



# **CS8515 Barcode Scanner User Manual**

*Release v1.1.1*

**2026-09-02**

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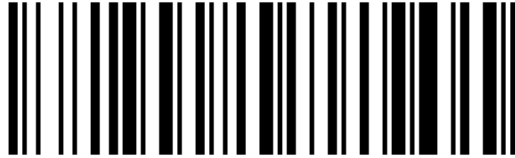
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# 1 System Settings

## 1.1 Read Firmware Version



Read Firmware Version

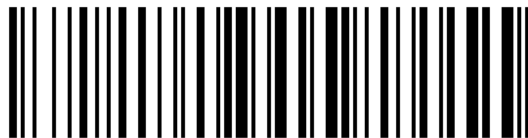
## 1.2 Restore Factory Defaults

### Note

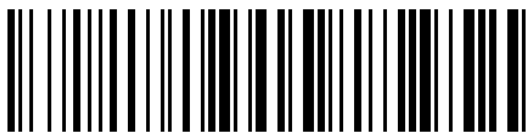
If Write Custom Defaults has been performed, Restore Defaults restores those custom defaults; otherwise it restores factory defaults.

### Important

Set Factory Defaults clears all custom defaults and restores factory defaults.



Restore custom defaults



Write custom default values



Set factory defaults

## 1.3 Work Mode

**Note**

During the data upload process, if you scan the “data upload” command again, the current upload will be canceled or stopped.

**Note**

In wireless transmission mode, if automatic storage is turned on, barcodes that fail to be transmitted will be automatically saved, and the stored data can be read through “data upload” .



\* Normal mode



storage mode



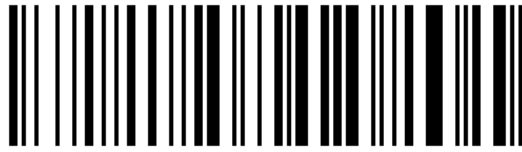
Upload storage data



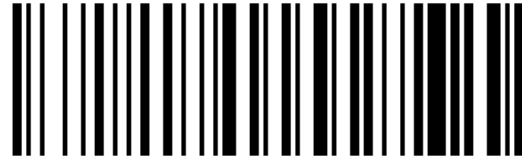
Read the total number of stored barcodes



Clear storage data after uploading



Read storage space usage



Clear stored barcode



\* Autosave mode off



Automatic storage mode is on

## 2 Power management

### 2.1 Read sleep time



Read sleep time

### 2.2 Set sleep time



Hibernate now



Sleep after 1 minute



Sleep after 3 minutes (default)



Sleep after 5 minutes



Sleep after 10 minutes



Sleep after 30 minutes



Sleep after 1 hour

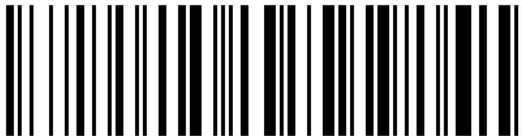


Sleep after 2 hours



never sleep

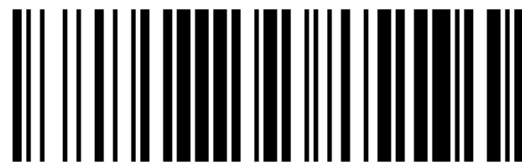
## 2.3 Get Barcode Reader battery level



Get battery level

## 3 Feedback Indicators

### 3.1 Buzzer control



Mute



\* high volume



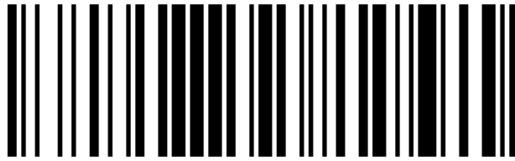
medium volume



low volume



\* high pitch



low pitch



\* SDK voice response off



SDK voice response enabled



Base connection buzzer prompt switch

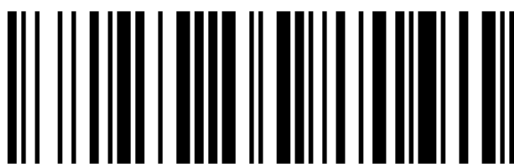
### 3.2 Vibration motor control

#### Note

The vibration motor works with a beep prompt, not all models support this feature.



Disable



Enable

### 3.3 Buzzer sound definition

| Type        | Sound                           | Description                                               | Preview                                                                          |
|-------------|---------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------|
| Beep        | Single tone (2 pitches)         | Storage mode decode; power-off prompt.                    | <b>Storage-mode scan</b><br>storage-mode.m4a <b>Power off</b><br>shutdown.m4a    |
| Beep        | Single tone (3 pitches)         | Power-on prompt; setting saved; upload complete.          | <b>Power on</b><br>startup.m4a <b>Setting successful</b><br>wireless-setting.m4a |
| Beep        | Short single tone               | Successful decode.                                        | <b>Barcode decoded successfully</b><br>one-beeps.m4a                             |
| Beep        | 30-second continuous short tone | 2.4G pairing waits for the receiver; stops after pairing. | <b>2.4G pairing</b><br>pair2.4G.m4a                                              |
| Alarm sound | Two tones (same pitch)          | Low-battery alarm during decoding.                        | <b>Low battery</b><br>two-beeps.m4a                                              |
| Alarm sound | Three tones (same pitch)        | Inventory storage error or capacity exceeded.             | <b>Storage error or capacity alarm</b><br>three-beeps.m4a                        |
| Alarm sound | Transmission Failure Beep       | Alarm when barcode transmission fails.                    | No audio available                                                               |
| Alarm sound | Five tones (same pitch)         | Boot failure caused by low battery.                       | <b>Low-battery power-on failure</b><br>five-beeps.m4a                            |

### 3.4 Indicator definition

| Indicator               | Status                                                                                                                                                                                              |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| red light / green light | When charging, the red light is on and the green light is off; when fully charged, the red light is off and the green light is on.                                                                  |
| blue light              | Following the buzzer action, the buzzer lights up when it sounds and goes out when it does not sound; models that support Bluetooth mode are also used to indicate the Bluetooth connection status. |

## 4 wired mode

### Note

Only applicable to Barcode Readers that support wired transmission.

### 4.1 USB transfer method



\* USB keyboard mode



USB Virtual COM Port mode

### Note

After the automatic interface selection is turned on, the device will automatically switch between wired and wireless; when plugging in the USB cable, the wired mode will be used first. When the USB cable is not plugged in or USB is unavailable, the Barcode Reader works in 2.4G mode. Some models may not support this feature.



\* Wired/wireless automatic selection turns on



Wired/wireless automatic selection off

### 4.2 USB keyboard transfer speed

**Note**

This setting also affects the speed of RF and Bluetooth transmission of very long barcodes and stored data uploads.



\* top speed



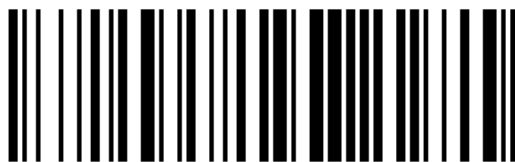
top speed



Medium speed



Medium speed



Read keyboard speed



Read keyboard speed

### 4.3 USB HID multi-key send settings

#### **Note**

The settings in this section are only applicable to Windows systems.



USB HID multi-key sending enabled



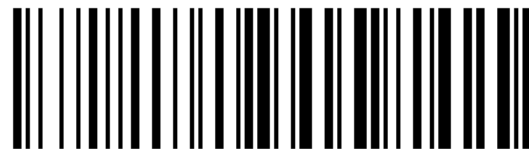
\* USB HID multi-key sending off

## 5 wireless mode

#### **Note**

Only suitable for Barcode Readers that support 2.4G transmission.

### 5.1 Read Interface Settings



Current Interface Settings

### 5.2 Wireless transmission method

#### **Note**

The blue light is always on or flashing to indicate that it is currently in Bluetooth mode; the blue light is off to indicate that it is currently in 2.4G mode or USB wired mode.



2.4G transmission mode

### 5.3 2.4G pairing

#### Important

Only valid in wireless 2.4G mode.



one-to-one pairing



One-to-many pairing

### 5.4 Receiver working mode

#### Note

Composite device mode is only available on receivers running FWVerL or later. You can also use `ReceiverAddress.exe` to generate a pairing barcode and complete pairing by scanning it.



Receiver as composite device



Receiver as virtual serial port

**Note**

This mode requires the virtual serial port driver to be installed.



receiver as keyboard

## Receiver keyboard transmission speed

**Note**

The instructions in this section are only applicable to receivers of FWVerL and above. The transmission speeds of the Barcode Reader and receiver must match, otherwise errors may occur when transmitting long barcodes.

**Important**

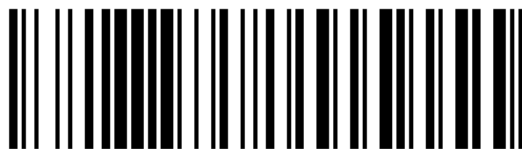
This command is only valid in wireless 2.4G mode and the receiver is connected normally.



Read keyboard speed

**Example**

KB SP=2, 4 represents a USB keyboard speed of 2ms and a receiver keyboard speed of 4ms.



receiver keyboard high speed



Receiver Keyboard Medium Speed



Receiver Keyboard Low Speed

**Note**

It is only valid in wireless 2.4G mode and the receiving end receives normally.

## 5.5 2.4G transmission cache

**Note**

This command is only available on some Barcode Readers that support this feature. After scanning the Parameter Barcode, two short beeps indicate disabled, and one three-tone beep indicates enabled.

When scanning ordinary barcodes, if the amount of barcode data is large and the scanning interval is short, and the data is not uploaded in time, you can use this Parameter Barcode to turn on or off data caching.



SRAM cache switch

In normal mode, after data caching is turned on, if the device briefly leaves the communication distance and enters offline state, you can use this setting to choose to wait for connection before uploading the cached data, or to clear the cached data.



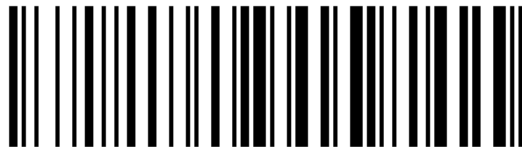
Offline caching switch

## 6 Bluetooth Mode

### **Note**

Only suitable for RF+BT Barcode Readers with Bluetooth function.

### 6.1 Read Interface Settings



Current Interface Settings

### 6.2 Bluetooth Transmission Mode

### **Note**

The blue light is always on or flashing to indicate that it is currently in Bluetooth mode; the blue light is off to indicate that it is currently in 2.4G mode or USB wired mode.



Bluetooth Transmission

### 6.3 Bluetooth Operating Mode

### **Note**

Valid only in Bluetooth mode.

### **Note**

Before switching the Bluetooth working mode, you need to clear the pairing information between the host device and the Barcode Reader.



Bluetooth HID Keyboard (Default)



Bluetooth SPP Serial Port



Bluetooth BLE Serial Port



Bluetooth cradle transmission mode

**Note**

It is suitable for pairing with a Bluetooth cradle that has already been paired. When the barcode on the base is damaged, you can also use the gadget BluetoothAddress.exe to generate a pairing barcode.

## 6.4 Change Bluetooth Name

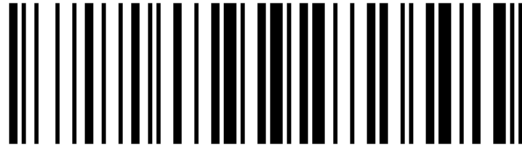
After entering the new Bluetooth name, scan the generated QR code to complete the setup. If the host has saved old pairing records after modification, please delete the old pairing first and search for connection again.

