
PL5 User Manual

Release v1.0.0

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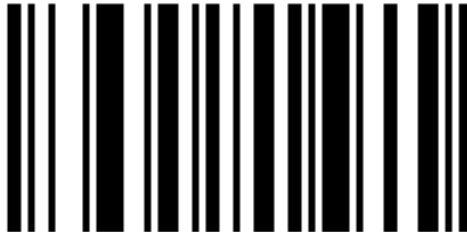
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1 System Settings

1.1 Default parameters and device information

Common system setting codes

This section provides general setting codes such as restoring default values, version query, and prompt sounds.



Restore Default Settings



Restore factory defaults



Write custom default values



Read software version



Read decoder manufacturing information



Read scan engine manufacturing information

Restore default parameters

Used to restore the default configuration of the module's general parameters. This set of parameters covers two sets of recovery paths: factory default values and custom default values.

Available options include:

- `Restore Defaults` Restores default settings. If `Write to Custom Defaults` has been executed before, the custom default values are restored; otherwise, the factory default values are restored.
- `Set Factory Defaults` Restores the factory default values in the `Appendix Defaults` table and deletes custom default values that have been written.
- `Write to Custom Defaults` writes the current device configuration as a custom default value, which can be restored later through `Restore Defaults`.

Read version information

Used to query the current firmware, decoder and scan engine version information. Available query terms include:

- `Report Version`
- `Report Decoder Manufacturing Version`
- `Report Scan Engine Manufacturing Version`

The specific return code format can be added to this section or appendix later.

1.2 Tips and feedback

Decoding LED behavior

Used to control the linkage between LED and low power consumption mode after successful decoding in the serial port host scenario. The following options are currently confirmed:

- `The Power Down After LED Shuts Off` decode LED remains lit for approximately 1.5 seconds before the device is allowed to enter low-power mode.
- `Decode LED Off on Power-Down` The decode LED remains on until the device enters low power mode; this allows for faster entry into low power while still retaining the decode LED.
- `Disable Decode LED` Turns off the decode LED completely.



* LED goes out before entering low power consumption



Turn off the decoding LED when entering low power



Disable decode LED

decoding flash

Used to set the number of flashes and duration after successful decoding in demonstration mode.

- Disable Decode Blinks
- 1 Decode Blink
- 2 Decode Blinks
- 3 Decode Blinks



* Disable decode flashing



Flashes 1 time



Flashes 2 times



Flashes 3 times

- Set Decode Blink Duration to Timeout Between Decodes, Different Symbols
Set the decoding flash duration to be consistent with the “different code repeated decoding interval”
.



* The decoding flash duration follows the “different code repeated decoding interval”

Note

Original description: After enabling decoding blinking in demonstration mode, you also need to scan a two-digit barcode and set the blinking duration in 100 ms units; the settable range is 00 to 99, which is up to 9.9 seconds.

buzzer tone

Used to set the beep frequency after successful decoding. The following options are currently confirmed:

- Low Frequency
- Medium Frequency, default value
- High Frequency



low frequency



*IF

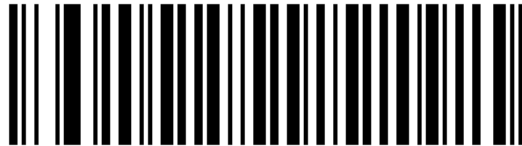


high frequency

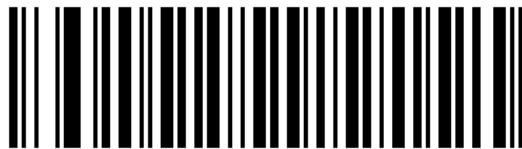
Beeper Volume

Used to set the buzzer volume. The following options are currently confirmed:

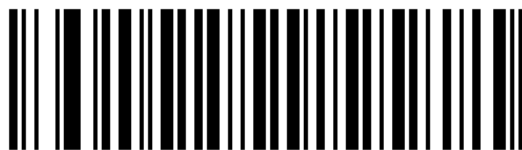
- Low Volume
- Medium Volume
- High Volume, default value



low volume



medium volume



* high volume

Image collection notification

Used to control prompt feedback when taking photos, snapshots or image collection. This section is suitable for adding buzzer, LED or host event linkage rules later on.

Decode LED and buzzer signals

This section explains the feedback definition when the buzzer is linked to the LED, and can be used as an overview of prompt feedback related settings.

Buzzer duration

Used to set the beep duration. The following options are currently confirmed:

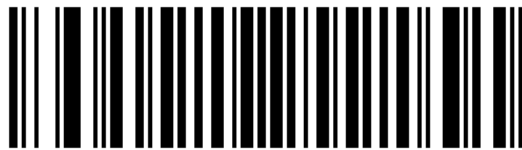
- Short
- Medium, default value
- Long



short chirp



* Medium duration



Long cry

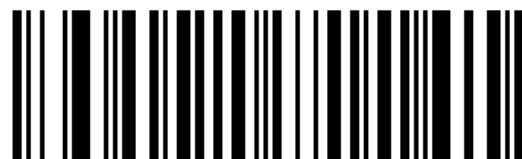
Suppress power-on beep

Source page: Page 97 Suppress Power-up Beeps

- Do Not Suppress Power-up Beeps, default value
- Suppress Power-up Beeps



* Do not suppress the power-on beep



Suppress power-on beep

1.3 Power and operating modes

This section retains the power-related entries of the system settings dimension. Setting codes directly related to triggering, low-power entry timing and stop conditions are maintained in *Trigger Settings* to avoid repeated maintenance of the same setting code on multiple pages.

Related setting locations:

- *Trigger mode selection*: Includes trigger modes such as Presentation Mode, Host, and Auto Aim.

- *Low power mode switch*: Contains Continuous On and Low Power Mode.
- *Low power delay* and *Low power delay value table*: Maintenance waiting time before entering low power consumption.
- *Picklist mode*: Maintain the reading restrictions of the aiming center area.
- *Imager Settings* and *Mobile Screen Display Mode*: Maintains modes related to imaging, snapshots, video capture, and screen barcode decoding.

1.4 Common controls

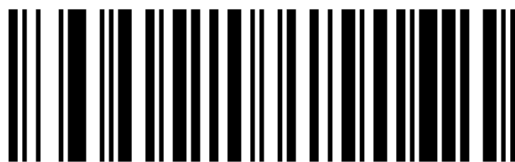
Parameter barcode verification

Used to verify the parameter setting code sequence for serial scanning to reduce setting code input errors.

- Disable, default value
- Enable



* Disable parameter barcode verification



Enable parameter barcode verification

parameter sweep

Source page: Page 90 Parameter Scanning

- Enable Parameter Scanning, default value
- Disable Parameter Scanning



* Enable parameter scanning



Disable parameter scanning

Lock parameter scan

Source page: Page 91-92 Lock/Unlock Parameter Scanning

Used to restrict the device from continuing to read parameter barcodes and provide additional security control.

Original description:

- After locking, parameter barcodes other than `Unlock` cannot take effect.
- `Parameter Scanning` must be allowed before locking is enabled.
- Both locking and unlocking require scanning an additional 4-digit PIN.
- PIN values in the 1-9999 range can also be written directly via `SSI/SNAPI`.



Lock parameter scan



Unlock parameter scan

Ignore setup instructions

Used to accept options related to “Ignore setting code” or “Lock setting input” .

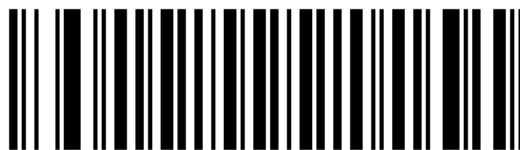
Ignore beep command

Used to undertake the “silent setting process” or “disable beep feedback” related options.

Beep after successful decoding

Source page: Page 94 Beep After Good Decode

- Beep After Good Decode, default value
- Do Not Beep After Good Decode



* Beep after successful decoding



No beeping after successful decoding

Note

Even if “Beep after successful decoding” is turned off, the parameter menu scan and error beeps will still remain.

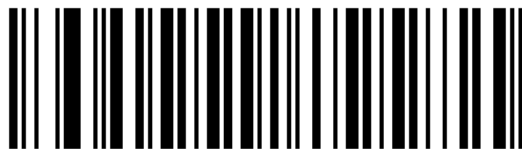
2 Trigger Settings

2.1 Trigger Mode

Trigger mode selection/Trigger Mode

Used to select the trigger method for the device to start decoding. The following options are currently confirmed from the original text:

- **Level** Enters the decoding process after the trigger event starts, until the trigger ends, decoding is successful, or the “decoding session timeout” is reached.
- **Presentation Mode** is automatically triggered when the device detects a target within the field of view and attempts to decode it. This mode is only available in decoding mode, and the target detection range is fixed under normal lighting conditions; the device will not enter low-power mode in this mode.
- **Host** triggers the trigger signal by the host command; the actual physical trigger is still interpreted in the **Level** way.
- **Auto Aim** Turns on the aiming pattern when motion is detected, and starts decoding after pulling the trigger; if there is no activity for 2 seconds, the aiming pattern automatically turns off.
- **Auto Aim with Illumination** turns on the aiming pattern and internal lighting LED at the same time when motion is detected, and starts decoding after pulling the trigger; if there is no activity for 2 seconds, the aiming pattern and lighting LED automatically turn off.



Level



Presentation Mode



Host



Auto Aim



Auto Aim with Illumination

2.2 Continuous code reading and timeout

Continuous code reading

Used to control whether the device continues to try to read barcodes after a trigger.

- Disable, default value
- Enable



* Disable continuous code reading



Enable continuous code reading

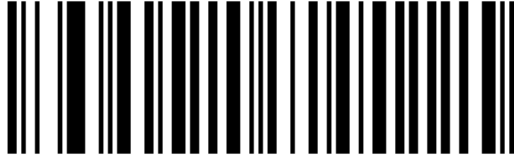
Unique barcode reporting

Used to control the reporting strategy of repeated content during continuous code reading.

- Disable, default value
- Enable



* Disable unique barcode reporting



Enable unique barcode reporting

Low light motion detection

Used to adjust motion detection strategies in low-light environments.

- No Low Light Motion Detection, default value
- Low Light Motion Detection 1
- Low Light Motion Detection 2



* Disable low-light motion detection



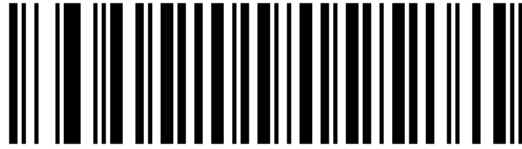
Low light motion detection level 1



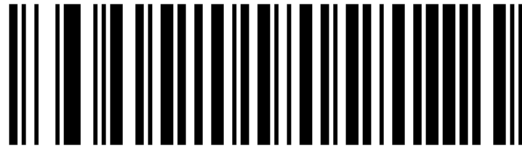
Low light motion detection level 2

Demo mode view

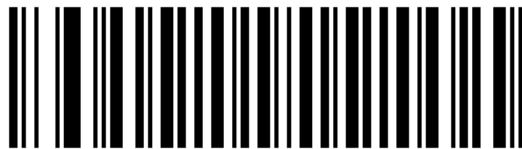
Used to adjust the target detection field of view in demonstration mode. The default value is Medium Field of View. The corresponding setting code has been extracted. The name of the field of view type shall be subject to the original text for subsequent proofreading.



Demo mode field of view option 00h



Demo mode field of view option 01h



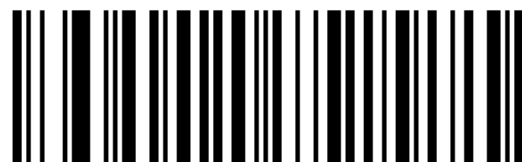
Demo mode field of view option 02h

PDF priority timeout

Used to set the waiting time for the device to first try to read PDF⁴¹⁷ before reporting the one-dimensional code in the field of view after PDF Prioritization is enabled.

- Value range: 0 to 5000 ms
- Default value: 200 ms
- Setting method: first scan the setting code below, then scan the 4-digit barcode and enter the millisecond value

For example, when set to 400 ms, you need to scan the setting code and then enter 0400.



Set PDF priority timeout

Same code repetition decoding interval

Used to limit the same barcode from being output repeatedly in a short period of time. According to the default parameter table, the default value is 0.6 seconds. It is currently confirmed that there is an independent setting code, which is suitable for inputting specific interval values in conjunction with numerical barcodes.



Set the same code repeated decoding interval

Different code repetition decoding interval

Used to limit the minimum interval when reading different barcodes continuously. According to the default parameter table, the default value is 0.2 seconds.

- Value range: 0.1 to 9.9 seconds
- Input method: After scanning the setup code below, scan the 2-digit barcode



Set the different code repetition decoding interval

2.3 Low power consumption and stop conditions

Low power delay

This parameter is used to set how long the device remains active after decoding is complete. After a scanning session ends, the device waits for a set time before entering low-power mode.

Note

Original description: This parameter only takes effect when `Power Mode` is set to low power mode.

Low power consumption delay value table

The following values have been confirmed from the original text:

- 1 Second
- 5 Seconds
- 1 Minute
- 5 Minutes
- 15 Minutes
- 1 Hour



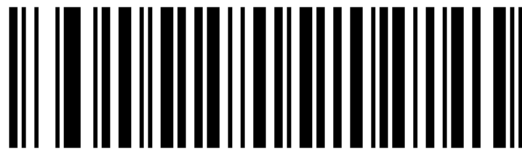
1 second



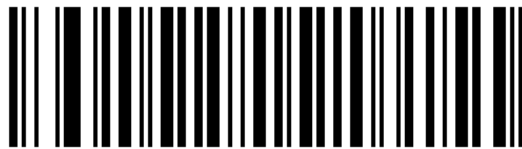
5 seconds



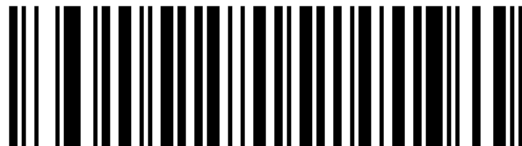
1 minute



5 minutes



15 minutes



1 hour

If you need to set it to a value other than the above, the original text requires programming through the “Using Time Delay to Low Power Mode with SSI” method in the SSI interface.

