DS8500 Barcode Scanner User Manual

Release v1.1.1

2026-09-02

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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

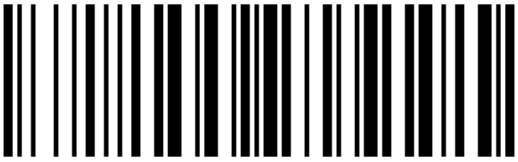
> **Note**
>
> During the data upload process, if you scan the “data upload” command again, the current upload will be canceled or stopped.

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



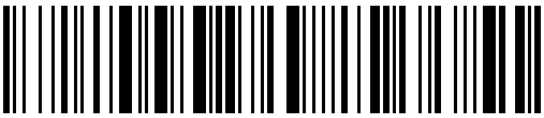
Upload storage data

Read the total number of stored barcodes

Clear storage data after uploading

Read storage space usage

Clear stored barcode

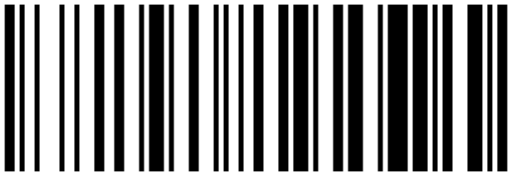


* Autosave mode off

Automatic storage mode is on

2 Power management

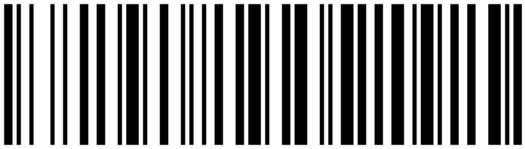
2.1 Read sleep time



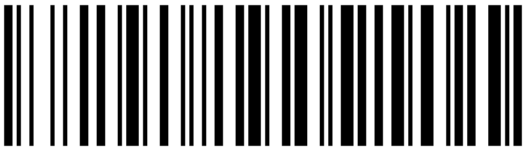
Read sleep time

2.2 Set sleep time

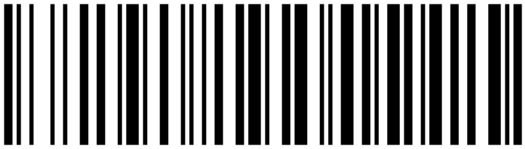
Hibernate now



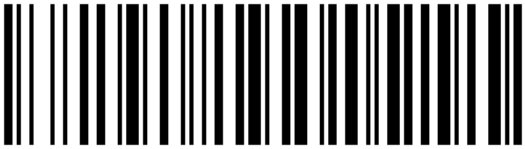
Sleep after 1 minute



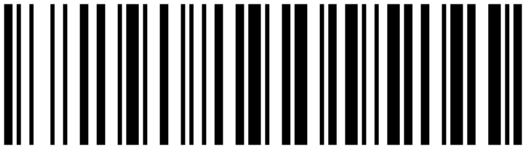
Sleep after 3 minutes (default)



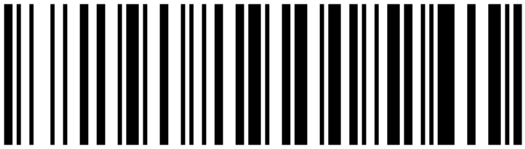
Sleep after 5 minutes



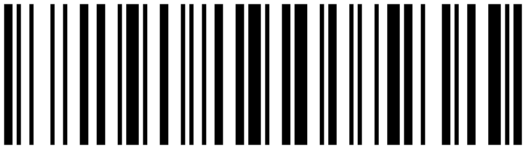
Sleep after 10 minutes



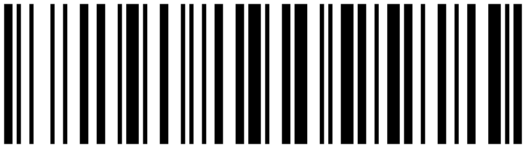
Sleep after 30 minutes



Sleep after 1 hour

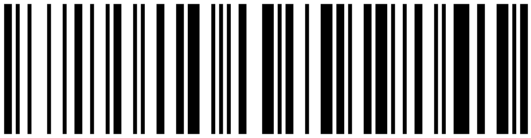


Sleep after 2 hours



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.	**Storage-mode scan** `storage-mode.m4a`**Power off** `shutdown.m4a`
Beep	Single tone (3 pitches)	Power-on prompt; setting saved; upload complete.	**Power on** `startup.m4a`**Setting successful** `wireless-setting.m4a`
Beep	Short single tone	Successful decode.	**Barcode decoded successfully** `one-beeps.m4a`
Beep	30-second continuous short tone	2.4G pairing waits for the receiver; stops after pairing.	**2.4G pairing** `pair2.4G.m4a`
Alarm sound	Two tones (same pitch)	Low-battery alarm during decoding.	**Low battery** `two-beeps.m4a`
Alarm sound	Three tones (same pitch)	Inventory storage error or capacity exceeded.	**Storage error or capacity alarm** `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.	**Low-battery power-on failure** `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

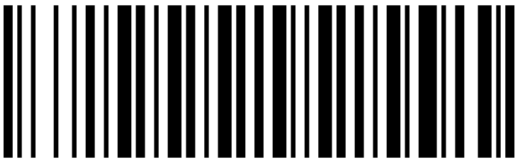
> **Note**
>
> Only applicable to Barcode Readers that support wired transmission.

4.1 USB transfer method

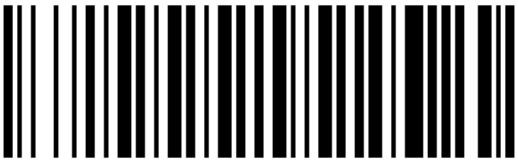
* USB keyboard mode

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.



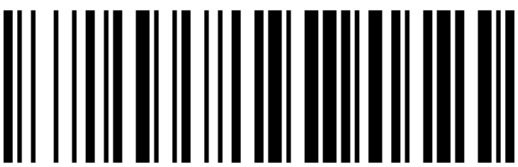
* Wired/wireless automatic selection turns on



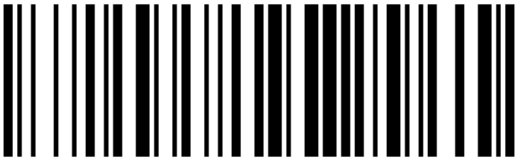
Wired/wireless automatic selection off

4.2 USB keyboard transfer speed

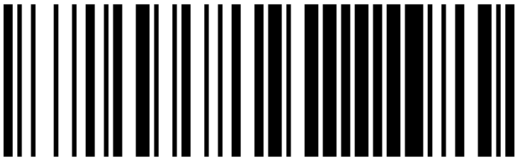
> **Note**
>
> This setting also affects the speed of RF and Bluetooth transmission of very long barcodes and stored data uploads.