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
AT+NAME=<bluetooth-name>
```

## 6.5 Clear Bluetooth HID Pairing

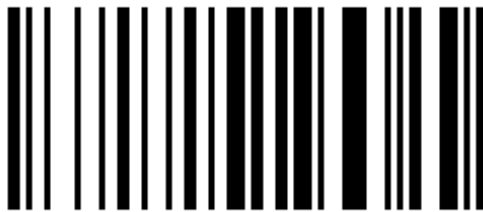
After scanning “Clear Pairing” in Bluetooth transmission mode, the Barcode Reader will disconnect the currently paired device and clear the pairing list, then wait for new devices to be paired. Historically paired devices need to be deleted and paired again.



Clear Bluetooth Pairing

## 6.6 System Keyboard Functions

### iOS system pop-up keyboard function



iOS pop up/hide keyboard



Press and hold the Trigger Button for 4 seconds to toggle the iOS on-screen keyboard



Double-press the Trigger Button to toggle the iOS on-screen keyboard

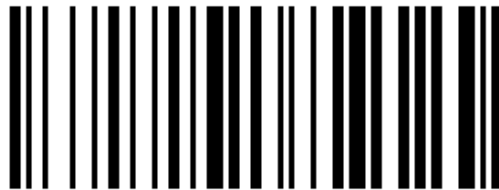


Pop up iOS keyboard switch after sending

## Windows Caps Lock detection

### Note

This command is only available on some Bluetooth Barcode Readers. After scanning the Parameter Barcode, two short beeps indicate disabled, and one three-tone beep indicates enabled.



Windows Caps Lock detection switch

## 6.7 Switch between Bluetooth and 2.4G by pressing and holding for 8 seconds

### Note

This command is only available on some RF+BT Barcode Readers (DS, C, RT). When enabled, press and hold the Trigger Button for more than 8 seconds and release it to switch between RF and BT. If you hold it for more than 16 seconds, the Barcode Reader powers off and the mode does not switch. After scanning the Parameter Barcode, two short beeps indicate disabled, and one three-tone beep indicates enabled.



Press and hold the Trigger Button for 8 seconds to toggle RF/BT switching

## 6.8 Bluetooth keyboard transmission speed

### Note

Valid only in Bluetooth mode.



Read Bluetooth HID delay



High speed (2 ms)



High speed (6 ms)



\* Medium speed (10 ms)



Medium speed (18 ms)



Low speed (25 ms)



Low speed (30 ms)

## 6.9 Bluetooth connection status non-sleep setting

### Note

After scanning the Parameter Barcode, two short beeps indicate disabled, and one three-tone beep indicates enabled.



Bluetooth connection status non-sleep switch

## 7 Keyboard Settings

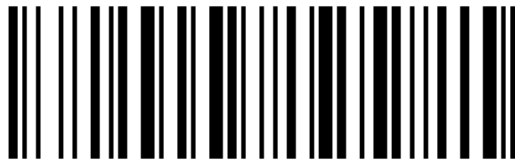
### 7.1 HID Keyboard General Setting

General HID Settings

#### Note

The general HID settings in this section apply to USB Keyboard, RF 2.4G Keyboard, and Bluetooth HID Keyboard modes.

#### Ctrl key combination settings



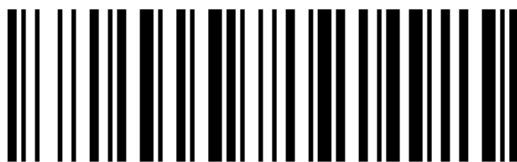
\\* Combine-Key Off



Ctrl+ Key Config1



Alt+ Key Config2



Normal-Key Config3



Ctrl+ Key Config4



Alt+ Key Config5

**Note**

only for ASCII <0x20 chars, Alt+ key only for Windows system.

## Case settings



normal



Swap case



all caps



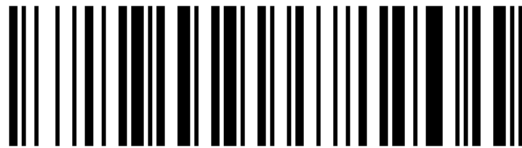
all lowercase

Case conversion does not apply when the keyboard layout is set to ALT or TH.

### Num Lock Settings



Disable Num Lock



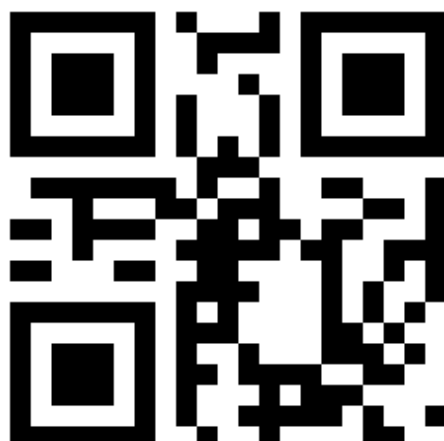
Num Lock on

\*When the receiving device is a mobile phone, you need to keep the Num Lock off setting, otherwise the numbers will not be displayed.

### Enter character set settings

#### Note

Applicable only to certain mod' s of 2D Barcode Readers, this setting matches the 2D module' s output character set.



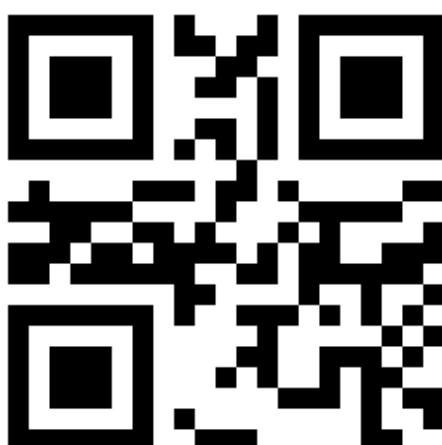
Read the current character set settings



Auto



GBK / BIG5 / HANGUL / SJIS



ISO/IEC 8859



UTF8 (Word)



UTF8 (Txt)



Normal mode

Note:

| model        | Applicable scenarios                                                                                                        | Scan Engine Output Character Set | limit                                                   |
|--------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------|
| Auto         | Automatically select the input character set as UTF8 or ISO/IEC 8859; Word or Txt output is based on the last UTF8 setting. | primitive type                   | none                                                    |
| GBK          | Windows Notepad, Excel Chinese input.                                                                                       | GBK (GB2312) or original type    | Applies to Windows systems only.                        |
| UTF8 (Word)  | Word, QQ Chinese input.                                                                                                     | UTF8 or primitive type           | Applies to Windows systems only.                        |
| ISO/IEC 8859 | European single-byte special characters ( $\geq C0H$ ), applicable to FR, GE, TR, PT, ES, CS, IT, UK, HU, SK.               | primitive type                   | Languages not listed need to be added by customization. |
| UTF8 (Txt)   | To input special characters in Windows Notepad, you need to install the Unicode plug-in.                                    | UTF8 or primitive type           | Applies to Windows systems only.                        |
| Normal       | Multi-language special characters, suitable for characters on FR, GE, TR, PT, ES, CS, IT, UK, HU, SK keyboards.             | UTF8 or primitive type           | Languages not listed need to be added by customization. |

## Receiving device selection

**Note**

This section configures how different host devices enter ASCII characters (0x20 to 0x7F). Use it together with *Keyboard Layout Settings*.



Read the current receiving device settings



Windows device



iPhone/iPad/Mac devices



Android device

\*IOS/MAC devices are currently valid: FR, DE, TR, PT, ES, CS, IT, UK, HU, SK. Please refer to the document “MAC iphone ipad keyboard layout for barcode scanner.docx”

\*It is recommended to install Google Gboard input method uniformly on Android devices. Please refer to the document “Android device keyboard layout for barcode scanner.docx”

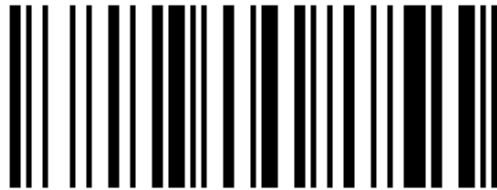
## 7.2 Keyboard language settings

 **See also**

Keyboard language settings have been split into a separate page: [Keyboard Language Settings](#).

## 8 Keyboard Language

### 8.1 Read the current keyboard layout



Read the current keyboard layout

#### L1 \*ENUSA EN key



\* US English keyboard

#### L2 FR France French key



French French keyboard

#### L3 DE Germany key



german german keyboard

#### L4 IT Italy Italy key



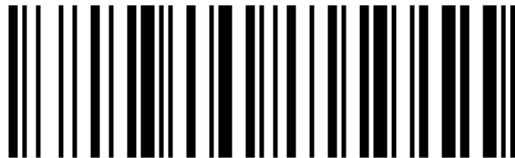
Italian keyboard

**L5 PT Portugal Portugal key**



Portuguese keyboard

**L6 ES Spain Spain key**



spanish keyboard

**L7 TR Turkey Turkey key**



Turkish Q keyboard



Turkish F keyboard

**L8 ENUK UK key**



British English keyboard

**L9 CS Czech Czech key**



Czech keyboard



Czech standard keyboard

**L10 HU Hungary Hungary key**



Hungarian keyboard

**L11 FR Belgium (French) Belgium FR Key**



Belgian French keyboard

**L12 PT Brazil (Portuguese) Brazil PT Key**



Brazilian Portuguese keyboard

**L13 FR Canadian French (Traditional) Canadian FR Key**



Canadian French (traditional) keyboard

**L14 HRCroatia Key**



Croatian keyboard

**L15 SK Slovak Key**



Slovak QWERTY keyboard



Slovak keyboard

**L16 DA Denmark Denmark Key**



Danish keyboard

**L17 FI Finland Key**



Finnish keyboard

**L18 ES Latin America (Spanish) Latin-America ES Key**



Latin American Spanish keyboard

**L19 NL Netherlands Netherlands Key**



Dutch keyboard

**L20 NO Norway Norway Key**



Norwegian keyboard

**L21 PL Poland Poland Key**



Polish keyboard

**L22 SR Serbia (Latin) Serbia Key**



Serbian Latin keyboard

**L23 SL Slovenia Key**



Slovenian keyboard

**L24 SV Sweden Sweden Key**



Swedish keyboard

#### **L25 DE Switzerland (German) Swiss DE Key**



Swiss German keyboard

#### **L26 JP Japanese Japanese Key**



Japanese keyboard

#### **L27 TH Thai Thailand Key**

##### **Note**

When using a Thai keyboard, set the Scan Engine output to TH as well.



Thai keyboard

##### **See also**

Reference file: RF2.4G, Bluetooth Settings\_Chinese, Thai, Korean.docx.

#### **L28 ALT International Keyboard ALT Global Key**

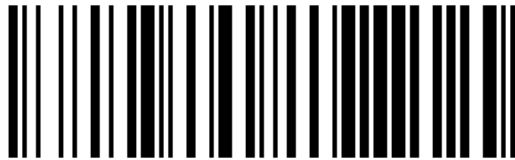
#### Note

The ALT international keyboard layout is only available on Windows systems. It is not affected by the host keyboard layout, but it reduces transmission speed.



ALT international keyboard

#### L29 ALT Single Byte Special Keyboard ALT Single Byte Special Key



ALT single-byte special character keyboard

#### Note

Languages not listed in this section need to be customized to be supported.

## 9 Data Editing

### 9.1 Standard Data Editing Settings

This section describes how to configure common output rules such as prefixes, suffixes, and hidden characters by scanning Parameter Barcodes.

#### Prefix/Suffix and Hidden Character Settings

You can add up to 10 prefixes and/or 10 suffixes to the output data. To configure them, scan the two-digit hexadecimal Numeric Barcodes that correspond to the required ASCII value (that is, two barcodes per character).

#### See also

For character values, please refer to *ASCII Function Key Character Reference Table* and *ASCII Character Reference Table*; for parameters that require input of numerical values, please scan *Numeric Barcode*; for specific procedures, see *Add a Prefix or Suffix*.

Can be set to hide the first, middle or last characters of the barcode. After scanning the corresponding hidden Parameter Barcode, scan the two-digit hexadecimal Numeric Barcode corresponding to the length of the characters to be hidden (00~FF, for example, scan 0 and 4 in sequence when hiding 4 characters).

 **See also**

See *Steps to Hide the First/Middle/Tail Characters of a Barcode* for the hidden character process.

## Operation Code



Add Prefix



Add Suffix



Clear all prefixes



Clear all suffixes



Hide Leading Characters



Hide Barcode Middle Start Position



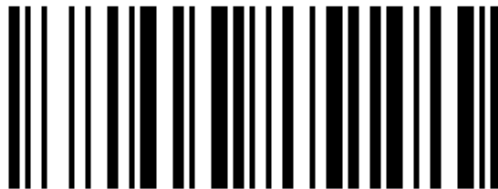
Hide Middle Section Length



Hide Trailing Characters

## Numeric Barcode

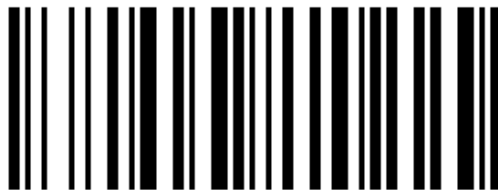
For parameters that require a numeric value, scan the corresponding Numeric Barcodes.



Numeric Barcode 0



Numeric Barcode 1



Numeric Barcode 2



Numeric Barcode 3



Numeric Barcode 4



Numeric Barcode 5



Numeric Barcode 6



Numeric Barcode 7



Numeric Barcode 8



Numeric Barcode 9



Numeric Barcode A



Numeric Barcode B



Numeric Barcode C



Numeric Barcode D



Numeric Barcode E



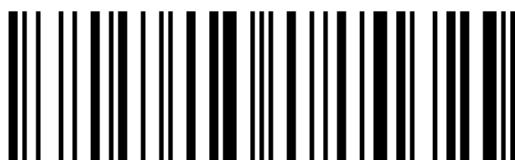
Numeric Barcode F

## Output Format Settings

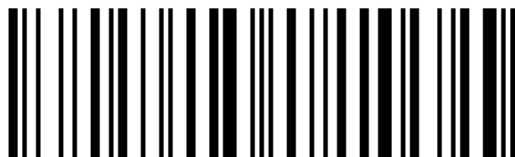
To change the output data format, scan the corresponding Parameter Barcode below.



Default Output Format



Allow Suffix Output



Allow Prefix Output



Allow Hiding Leading Data



Allow Hiding Middle Data



Allow Hiding Trailing Data

## Procedure Examples

### Add a Prefix or Suffix

1. If prefix and suffix output has not been enabled, please scan the corresponding Output Format Parameter Barcode first.
2. New characters are appended to the existing Prefix/Suffix. To replace the current Prefix/Suffix, first scan “Clear All Prefixes/Suffixes” , then configure the new values.
3. Scan the “Add Prefix” or “Add Suffix” Parameter Barcode.
4. Determines the hexadecimal value of the prefix or suffix to be entered based on *ASCII Function Key Character Reference Table* or *ASCII Character Reference Table*.
5. Scan the corresponding two-digit hexadecimal Numeric Barcode.
6. To continue adding characters, repeat steps 4 and 5.

#### Example

If you need to add `Ctrl+A` as a prefix, scan “Add Prefix” “9” “7” “4” “1” in sequence.

#### Example

If you need to add `Ctrl+Alt+A` as a suffix, scan “Add suffix” “9” “7” “9” “9” “4” “1” in sequence.

## Steps to Hide the First/Middle/Tail Characters of a Barcode

1. Scan the Parameter Barcode for the barcode header, middle start position, middle length, or trailing characters.
2. Determine the hexadecimal value corresponding to the character length to be hidden (for example, hide 4 characters scan 0, 4; hide 12 characters scan 0, C).
3. Scan the corresponding two-digit hexadecimal Numeric Barcode.
4. Enable or disable the hidden character function through the Output Format Parameter Barcode.

## 9.2 Extended Data Editing Settings

This section lets you generate data editing Parameter Barcodes from complete commands in one step. It is intended for batch configuration, remote serial-command delivery, or character replacement.

## Online One-Code Setup Generator

### Note

The online generator is shown only in the HTML manual. After generating a Parameter Barcode, scan the generated barcode to complete the setting, or send the command by serial command using the format below.

### Add Prefix

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#20<length-hex><content>#
```

### Add Suffix

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#10<length-hex><content>#
```

### Hide Leading Barcode Characters

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#50<length-hex>#
```

### Hide Middle Barcode Characters

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#40<position-hex><length-hex>#
```

### Hide Trailing Barcode Characters

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#30<length-hex>#
```

### Character Replacement

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

```
$DATA#70<source-length-hex><source><target-length-hex><target>#
```

One-Code Setup Command Format

Edit format:

\$DATA#nc11xx#

- n
- 1 suffix; 2 prefix; 3 hides the tail content of the barcode; 4 hides the middle content of the barcode; 5 hides the first content of the barcode; 7 replaces characters.
- c
- Code ID currently supports only 0, which indicates all symbologies.
- 11
- Length as a hexadecimal value: Prefix/Suffix 01~0A, hidden characters 01~FF, replacement data 01~05.
- xx
- ASCII value. Hexadecimal can be represented by \x plus two characters, and the character range is 0~9, A~F.