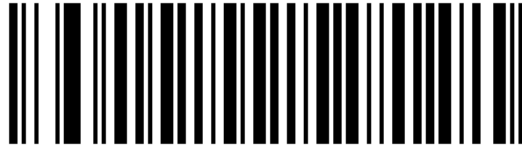
Low power mode switch

Source page: Page 102 Power Mode (Serial Hosts Only)

- Continuous On Does not enter low power state after decoding attempt.
- Low Power Mode Press the “low power delay” parameter to enter low power mode after decoding attempt.



Continuous On



Low Power Mode

Picklist mode

Used to limit the device to decoding only bar codes located below the center area of the targeting pattern.

- Disabled Always, default value
- Enabled Always



* Always disable Picklist



Always enable Picklist

Decoding session timeout

Used to set the maximum duration of a single decoding attempt, ranging from 0.5 to 9.9 seconds in 0.1 seconds.



Set decoding session timeout

Host Serial Response Timeout

See also

This parameter belongs to the serial port and SSI communication parameters; when using the serial port host mode directly, the complete value and communication instructions should be checked in the complete PL5 module manual.

Host Character Timeout

➡ See also

This parameter belongs to the serial port and SSI communication parameters; when using the serial port host mode directly, the complete value and communication instructions should be checked in the complete PL5 module manual.

3 Imager Settings

3.1 Images and Video

Imager Preferences

This section serves as the general entry point for imager parameters related to decoding, image capture, video viewfinder, and image quality.

Work Mode

Used for parameters related to the imager work mode, capture mode, or image output mode.

Mobile screen display mode

Used to improve decode compatibility when reading from display media such as mobile phone screens and electronic displays.

- Disable, default value
- Enable



* Disable Mobile Screen Mode



Enable Mobile Screen Mode

Video Resolution

Used to reduce the resolution before video transmission, in exchange for smaller video data size by deleting rows and columns.

Option	Value	Video size
Full Resolution	00h	752 x 480
1/2 Resolution	01h	376 x 240
1/4 Resolution	03h	188 x 120, default value



full resolution



1/2 resolution



* 1/4 resolution

Frame rate

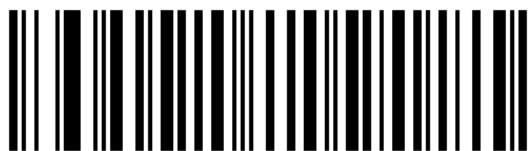
Used to control the frame rate during image acquisition and video transmission. Lower frame rates often help brighten images.

The following options are currently confirmed from the original text:

- Auto, default value
- 60 fps
- 55 fps
- 50 fps
- 45 fps
- 40 fps
- 30 fps
- 20 fps
- 15 fps
- 10 fps



*Auto frame rate



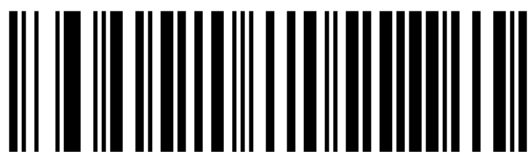
60 fps



55 fps



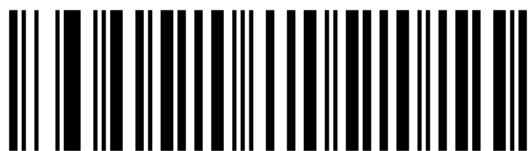
50 fps



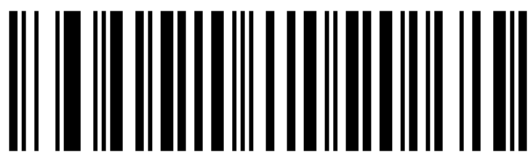
45 fps



40 fps



30 fps



20 fps



15 fps



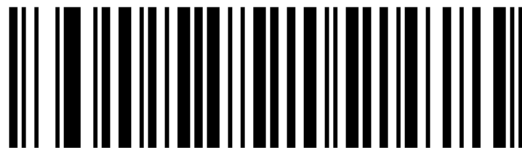
10 fps

Note

When the frame rate is lower than or equal to 30 fps, the aiming pattern may appear to flicker.

Image File Size Selector

Confirmed for use with `JPEG Size Selector`, which controls the maximum JPEG file size by entering a 3-digit value.



BMP file format



*JPEG file format



TIFF file format

Image file metadata

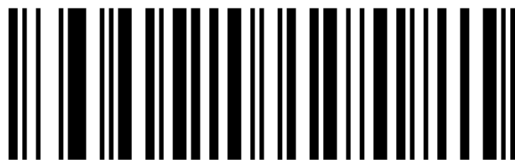
Controls whether JPEG images are accompanied by EXIF 2.2 metadata.

- Enable Image File Meta Data
- Disable Image File Meta Data, default value

When enabled, the following fields can be written to:

- Time after power on
- Sensor type
- Device name
- manufacturer
- Frame rate
- Host type
- Image number after power on
- Image enhancement parameters
- Image sharpening parameters
- Image contrast enhancement parameters

This setting has no effect on the `TIFF` and `BMP` formats.



Enable image file metadata



* Disable image file metadata

video viewfinder

Used to control whether the live video viewfinder is displayed in image mode.

- Disable Video View Finder, default value
- Enable Video View Finder



* Disable video viewfinder



Enable video viewfinder

Video viewfinder image size

Used to set the video viewfinder image size, the input unit is 100-byte block.

- Value range: 800 to 12,000 bytes
- Default: 1700 bytes

The smaller the value, the higher the frame rate; the larger the value, the higher the image quality.



Set video viewfinder image size

Target video frame size

Used to set the video data block size transmitted per second, the input unit is 100-byte block.

- Value range: 800 to 20,000 bytes
- Default: 2200 bytes

The smaller the value, the higher the frame rate; the larger the value, the higher the image quality.



Set target video frame size

3.2 Lighting and aiming

Illumination

This section explains the lighting control items in decoding and capture scenarios.

LED lighting

Used to describe how an LED light source is enabled, disabled, or working. If you access a separate parameter page later, you can add the relationship between switch value and brightness in this section.

Image acquisition lighting

Used to control whether lighting is enabled when taking a snapshot.

- Enable Image Capture Illumination, default value
- Disable Image Capture Illumination



* Enable image acquisition lighting



Disable image acquisition lighting

Enabling lighting usually results in a better image, but the further away the target is, the less effective the fill light will be.

Lighting brightness

Used to set lighting brightness by adjusting LED power.

- Value range: 1 to 10
- Default value: 10
- Setting method: first scan the setting code below, then scan the 2-digit barcode to enter the brightness value

For example, when setting the brightness to 6, you need to scan the “Lighting Brightness” setting code first, and then enter 0 and 6.



Set lighting brightness

Aim for brightness

Used to set the aiming pattern brightness. The default value is 0, which means the aiming pattern continues to light up between two exposures; when the value is greater than 0, every increase of 1, aiming duration increased 0.5 ms.

- Value range: 0 to 255
- Recommended range: When the frame rate is 60 fps, it is recommended to use 0 to 30
- Setting method: first scan the corresponding setting code, then enter the 3-digit barcode



snapshot mode



video mode



Set aiming brightness

Decode aiming pattern

Used to control whether to project the aiming pattern during decoding.

- Enable Decode Aiming Pattern, default value
- Disable Decode Aiming Pattern



Disable decoding aiming patterns



* Enable decoding aiming patterns

Note

If Picklist mode is enabled, the aiming pattern will still flash even if Decode Aiming Pattern is turned off.

snapshot aiming pattern

Used to control whether to display the aiming pattern in snapshot mode.

- Enable Snapshot Aiming Pattern, default value
- Disable Snapshot Aiming Pattern



* Enable snapshot aiming pattern



Disable snapshot aiming pattern

Snapshot mode timeout

Used to set the time the device stays in snapshot mode. After a timeout or triggering event, the device exits snapshot mode.

- The default value 0 means 30 seconds
- For each subsequent increase of 1, the time increases by 30 seconds.



Set snapshot mode timeout

3.3 exposure and brightness

automatic exposure

Used to control whether automatic exposure and automatic gain are enabled in decoding mode.

- Enable Decoding Autoexposure, default value
- Disable Decoding Autoexposure



* Enable decoding auto-exposure



Disable decoding auto-exposure

When turned off, gain and exposure time need to be set manually. Officially only recommended for use by advanced users in complex reading scenarios.



Note

Switching this parameter under `Presentation Mode` is not recommended.

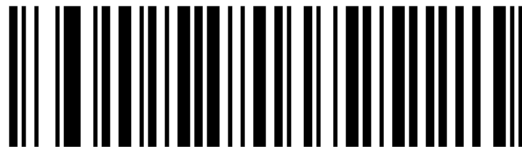
Image acquisition automatic exposure

Used to control whether automatic exposure and automatic gain are enabled in snapshot capture mode.

- `Enable Image Capture Autoexposure`, default value
- `Disable Image Capture Autoexposure`



* Enable automatic exposure for image acquisition



Disable automatic exposure for image acquisition

fixed gain

Used to manually enlarge the original image data after decoding or image acquisition auto-exposure is turned off. Increasing gain increases brightness and contrast and may also increase image noise.

- Default value: 50
- Value range: 1 to 100
- Input method: After scanning the setup code below, scan the 3-digit barcode



Set fixed gain

Exposure time

Used to manually specify the exposure duration after turning off automatic exposure. The default value is 100, which is 10 ms. This parameter is more suitable for use with automatic exposure off scenes.

- Each integer value represents 100 μ s
- Default value: 100
- Value range: 1 to 1000
- Input method: After scanning the setup code below, scan the 4-digit barcode



Set exposure time

Image brightness target white value

Used to set the target white value used by the automatic exposure algorithm in snapshot and video modes.

- Default value: 180
- Input method: scan Image Brightness and then enter 3 digits

The document defines white as decimal 240 and black as decimal 1; the default value 180 will make the image white bit approximately 180.

bit depth

Used to set the number of effective bits per pixel when capturing images.

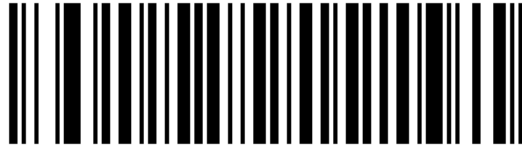
- 1 BPP
- 4 BPP
- 8 BPP, default value



1 BPP



4 BPP



* 8 BPP



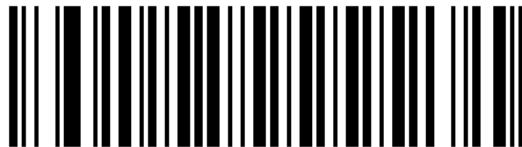
Note

JPEG images always use 8 BPP and are not affected by this parameter.

Image resolution

Used to reduce the capture resolution before image compression, in exchange for a smaller image data size by deleting rows and columns.

Option	Value	Uncropped image size
Full Resolution	00h	752 x 480
1/2 Resolution	01h	376 x 240
1/4 Resolution	03h	188 x 120



* Full resolution



1/2 resolution



1/4 resolution

3.4 Image enhancement and cropping

Fuzzy one-dimensional processing

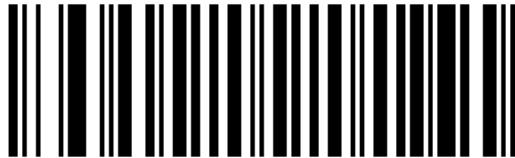
Used to enhance the reading ability of one-dimensional barcodes that are slightly blurred or have unclear edges.

- Disable

- Enable, default value



Disable blur 1D processing

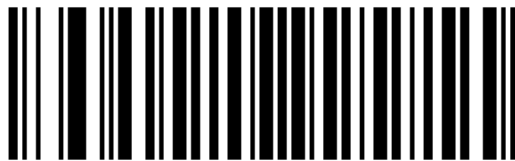


* Enable blurred 1D processing

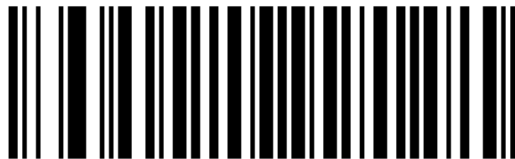
mirror image

Used to control whether the output image is mirrored.

- Disable, default value
- Enable



* Disable image mirroring



Enable image mirroring

image enhancement

Used to improve the look and feel of images through edge sharpening and contrast enhancement.

- Off (0)
- Low (1), default value
- Medium (2)
- High (3)
- User (4)



Image enhancement disabled (0)



*Image enhancement low(1)



Image enhancement (2)



Image Enhancement High (3)

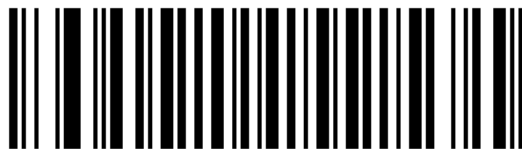


Image enhancement user customization (4)

After selecting `User`, you also need to set “Image Edge Sharpening” and “Image Contrast Enhancement” separately.

Image contrast enhancement

Only takes effect when Image Enhancement is set to `User`.

- `Disable`
- `Enable`, default value



Disable image contrast enhancement



* Enable image contrast enhancement

image rotation

Used to control the rotation angle of the output image.

- Rotate 0°, default value
- Rotate 90°
- Rotate 180°
- Rotate 270°



* Rotate 0°



Rotate 90°



Rotate 180°



Rotate 270°

Image edge sharpening

Only takes effect when “Image Enhancement” is set to `User`, you can enter the 3-digit number manually, or use the recommended value directly.