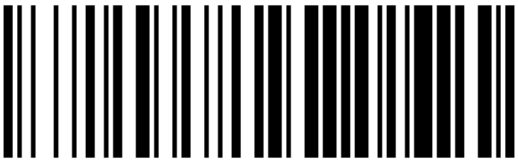
* top speed



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

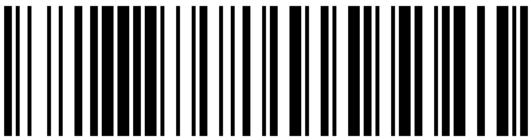
> **Important**
>
> Only valid in wireless 2.4G mode.

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

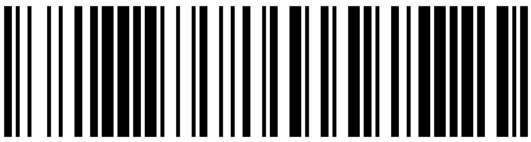
This command is only valid in wireless 2.4G mode and the receiver is connected normally.

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

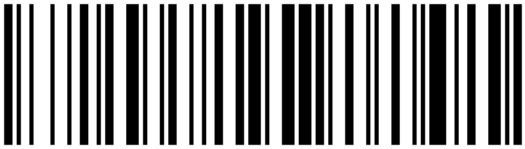
Note

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

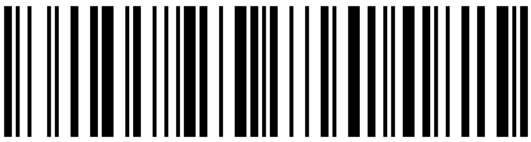
Note

Valid only in Bluetooth mode.

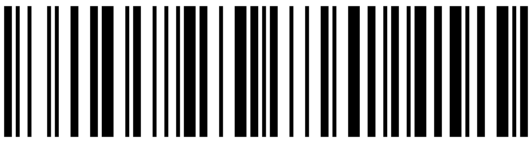
Note

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>
```

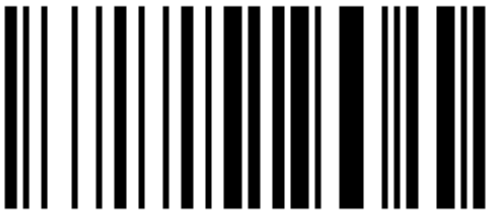
6.5 Clear Bluetooth HID Pairing

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

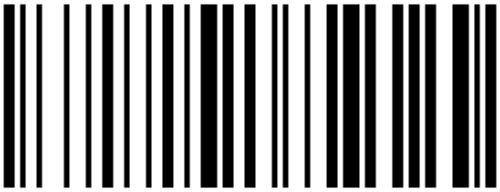
Press and hold the Trigger Button for 4 seconds to toggle the iOS on-screen keyboard

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

Pop up iOS keyboard switch after sending

Windows Caps Lock detection

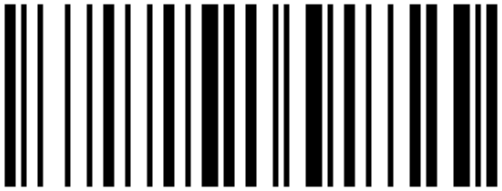
> **Note**
>
> This command is only available on some Bluetooth Barcode Readers. After scanning the Parameter Barcode, two short beeps indicate disabled, and one three-tone beep indicates enabled.



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.

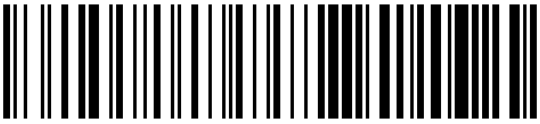


Press and hold the Trigger Button for 8 seconds to toggle RF/BT switching

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

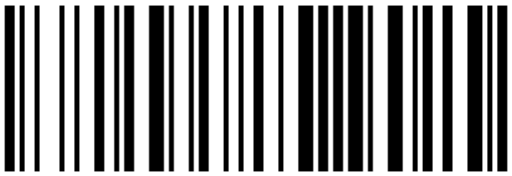
Note:

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 (`>= 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.

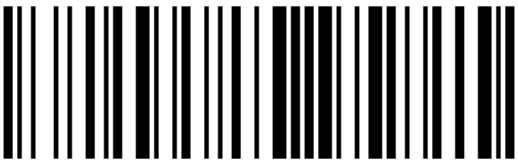
Receiving device selection

Note

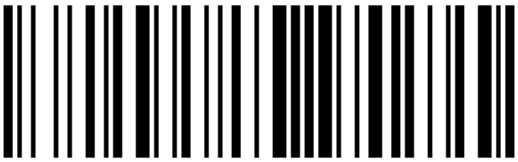
This section configures how different host devices enter ASCII characters (`0x20` to `0x7F`). Use it together with *Keyboard Layout Settings*.



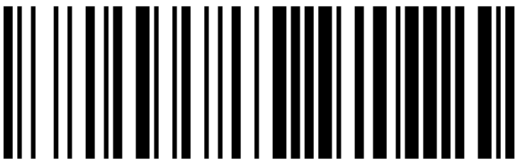
Read the current receiving device settings



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 FIFinland Key

Finnish keyboard

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

Latin American Spanish keyboard

L19 NL Netherlands Netherlands Key

Dutch keyboard

L20 NONorway 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#ncllxx#
```

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.

ll

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

Example

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

Character replacement operation: GS to text GS

Example

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

Character replacement operation: LF to CR

Example

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

9.3 Terminator Settings

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)

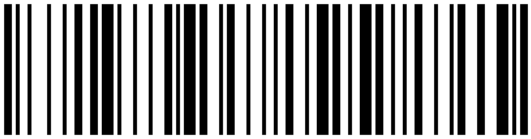
Add Parentheses

Add brackets and separate with CR

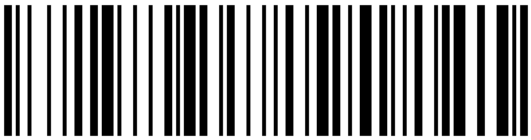
Add brackets and separate them with TAB

10 Scan Mode

10.1 Barcode Decode Mode



Key scan mode (default)



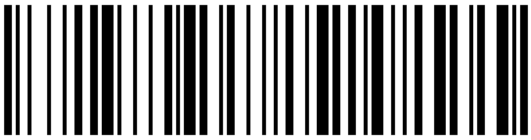
Continuous scan mode

> **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

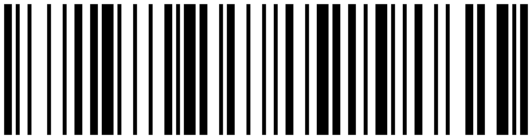
Scanning starts when a key-level change is detected and maintained for about 30 ms. Scanning stops when another key-level change is detected, or when a decode succeeds or times out.



Host trigger mode (only applicable to some customized models)

Note

Host trigger mode is only applicable to some customized models.

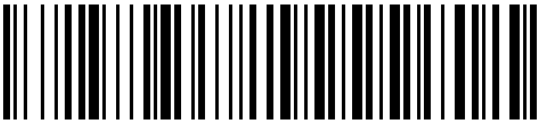


Batch scanning mode (only applicable to some customized models)

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 UHF settings

> **Note**
>
> Only available on wireless models with UHF RFID capability.

