Newland AIDC
Scanning Made Simple

Fixed Mount Smart Scanner

NLS-FM600

User Guide

Disclaimer

Please read through the manual carefully before using the product and operate it according to the manual. It is advised that you should keep this manual for future reference.

Do not disassemble the device or remove the seal label from the device, doing so will void the product warranty provided by Fujian Newland Auto-ID Tech. Co., Ltd.

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Revision History

Version	Description	Date
V1.0.0	Initial release.	Mar 7th, 2025

Table of Contents

Preface

Introduction

This manual provides installation, optics, electrical specifications as well as detailed instructions for setting up and using the NLS-FM600 fixed mount barcode scanner (hereinafter referred to as “the FM600” or “the scanner”).

This guide provides programming instructions for the FM600. Users can configure the FM600 by scanning the programming barcodes included in this manual.

The FM600 has been properly configured for most applications and can be put into use without further configuration. Users may check Appendix: Factory Defaults Table for reference.

Chapter Description

- ✧ *Chapter 1, Getting Started* : Gives a general description of the FM600.
- ✧ *Chapter 2, Installation* : Describes how to install the scanner, including installation information, connector, cable, ESD, and environmental considerations.
- ✧ *Chapter 3, Optics* : Provides parameters for optics and illumination.
- ✧ *Chapter 4 Electrical Specifications* : Includes the electrical characteristics for the scanner and timing sequences.
- ✧ *Chapter 5 External Reference Circuit* : Introduces the external reference circuit of the scanner.
- ✧ *Chapter 6 Auxiliary Tools* : Introduces useful tools you can use to set up the FM600.
- ✧ *Chapter 7 Configuration* : Introduces the use of programming barcodes and product information query.
- ✧ *Chapter 8 Communication Interface* : Describes how to configure RS-232 and USB communication parameters.
- ✧ *Chapter 9, System Settings* : Describes how to configure general parameters of the FM600.
- ✧ *Chapter 10 Symbologies* : Lists all compatible symbologies and describes how to configure the relevant parameters.
- ✧ *Chapter 10, Data Formatter* : Explains how to customize scanned data with the advanced data formatter.
- ✧ *Chapter 11, Prefix & Suffix* : Describes how to use prefix and suffix to customize scanned data.
- ✧ *Chapter 12 Programming Commands* : Introduces how to configure the FM600 by serial commands sent from the

host.

- ✧ *Chapter 13, Batch Programming* : Explains how to integrate a complex programming task into a single barcode.
- ✧ *Chapter 14,* JavaScript Development : This chapter introduces the core operation of JavaScript in the FM600 device.
- ✧ *Appendix* : Provides factory defaults table and a bunch of frequently used programming barcodes.

Explanation of Symbols

- This symbol indicates lists of required steps.

※ This symbol indicates notes of some parameters.

Explanation of Icons

	This icon indicates auxiliary tools that help users to refer to the manual at ease.
	This icon indicates this information requires extra attention from the reader.
	This icon indicates handy tips that can help you use or configure the scanner with ease.
	This icon indicates practical examples that can help you to acquaint yourself with operations.

Chapter 1 Getting Started

Introduction

The NLS-FM600 is a high-end fixed smart scanner designed for medical testing applications. It is primarily integrated into IVD automation instruments in laboratories, hospitals, and testing institutions, supporting visual recognition and high-performance barcode scanning during pre-processing or intermediate processing stages.

Note: This guide provides general instructions for the installation. Fujian Newland Auto-ID Tech. Co., Ltd. recommends an opto-mechanical engineer should conduct an opto-mechanical analysis before design.

Symbologies

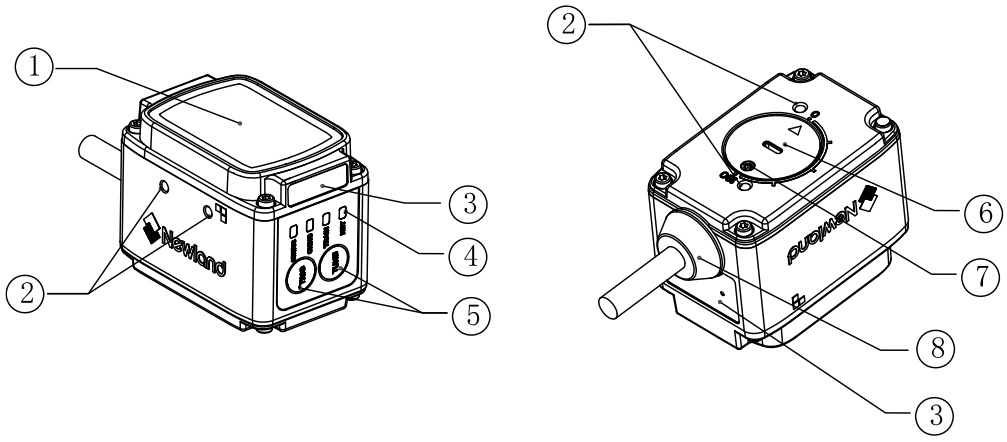
The FM600 can easily read printed barcodes and on-screen barcodes, including:

1D	Code 11, Code 128, Code 39, GS1 128 (UCC/EAN-128), AMI 128, Codabar, ISBT 128, Code 93, UPCA, UPCE, Coupon, GS1 Composite, EAN13, EAN8, ISSN, ISBN, Interleaved 2/5, Matrix 2/5, ITF14, ITF6, Industrial 2/5, Standard 2/5, China Post 25, MSI Plessey, Plessey, GS1 Databar (RSS), Code 49, Code 16K, Pharmacode, etc.
2D	PDF417, QR Code, Data Matrix, Chinese Sensible Code, Micro PDF417, GM Code，Micro QR, Code One, etc.
Postal	USPS Postnet, USPS Intelligent Mail, Royal Mail, USPS Planet, KIX Post, Australian Postal, Japan Post
OCR	Supports letters and numbers in common fonts.

Features

- **Optimized AI Solution**
  The NLS-FM600 is equipped with a high-performance multi-core AI processing platform and advanced AI algorithms for parallel decoding, significantly boosting barcode reading speed and enhancing multi-code recognition capabilities.
- **Superior Scanning Performance**
  Armed with Newland's seven-generation of UIMG® technology, the scan engine can swiftly and effortlessly decode even poor quality barcodes (e.g., low contrast, laminated, damaged, torn, warped or wrinkled).
- **Ultra-Compact Design**
  This miniature smart camera is easily integrated into various devices, making it perfect for space-constrained applications.
- **Multiple Interfaces**
  It provides RS-232, Ethernet and USB interfaces to meet different needs.
- **Advanced OCR Recognition Technology**
  Equipped with self-developed OCR technology, the NLS-FM600 seamlessly recognizes a wide range of English text and numbers, including dates, batch numbers, and phone numbers. It also supports simultaneous recognition of both barcodes and OCR.
- **2.3 Megapixel CMOS**
  Thanks to its 2.3MP resolution CMOS sensor, the NLS-FM600 is able to capture high resolution images and decode barcode over a larger field of view.
- **Adjustable Focus**
  Manually adjust the focus by rotating the knob to achieve the sharpest imaging results, enabling flexible depth-of-field settings.
- **IP65-Sealed Housing**
  The housing is sealed to an IP65 rating, durable and secure.
- **Dual Aimers**
  With two green LED aimers, accurately and automatically focus on the target to take the shot.

Components



① Scan Window ②Mounting Hole ③Label ④LED. ⑤Button ⑥Focus Knob ⑦Focus Lock Screw ⑧Cable

Figure 1-1

Chapter 2 Installation

Introduction

This chapter explains how to install the FM600, including its structure and optical & electrical considerations during the installation process.

Caution: Do not touch the imaging lens when installing or moving the scanner. Be careful not to leave fingerprints on the lens.

Caution: Do not disassemble the product without authorization, as it may cause damage.

Dimensions (unit: mm)

Without cable: 37(W)×55.5(D)×42.5(H) (max.) (without cable)

Mounting

The illustrations below show the mechanical mounting dimensions (unit: mm) for the FM600.

Front View:

Figure 2-1

Side View

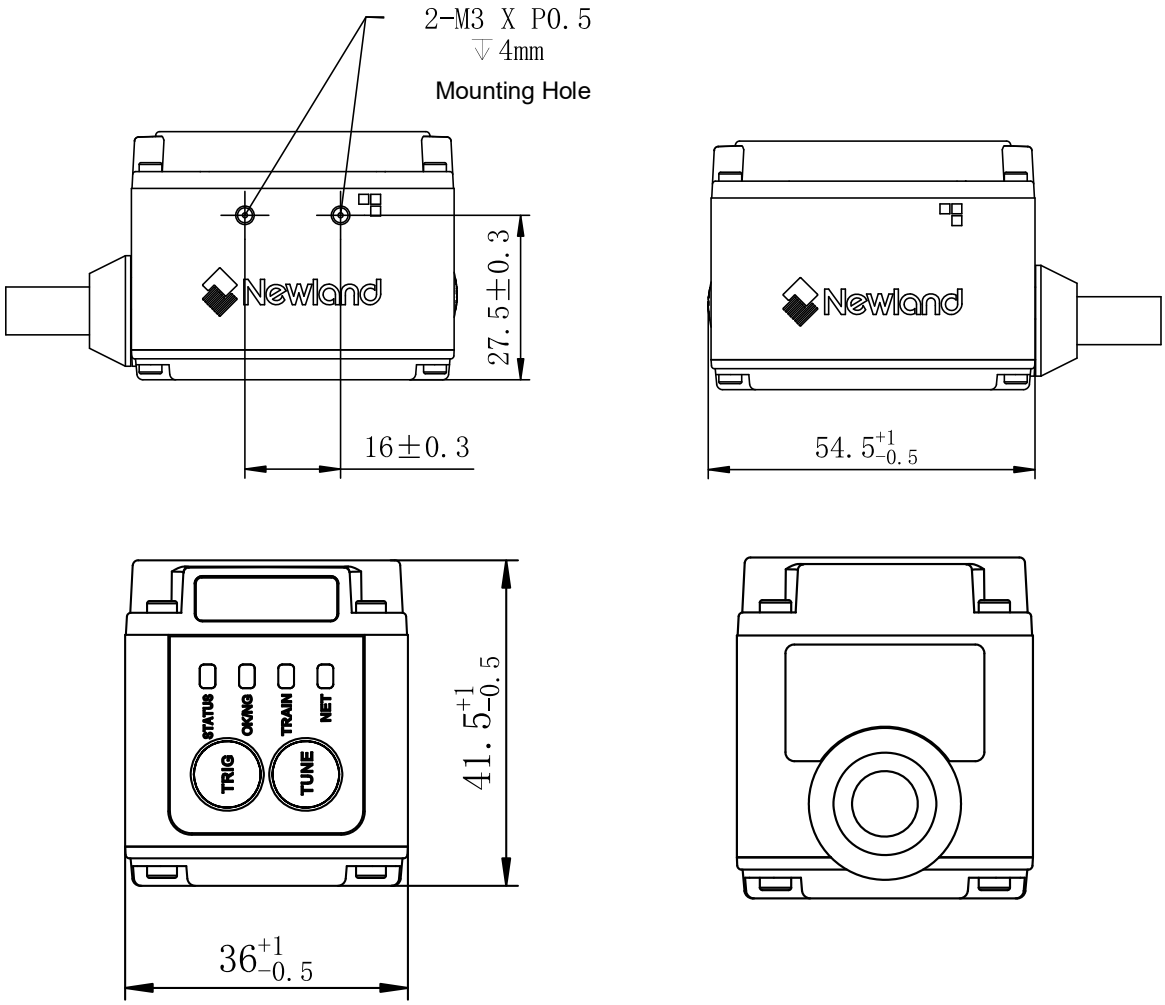


Figure 2-2

Bottom View

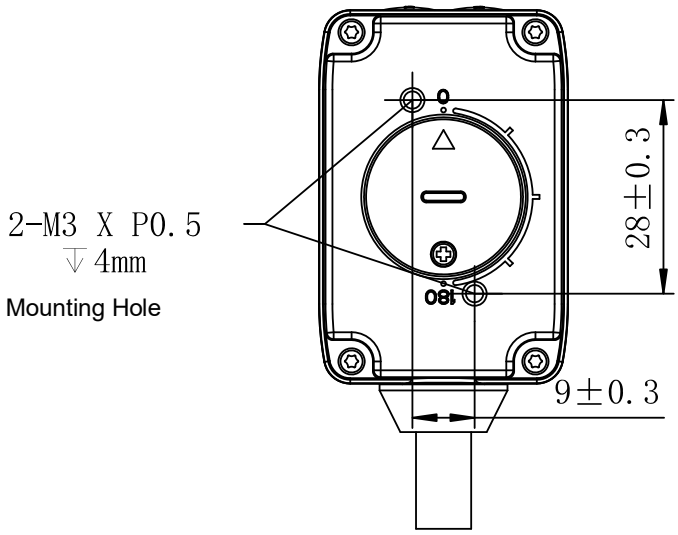
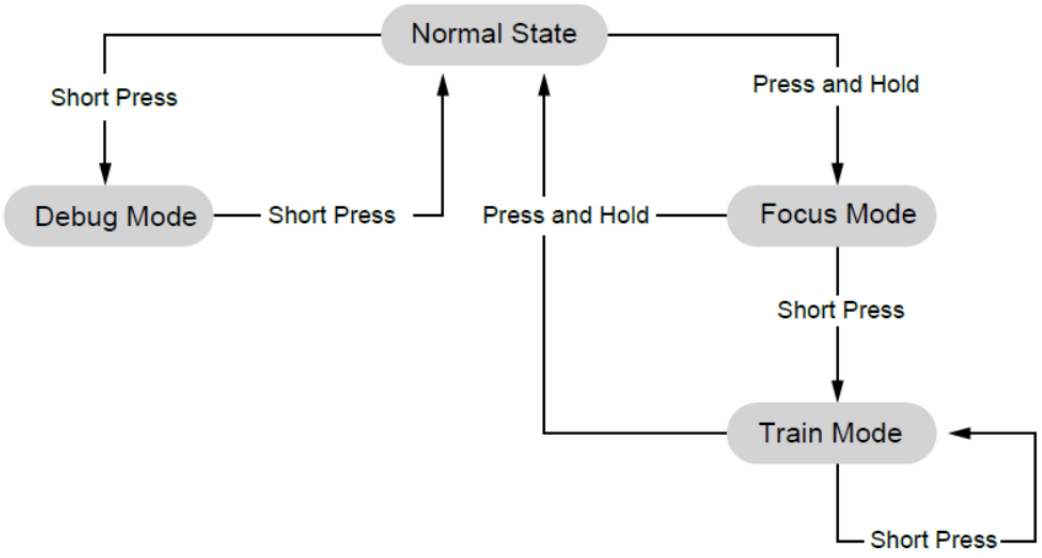


Figure 2-3

Button Functions

TUNE Button Function



Normal State	After the device is successfully powered on, it enters the normal state. In this state, the device can scan barcodes, respond to switch operations, and execute valid commands sent by the host device.	 Normal State
Debug Mode	In the normal state, short press the TUNE button once to enter the debug mode. The STATUS LED will remain solid yellow, and the device will continuously scan and upload the real-time good read rate. Short press the TUNE switch once again to exit the debug mode.	 Debug Mode
Focus Mode	In the normal state, press and hold the TUNE button for about 3 seconds to enter focus mode. The TRAIN LED will remain solid yellow, and the OK/NG LED will remain solid red by default. Rotate the focus knob to adjust the focus. • If focusing fails, the OK/NG LED will remain solid red. • If focusing is successful, the OK/NG LED will remain solid green.	 Focusing Process  Focusing Success

Train Mode	In focus mode, press the TUNE button once to enter train mode. The TRAIN LED will flash yellow, and the illumination led will flash. During the training process, press the TUNE button once to stop training, and press it again to restart the training. • If training is successful, the TRAIN LED will remain solid green, and the device will save the current optical configuration (it will not be lost when powered off). • If training fails or is stopped, the TRAIN LED will remain solid red. Regardless of whether the training is successful or failed, the device will automatically enter a continuous scanning mode and upload the real-time good read rate.	 In Training  Training Success  Training Failed
Note: In both debug mode and train mode, press and hold the TUNE button for 3 seconds at any time will return the device to normal mode.		

TRIG Button Function

Press the TRIG button to start scanning; release the TRIG button to stop scanning.

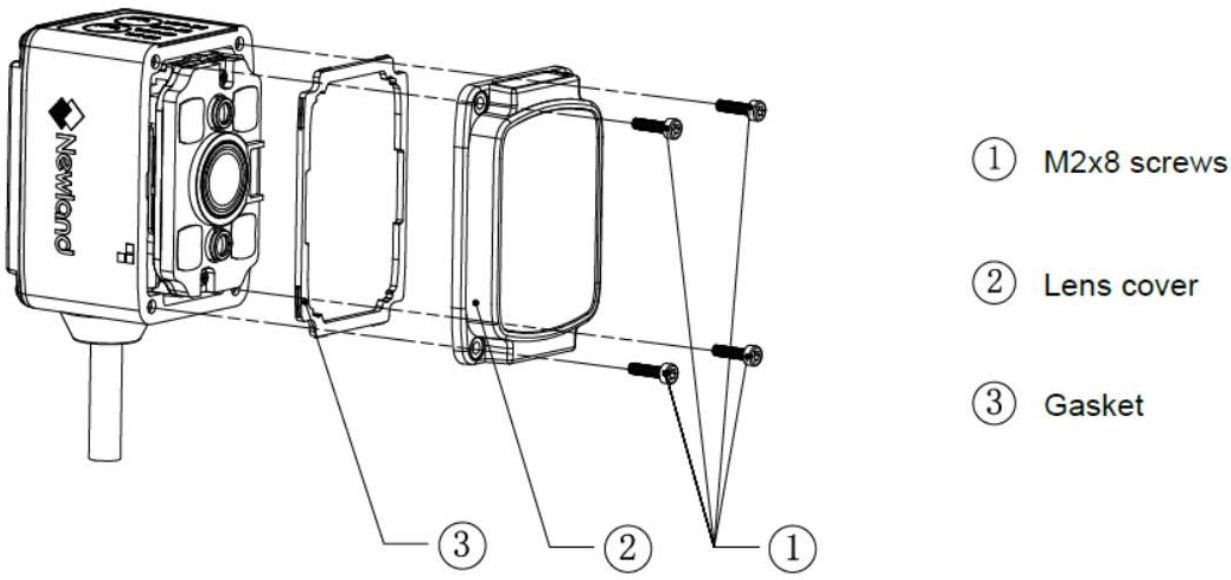
Factory Reset	Press and hold both the TUNE and TRIG buttons while powering on the device. Hold for approximately 5 seconds until all LED indicators turn yellow simultaneously, and the device emits a long beep. Release the buttons, and the device will restart and restore to factory settings.	 Factory Reset

Lens Cover

The device comes with two lens cover accessories by default: one pre-installed (polarizer) and another included in the packaging (high transmittance).If the fill light is not required in the actual usage environment, we recommend using the high transmittance lens cover.

Polarizer cover（default）

High transmittance cover



Lens Cover Replacement

1.Remove the four screws from the lens cover using a T5 screwdriver.

2.Remove the original lens cover and gasket.

3.Inspect the replacement lens cover to ensure it is free from oil, dust, or foreign matter. If necessary, clean with a lint-free cloth or compressed air.