- Off (0)
 - Low (30), default value
-

- Medium (75)
- High (100)



Image edge sharpening setting code



Sharpening disabled (0)



* Sharpen Low (30)



Sharpening(75)



Sharpen High (100)

Image cropping

Used to control whether to crop the screenshot.

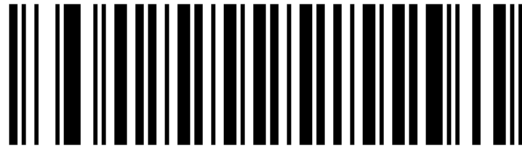
- Enable Image Cropping
- Disable Image Cropping, default, uses full 742 x 480 image

Note

The device's crop resolution is 4 pixels. If the crop size is set to less than 3 pixels, the entire image will actually be transferred.



Enable image cropping



* Disable image cropping

Crop by pixel address

When image cropping is enabled, the cropping area can be set by pixel coordinates:

- Column coordinate range: 0 to 751
- Row coordinate range: 0 to 479

For example, the 4 × 8 area in the lower right corner can be set to:

- Top = 476
- Bottom = 479
- Left = 744
- Right = 751

Note

The minimum cropping granularity is 4 pixels, and non-multiples of 4 are rounded up.

JPEG image options

Lets you choose between Optimize for Quality or Optimize for Size in the JPEG image.

- JPEG Quality Selector, default value
- JPEG Size Selector

JPEG quality and size

Used to enter a JPEG quality value or target size value:

- JPEG Quality Value Default value 065, range 5 to 100
- JPEG Size Value Default value 160, range 5 to 350

where JPEG Size Value is in 1024 bytes, for example 008 represents a maximum of approximately 8192 bytes.

Image file format

Used to select the snapshot saving format.

- BMP File Format
- JPEG File Format, default value
- TIFF File Format

4 Data Editing

4.1 Decode data format

Decoded Data Packet Format

Currently, a type of data packet transparent transmission format related to SSI / SNAPI has been confirmed.

The device can transparently transmit user-defined parameter barcodes to the host as ordinary decoding data:

- User-defined parameter barcode format:

```
<FNC3><L><data>  
或  
<FNC3><B><12 bytes of data>
```

- Decoded data format:

```
<0xf3><L><data>  
或  
<0xf3><B><12 bytes of data>
```

The B type only supports 12 byte data. After successfully reading the user-defined parameter barcode, the device will issue a normal decoding beep.

AIM Code identifier

Used to control whether the output data contains AIM Code ID or Extended Code ID.

Options:

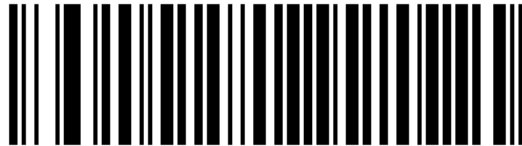
- None, default value
- AIM Code ID Character
- Extended Code ID Character



* Do not output Code ID



Output AIM Code ID



Output Extended Code ID

If this option is enabled, Code ID will be inserted between “prefix” and “decoded data” .

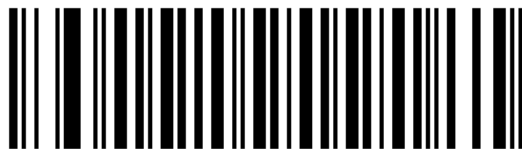
Note

If Transmit "No Read" Message is enabled at the same time, and AIM Code ID Character or Extended Code ID Character is enabled, the device will append the code identifier of Code 39 after the NR message.

Unable to read message

Used to control whether NR is sent to the host when decoding is unsuccessful.

- Enable No Read
- Disable No Read, default value



Enable No Read messages



* Disable No Read messages

4.2 Prefixes and suffixes

Scan prefix

Belongs to the Prefix/Suffix Values parameter group.

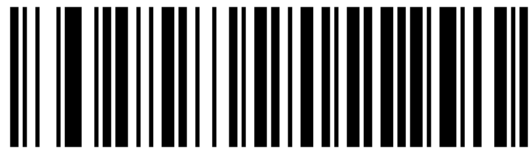
Setting method:

1. Scan target items first: Scan Prefix, Scan Suffix 1 or Scan Suffix 2

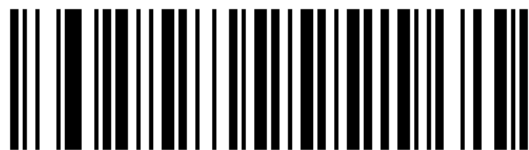
2. Enter another 4 digit value

in:

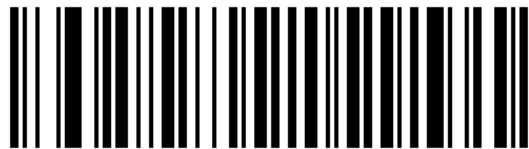
- Bit 1 defines the key type, write `Key Category`
- The last 3 bits define the character value, written into `Decimal Value`



Scan prefix



Scan suffix 1



Scan suffix 2

Prefix/suffix value table

Used to append 1 prefix and up to 2 suffixes to the output data.

When setting using the barcode menu, you need to enter a 4-digit value; when setting using the host command, the document requires setting `Key Category` to 1 and then setting a 3-digit decimal value. See Table E-1 for the specific 4-digit code.

 **Note**

If you want the prefix/suffix to be actually output, you also need to set the “Scan Data Transfer Format” at the same time.

B4 prefix/suffix value table

Used to process B4 class prefix and suffix values. Setup is consistent with the common prefix/suffix value table: enter the 4-digit value via the barcode menu, or split into `Key Category` and a 3-digit decimal value via a host command.

Disable encoding prefix

Used to turn off the exclusive prefix that is appended separately according to the code system. This item is used in conjunction with “Code System Prefix” and is suitable for clearing settings separately when different code systems require differentiated prefixes.

code prefix

Used to append exclusive prefixes separately according to the code system. The current information does not provide the complete setting code; it is used in conjunction with the “prefix/suffix value table”, and the input method also depends on the numerical setting code.

Scan data transfer format

Used to control how prefix, data, and suffix are combined in the final output.

Currently confirmed formats include:

- Data As Is, default value
- <DATA> <SUFFIX 1>
- <DATA> <SUFFIX 2>
- <DATA> <SUFFIX 1> <SUFFIX 2>
- <PREFIX> <DATA>
- <PREFIX> <DATA> <SUFFIX 1>
- <PREFIX> <DATA> <SUFFIX 2>
- <PREFIX> <DATA> <SUFFIX 1> <SUFFIX 2>



* Data As Is



<DATA> <SUFFIX 1>



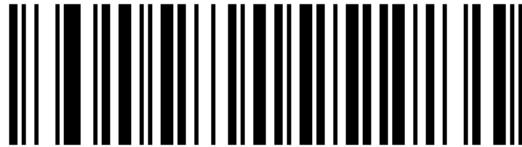
<DATA> <SUFFIX 2>



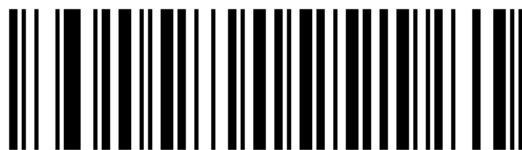
<DATA> <SUFFIX 1> <SUFFIX 2>



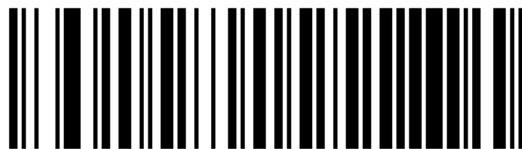
<PREFIX> <DATA>



<PREFIX> <DATA> <SUFFIX 1>



<PREFIX> <DATA> <SUFFIX 2>



<PREFIX> <DATA> <SUFFIX 1> <SUFFIX 2>

Warning

If you use this parameter to control prefix and suffix output, do not use `ADF` rules to configure the prefix and suffix at the same time.

4.3 AIM Code ID and FN1

AIM Code ID characters

See also

This section mainly undertakes the control logic of “whether to output AIM Code ID” ; see [Appendix and configuration codes](#) for the terminal-specific Code ID comparison table.

FN1 replacement

Applies to USB HID keyboard host only. When enabled, FN1 (0x1b) in the EAN-128 barcode can be replaced with the user-set value.

The default replacement value is 7013, which is the Enter key.

When setting via host command:

The documentation requires setting Key Category to 1 first, and then setting the 3-digit key value.

FN1 replacement value table

Used to set the FN1 replacement target value.

Barcode menu setting steps:

1. Scan Set FN1 Substitution Value
2. Find the target key in the ASCII character table corresponding to the current host interface
3. Scan 4-bit ASCII value



Set FN1 replacement value

If you make a mistake, you can scan `Cancel` and re-enter.

4.4 Character and data processing

Ignore unknown characters

Used to control the sending policy when unknown characters are detected. The complete setup of the USB keyboard link is maintained in the USB and Keyboard Setup in the full PL5 module manual.

Case Conversion

Used to uniformly adjust the letter case of output data. The complete setup of the USB keyboard link is maintained in the USB and Keyboard Setup in the full PL5 module manual.

Sending data containing unknown characters

Used to control whether to continue sending the remaining data when the barcode content contains unknown characters. According to the extracted original text:

- `Send Bar Codes with Unknown Characters` Continue sending recognized data and ignore unknown characters; no error beeps are emitted.
- `Do Not Send Bar Codes with Unknown Characters` IBM The device will prevent the entire barcode from being sent; HID Keyboard the device will send until unknown characters and issue an error beep.

See also

The corresponding setup codes and icons for the USB keyboard link are maintained by USB and Keyboard Setup in the full PL5 module manual.

5 USB and keyboard settings

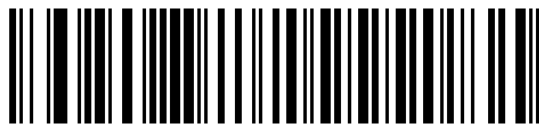
5.1 USB host interface

USB device type

Used to select which USB type the device enumerates to the host. After switching the USB device type, the device will automatically reset and emit a standard power-on beep.

Currently confirmed device types include:

- SNAPI with Imaging Interface, default value
- SNAPI without Imaging Interface
- HID Keyboard Emulation
- IBM Table Top USB
- IBM Hand-Held USB
- USB OPOS Hand-Held
- Simple COM Port Emulation
- USB CDC Host
- SSI over USB CDC



* SNAPI with image interface



SNAPI does not have a graphical interface



HID keyboard emulation



IBM Desktop USB



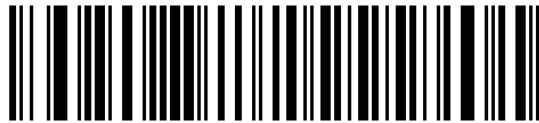
IBM Handheld USB



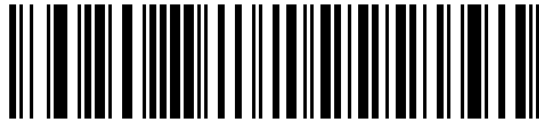
USB OPOS handheld



Simple COM port emulation



USB CDC host



SSI over USB CDC

Note

The host should install the `CDC.INF` file before selecting USB CDC Host, otherwise the device may hang on power-on enumeration. SSI over USB CDC only provides a subset of the SSI protocol and does not include hardware handshake functionality.

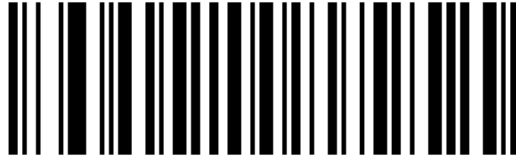
USB Static CDC

Used to control the COM port allocation method when multiple devices are connected.

- Enable USB Static CDC, default value
- Disable USB Static CDC



* Enable USB Static CDC



Disable USB Static CDC

After enabling, multiple devices can reuse the same COM port; after disabling, each connected device will occupy a new COM port number.

USB polling interval

Used to set the interval at which the host polls the device in USB HID keyboard mode. The smaller the value, the faster the data transfer.

The currently confirmed values include:

- 1 msec
- 2 msec
- 3 msec
- 4 msec
- 5 msec
- 6 msec
- 7 msec
- 8 msec, default value
- 9 msec



1 msec



2 msec



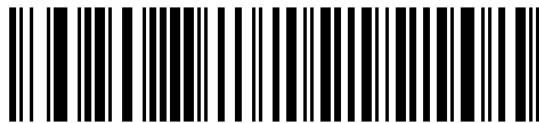
3 msec



4 msec



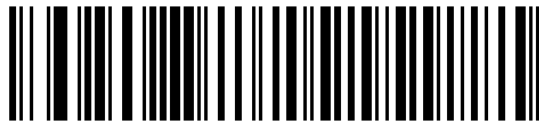
5 msec



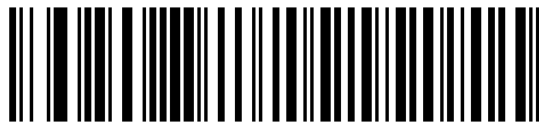
6 msec



7 msec



* 8 msec



9 msec

Warning

The device will reinitialize after the polling interval is changed. If the host cannot handle data rates that are too fast, data loss may result.

USB interface default value

The first default values for the USB interface are as follows:

Parameter	Default Value
USB Device Type	SNAPI with Imaging
SNAPI Status Handshaking	Enable
USB Country Keyboard Types	North American
USB Keystroke Delay	No Delay
Simulated Caps Lock	Disable
USB CAPS Lock Override	Disable
USB Ignore Unknown Characters	Enable
USB Convert Unknown to Code 39	Disable
USB Ignore Beep Directive	Honor
USB Ignore Type Directive	Honor
Emulate Keypad	Disable
Emulate Keypad with Leading Zero	Disable
USB FN1 Substitution	Disable
Function Key Mapping	Disable
Convert Case	None
USB Static CDC	Enable
USB Polling Interval	8 msec
Quick Keypad Emulation	Disable

5.2 USB keyboard output

Used to illustrate the basic behavior and supporting parameters in `USB HID Keyboard Emulation` mode. Settings such as national keyboard layout, Caps Lock compatibility, and prefix and suffix ASCII tables only take effect in this mode.