11.1 Status indication

DS8500 top status indication

Table 2: DS8500 status indication

Working mode (press the `Mode` key to switch)	2D LED	RFID LED	BT/Scan LED
barcode only (default)	ON	OFF	Follow the buzzer for sound and light prompts; in Bluetooth mode, it is used to indicate the BT connection status: it flashes when not connected, and stays on when connected.
RFID only	OFF	ON when idle, flashing when reading tags	
Barcode + RFID	ON	ON when idle, flashing when reading tags	

11.2 Scan Mode

2D and RFID switching

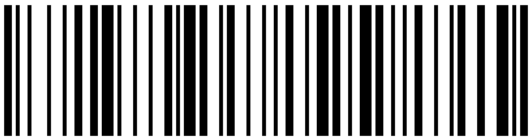
* 2D only

RFID only

2D&RFID (any output)

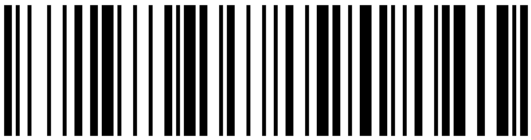
> **Note**
>
> In `RFID only` mode, press and hold the Trigger Button for 8 seconds to switch to `2D&RFID` mode; the DS8500 can also switch modes using the top `Mode` key.

Trigger reading mode



* Key scan mode (default)

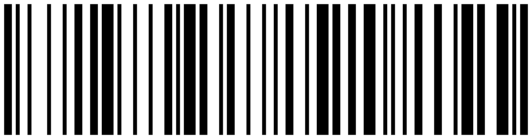
Press the Trigger Button to start reading, and release it to stop reading.



Continuous scan mode

Press the Trigger Button to start or stop continuous reading.

Group scan mode



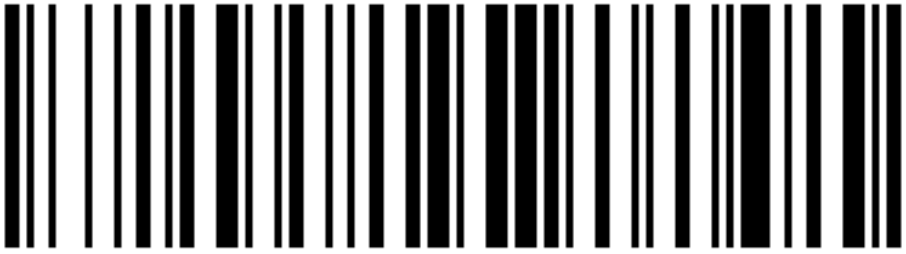
Group scan mode (supported by some versions)

Some versions (such as `DS_UHF_RFSBTD43bc_E429` and above) support group scan mode.

Press and hold the button to start scanning, release the button to upload; if no new tag is detected for more than `0.3 s`, it will also be uploaded automatically.

> **Warning**
>
> Group scan mode cannot be used together with 2D barcode reading.

Group scan mode requires enabling SRAM cache, and the maximum cache size is `4096` bytes.



SRAM Cache Enable/Disable

> **Note**
>
> If you hear two short beeps after scanning, it means disabled; one long and three short beeps means enabled.

11.3 EPC output format settings

* ASCII-Hex

Original

For example, when outputting `E0 :00 :12 :34`:

```
ASCII-Hex: E0001234
Original: 0xE0,0x00,0x12,0x34
```

11.4 Prefix Settings

* Disable

Enable

When enabled, EPC data will be added with the `EPC:` prefix, and barcode data will be added with the `COD:` prefix.

11.5 Read content settings

> **Note**
>
> Currently only available for U2 UHF modules.

*EPC

TID

> **Note**
>
> The `TID` option was added on 2024-11-09.

11.6 U2 UHF module settings

> **Note**
>
> This section applies to Barcode Readers using the U2 UHF module.

UHF power settings

Note

Applicable to U2 module; will not be lost after power off after saving.

Set the transmit power Level 1 (5 dbm, the closest card reading distance) (01F4)

Set transmit power Level 2 (10 dbm) (03E8)

Set transmit power Level 3 (15 dbm) (05DC)

Set transmit power Level 4 (18 dbm) (0708)

Set transmit power Level 5 (19 dbm) (076C)

Set transmit power Level 6 (20 dbm) (07D0)

Set transmit power Level 7 (21 dbm) (0834)

Set transmit power Level 8 (22 dbm) (0898)

* Set transmit power Level 9 (23 dbm) (08FC)

Set transmit power Level 10 (27 dbm) (0A8C)

11.7 U3 UHF module settings

> **Note**
>
> This section applies to Barcode Readers using the U3 UHF module.

UHF power settings

> **Note**
>
> For U3 mods.

0dbm

1dbm

2dbm

3dbm

4dbm

Set the transmit power Level 1 (5 dbm, the closest card reading distance) (05)

Set transmit power Level 2 (10 dbm) (0A)

Set transmit power Level 3 (15 dbm) (0F)

Set transmit power Level 4 (17 dbm) (11)

Set transmit power Level 5 (19 dbm) (13)

Set transmit power Level 6 (21 dbm) (15)

Set transmit power Level 7 (23 dbm) (17)

Set transmit power Level 8 (25 dbm) (19)

* Set transmit power Level 9 (28 dbm) (1C)

12 Module Settings

12.1 Device Feature Settings

URL blocking

* Disable

Enable

Invoice function

Turn on the invoice function and automatically turn off Code 128. If you need to read Code 128, you can turn on Code 128 again.

Automatic identification and output of VAT invoices

* Disable

Enable

Invoice type

* Special invoice

Ordinary invoice

12.2 Trigger Settings

Trigger Mode

Trigger Hold (Level)

Press the trigger button to start decoding, and release it to stop decoding. This decode cycle also ends after a successful decode or when the single-scan time times out.

* Trigger Hold (Level)

One-Shot Trigger (Pulse)

Decoding starts after a trigger-level change is detected and maintained for about `30 ms` (the exact time depends on the product). Decoding ends when another trigger-level change is detected. This decode cycle also ends after a successful decode or when the single-scan time times out.

One-Shot Trigger (Pulse)

Continuous Mode

The scan engine operates continuously. After each successful decode or single-scan timeout, the current decode cycle ends and the next decode cycle starts automatically when the continuous decode interval is reached.

Continuous Mode

Presentation Mode

The scan engine monitors ambient brightness and starts decoding when the brightness changes. After a successful decode or a single-scan timeout, the current decode cycle ends and ambient-brightness monitoring resumes.

Presentation Mode

Single-Scan Time (Scan Duration)

Set the maximum duration of a single scan. After scanning this Parameter Barcode, scan three Numeric Barcodes to enter the time coefficient. If the value has fewer than three digits, pad it with leading `0`.

default

`3000 ms`

Unit

`100 ms`

Range

`500–25500 ms`

Single-Scan Time

Example

To set `500 ms`, scan this Parameter Barcode, then scan Numeric Barcodes `0`, `0`, and `5` in sequence.

To set `10500 ms`, scan this Parameter Barcode, then scan Numeric Barcodes `1`, `0`, and `5` in sequence.

To change a selection or cancel an incorrect setting, scan *Cancel Barcode*.