4.Install the gasket onto the lens cover, then attach them to the device.

5.Secure the lens cover with the four provided M2x8 screws, tightening them with a T5 screwdriver. Ensure the tightening torque does not exceed 0.2 N·m.

Note: The replacement process should be performed in a dust-free, dry environment to prevent dust contamination of the imaging system during assembly.

- The Polarizer Lens Cover parameters can be configured by scanning the following barcodes or sending related commands.

@SETUPE1

【Enter Setup】

@BATCHS

【Enable Batch Barcode】

@EXPEMN800;EXPEMX800;ILLSCN1;EXPLUM80;

@SETUPE0

【Exit Setup】

- The High Transmittance Lens Cover parameters can be configured by scanning the following barcodes or sending related commands.

@SETUPE1

【Enter Setup】

@BATCHS

【Enable Batch Barcode】

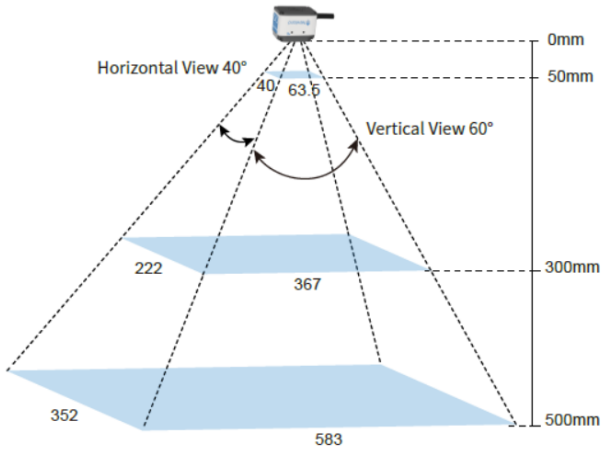
@EXPEMX30000;EXPEMN2000;ILLSCN0;EXPLUM40;

@SETUPE0

【Exit Setup】

Focus Adjust

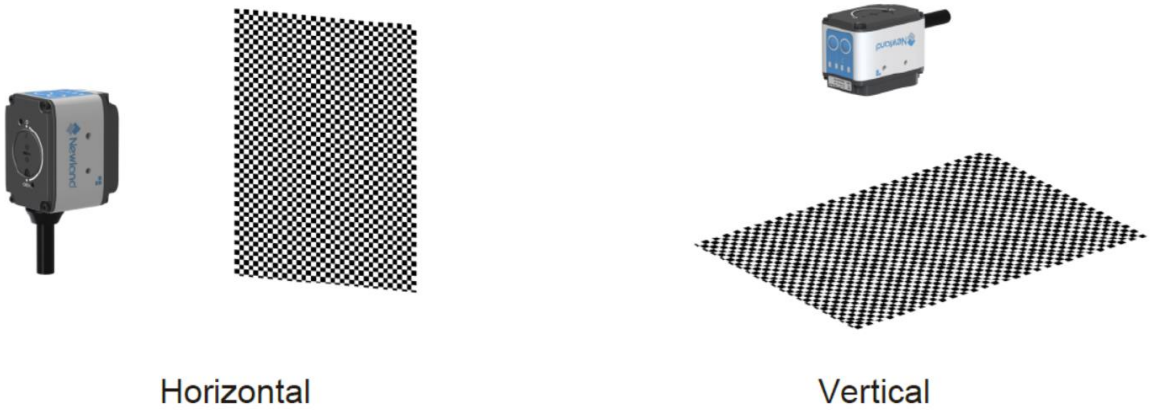
Scan View



Focus Adjustment

1. Position the Device and Calibration Grid

Place the calibration grid at the target distance in front of the device, ensuring that the distance falls within the nearest and farthest range indicated in the device's field of view. The device should be aligned with the center of the calibration grid.



Note: During the focusing process, both the device and the calibration grid must remain stationary. Any movement may affect focusing accuracy and could lead to focusing failure.

2. Entering Focus Mode

The device can be entered into focus mode using any of the following methods:

- Press and hold the "TUNE" button.
- Scan the focus setup barcode.
- Use the configuration utility.

3. Loosen the Focus Lock Screw

	Use a Phillips screwdriver (PH0) to turn the focus lock screw counterclockwise. ! Note: Do not loosen the screw excessively to avoid it falling out.

4. Rotate the Focus Knob to 180

	Use a flathead screwdriver (SL4.0) to slowly turn the focus knob clockwise until the arrow on the knob points to 180.

5. Rotate the Focus Knob and Monitor the Indicator Light

	Using a flathead screwdriver (SL4.0), slowly rotate the focus knob counterclockwise. Monitor the OK/NG LED indicator: • Focusing Success: Green LED is solid on. • Focusing Failed: If the arrow reaches 0 and the OK/NG LED indicator remains red, the focus has failed. Press and hold the "TUNE" switch for 3 seconds to exit focus mode, then repeat steps 1 to 5.

6. Tighten the Focus Lock Screw

	Use a Phillips screwdriver (PH0) to turn the focus lock screw clockwise to tighten it.

7. Exit Focus Mode

   Press and hold the "TUNE" button, scan the exit setup barcode, or use the Nset app to exit focus mode.

External Interface

The FM600 features a four-way external cable, providing RS-232, USB, and 10/100 Mbps Ethernet interfaces for host communication and power supply. External connections include DuPont connectors, USB-A ports, Ethernet RJ45 connectors, and a DC power input. Refer to Table 4-1 for the pin definitions of the DuPont connector wiring sequence.

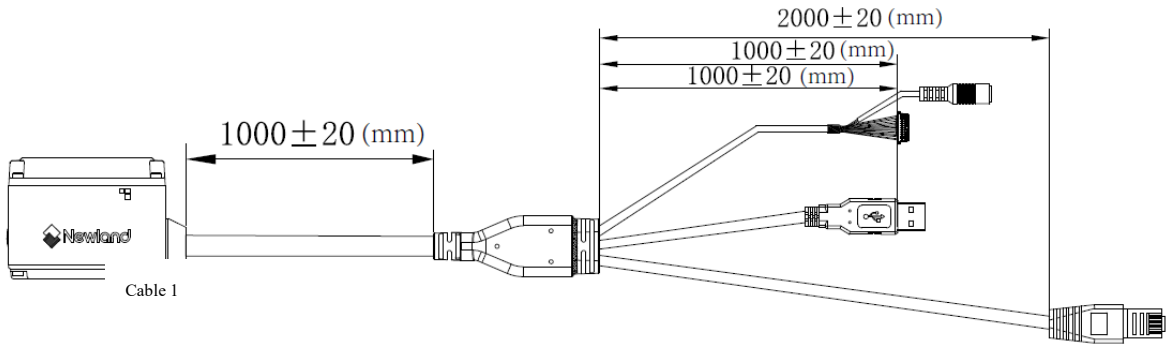
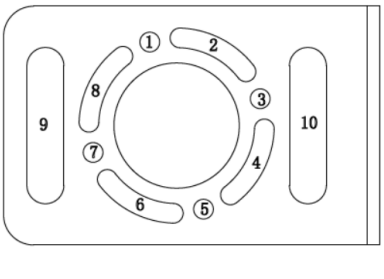
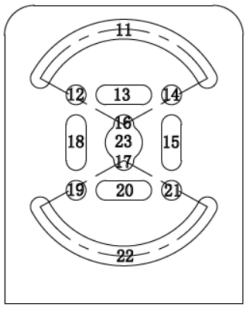


Figure 2-5

Bracket

L-shaped Bracket



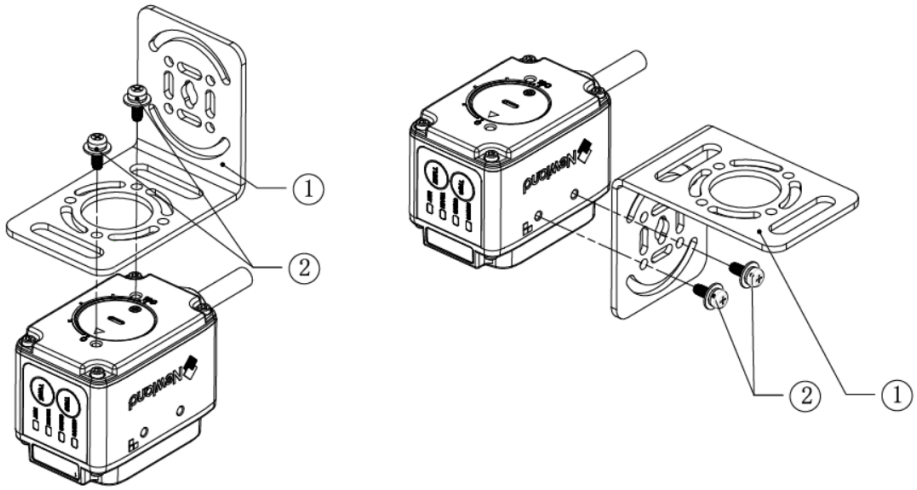


Screws for L-shaped Bracket Installation	
1-8 11-22	M3
9、10、23	M6

Bracket Installation

1.Attach the L-shaped bracket to the device using the four provided M3x8 screws, and tighten them with a PH1 screwdriver. The tightening torque should not exceed 0.4 N·m.

2.The mounting hole locations shown above are for reference only. Please choose the appropriate holes on the bracket to install the device according to your needs.



① L-shaped bracket ② M3x8 screws

ESD

The FM600 incorporates ESD protection rated for ±8 kV contact discharge and ±14 kV air discharge. During unpacking and operation, ESD control measures must be applied, including the use of grounded wrist straps and properly grounded work surfaces. Due to the module's compact design, clients are required to enhance ESD protection in their application environments.

