Found New Hardware Wizard** dialog box, click **Install from a list or specific location (Advanced)**, and click **Next**.
4. Click **Search for the best driver in these locations**, and select the **Include this location in the search** check box. Next, click **Browse**, and find the driver at your installation path of Scan Utility (default is C:\Program Files\Argox\Scan Utility\driver\virtual com), and then click **Next**.
5. After the driver installed, click **Finish**.
6. Right-click **My Computer** and click **Properties**.

7. Click the **Hardware** tab, and click **Device Manager**.
8. Click **Ports (COM & LPT)**. Find **ARGOX Virtual COM** and see the port number in the parenthesis.
9. Close **Device Manager**.
10. Start Scan Utility. On the **File** menu, click **New**. In the **Select Model** list, click **AI6821**, and click **OK**.
11. On the **Tool** menu, click **Host RS-232 Setup**.
12. In the **Host RS-232 Setup** dialog box, in the **RS-232 Setting** list, click the port you've seen in step 8, and click **Port Setting**.
13. In the **Port Setting** dialog box, in the **Baud rate** list, click **115200**, and click **OK**.



Note The installation steps may vary depending on your operating system.

4 Bar codes

This chapter provides the bar codes supported by AI-6821/AI-6821HD and their attributes.

Code 11

Length_min, Length_max

You can use these two attributes to specify the decoding length of a bar code. There are three modes.

- Both are zeros

When both min length and max length are set to 0, the decoding length can be any number of characters.

- Max is larger than or equal to min

When the max length is larger than the min length, the decoding length is between the max and the min. When the max is equal to the min, the decoding length is fixed (the number you assign to them).

- Min is larger than max

When the min length is larger than the max length, the decoding length is either the min or the max.

C11_checkdigit_verify

Use an algorithm to calculate a check digit to verify the completeness of the bar code.






C11_checkdigit_transmit




Append the check digit to the end of a bar code.

Note You need to turn on

C11_checkdigit_verify to use this feature.

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------------------|--------|---------------------------------------|---|
| Code11_ enable | On | Turn on Code 11. |  |
| Code11_ disable | *Off | Turn off Code 11. |  |
| C11_length_ min | 4 | Default: 4 |  |
| C11_length_ max | 55 | Default: 55 |  |
| C11_ checkdigit_ verify | On | Turn on C11_checkdi git_verify. |  |

| Attributes | Option | Description | Bar Code |
|---------------------------------|--------|--|---|
| C11_ checkdigit_ verify | *Off | Turn off C11_checkdi git_verify. |  |
| C11_ checkdigit_ transmit | On | Turn on C11_checkdi git_transmit. |  |
| C11_ checkdigit_ transmit | *Off | Turn off C11_checkdi git_transmit. |  |

Code 39

C39_FullASCII_conversion

Code 39 Full ASCII is a variant of Code 39. It allows the whole ASCII table (128 characters) to be encoded.

C39_length_min, C39_length_max

See the description in Code 11.

C39_checkdigit_verify

See the description in Code 11.

C39_checkdigit_transmit

See the description in Code 11.

Buffer_C39









It allows your scanner stores multiple Code 39 bar codes in the buffer. When it is turned on, it buffers all Code 39 bar codes having a leading space as a first character for later transmission. The leading space is not buffered. Decoding a Code 39 bar code with no leading space sends all buffered data in a first-in, first-out sequence, plus the “triggering” bar code.







Tcode39_enable

Trioptic Code 39 is a variant of Code 39. It consists of six data characters and two dollar signs (\$) as the start and stop character. For example, the data “\$Argox\$” is read as “Argox.”

Note You can't turn on Trioptic Code 39 and Code 39 Full ASCII simultaneously.

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------|--------|------------------------------------|---|
| C39_enable | *On | Turn on Code 39. |  |
| C39_disable | Off | Turn off Code 39. |  |
| C39_FullASCII_conversion | On | Turn on C39_FullASCII_conversion. |  |
| C39_FullASCII_conversion | *Off | Turn off C39_FullASCII_conversion. |  |
| C39_length_min | 2 | Default: 2 |  |
| C39_length_max | 55 | Default: 55 |  |
| C39_checkdigit_verify | On | Turn on C39_checkdigit_verify. |  |
| C39_checkdigit_verify | *Off | Turn off C39_checkdigit_verify. |  |





| Attributes | Option | Description | Bar Code |
|---------------------------------|--------|---|---|
| C39_ checkdigit_ transmit | On | Turn on C39_ checkdigit_ transmit. |  |
| C39_ checkdigit_ transmit | *Off | Turn off C39_ checkdigit_ transmit. |  |
| Buffer_C39 | On | Turn on Buffer_C39. |  |
| Buffer_C39 | *Off | Turn off Buffer_C39. |  |
| Tcode39_ enable | On | Turn on Tcode39_ enable. |  |
| Tcode39_ disable | *Off | Turn off Tcode39_ disable. |  |

Italian Pharmacy (Code 32)

C32_Prefix

Add the character “A” at the beginning of a Code 32 bar code.

(*) Default





| Attributes | Option | Description | Bar Code |
|---------------------------------------|--------|----------------------------------|---|
| Italian_ Pharmacy_ code_enable | On | Turn on Italian Pharmacy. |  |
| Italian_ Pharmacy_ code_disable | *Off | Turn off Italian Pharmacy. |  |
| C32_Prefix | On | Turn on Code 32 prefix. |  |
| C32_Prefix | *Off | Turn off Code 32 prefix. |  |

Code 93

C93_length_min, C93_length_max

See the description in Code 11.