USB keyboard FN1 replacement

Applies to `USB HID Keyboard Emulation` only. When enabled, replaces FN1 characters in EAN 128 barcodes with user-defined key categories and values.

- Enable
- Disable, default value



Enable USB keyboard FN1 replacement



* Disable USB keyboard FN1 replacement

USB ASCII character set

Used to describe the encoding mapping of prefixes, suffixes, and control characters in USB mode.

The key points confirmed are as follows:

- This section corresponds to Table 8-2 USB Prefix/Suffix Values
- Mapping covers 1000 to 1126
- The table also gives Full ASCII, Code 39 Encode Character and Keystroke
- When Function Key Mapping is enabled, bold keys in the table replace the standard mappings

Convert USB unknown characters to Code 39

Applies only to IBM hand-held, IBM tabletop, and OPOS devices.

- Disable Convert Unknown to Code 39, default value
- Enable Convert Unknown to Code 39



* Disable conversion of unknown characters to Code 39



Enable unknown character conversion to Code 39

Used to control whether to convert unknown barcode type data to Code 39 output when encountering it.

USB ignores unknown characters

Applies to HID Keyboard Emulation and IBM devices.

- Send Bar Codes with Unknown Characters (Transmit), default value
- Do Not Send Bar Codes with Unknown Characters (Disable)



* Send data containing unknown characters



Do not send data containing unknown characters

When sending is enabled, the device will ignore unknown characters but continue to send other data; when disabled, the IBM device will prevent the entire barcode from being sent, and the HID Keyboard device will send up to unknown characters and issue an error tone.

USB ignore beep command

Applies only to IBM hand-held, IBM tabletop, and OPOS devices.

- Honor USB Beep Directive, default value
- Ignore USB Beep Directive



* Follow USB beep instructions



Ignore USB beep command

USB ignore encoding command

Applies only to IBM hand-held, IBM tabletop, and OPOS devices.

- Honor USB Ignore Type Directive, default value
- Ignore USB Ignore Type Directive



* Follow USB coding instructions



Ignore USB encoding commands

5.3 Keyboard layout and character set

National keyboard layout and setting codes

Used to select a USB keyboard layout for a different country/region, only available in USB HID Keyboard Emulation. After switching the national keyboard layout, the device will automatically reset and issue a standard power-on beep.

Commonly used layouts that have been sorted out currently include:

- North American Standard USB Keyboard, default value
- German Windows
- French Windows
- French Canadian Windows 95/98
- French Canadian Windows 2000/XP
- French Belgian Windows
- Spanish Windows
- Italian Windows
- Swedish Windows
- UK English Windows
- Japanese Windows (ASCII)
- Portuguese-Brazilian Windows

keyboardlayout	Setting Barcode
* North American Standard USB Keyboard	SXUAH20100
German Windows	SXUAH2010A
French Windows	SXUAH20109
French Canadian Windows 95/98	SXUAH2010B
French Canadian Windows 2000/XP	SXUAH20111
French Belgian Windows	SXUAH20108
Spanish Windows	SXUAH2010C
Italian Windows	SXUAH2010D
Swedish Windows	SXUAH2010E
UK English Windows	SXUAH2010F
Japanese Windows (ASCII)	SXUAH20110
Portuguese-Brazilian Windows	SXUAH20112



* North American Standard USB Keyboard



German Windows



French Windows



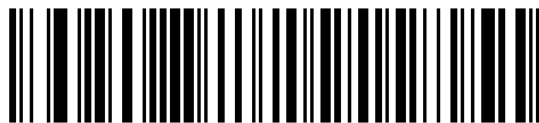
French Canadian Windows 95/98



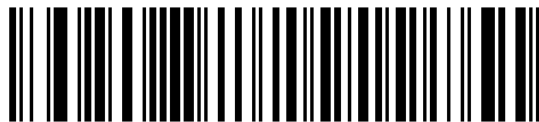
French Canadian Windows 2000/XP



French Belgian Windows



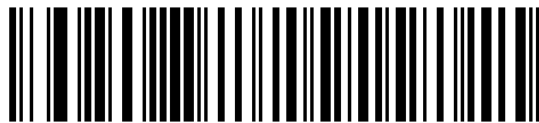
Spanish Windows



Italian Windows



Swedish Windows



UK English Windows



Japanese Windows (ASCII)



Portuguese-Brazilian Windows

ASCII character set

ASCII mapping table used to describe USB keyboard output. This section corresponds to Table 8-2 USB Prefix/Suffix Values and can be used to set prefix, suffix and control characters.

5.4 keyboard behavior

Function key mapping

Used to control whether the value of `ASCII < 32` is sent according to the function key map instead of the standard control key sequence.

- Disable Function Key Mapping, default value
- Enable Function Key Mapping



* Disable function key mapping



Enable function key mapping

Simulate keypad

Used to send characters through the ASCII sequence of the numeric keypad.

- Disable Keypad Emulation, default value
- Enable Keypad Emulation



* Disable keypad emulation



Enable keypad emulation

Numpad emulation with leading zeros

Used to add leading zeros when simulating output from the small keyboard, and send it in ISO character mode.

- Disable Keypad Emulation with Leading Zero, default value
- Enable Keypad Emulation with Leading Zero



* Disable leading zero keypad emulation



Enable leading zero keypad emulation

Quick keypad emulation

Only takes effect when `Emulate Keypad` is enabled, for faster keypad emulation.

- Enable
- Disable, default value

The compatibility behavior related to the host `Caps Lock` status during output mainly includes two types of settings: `Simulated Caps Lock` and `USB CAPS Lock Override`.

Simulate CAPS LOCK

Used to invert the uppercase and lowercase characters in the barcode when outputting. The effect is equivalent to the keyboard being turned on `Caps Lock`, and has nothing to do with the current `Caps Lock` status of the host.

- Disable Simulated Caps Lock, default value
- Enable Simulated Caps Lock



* Disable emulation CAPS LOCK



Enable simulated CAPS LOCK

USB CAPS LOCK coverage

Applies to HID Keyboard Emulation only. After enabling, you can ignore the host Caps Lock status and output the barcode in its original case.

- Override Caps Lock Key (Enable)
- Do Not Override Caps Lock Key (Disable), default value



Override Caps Lock state



* Does not override Caps Lock state

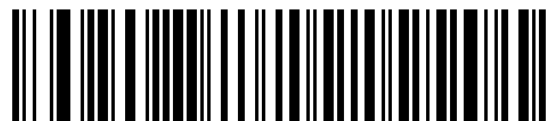
Note

If both Simulated Caps Lock and Caps Lock Override are enabled, the latter takes precedence. Japanese Windows (ASCII) Under keyboard type, this item is always enabled and cannot be turned off.

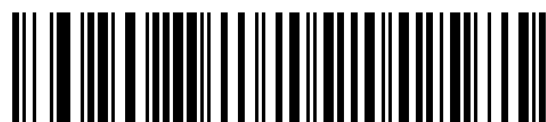
Key Delay

Used to set the time interval between each key press when simulating keyboard output.

- No Delay, default value
- Medium Delay (20 msec)
- Long Delay (40 msec)



* No delay



Medium latency (20 msec)



Long delay (40 msec)

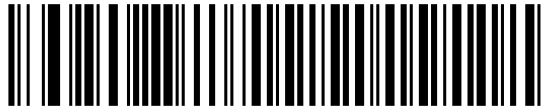
SNAPI status handshake

Used to control whether status handshake is enabled after the USB device type is selected as SNAPI.

- Enable SNAPI Status Handshaking, default value
- Disable SNAPI Status Handshaking



* Enable SNAPI status handshake



Disable SNAPI status handshake

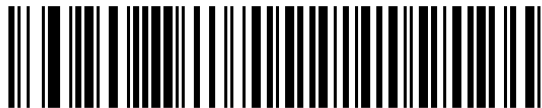
Case Conversion

Used to uniformly adjust barcode output case.

- No Case Conversion, default value
- Convert All to Upper Case
- Convert All to Lower Case



* Do not convert case



Convert all to uppercase



Convert all to lowercase

6 Serial and SSI Settings

6.1 SSI Host Parameters

Select SSI Host

Used to switch the device host interface to SSI Host. The default table also gives the recommended initial values for this interface:

- Baud rate: 9600
- Parity: None
- Parity checking: Disable
- Stop bit: 1
- Software handshake: ACK/NAK
- Host RTS line status: Low
- Decode data packet format: Send Raw Decode Data
- Host serial port response timeout: 2 sec
- Host character timeout: 200 ms
- Multipart option: Option 1
- Inter-message delay: 0 ms
- Decoding event: Disable
- Startup event: Disable
- Parameter event: Disable

Note

SSI interprets prefix and suffix values differently from other interfaces. It does not recognize key categories, only 3-digit decimal values; for example, the default value 7013 will be interpreted as CR.



Select SSI Host

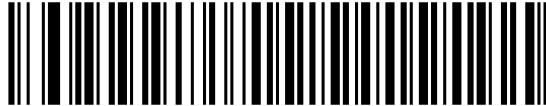
Host RTS Line State

Used to set the idle state of the serial port host RTS line.

- Host RTS low level, default value
- Host RTS high level



* Host RTS Low



Host RTS High

Note

When the device works with standard serial software in decode-and-transmit mode, and the host-side hardware handshake line interferes with the SSI protocol, try switching to “Host RTS High” .

Host Serial Response Timeout

Used to set the maximum time for the device to wait for the host ACK/NAK; if it times out, the device will retransmit and report a transmission error after continuous failures.

- Low - 2 Seconds, default value
- Medium - 5 Seconds
- High - 7.5 Seconds
- Maximum - 9.9 Seconds



* 2 seconds



5 seconds



7.5 seconds



9.9 seconds

Other values can be set through the `SSI` command. It is recommended that both ends of the host and device be consistent.

Host Character Timeout

Used to set the maximum allowed interval between characters sent by the host; beyond this time, the device will discard the current received data and determine it as a communication error.

- Low - 200 ms, default value
- Medium - 500 ms
- High - 750 ms
- Maximum - 990 ms



* 200 ms



500 ms



750 ms



990 ms

Other values can be set through the `SSI` command.

Software Handshaking

Used to control the ACK/NAK software handshake.

- Disable ACK/NAK
- Enable ACK/NAK, default value



Disable ACK/NAK



* Enable ACK/NAK

When enabled, the device will wait for the host to return `ACK` or `NAK` after sending packaged data; if no response is received within the “host serial port response timeout”, the device will resend at most two times.

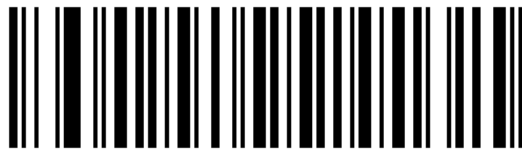
Note

Hardware handshaking is always enabled and cannot be turned off. `ACK/NAK` does not apply to decoded data when sending it as raw ASCII.

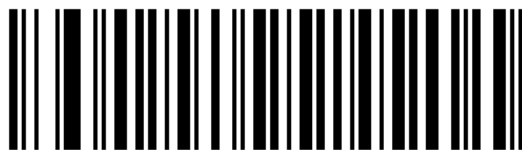
Parameter Event

Used to control whether parameter-related events are reported.

- Enable Parameter Event
- Disable Parameter Event, default value



Enable parameter events



* Disable parameter events

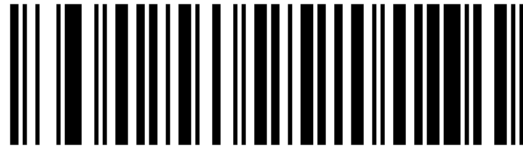
Typical event codes include:

- `0x07`: Parameter input error
- `0x08`: Parameters saved
- `0x0A`: Restore default value
- `0x0F`: Need to enter a number

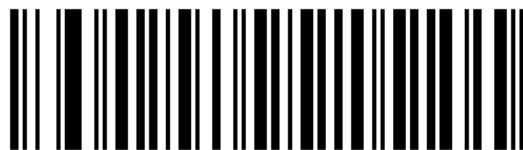
Startup Event

Used to control whether the device actively sends startup events to the host after it is powered on.

- Enable Boot Up Event
- Disable Boot Up Event, default value



Enable startup events



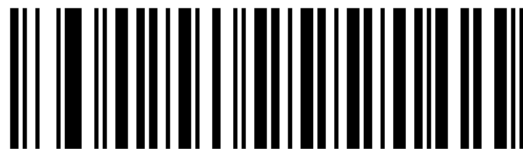
* Disable startup events

Corresponding event code: 0x03

decode event

Used to control whether to actively send events to the host after decoding is successful.

- Enable Decode Event
- Disable Decode Event, default value



Enable decoding events



* Disable decoding events

Corresponding event code: 0x01

Multipart Options

Used to control how ACK/NAK is handled during multi-packet transmission.

- Multipacket Option 1, default value ACK/NAK handshake for each packet
- Multipacket Option 2 sends data packets continuously without using ACK/NAK to control the rhythm; if the host cannot handle it, hardware handshake can be used to temporarily delay sending.

- Multipacket Option 3 Same as Option 2, but adds programmable inter-packet delay



* Multipacket Option 1



Multipacket Option 2



Multipacket Option 3

Inter-message Delay

Used to set the waiting time between packages under Multipacket Option 3.

- Minimum - 0 ms, default value
- Low - 25 ms
- Medium - 50 ms
- High - 75 ms
- Maximum - 99 ms



* 0 ms



25 ms



50 ms



75 ms



99 ms

Other values can be set through the SSI command.

SSI baud rate

Used to set the SSI communication rate, which must be consistent with the host.