Precaution

1.Use only the power supply defined in the FM600 datasheet. Otherwise, there is a risk of damage to the device.

2.Keep the cables away from high-tension cables or power sources. Otherwise, noise could cause malfunctions or accidents.

3.Be sure to turn the power off to devices attached to the FM600 when you plug or unplug the cables. Failure to do so may cause damage to the FM600.

4.Do not turn off the power during an upgrade, as this may cause internal data corruption.

5.Do not disassemble or modify the FM600. Doing so may lead to damage on the unit.

6.The FM600 is a precision instrument. Do not apply shock to the instrument or drop it. Be especially careful when

transporting or installing the unit

7.Do not allow water, oil, dust, or other foreign substances to stick to the scanner. This may cause read errors.

8.Use a soft, dry cloth or a cloth dipped in alcohol to wipe any substances from the scanner.

Thermal Considerations

Electronic components in the FM600 will generate heat during the course of their operation. Operating the FM600 in continuous mode for an extended period may cause temperatures to rise on CPU, LEDs, DC-DC, etc. Overheating can degrade image quality and affect scanning performance. Given that, the following precautions should be taken into consideration when integrating the FM600.

- ✧ Reserve sufficient space for good air circulation in the design.
- ✧ Avoid wrapping the FM600 with thermal insulation materials such as rubber.
- ✧ Use high thermal conductivity insulating materials to transfer heat from the high-power components on the FM600 to the device shell or heat dissipation material.

Ambient Environment

The following environmental requirements should be met to ensure good performance of the FM600.

Table 2-1

Operating Temperature	-10°C to 45°C (14°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	5%~95% (non-condensing)
Ambient Light	0-100000lux

Note:
Operating Temperature: Scan Mode=Level Trigger Mode, Reading Interval= 5s

Chapter 3 Optics

Introduction

The FM600 contains:

- a CMOS image sensor and its lens
- Four white LEDs based illumination system and one lens.
- two laser aimers

Sensor

Pixel: 1920×1200 Mono CMOS

Frame rate: 60fps

Illumination

The FM600 implements an array-type, fully symmetrical design featuring white LEDs meticulously aligned with the lens's optical parameters. This ensures expansive, uniform, and high-intensity illumination across the entire field of view.

The FM600 has four white LEDs for supplementary lighting, making it possible to scan barcodes even in complete darkness. The illumination can be programmed On or Off. Customers can add the external illumination system if needed. The spectral range should be within the visible light.

Aimer

The FM600 contains two laser aimers that produce aiming spot patterns. The center of dual laser spots should be aligned with the center of the barcode to help the user to easily position the target barcode. The aiming pattern can be turned On or Off. It is recommended to enable the aiming pattern in regular applications.

Laser Aiming Spot

Figure 3-1

LED Indicators

LED Indicators	LED Status	Description
STATUS	LED off	The device is powered off
	Green LED on	The device is powered on and enters the standby state.
	Yellow LED on	The device enters the debug mode
	Yellow LED flashes	Enter focus/ train mode
	Red LED on	It indicates device malfunction
	Red LED flashes	Device lost authorization
OK/NG	Green LED flashes	It indicates a good read.
	Red LED flashes	It indicates a bad read.
TRAIN	LED off	Run with default configuration
	Yellow LED on	The device is in focus mode
	Yellow LED flashes	In training
	Green LED on	Training successful and operating in train mode
	Red LED on	Training failed
NET	LED off	No network connection
	Green LED on	Network connection OK
All four LED indicators turn solid yellow: the device will restore to factory settings.		

Window Size

The window should be positioned properly to let the illumination and aiming beams pass through as much as possible and no reflections back into the scanner (reflections can degrade the reading performance of the scanner).

The window must not block the field of view and should be sized to accommodate the FOV envelope shown below.

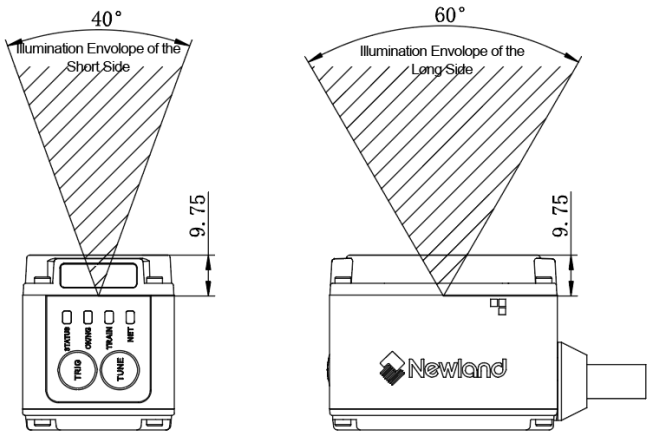


Figure 3-3

Ambient Light

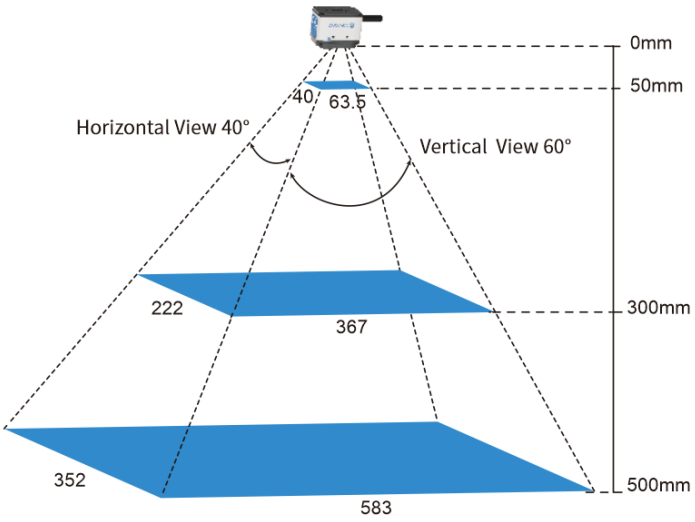
The FM600 shows better performance with ambient light. However, high-frequency pulsed light can result in performance degradation.

Eye Safety

The FM600 uses LEDs to produce illumination beam. The LEDs are bright, but testing has been done to demonstrate that the scanner is safe for its intended application under normal usage conditions. The FM600 complies with IEC 62471:2006 for LED safety. However, the user should avoid looking into the beam.

Depth of Field

Scan View



Reading Accuracy

Barcode Type	Object Distance	Focus	Minimum Density
Code39	50mm	50mm	3.3mil
	240mm	240mm	5mil
	330mm	330mm	6.7mil
	500mm	500mm	10mil
QR	95mm	95mm	5mil
	260mm	260mm	10mil
	400mm	400mm	15mil
	540mm	540mm	20mil

Depth of Field (DOF)

Code 128 (6.63mil)	55-370mm
Code 128 (10mil)	45-520mm
QR Code (10mil)	55-270mm
QR Code (15mil)	30-410mm

Note:

1. The above DOF parameters correspond to the factory default focus setting. Changing the focal length changes the parameters. Can adjust focal length based on the actual usage.

2. The above DOF parameters are for reference only. Different barcodes and installation angles may affect the parameters. Final parameters should be based on actual usage.

3. DOF parameters Test condition: T=23℃; Illumination=300lux using incandescent lamp; sample barcodes made by Newland.

4. The depth of field requirements can be met under both 0 lux and 300 lux lighting conditions.

Chapter 4 Electrical Specifications

Power Supply

Do not power up the FM600 until it is properly connected. Be sure the power is cut off before connecting a cable to or disconnecting a cable from the host interface connector. Hot-plugging could damage the scanner.

Unstable power supply or sharp voltage drops or unreasonably short interval between power-ons may lead to unstable performance of the scanner. Do not resupply the power immediately after cutting it off.

1. When designing, the user should ensure that the input power of FM600 is fully decoupled. It is recommended to place a 22uF and a 100nF X5R or X7R ceramic capacitor beside the power input pin on the connector which is soldered on the board.

2. Ensure that the input power drops below 0.5V before powering the FM600 on again, otherwise it will lead to abnormal function.

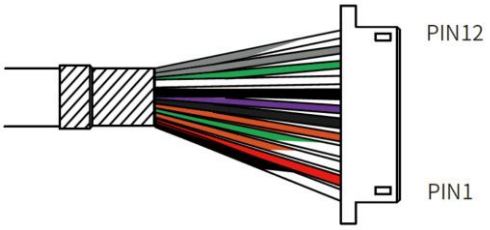
3. In order to ensure reliable operation, it is necessary to use a low-noise power supply. Pay attention to power quality and testing to ensure that the FM600 achieves optimal performance. Therefore, the ripple voltage of the power input to the FM600 module must not exceed VCC*5%.

Operating Requirements

1. Ensure the barcode scanner, data cable, host, and power supply are properly connected and powered on.
2. Place the barcode within the field of view and align it with the scan window. The illumination light will activate, and scanning will begin.
3. Once scanning is successful, the device will transmit the data to the host.

Note: During installation, adjust the scanning area to the position where the image is sharpest.

12-pin Dupont Interface



Male connector model molex510211200, recommended female connector model molex53047-1210.

12-pin Dupont Interface Pinouts

PIN#	Wire Color	Signal	I/O	Description
1	Black-White	COM_G	P	All SW_IN and SW_OUT Pins External Isolated Reference Ground
2	Red	24VDC	P	Power Input
3	Orange-White	SW_IN_1	I	Control Input
4	Green-White	SW_OUT_1	O	Switch Output
5	Orange	SW_IN_0	I	Control Input
6	Black	SW_OUT_0	O	Switch Output
7	Purple	GND	P	Power Supply - Ground
8	Black (Shield)	FE/Shield	–	Power Supply - Ground
9	White	RS232 RXD	I	Serial Input
10	Green	RS232 TXD	O	Serial Output
11	Gray	NC	–	Reserved
12	Gray-White	NC	–	Reserved

Table 4-1

※ I = Input; O = Output;

※ 1 The SW IN pin is used as trigger signal. A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger.