Table 1: One-Code Setup Examples

| Command                | Description                                                        |
|------------------------|--------------------------------------------------------------------|
| \$DATA#1005abcd\x03#   | Add 0x05 suffixes: abcd + 0x03.                                    |
| \$DATA#200ANETUM12345# | Add 0x0A prefix NETUM12345.                                        |
| \$DATA#3008#           | Hide the last 0x08 characters of the barcode.                      |
| \$DATA#40050A#         | Hides the 0x0A characters after the 0x05 character in the barcode. |
| \$DATA#5011#           | Hide barcode header 0x11 bytes.                                    |
| \$DATA#7001\x1D02GS#   | Replace GS (0x1D) characters with GS.                              |
| \$DATA#7002NT01Z#      | Replace NT with Z.                                                 |

Character replacement operation

Format: \$DATA#70 + replaced character length + replaced characters + replacement data length + replacement data #

The sum of the lengths of the replaced characters and the replacement characters is <= 6, supporting 1~6 characters being replaced by 5~0 characters.



Read replacement settings



Clear replacement settings

#### **i Example**

\$DATA#7001\x1D02GS# means replacing the non-displayable character GS (0x1D) with GS for display.



Character replacement operation: GS to text GS

#### **i Example**

\$DATA#7001\x0A01\x0D# means replacing LF (0x0A) with CR (0x0D).



Character replacement operation: LF to CR

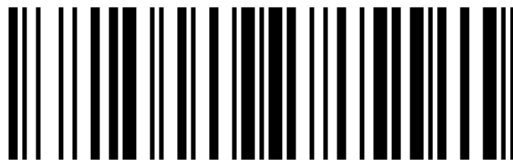
#### **i Example**

\$DATA#7006ABCDEF00# means replacing the string ABCDEF with an empty string, that is, not displaying it.

### 9.3 Terminator Settings

#### **i Note**

This terminator is independent of the scan engine suffix and wireless Prefix/Suffix, which facilitates quick setting when the scan engine has no suffix.



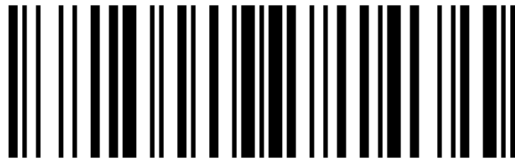
None (Default)



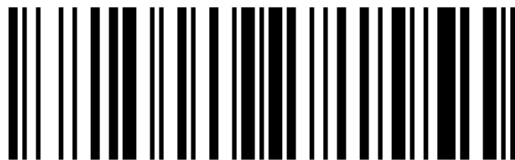
Carriage Return CR



Tab TAB



Carriage Return + Line Feed CRLF



Line Feed LF

## 9.4 GS1 AI field bracket settings

### Note

Only some AI fields are applicable and require special version support.



Raw Format (Default)



Add Parentheses



Add brackets and separate with CR



Add brackets and separate them with TAB

## 10 Scan Mode

### 10.1 Barcode Decode Mode



Key scan mode (default)



Continuous scan mode

#### Note

Continuous Scan Mode is suitable for high-volume scanning workflows. Press the Trigger button once to start or stop scanning.



Key pulse scan mode

**Note**

Scanning starts when a key-level change is detected and maintained for about 30 ms. Scanning stops when another key-level change is detected, or when a decode succeeds or times out.



Host trigger mode (only applicable to some customized models)

**Note**

Host trigger mode is only applicable to some customized models.



Batch scanning mode (only applicable to some customized models)

## Decode Timeout

This parameter sets the maximum time allowed for decoding during a scan attempt. Enter a four-digit value in milliseconds. Default: 3000 ms; range: 0500-9999 ms.



3 seconds (default)



6 seconds

## Scan Interval

This parameter sets the interval between reads in Continuous Mode. Enter a four-digit value in milliseconds. Default: 0500 ms; range: 0100-9999 ms.



0.5 seconds (default)



1 second

## 11 RTC clock settings

### **Note**

Only available for some Barcode Readers that support RTC.

### 11.1 Output format

### **Note**

The timestamp can be corrected by scanning the Parameter Barcode. The RTC correction function of the electronic manual already includes the time zone, and the query is the local time; the time can also be synchronized through the Bluetooth SDK.

### **Example**

Timestamp correction command format example: %RTCTIME#21/12/24,01:58:06+32.

If the interactive HTML tool is unavailable, replace the placeholders as described in this section and verify the command.

%RTCTIME#YY/MM/DD, hh:mm:ss<quarter-hour-timezone>#



Disable Timestamp



Turn on timestamp (suffix)



Turn on timestamp (prefix)

## 11.2 delimiter

The barcode and time are separated by Tab by default. If you need to modify it, you can edit the following command to generate the Parameter Barcode:

```
%RTCSTAMP#Sx
```

**x**

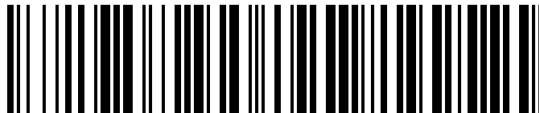
ASCII value. Hexadecimal can be represented by \x plus two characters, and the character range is 0~9, A~F.



Tab separated (default)



RS separated



semicolon separated

## 12 Module Settings



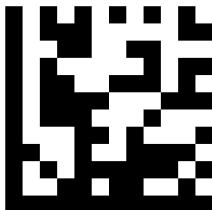
Start Setup

## 12.1 Device Feature Settings

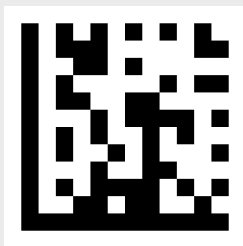
### Important

On this page, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

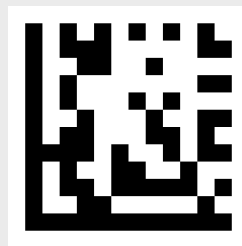
### Aiming Light



Enable While Scanning

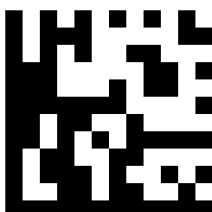


\* Always On

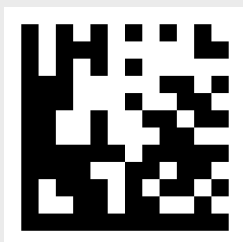


Disable

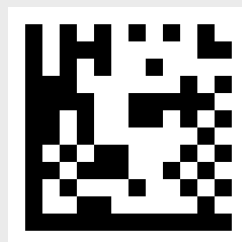
### Illumination Mode



\* Enable While Scanning



Always On



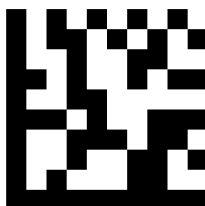
Disable



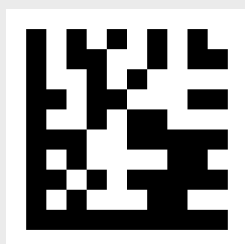


Start Setup

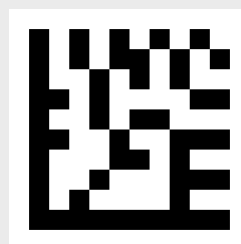
## Illumination Brightness



\* High Brightness



Medium Brightness



Low Brightness

## 12.2 Trigger Settings

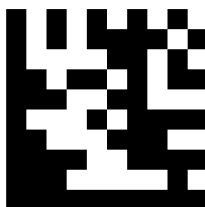
### Important

On this page, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

### Scan Mode

#### Level Trigger

Scanning starts while the scan key is held down and ends after a successful decode or when the read timeout is reached.



\* Level Trigger

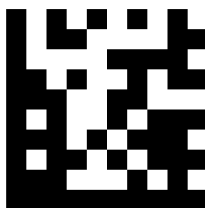
### Presentation Mode

Scanning starts when image changes are detected and ends when the read timeout is reached.





Start Setup



Presentation Mode

## Continuous Scan

Scan one or more barcodes continuously. Press and release the scan key to start or stop scanning; repeated reads of the same barcode are controlled by the Same Symbol Timeout setting.



Continuous Scan

## Same Barcode Read Mode

In scan modes that support this feature, you can configure how repeated reads of the same barcode are handled.

### Note

By default, the same barcode is not read again within 500 ms. Same Symbol Timeout can be set from 0~5000 ms; 0 disables the timeout.

## Suppress Repeated Reads

If the same barcode is read repeatedly within the suppression period, it is ignored and not output, and the timer restarts.

## Interval Read

If the same barcode is read repeatedly within the interval, it is ignored and not output. It is output again after the interval expires.

## Do Not Repeat Same Barcode

The same barcode is not output repeatedly.

### Example: Suppress repeated reads of the same barcode within 100 ms.

1. Scan “Start Setup” .
2. Scan the “Suppress Repeated Reads” Parameter Barcode.
3. Scan the “Same Symbol Timeout” Parameter Barcode.



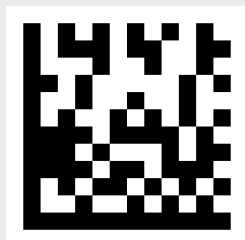


Start Setup

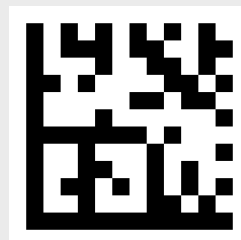
4. Scan the 1 Parameter Barcode in *Decimal Digits*.
5. Scan the 0 Parameter Barcode in *Decimal Digits*.
6. Scan the 0 Parameter Barcode in *Decimal Digits*.
7. Scan “End Setup” .

**i Example: Read the same barcode again after a 1-second interval.**

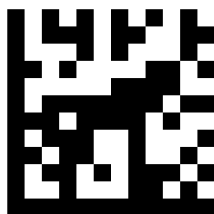
1. Scan “Start Setup” .
2. Scan the “Interval Read” Parameter Barcode.
3. Scan the “Same Symbol Timeout” Parameter Barcode.
4. Scan the 1 Parameter Barcode in *Decimal Digits*.
5. Scan the 0 Parameter Barcode in *Decimal Digits*.
6. Scan the 0 Parameter Barcode in *Decimal Digits*.
7. Scan the 0 Parameter Barcode in *Decimal Digits*.
8. Scan “End Setup” .



\* Suppress Repeated Reads



Interval Read

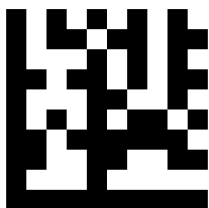


Do Not Repeat Same Barcode



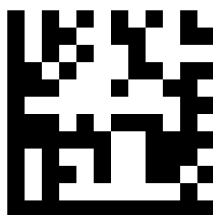


Start Setup

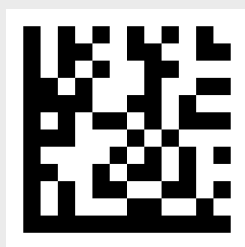


Same Symbol Timeout (ms)

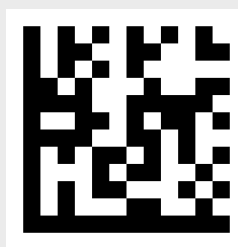
## Presentation Mode Sensitivity



Low Sensitivity



\* Medium Sensitivity



High Sensitivity

## 12.3 Engine Code ID

### Important

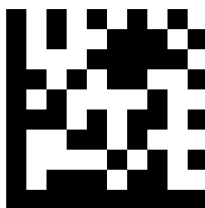
On this page, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

## Code ID

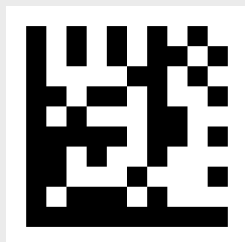




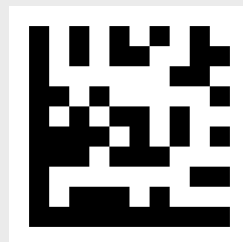
Start Setup



\* Disable Code ID



Enable AIM Code ID



Enable NETUM Code ID

## Code ID Table

| Symbology            | NETUM | AIM |
|----------------------|-------|-----|
| UPC-A                | A     | E   |
| UPC-E                | E     | E   |
| EAN-8                | FF    | E   |
| EAN-13               | F     | E   |
| Code 128             | K     | C   |
| Code 39              | M     | A   |
| Code 93              | L     | G   |
| Code 32              | M     | A   |
| Code 11              | O     | H   |
| Codabar              | N     | F   |
| Plessey              | P     | P   |
| MSI / Plessey        | a     | M   |
| Interleaved 2 of 5   | I     | I   |
| IATA 2 of 5          | Z     | R   |
| Matrix 2 of 5        | G     | X   |
| Straight 2 of 5      | S     | S   |
| Pharmacode           | H     | X   |
| GS1 DataBar 14       | RS    | e   |
| GS1 DataBar Expanded | RX    | e   |
| GS1 DataBar Limited  | RL    | e   |
| Composite CC-A       | m     | e   |
| Composite CC-B       | n     | e   |
| Composite CC-C       | i     | e   |
| PDF417               | r     | L   |
| MicroPDF417          | s     | L   |
| Data Matrix          | t     | d   |

continues on next page





Table 2 – continued from previous page

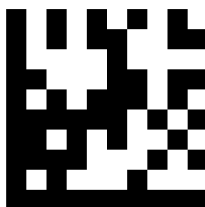
| Symbology | NETUM | AIM |
|-----------|-------|-----|
| QR Code   | u     | Q   |
| Micro QR  | j     | Q   |
| Aztec     | e     | Z   |
| MaxiCode  | v     | U   |