Single Scan Time (Scan Duration) Quick Setup

To select a commonly used duration directly, scan one of the quick Parameter Barcodes below.

Unlimited

3 s

5 s

10 s

15 s

20 s

30 s

60 s

Continuous Decode Interval

In Continuous Mode, this parameter defines the wait time between two scan attempts. After the configured interval elapses, the next scan starts automatically whether the previous attempt succeeded or failed.

After scanning this Parameter Barcode, scan two Numeric Barcodes to enter the time coefficient. If the value has fewer than two digits, pad it with a leading `0`.

default

`500 ms`

Unit

`100 ms`

Range

`0–9900 ms`

Continuous Decode Interval

Example

To set `500 ms`, scan this Parameter Barcode, then scan Numeric Barcodes `0` and `5` in sequence.

To change a selection or cancel an incorrect setting, scan *Cancel Barcode*.

Same Symbol Timeout

To prevent the same barcode from being decoded repeatedly in Continuous Mode or Presentation Mode, configure the Scan Engine to accept the same barcode again only after the Same Symbol Timeout has elapsed.

After scanning this Parameter Barcode, scan two Numeric Barcodes to enter the time coefficient. If the value has fewer than two digits, pad it with a leading `0`.

default

`500 ms`

Unit

`100 ms`

Range

`0–9900 ms`

Same Symbol Timeout

Example

To set `200 ms`, scan this Parameter Barcode, then scan Numeric Barcodes `0` and `2` in sequence.

To set `1500 ms`, scan this Parameter Barcode, then scan Numeric Barcodes `1` and `5` in sequence.

To change a selection or cancel an incorrect setting, scan *Cancel Barcode*.

Same Symbol Timeout Quick Settings

To select a commonly used same symbol timeout directly, scan one of the quick Parameter Barcodes below. Six preset levels are available: 0 s, 1 s, 3 s, 5 s, 7 s, and unlimited delay.

No Delay

1 s Delay

3 s Delay

5 s Delay

7 s Delay

Unlimited Delay (Disable Same-Code Reads)

12.3 Engine Code ID

Transport code ID characters

Parameter number

`0x2D`

default

`None`

Code ID characters are used to identify the barcode type. When a device may decode multiple barcode types, the Code ID or AIM ID can be inserted between the prefix characters and the decoded data. See *Code ID* for Code ID characters and *AIM code identifier* for AIM ID characters.

Code ID

AIM ID

* None

Code ID

Barcode Types	Code ID
Code 128	D
GS1-128(UCC/EAN-128)	K
AIM 128	D
ISBT-128	D
EAN-8	A
EAN-13	A
ISSN	L
ISBN/Bookland EAN	L
UPC-E	A
UPC-A	A
Interleaved 2 of 5/ITF	F
ITF-14	F
Deutsche Post 14	w
Deutsche Post 12	l
NEC-25(COOP 2 of 5)	o
Matrix 2 of 5	V
Industrial 2 of 5/Discrete 2 of 5/IND25	G
Standard 2 of 5 (IATA 25)	G
Code 39	B
Code 93	E
Codabar	C

continues on next page

Table 3 – continued from previous page

Barcode Types	Code ID
Code 11	H
Plessey	J
MSI-Plessey	J
GS1-DataBar（RSS）	R
PDF417	r
QR	q
AZTEC(Aztec Code)	a
Data Matrix (DM)	u
MaxiCode	x
Han Xin Code/Han Xin Code	c
Code 32	B
Trioptic Code 39	M
Coupon Code	N
GS1 DataBar-14	R
GS1 DataBar Limited	R
GS1 DataBar Expanded	R
SETUP128	S
Veri Code	v

AIM code identifier

Barcode Types	AIM ID	Description
Code 128	]C0	Normal data
GS1-128(UCC/EAN-128)	]C1	FNC1 is at the 1st code word position.
AIM 128	]C2	FNC1 is at the 2nd code word position.
ISBT-128	]C0	
EAN-8	]E4	Normal data
	]E4…]E1…	EAN-8 data plus a 2-digit additional code.
	]E4…]E2…	EAN-8 data plus a 5-digit additional code.
EAN-13	]E0	Normal data
	]E3	EAN-13 data plus 2/5 digit additional code.
ISSN	]X0	Normal data
ISBN/Bookland EAN	]X0	Normal data
UPC-E	]E0	Normal data
	]E3	UPC-E data plus a 2/5-digit add-on code.
UPC-A	]E0	Ordinary data.
	]E3	UPC-A data plus a 2/5-digit add-on code.
Interleaved 2 of 5/ITF	]I0	Normal data

continues on next page

Table 4 – continued from previous page

Barcode Types	AIM ID	Description
	]I1	Verify and output check characters.
	]I3	Verify but do not output the check character.
ITF-14	]I1	Output check characters.
	]I3	Check characters are not output.
Deutsche Post 14	]X0	Normal data
Deutsche Post 12	]X0	Normal data
NEC-25(COOP 2 of 5)	]X0	Normal data
Matrix 2 of 5	]X0	Normal data
Industrial 2 of 5/ Discrete 2 of 5/IND25	]S0	Normal data
Standard 2 of 5 (IATA 25)	]R0	Normal data
Code 39	]A0	No parity, no Full ASCII extension, data output as it is.
	]A1	MOD43 check and output check characters.
	]A3	MOD43 checks, but does not output check characters.
	]A4	Full ASCII extension, but no parity.
	]A5	Full ASCII expansion is performed, and check characters are output.
	]A7	Full ASCII expansion is performed, but check characters are not output.
Code 93	]G0	Normal data
Codabar	]F0	Normal data
	]F2	Verification, and output verification characters.
	]F4	Verification, but does not output the verification character.
Code 11	]H3	Normal data
	]H0	MOD11 single character verification and output verification characters.
	]H3	MOD11 single character verification, but does not output the verification character.
Plessey	]P0	Normal data
MSI-Plessey	]M0	Normal data
	]M0	MOD10 verification, and output verification characters
	]M1	MOD10 verification, but does not output verification characters
GS1-DataBar（RSS）	]e0	Standard data package

continues on next page

Table 4 – continued from previous page

Barcode Types	AIM ID	Description
PDF417	]L0	No options specified at this time, always transmit 3
QR	]Q0	QR Code Mode 1 (Complies with AIM ISS 97-001)
	]Q1	QR Code mode 2 (2005 symbol), not using ECI protocol
	]Q2	QR Code mode 2 (2005 symbol), using the ECI protocol
	]Q3	QR Code mode 2 (2005 symbol), ECI protocol not used, FNC1 in position 1
	]Q4	QR Code mode 2 (2005 symbol), using ECI protocol, FNC1 is in position 1
	]Q5	QR Code mode 2 (2005 symbol), ECI protocol not used, FNC1 in position 2
	]Q6	QR Code mode 2 (2005 symbol), using ECI protocol, FNC1 is in position 2
AZTEC(Aztec Code)	]z0	No options specified at this time, always transmit 3
Data Matrix (DM)	]d0	ECC 000 - 140
	]d1	ECC 200
	]d2	ECC 200, FNC1 in position 1 or 5
	]d3	ECC 200, FNC1 in position 2 or 6
	]d4	ECC 200 supports ECI protocol
	]d5	ECC 200, FNC1 in position 1 or 5 and supports ECI protocol
	]d6	ECC 200, FNC1 in position 2 or 6 and supports ECI protocol
MaxiCode	]U1	No options specified at this time, always transmit 3
Han Xin Code/Han Xin Code	]X0	No options specified at this time, always transmit 3

12.4 Engine Output Format

Terminator Settings

A Terminator is a control character appended to the Output Data. The output format is: Output Data + Terminator.

