



2D Barcode Scanner

User Guide

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Chapter 1 Getting Started

Introduction

S-3100 series embedded 2D barcode scan engines, armed with the “Hercules” technology, the LongWay unique Image Processing Algorithm and optical system.

The S-3100 2D barcode decoder chip uses advanced chip design & manufacturing, which significantly simplifies application design and delivers superior performance and solid reliability with low power consumption.

The S-3100 support all mainstream 1D and standard 2D barcode symbologies (e.g., PDF417, QR Code M1/M2/Micro and Data Matrix) as well as GS1-DataBar™(RSS) (Limited/Stacked/Expanded versions). It can read barcodes on virtually any medium - paper, plastic card, mobile phones and LCD displays.

This compact, lightweight engine fits easily into even the most space-constrained equipments such as data collectors, meter readers, ticket validators and PDAs.

About This Guide

This guide provides programming instructions for the S-3100. Users can configure the S-3100 by scanning the programming barcodes included in this manual.

Barcode Scanning

Powered by area-imaging technology and S-3100 patented “Hercules” technology, the S-3100 features fast scanning and decoding accuracy. Barcodes rotated at any angle can still be read with ease. When scanning a barcode, simply center the aiming beam or pattern projected by the S-3100 over the barcode.

Barcode Programming

Factory Defaults

Scanning the following barcode can restore the engine to the factory defaults. See **Appendix 1: Factory Defaults Table** for more information.

Note: Use this feature with discretion.



Restore All Factory Defaults

Chapter 2 Communication Interfaces

The S-3100 provides a TTL-232 interface and a USB interface to communicate with the host device. The host device can receive scanned data and send commands to control the engine or to access/alter the configuration information of the engine via the TTL-232 or USB interface.

TTL-232 Interface

Serial communication interface is usually used when connecting the engine to a host device (like PC, POS). However, to ensure smooth communication and accuracy of data, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) to match the host device.

The serial communication interface provided by the engine is based on TTL-level signals. TTL-232 can be used for most application architectures. For those requiring RS-232, an external conversion circuit is needed. The conversion circuit is available only to some models.



Serial Communication

Default serial communication parameters are listed below. Make sure all parameters match the host requirements.

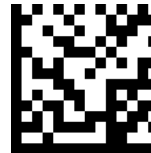
Parameter	Factory Default
Serial Communication	Standard TTL-232
Baud Rate	115200
Parity Check	None
Data Bits	8
Stop Bits	1
Hardware Flow Control	None

Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the baud rate to match the Host requirements.



600



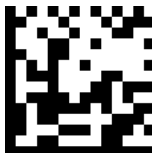
1200



2400



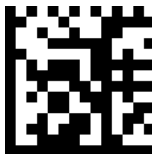
4800



9600



19200



38400



57600

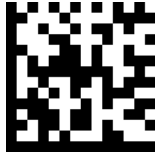


115200



300

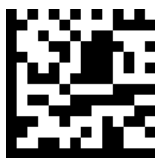
Data Bit & Parity Check& Stop Bit



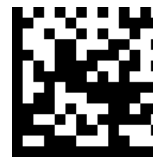
None Parity /8 Data Bits/1 Stop Bit



None Parity /7 Data Bits/1 Stop Bit



None Parity /7 Data Bits/2 Stop Bits



Even Parity /8 Data Bits/1 Stop Bit



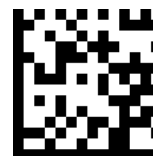
Even Parity /7 Data Bits/1 Stop Bit



Even Parity /7 Data Bits/2 Stop Bits



Odd Parity /8 Data Bits/1 Stop Bit



Odd Parity /7 Data Bits/1 Stop Bit

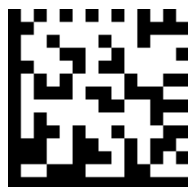


Odd Parity /7 Data Bits/2 Stop Bit

USB Interface

USB HID-KBW

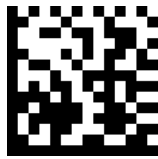
When you connect the engine to the Host via a USB connection, you can enable the **USB HID-KBW** feature by scanning the barcode below. Then engine's transmission will be simulated as USB keyboard input. The Host receives keystrokes on the virtual keyboard. It works on a Plug and Play basis and no driver is required.



USB HID-KBW

USB Country Keyboard Types

Keyboard layouts vary from country to country. The default setting is 1-U.S. keyboard.



1 - U.S.



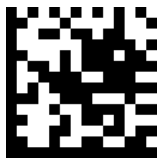
2 - UK



3 - Denmark



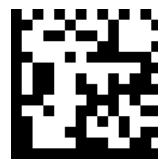
4 - France



5 - Finland



6 - Turkey_F



7 - Italy



8 - Norway



9 - Albania



10 - Belgium



11 – Bosnia



12 – Brazil



13 – Croatia



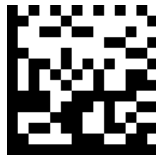
14 – Czech



15 –Dutch



16 – Estonia



17 – Germany



18 – Greek



19 – Hungary



20 – Irish



21 – Latvia



22-Lithuania



23 – Macedonia



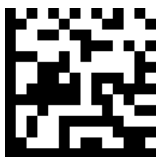
24 – Spain



25 – Poland



26 –Portugal



27 –Romania



28 –Russia

Convert Case

Scan the appropriate barcode below to convert barcode data to your desired case.