## 12.4 Engine Output Format

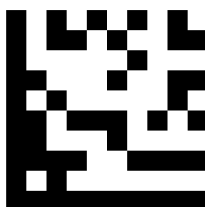
### Important

On this page, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

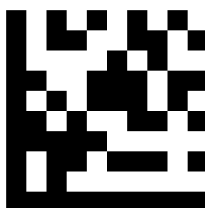
### Terminator



none

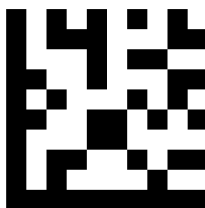


\* Carriage Return / CR



CR / LF





TAB

## 12.5 Barcode Settings

### Important

On this page, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

### Supported Symbolologies

| Symbology                    | Status   |
|------------------------------|----------|
| UPC-A                        | * Enable |
| UPC-E                        | * Enable |
| EAN-8                        | * Enable |
| EAN-13                       | * Enable |
| Code 128 / GS1-128           | * Enable |
| Code 39                      | * Enable |
| Code 93                      | * Enable |
| Code 32                      | Disable  |
| Code 11                      | Disable  |
| Codabar                      | * Enable |
| Plessey                      | Disable  |
| MSI Plessey                  | * Enable |
| Interleaved 2 of 5           | * Enable |
| IATA 2 of 5                  | Disable  |
| Matrix 2 of 5                | Disable  |
| Straight 2 of 5              | Disable  |
| Pharmacode                   | Disable  |
| GS1 DataBar 14               | * Enable |
| GS1 DataBar 14 Stacked       | Disable  |
| GS1 DataBar Expanded         | * Enable |
| GS1 DataBar Expanded Stacked | Disable  |
| GS1 DataBar Limited          | * Enable |
| Composite Code-A             | Disable  |
| Composite Code-B             | Disable  |
| Composite Code-C             | Disable  |
| PDF417                       | * Enable |
| MicroPDF417                  | * Enable |
| Data Matrix                  | * Enable |
| QR Code                      | * Enable |

continues on next page





Start Setup

Table 3 – continued from previous page

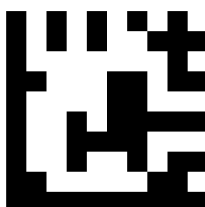
| Symbology | Status   |
|-----------|----------|
| Micro QR  | * Enable |
| Aztec     | Disable  |
| MaxiCode  | Disable  |

## General Symbology Switches

### Important

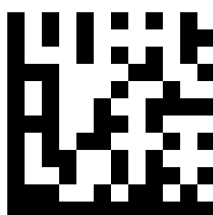
For settings in this group, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

### Enable All Barcodes



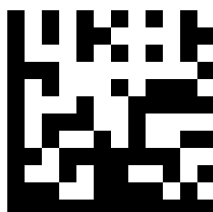
Enable All Barcodes

### Enable 1D Barcodes Only



Enable 1D Barcodes Only

### Enable 2D Barcodes Only



Enable 2D Barcodes Only





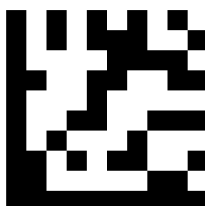
Start Setup

## 1D Symbology Settings

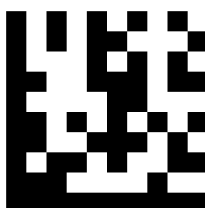
### Important

For settings in this group, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

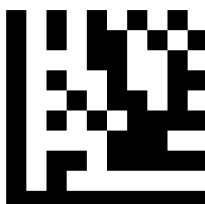
### UPC-A



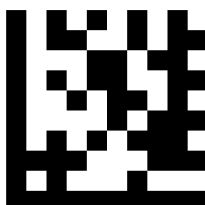
\* Enable UPC-A



Disable UPC-A



\* Transmit Leading Digit



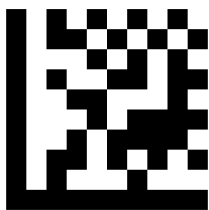
Do Not Transmit Leading Digit



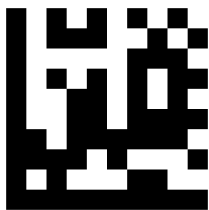


Start Setup

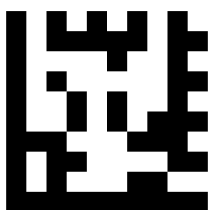
---



\* Enable Check Digit



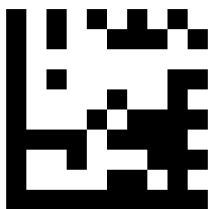
Disable Check Digit



Enable EAN-13 Conversion



\* Disable EAN-13 Conversion



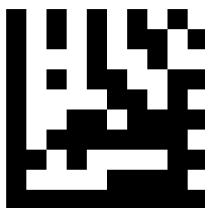
Enable UPC-A 2- or 5-digit Supplementals



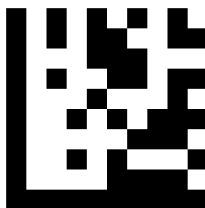


Start Setup

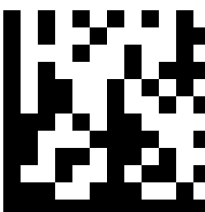
---



\* Disable UPC-A 2- or 5-digit Supplementals

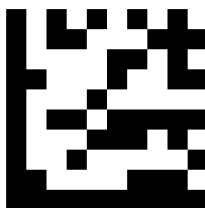


Decode UPC-A with 2- or 5-digit Supplementals Only

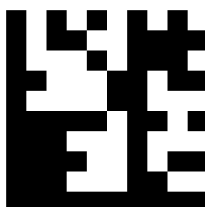


\* Decode UPC-A With or Without 2- or 5-digit Supplementals

## UPC-E



\* Enable UPC-E



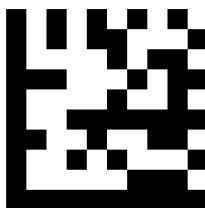
Disable UPC-E



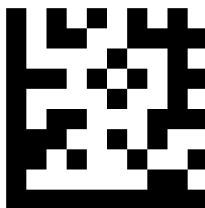


Start Setup

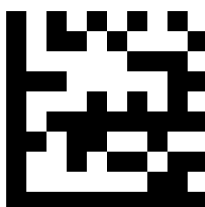
---



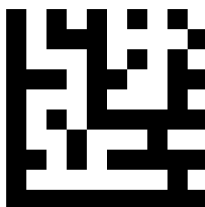
\* Transmit Leading Digit



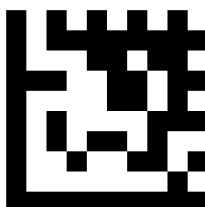
Do Not Transmit Leading Digit



\* Enable Check Digit



Disable Check Digit



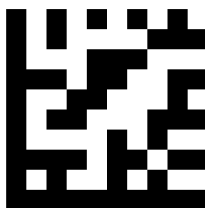
Enable UPC-A Conversion



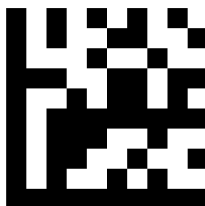


Start Setup

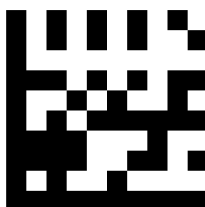
---



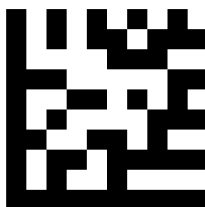
\* Disable UPC-A Conversion



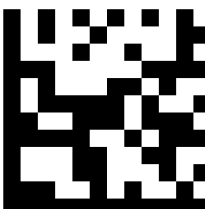
Enable UPC-E 2- or 5-digit Supplementals



\* Disable UPC-E 2- or 5-digit Supplementals



Decode UPC-E with 2- or 5-digit Supplementals Only



\* Decode UPC-E With or Without 2- or 5-digit Supplementals

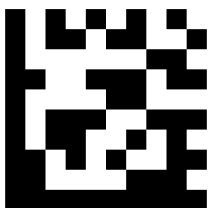
## **EAN-8**



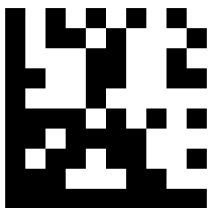


Start Setup

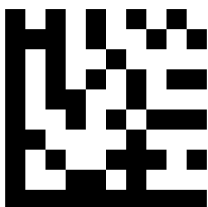
---



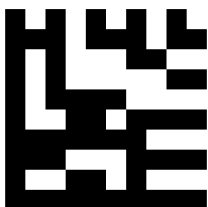
\* Enable EAN-8



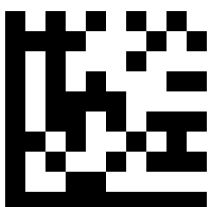
Disable EAN-8



\* Transmit Check Digit



Do Not Transmit Check Digit



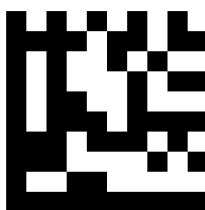
Enable EAN-13 Conversion



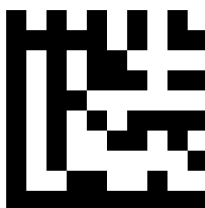


Start Setup

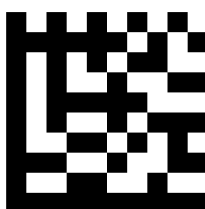
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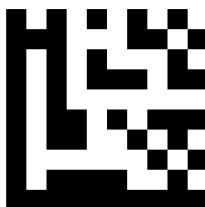
\* Disable EAN-13 Conversion



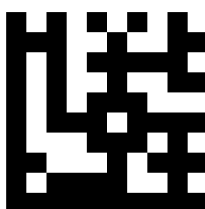
Enable EAN-8 2- or 5-digit Supplementals



\* Disable EAN-8 2- or 5-digit Supplementals



Decode EAN-8 with 2- or 5-digit Supplementals Only



\* Decode EAN-8 With or Without 2- or 5-digit Supplementals

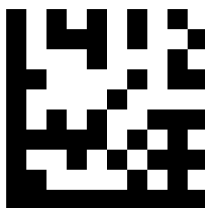
## EAN-13



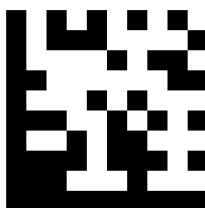


Start Setup

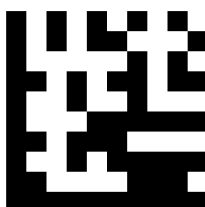
---



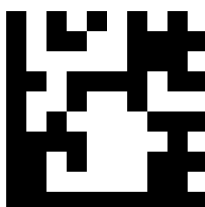
\* Enable EAN-13



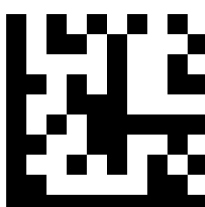
Disable EAN-13



\* Transmit Check Digit



Do Not Transmit Check Digit



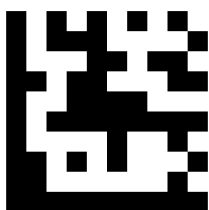
Enable ISBN Conversion



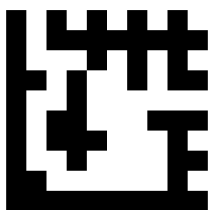


Start Setup

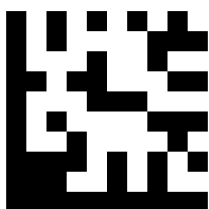
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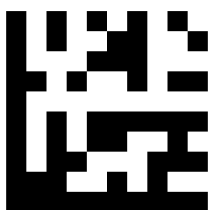
\* Disable ISBN Conversion



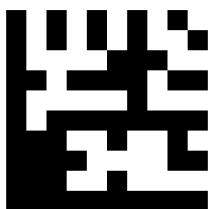
Enable ISSN Conversion



\* Disable ISSN Conversion



Enable EAN-13 2- or 5-digit Supplementals



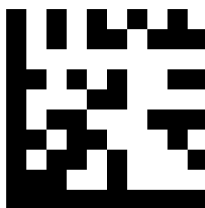
\* Disable EAN-13 2- or 5-digit Supplementals





Start Setup

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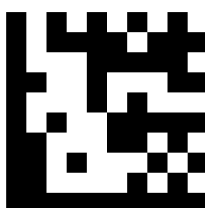