- 9600, default value
- 19,200
- 38,400
- 57,600
- 115,200
- 230,400
- 460,800
- 921,600



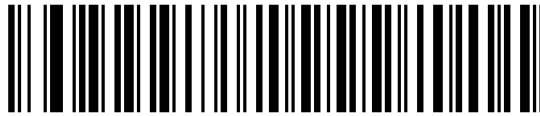
* 9600



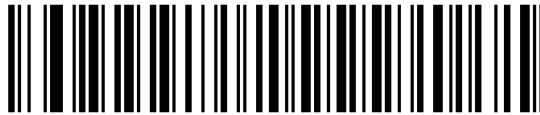
19,200



38,400



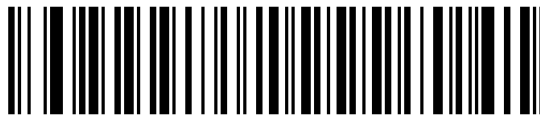
57,600



230,400



460,800



921,600

SSI check digit

Parity check mode used to set the highest bit of a character.

- Odd
- Even
- None, default value



Odd Parity



Even Parity



* No Parity

SSI parity check

Used to control whether the device checks the parity of received characters.

- Do Not Check Parity, default value
- Check Parity



* Do not check check digit



Check check digit

SSI stop bit

Used to set the number of stop bits at the end of each character.

- 1 Stop Bit, default value
- 2 Stop Bits



* 1 stop bit



2 stop bits

6.2 SSI transaction and command encapsulation

SSI transaction

Used to archive the SSI transaction flow, command interaction sequence, and common status codes between the host and the device.

Currently confirmed communication rules include:

- SSI Data is transmitted between the host and the device in the form of data packets. The maximum size of a single packet is 257 bytes.
- Decoded data can be sent either as original ASCII or as `DECODE_DATA` package
- When `ACK/NAK` is enabled, all packaged messages must return `CMD_ACK` or `CMD_NAK` unless otherwise specified.
- Raw ASCII decoded data with WAKEUP without using ACK/NAK handshake

- If hardware handshaking is not used, `WAKEUP` should be sent before sending any communication to the sleeping device, otherwise the first byte may be lost.

Note

All communications use 8 data bits. If the baud rate, stop bit, parity bit or response timeout is modified through `PARAM_SEND`, `ACK` of the current transaction will still use the old parameters to return, and the new value will take effect from the next transaction.

RMD command/response encapsulated by SSI

Used to illustrate the encapsulation format of `RSM` / `RMD` commands and responses in the `SSI` protocol.

Confirmed structural points:

- The command header uses `SSI_MGMT_COMMAND` (0x80)
- Host side `Message Source` is 4
- Device side `Message Source` is 0
- Supports variable-length commands up to 255 bytes
- The host does not support direct multi-packet delivery of `RSM` commands through `SSI`, and needs to be fragmented by itself according to the `RSM` protocol.

The in-page example shows how to read diagnostic information (attribute #10061) through the encapsulated `RSM` command.

SSI command list

Typical commands confirmed to be supported include:

- `AIM_OFF` (0xC4)
- `AIM_ON` (0xC5)
- `BEEP` (0xE6)
- `CAPABILITIES_REQUEST` (0xD3)
- `CAPABILITIES_REPLY` (0xD4)
- `CMD_ACK` (0xD0)
- `CMD_NAK` (0xD1)
- `DECODE_DATA` (0xF3)
- `EVENT` (0xF6)
- `LED_OFF` (0xE8)
- `LED_ON` (0xE7)
- `PARAM_DEFAULTS` (0xC8)
- `PARAM_REQUEST` (0xC7)
- `PARAM_SEND` (0xC6)
- `REQUEST_ID` (0xA3)

- `REPLY_ID` (0xA6)
- `REQUEST_REVISION` (0xA3)
- `REPLY_REVISION` (0xA4)
- `SCAN_DISABLE` (0xEA)
- `SCAN_ENABLE` (0xE9)
- `SLEEP` (0xEB)
- `START_DECODE` (0xE4)
- `STOP_DECODE` (0xE5)
- `WAKEUP`

event code table

The basic event codes that have been sorted out are as follows:

event type	Description	event code
Decode Event	Non-parametric decoding event	0x01
Boot Up Event	System power on	0x03
Parameter Event	Parameter input error	0x07
Parameter Event	Parameters saved	0x08
Parameter Event	Restore defaults	0x0A
Parameter Event	Need to enter a number	0x0F

Transmit buffer overflow

Used to describe the performance, risks, and handling recommendations when the transmission buffer overflows.

6.3 RS232 host type

RS232C host type

Used to list different RS232 host types and their default parameter sets.

The currently sorted host types include:

- Standard RS-232
- ICL Serial
- Wincor-Nixdorf Serial Mode A
- Wincor-Nixdorf Serial Mode B
- Olivetti ORS4500
- Omron
- OPOS/JPOS
- Fujitsu Serial
- CUTE

Note

Scanning Standard RS-232 will only enable the serial port driver and will not modify existing port settings; scanning other host types will also rewrite the corresponding serial port parameters.

Standard RS232C

Describes the default communication parameters for standard RS232 host mode. The currently confirmed default values are as follows:

Parameter	Default Value
Serial Host Types	Standard RS-232
Baud Rate	9600
Parity Type	None
Stop Bits	1
Data Bits	8-Bit
Check Receive Errors	Enable
Hardware Handshaking	None
Software Handshaking	None
Host Serial Response Time-out	2 Sec
RTS Line State	Low RTS
Beep on <BEL>	Disable
Intercharacter Delay	0 msec
Nixdorf Beep/LED Options	Normal Operation
Ignore Unknown Characters	Send Bar Code

Note

Terminal Specific RS232 and ICL RS232C in the original directory belong to the compatibility instructions of a specific terminal or host protocol. You should confirm the current host interface type and protocol requirements before use.

6.4 Serial communication parameters

RS232 baud rate

Used to illustrate serial port communication rate selection.

The currently confirmed values include:

- 9600, default value
- 19,200
- 38,400
- 57,600
- 115,200
- 230,400
- 460,800

- 921,600



* RS232 baud rate 9600



RS232 baud rate 19,200



RS232 baud rate 38,400



RS232 baud rate 57,600



RS232 baud rate 115,200



RS232 baud rate 230,400



RS232 baud rate 460,800



RS232 baud rate 921,600

RS232 check digit

Used to illustrate the selection method of parity check strategy.

- Odd
- Even
- None, default value



RS232 odd parity



RS232 even parity



* RS232 without parity

Check Parity is used to control whether the receiving end performs parity check, and is usually confirmed with RS232 check digit above.

RS232 stop bit

Used to describe how the number of stop bits is selected.

- 1 Stop Bit, default value
- 2 Stop Bits



* RS232 1 stop bit



RS232 2 stop bits

8 data bits

Used to illustrate the serial port data bit width configuration.

- 7-Bit
- 8-Bit, default value



RS232 7 data bits



* RS232 8-bit data bits

Note

Even Parity, DO NOT CHECK PARITY, HOST HIGH RTS and Host Low RTS in the original text are serial port compatibility instructions. The scannable setting code of the parity check has been merged into the “RS232 check digit”, and the RTS line status should be confirmed in combination with the “hardware handshake” and the host protocol requirements.

Receive error checking

Used to control whether received characters are checked for parity, framing errors, and overflow errors.

- Check For Received Errors, default value
- Do Not Check For Received Errors



* Check for receiving errors



Don't check for receive errors

hardware handshake

Used to control the serial port RTS/CTS hardware handshake.

Currently confirmed options and behaviors include:

- None
- Standard RTS/CTS
- RTS/CTS Option 1
- RTS/CTS Option 2
- RTS/CTS Option 3

Note

If hardware handshake and software handshake are enabled at the same time, hardware handshake takes precedence. In Standard RTS/CTS mode, the device will rely on CTS and “host serial port response timeout” to control the sending timing; if the handshake fails, the current data will be lost and a sending error prompt will be triggered.

6.5 Other serial port related

original directory	Description
Fuzzy Processing	Used to organize special serial port parameters related to fuzzy matching, fault-tolerant reception or compatibility processing.
Codabar Upper or Lower Case Start Stop Characters Detection	Used to describe the serial port or host side's detection compatibility strategy for the case of Codabar's starting and ending characters.

7 Barcode Settings

7.1 General instructions

- Most barcode parameters will take effect by scanning a setting code.
- Numeric parameters such as length, redundancy, timeout, etc. usually need to scan the entry setting code first, and then scan *Numeric barcodes*.
- If an error occurs during the input process, scan `Cancel` to cancel the current input sequence.

7.2 Disable All Code Types

All encodings disabled



Disable All Code Types

7.3 UPC/EAN

UPC-A Switch



* Enable UPC-A

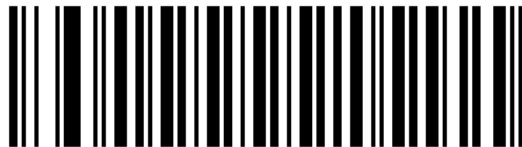


Disable UPC-A

UPC-E Switch

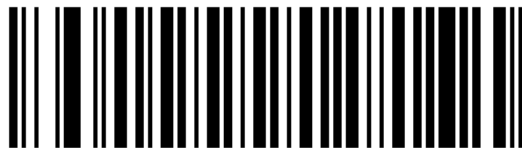


* Enable UPC-E



Disable UPC-E

UPC-E1 switch



Enable UPC-E1



* Disable UPC-E1

EAN-8/JAN-8 switch



* Enable EAN-8/JAN-8

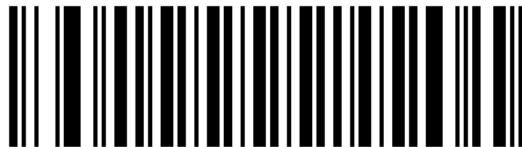


Disable EAN-8/JAN-8

EAN-13/JAN-13 switch

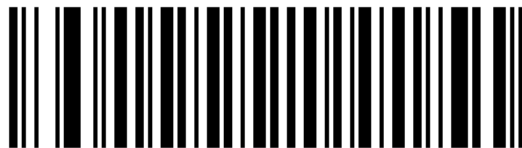


* Enable EAN-13/JAN-13



Disable EAN-13/JAN-13

Bookland EAN switch

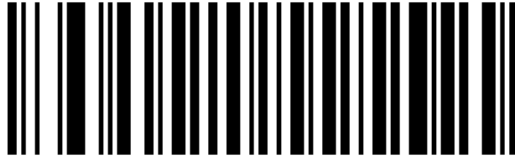


* Enable Bookland EAN

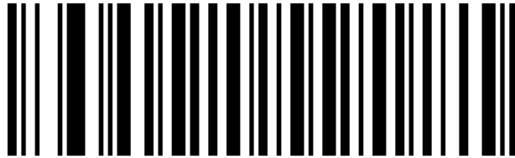


Disable Bookland EAN

Bookland ISBN format



* Bookland ISBN-10



Bookland ISBN-13

UPC/EAN/JAN additional code reading mode



Decode UPC/EAN/JAN Only With Supplementals



* Ignore Supplementals



Autodiscriminate UPC/EAN/JAN Supplementals



Enable 378/379 Supplemental Mode



Enable 978/979 Supplemental Mode



Enable 977 Supplemental Mode



Enable 414/419/434/439 Supplemental Mode



Enable 491 Supplemental Mode



Enable Smart Supplemental Mode

Custom add-on code pattern



Supplemental User-Programmable Type 1



Supplemental User-Programmable Type 1 and 2



Smart Supplemental Plus User-Programmable 1



Smart Supplemental Plus User-Programmable 1 and 2

Custom extension code type



User-Programmable Supplemental 1



User-Programmable Supplemental 2

Additional code redundancy



UPC/EAN/JAN Supplemental Redundancy

Additional code transmission format



Separate

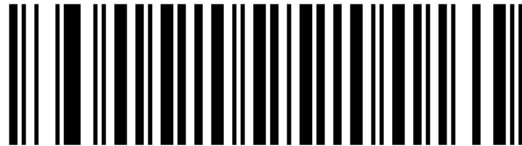


* Combined

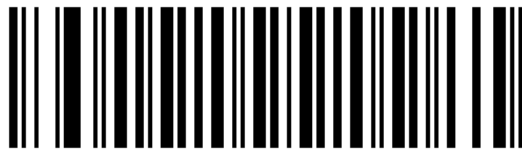


Separate Transmissions

UPC-A Check Digit Transmission

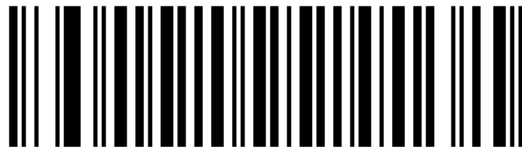


* Transmit UPC-A Check Digit



Do Not Transmit UPC-A Check Digit

UPC-E Check Digit Transmission

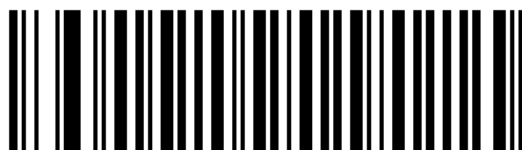


* Transmit UPC-E Check Digit

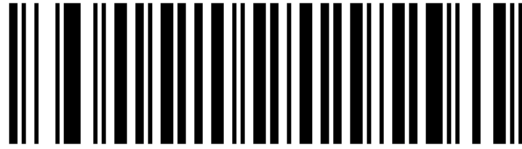


Do Not Transmit UPC-E Check Digit

UPC-E1 check digit transmission

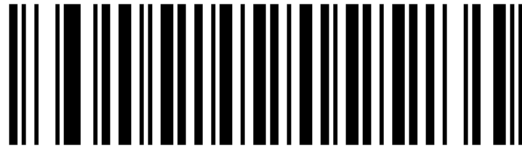


* Transmit UPC-E1 Check Digit

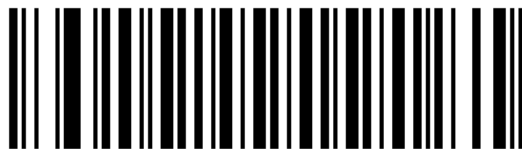


Do Not Transmit UPC-E1 Check Digit

UPC-A preamble



No Preamble ()