* Disable

Carriage return and line feed CR LF

Carriage Return CR

TAB

Enter Enter Enter CR CR

Carriage return and line feed Carriage return and line feed CR LF CR LF

Support for GS1 rules using brackets to include AI fields

Currently supporting GS1 rules, the supported AI segments are: (00) Transport container serial number, (01) Commodity transaction item, (02) Commodity transaction item, (10) Batch number, (11) Production date, (13) Packaging date, (15) Best date, (17) Expiration date, (21) Serial number, (30) Quantity, (240) Internal code, (712) National medical insurance reimbursement number - Spain CN, (8012) software version, (90) consistent information between trading partners

* Disable

Enable

12.5 Barcode Settings

Common Symbology Entries

Symbology	Entry
UPC-A	*UPC-A*
UPC-E	*UPC-E*
EAN-8	*EAN-8*
EAN-13	*EAN-13*
Bookland EAN	*Enable/disable Bookland EAN (ISBN)*
Code 128	*Code 128*
GS1-128	*GS1-128 (formerly UCC/EAN-128)*
Code 39	*Code 39*
Code 93	*Code 93*
Code 11	*Code 11*
Interleaved 2 of 5	*Interleaved 2 of 5/ITF/Crossed 25 yards*
Codabar	*Codabar*
MSI	*MSI/MSI PLESSEY*
PDF417	*PDF417*
QR Code	*QR Code*
Data Matrix	*Data Matrix (DM)*
Maxi Code	*Maxi Code*
Aztec Code	*Aztec Code*
Han Xin Code	*Han Xin Code*

1D Barcode Inverse Reading

* Disable

Enable

Barcode global switch

1D Barcode Switch

Disable

Enable

2D Barcode Switch

Disable

Enable

All barcode switches

Disable all barcodes

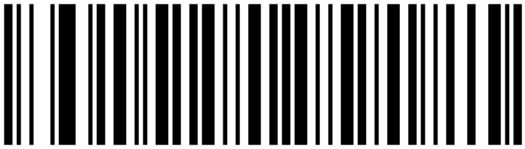
Enable all barcodes

Linear Symbology Security Level

The scan engine provides four security levels for decoding linear symbologies. As the security level increases, tolerance for poor-quality barcodes decreases. Select a level appropriate for the barcode quality.

Linear safety level 1

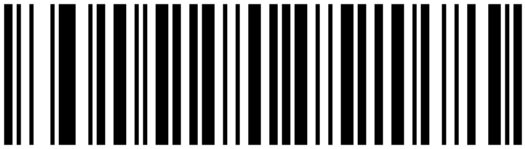
All code types must be successfully read 1 time before being decoded



* Linear safety level 1

Linear safety level 2

All code types must be read successfully 2 times before being decoded.



Linear safety level 2

Linear safety level 3

All code types must be successfully read 3 times before being decoded.

Linear safety level 3

Linear safety level 4

All code types must be successfully read 4 times before being decoded

Linear safety level 4

UPC-A

Enable/disable UPC-A

Scan the corresponding barcode below to enable or disable UPC-A.

* Enable UPC-A

Disable UPC-A

UPC-A preamble

Preamble characters (country code and system characters) may be transmitted as part of the UPC-A code system. Select one of the following options to set and transmit the UPC-A preamble to the host: transmit system characters only, transmit system characters and country code (“0” for United States), or transmit no preamble.

No preamble (<DATA>)

* System characters (<SYSTEM CHARACTER> <DATA>)

System characters & country code (<COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

Transmit UPC-A check digit

Scan the corresponding barcode below to set whether to transmit the UPC-A check digit.

* Transmit UPC-A check digit

Do not transmit UPC-A check digit

UPC-A 2-digit add-on code

Enable

* Disable

UPC-A 5-digit add-on code

Enable

* Disable

Require UPC-A Supplemental

Enable UPC-A Supplemental Requirement

Disable UPC-A Supplemental Requirement

UPC-E

Enable/disable UPC-E

Scan the corresponding barcode below to enable or disable UPC-E.

* Enable UPC-E

Disable UPC-E

UPC-E preamble

No preamble (<DATA>)

* System characters (<SYSTEM CHARACTER> <DATA>)

System characters & country code (<COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

Transmit UPC-E check digit

Scan the corresponding barcode below to set whether to transmit the UPC-E check digit.

* Transmit UPC-E check digit

Do not transmit UPC-E check digit

Convert UPC-E to UPC-A

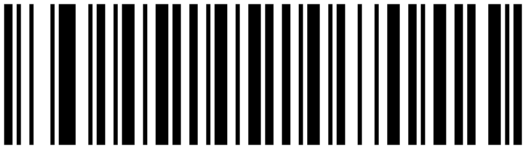
This parameter allows this parameter to be converted from UPC-E (zero suppression) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is protected by UPC-A

Impact of programming choices (eg: preamble, checksum).

Convert UPC-E to UPC-A

* Does not convert UPC-E to UPC-A

UPC-E 2-digit add-on code



Enable

* Disable

UPC-E 5-digit add-on code

Enable

* Disable

Require UPC-E Supplemental

Enable

* Disable

UPC-E1 switch

* Disable UPC-E1

Enable UPC-E1

EAN-8

Enable/disable EAN-8

Scan the corresponding barcode below to enable or disable EAN-8.

* Enable EAN-8

Disable EAN-8

EAN-8 zero extension

When enabled, this parameter prepends five `0` characters to the decoded EAN-8 data to make it compatible with the EAN-13 format. When disabled, the original EAN-8 data is transmitted.

Enable EAN-8 zero extension

* Disable EAN-8 zero extension

EAN-8 2-digit additional code

Enable

* Disable

EAN-8 5-digit add-on code

Enable

* Disable

Require EAN-8 Supplemental

Enable

* Disable

EAN-8 sends check digit

Disable

* Enable

EAN-13

Enable/disable EAN-13

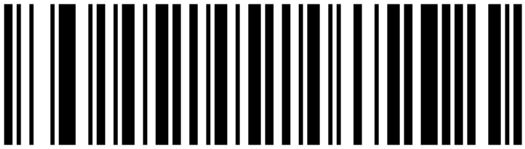
Scan the corresponding barcode below to enable or disable EAN-13.

* Enable EAN-13

Disable EAN-13

EAN-13 2-digit additional code

Enable



* Disable

EAN-13 5-digit add-on code

Enable

* Disable

Require EAN-13 Supplemental

Enable

* Disable

EAN-13 send check character

Disable EAN-13 sending check characters

Enable EAN-13 to send check characters

Enable/disable Bookland EAN (ISBN)

Scan the corresponding barcode below to enable or disable Bookland EAN (ISBN).