Decode EAN-13 with 2- or 5-digit Supplementals Only

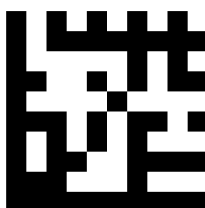


\* Decode EAN-13 With or Without 2- or 5-digit Supplementals

## Code 128 / GS1-128

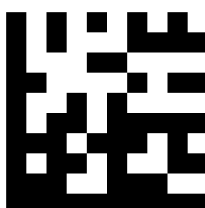


\* Enable Code 128 / GS1-128



Disable Code 128 / GS1-128

## Code 39



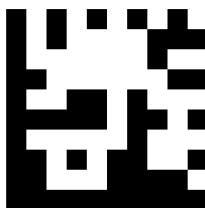
\* Enable Code 39



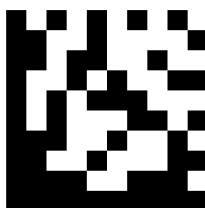


Start Setup

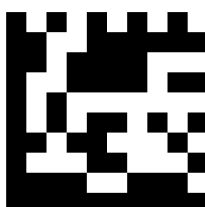
---



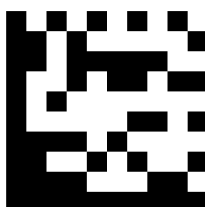
Disable Code 39



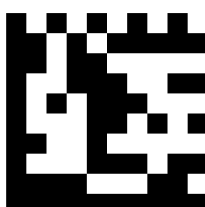
Enable Code 39 Full ASCII Function



\* Disable Code 39 Full ASCII Function



Transmit Start/Stop Characters

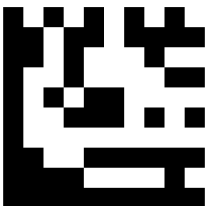


\* Do Not Transmit Start/Stop Characters

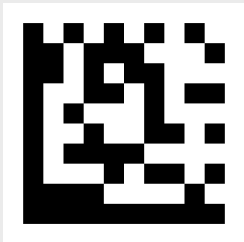




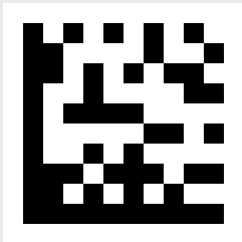
Start Setup



\* No Verification

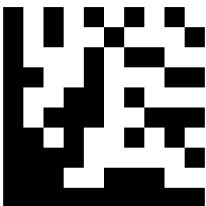


Verify and Transmit



Verify Without Transmitting

Code 93

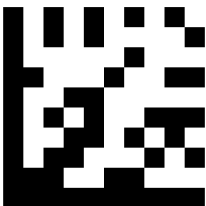


Enable Code 93



\* Disable Code 93

Code 32

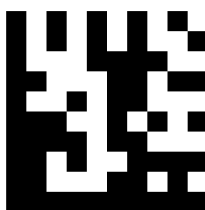


Enable Code 32



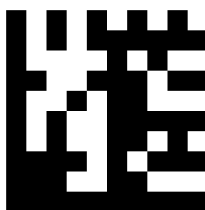


Start Setup

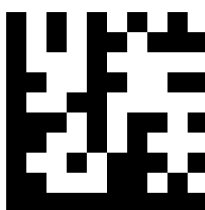


\* Disable Code 32

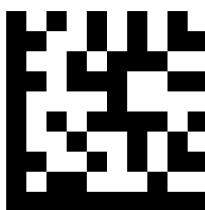
## Code 11



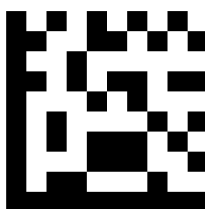
Enable Code 11



\* Disable Code 11



\* Transmit Check Digit

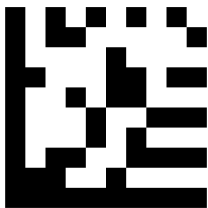


Do Not Transmit Check Digit

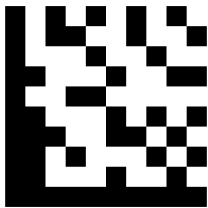




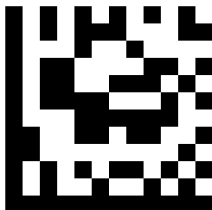
Codabar



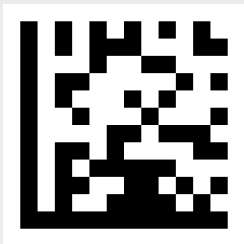
\* Enable Codabar



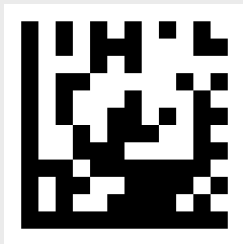
Disable Codabar



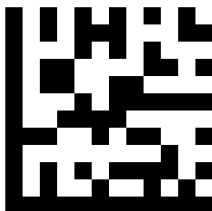
\* No Verification



Verify and Transmit



Verify Without Transmitting

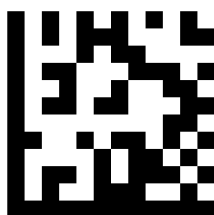


Transmit Start/Stop Characters



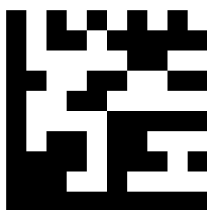


Start Setup

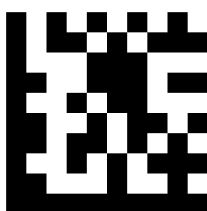


\* Do Not Transmit Start/Stop Characters

## Plessey

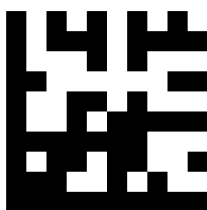


Enable Plessey

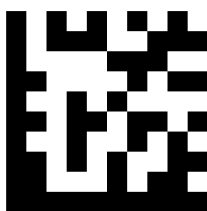


\* Disable Plessey

## MSI Plessey



\* Enable MSI Plessey



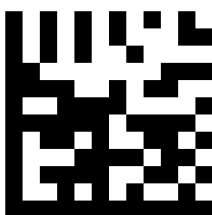
Disable MSI Plessey



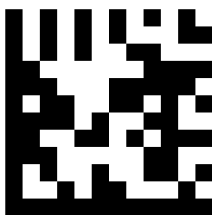


Start Setup

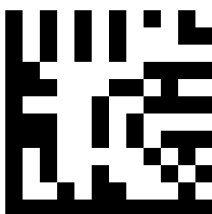
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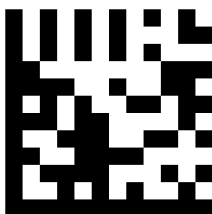
No Verification