No Case Conversion



Convert All to Upper Case

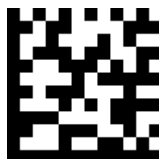


Convert All to Lower Case

Example: When the **Convert All to Lower Case** feature is enabled, barcode data “AbC” is transmitted as “abc”.

USB COM Port Emulation

If you connect the engine to the Host via a USB connection, the **USB COM Port Emulation** feature allows the Host to receive data in the way as a serial port does. A driver is required for this feature.

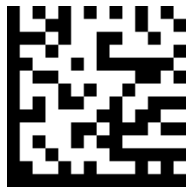


USB COM Port Emulation

Chapter 3 Scan Mode

Trigger Mode

If the Trigger Mode is enabled, you could activate the scanner by providing an external hardware trigger, or using a serial trigger command. When in manual trigger mode, the scanner scans until a barcode is read, or until the hardware trigger is released. When in serial mode, the scanner scans until a barcode has been read or until the deactivate command is sent..



Trigger Mode

Decode Session Timeout

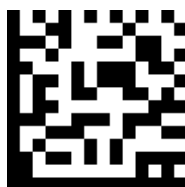
Use this selection to set a time-out of scanner's trigger when using serial commands to trigger the scanner, or if the scanner is in manual trigger mode.



Decode Session Timeout

Presentation Mode

This set the scanner to work in presentation mode. The LEDs are either off or at the lowest power for ambient conditions until a barcode is presented to the scanner. Then the LEDs turn on automatically to read the code. Presentation mode uses ambient light to detect the bar codes. If the light level in the room is not high enough, Presentation mode may not work properly.



Presentation Mode

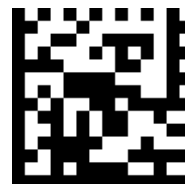
Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time. This sets the time period before the scanner can read the same barcode a second time. Setting a reread delay protects against accidental rereads of the same barcode. Longer delays are effective in minimizing accidental rereads at pos. Use shorter delays in applications where repetitive bar code scanning is required.

Reread delay: Set delay time and Allow the engine to re-read same barcode.



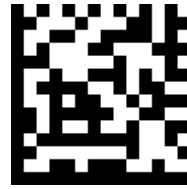
300 milliseconds



600 milliseconds



1200 milliseconds



2000 milliseconds

Cellphone Mode

If the Cellphone Mode is enabled, the engine activates a special capturing image and illumination session. Every 3 frame open one illumination.



Cellphone Mode

Serial Programming Commands

The serial programming commands can be used in place of the programming barcodes. Both the serial commands and the programming barcodes will program the engine. For complete descriptions and examples of each serial programming command, refer to the corresponding programming barcode in this manual.

The device must be set to an RS-232 interface. The following commands could be sent via a PC COM PORT using terminal software

Command Format

Prefix: \x02M\x0D+Command

Example:

Set Baud Rate to 300

\x02M\x0D090D00.

Trigger Commands

Activate and Deactivate the scanner with serial trigger commands. Enter trigger mode, and send the following command

Activate: \x02T\x0D

Deactivate: \x02U\x0D

The scanner scans until a bar code has been read, until the deactivate command is sent, or until the serial time-out has been reached.

Responses

The device responds to serial commands with one of three responses

ACK Indicates a good command

NAK Indicates the command was good, but the data field is not match the guide

ENQ Indicates a invalid command

Command Name	Command	Command Value
Baud Rate	300BPS	090D00
	600BPS	090D01
	1200BPS	090D02
	2400BPS	090D03
	4800BPS	090D04
	9600BPS	090D05
	19200BPS	090D06
	38400BPS	090D07
	57600BPS	090D08
	115200BPS	090D09
Word Format: Parity, Data bit, stop bit	None, 7, 1	090E00
	None, 7, 2	090E01
	None, 8, 1	090E02
	Even, 7, 1	090E03
	Even, 7, 2	090E04
	Even, 8, 1	090E05
	Odd, 7, 1	090E06
	Odd, 7, 2	090E07
	Odd, 8, 1	090E08

Chapter 4 Illumination & Aiming

Illumination

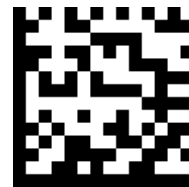
A couple of illumination options are provided to improve the lighting conditions during every image capture:

On: Illumination LEDs are turned on during image capture.

OFF: Illumination LEDs are OFF all the time.



OFF



ON

Aiming

The aimer delay allows a delay time for the operator to aim the imager before the picture is taken. Use these codes to set time between when the trigger is activated and when the picture is taken. During the delay time, the aiming light will appear, but the LEDs won't turn on until the delay time is over.



200 Milliseconds



400 Milliseconds



Delay Off

Chapter 5 Beep & LED Indications

Beep-good read

If this is enabled, only turn off the beeper response to a good read indication .other beeper are still available .