* System Character ()



System Character & Country Code (< COUNTRY CODE>)

UPC-E preamble



No Preamble ()



* System Character ()

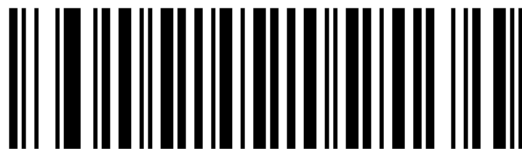


System Character & Country Code (< COUNTRY CODE>)

UPC-E1 preamble



No Preamble ()



* System Character ()

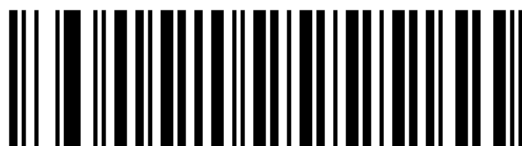


System Character & Country Code (< COUNTRY CODE>)

UPC-E to UPC-A conversion



Convert UPC-E to UPC-A (Enable)

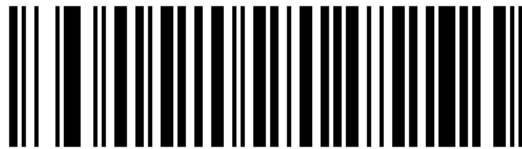


* Do Not Convert UPC-E to UPC-A (Disable)

Convert UPC-E1 to UPC-A

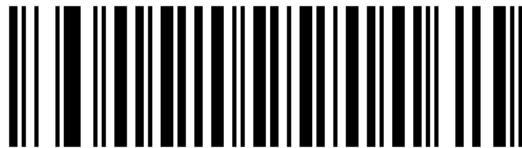


Convert UPC-E1 to UPC-A (Enable)

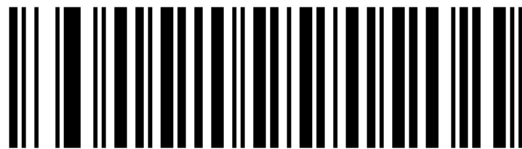


* Do Not Convert UPC-E1 to UPC-A (Disable)

EAN/JAN zero extension

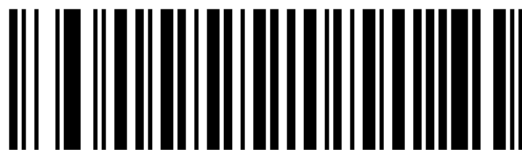


Enable EAN/JAN Zero Extend



* Disable EAN/JAN Zero Extend

UCC Coupon extension code



Enable UCC Coupon Extended Code



* Disable UCC Coupon Extended Code

Coupon code format



Old Coupon Symbols



* New Coupon Symbols



Both Coupon Formats

ISSN EAN switch



Enable ISSN EAN



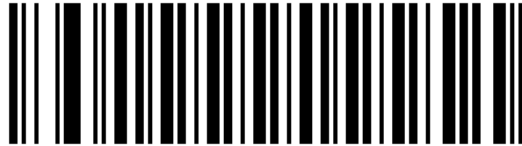
* Disable ISSN EAN

7.4 Code 128

Code 128 Switch



* Enable Code 128



Disable Code 128

Code 128 length setting



Code 128 - One Discrete Length



Code 128 - Two Discrete Lengths



Code 128 - Length Within Range



* Code 128 - Any Length

GS1-128 switch



* Enable GS1-128



Disable GS1-128

ISBT 128 switch

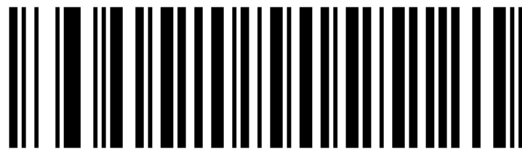


* Enable ISBT 128

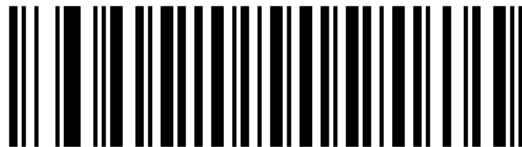


Disable ISBT 128

ISBT connection mode



* Disable ISBT Concatenation



Enable ISBT Concatenation

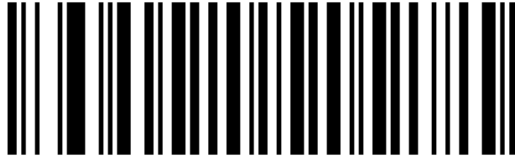


Autodiscriminate ISBT Concatenation

ISBT table verification

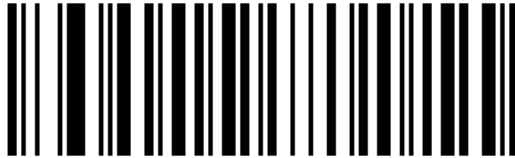


* Enable Check ISBT Table



Disable Check ISBT Table

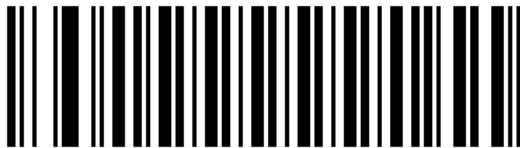
ISBT Concatenation Redundancy



ISBT Concatenation Redundancy

7.5 Code 39

Code 39 Switch



* Enable Code 39



Disable Code 39

Trioptic Code 39 switch



Enable Trioptic Code 39

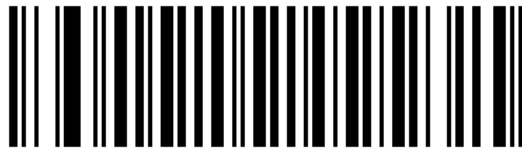


* Disable Trioptic Code 39

Code 39 to Code 32

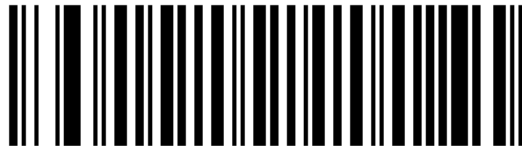


Enable Convert Code 39 to Code 32

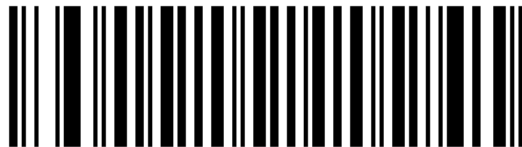


* Disable Convert Code 39 to Code 32

Code 32 prefix



Enable Code 32 Prefix



* Disable Code 32 Prefix

Code 39 length setting



Code 39 - One Discrete Length



Code 39 - Two Discrete Lengths



* Code 39 - Length Within Range



Code 39 - Any Length

Code 39 Check Digit



Enable Code 39 Check Digit



* Disable Code 39 Check Digit

Code 39 Check Digit Transmission



Transmit Code 39 Check Digit (Enable)

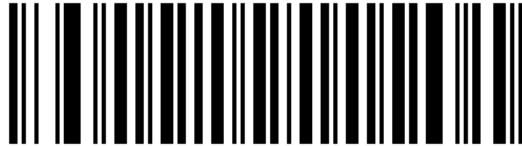


* Do Not Transmit Code 39 Check Digit (Disable)

Code 39 Full ASCII



Enable Code 39 Full ASCII



* Disable Code 39 Full ASCII

Code 39 buffer mode

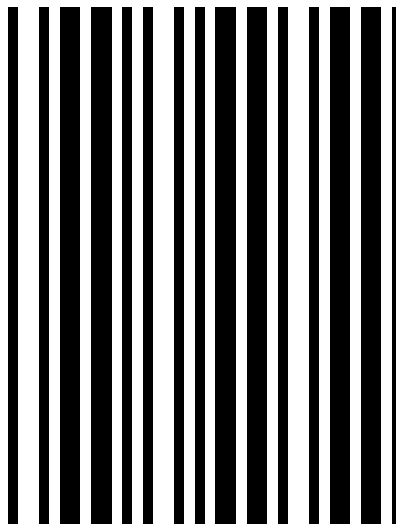


Buffer Code 39 (Enable)

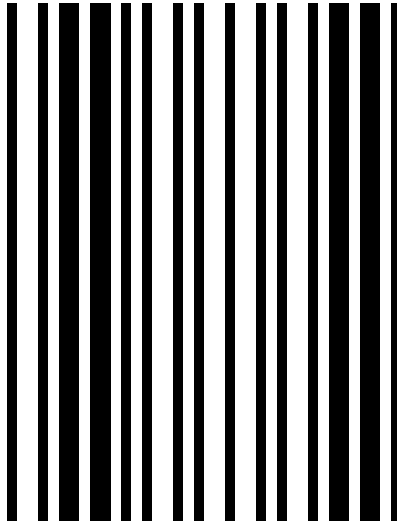


* Do Not Buffer Code 39 (Disable)

Code 39 Buffer Control



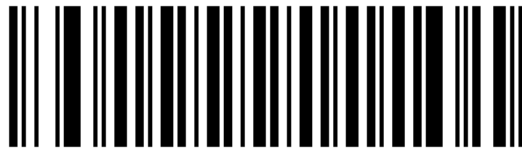
Clear Buffer



Transmit Buffer

7.6 Code 93

Code 93 Switch



Enable Code 93



* Disable Code 93

Code 93 length setting



Code 93 - One Discrete Length



Code 93 - Two Discrete Lengths



* Code 93 - Length Within Range



Code 93 - Any Length

7.7 Code 11

Code 11 Switch



Enable Code 11



* Disable Code 11

Code 11 length setting



Code 11 - One Discrete Length



Code 11 - Two Discrete Lengths



* Code 11 - Length Within Range



Code 11 - Any Length

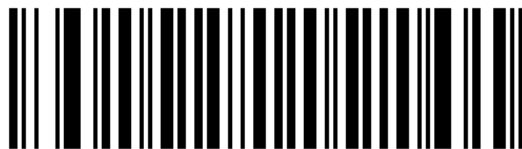
Code 11 check digit number



* Disable

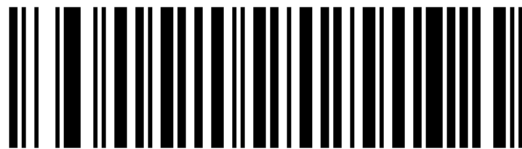


One Check Digit

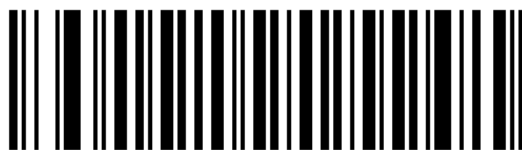


Two Check Digits

Code 11 Check Digit Transmission



Transmit Code 11 Check Digit(s) (Enable)



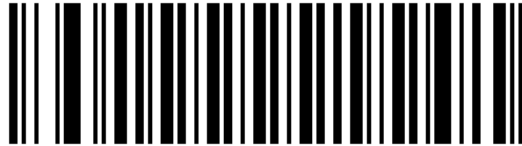
* Do Not Transmit Code 11 Check Digit(s) (Disable)

7.8 Interleaved 2 of 5 (ITF)

Interleaved 2 of 5 Switch



Enable Interleaved 2 of 5



* Disable Interleaved 2 of 5

Interleaved 2 of 5 Length Settings



* I 2 of 5 - One Discrete Length



I 2 of 5 - Two Discrete Lengths



I 2 of 5 - Length Within Range

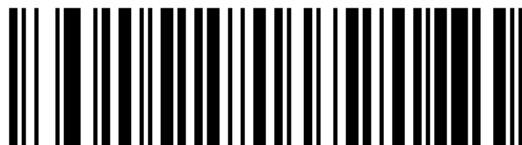


I 2 of 5 - Any Length

Interleaved 2 of 5 verification method



* Disable

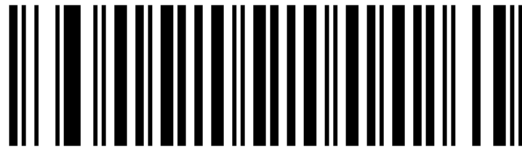


USS Check Digit



OPCC Check Digit

Interleaved 2 of 5 check digit transmission



Transmit I 2 of 5 Check Digit (Enable)



* Do Not Transmit I 2 of 5 Check Digit (Disable)

Interleaved 2 of 5 to EAN-13



Convert I 2 of 5 to EAN-13 (Enable)



* Do Not Convert I 2 of 5 to EAN-13 (Disable)