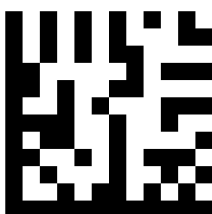
\* Mod 10 Verification



Mod 10/10 Verification



Mod 11/10 Verification



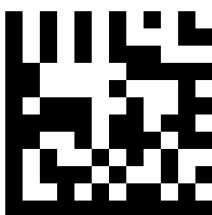
\* Transmit Check Digit





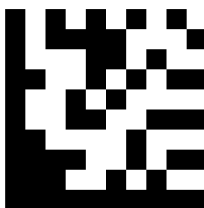
Start Setup

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Do Not Transmit Check Digit

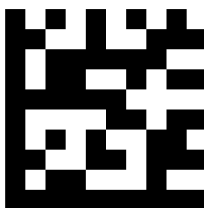
## Interleaved 2 of 5



\* Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



\* No Verification



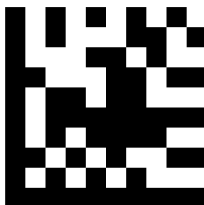
Verify and Transmit



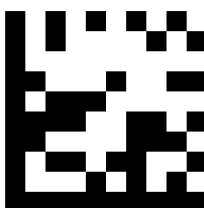


Start Setup

## IATA 2 of 5

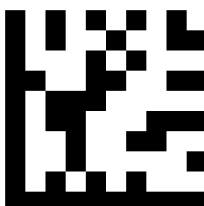


Enable IATA 2 of 5

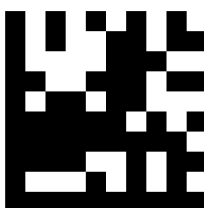


\* Disable IATA 2 of 5

## Matrix 2 of 5



Enable Matrix 2 of 5



\* Disable Matrix 2 of 5

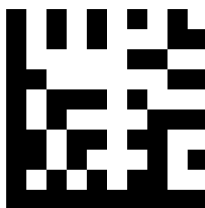
## Straight 2 of 5



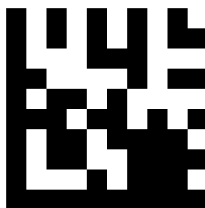


Start Setup

---

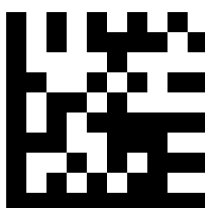


Enable Straight 2 of 5

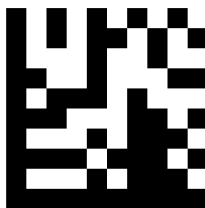


\* Disable Straight 2 of 5

## Pharmacode

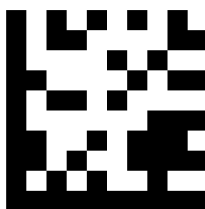


Enable Pharmacode



\* Disable Pharmacode

## GS1 DataBar 14



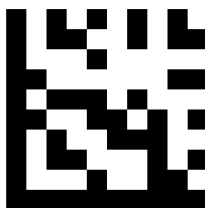
\* Enable GS1 DataBar 14





Start Setup

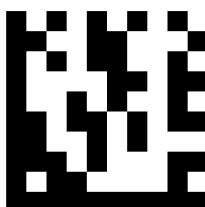
---



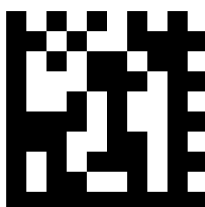
Disable GS1 DataBar 14



Enable GS1 DataBar 14 Stacked



\* Disable GS1 DataBar 14 Stacked



\* Output AI (01) Characters



Do Not Output AI (01) Characters

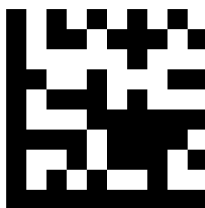
## GS1 DataBar Expanded



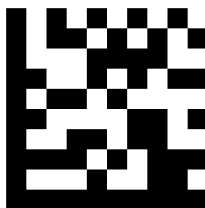


Start Setup

---



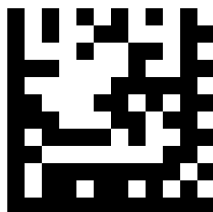
\* Enable GS1 DataBar Expanded



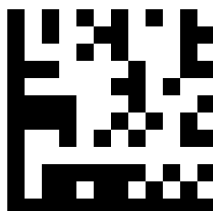
Disable GS1 DataBar Expanded



Enable GS1 DataBar Expanded Stacked



\* Disable GS1 DataBar Expanded Stacked

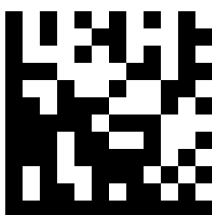


\* Output AI (01) Characters



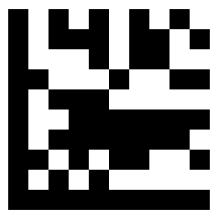


Start Setup

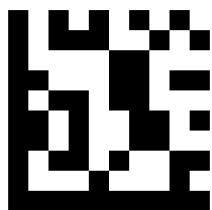


Do Not Output AI (01) Characters

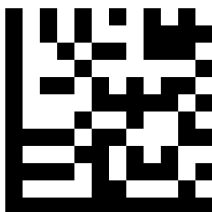
## GS1 DataBar Limited



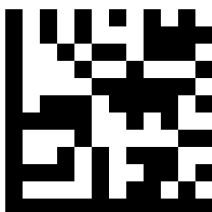
\* Enable GS1 DataBar Limited



Disable GS1 DataBar Limited



\* Output AI (01) Characters



Do Not Output AI (01) Characters





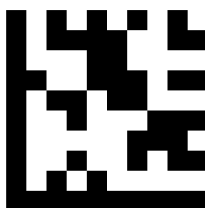
Start Setup

## 2D and Composite Code Settings

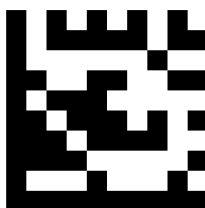
### Important

For settings in this group, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

### Composite Code-A

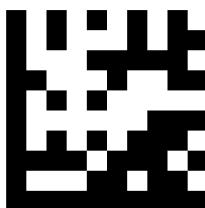


Enable Composite Code-A

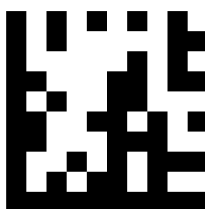


\* Disable Composite Code-A

### Composite Code-B



Enable Composite Code-B



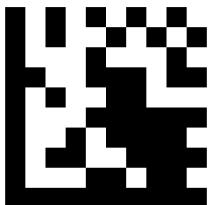
\* Disable Composite Code-B



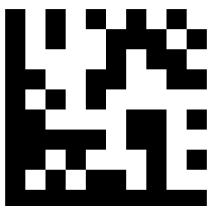


Start Setup

## Composite Code-C



Enable Composite Code-C

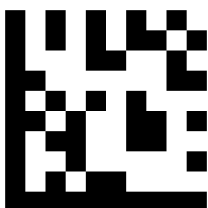


\* Disable Composite Code-C

## PDF417



\* Enable PDF417



Disable PDF417

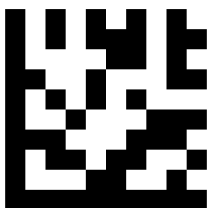
## MicroPDF417



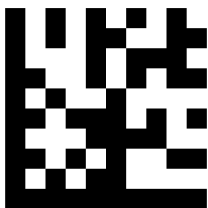


Start Setup

---

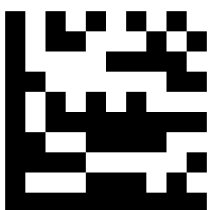


\* Enable MicroPDF417

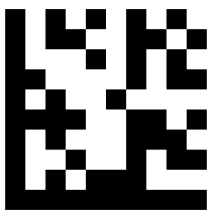


Disable MicroPDF417

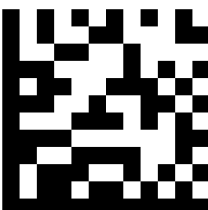
## Data Matrix



\* Enable Data Matrix



Disable Data Matrix



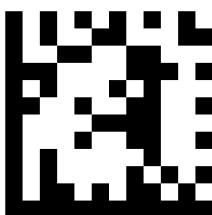
\* Enable Mirror Decode



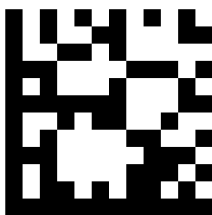


Start Setup

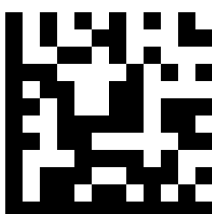
---



Disable Mirror Decode

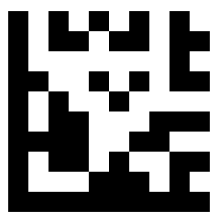


\* Enable Rectangular Data Matrix

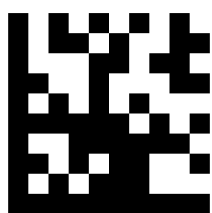


Disable Rectangular Data Matrix

## QR Code



\* Enable QR Code



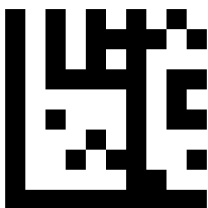
Disable QR Code



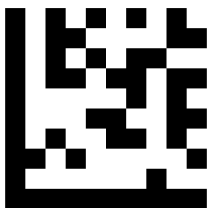


Start Setup

---

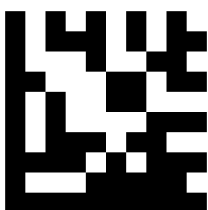


\* Enable Mirror Decode

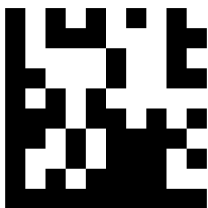


Disable Mirror Decode

## Micro QR

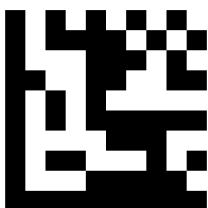


\* Enable Micro QR



Disable Micro QR

## Aztec



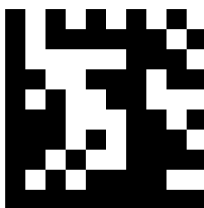
Enable Aztec





Start Setup

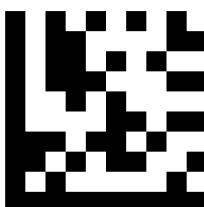
---



\* Disable Aztec

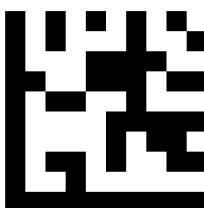


\* Enable Mirror Decode



Disable Mirror Decode

## MaxiCode



Enable MaxiCode



\* Disable MaxiCode





## Decode Length Settings

### Important

For settings in this group, perform settings in the order: Start Setup -> Function Parameter Barcode -> End Setup.

The following settings limit the readable length for each symbology; Code 128 is used as the example.

### Restrict to a Single Length

Restrict reading to barcodes of a single length. For example, set Code 128 to read only barcodes with a length of 14 characters.

#### Example

1. Scan “Start Setup” .
2. Scan the Code 128 “Restrict to a Single Length” Parameter Barcode.
3. Scan the 1 Parameter Barcode in *ASCII Code Table*.
4. Scan the 4 Parameter Barcode in *ASCII Code Table*.
5. Scan “End Setup” .

### Restrict to Two Different Lengths

Restrict reading to barcodes of two different lengths. For example, set Code 128 to read barcodes with lengths of 2 and 14 characters.

#### Example

1. Scan “Start Setup” .
2. Scan the Code 128 “Restrict to Two Different Lengths” Parameter Barcode.
3. Scan the 0 Parameter Barcode in *ASCII Code Table*.
4. Scan the 2 Parameter Barcode in *ASCII Code Table*.
5. Scan the 1 Parameter Barcode in *ASCII Code Table*.
6. Scan the 4 Parameter Barcode in *ASCII Code Table*.
7. Scan “End Setup” .

### Restrict to a Length Range

Restrict reading to barcodes within a length range. For example, set Code 128 to read barcodes with lengths from 08~14 characters.





Start Setup

### Example

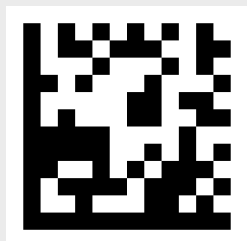
1. Scan “Start Setup” .
2. Scan the Code 128 “Restrict to a Length Range” Parameter Barcode.
3. Scan the 0 Parameter Barcode in [ASCII Code Table](#).
4. Scan the 8 Parameter Barcode in [ASCII Code Table](#).
5. Scan the 1 Parameter Barcode in [ASCII Code Table](#).
6. Scan the 4 Parameter Barcode in [ASCII Code Table](#).
7. Scan “End Setup” .

## any length

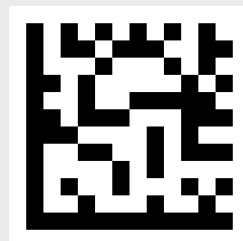
### Example

1. Scan “Start Setup” .
2. Scan the Code 128 “Any Length” Parameter Barcode.
3. Scan “End Setup” .

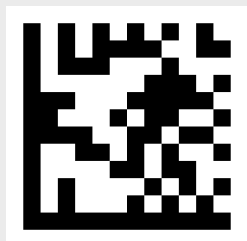
## Code 128



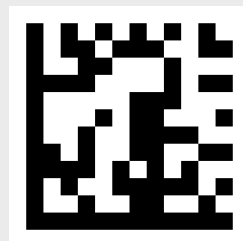
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range



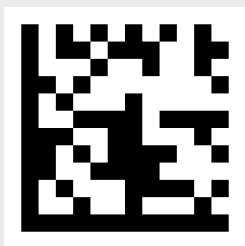
\* Any Length



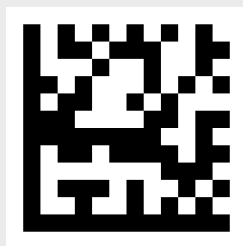


Start Setup

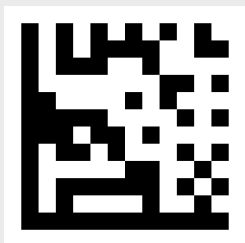
## Code 39



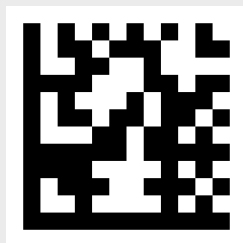
Restrict to a Single Length



Restrict to Two Different Lengths

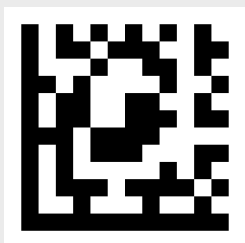


Restrict to a Length Range

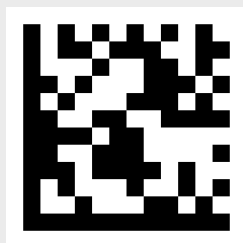


\* Any Length

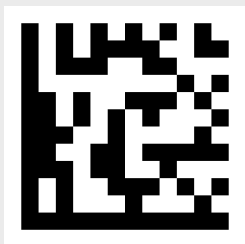
## Code 93



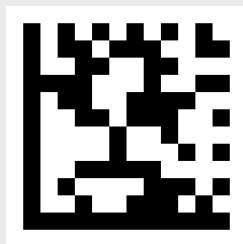
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range



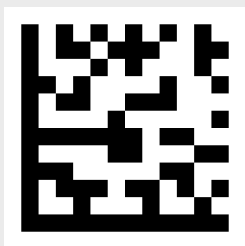
\* Any Length



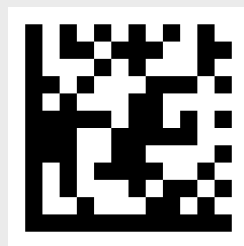


Start Setup

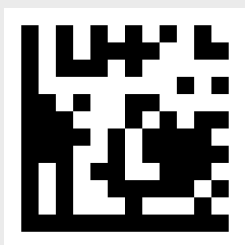
## Codabar



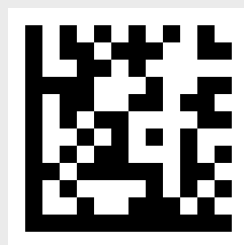
Restrict to a Single Length



Restrict to Two Different Lengths

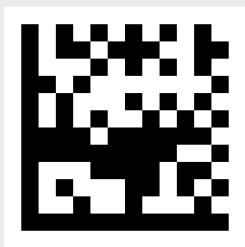


Restrict to a Length Range

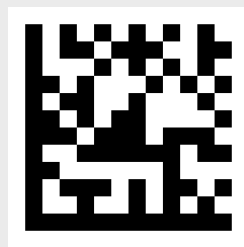


\* Any Length

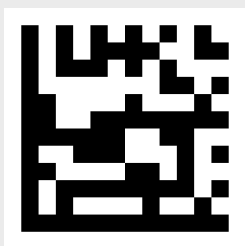
## Interleaved 2 of 5



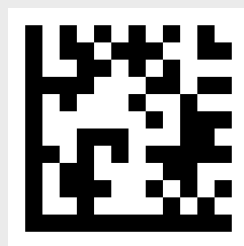
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range

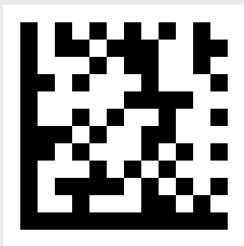


\* Any Length

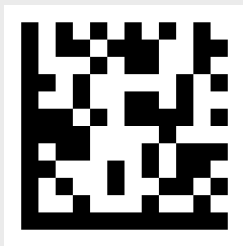




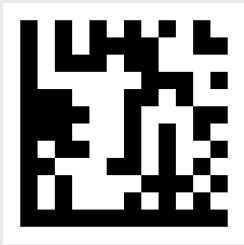
Code 11



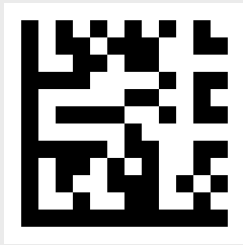
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range

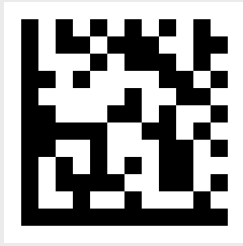


\* Any Length

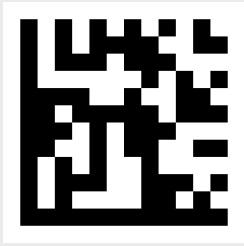
MSI Plessey



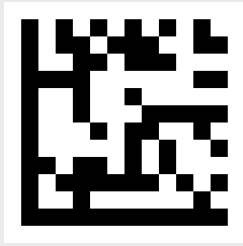
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range



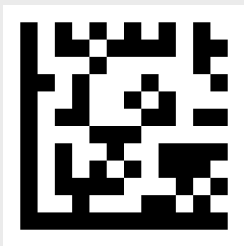
\* Any Length



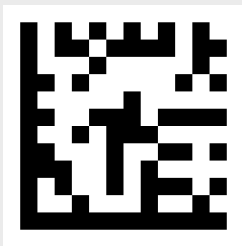


Start Setup

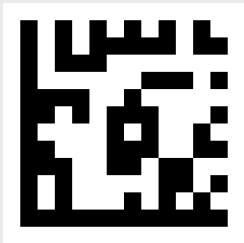
Matrix 2 of 5



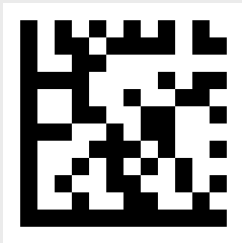
Restrict to a Single Length



Restrict to Two Different Lengths



Restrict to a Length Range

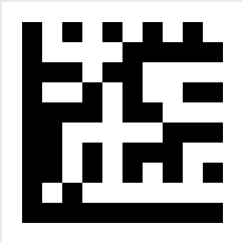
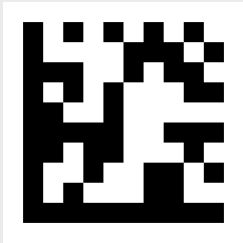
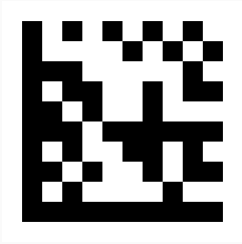
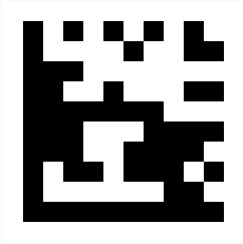
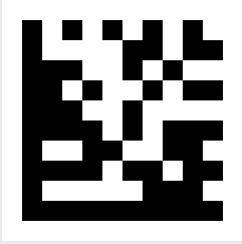
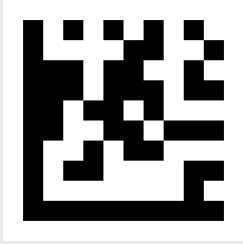
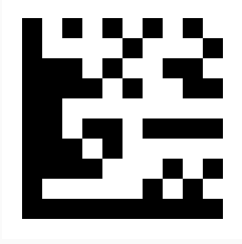
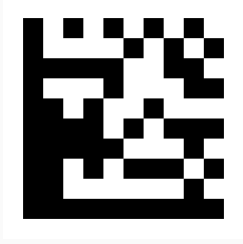
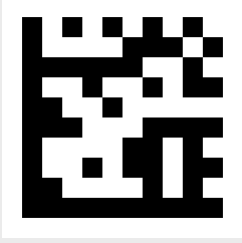
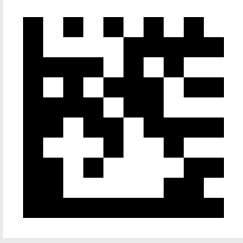


\* Any Length



12.6 Engine Parameter Barcodes

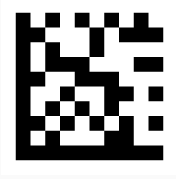
Decimal Digits

| Digit | Parameter Barcode                                                                   | Digit | Parameter Barcode                                                                     |
|-------|-------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------|
| 0     |    | 1     |    |
| 2     |    | 3     |    |
| 4     |  | 5     |  |
| 6     |  | 7     |  |
| 8     |  | 9     |  |