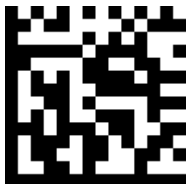


Enable Beep



Disable Beep

Beeper Volume (good read)



Off



Low



Medium

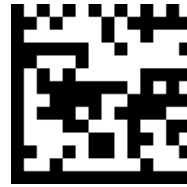


High

Beeper Duration(good read)

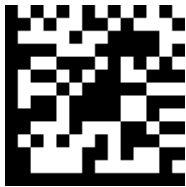


Normal



short beep

LED (good read)



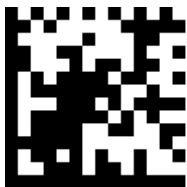
On



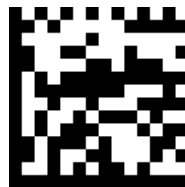
Off

No Read

If this feature is enabled, when barcode could not be read, scanner will feedback NoRead String.



Enable



Disable

Chapter 6 Data Formatting

In many applications, barcode data needs to be edited and distinguished from one another.

Usually AIM ID and Code ID can be used as identifiers, but in some special cases customized prefix and terminating character suffix like Carriage Return or Line Feed can also be the alternatives.

Data formatting may include:

- ✧ Append AIM ID/Code ID/custom prefix before the decoded data
- ✧ Append custom suffix after the decoded data
- ✧ Append terminating character to the end of the data

The following formats can be used when editing barcode data:

- ✧ [Code ID] + [Custom Prefix] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]
- ✧ [Custom Prefix] + [Code ID] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]

General Settings

Enable/Disable All Prefix/Suffix

Disable All Prefix/Suffix: Transmit barcode data with no prefix/suffix.

Enable All Prefix/Suffix: Allow user to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.



Enable All Prefix/Suffix



Disable All Prefix/Suffix

Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode and the numeric barcodes representing the hexadecimal values of a desired prefix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters.

Note: A custom prefix cannot exceed 10 characters.



Set Custom Prefix

Example: Set the custom prefix to “ODE”

1. Check the hex values of “ODE” in the ASCII Table. (“ODE”: 4F, 44, 45)
2. Scan the **Set Custom Prefix** barcode.
3. Scan the numeric barcodes “4”, “F”, “4”, “4”, “4” and “5”.
4. Scan the **Save** barcode.

Custom Suffix

Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 10 characters.



Enable Custom Suffix



Disable Custom Suffix

Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode and the numeric barcodes representing the hexadecimal values of a desired suffix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters.

Note: A custom suffix cannot exceed 10 characters.



Set Custom Suffix



Save

Example: Set the custom suffix to “ODE”

1. Check the hex values of “ODE” in the ASCII Table. (“ODE”: 4F, 44, 45)
2. Scan the **Set Custom Suffix** barcode.
3. Scan the numeric barcodes “4”, “F”, “4”, “4”, “4” and “5”.
4. Scan the **Save** barcode.

Terminating Character Suffix

A terminating character can be used to mark the end of data, which means nothing can be added after it.

A terminating character suffix can contain one or two characters.

Enable/Disable Terminating Character Suffix

To enable/disable terminating character suffix, scan the appropriate barcode below.



Enable Terminating Character Suffix



Disable Terminating Character Suffix

Set Terminating Character Suffix

The engine provides a shortcut for setting the terminating character suffix to 0x0D or 0x0D,0x0A by scanning the following barcode.



Terminating Character 0x0D



Terminating Character 0x0D,0x0A



Terminating Character 0x0A

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode and the numeric barcodes representing the hexadecimal value of a desired terminating character and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of terminating characters.

Note: A terminating character suffix cannot exceed 2 characters.



Set Terminating Character Suffix



Save

Example: Set the terminating character suffix to 0x0D

1. Scan the **Set Terminating Character Suffix** barcode.
2. Scan the numeric barcodes “0” and “D”.
3. Scan the **Save** barcode.

Chapter 7 Symbologies

General Settings

Enable/Disable All Symbologies

If the **Disable All Symbologies** feature is enabled, the engine will not be able to read any non-programming barcodes except the programming barcodes.



Enable All Symbologies



Disable All Symbologies

Enable/Disable 1D Symbologies

If the **Disable 1D Symbologies** feature is enabled, the engine will not be able to read any 1D barcodes.



Enable 1D Symbologies



Disable 1D Symbologies

Enable/Disable 2D Symbologies

If the **Disable 2D Symbologies** feature is enabled, the engine will not be able to read any 2D barcodes.



Enable 2D Symbologies



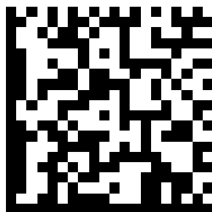
Disable 2D Symbologies

Video Reverse

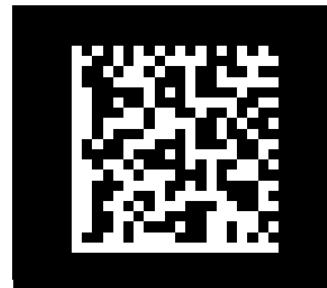
Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

The examples of regular barcode and inverse barcode are shown below.



Regular Barcode



Inverse Barcode

Video Reverse is used to allow the engine to read barcodes that are inverted.