(*) Default





| Attributes | Option | Description | Bar Code |
|--------------------|--------|-------------------|--|
| Code93_ enable | On | Turn on Code 93. |  |
| Code93_ disable | *Off | Turn off Code 93. |  |
| C93_length_ min | 4 | Default: 4 |  |
| C93_length_ max | 55 | Default: 55 |  |

Code 128

C128_length_min, C128_length_max

See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|---------------------|--------|----------------------|--|
| Code128_ enable | *On | Turn on Code 128 |  |
| Code128_ disable | Off | Turn off Code 128 |  |
| C128_length_ min | 01-99 | Default: 1 |  |
| C128_length_ max | 01-99 | Default: 1 |  |

ISBT 128

ISBT Concatenation

It links two ISBT bar codes.

- On

There must be two ISBT bar codes for decoder to decode and concatenate them. The decoder won't decode the single ISBT bar code.

- Off

The decoder won't concatenate ISBT bar codes.







- Autodiscriminate

The decoder decodes and concatenates ISBT bar codes immediately. If there is only one ISBT bar code, the decoder needs to decode the bar code a few times to confirm that there is no additional ISBT bar code. You can set the number of decoding times using **ISBT Concatenation Redundancy**.

ISBT Concatenation Redundancy

The number of times that the decoder must decode an ISBT bar code to confirm that there is no additional bar code.

(*) Default





| Attributes | Option | Description | Bar Code |
|---|----------------------|--|---|
| ISBT128_ enable | *On | Turn on ISBT 128 |  |
| ISBT128_ disable | Off | Turn off ISBT 128 |  |
| ISBT Concatenati on | On | Turn on ISBT Concatenat ion |  |
| ISBT Concatenati on | *Off | Turn off ISBT Concatenat ion |  |
| ISBT Concatenati on | Autodisc riminate | Repeat decoding a bar code to confirm there is no additional ISBT bar code. |  |
| ISBT Concatenati on Redundancy | 00-99 | Default: 10 |  |

EAN-8

EAN8_Extend

Add five leading zeros to a decoded EAN-8 bar code to make it compatible with EAN-13 format.

(*) Default

| Attributes | Option | Description | Bar Code |
|------------------|--------|---------------------------|---|
| EAN8_ enable | *On | Turn on EAN-8. |  |
| EAN8_ disable | Off | Turn off EAN-8. |  |
| EAN8_ Extend | On | Turn on EAN-8 extension. |  |
| EAN8_ Extend | *Off | Turn off EAN-8 extension. |  |

EAN-13

Bookland_ISBN

Bookland_ISBN has two modes.







- ISBN-10

The decoder decodes both 10-digit and 13-digit ISBN format that starts with 978. It also decodes bar codes that start with 979 but won't identify it as an ISBN number.

- ISBN-13

The decoder decodes ISBN codes that is 13-digit format and starts with either 978 or 979.

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------|----------|-----------------------------------|---|
| EAN13_ enable | *On | Turn on EAN-13. |  |
| EAN13_ disable | Off | Turn off EAN-13. |  |
| Bookland_ EAN | *On | Turn on Bookland_ EAN. |  |
| Bookland_ EAN | Off | Turn off Bookland_ EAN. |  |
| Bookland_ ISBN | *ISBN-10 | Decode ISBN-10 and ISBN-13. |  |
| Bookland_ ISBN | ISBN-13 | Decode ISBN-13. |  |

UCC-128/EAN-128 (GS1-128)





UCC_Coupon_Extended_Code

If you turn on this feature, you can decode the following bar codes:

- UPC-A starting with 5
- EAN-13 starting with 99
- UPC-A/GS1-128 coupon codes

You need to turn on UPCA, EAN-13 and UCC-128/EAN-128 to scan all types of coupon codes.

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------|--------|------------------------------------|---|
| UCCEAN128_enable | *On | Turn on UCC-128/EAN 128. |  |
| UCCEAN128_disable | Off | Turn off UCC-128/EAN 128. |  |
| UCC_Coupon_Extended_Code | On | Turn on UCC coupon extended code. |  |
| UCC_Coupon_Extended_Code | *Off | Turn off UCC coupon extended code. |  |

UPC-A

UPCA_Preamble

The preamble character consists of a system number and a country code, which represent the type of the product and the country respectively.

- Off

No preamble is used.

- System Character (<SYSTEM CHARACTER>
<DATA>)

Append the system character at the beginning of a bar code.


- System Character & Country Code
(<COUNTRY CODE> <SYSTEM
CHARACTER> <DATA>)







Append the country code and the system character at the beginning of a bar code.

UPCA_checkdigit_transmit

See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|-----------------|--------|-------------------|---|
| UPCA_ enable | *On | Turn on UPC-A. |  |

| Attributes | Option | Description | Bar Code |
|----------------------------------|--|---|---|
| UPCA_ disable | Off | Turn off UPC-A. |  |
| UPCA_ Preamble | Off | Turn off UPC-A preamble. |  |
| UPCA_ Preamble | *System Character (<SYSTEM CHARACTE R> <DATA>) | Show the system character at the beginning of a bar code. |  |
| UPCA_ Preamble | System Character & Country Code (< COUNTRY CODE> <SYSTEM CHARACTE R> <DATA>) | Show the country code and the system character at the beginning of a bar code. |  |
| UPCA_ checkdigit _transmit | *On | Turn on UPC-A checkdigit_t ransmit. |  |
| UPCA_ checkdigit _transmit | Off | Turn off UPC-A checkdigit_t ransmit. |  |

UPC-E

UPCE_Preamble

The preamble character consists of a system number and a country code, which represent the type of the product and the country respectively.

- Off

No preamble is used.

- System Character (<SYSTEM CHARACTER>
<DATA>)

Append the system character at the beginning of a bar code.

- System Character & Country Code
(<COUNTRY CODE> <SYSTEM
CHARACTER> <DATA>)

Append the country code and the system character at the beginning of a bar code.

UPCE_checkdigit_transmit

See the description in Code 11.