7.9 Discrete 2 of 5 (DTF)

Discrete 2 of 5 Switch



Enable Discrete 2 of 5



* Disable Discrete 2 of 5

Discrete 2 of 5 Length Settings



* D 2 of 5 - One Discrete Length



D 2 of 5 - Two Discrete Lengths



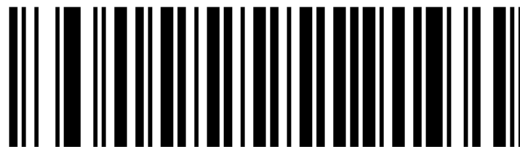
D 2 of 5 - Length Within Range



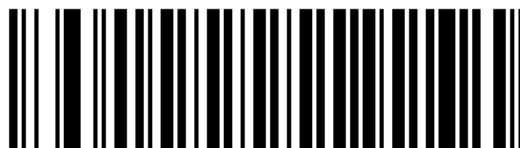
D 2 of 5 - Any Length

7.10 Codabar (NW-7)

Codabar Switch



Enable Codabar



* Disable Codabar

Codabar length setting



Codabar - One Discrete Length



Codabar - Two Discrete Lengths

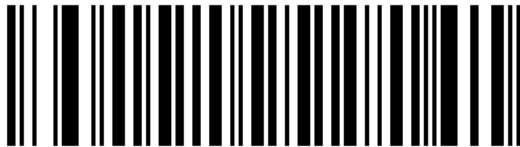


* Codabar - Length Within Range

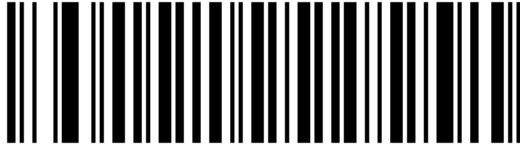


Codabar - Any Length

CLSI Editor

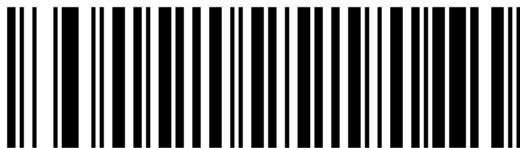


Enable CLSI Editing

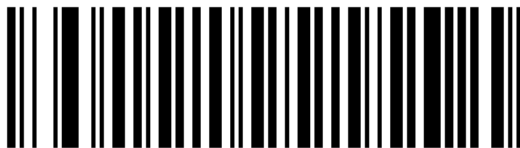


* Disable CLSI Editing

NOTICE Edit



Enable NOTIS Editing

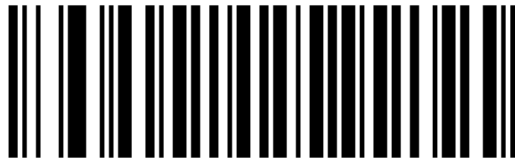


* Disable NOTIS Editing

Start/terminator case



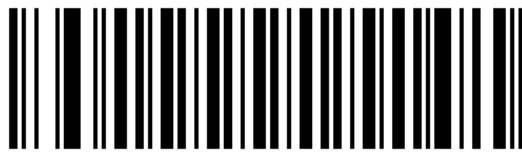
Lower Case



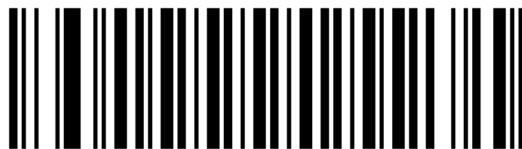
*uppercase

7.11 MSI

MSI switch



Enable MSI



* Disable MSI

MSI length settings



MSI - One Discrete Length



MSI - Two Discrete Lengths



* MSI - Length Within Range

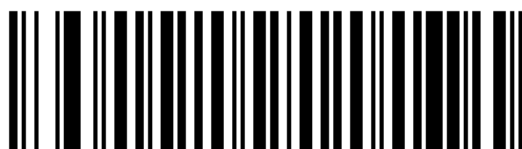


MSI - Any Length

MSI check digit number

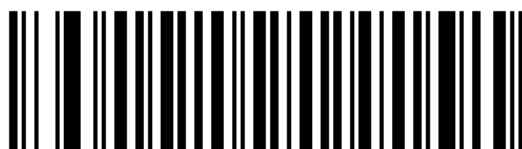


* One MSI Check Digit

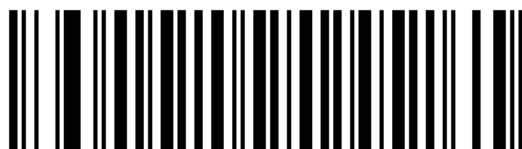


Two MSI Check Digits

MSI check digit transmission



Transmit MSI Check Digit(s) (Enable)



* Do Not Transmit MSI Check Digit(s) (Disable)

7.12 Chinese 2 of 5

Chinese 2 of 5 Check Algorithm



MOD 10/MOD 11

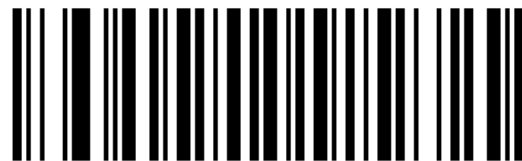


* MOD 10/MOD 10

Chinese 2 of 5 switch



Enable Chinese 2 of 5



* Disable Chinese 2 of 5

7.13 Matrix 2 of 5

Matrix 2 of 5 Switch



Enable Matrix 2 of 5



* Disable Matrix 2 of 5

Matrix 2 of 5 length setting



* Matrix 2 of 5 - One Discrete Length



Matrix 2 of 5 - Two Discrete Lengths



Matrix 2 of 5 - Length Within Range



Matrix 2 of 5 - Any Length

Matrix 2 of 5 check digit



Enable Matrix 2 of 5 Check Digit

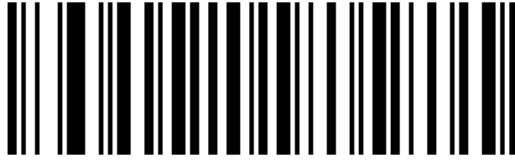


* Disable Matrix 2 of 5 Check Digit

Matrix 2 of 5 check digit transmission



Transmit Matrix 2 of 5 Check Digit



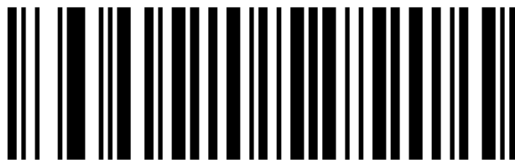
* Do Not Transmit Matrix 2 of 5 Check Digit

7.14 Korean 3 of 5

Korean 3 of 5 Switch



Enable Korean 3 of 5



* Disable Korean 3 of 5

7.15 Reverse color 1D code

Inverse color reading mode



* Regular



Inverse Only



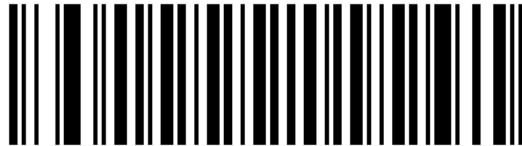
Inverse Autodetect

7.16 Postal Code

US Postnet switch



Enable US Postnet

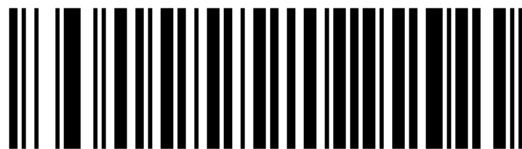


* Disable US Postnet

US Planet switch

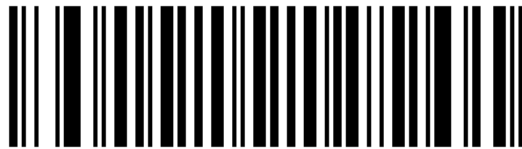


Enable US Planet



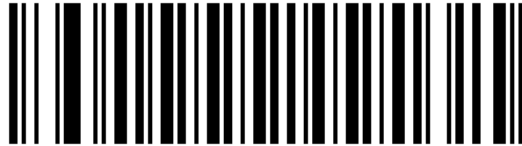
* Disable US Planet

US Postal Check Digit Transmission



Do Not Transmit US Postal Check Digit

UK Postal switch



Enable UK Postal

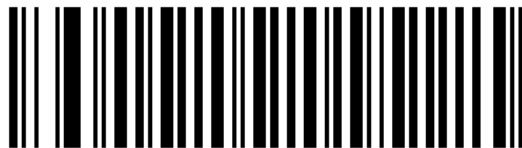


* Disable UK Postal

UK Postal Check Digit Transmission



* Transmit UK Postal Check Digit



Do Not Transmit UK Postal Check Digit

Japan Postal switch



Enable Japan Postal

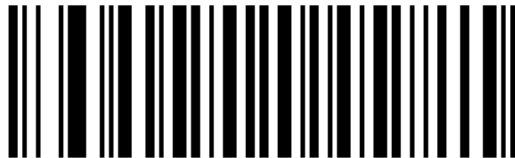


* Disable Japan Postal

Australia Post switch

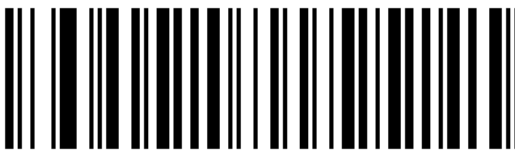


Enable Australia Post



* Disable Australia Post

Australia Post format



* Autodiscriminate



Raw Format



Alphanumeric Encoding

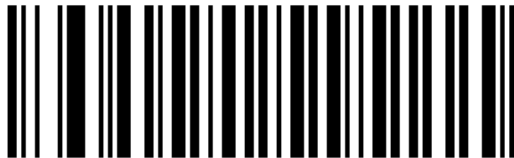


Numeric Encoding

Netherlands KIX Code Switch



Enable Netherlands KIX Code



* Disable Netherlands KIX Code

USPS 4CB/One Code/Intelligent Mail switch



Enable USPS 4CB/One Code/Intelligent Mail



* Disable USPS 4CB/One Code/Intelligent Mail

UPU FICS Postal Switch



Enable UPU FICS Postal



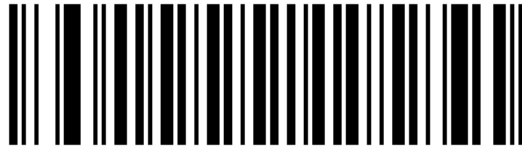
* Disable UPU FICS Postal

7.17 GS1 DataBar

GS1 DataBar switch

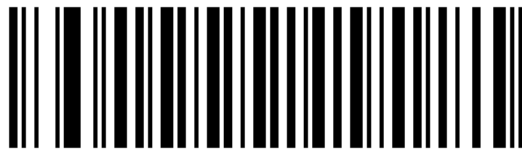


* Enable GS1 DataBar

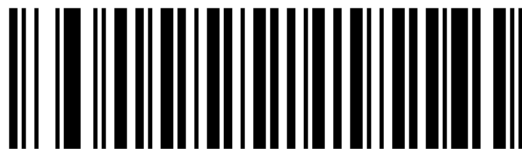


Disable GS1 DataBar

GS1 DataBar Limited switch



Enable GS1 DataBar Limited



* Disable GS1 DataBar Limited

GS1 DataBar Limited Security Level



Security Level 1



Security Level 2

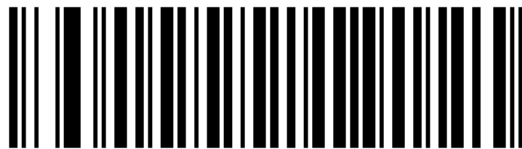


* Security Level 3

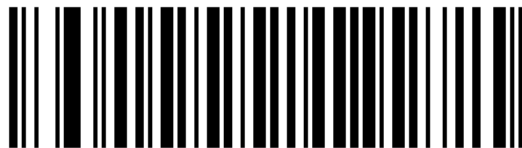


Security Level 4

GS1 DataBar Expanded switch



* Enable GS1 DataBar Expanded



Disable GS1 DataBar Expanded

GS1 DataBar to UPC/EAN



Enable Convert GS1 DataBar to UPC/EAN



* Disable Convert GS1 DataBar to UPC/EAN

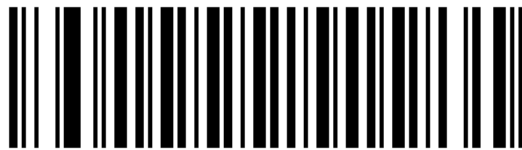
7.18 Composite compound code

CC-C switch



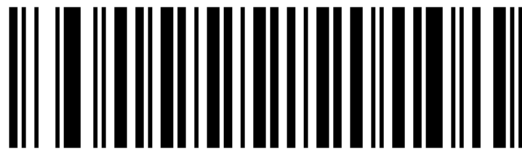
* Disable CC-C

CC-A/B switch

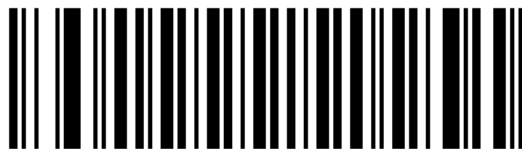


* Disable CC-A/B

TLC39 switch

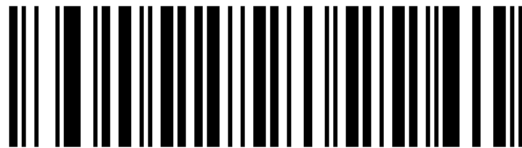


Enable TLC39



* Disable TLC39

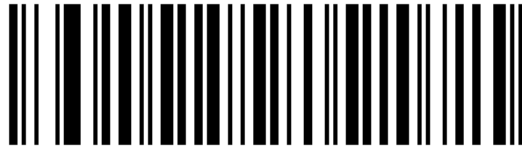
Composite code beep prompt



Single Beep After Both are Decoded



* Beep as Each Code Type is Decoded

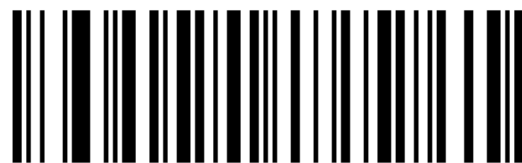


Double Beep After Both are Decoded

UCC/EAN composite code GS1-128 simulation



Enable GS1-128 Emulation Mode for UCC/EAN Composite Codes



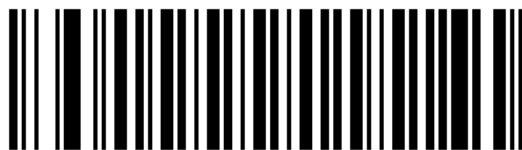
* Disable GS1-128 Emulation Mode for UCC/EAN Composite Codes