## 12.7 Engine Character Table

### ASCII Code Table

#### Control Characters (Function Key Mapping)

| Hex | Dec | ASCII                                                                               | Ctrl Char Mode | Alt + Unicode Mode |
|-----|-----|-------------------------------------------------------------------------------------|----------------|--------------------|
| 00  | 0   | Null                                                                                | Ctrl+@         | Alt + 000          |
| 01  | 1   | Home                                                                                | Ctrl+A         | Alt + 001          |
| 02  | 2   | End                                                                                 | Ctrl+B         | Alt + 002          |
| 03  | 3   | Up Arrow                                                                            | Ctrl+C         | Alt + 003          |
| 04  | 4   | Down Arrow                                                                          | Ctrl+D         | Alt + 004          |
| 05  | 5   | Left Arrow                                                                          | Ctrl+E         | Alt + 005          |
| 06  | 6   | Right Arrow                                                                         | Ctrl+F         | Alt + 006          |
| 07  | 7   | Null                                                                                | Ctrl+G         | Alt + 007          |
| 08  | 8   |    | Backspace      | Alt + 008          |
| 09  | 9   |  | TAB            | Alt + 009          |
| 0A  | 10  | Null                                                                                | Ctrl+J         | Alt + 010          |
| 0B  | 11  | Null                                                                                | Ctrl+K         | Alt + 011          |
| 0C  | 12  | Null                                                                                | Ctrl+L         | Alt + 012          |
| 0D  | 13  |  | Enter          | Enter              |
| 0E  | 14  | Page Up                                                                             | Ctrl+N         | Alt + 014          |
| 0F  | 15  | Page Down                                                                           | Ctrl+O         | Alt + 015          |
| 10  | 16  | F11                                                                                 | Ctrl+P         | Alt + 016          |
| 11  | 17  | Null                                                                                | Ctrl+Q         | Alt + 017          |
| 12  | 18  | Null                                                                                | Ctrl+R         | Alt + 018          |
| 13  | 19  | Null                                                                                | Ctrl+S         | Alt + 019          |
| 14  | 20  | Null                                                                                | Ctrl+T         | Alt + 020          |
| 15  | 21  | F12                                                                                 | Ctrl+U         | Alt + 021          |
| 16  | 22  | F1                                                                                  | Ctrl+V         | Alt + 022          |
| 17  | 23  | F2                                                                                  | Ctrl+W         | Alt + 023          |
| 18  | 24  | F3                                                                                  | Ctrl+X         | Alt + 024          |
| 19  | 25  | F4                                                                                  | Ctrl+Y         | Alt + 025          |
| 1A  | 26  | F5                                                                                  | Ctrl+Z         | Alt + 026          |

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Table 4 – continued from previous page

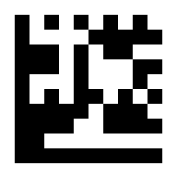
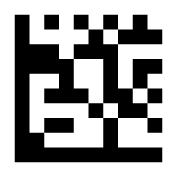
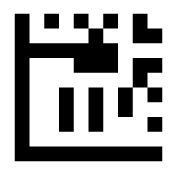
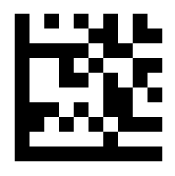
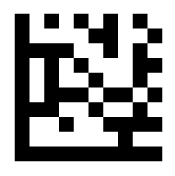
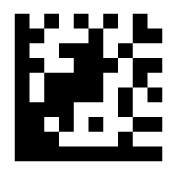
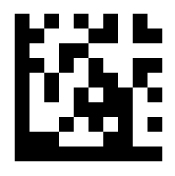
| Hex | Dec | ASCII | Ctrl Char Mode | Alt + Unicode Mode |
|-----|-----|-------|----------------|--------------------|
| 1B  | 27  | F6    | Ctrl+[         | Alt + 027          |
| 1C  | 28  | F7    | Ctrl+\         | Alt + 028          |
| 1D  | 29  | F8    | Ctrl+]         | Alt + 029          |
| 1E  | 30  | F9    | Ctrl+^         | Alt + 030          |
| 1F  | 31  | F10   | Ctrl+_         | Alt + 031          |

### Printable Characters and Delete

| Hex | Dec | ASCII | Parameter Barcode                                                                         |
|-----|-----|-------|-------------------------------------------------------------------------------------------|
| 20  | 32  | SPACE |         |
| 21  | 33  | !     |        |
| 22  | 34  | "     |  |
| 23  | 35  | #     |       |
| 24  | 36  | \$    |       |

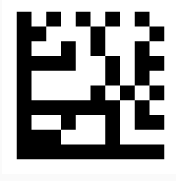
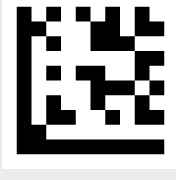
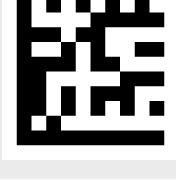
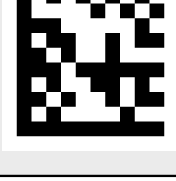
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 25  | 37  | %     |    |
| 26  | 38  | &     |    |
| 27  | 39  | '     |    |
| 28  | 40  | (     |  |
| 29  | 41  | )     |  |
| 2A  | 42  | *     |  |
| 2B  | 43  | +     |  |

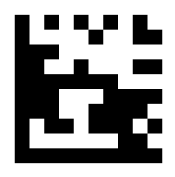
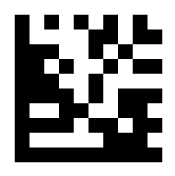
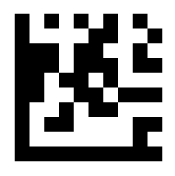
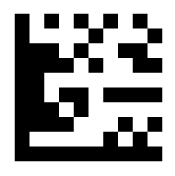
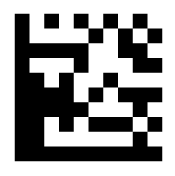
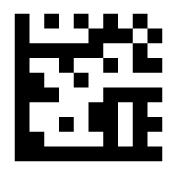
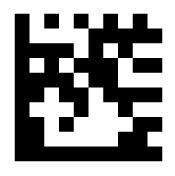
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 2C  | 44  | ,     |    |
| 2D  | 45  | -     |    |
| 2E  | 46  | .     |    |
| 2F  | 47  | /     |  |
| 30  | 48  | 0     |  |
| 31  | 49  | 1     |  |
| 32  | 50  | 2     |  |

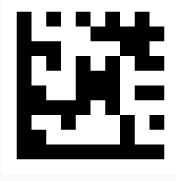
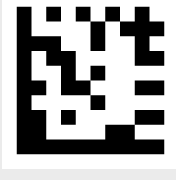
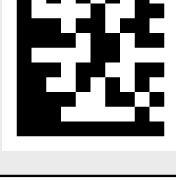
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 33  | 51  | 3     |    |
| 34  | 52  | 4     |    |
| 35  | 53  | 5     |    |
| 36  | 54  | 6     |  |
| 37  | 55  | 7     |  |
| 38  | 56  | 8     |  |
| 39  | 57  | 9     |  |

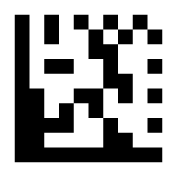
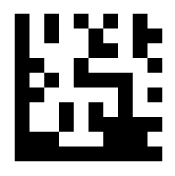
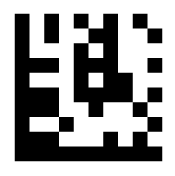
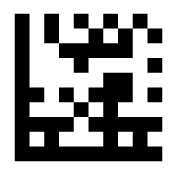
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 3A  | 58  | :     |    |
| 3B  | 59  | ;     |    |
| 3C  | 60  | <     |    |
| 3D  | 61  | =     |  |
| 3E  | 62  | >     |  |
| 3F  | 63  | ?     |  |
| 40  | 64  | @     |  |

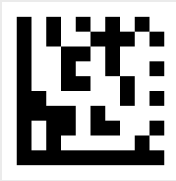
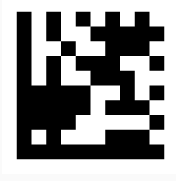
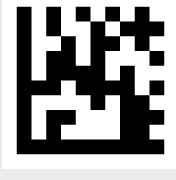
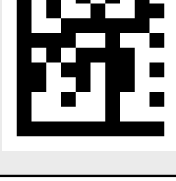
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 41  | 65  | A     |    |
| 42  | 66  | B     |    |
| 43  | 67  | C     |    |
| 44  | 68  | D     |  |
| 45  | 69  | E     |  |
| 46  | 70  | F     |  |
| 47  | 71  | G     |  |

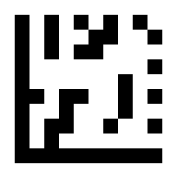
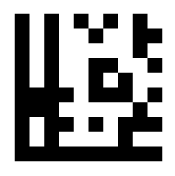
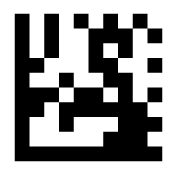
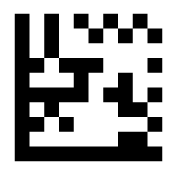
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 48  | 72  | H     |    |
| 49  | 73  | I     |    |
| 4A  | 74  | J     |    |
| 4B  | 75  | K     |  |
| 4C  | 76  | L     |  |
| 4D  | 77  | M     |  |
| 4E  | 78  | N     |  |

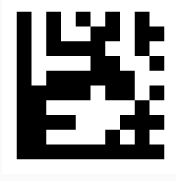
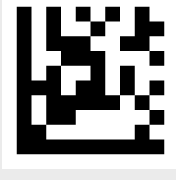
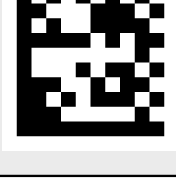
continues on next page

Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 4F  | 79  | O     |    |
| 50  | 80  | P     |    |
| 51  | 81  | Q     |    |
| 52  | 82  | R     |  |
| 53  | 83  | S     |  |
| 54  | 84  | T     |  |
| 55  | 85  | U     |  |

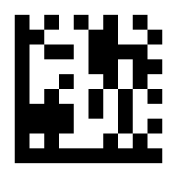
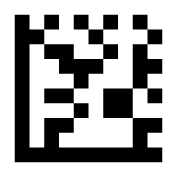
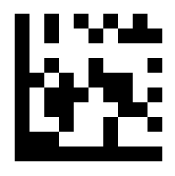
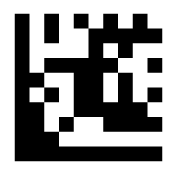
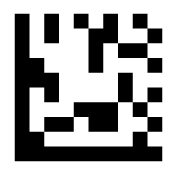
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 56  | 86  | V     |    |
| 57  | 87  | W     |    |
| 58  | 88  | X     |    |
| 59  | 89  | Y     |  |
| 5A  | 90  | Z     |  |
| 5B  | 91  | [     |  |
| 5C  | 92  | \     |  |

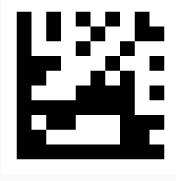
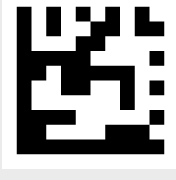
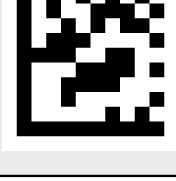
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 5D  | 93  | ]     |    |
| 5E  | 94  | ^     |    |
| 5F  | 95  | _     |    |
| 60  | 96  | `     |  |
| 61  | 97  | a     |  |
| 62  | 98  | b     |  |
| 63  | 99  | c     |  |

continues on next page

Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 64  | 100 | d     |    |
| 65  | 101 | e     |    |
| 66  | 102 | f     |    |
| 67  | 103 | g     |  |
| 68  | 104 | h     |  |
| 69  | 105 | i     |  |
| 6A  | 106 | j     |  |

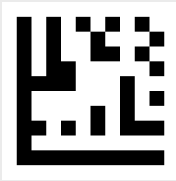
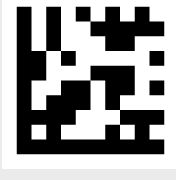
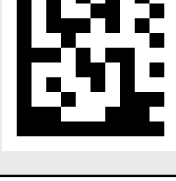
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Table 5 – continued from previous page

| Hex | Dec | ASCII | Parameter Barcode |
|-----|-----|-------|-------------------|
| 6B  | 107 | k     |                   |
| 6C  | 108 | l     |                   |
| 6D  | 109 | m     |                   |
| 6E  | 110 | n     |                   |
| 6F  | 111 | o     |                   |
| 70  | 112 | p     |                   |
| 71  | 113 | q     |                   |

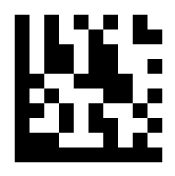
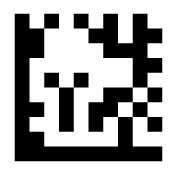
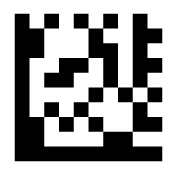
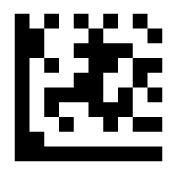
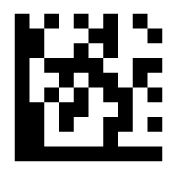
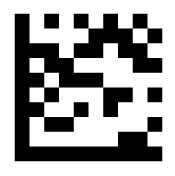
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Table 5 – continued from previous page