UPC/EAN/JAN Supplementals

UPC, EAN and JAN might have supplementary bar codes to hold additional information. Supplemental bar codes appear to the right of the primary bar codes and are usually shorter than the primary ones.

- Ignore UPC/EAN/JAN with Supplementals

The decoder decodes the primary bar code of UPC/EAN/JAN and ignores the supplemental part.

- Decode UPC/EAN/JAN with Supplementals

The decoder only decodes the bar code with the supplemental. Bar codes without supplements will be ignored.

- Autodiscriminate UPC/EAN/JAN with Supplementals

The decoder decodes UPC/EAN/JAN bar codes with supplementals immediately. If the bar code doesn't have a supplemental, the decoder needs to decode it a few times to confirm that there is no supplemental. You can set the number of decoding times in **UPC/EAN/JAN Supplemental Redundancy**.

- Supplemental Mode

Select one of the following modes to decode your bar codes.

378/379 Supplemental Mode

978/979 Supplemental Mode

If you select this mode to scan ISBN bar codes, you need to turn on

Bookland_EAN, and select an ISBN format using **Bookland_ISBN**.

414/419/434/439 Supplemental Mode
977 Supplemental Mode
491 Supplemental Mode




UPC/EAN/JAN Supplemental Redundancy






The number of times that the decoder must decode a UPC/EAN/JAN bar code to confirm that there is no supplemental. Five or more times is recommended when decoding a combination of UPC/EAN/JAN bar code with or without supplemental.







Convert UPC-E to UPC-A






Convert decoded UPC-E bar code to the UPC-A format before sending data. After conversion, the data is affected by the attributes you select in **UPC-A**.

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------|--------|--------------------------------|---|
| UPCE_ enable | *On | Turn on UPC-E. |  |
| UPCE_ disable | Off | Turn off UPC-E. |  |
| UPCE_ Preamble | Off | Turn off UPCE_Prea mble. |  |

| Attributes | Option | Description | Bar Code |
|-------------------------------------|---|--|---|
| UPCE_ Preamble | *System Character (<SYSTEM CHARACTE R> <DATA>) | Show the system character at the beginning of a bar code. |  |
| UPCE_ Preamble | System Character & Country Code (<COUNTRY CODE> <SYSTEM CHARACTE R> <DATA>) | Show the country code and the system character at the beginning of a bar code. |  |
| UPCE_ checkdigit_ transmit | *On | Turn on UPCE_chec kdigit_trans mit. |  |
| UPCE_ checkdigit_ transmit | Off | Turn off UPCE_chec kdigit_trans mit. |  |
| UPC/EAN/ JAN Supplemen tal | Ignore UPC/EAN/J AN with Supplemen tals | Ignore the supplement al part. |  |

| Attributes | Option | Description | Bar Code |
|-------------------------------------|--|---|---|
| UPC/EAN/ JAN Supplemen tal | Decode UPC/EAN/J AN Only With Supplemen tals | Decode the bar code only with supplement als. |  |
| UPC/EAN/ JAN Supplemen tal | Autodiscri minate UPC/EAN/J AN Supplemen tals | Repeat decoding a bar code to confirm there is no supplement als. |  |
| UPC/EAN/ JAN Supplemen tal | Smart Supplemen tal Mode | Turn on smart supplement al mode. |  |
| UPC/EAN/ JAN Supplemen tal | 378/379 Supplemen tal Mode | Turn on 378/379 supplement al mode. |  |
| UPC/EAN/ JAN Supplemen tal | 978/979 Supplemen tal Mode | Turn on 978/979 supplement al mode. |  |
| UPC/EAN/ JAN Supplemen tal | 414/419/43 4/439 Supplemen tal Mode | Turn on 414/419/43 4/439 supplement al mode. |  |

| Attributes | Option | Description | Bar Code |
|---|--------------------------|---|---|
| UPC/EAN/ JAN Supplemental | 977 Supplemental Mode | Turn on 977 supplemental mode. |  |
| UPC/EAN/ JAN Supplemental | 491 Supplemental Mode | Turn on 491 supplemental mode. |  |
| UPC/EAN/ JAN Supplemental Redundancy | 00-99 | Default: 10 |  |
| Convert UPC-E to UPC-A | On | Convert UPC-E to UPC-A. |  |
| Convert UPC-E to UPC-A | *Off | Do not convert UPC-E to UPC-A. |  |

UPC-E1

UPCE1_Preamble

See the description in UPC-E.





UPCE1_checkdigit_transmit






See the description in Code 11.

Convert UPC-E1 to UPCA

Convert decoded UPC-E1 bar code to the UPC-A format before sending data. After conversion, the data is affected by attributes you select in **UPC-A**.

(*) Default

| Attributes | Option | Description | Bar Code |
|----------------|--|---|---|
| UPCE1_enable | On | Turn on UPC-E1 |  |
| UPCE1_disable | *Off | Turn off UPC-E1 |  |
| UPCE1_Preamble | Off | Turn off UPCE1_Preamble |  |
| UPCE1_Preamble | System Character (<SYSTEM CHARACTER> <DATA>) | Show the system character at the beginning of a bar code. |  |





| Attributes | Option | Description | Bar Code |
|---------------------------|---|--|---|
| UPCE1_Preamble | System Character & Country Code (<COUNT RY CODE> <SYSTEM CHARACTER> <DATA>) | Show the country code and the system character at the beginning of a bar code. |  |
| UPCE1_checkdigit_transmit | *On | Turn on UPCE1_checkdigit_transmit |  |
| UPCE1_checkdigit_transmit | Off | Turn off checkdigit_transmit |  |
| Convert UPC-E1 to UPCA | On | Convert UPC-E1 to UPC-A |  |
| Convert UPC-E1 to UPCA | *Off | Do not convert UPC-E1 to UPC-A. |  |

Discrete 2 of 5 (DTF)

D25_length_min, D25_length_max

See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|----------------|--------|---------------------------------|---|
| D25_enable | On | Turn on Discrete 2 of 5. |  |
| D25_disable | *Off | Turn off Discrete 2 of 5. |  |
| D25_length_min | 01-99 | Default: 1 |  |
| D25_length_max | 01-99 | Default: 1 |  |

Interleaved 2 of 5 (I25)

I25_length_min, I25_length_max

See the description in Code 11.