For the external switching input circuit, please see the “Switching Input Circuit” section in Chapter 5.

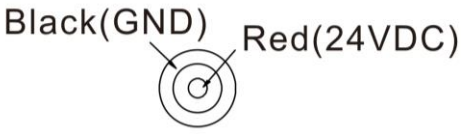
For more details, please see the “Switching Input Signal” section in Chapter 9.

※ 2 The SW OUT pin is reserved as external switching output signal. If this pin is not used, leave it unconnected. It produces high level (duration: 400ms) after a barcode is decoded.

For the external switching output circuit, please see the “Switching Output Circuit” section in Chapter 5.

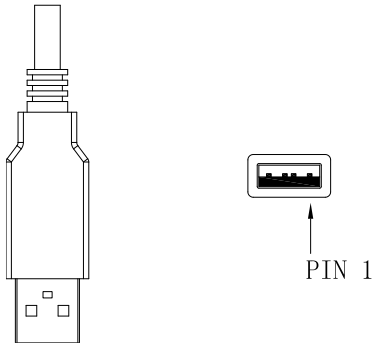
For more details, please see the “Switching Output Signal” section in Chapter 9.

DC Interface



DC Jack: 5.5*2.1*17.5mm

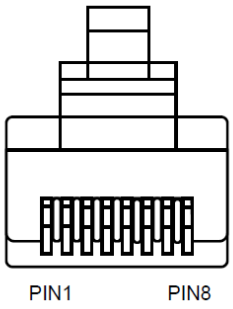
USB Interface



PIN#	Signal	Type	Description
1	--	--	--
2	USB_D-	A	Differential Data Signal for the USB interface
3	USB_D+	A	(supports USB 1.1/USB 2.0, software configurable)
4	GND	P	Ground

To ensure stable data transfer, please use host device with USB 3.0 interfaces when transmitting USB data

RJ45 Interface



RJ45 Interface Pinouts

PIN#	Wire Color	Signal	I/O	Description
1	Brown	RJ45_TX+	O	Transmit Data + Signal
2	Brown/White	RJ45_TX-	O	Transmit Data - Signal
3	Blue	RJ45_RX+	I	Receive Data + Signal
4	--	--	--	
5	--	--	--	
6	Blue/White	RJ45_RX-	I	Receive Data - Signal
7	--	--	--	
8	--	--	--	

DC Characteristics

Operating Voltage

Table 4-2

T=25°C

Parameter	Description	Minimum	Typical	Maximum	Unit
VCC	Input Voltage ±5% (12-36V DC)	18※1	24	36	V

※ 1: 12V is only used when the device uses external lighting. When the device uses its own lighting, the input voltage must be ⩾18V and the current ⩾1.5A.

Operating Current

Table 4-3

T=25°C

Mode	Typical	Maximum	Unit
Operating Current	466	973	mA
Idle Current	/	87	mA

I/O Voltage

SW_IN Input Signal

Table 4-4

18~36V, GND=0V, T=25°C

Note: The internal series resistance is 2.5K.

Parameter	Description	Minimum	Typical	Maximum	Unit
VIL	input low Voltage	0	0	0.8	V
VIH	input high Voltage	9	24	24	V
I_{in}※	input current	3	/	10	mA

SW_IN Output Signal

Table 4-5

VCC<36V, I<50mA, T=25°C

Parameter	Description	Minimum	Typical	Maximum	Unit
VOL	Output low Voltage	0	0.7	0.8	V
VOH	Output high Voltage	3	VCC	36※1	V
Iout※1	Output current	/	/	50	mA

Note: The output high voltage is determined by the external pull-up voltage, which should not exceed 36V. The device has no internal current-limiting resistor, so a proper pull-up resistor must be designed to ensure the load current is less than 50mA; otherwise, the device may be damaged.

Chapter 5 External Reference Circuit

External Circuit Design

Switch Output Circuit

Figure 5-1 provides an external circuit reference design for the switch output function. This pin currently has no practical function and is only used as a reserved interface for external output. It is primarily used to allow the FM600 to output high and low levels externally. The following reference design can be used in the application: the SW_OUT signal comes from the black and green-white signal wires of the 12-pin Dupont connector. The voltage depends on the specific application scenario, with a maximum voltage of 36V and a maximum current of 50mA.

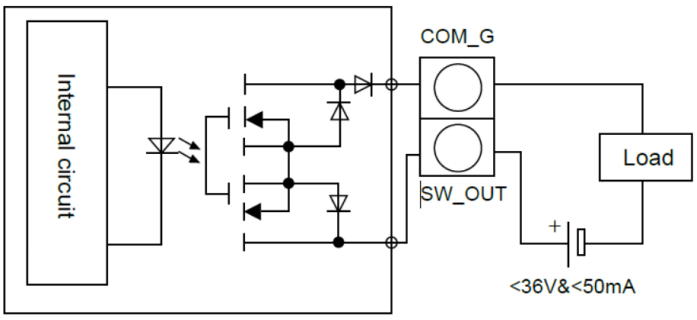


Figure 5-1

Control Input Circuit

Figure 5-2 provides a reference circuit design for the trigger function, which is used to supply a valid control input signal level to the FM600, enabling it to perform the corresponding action. The following reference design can be used in the application: connect the SW_IN signal to the orange or orange-white wire of the 12-pin DuPont connector (Note: A 2.5K resistor is connected in series. Choose an appropriate pull-up resistor based on the power supply to ensure the current meets the required specifications).

The default state of the SW_IN pin is: enable the low level and high level switch input.

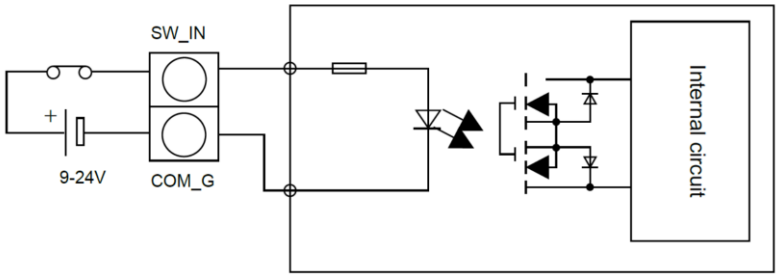


Figure 5-2

Chapter 6 Auxiliary Tools

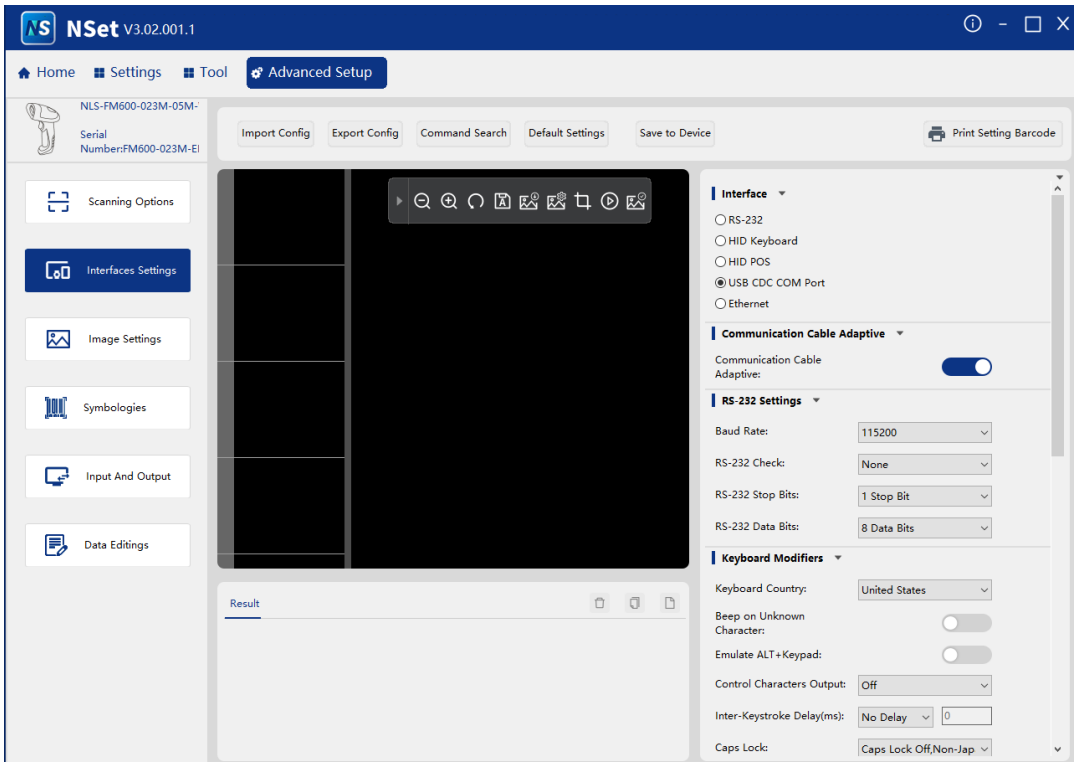
Introduction

The FM600 is equipped with hardware and software auxiliary tools to support rapid application development. These tools serve the dual purpose of meeting the needs for quick evaluation and development, as well as facilitating rapid configuration and deployment for specific applications.

NSet

The NSet Setup Tool is a user interface client application developed by Fujian Newland Auto-ID Tech. Co., Ltd. It simplifies the initial setup and parameter adjustments of the scanners you use. The NSet serves as a common platform across all models. It is installed on and runs on Windows-based PCs (usually laptops), and connections are made through various interfaces. Its main features include:

- Online device management: Obtain device information, set parameters, and interact with devices.
- Configuration barcode generation: Can be printed or saved to PDF or Word documents.
- Device imaging: View real-time images and save them.
- Real-time device status monitoring: Keep track of the status of online devices.
- Command-based interaction: Communicate with devices using specific commands.
- XML configuration file modification: Add new commands or delete existing ones.