Video Reverse ON: Read both regular barcodes and inverse barcodes.

Video Reverse OFF: Read regular barcodes only.

The engine shows a slight decrease in scanning speed when Video Reverse is ON.



Video Reverse ON



Video Reverse OFF

1D Symbolologies

Code 128

Restore Factory Defaults



Restore the Factory Defaults of Code 128

Enable/Disable Code 128



** Enable Code 128



Disable Code 128

Set Length Range for Code 128



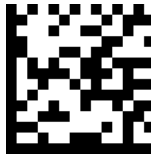
Set the Minimum Length



Set the Maximum Length

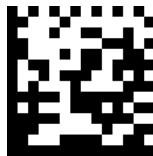
GS1-128 (UCC/EAN-128)

Restore Factory Defaults



Restore the Factory Defaults of GS1-128

Enable/Disable GS1-128



Enable GS1-128



Disable GS1-128

Set Length Range for GS1-128



Set the Minimum Length



Set the Maximum Length

Code-128-Append



Disable Code128 append



Enable Code-128 append



Code128 code page

EAN-8

Restore Factory Defaults



Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8



Enable EAN-8



Disable EAN-8

Transmit Check Digit

EAN-8 is 8 digits in length with the last one as its check digit used to verify the accuracy of the data.



Transmit EAN-8 Check Digit



Don't Transmit EAN-8 Check Digit

Add-On Code

An EAN-8 barcode can be augmented with a two-digit or five-digit add-on code on code on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.



Enable 2-Digit Add-On Code



Disable 2-Digit Add-On Code



Enable 5-Digit Add-On Code

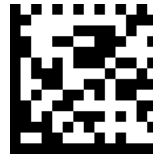


Disable 5-Digit Add-On Code

Add-On Code Required



EAN-8 Add-On Code Required



EAN-8 Add-On Code Not Required

ENA/JAN-8 Addenda Separator

When this feature is enabled, there is a space between the data from the barcode and the Data from the addenda. When this feature is disabled, there is no space.



Enable ENA/JAN-8 Addenda Separator



Disable ENA/JAN-8 Addenda Separator

EAN-13

Restore Factory Defaults



Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13

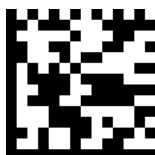


Enable EAN-13



Disable EAN-13

Transmit Check Digit



Transmit EAN-13 Check Digit



Do Not Transmit EAN-13 Check Digit

Add-On Code



Enable 2-Digit Add-On Code



Disable 2-Digit Add-On Code



Enable 5-Digit Add-On Code

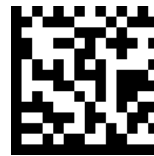


Disable 5-Digit Add-On Code

Add-On Code Required



EAN-8 Add-On Code Required



EAN-8 Add-On Code Not Required

ENA/JAN-8 Addenda Separator

When this feature is enabled, there is a space between the data from the barcode and the Data from the addenda. When this feature is disabled, there is no space.



Enable ENA/JAN-8 Addenda Separator



Disable ENA/JAN-8 Addenda Separator

ISBN

Restore Factory Default



Restore the Factory Defaults of ISBN

Enable/Disable ISBN



Enable ISBN



Disable ISBN

ISBN Translate

When enable this feature and is scanned,ENA13 Bookland symbols are translated into their equivalent ISBN number format.



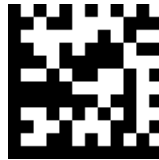
Enable ISBN Translate



Disable ISBN Translate

UPC-E

Restore Factory Defaults



Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E0/E1



Enable UPC-E0



Disable UPC-E0

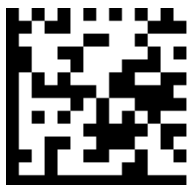


Enable UPC-E1

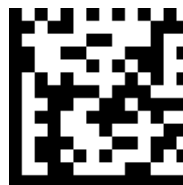


Disable UPC-E1

UPCE0 Check Digit



Enable UPC-E0 Check Digit



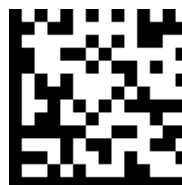
Disable UPC-E0 Check Digit

UPCE0 Expand

UPCE0 expand expands the UPCE code to the 12 digit,UPC-A format.



Enable UPC-E0 Expand



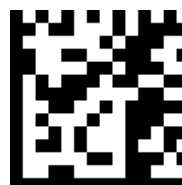
Disable UPC-E0 Expand

UPCE0 Addenda Required

When required is scanned, the scanner will only read UPC-E barcodes that have addenda.



Enable UPC-E0 Required



Disable UPC-E0 Required

UPCE0 Addenda Separator



Enable UPC-E0 Separator



Disable UPC-E0 Separator

UPCE0 Number System

The number system digit of upc. Symbol is normally transmitted at the begging of the scanned data ,but the unit can be programmed so it will not transmit it.