I25_checkdigit_verify

See the description in Code 11.

I25_checkdigit_transmit




See the description in Code 11.








Convert I25 to EAN-13

Convert 14-character Interleaved 2 of 5 bar codes (I25) to the EAN-13 format before sending data. After conversion, the data is affected by attributes you select in **EAN-13**.

To convert the code, you need to turn on I25, and the code must have a leading zero and a valid EAN-13 check digit.

(*) Default

| Attributes | Option | Description | Bar Code |
|----------------|--------|------------------------------|---|
| I25_enable | On | Turn on Interleaved 2 of 5. |  |
| I25_disable | *Off | Turn off Interleaved 2 of 5. |  |
| I25_length_min | 01-99 | Default: 14 |  |

| Attributes | Option | Description | Bar Code |
|-------------------------|--------|-----------------------------------|---|
| I25_length_max | 01-99 | Default: 0 |  |
| I25_checkdigit_verify | On | Turn on I25_checkdigit_verify. |  |
| I25_checkdigit_verify | *Off | Turn off I25_checkdigit_verify. |  |
| I25_checkdigit_transmit | On | Turn on I25_checkdigit_transmit. |  |
| I25_checkdigit_transmit | *Off | Turn off I25_checkdigit_transmit. |  |
| Convert I25 to EAN-13 | On | Convert I25 to EAN-13. |  |
| Convert I25 to EAN-13 | *Off | Do not convert I25 to EAN-13. |  |

MSI

MSI_length_min, MSI_length_max

See the description in Code 11.

MSI_checkdigit_verify

See the description in Code 11.

MSI_checkdigit_algorithm


You can choose one of two algorithms to calculate the check digit of a MSI bar code. If you choose MOD 10/MOD 11, the system uses MOD 10 to calculate the check digit and append it to the bar code. The new bar code with the MOD 10 check digit will be calculated again using MOD 11, and then the system appends the MOD 11 check digit to the new bar code. The result of the bar code format is:








<DATA><MOD 10 check digit><MOD 11 check digit>



MSI_checkdigit_transmit

See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|------------|--------|--------------|---|
| MSI_enable | On | Turn on MSI. |  |

| Attributes | Option | Description | Bar Code |
|--------------------------|--------------------|---|---|
| MSI_disable | *Off | Turn off MSI. |  |
| MSI_length_min | 4 | Default: 4 |  |
| MSI_length_max | 55 | Default: 55 |  |
| MSI_checkdigit_verify | On | Turn on MSI_checkdigit_verify. |  |
| MSI_checkdigit_verify | *Off | Turn off checkdigit_verify. |  |
| MSI_checkdigit_algorithm | MOD 10/ MOD 11 | Use Modulo 10/Modulo 11 to calculate the check digit. |  |
| MSI_checkdigit_algorithm | *MOD 10/ MOD 10 | Use Modulo 10/Modulo 10 to calculate the check digit. |  |

| Attributes | Option | Description | Bar Code |
|---------------------------------|--------|--|---|
| MSI_ checkdigit_ transmit | On | Turn on MSI_checkdi git_transmit. |  |
| MSI_ checkdigit_ transmit | *Off | Turn off MSI_checkdi git_transmit. |  |

Codabar

CLSI_length_min, CLSI_length_max

See the description in Code 11.

CLSI_Editing

It removes the start and the stop characters, and inserts a space after the first, fifth and tenth character of a 14-character Codabar bar code.




NOTIS_Editing








It removes the start and the stop characters from a decoded Codabar bar code.

Upper or Lower Case Start/Stop Characters Detection

Detect uppercase or lowercase Codabar start or stop characters.



(*) Default

| Attributes | Option | Description | Bar Code |
|------------------------|--------|----------------------|---|
| Codabar_ enable | On | Turn on Codebar. |  |
| Codabar_ disable | *Off | Turn off Codebar. |  |
| Codabar_ length_min | 5 | Default: 5 |  |

| Attributes | Option | Description | Bar Code |
|---|--------|--|---|
| Codabar_ length_max | 55 | Default: 55 |  |
| CLSI_Editing | On | Turn on CLSI_Editin g |  |
| CLSI_Editing | *Off | Turn off CLSI_Editin g |  |
| NOTIS_ Editing | On | Turn on NOTIS_Editi ng |  |
| NOTIS_ Editing | *Off | Turn off NOTIS_Editi ng |  |
| Upper or Lower Case Start/Stop Characters Detection | *Upper | Detect upper case Codabar start/stop characters. |  |
| Upper or Lower Case Start/Stop Characters Detection | Lower | Detect lower case Codabar start/stop characters. |  |



Chinese 2 of 5

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------|--------|--------------------------------|---|
| Chinese2of5_ _enable | On | Turn on Chinese 2 of 5. |  |
| Chinese2of5_ _disable | *Off | Turn off Chinese 2 of 5. |  |

Korean 3 of 5

(*) Default

| Attributes | Option | Description | Bar Code |
|------------------------|--------|-------------------------------|---|
| Korean3of5_ enable | On | Turn on Korean 3 of 5. |  |
| Korean3of5_ disable | *Off | Turn off Korean 3 of 5. |  |

Inverse 1D

Regular

Decode regular 1D bar codes only.




Inverse Only

Decode inverse 1D bar codes only.

Auto Detect

Decode both regular and inverse 1D bar codes.