UFCOM

UFCOM, developed by Fujian Newland Auto-ID Tech. Co., Ltd., is a virtual serial driver. It is used in conjunction with a USB scanner or a scan engine configured as virtual serial port to provide two-way communication between the device and the host. UFCOM can run on all versions of Windows XP ~ Windows 10 x86 & x64, including the contemporary versions of Windows Server. Users can download the driver from the website at: http://down.nlscan.com:82/Release/UFCOM/.

Chapter 7 Configuration

Introduction

There are three ways to configure the FM600: Barcode programming, command programming and NSet programming.

Barcode Programming

The FM600 can be configured by scanning programming barcodes. All user programmable features/options are described along with their programming barcodes/commands in the following sections.

This programming method is most straightforward. However, it requires manually scanning barcodes. As a result, errors are more likely to occur.

Command Programming

The FM600 can also be configured by serial commands sent from the host device.

Users can design an application program to send those command strings to the scanners to perform device configuration.

NSet Programming

Besides the two methods mentioned above, you can conveniently perform scanner configuration through NSet too. NSet is a Windows-based configuration tool particularly designed for Newland products, enabling users to gain access to decoded data and captured images and to configure scanners.

Note: Some temporary settings will be lost upon device restart or power loss. All other configuration are saved in the scanner and will not be affected by shutdown.

Programming Barcode/ Programming Command/Function

The figure above is an example that shows you the programming barcode and command for the Enter Setup function:

1. The **No Case Conversion** barcode.
2. The **No Case Conversion** command.
3. The description of feature/option.

Use of Programming Barcodes

Scanning the **Enter Setup** barcode can enable the scanner to enter the setup mode. Then you can scan a number of programming barcodes to configure your scanner. To exit the setup mode, scan the **Exit Setup** barcode or a non-programing barcode, or reboot the scanner.

Exit Setup

Enter Setup

Programming barcode data (i.e. the characters under programming barcode) can be transmitted to the host device. Scan the appropriate barcode below to enable or disable the transmission of programming barcode data to the host device.

Do Not Transmit Programming Barcode Data

Transmit Programming Barcode Data

Default Settings

Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults.

You may need to reset all parameters to the factory defaults when:

- ✧ scanner is not properly configured so that it fails to decode barcodes.
- ✧ you forget previous configuration and want to avoid its impact.

Restore All Factory Defaults

Query Product Information

After scanning the barcode below, the product information (including product name, firmware version, decoder version, hardware version, serial number, OEM serial number and manufacturing date) will be sent to the host device.

Query Product Information

Query Product Name

Query Product Name

Query Firmware Version

Query Firmware Version

Query Hardware Version

Query Hardware Version

Query Product Serial Number

Query Product Serial Number

Query Manufacturing Date

Query Manufacturing Date

Query OEM Serial Number

Query OEM Serial Number

Chapter 8 Communication Interface

Introduction

- ✧ Serial communication interface is usually used when connecting the scanner to a host device (like PC, POS). You need to set communication parameters to match the host device.
- ✧ USB HID Keyboard: The scanner's transmission is simulated as USB keyboard input with no need for command configuration or a driver. Barcode data could be entered by the virtual keyboard directly and it is also convenient for the host device to receive data.
- ✧ USB CDC: It is compliant with the standard USB CDC class specifications defined by the USB-IF and allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature. User can download it from: http://www.nlscan.com/supportList.aspx?p=1&type=3&key=uf .
- ✧ HID POS (POS HID Barcode Scanner): It is based on the HID interface, with no need for a custom driver. It excels virtual keyboard and traditional TTL-232 interface in transmission speed.
- ✧ Ethernet: Connects devices to the host via an Ethernet communication interface. When utilizing the Ethernet communication interface, it is imperative that the scanner and the host device are fully matched in terms of communication parameter configuration to ensure smooth and accurate communication.

Adaptive Wired Communication

Disabled: The scanner communicates with the host based on the configured interface settings.

Enabled: The scanner automatically detects the connected cable type (USB or serial) and switches to the corresponding communication mode:

- USB mode when a USB cable is connected.
- Serial (RS-232) mode when a serial cable is connected.
- To enable both USB and serial communication, enable the RS-232 output channel in the output settings.

By default, the scanner supports multi-channel operation. It can still output data even when the configured communication interface (e.g., Ethernet) differs from the actual connection (e.g., USB).

Note: Restart the device for the changes to take effect.

Off

On

When the scanner is connected to the host via both USB and serial (RS-232) interfaces simultaneously:

• If Adaptive Wired Communication is enabled, the scanner will prioritize USB communication over serial due to its higher protocol priority.

• If the configured communication interface is set to Serial (RS-232) but a USB cable is connected, the scanner will automatically switch to USB CDC mode.

RS-232 Interface

Serial communication interface is usually used when connecting the scanner 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.

RS-232

Baud Rate

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

115200

57600

38400

19200

14400

9600

4800

@232BAD1

2400

@232BAD0

1200

Parity Check

Set the parity type to match the host requirements.

Odd Parity: If the data contains an odd number of 1 bits, the parity bit value is set to 0.

Even Parity: If the data contains an even number of 1 bits, the parity bit value is set to 0.

None: Select this option when no parity bit is required.

@232PAR0

None

@232PAR1

Even Parity

@232PAR2

Odd Parity

Data Bit

Set the number of data bits to match the host requirements.

7 Data Bits

8 Data Bits

Stop Bit

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. Set the number of stop bits to match the host requirements.

1 Stop Bit

2 Stop Bits

USB HID Keyboard

When the scanner is connected to the USB port on a host device, you can enable the USB HID Keyboard feature by scanning the barcode below. Then scanner's transmission will be simulated as USB keyboard input. The Host receives keystrokes onthe virtual keyboard. It works on a Plug and Play basis and no driver is required.

@INTERF3

USB HID Keyboard

If the host device allows keyboard input, then no extra software is needed for HID Keyboard input.

USB Country Keyboard Types

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

U.S. (English)

Belgium

Brazil

Canada (French)

Czechoslovakia

Denmark

Finland (Swedish)

France

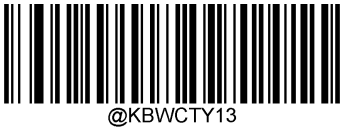
Germany/ Austria

Greece

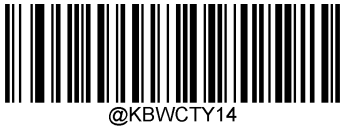
Hungary

Israel (Hebrew)

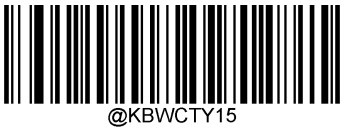
Italy



Latin America/ South America

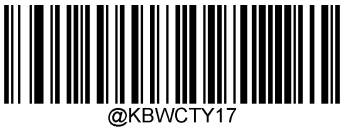


Netherlands (Dutch)



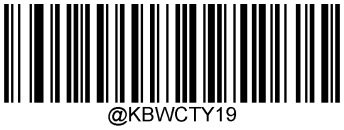
Norway

Poland



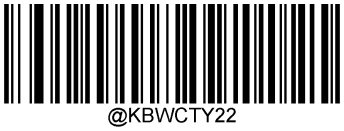
Portugal

Romania



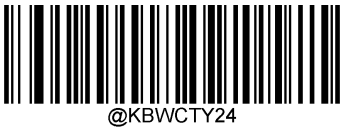
Russia

Slovakia



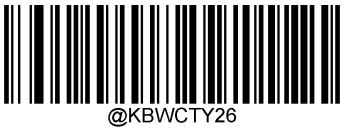
Spain

Sweden



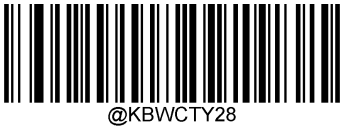
Switzerland (German)

Turkey_F



Turkey_Q

UK



Japan

Vietnam

Beep on Unknown Character

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard. As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.

Do Not Beep on Unknown Character

Beep on Unknown Character

Supposing French keyboard (Country Code: 7) is selected and barcode data ”AĐF” is being dealted with, the keyboard will fail to locate the “Đ” (0xD0) character and the scanner will ignore the character and continue to process the next one.

Do Not Beep on Unknown Character: The scanner does not beep and the Host receives “AF”.

Beep on Unknown Character: The scanner beeps and the Host still receives “AF”.

If **Emulate ALT+Keypad ON** is selected, **Beep on Unknown Character** does not function.

Emulate ALT+Keypad

When **Emulate ALT+Keypad** is turned on, ASCII characters (0x20 - 0xFF) are sent over the numeric keypad no matter which keyboard type is selected.

1. ALT Make
2. Enter the number corresponding to a desired character on the keypad.
3. ALT Break

After **Emulate ALT+Keypad ON** is selected, you need to choose the code page with which the barcodes were created and to turn **Unicode Encoding** On or Off depending on the encoding used by the application software.

Emulate ALT+Keypad OFF

Emulate ALT+Keypad ON

Since sending a character involves multiple keystroke emulations, this method appears less efficient.

Supposing **Emulate ALT+Keypad** is ON, **Unicode Encoding** is Off, **Code Page 1252 (West European Latin)** is selected, and **Emulate Keypad with Leading Zero** is Off, barcode data ”AÐF” (65/208/70) is sent as below:

“A” – “ALT Make” + “065” + “ALT Break”

“Ð” -- “ALT Make” + “208” + “ALT Break”

“F” -- “ALT Make” + “070” + “ALT Break”

Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the barcode being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the barcodes were created by scanning the appropriate barcode below. For PDF417, QR Code and Data Matrix, besides setting the code page, you also need to set the character encoding in the “Character Encoding” section in Chapter 6. This feature is only effective when **Emulate ALT+Keypad** is turned on.