Enable Bookland EAN

* Disable Bookland EAN

Code 128

> **Note**
>
> The enable/disable control of Code 128 also applies to AIM128; the output type identification of AIM128 is different from that of ordinary Code 128.

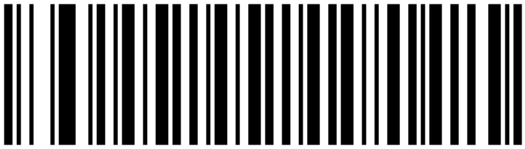
Enable/disable Code 128

Scan the corresponding barcode below to enable or disable Code 128.

* Enable Code 128

Disable Code 128

Code 128 Send check character



Enable

* Disable

Code 128 length setting

Allows reading of Code 128 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the “Code 128 Any Length” Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`0-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Code 128 any length

Code 128 specifies the length

GS1-128 (formerly UCC/EAN-128)

Scan the appropriate Parameter Barcode below to enable or disable GS1-128.

* Enable GS1-128

Disable GS1-128

UCC/EAN-128 sending check characters

Enable

* Disable

UCC/EAN-128 length setting

Allows reading of UCC/EAN-128 codes of specific lengths. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "UCC/EAN-128 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`0-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

UCC/EAN-128 any length

UCC/EAN-128 specified length

ISBT 128

Scan the appropriate barcode below to enable or disable ISBT 128.

* Enable ISBT 128

Disable ISBT 128

Code 39

Enable/disable Code 39

Scan the corresponding barcode below to enable or disable Code 39.

* Enable Code 39

Disable Code 39

Code 39 length setting

Allows reading of Code 39 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "Code 39 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`0-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Code 39 any length

Code 39 specifies the length

Code 39 check digit verification

When enabled, the Scan Engine verifies that Code 39 data conforms to the specified check-digit algorithm. Only Code 39 barcodes containing one modulo 43 check digit can be decoded.

Verify Code 39 check digit

* Do not verify Code 39 check digit

Transmit Code 39 Check Digit Scan this barcode to transmit the data check digit.

Transmit Code 39 check digit

* Do not transmit Code 39 check digit

Enable/disable Code 39 Full ASCII

Code 39 Full ASCII is evolved from Code 39 and can encode double characters into Full ASCII characters. Scan the corresponding barcode below to enable or disable Code 39 Full ASCII.

See *Character Reference Table* for the mapping of Code 39 characters to ASCII values.

Enable Code 39 Full ASCII

* Disable Code 39 Full ASCII

Transmit Code 39 start and stop characters

* Disable

Enable

Convert Code 39 to Code 32 (Italian Medical Code)

Code 32 is a Code 39 variant used in the Italian pharmaceutical industry. Scan the corresponding barcode below to enable or disable conversion from Code 39 to Code 32.

* Disable

Enable

Code 32 prefix

Enabling this parameter adds the prefix character “A” to all Code 32. Code 39 must be converted to Code 32 (Italian pharmaceutical code) before enabling this parameter.

* Disable

Enable

Code 32 Check Digit Verification

* Disable

Enable

Transmit Code 32 check digit

* Transmit check digit 0x00

Enable transmission of Code 32 check digits

Code 93

Transmit start character, stop character, and check digit

0x01

Enable/disable Code 93

Scan the corresponding barcode below to enable or disable Code 93.

Enable Code 93

* Disable Code 93

Set Code 93 length

Allows reading of Code 93 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "Code 93 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`0-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Code 93 any length

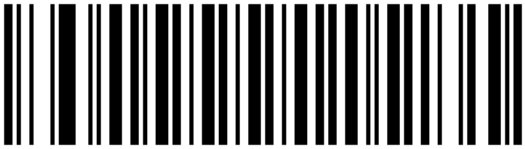
Code 93 specifies the length

Code 11

Enable/disable Code 11

Scan the corresponding barcode below to enable or disable Code 11.

Enable Code 11



* Disable Code 11

Code 11 length setting

Allows reading of Code 11 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the “Code 11 Any Length” Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

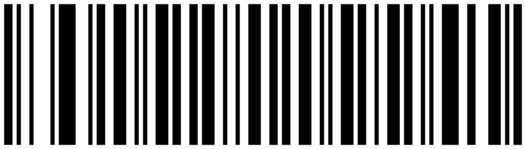
Code 11 any length

Code 11 specifies the length

Check Digit Verification

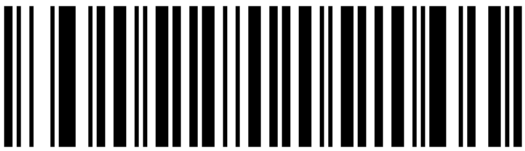
This feature allows the Scan Engine to verify that Code 11 data conforms to the specified check-digit algorithm. Select one check digit, two check digits, or disable check-digit verification.

To enable this feature, scan the Code 11 barcode below that matches the required number of check digits.



* Disable Check Digit Verification

a check digit



two check digits

Transmit Code 11 check digit

Scan the barcode below to choose whether to transmit the Code 11 check digit.

Transmit Code 11 check digit

* Code 11 check digit is not transmitted

> **Note**
>
> To use this parameter, enable Code 11 check digit verification.

Interleaved 2 of 5/ITF/Crossed 25 yards

Enable/Disable Interleaved 2 of 5

Scan the corresponding barcode below to enable or disable Interleaved 2 of 5.

* Enable Interleaved 2 of 5

Disable Interleaved 2 of 5

Interleaved 2 of 5 Length Settings

Allows reading of Interleaved 2 of 5 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the “Interleaved 2 of 5 arbitrary length” Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Interleaved 2 of 5 any length

Interleaved 2 of 5 specified length

Interleaved 2 of 5 Check Digit Verification

When enabled, this parameter checks the integrity of the I 2 of 5 symbology to ensure compliance with specified algorithms, including USS (Uniform Symbol Specification) or OPCC (Optical Product Code Council)

* Disable

Enable

Transmit I 2 of 5 check digits

Scanning this barcode transmits a checksum of the data.

Transmit I 2 of 5 check digits

* Do not transmit I 2 of 5 check digits

Discrete 2 of 5/Industrial 2 of 5/IND25/Industrial 25 yards

Enable/disable Discrete 2 of 5

Scan the corresponding barcode below to enable or disable Discrete 2 of 5.