(*) Default





| Attributes | Description | Bar Code |
|--------------|---|---|
| *Regular | Decode regular 1D bar codes only. |  |
| Inverse Only | Decode inverse 1D bar codes only. |  |
| Auto Detect | Decode both regular and inverse 1D bar codes. |  |

US Postnet

US_Postnet_checkdigit_transmit



See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------------|--------|--|---|
| US_Postnet_enable | On | Turn on US Postnet. |  |
| US_Postnet_disable | *Off | Turn off US Postnet. |  |
| US_Postnet_checkdigit_transmit | *On | Turn on US_Postnet_checkdigit_transmit. |  |
| US_Postnet_checkdigit_transmit | Off | Turn off US_Postnet_checkdigit_transmit. |  |



US Planet

(*) Default

| Attributes | Option | Description | Bar Code |
|-----------------------|--------|---------------------|---|
| US_Planet_ enable | On | Turn on US Planet. |  |
| US_Planet_ disable | *Off | Turn off US Planet. |  |



USPS 4CB / One Code / Intelligent Mail

(*) Default

| Attributes | Option | Description | Bar Code |
|----------------------|--------|--------------------|---|
| USPS_4CB _enable | On | Turn on USPS 4CB. |  |
| USPS_4CB _disable | *Off | Turn off USPS 4CB. |  |

UPU FICS Postal

(*) Default





| Attributes | Option | Description | Bar Code |
|-------------------------|--------|---------------------------|---|
| UPU_FICS_Postal_enable | On | Turn on UPU FICS Postal. |  |
| UPU_FICS_Postal_disable | *Off | Turn off UPU FICS Postal. |  |

UK Postal

UK_Postnet_checkdigit_transmit



See the description in Code 11.

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------------------|--------|---|---|
| UK_Postal_enable | On | Turn on UK Postal. |  |
| UK_Postal_disable | *Off | Turn off UK Postal. |  |
| UK_Postal_checkdigit_transmit | *On | Turn on UK_Postal_checkdigit_transmit. |  |
| UK_Postal_checkdigit_transmit | Off | Turn off UK_Postal_checkdigit_transmit. |  |



JAP Postal

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------|--------|----------------------|---|
| JAP_Postal_enable | On | Turn on JAP Postal. |  |
| JAP_Postal_disable | *Off | Turn off JAP Postal. |  |

Australia Postal

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------|--------|----------------------------|---|
| Australia_Postal_enable | On | Turn on Australia Postal. |  |
| Australia_Postal_disable | *Off | Turn off Australia Postal. |  |



Netherlands KIX Code

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------------|--------|--------------------------------------|---|
| Netherlands _KIX_Code | On | Turn on Netherlands KIX code. |  |
| Netherlands _KIX_Code | *Off | Turn off Netherlands KIX code. |  |

PDF417

(*) Default

| Attributes | Option | Description | Bar Code |
|--------------------|--------|---------------------|---|
| PDF417_ enable | *On | Turn on PDF417. |  |
| PDF417_ disable | Off | Turn off PDF417. |  |

Micro PDF417

C128_Emulation

It sends certain Micro PDF417 as Code 128. You need to turn on **AIM Symbology ID** for this attribute to work. Linked Micro PDF417 codes start with 906, 907, 912, 914 and 915 are not supported. Use GS1 Composites instead.





When you turn on C128_Emulation, the AIM symbology ID of the Micro PDF417 bar code is:

| The beginning number of the Micro PDF417 code | The AIM Symbology ID |
|---|----------------------|
| 903-905 |]C1 |
| 908-909 |]C2 |
| 910-911 |]C0 |

When you turn off C128_Emulation, the AIM symbology ID of the Micro PDF417 bar codes is:



| The beginning number of the Micro PDF417 code | The AIM Symbology ID |
|---|----------------------|
| 903-905 |]L3 |
| 908-909 |]L4 |
| 910-911 |]L5 |

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------------|--------|-----------------------------|---|
| MicroPDF4 17_enable | On | Turn on Micro PDF417. |  |
| MicroPDF4 17_disable | *Off | Turn off Micro PDF417. |  |
| C128_ Emulation | On | Turn on C128_Emulation. |  |
| C128_ Emulation | *Off | Turn off C128_Emulation. |  |

Micro QR

(*) Default






| Attributes | Option | Description | Bar Code |
|---------------------|--------|---------------------|---|
| MicroQR_ enable | *On | Turn on MicroQR |  |
| MicroQR_ disable | Off | Turn off MicroQR |  |

QR Code

QR_Inverse



- Regular
Decode regular QR codes only.
- Inverse Only
Decode inverse QR codes only.
- Auto Detect
Decode both regular and inverse QR codes.

(*) Default

| Attributes | Option | Description | Bar Code |
|---------------------|-----------------|--|--|
| QR_Code_ enable | *On | Turn on QR code. |  |
| QR_Code_ disable | Off | Turn off QR code. |  |
| QR_ Inverse | *Regular | Decode regular QR codes only. |  |
| QR_ Inverse | Inverse Only | Decode inverse QR codes only. |  |
| QR_ Inverse | Auto Detect | Decode both regular and inverse QR codes. |  |

MaxiCode

(*) Default

| Attributes | Option | Description | Bar Code |
|----------------------|--------|-----------------------|---|
| Maxicode_ enable | On | Turn on MaxiCode. |  |
| Maxicode_ disable | *Off | Turn off MaxiCode. |  |




GS1 Databar






Convert_GS1_DataBar_to_UPCEAN

This attribute only affects GS1 DataBar and GS1 DataBar Limited bar codes not decoded as part of a composite bar code. It removes the leading “010” from DataBar and DataBar Limited bar codes that encode a single zero as the first digit, and sends the bar code as EAN-13.