Code Page 1252 (West European Latin)

Code Page 1251 (Cyrillic)

Code Page 1250 (Central and East European Latin)

Code Page 1253 (Greek)

Code Page 1254 (Turkish)

Code Page 1255 (Hebrew)

Code Page 1256 (Arabic)

Code Page 1257 (Baltic)

Code Page 1258 (Vietnamese)

Code Page 936 (Simplified Chinese, GB2312,GBK）

Code Page 950 (Traditional Chinese, Big5)

Code Page 874 (Thai)

Code Page 932 (Japanese, Shift-JIS)

Unicode Encoding

Different host program may use different character encodings for handling incoming barcode data. For instance, Microsoft Office Word uses Unicode encoding and therefore you should turn **Unicode Encoding** on, whereas Microsoft Office Excel or Notepad uses Code Page encoding and therefore you should turn **Unicode Encoding** off. This feature is only effective when **Emulate ALT+Keypad** is turned on.

Off

On

Emulate Keypad with Leading Zero

You may turn this feature on to send character sequences sent over the numeric keypad as ISO characters which have a leading zero. For example, ASCII A transmits as “ALT MAKE” 0065 “ALT BREAK”. This feature is only effective when **Emulate ALT+Keypad** is enabled.

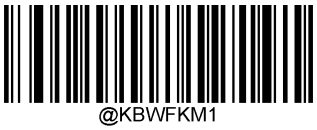
On

Off

Function Key Mapping

When **Ctrl+ASCII Mode** is selected, function characters (0x00 - 0x1F) are sent as ASCII sequences.

Disable



Ctrl+ASCII Mode

Alt+Keypad Mode

If **Ctrl+ASCII Mode** is selected and other parameters of USB HID Keyboard adopt factory defaults, barcode data “A<HT>(i.e. Horizontal Tab)F” (0x41/0x09/0x46) is sent as below:

“A” - Keystroke “A”.

<HT> - “Ctrl Make” + Keystroke “I” + “Ctrl Break”

“F” - Keystroke “F”

For some text editors, “Ctrl I” means italic convert. So the output may be “A*F*”.

If **Alt+Keypad Mode** is selected and other parameters of USB HID Keyboard adopt factory defaults, the data above is sent as below:

“A” - Keystroke “A”.

<HT> - “Alt Make” + Keystrokes “009” + “Alt Break”

“F” - Keystroke “F”

ASCII Function Key Mapping Table

ASCII Function	ASCII Value (HEX)	Function Key Mapping Disabled	Ctrl+ASCII
NUL	00	Null	Ctrl+@
SOH	01	Keypad Enter	Ctrl+A
STX	02	Caps Lock	Ctrl+B
ETX	03	ALT	Ctrl+C
EOT	04	Null	Ctrl+D
ENQ	05	CTRL	Ctrl+E
ACK	06	Null	Ctrl+F
BEL	07	Enter	Ctrl+G
BS	08	Left Arrow	Ctrl+H
HT	09	Horizontal Tab	Ctrl+I
LF	0A	Down Arrow	Ctrl+J
VT	0B	Vertical Tab	Ctrl+K
FF	0C	Delete	Ctrl+L
CR	0D	Enter	Ctrl+M
SO	0E	Insert	Ctrl+N
SI	0F	Esc	Ctrl+O
DLE	10	F11	Ctrl+P
DC1	11	Home	Ctrl+Q
DC2	12	Print Screen	Ctrl+R
DC3	13	Backspace	Ctrl+S
DC4	14	tab+shift	Ctrl+T
NAK	15	F12	Ctrl+U
SYN	16	F1	Ctrl+V
ETB	17	F2	Ctrl+W
CAN	18	F3	Ctrl+X
EM	19	F4	Ctrl+Y
SUB	1A	F5	Ctrl+Z
ESC	1B	F6	Ctrl+[
FS	1C	F7	Ctrl+\
GS	1D	F8	Ctrl+]
RS	1E	F9	Ctrl+6
US	1F	F10	Ctrl+-

ASCII Function Key Mapping Table (Continued)

The last five characters (0x1B~0x1F) in the table above apply to US keyboard layout only. The following chart provides the equivalents of these five characters for other countries.

Country	Ctrl+ASCII					
United States	Ctrl+[	Ctrl+\	Ctrl+]	Ctrl+6	Ctrl+-	
Belgium	Ctrl+[	Ctrl+<	Ctrl+]	Ctrl+6	Ctrl+-	
Scandinavia	Ctrl+8	Ctrl+<	Ctrl+9	Ctrl+6	Ctrl+-	
France	Ctrl+^	Ctrl+8	Ctrl+$	Ctrl+6	Ctrl+=	
Germany		Ctrl+Ã	Ctrl++	Ctrl+6	Ctrl+-	
Italy		Ctrl+\	Ctrl++	Ctrl+6	Ctrl+-	
Switzerland		Ctrl+<	Ctrl+..	Ctrl+6	Ctrl+-	
United Kingdom	Ctrl+[	Ctrl+¢	Ctrl+]	Ctrl+6	Ctrl+-	
Denmark	Ctrl+8	Ctrl+\	Ctrl+9	Ctrl+6	Ctrl+-	
Norway	Ctrl+8	Ctrl+\	Ctrl+9	Ctrl+6	Ctrl+-	
Spain	Ctrl+[	Ctrl+\	Ctrl+]	Ctrl+6	Ctrl+-	

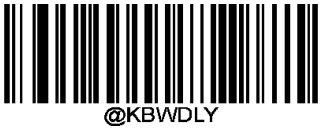
Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.

No Delay

Long Delay (40ms)

Short Delay (20ms)



Custom Delay

Caps Lock

The **Caps Lock On** options can invert upper and lower case characters contained in barcode data. This inversion occurs regardless of the state of Caps Lock key on the host device's keyboard. To disable this feature, scan the appropriate **Caps Lock OFF** barcode below based on your keyboard.

Caps Lock OFF, Non-Japanese Keyboard

Caps Lock ON, Non-Japanese Keyboard

Emulate ALT+Keypad ON/ Convert All to Upper Case/ Convert All to Lower Case prevails over **Caps Lock ON**.

When the **Caps Lock ON** feature is selected, barcode data "AbC" is transmitted as "aBc".

Convert Case

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

No Case Conversion

Convert All to Upper Case

Convert All to Lower Case

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

If **Emulate ALT+Keypad ON** is selected, **Convert All to Lower Case** and **Convert All to Upper Case** do not function.

Emulate Numeric Keypad

Do Not Emulate Numeric Keypad 1: Sending a number (0-9) is emulated as keystroke(s) on main keyboard.

Emulate Numeric Keypad 1: Sending a number (0-9) is emulated as keystroke(s) on numeric keypad. The state of Num Lock on the simulated numeric keypad is determined by its equivalent on the host device. If Num Lock on the host device is turned off, the output of simulated numeric keypad is function key instead of number.

Do Not Emulate Numeric Keypad 2: Sending “+”, “-”, “*” and “/” is emulated as keystroke(s) on main keyboard.

Emulate Numeric Keypad 2: Sending “+”, “-”, “*” and “/” is emulated as keystroke(s) on numeric keypad.

@KBWNUM0

Do Not Emulate Numeric Keypad 1

@KBWNUM1

Emulate Numeric Keypad 1

Do Not Emulate Numeric Keypad 2

Emulate Numeric Keypad 2

Emulate ALT+Keypad ON prevails over **Emulate Numeric Keypad**.

Supposing the **Emulate Numeric Keypad 1** feature is enabled:

if Num Lock on the host device is ON, “A4.5” is transmitted as “A4.5”;

if Num Lock on the host device is OFF, “A4.5” is transmitted as “.A”:

1. “A” is sent on main keyboard;
2. “4” is sent as the function key “Cursor Move to Left”;
3. “.” is sent on main keyboard;
4. “5” is not sent as it does not correspond to any function key.

Fast Mode

When **Fast Mode On** is selected, the scanner sends characters to the Host faster. If the Host drops characters, turn the Fast Mode off or change the polling rate to a bigger value.

Fast Mode Off

Fast Mode On

Polling Rate

This parameter specifies the polling rate for a USB keyboard. If the Host drops characters, change the polling rate to a bigger value.


@KBWPOR0

1ms


@KBWPOR1

2ms


@KBWPOR3

4ms


@KBWPOR7

8ms

USB CDC

If your scanner is connected to the USB port on a host device, the USB CDC feature allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature. You may download it from our website at www.newlandaidc.com.

To ensure stable data transfer, please use host device with USB 3.0 interfaces when transmitting USB data

USB CDC

HID POS (POS HID Barcode Scanner)

Introduction

The HID-POS interface is recommended for new application programs. It can send up to 56 characters in a single USB report and appears more efficient than keyboard emulation.

Features:

- ✧ HID based, no custom driver required.
- ✧ Way more efficient in communication than keyboard emulation and traditional TTL-232 interface.

USB HID-POS

Access the Scanner with Your Program

Use CreateFile to access the scanner as a HID device and then use ReadFile to deliver the scanned data to the application program. Use WriteFile to send data to the scanner.

For detailed information about USB and HID interfaces, go to www.USB.org.

Acquire Scanned Data

After a barcode is decoded, the scanner sends an input report as below:

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x02							
1	Barcode Length							
2-57	Decoded Data (1-56)							
58-61	Reserved							
62	Newland Symbology Identifier or N/C: 0x00							
63	-	-	-	-	-	-	-	Decoded data continued

Send Command to the Scanner

This output report is used to send commands to the scanner. All programming commands can be used.