Enable Discrete 2 of 5

* Disable Discrete 2 of 5

Discrete 2 of 5 Length Settings

Allows reading of Discrete 2 of 5 codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the “Discrete 2 of 5 arbitrary length” Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Discrete 2 of 5 any length

Discrete 2 of 5 specified length

Discrete 2 of 5 Verification

Enable

* Disable

Discrete 2 of 5 Send check character

Enable Discrete 2 of 5 to send check characters

Disable Discrete 2 of 5 Send check characters

Matrix 25(Matrix 25)

Enable/disable Matrix 25

Enable Matrix 25

* Disable Matrix 25

Matrix 25 check digit verification

Enable Matrix 25 checksum confirmation

* Disable Matrix 25 checksum confirmation

Transmitting Matrix 25 check characters

Enable Matrix 25 transmission check characters

* Disable Matrix 25 transmission check characters

Matrix 25 length setting

Allows reading of Matrix 25 codes of specific lengths. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "Matrix 25 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Matrix 25 any length

Matrix 25 specifies the length

Standard 25/IATA 25(Standard 25)

Enable/disable Standard 25

Scan the corresponding barcode below to enable or disable Standard 25.

* Disable

Enable

Standard 25 check digit verification

* Disable Standard 25 checksum confirmation

Enable Standard 25 checksum confirmation

Transmission check character

* Disable Standard 25 transmission check characters

Enable Standard 25 transmission check characters

Standard 25 length setting

Allows reading of Standard 25 codes of specific lengths. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "Standard 25 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Standard 25 any length

Standard 25 specified length

Codabar

Enable/disable Codabar

Scan the corresponding barcode below to enable or disable Codabar.

Enable Codabar

* Disable Codabar

Codabar length setting

Allows reading of Codabar codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "Codabar Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`2-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

Codabar any length

Codabar specifies the length

Codabar verification

Enable

* Disable

Codabar sends check characters

Enable

* Disable

NOTICE Edit

Enable NOTIS editing

* Disable NOTIS editing

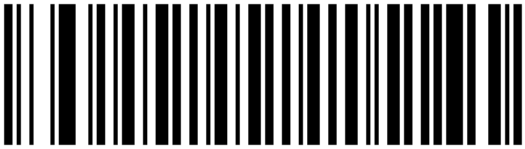
Start and stop character format

The start and stop characters can each be one of A, B, C, or D. The stop character can also be one of T, N, *, or E.

* ABCD/ABCD

ABCD/TN*E

Start and stop character letter case



* uppercase letter

lowercase letters

MSI/MSI PLESSEY

Enable/disable MSI

Scan the corresponding barcode below to enable or disable MSI.

Enable MSI

* Disable MSI

MSI length settings

Allows reading MSI codes of a specific length. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "MSI Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`2-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

MSI arbitrary length

MSI specified length

MSI check digit

These check digits at the end of the barcode verify data integrity. At least one check digit is always required, and check digits are not transmitted with the data automatically. If you select two check digits, you must also set the MSI check digit algorithm.

* An MSI check digit

Two MSI check digits

Transmit MSI Check Digit

Scan this barcode to be set to transmit a checksum with data.

Transmit MSI Check Digit

Scan this barcode to set up data transmission without a checksum.

* Do Not Transmit MSI Check Digit

MSI Check Digit Algorithm

When selecting two MSI check digits, one of the following algorithms needs to be selected.

MOD 10 / MOD 11

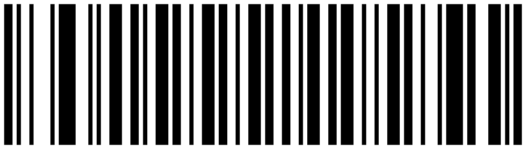
* MOD 10 / MOD 10

GS1 DataBar/RSS

Enable/disable GS1 DataBar/RSS

Scan the corresponding barcode below to enable or disable GS1 DataBar/RSS.

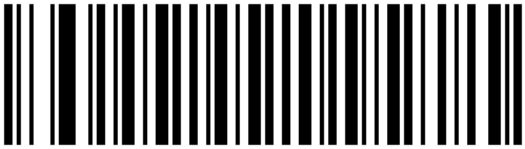
Enable GS1 DataBar/RSS



* Disable GS1 DataBar/RSS

RSS AI characters

* Enable



Disable

PDF417

Enable/disable PDF417

Scan the corresponding barcode below to enable or disable PDF417.

Disable PDF417

* Enable PDF417

PDF417 Inverse Reading

* read only positive

Read only invert

Read Normal and Inverse Barcodes

QR Code

Enable/disable QR Code

Scan the corresponding barcode below to enable or disable QR Code.

Disable QR Code

* Enable QR Code

ECI control

* ECI does not output

ECI output

QR Code Inverse Reading

* read only positive

Read only invert

Read Normal and Inverse Barcodes

Remove UTF-8 BOM encoding format of QR Code

When enabled, UTF-8 BOM encoding format is removed when outputting QR Code data.

* Disable

Enable

Data Matrix (DM)

Both normal images and mirror images can be read.

Enable/disable Data Matrix (DM)

Scan the corresponding barcode below to enable or disable the Data Matrix (DM).

Disable Data Matrix

* Enable Data Matrix

Inverse Reading

* read only positive

Read only invert

Read Normal and Inverse Barcodes

ECI control

* ECI does not output

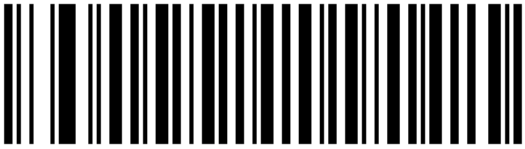
ECI output

Maxi Code

Enable/disable Maxi Code

Scan the corresponding barcode below to enable or disable Maxi Code.

* Disable Maxi Code



Enable Maxi Code

Aztec Code

Enable/disable Aztec Code

Scan the corresponding barcode below to enable or disable Aztec Code.

* Disable Aztec Code

Enable Aztec Code

Han Xin Code

Enable/disable Han Xin Code

Scan the corresponding barcode below to enable or disable Han Xin Code.

* Disable Han Xin Code

Enable Han Xin Code

Inverse Reading

* read only positive

Read only invert

Read Normal and Inverse Barcodes

ISSN

Converts to EAN-13 when disabled.

* Disable

Enable

NEC-25(COOP25)

NEC-25(COOP25) switch

Enable

* Disable

NEC-25(COOP25) Verification

Enable

* Disable

NEC-25(COOP25) Send check character

Enable

* Disable

NEC-25 (COOP 25) length setting

Allows reading of NEC-25 codes of specific lengths. After scanning the length Parameter Barcode, scan the 4-digit Numeric Barcode to set `L1` and `L2`; `L1` and `L2` each occupy 2 digits. If there are less than 2 digits, add `0` in front.

When scanning the "NEC-25 Any Length" Parameter Barcode, any length can be read, and there is no need to scan the Numeric Barcode.

default

`4-99`

Set range

`01-99`

condition	Description
`L1 < L2`	`L1` is the minimum length, `L2` is the maximum length
`L1 > L2`	`L1` is the maximum length, `L2` is the minimum length
`L1 = L2`	Only read fixed length

Example

Only `4-8` characters are allowed to be read: scan the Numeric Barcode `0`, `4`, `0`, `8`, or `0`, `8`, `0`, `4`.

Fixed reading of `12` characters: Scan the Numeric Barcodes `1`, `2`, `1`, `2`.