For bar codes starting with two or more zeros but not six zeros, it removes the leading “0100” and send the bar code as UPC-A. After conversion, the data is affected by the **UPCA_Preamble** attribute. Neither the system character nor the check digit can be removed.

(*) Default

| Attributes | Option | Description | Bar Code |
|-----------------------------|--------|---------------------------------------|---|
| GS1_ Databar_ enable | *On | Turn on GS1 Databar. |  |
| GS1_ Databar_ disable | Off | Turn off GS1 Databar. |  |
| GS1_ Databar_ Limited | On | Turn on GS1 Databar Limited. |  |

| Attributes | Option | Description | Bar Code |
|---|--------|--|---|
| GS1_ Databar_ Limited | *Off | Turn off GS1 Databar Limited. |  |
| GS1_ Databar_ Expanded | On | Turn on GS1 Databar Expanded. |  |
| GS1_ Databar_ Expanded | *Off | Turn off GS1 Databar Expanded. |  |
| Convert_ GS1_ DataBar_ to_ UPCEAN | On | Convert GS1 Databar to UPC/EAN. |  |
| Convert_ GS1_ DataBar_ to_ UPCEAN | *Off | Do not convert GS1 Databar to UPC/EAN/ |  |

Composite

UPC_Composite_Mode

It links a UPC bar code and a 2D bar code. If you turn on Composite CC-A/B, you need to decide how these bar codes are linked.

- Never Linked

Send the UPC bar code with or without the 2D portion.








- Always Linked





Send the UPC bar code and the 2D portion. If the 2D portion is not detected, the UPC bar code won't be sent.

- Autodiscriminate UPC Composites

The decoder determines if there is a 2D portion, and sends the UPC bar code as well as the 2D portion (if present).

(*) Default

| Attributes | Option | Description | Bar Code |
|---|--------|---|---|
| Composite_C C/C | On | Turn on Composite_ CC/C. |  |
| Composite_C C/C | *Off | Turn off Composite_ CC/C. |  |
| Composite_C C-A/B | On | Turn on Composite_ CCA/B. |  |
| Composite_C C-A/B | *Off | Turn off Composite_ CCA/B. |  |
| GS128_Emulation_ for_UCCEAN Composite | On | Turn on GS128 emulation for UCC/EAN Composite. |  |
| GS128_Emulation_ for_UCCEAN Composite | *Off | Turn off GS128 emulation for UCC/EAN Composite. |  |
| Composite_T LC39_enable | On | Turn on Composite TLC39. |  |






| Attributes | Option | Description | Bar Code |
|-------------------------|---------------------------------|--|---|
| Composite_TLC39_disable | *Off | Turn off Composite TLC39. |  |
| UPC_Composite_Mode | Never Linked | Send the UPC with or without the 2D portion. |  |
| UPC_Composite_Mode | *Always Linked | Send the UPC with the 2D portion only. |  |
| UPC_Composite_Mode | Autodiscriminate UPC Composites | Send the UPC and the 2D portion (if present) |  |

Aztec

Aztec_Inverse

- Regular
Decode regular Aztec bar codes only.
- Inverse Only
Decode inverse Aztec codes only.
- Auto Detect
Decode both regular and inverse Aztec codes.

(*) Default

| Attributes | Option | Description | Bar Code |
|---------------|--------------|--|---|
| Aztec_enable | *On | Turn on Aztec. |  |
| Aztec_disable | Off | Turn off Aztec. |  |
| Aztec_Inverse | Regular | Decode regular Aztec bar codes only. |  |
| Aztec_Inverse | Inverse Only | Decode inverse Aztec bar codes only. |  |
| Aztec_Inverse | *Auto Detect | Decode both regular and inverse Aztec bar codes. |  |

Data Matrix

Data_Matrix_Decompose





- Regular

Decode regular Data Matrix bar codes only.

- Auto Detect

Decode both regular and inverse Data Matrix codes.

(*) Default

| Attributes | Option | Description | Bar Code |
|-------------------------|----------------|--|---|
| DataMatrix_ enable | *On | Turn on Data Matrix. |  |
| DataMatrix_ disable | Off | Turn off Data Matrix. |  |
| Data_Matrix_ _Decode | *Regular | Decode regular Data Matrix bar codes only. |  |
| Data_Matrix_ _Decode | Auto Detect | Decode both regular and inverse Data Matrix bar codes. |  |

OCR(Optical character recognition)





There are 4 fonts, OCR-A, OCR-B, MICR E13B and US Currency Serial Number, can be decoded. Turn on one font decode function will closed other font decode functions automatically to ensure recognition accuracy.

OCR-A



OCR_length_min, OCR_length_max

See the description in Code 11.

(*) Default





| Attributes | Option | Description | Bar Code |
|----------------|--------|-----------------|---|
| OCR-A_enable | On | Turn on OCR-A. |  |
| OCR-A_disable | *Off | Turn off OCR-A. |  |
| OCR_length_min | 3 | Default: 3 |  |
| OCR_length_max | 100 | Default: 100 |  |

(*) Default








| Attributes | Option | Description | Bar Code |
|---------------------|--------|--------------------------------------|---|
| OCR-A_Full ASCII | *On | Decode Full ASCII. |  |
| OCR- A_Banking | On | Decode OCR- A_Banking only. |  |




OCR-B

(*) Default





| Attributes | Option | Description | Bar Code |
|--------------------|--------|-----------------|---|
| OCR- B_enable | On | Turn on OCR-B. |  |
| OCR-B _disable | *Off | Turn off OCR-B. |  |
| OCR_lengt h_min | 3 | Default: 3 |  |
| OCR_lengt h_max | 100 | Default: 100 |  |