Enable UPC-E0 Number System

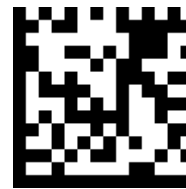


Disable UPC-E0 Number System

UPCE0 Addenda



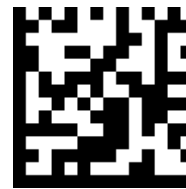
Enable 2 Digit Addenda



Disable 2 Digit Addenda



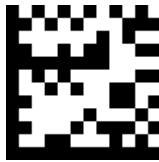
Enable 5 Digit Addenda



Disable 5 Digit Addenda

UPC-A

Restore Factory Defaults



Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A



Enable UPC-A



Disable UPC-A

UPC-A Check Digit



Enable UPC-A Check Digit



Disable UPC-A Check Digit

UPC-A Addenda Required

When required is scanned, the scanner will only read UPC-E barcodes that have addenda.



Enable UPC-A Required



Disable UPC-A Required

UPC-A Addenda Separator



Enable UPC-A Separator



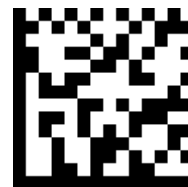
Disable UPC-A Separator

UPC-A Number System

The number system digit of upc. Symbol is normally transmitted at the beginning of the scanned data ,but the unit can be programmed so it will not transmit it.



Enable UPC-A Number System

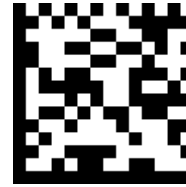


Disable UPC-A Number System

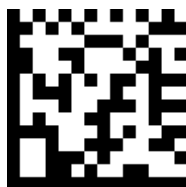
UPC-A Addenda



Enable 2 Digit Addenda



Disable 2 Digit Addenda



Enable 5 Digit Addenda



Disable 5 Digit Addenda

Interleaved 2 of 5

Restore Factory Defaults



Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5



Enable Interleaved 2 of 5



Disable Interleaved 2 of 5

Set Length Range for Interleaved 2 of 5



Set the Minimum Length



Set the Maximum Length

Interleaved 2 of 5 Check Digit



No check Char



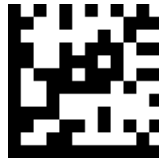
Validate not Transmit



Validate and Transmit

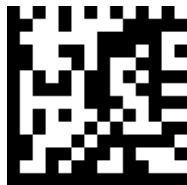
Matrix 2 of 5

Restore Factory Defaults

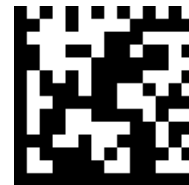


Restore the Factory Defaults of Matrix 2 of 5

Enable/Disable Matrix 2 of 5



Enable Matrix 2 of 5



Disable Matrix 2 of 5

Set Length Range for Matrix 2 of 5



Set the Minimum Length



Set the Maximum Length

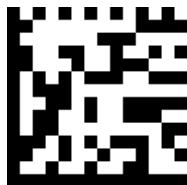
Industrial 2 of 5

Restore Factory Defaults



Restore the Factory Defaults of Industrial 2 of 5

Enable/Disable Industrial 2 of 5



Enable Industrial 2 of 5



Disable Industrial 2 of 5

Set Length Range for Industrial 2 of 5



Set the Minimum Length



Set the Maximum Length

Code 39

Restore Factory Defaults



Restore the Factory Defaults of Code 39

Enable/Disable Code 39



Enable Code 39



Disable Code 39

Transmit Start/Stop Character



Transmit Start/Stop Character

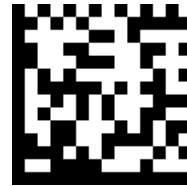


Do not Transmit Start/Stop Character

Code 39 Check Character



No Check Char



Validate and Transmit



Validate no Transmit

Code 39 Append



Enable Append



Disable Append

Code 39 Full ASCII



Enable Code 39 Full ASCII



Disable Code 39 Full ASCII



Code 39 Code page

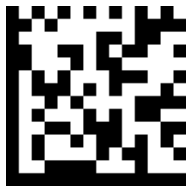
Codabar

Restore Factory Defaults

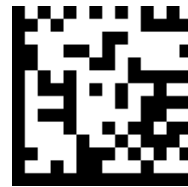


Restore the Factory Defaults of Codabar

Enable/Disable Codabar



Enable Codabar



Disable Codabar

Set Length Range for Codabar



Set the Minimum Length



Set the Maximum Length

Transmit Start/Stop Character



Transmit Start/Stop Character

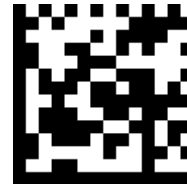


Do not Transmit Start/Stop Character

Codabar check Character



No Check Char



Validate and Transmit



Validate no Transmit

Code 93

Restore Factory Defaults



Restore the Factory Defaults of Code 93

Enable/Disable Code 93



Enable Code 93



Disable Code 93

Set Length Range for Code 93



Set the Minimum Length



Set the Maximum Length

Code 93 Append



Enable Code 93 Append



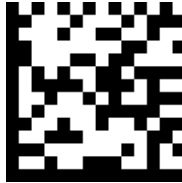
Disable Code 93 Append



Code93 Code page

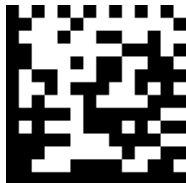
GS1-Databar (RSS)