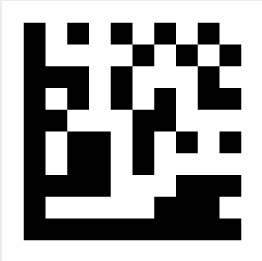
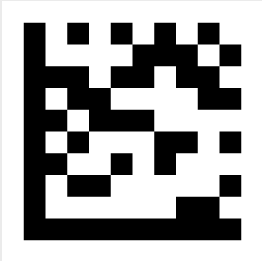
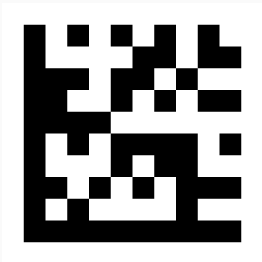
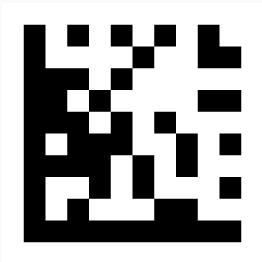
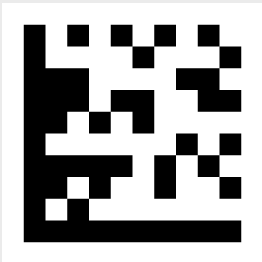
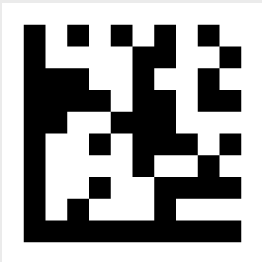
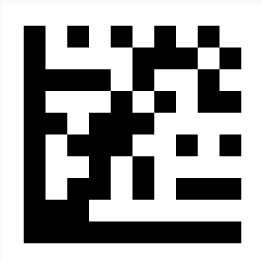
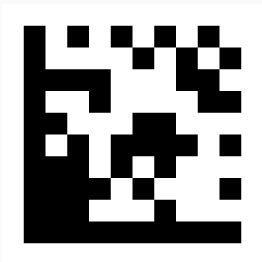
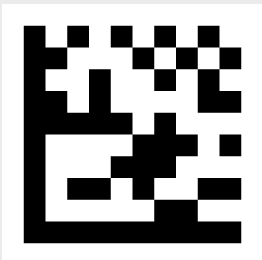
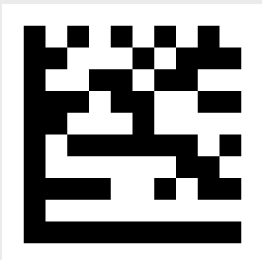
| Hex | Dec | ASCII | Parameter Barcode                                                                    |
|-----|-----|-------|--------------------------------------------------------------------------------------|
| 72  | 114 | r     |    |
| 73  | 115 | s     |    |
| 74  | 116 | t     |    |
| 75  | 117 | u     |  |
| 76  | 118 | v     |  |
| 77  | 119 | w     |  |
| 78  | 120 | x     |  |

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Table 5 – continued from previous page

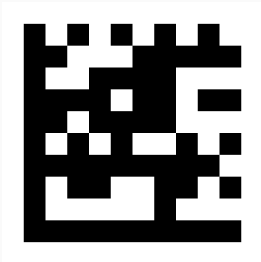
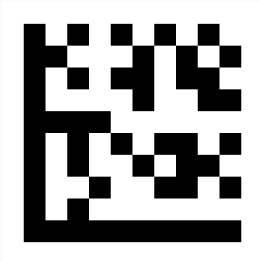
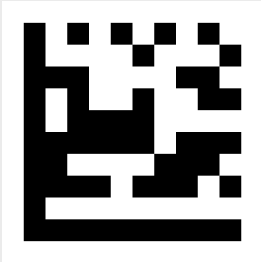
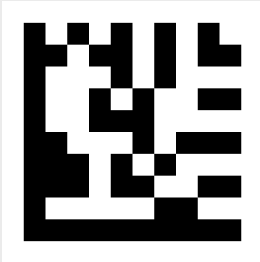
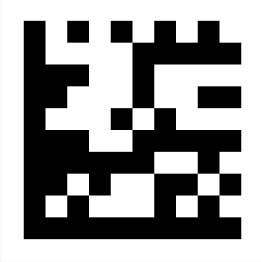
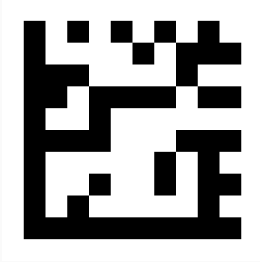
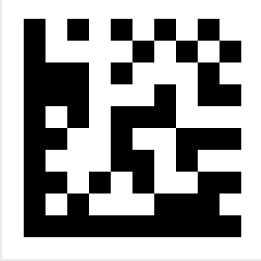
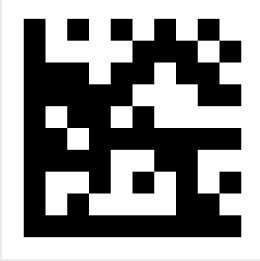
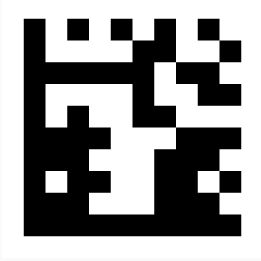
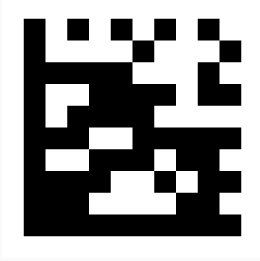
| Hex | Dec | ASCII  | Parameter Barcode                                                                    |
|-----|-----|--------|--------------------------------------------------------------------------------------|
| 79  | 121 | y      |    |
| 7A  | 122 | z      |    |
| 7B  | 123 | {      |    |
| 7C  | 124 |        |  |
| 7D  | 125 | }      |  |
| 7E  | 126 | ~      |  |
| 7F  | 127 | Delete |  |

Function Keys

| Key        | Parameter Barcode                                                                   | Key         | Parameter Barcode                                                                     |
|------------|-------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
| Insert     |    | Delete      |    |
| Home       |    | End         |    |
| Up Arrow   |  | Down Arrow  |  |
| Left Arrow |  | Right Arrow |  |
| Shift      |  | ESC         |  |

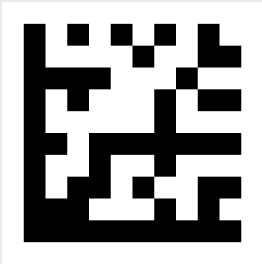
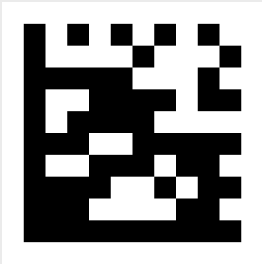
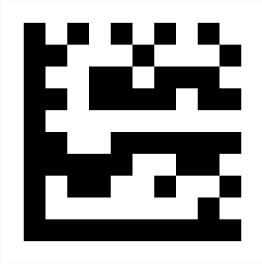
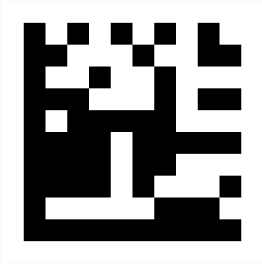
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Table 6 – continued from previous page

| Key     | Parameter Barcode                                                                   | Key       | Parameter Barcode                                                                     |
|---------|-------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|
| Page Up |    | Page Down |    |
| F1      |    | F2        |    |
| F3      |   | F4        |   |
| F5      |  | F6        |  |
| F7      |  | F8        |  |

continues on next page

Table 6 – continued from previous page

| Key | Parameter Barcode                                                                 | Key | Parameter Barcode                                                                   |
|-----|-----------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|
| F9  |  | F10 |  |
| F11 |  | F12 |  |

## 13 Appendix

### 13.1 Character Reference Table

#### ASCII Function Key Character Reference Table

##### 00H-0FH

| HEX | CODE | *Config0  | Config3   | Con-<br>fig1 | Con-<br>fig4 | Config2 Win-<br>dows | Config5 Win-<br>dows |
|-----|------|-----------|-----------|--------------|--------------|----------------------|----------------------|
| 00H | NUL  | NUL       | NUL       | Ctrl+@       | Ctrl+@       | ALT+000              | ALT+000              |
| 01H | SOH  | NUL       | NUL       | Ctrl+A       | Ctrl+A       | ALT+001              | ALT+001              |
| 02H | STX  | NUL       | NUL       | Ctrl+B       | Ctrl+B       | ALT+002              | ALT+002              |
| 03H | ETX  | NUL       | NUL       | Ctrl+C       | Ctrl+C       | ALT+003              | ALT+003              |
| 04H | EOT  | NUL       | NUL       | Ctrl+D       | Ctrl+D       | ALT+004              | ALT+004              |
| 05H | ENQ  | NUL       | NUL       | Ctrl+E       | Ctrl+E       | ALT+005              | ALT+005              |
| 06H | ACK  | NUL       | NUL       | Ctrl+F       | Ctrl+F       | ALT+006              | ALT+006              |
| 07H | BEL  | NUL       | NUL       | Ctrl+G       | Ctrl+G       | ALT+007              | ALT+007              |
| 08H | BS   | Backspace | Backspace | Ctrl+H       | Ctrl+H       | ALT+008              | ALT+008              |
| 09H | HT   | TAB       | TAB       | TAB          | Ctrl+I       | ALT+009              | ALT+009              |
| 0AH | LF   | NUL       | Enter     | Ctrl+J       | Ctrl+J       | ALT+010              | ALT+010              |
| 0BH | VT   | TAB       | TAB       | Ctrl+K       | Ctrl+K       | ALT+011              | ALT+011              |
| 0CH | FF   | NUL       | NUL       | Ctrl+L       | Ctrl+L       | ALT+012              | ALT+012              |
| 0DH | CR   | Enter     | Enter     | Enter        | Ctrl+M       | Enter                | ALT+013              |
| 0EH | SO   | NUL       | NUL       | Ctrl+N       | Ctrl+N       | ALT+014              | ALT+014              |
| 0FH | SI   | NUL       | NUL       | Ctrl+O       | Ctrl+O       | ALT+015              | ALT+015              |

##### 10H-1FH

| HEX | CODE | *Config0/3 | Config1/4 | Config2/5 Windows |
|-----|------|------------|-----------|-------------------|
| 10H | DLE  | NUL        | Ctrl+P    | ALT+016           |
| 11H | DC1  | NUL        | Ctrl+Q    | ALT+017           |
| 12H | DC2  | NUL        | Ctrl+R    | ALT+018           |
| 13H | DC3  | NUL        | Ctrl+S    | ALT+019           |
| 14H | DC4  | NUL        | Ctrl+T    | ALT+020           |
| 15H | NAK  | NUL        | Ctrl+U    | ALT+021           |
| 16H | SYN  | NUL        | Ctrl+V    | ALT+022           |
| 17H | ETB  | NUL        | Ctrl+W    | ALT+023           |
| 18H | CAN  | NUL        | Ctrl+X    | ALT+024           |
| 19H | EM   | NUL        | Ctrl+Y    | ALT+025           |
| 1AH | SUB  | NUL        | Ctrl+Z    | ALT+026           |
| 1BH | ESC  | ESC        | Ctrl+[    | ALT+027           |
| 1CH | FS   | NUL        | Ctrl+\    | ALT+028           |
| 1DH | GS   | NUL        | Ctrl+]    | ALT+029           |
| 1EH | RS   | NUL        | Ctrl+^    | ALT+030           |
| 1FH | US   | NUL        | Ctrl+-    | ALT+031           |

**Note**

On Mac systems, the Ctrl key corresponds to the Command key.

**ASCII Character Reference Table****20H-5FH**

| HEX | ASCII | HEX | ASCII | HEX | ASCII | HEX | ASCII |
|-----|-------|-----|-------|-----|-------|-----|-------|
| 20H | Space | 30H | 0     | 40H | @     | 50H | P     |
| 21H | !     | 31H | 1     | 41H | A     | 51H | Q     |
| 22H | "     | 32H | 2     | 42H | B     | 52H | R     |
| 23H | #     | 33H | 3     | 43H | C     | 53H | S     |
| 24H | \$    | 34H | 4     | 44H | D     | 54H | T     |
| 25H | %     | 35H | 5     | 45H | E     | 55H | U     |
| 26H | &     | 36H | 6     | 46H | F     | 56H | V     |
| 27H | '     | 37H | 7     | 47H | G     | 57H | W     |
| 28H | (     | 38H | 8     | 48H | H     | 58H | X     |
| 29H | )     | 39H | 9     | 49H | I     | 59H | Y     |
| 2AH | *     | 3AH | :     | 4AH | J     | 5AH | Z     |
| 2BH | +     | 3BH | ;     | 4BH | K     | 5BH | [     |
| 2CH | ,     | 3CH | <     | 4CH | L     | 5CH | \     |
| 2DH | -     | 3DH | =     | 4DH | M     | 5DH | ]     |
| 2EH | .     | 3EH | >     | 4EH | N     | 5EH | ^     |
| 2FH | /     | 3FH | ?     | 4FH | O     | 5FH | _     |

**60H-9DH**

| HEX | ASCII | HEX | ASCII | HEX | Fun Key | HEX | Fun Key      |
|-----|-------|-----|-------|-----|---------|-----|--------------|
| 60H | `     | 70H | p     | 80H | F1      | 90H | End          |
| 61H | a     | 71H | q     | 81H | F2      | 91H | Page Down    |
| 62H | b     | 72H | r     | 82H | F3      | 92H | Right Arrow  |
| 63H | c     | 73H | s     | 83H | F4      | 93H | Left Arrow   |
| 64H | d     | 74H | t     | 84H | F5      | 94H | Down Arrow   |
| 65H | e     | 75H | u     | 85H | F6      | 95H | Up Arrow     |
| 66H | f     | 76H | v     | 86H | F7      | 96H | Print Screen |
| 67H | g     | 77H | w     | 87H | F8      | 97H | *Ctrl        |
| 68H | h     | 78H | x     | 88H | F9      | 98H | *Shift       |
| 69H | i     | 79H | y     | 89H | F10     | 99H | *Left Alt    |
| 6AH | j     | 7AH | z     | 8AH | F11     | 9AH | *Right Alt   |
| 6BH | k     | 7BH | {     | 8BH | F12     | 9BH | 1s Delay     |
| 6CH | l     | 7CH |       | 8CH | Insert  | 9CH | *Win-GUI     |
| 6DH | m     | 7DH | }     | 8DH | Home    | 9DH | *Keystroke   |
| 6EH | n     | 7EH | ~     | 8EH | Page Up |     |              |
| 6FH | o     | 7FH | DEL   | 8FH | Delete  |     |              |

**Note**

When Ctrl, Shift, Alt, GUI are set as prefix or suffix, they will be output in combination with the next character (not supported when set to ALT, TH keyboard). The character after Keystroke is directly output as the key value.