NEC-25 any length

NEC-25 specified length

COMPOSITE

Enable/disable COMPOSITE

* Disable

Enable

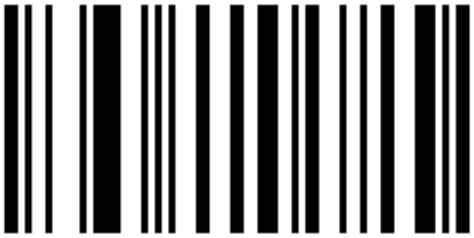
12.6 Engine Parameter Barcodes

Numeric Barcode

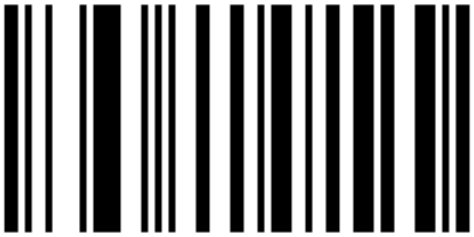
For parameters requiring an exact numerical value, scan the appropriate Numeric Barcode.

0

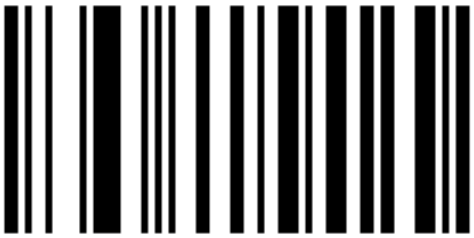
1



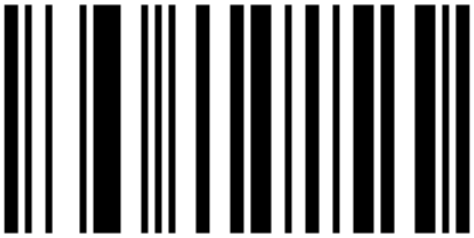
2



3



4



5

6

7

8

9

Cancel Barcode

To change a selection or cancel an incorrect entry, scan the barcode below.

Parameter Barcode: Cancel

12.7 Engine Character Table

Character Reference Table

When appending prefixes and suffixes to decoded data, follow these steps to select character values:

1. Set Output Data Transmission Format (parameter `0xE2`) to the required option.
2. Query the ASCII code value to be set according to the table, and enter it into prefix (`0x69`), suffix 1 (`0x68`) or suffix 2 (`0x6A`) in hexadecimal form.

Character Reference Table (Control Characters)

Scan Value	Hex Value	Character	Keyboard Function Key Operations	Keyboard Ctrl Key Combination
1000	00h	NUL	Null	CTRL 2
1001	01h	SOH	Keypad Enter	CTRL A
1002	02h	STX	Caps lock	CTRL B
1003	03h	ETX	Right Arrow	CTRL C
1004	04h	EOT	Up Arrow	CTRL D
1005	05h	ENQ	Null	CTRL E
1006	06h	ACK	Null	CTRL F
1007	07h	BEL	Enter	CTRL G
1008	08h	BS	Left Arrow	CTRL H
1009	09h	HT	Horizontal Tab	CTRL I
1010	0Ah	LF	Down Arrow	CTRL J
1011	0Bh	VT	Vertical Tab	CTRL K
1012	0Ch	FF	Delete	CTRL L
1013	0Dh	CR	Enter	CTRL M
1014	0Eh	SO	Insert	CTRL N
1015	0Fh	SI	Esc	CTRL O
1016	10h	DLE	F11	CTRL P
1017	11h	DC1	Home	CTRL Q
1018	12h	DC2	Print Screen	CTRL R
1019	13h	DC3	Backspace	CTRL S
1020	14h	DC4	tab+shift	CTRL T
1021	15h	NAK	F12	CTRL U
1022	16h	SYN	F1	CTRL V
1023	17h	ETB	F2	CTRL W

Scan Value	Hex Value	Character	Keyboard Function Key Operations	Keyboard Ctrl Key Combination
1024	18h	CAN	F3	CTRL X
1025	19h	EM	F4	CTRL Y
1026	1Ah	SUB	F5	CTRL Z
1027	1Bh	ESC	F6	CTRL [
1028	1Ch	FS	F7	CTRL \
1029	1Dh	GS	F8	CTRL]
1030	1Eh	RS	F9	CTRL 6
1031	1Fh	US	F10	CTRL -
1032	20h	(space)	Space	Space

Character comparison table (visible characters) (continued table)

Scan Value	Hex Value	Keyboard Function Key Operations
1033	21h	!
1034	22h	‘
1035	23h	#
1036	24h	$
1037	25h	%
1038	26h	&
1039	27h	‘
1040	28h	(
1041	29h	)
1042	2Ah	*
1043	2Bh	+
1044	2Ch	,
1045	2Dh	-
1046	2Eh	.
1047	2Fh	/
1048	30h	0
1049	31h	1
1050	32h	2
1051	33h	3
1052	34h	4
1053	35h	5
1054	36h	6
1055	37h	7

Scan Value	Hex Value	Keyboard Function Key Operations
1056	38h	8
1057	39h	9
1058	3Ah	:
1059	3Bh	;
1060	3Ch	<
1061	3Dh	=
1062	3Eh	>
1063	3Fh	?
1064	40h	@
1065	41h	A
1066	42h	B
1067	43h	C
1068	44h	D
1069	45h	E
1070	46h	F
1071	47h	G
1072	48h	H
1073	49h	I

continues on next page

Table 5 – continued from previous page

Scan Value	Hex Value	Keyboard Function Key Operations
1074	4Ah	J
1075	4Bh	K
1076	4Ch	L
1077	4Dh	M
1078	4Eh	N
1079	4Fh	O
1080	50h	P
1081	51h	Q
1082	52h	R
1083	53h	S
1084	54h	T
1085	55h	U
1086	56h	V

Scan Value	Hex Value	Keyboard Function Key Operations
1087	57h	W
1088	58h	X
1089	59h	Y
1090	5Ah	Z
1091	5Bh	[
1092	5Ch	\
1093	5Dh	]
1094	5Eh	^
1095	5Fh	_
1096	60h	‘
1097	61h	a
1098	62h	b
1099	63h	c
1100	64h	d
1101	65h	e
1102	66h	f
1103	67h	g
1104	68h	h
1105	69h	i
1106	6Ah	j
1107	6Bh	k
1108	6Ch	l
1109	6Dh	m
1110	6Eh	n
1111	6Fh	o
1112	70h	p
1113	71h	q
1114	72h	r
1115	73h	s

continues on next page

Table 6 – continued from previous page

Scan Value	Hex Value	Keyboard Function Key Operations
1116	74h	t
1117	75h	u

Scan Value	Hex Value	Keyboard Function Key Operations
1118	76h	v
1119	77h	w
1120	78h	x
1121	79h	y
1122	7Ah	z
1123	7Bh	{
1124	7Ch	|
1125	7Dh	}
1126	7Eh	~
1127	7Fh	Undefined

Values from `1128` to `1255` can also be set; hexadecimal values `80h` to `FFh` are used for SSI.

13 Appendix

13.1 Character Reference Table

ASCII Function Key Character Reference Table

00H-0FH

HEX	CODE	*Config0	Config3	Con-fig1	Con-fig4	Config2 Win-dows	Config5 Win-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.