Restore Factory Defaults



Restore the Factory Defaults of GS1-Databar

Enable/Disable GS1 Databar



Enable GS1-DataBar

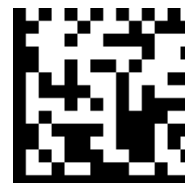


Disable GS1-DataBar

Set Length Range for GS1



Set the Minimum Length



Set the Maximum Length

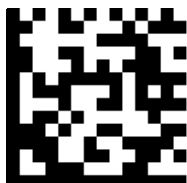
Code 11

Restore Factory Defaults



Restore the Factory Defaults of Code 11

Enable/Disable Code 11



Enable Code 11



Disable Code 11

Set Length Range for Code 11



Set the Minimum Length



Set the Maximum Length

Code 11 Check Digit Required



1 Check Digit



2 Check Digit

Code 32



Enable Code 32



Disable Code 32

MSI

Restore Factory Defaults

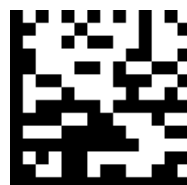


Restore the Factory Defaults of MSI

Enable/Disable MSI



Enable MSI



Disable MSI

Set Length Range for MSI



Set the Minimum Length



Set the Maximum Length

MSI Check Character



ValidateType10Transmit



ValidateType10ThenType11CharTransmit



ValidateType10ThenType11CharNoTransmit



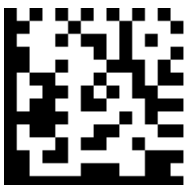
ValidateType10NoTransmit



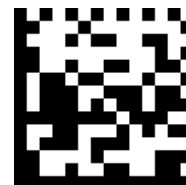
Validate2Type10NoTransmit



Validate2Type10CharTransmit



Validate2Type10CharNoTransmit



DisableMSICheck

2D Symbolologies

PDF 417

Restore Factory Defaults



Restore the Factory Defaults of PDF 417

Enable/Disable PDF 417

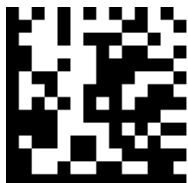


Enable PDF 417



Disable PDF 417

Enable/Disable MacroPDF 417



Enable **MacroPDF 417**



Disable **MacroPDF 417**

Set Length Range for PDF 417



Set the Minimum Length



Set the Maximum Length

QR Code

Restore Factory Defaults



Restore the Factory Defaults of QR Code

Enable/Disable QR Code



Enable QR Code



Disable QR Code

Set Length Range for QR Code



Set the Minimum Length



Set the Maximum Length

QR Code Append

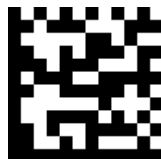


Enable QR code Append



Disable QR code Append

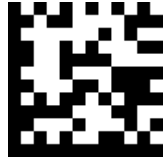
QR Code Page



QR Code Page

Micro QR

Restore Factory Defaults



Restore the Factory Defaults of Micro QR

Enable/Disable QR



Enable Micro QR



Disable Micro QR

Set Length Range for QR



Set the Minimum Length



Set the Maximum Length

Data Matrix

Restore Factory Defaults

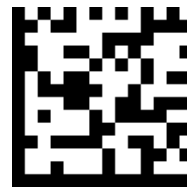


Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix



Enable Data Matrix



Disable Data Matrix

Set Length Range for Data Matrix



Set the Minimum Length



Set the Maximum Length



QR Code Page

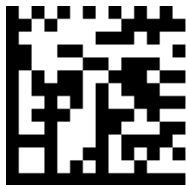
Maxicode

Restore Factory Defaults



Restore the Factory Defaults of Maxicode

Enable/Disable Maxicode



Enable Maxicode



Disable Maxicode

Set Length Range for Maxicode



Set the Minimum Length



Set the Maximum Length

Aztec

Restore Factory Defaults

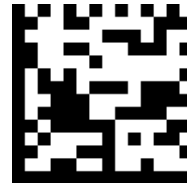


Restore the Factory Defaults of Aztec

Enable/Disable Aztec



Enable Aztec



Disable AZtec

Set Length Range for Aztec



Set the Minimum Length



Set the Maximum Length

Aztec Append



Enable Aztec Append



Disable Aztec Append

Hanxin

Restore Factory Defaults



Restore the Factory Defaults of Hanxin

Enable/Disable Hanxin



Enable Hanxin



Disable Hanxin

Set Length Range for Hanxin



Set the Minimum Length



Set the Maximum Length

Postal Symbolologies

China Postal Code Restore Factory Defaults

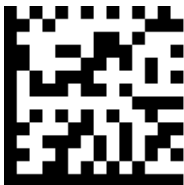


Restore the Factory Defaults of China Postal Code

Enable/Disable China Postal Code



Enable China Postal Code



Disable China Postal Code

Set Length Range for China Postal Code



Set the Minimum Length



Set the Maximum Length

Telepen
Restore Factory Defaults



Restore the Factory Defaults of Telepen

Enable/Disable Telepen



Enable China Telepen



Disable China Telepen

Set Length Range for China Telepen



Set the Minimum Length



Set the Maximum Length

Appendix

Appendix 1: Factory Defaults Table

Parameter		Factory Default	Remark
Programming Barcode			
Barcode Programming		Enable	
Programming Barcode Data		Enable	
Communication Settings			