(*) Default



| Attributes | Option | Description | Bar Code |
|--|--------|---|---|
| OCR-B Full ASCII | *On | Decode OCR-B_Full ASCII. |  |
| OCR-B Banking | On | Decode OCR-B_Banking only. |  |
| OCR-B Limited | On | Decode OCR-B Limited only. |  |
| ISBN 10-digit book number | On | Decode OCR-B ISBN 10-digit book number only. |  |
| ISBN 13-digit book number | On | Decode OCR-B ISBN 13-digit book number only. |  |
| Travel Document Version 1 3-Lines ID cards | On | Decode OCR-B Travel Document Version 1 3-Lines ID cards only. |  |
| Travel Document Version 2 2-Lines ID | On | Decode OCR-B Travel Document Version 2 2- |  |



| Attributes | Option | Description | Bar Code |
|-------------|--------|--------------------------|---|
| cards | | Lines ID cards only. | |
| Passport | On | Decode Passport only. |  |
| Visa Type A | On | Decode Visa Type A only. |  |
| Visa Type B | On | Decode Visa Type B only. |  |

MICR E13B

| Attributes | Option | Description | Bar Code |
|-----------------------|--------|------------------------|---|
| MICR E13B _enable | On | Turn on MICR E13B. |  |
| MICR E13B _disable | *Off | Turn off MICR E13B. |  |
| OCR_length_ min | 3 | Default: 3 |  |
| OCR_length_ max | 100 | Default: 100 |  |

US Currency Serial Number

| Attributes | Option | Description | Bar Code |
|---|--------|---|---|
| US Currency Serial Number _enable | On | Turn on US Currency Serial Number only. |  |
| US Currency Serial Number _disable | *Off | Turn off US Currency Serial Number only. |  |

| Attributes | Option | Description | Bar Code |
|--------------------|--------|--------------|---|
| OCR_length _min | 3 | Default: 3 |  |
| OCR_length _max | 100 | Default: 100 |  |

5 Troubleshooting

You might encounter some issues when you scan bar codes. This chapter provides information that helps you fix common issues.

5.1 Scanner issues

My scanner doesn't emit the aiming pattern.

- Did you charge your scanner?
- Did you turn off the aiming pattern?
- Your battery wears out. Replace the battery and make sure the new battery is charged.
- Your scanner is waiting your computer to acknowledge data and doesn't receive any response. Unplug your cradle's cable (USB or RS-232) and connect it again.
- Check your USB cable and power supply by connecting them to other compatible devices and test if they work properly. If not, replace them and charge your scanner again.

5.2 Bar code issues

My scanner doesn't read a bar code properly.

- Reset your scanner.
- Check the quality of your bar codes. Wrinkled, smudged or torn bar codes won't be read by your scanner.
- Are your bar codes too close to each other? Cover the bar codes you don't need and scan the target again.

The data isn't sent to my computer.

- Did you establish the connection between your scanner and cradle?
- Did your scanner connect to other Bluetooth device?
- Make sure the USB cable is tightly plugged into your cradle and computer.
- Your scanner is connecting to another cradle. Break their connection and connect your scanner to your cradle.

6 Specifications

PERFORMANCE CHARACTERISTICS

| | |
|---------------------|--|
| Light Source | Aiming Pattern: 655 +/- 10 nm laser diode |
| | Illumination: 625 +/- 5 nm LED |

| | |
|----------------------|----------------------------------|
| Field of View | 39.6° Horizontal, 25.7° Vertical |
|----------------------|----------------------------------|

| | |
|------------------------|------------------|
| Roll/Pitch/Skew | 360°, ±60°, ±60° |
|------------------------|------------------|

PHYSICAL CHARACTERISTICS

| | |
|-------------------|------------------------------|
| Dimensions | Scanner: 9.4 x 7.6 x 15.8 cm |
| | Cradle: 13x 8.8 x 9.5 cm |

| | |
|---------------|-----------------------------------|
| Weight | Scanner: 200 g (battery included) |
| | Cradle: 130 g |

| | |
|------------------|------------------------|
| Indicator | LED, Beeper, Vibration |
|------------------|------------------------|

| | |
|-------------------|-----------------------|
| Resolution | 752 H x 480 V pixels |
| | 1D (3 mils): Code 39 |
| | 2D (6.7 mils): PDF417 |

ACCESSORIES

| | |
|-----------------------|--------------------------------|
| Power Supplies | Power Supply (faster charging) |
|-----------------------|--------------------------------|

SYMBOLGY DECODE CAPABILITY

| | |
|------------------------------|--|
| 1-D Symbologies | UPC/EAN/UPCA/UPCE/UPCE1/EAN-8/EAN-13/JAN-8/JAN13 plus supplementals, ISBN (Bookland), ISSN, Coupon Code, Code39 (Standard, Full ASCII, UCC/EAN-128, ISBT-128 Concatenated), Code 93, Codabar/NW7, Code 11 (standard, Matrix 2 of 5), MSI Plessey, I2 of 5 (Interleaved 2 of 5/ITF, Discrete 2 of 5 IATA, Chinese 2 of 5), GS1 Databar (Omnidirectional, Truncated, Stacked, Stacked Omnidirectional, Limited, Expanded, Expanded Stacked, Inverse), Base 32 (Italian Pharmacy) |
| PDF417 (and Variants) | PDF417, Micro PDF417, Composite Codes (CC-A, CC-B, CC-C/CC-B, CC-C) |
| 2-D Symbologies | TLC-39, Aztec (Standard, Inverse), MaxiCode, DataMatrix/ECC 200 (Standard, Inverse), QR Code (Standard, Inverse and Micro) |
| Print Contrast | 25% minimum reflectance |
| Interface Supported | RS-232, USB |
| Depth of Field | 15 mil Data Matrix: Max 12.4" 100% UPC: 1.6–15.5" |