7.19 2D barcode

PDF417 Switch



* Enable PDF417

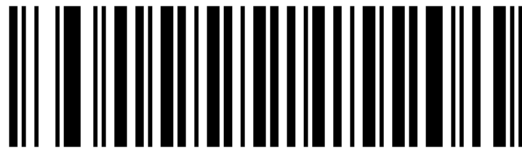


Disable PDF417

MicroPDF417 switch

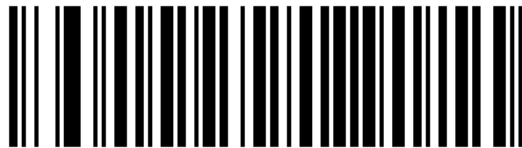


Enable MicroPDF417



* Disable MicroPDF417

MicroPDF417 Code 128 Simulation



Enable Code 128 Emulation



* Disable Code 128 Emulation

Data Matrix Switch



* Enable Data Matrix



Disable Data Matrix

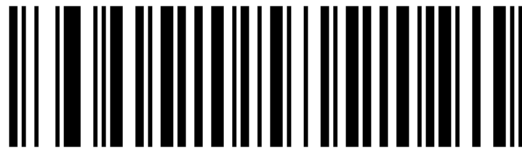
Data Matrix reverse color reading



* Regular



Inverse Only

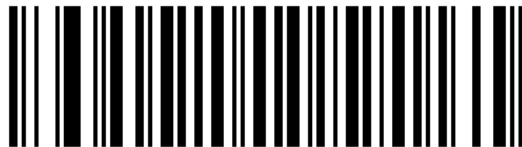


Inverse Autodetect

Data Matrix Image Reading



Never

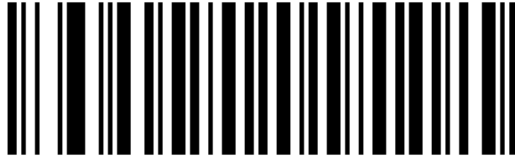


Always



* Automatic

Maxicode switch



Enable Maxicode

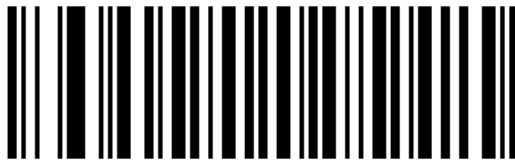


* Disable Maxicode

QR Code switch



* Enable QR Code



Disable QR Code

QR Code reverse color reading



* Regular

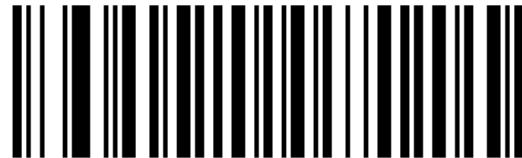


Inverse Only



Inverse Autodetect

MicroQR switch

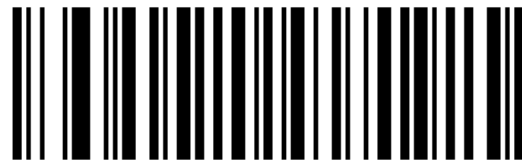


* Enable MicroQR



Disable MicroQR

Aztec switch



* Enable Aztec



Disable Aztec

Aztec reverse color reading



Regular



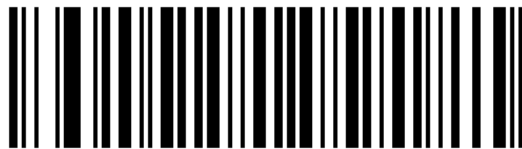
Inverse Only



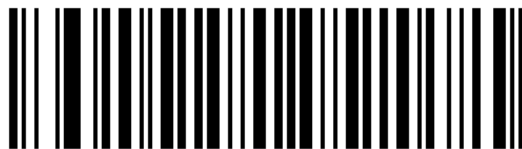
* Inverse Autodetect

7.20 Redundancy Level

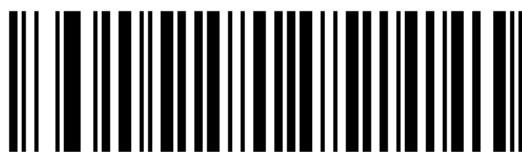
Redundancy Level



* Redundancy Level 1



Redundancy Level 2



Redundancy Level 3



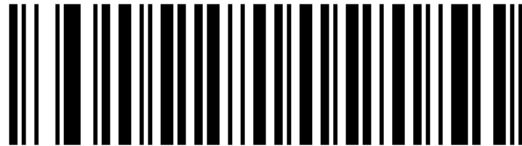
Redundancy Level 4

7.21 Security Level

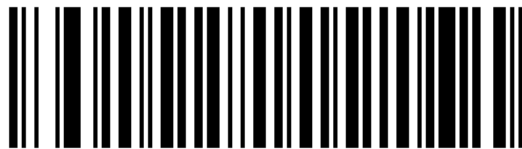
Security Level



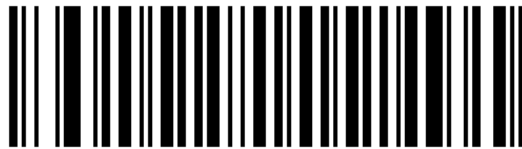
Security Level 0



* Security Level 1



Security Level 2



Security Level 3

7.22 Intercharacter Gap Size

Intercharacter Gap Size

Used to adjust the character gap tolerance for Code 39 and Codabar code systems. If barcode printing causes the character gap to exceed the standard range, a larger character gap can be selected to improve error tolerance.



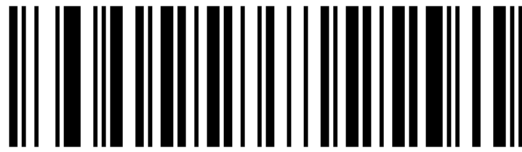
* Normal Intercharacter Gaps



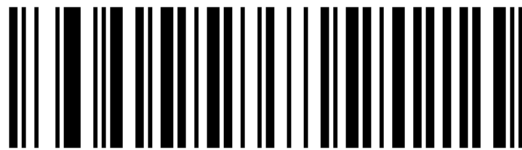
Large Intercharacter Gaps

7.23 Macro PDF features

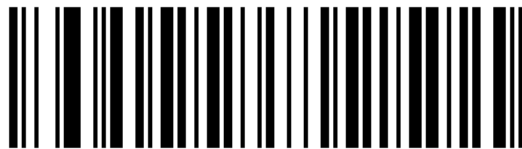
Macro PDF transfer/decoding mode



Buffer All Symbols / Transmit Macro PDF When Complete



Transmit Any Symbol in Set / No Particular Order



* Passthrough All Symbols

Macro PDF control header and escape characters



Enable Macro PDF Control Header Transmit



* Disable Macro PDF Control Header Transmit



GLI Protocol



* None

Macro PDF buffer control



Flush Macro PDF Buffer



Abort Macro PDF Entry

8 Appendix and setup code

8.1 Parameter default table

Parameter default value

This table lists typical default parameters for each chapter:

Parameter	Default Value
Transmit Code ID Character	None
Scan Data Transmission Format	Data As Is
FN1 Substitution Value	7013 (Enter)
Transmit "No Read" Message	Disable

USB interface default value

USB interface defaults include:

Parameter	Default Value
USB Device Type	SNAPI with Imaging
SNAPI Status Handshaking	Enable
USB Country Keyboard Types	North American
USB Keystroke Delay	No Delay
Simulated Caps Lock	Disable
USB CAPS Lock Override	Disable
USB Ignore Unknown Characters	Enable
USB Convert Unknown to Code 39	Disable
USB Ignore Beep Directive	Follow Host Directive
USB Ignore Type Directive	Follow Host Directive
Emulate Keypad	Disable
Emulate Keypad with Leading Zero	Disable
USB FN1 Substitution	Disable
Function Key Mapping	Disable
Convert Case	None
USB Static CDC	Enable
USB Polling Interval	8 msec
Quick Keypad Emulation	Disable

Undecoded code reading device simulation default table

Used to archive the default host parameters in the emulation mode of the undecoded code reading device. This mode is usually used with a specific terminal or host protocol. You should confirm the current host interface type before modifying it.

RS232 host default table

The standard RS232 default values are as follows:

Parameter	Default Value
Serial Host Types	Standard RS-232
Baud Rate	9600
Parity Type	None
Stop Bits	1
Data Bits	8-Bit
Check Receive Errors	Enable
Hardware Handshaking	None
Software Handshaking	None
Host Serial Response Time-out	2 Sec
RTS Line State	Low RTS
Beep on <BEL>	Disable
Intercharacter Delay	0 msec
Nixdorf Beep/LED Options	Normal Operation
Ignore Unknown Characters	Send barcode

8.2 Command and event table

SSI command list

This section lists SSI command numbers, command names, parameter lengths, and sample data.

event code table

This section lists the event number, event name and trigger condition description.

Terminal-specific Code ID character table

This table lists the fixed Code ID characters in each terminal mode.

Note

When the host type is selected as ICL, Fujitsu, Wincor-Nixdorf, OPOS/JPOS, Olivetti, Omron, or CUTE, the device automatically enables terminal-specific Code ID in this table. These values are not programmable and independent of the Transmit Code ID functionality, and the “Transmit Code ID Character” should not be additionally enabled.

To avoid horizontal cropping on mobile devices, the table is split by terminal type.

Code Type	ICL	Fujitsu
UPC-A	AA	A
UPC-E	EE	C
EAN-8/JAN-8	FF	FF
EAN-13/JAN-13	FF	A
Bookland EAN	FF	A
Code 39	C<len>	None
Code 39 Full ASCII	None	None
Trioptic	None	None
Code 32	None	None
Codabar	N<len>	None
Code 128	L<len>	None
GS1-128	L<len>	None
Code 93	None	None
I 2 of 5	I<len>	None
D 2 of 5	H<len>	None
MSI	None	None
Code 11	None	None
IATA	H<len>	None
GS1 DataBar Variants	None	None
PDF417	None	None
MicroPDF417	None	None
Data Matrix	None	None
Maxicode	None	None
QR Codes	None	None
Aztec/Aztec Rune	None	None

Code Type	Wincor-Nixdorf Mode A	Wincor-Nixdorf Mode B / OPOS/JPOS
UPC-A	A	A
UPC-E	C	C
EAN-8/JAN-8	B	B
EAN-13/JAN-13	A	A
Bookland EAN	A	A
Code 39	M	M
Code 39 Full ASCII	M	M
Trioptic	None	None
Code 32	None	None
Codabar	N	N
Code 128	K	K
GS1-128	P	P
Code 93	L	L
I 2 of 5	I	I
D 2 of 5	H	H
MSI	O	O
Code 11	None	None
IATA	H	H
GS1 DataBar Variants	E	E
PDF417	Q	Q
MicroPDF417	S	S
Data Matrix	R	R
Maxicode	T	T
QR Codes	U	U
Aztec/Aztec Rune	V	V

Code Type	Olivetti	Omron	CUTE
UPC-A	A	A	-
UPC-E	E	None	-
EAN-8/JAN-8	B	FF	None
EAN-13/JAN-13	F	A	-
Bookland EAN	F	None	-
Code 39	M<len>	C<len>	3
Code 39 Full ASCII	None	None	3
Trioptic	None	None	None
Code 32	None	None	None
Codabar	N<len>	N<len>	None
Code 128	K<len>	L<len>	5
GS1-128	P<len>	L<len>	5
Code 93	L<len>	None	None
I 2 of 5	I<len>	I<len>	1
D 2 of 5	H<len>	H<len>	2
MSI	O<len>	None	None
Code 11	None	None	None
IATA	H<len>	H<len>	2
GS1 DataBar Variants	None	None	None
PDF417	None	None	6
MicroPDF417	None	None	6
Data Matrix	None	None	4
Maxicode	None	None	None
QR Codes	None	None	7
Aztec/Aztec Rune	None	None	8

8.3 Table of suffixes, suffixes and character values

Prefix/suffix value table

The key points confirmed are as follows:

- Prefix/Suffix Values is set via 4 digits
- Number 1 is the button category
- The last 3 digits are decimal character values
- Detailed value table is located at Table E-1

Among some terminal default parameters, typical default values for suffixes and suffixes include:

- STX (1002)
- CR (1013)
- ETX (1003)

USB ASCII character set table

It is currently confirmed that this section corresponds to Table 8-2 USB Prefix/Suffix Values, covering the suffix/control character mapping from 1000 to 1126, and can be used for:

- Prefix and suffix settings
- FN1 Replacement value selection
- USB keyboard control character output

National keyboard type code

This section corresponds to USB HID keyboard layout selection and lists common keyboard layout codes; the complete setting codes are maintained by USB and keyboard settings in the PL5 module manual.

keyboardlayout	Setting Barcode
North American Standard USB Keyboard	SXUAH20100
German Windows	SXUAH2010A
French Windows	SXUAH20109
French Canadian Windows 95/98	SXUAH2010B
French Canadian Windows 2000/XP	SXUAH20111
French Belgian Windows	SXUAH20108
Spanish Windows	SXUAH2010C
Italian Windows	SXUAH2010D
Swedish Windows	SXUAH2010E
UK English Windows	SXUAH2010F
Japanese Windows (ASCII)	SXUAH20110
Portuguese-Brazilian Windows	SXUAH20112

Hexadecimal value table

This table is used to query the correspondence between hexadecimal values, visible characters, and control characters.

FN1 replacement value table

Used to set the replacement value for FN1 in EAN-128.

The confirmed rules are as follows:

- Default value: 7013, which is Enter

Setup steps:

1. Scan Set FN1 Substitution Value
2. Find the target key value in the ASCII character table of the current host interface
3. Enter the corresponding 4-digit value

When setting via host command, first set Key Category to 1, and then set the 3-digit key value.

8.4 Reference setting code

Numeric Setup Codes

Used to enter numerical parameters such as length, timeout, brightness, address, etc. This section gives the digital setting codes from 0 to 9.



number 0



Number 1



Number 2



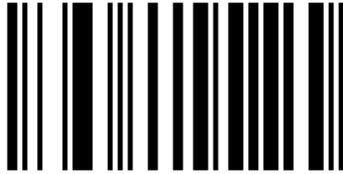
Number 3



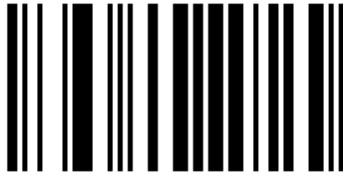
number 4



number 5



Number 6



number 7



number 8



number 9

Cancel input

Used to undo the current input and start over when setting a value.



Cancel input