Interface		USB HID-KBW	Options: TTL-232, USB HID-KBW, USB COM Port Emulation
TTL-232	Baud Rate	115200	
	Parity Check	None	
	Data Bit	8	
	Stop Bit	1	
	Hardware Flow Control	No flow control	
HID-KBW	USB Country Keyboard Type	U.S.	
	Convert Case	No conversion	
Scan Mode			
Scan Mode		Trigger mode	Options: Trigger mode, Sense mode, Continuous mode.
Trigger Mode	Decode Session Timeout	3000ms	Applicable to all three scan modes.
	Trigger Condition	Electric level	
	Auto Sleep	Enabled	
	Time Period from Idle to Sleep	500ms	
Sense Mode	Decode Session Timeout	3000ms	Applicable to all three scan modes.
	Image Stabilization Timeout	500ms	
	Operation after Good Decode	Pause after good decode	
	Timeout between Decodes (Same Barcode)	Disabled	
		1500ms	
	Threshold Value of Illumination Change	2	

Parameter		Factory Default	Remark
Illumination & Aiming			
Illumination		Normal	
Aiming		Normal	
Beep & LED Indications			
Startup Beep		Enabled	
Beep after Good Decode (Non-Programming Barcode)	Notification	Enabled	
	Beep Tone	B 3	
	Beep Volume	Loud	
Beep after Good Decode (Programming Barcode)		Enabled	
LED Notification for Good Decode		Enabled	
NGR (Not Good Read) Message		Do not transmit	
		None	
Data Formatting			
Prefix Sequence		Custom Prefix+Code ID+AIM ID	
Custom Prefix		Disabled	
		None	
AIM ID Prefix		Disabled	
Code ID Prefix		Disabled	
Custom Suffix		Disabled	
		None	
Terminating Character Suffix		Enabled	
		0x0D, 0x0A	Carriage Return /Line Feed

Parameter	Factory Default	Remark
Symbologies		
Video Reverse	Disabled	Applicable to all symbologies.
Code 128		
Code 128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
AIM-128		
AIM-128	Enabled	
Maximum Length	127	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to EAN-13	Disabled	
EAN-13		
EAN-13	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
ISSN		
ISSN	Disabled	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	

Parameter	Factory Default	Remark
ISBN		
ISBN	Enabled	
ISBN Format	ISBN-13	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
UPC-E		
UPC-E	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to UPC-A	Disabled	
System Character "0"	Do not transmit	
UPC-A		
UPC-A	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Preamble Character "0"	Do not transmit	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Parity Check	None	
Check Digit	Do not transmit	
Maximum Length	100	
Minimum Length	6	
ITF-6		
ITF-6	Disabled	
Check Digit	Do not transmit	

Parameter	Factory Default	Remark
ITF-14		
ITF-14	Enabled	
Check Digit	Do not transmit	
Matrix 2 of 5		
Matrix 2 of 5	Disabled	
Parity Check	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Industrial 2 of 5		
Industrial 2 of 5	Enabled	
Parity Check	None	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Standard 2 of 5		
Standard 2 of 5	Enabled	
Parity Check	None	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Code 39		
Code 39	Enabled	
Parity Check	None	
Check Digit	Do not transmit	
Start/Stop Character	Transmit	
Code 39 Full ASCII	Enabled	
Maximum Length	127	
Minimum Length	4	

Parameter	Factory Default	Remark
Codabar		
Codabar	Enabled	
Parity Check	None	
Check Digit	Do not transmit	
Start/Stop Character	Do not transmit	
Start/Stop Character Format	ABCD/ABCD	
Maximum Length	127	
Minimum Length	1	
Code 93		
Code 93	Enabled	
Parity Check	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	3	
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
Code 11		
Code 11	Enabled	
Parity Check	One check digit, MOD11	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	2	
Plessey		
Plessey	Enabled	
Parity Check	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	1	

Parameter	Factory Default	Remark
MSI-Plessey		
MSI-Plessey	Enabled	
Parity Check	One check digit, MOD10	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	2	
PDF 417		
PDF 417	Enabled	
Maximum Length	2710	
Minimum Length	1	
QR Code		
QR Code	Enabled	
Micro QR	Enabled	
Maximum Length	7089	
Minimum Length	1	
Data Matrix		
Data Matrix	Enabled	
Rectangular Barcode	Enabled	
Mirror Image	Decode	
Maximum Length	3116	
Minimum Length	1	