USER ENVIRONMENT

| | |
|-------------------------------|--|
| Operating Temperature | 0°C to 50°C (32°F to 122°F) |
| Storage Temperature | -20°C to 70°C (-4°F to 158°F) |
| Humidity | 5% to 95% related humidity, non-condensing |
| Drop Specifications | Withstands multiple 6 ft./1.8 m drops to concrete (Cradle: 0.9 m) |
| Contaminants | Seals to resist airborne particulate contaminants (IP65) |
| Ambient Light Immunity | Up to 100,000 LUX, immune to normal artificial indoor and natural outdoor (direct sunlight) lighting |

REGULATORY

| | |
|--------------------------|--|
| Electrical Safety | EN60950-1, CNS14336 |
| Laser Safety | EN60825-1:1994 +A1: 2002 +A2 2001, IEC60825-1, 21CFR1040.10 and 21CFR1040.11, CDRH Class II, IEC Class 2 |
| EMI/RFI | CE, FCC, BSMI, NCC |
| Environmental | Compliant with RoHS directive 2002/95/EEC |
| Radio | Bluetooth™, Class 1 (100M, in open area), Version 2.1 + EDR, Data rate — up to 3 Megabits/sec |

ELECTRICAL CHARACTERISTICS

| | |
|------------------------|--|
| Battery | Rechargeable Li-Ion battery pack (3.7V, 2200mAh, 9.25Wh) Up to 55 hours of operation |
| Battery Charger | Power Supply: 4.5 hours |
| Time | USB Cable: 6.5 hours |
| Power Input | 5V \pm 10% VDC / 1A |

Appendix A. Test symbolologies

Bar codes marked with asterisk (*) are turned on initially.

CODABAR PARA



CODE 11 PARA



CODE 128 PARA*



CODE 39 PARA*



CODE 93 PARA



EAN-13 PARA*



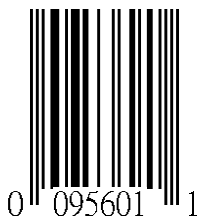
PDF417*



EAN-8 PARA*



UPC-E PARA*



INTERLEAVED 2 of 5 PARA



MSI/PLESSEY PARA



UPC-A PARA*



GS1*



Micro PDF



Appendix B. ASCII table

| L \ H | 0 | 1 | 0 | 1 |
|-------|--------|-------|-----|-----|
| 0 | Null | | NUL | DLE |
| 1 | Up | F1 | SOH | DC1 |
| 2 | Down | F2 | STX | DC2 |
| 3 | Left | F3 | ETX | DC3 |
| 4 | Right | F4 | EOT | DC4 |
| 5 | PgUp | F5 | ENQ | NAK |
| 6 | PgDn | F6 | ACK | SYN |
| 7 | | F7 | BEL | ETB |
| 8 | Bs | F8 | BS | CAN |
| 9 | Tab | F9 | HT | EM |
| A | | F10 | LF | SUB |
| B | Home | Esc | VT | ESC |
| C | End | F11 | FF | FS |
| D | Enter | F12 | CR | GS |
| E | Insert | Ctrl+ | SO | RS |
| F | Delete | Alt+ | SI | US |

| L \ H | 2 | 3 | 4 | 5 | 6 | 7 |
|-------|----|---|---|---|---|-----|
| 0 | SP | 0 | @ | P | ` | p |
| 1 | ! | 1 | A | Q | a | q |
| 2 | “ | 2 | B | R | b | r |
| 3 | # | 3 | C | S | c | s |
| 4 | \$ | 4 | D | T | d | t |
| 5 | % | 5 | E | U | e | u |
| 6 | & | 6 | F | V | f | v |
| 7 | ‘ | 7 | G | W | g | w |
| 8 | (| 8 | H | X | h | x |
| 9 |) | 9 | I | Y | i | y |
| A | ★ | : | J | Z | j | z |
| B | + | ; | K | [| k | { |
| C | , | < | L | \ | l | |
| D | - | = | M |] | m | } |
| E | . | > | N | ^ | n | ~ |
| F | / | ? | O | _ | o | DEL |

Appendix C. Default settings of bar codes

V: Enabled -: Unsupported Space: Disabled

| Code Type | Read Enable | Checksum Verification Enable | Checksum Transmission Enable |
|--|-------------|------------------------------|------------------------------|
| Code 11 | | | |
| Code 39 | V | | |
| Italian Pharmacy (Code 32) | | | |
| Code 93 | | - | - |
| Code 128 | V | - | - |
| ISBT 128 | V | - | - |
| EAN-8 | V | - | - |
| EAN-13 | V | - | - |
| UCC-128/EAN-128 (GS1-128) | V | - | - |
| UPC-A | V | | V |
| UPC-E | V | | V |
| UPC-E1 | | | V |
| Discrete 2 of 5 (DTF) | | - | - |
| Interleaved 2 of 5 (I25) | | | |
| MSI | | | |
| Codabar | | - | - |
| Chinese 2 of 5 | | - | - |
| Korean 3 of 5 | | - | - |
| Inverse 1D | V | | |
| US Postnet | | | V |
| US Planet | | | |
| USPS 4CB / One Code / Intelligent Mail | | - | - |
| UPU FICS Postal | | - | - |

| Code Type | Read Enable | Checksum Verification Enable | Checksum Transmission Enable |
|----------------------|--------------------|-------------------------------------|-------------------------------------|
| UK Postal | | | V |
| JAP Postal | | - | - |
| Australia Postal | | - | - |
| Netherlands KIX Code | | - | - |
| PDF417 | V | - | - |
| Micro PDF417 | | - | - |
| Micro QR | V | - | - |
| QR Code | V | - | - |
| MaxiCode | | - | - |
| GS1 Databar | V | - | - |
| Composite | | - | - |
| Aztec | V | - | - |
| Data Matrix | V | - | - |

Appendix D. Data entry bar codes



1



2



3



4



5



6



7



8



9



0



A



B



C



D



E



F



Save



Cancel