Appendix 2: AIM ID Table

Symbology	AIM ID	Remark
EAN-13	JE0	Standard EAN-13
	JE3	EAN-13 + 2/5-Digit Add-On Code
EAN-8	JE4	Standard EAN-8
	JE4...JE1...	EAN-8 + 2-Digit Add-On Code
	JE4...JE2...	EAN-8 + 5-Digit Add-On Code
UPC-E	JE0	Standard UPC-E
	JE3	UPC-E + 2/5-Digit Add-On Code
UPC-A	JE0	Standard UPC-A
	JE3	UPC-A + 2/5-Digit Add-On Code
Code 128	JC0	Standard Code 128
GS1-128 (UCC/EAN-128)	JC1	FNC1 is the character right after the start character
AIM-128	JC2	FNC1 is the 2nd character after the start character
ISBT-128	JC4	
Interleaved 2 of 5	Jl0	No parity check
	Jl1	Transmit check digit after parity check
	Jl3	Do not transmit check digit after parity check
ITF-6	Jl1	Transmit check digit
	Jl3	Do not transmit check digit
ITF-14	Jl1	Transmit check digit
	Jl3	Do not transmit check digit
Industrial 2 of 5	JS0	Not specified
Standard 2 of 5	JR0	No parity check
	JR8	One check digit, MOD10; do not transmit check digit
	JR9	One check digit, MOD10; transmit check digit
Code 39	JA0	Transmit barcodes as is; Full ASCII disabled; no parity check
	JA1	One check digit, MOD43; transmit check digit
	JA3	One check digit, MOD43; do not transmit check digit
	JA4	Full ASCII enabled; no parity check
	JA5	Full ASCII enabled; transmit check digit
	JA7	Full ASCII enabled; do not transmit check digit
Codabar	JF0	Standard Codabar
	JF2	Transmit check digit after parity check
	JF4	Do not transmit check digit after parity check

Symbology	AIM ID	Remark
Code 93	]G0	Standard Code 93
Code 11	]H0	One check digit MOD11; transmit check digit
	]H1	Two check digits, MOD11/MOD11; transmit check digit
	]H3	Do not transmit check digit after parity check
	]H9	No parity check
GS1-DataBar (RSS)	]e0	Standard GS1-DataBar
Plessey	]P0	Standard Plessey
MSI-Plessey	]M0	One check digit, MOD10; transmit check digit
	]M1	One check digit, MOD10; do not transmit check digit
	]M8	Two check digits
	]M9	No parity check
Matrix 2 of 5	]X0	Specified by the manufacturer
	]X1	No parity check
	]X2	One check digit, MOD10; transmit check digit
	]X3	One check digit, MOD11; do not transmit check digit
ISBN	]X4	Standard ISBN
ISSN	]X5	Standard ISSN
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC000 - ECC140
	]d1	ECC200
	]d2	ECC200, FNC1 is the 1st or 5th character after the start character
	]d3	ECC200, FNC1 is the 2nd or 6th character after the start character
	]d4	ECC200, ECI included
	]d5	ECC200, FNC1 is the 1st or 5th character after the start character, ECI included
	]d6	ECC200, FNC1 is the 2nd or 6th character after the start character, ECI included
QR Code	]Q0	QR1
	]Q1	2005 version, ECI excluded
	]Q2	2005 version, ECI included
	]Q3	QR Code 2005, ECI excluded, FNC1 is the 1st character after the start character
	]Q4	QR Code 2005, ECI included, FNC1 is the 1st character after the start character
	]Q5	QR Code 2005, ECI excluded, FNC1 is the 2nd character after the start character
	]Q6	QR Code 2005, ECI included, FNC1 is the 2nd character after the start character

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier

Identifiers (including Symbology Identifiers).

Appendix 3: Code ID Table

Symbology	Code ID
Code 128	j
GS1-128(UCC/EAN-128)	j
AIM-128	f
EAN-8	d
EAN-13	d
ISSN	n
ISBN	B
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-6	e
ITF-14	e
Matrix 2 of 5	v
Industrial 2 of 5	D
Standard 2 of 5	s
Code 39	b
Codabar	a
Code 93	i
Code 11	H
Plessey	p
MSI-Plessey	m
GS1 Databar	R
PDF417	r
QR Code	Q
Data Matrix	u

Appendix 4: ASCII Table

















Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (Form Feed)
0d	13	CR (Carriage Return)
0e	14	SO (Shift Out)
0f	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (File Separator)
1d	29	GS (Group Separator)

Hex	Dec	Char
1e	30	RS (Request to Send)
1f	31	US (Unit Separator)
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)
23	35	# (Number Sign)
24	36	\$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Right / Closing Parenthesis)
29	41	) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)

Hex	Dec	Char
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93	] (Right / Closing Bracket)

Hex	Dec	Char
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7a	122	z
7b	123	{ (Left/ Opening Brace)
7c	124	| (Vertical Bar)
7d	125	} (Right/Closing Brace)
7e	126	~ (Tilde)
7f	127	DEL (Delete)

Appendix 5: Digit Barcodes

0	1	2	3
			
4	5	6	7
			
8	9	A	B
			
C	D	E	F
			

Appendix 6: Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the **Save** barcode to save the data. If you scan the wrong digit(s), you can either scan the **Cancel** barcode and then start the configuration all over again, or scan the **Delete the prefix and Delete suffix**.

For instance, after reading the barcode with a suffix “0x0D” and a prefix “s”, you scan:

- ✧ **Delete the suffix:** The last digit “0x0D” will be removed.
- ✧ **Delete the prefix:** The first digit “s” will be removed.
- ✧ **Cancel:** The configuration will be cancelled. And the engine is still in the setup mode.



Save



Delete the prefix



Delete the suffix



Cancel