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x04							
1	Length of command							
2-63	Command (1-62)							

VID/PID

USB uses VID (Vendor ID) and PID (Product ID) to identify and locate a device. The VID is assigned by USB Implementers Forum. Newland's vendor ID is 1EAB (Hex). A range of PIDs are used for each Newland product family. Every PID contains a base number and interface type (keyboard, COM port, etc.).

Product	Interface	PID (Hex)
FM600	USB HID Keyboard	0x4922
	USB CDC	0x4906
	HID POS	0x4910

Ethernet

When the scanner is connected to the host device using a network cable, communication can be conducted via Ethernet. After setting the scanner to Ethernet communication mode, the “NET” LED will indicate the network connection status. For details, please refer to Chapter Three “LED Indicators”.

Set Ethernet Communication

Ethernet IP Settings:

The default configuration of the Ethernet IP is:

IP: 192.168.1.100

Subnet mask: 255.255.255.0

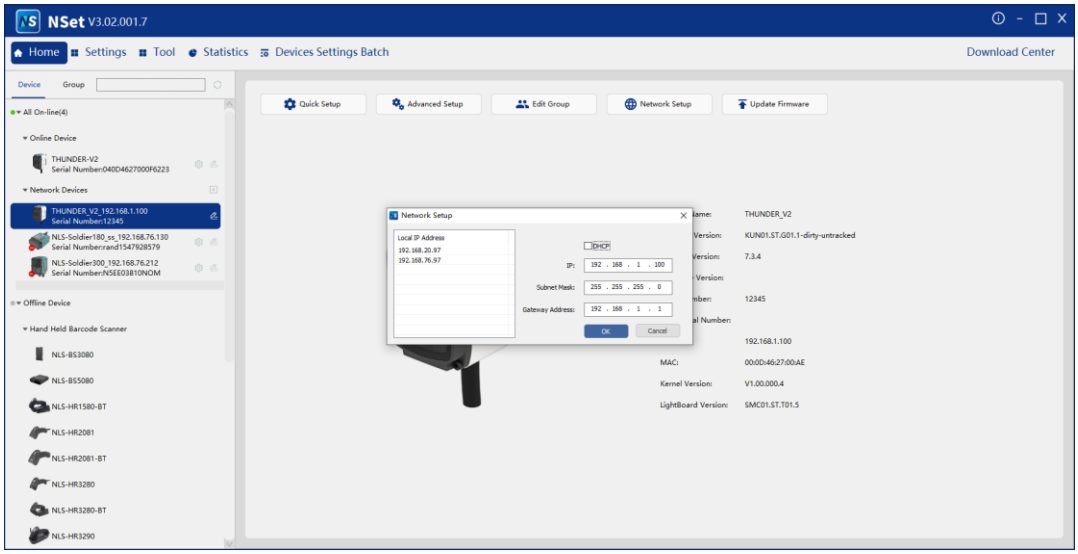
Gateway 192.168.1.1

Ensure that the scanner and host device are on the same network. You can either set a static IP address or enable DHCP (to automatically obtain an IP).

Device IP configuration

First, ensure that the communication interface is set to Ethernet.

Then, in the Nset main interface, click the device that requires an IP configuration, and select “Network Setup” on the right side. A network configuration window will pop up, where you can choose between a static IP or DHCP (automatically obtain an IP address), as shown in the figure below:



Select DHCP, and then click OK to obtain an IP address via DHCP mode. If DHCP is not selected, a static IP will be used. In this case, configure the IP address, subnet mask, and gateway address as shown in the figure above, and then click OK.

Enable DHCP

Disable DHCP

Device Group

Synchronization Mode

In this mode, only the master device within the network can initiate and terminate the scanning process. Slave devices do not have this capability. When the master device is triggered via a button command, it will start decoding and automatically active all slave devices in the network to begin decoding simultaneously. If a slave device is triggered individually, it will not activate the network-wide decoding process.

Other Parameters of Synchronization Mode

After the slave device decodes, it will be sent to the master device immediately.The master device summarizes all the barcodes, as long as the number of networking barcodes meets the “Maximum Barcode Value”, or reaches the “Network Timeout” and the number of networking barcodes is greater than or equal to the “Minimum Barcode Value”, the barcode will be outputed, otherwise “NG” will be outputed.

Decoding Mode in Synchronization Mode

The network's decoding mode can only be set to either “Level Mode” or “Pulse Mode”. The master device configures the modes based on the actual needs. When “Pulse Mode” is required for the network, the master device is set to “Pulse Mode”, while the slave devices are set to "Level Mode" to ensure proper synchronization.

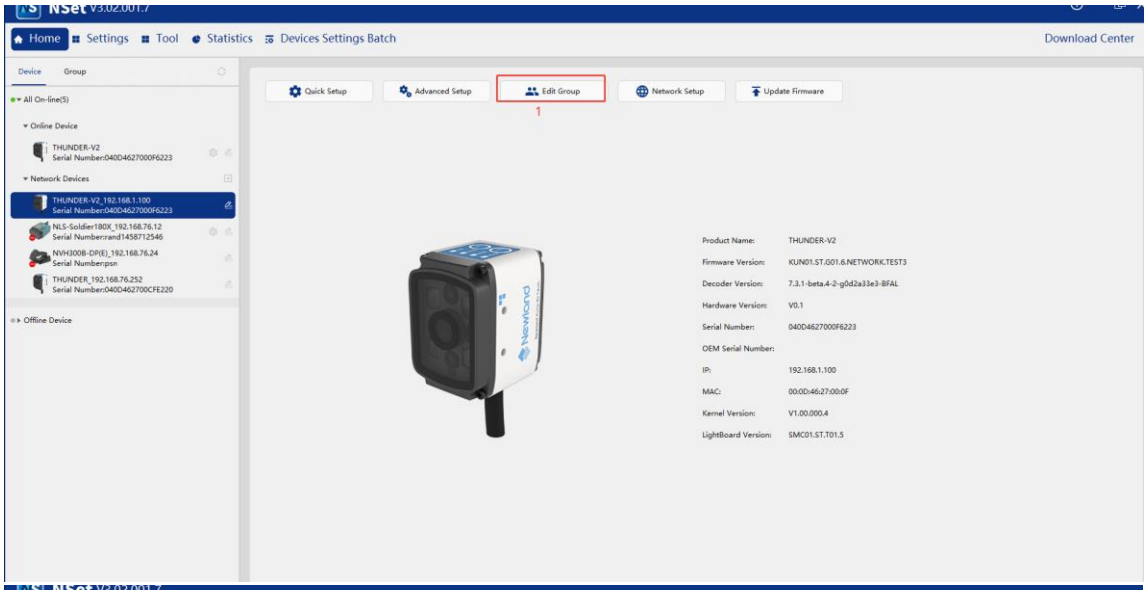
Direct Transmission Mode

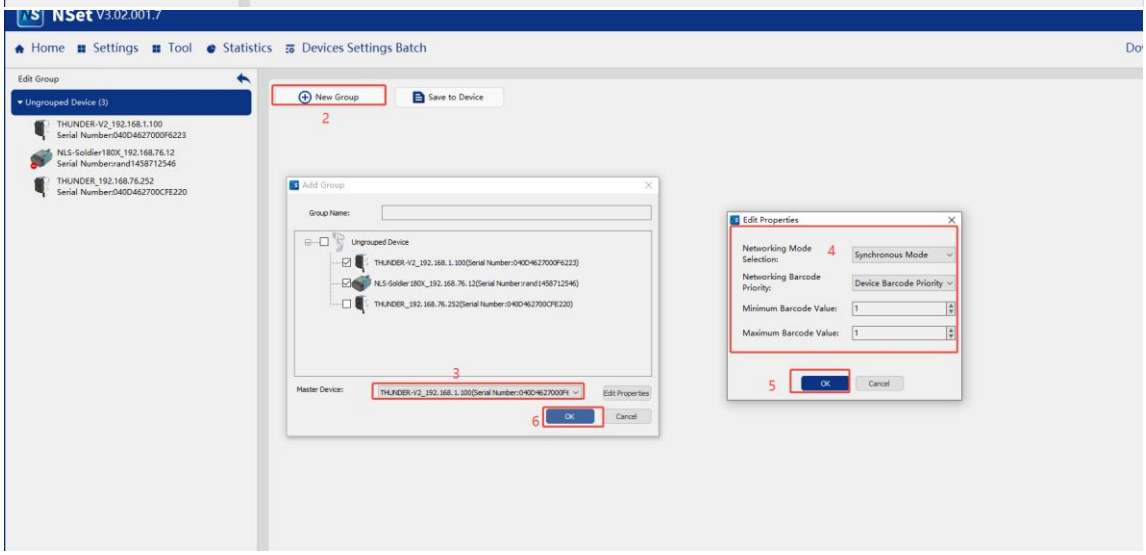
The master device directly outputs the barcode of the slave device without any restrictions.

Configure the “Maximum Barcode Value” and “Minimum Barcode Value” for the master and slave device. As shown in the figure below:

1. Edit group

2. Create new group
3. Select master device
4. Set Master-Slave grouping parameters
5. Confirm Master-Slave grouping parameters
6. Confirm grouping configuration





Barcode output channel

TCP Server: Enables the TCP server function to transmit barcode data to remote TCP clients.

TCP Client: Outputs barcode data to a remote TCP Server via a TCP Client.

****Disable TCP Server Output**

Enable TCP Server Output

Disable TCP Client Output

Enable TCP Client Output

Chapter 9 System Settings

Debug Mode

Hold down TUNE to enter debugging mode, where the decoding success rate can be calculated over a certain period.

During decoding, the output format is as follows:
“100_8126231506712084580 0;8126231525297473388 3;8126231525297545214 2;8126231525297401554 3;8126231525595966025;8126231525297449388 1;8126231514862969458 7;8126231512235528833 5;8126231525297521093 0;8126231524559572753 7”
Here, 100 indicates a decoding success rate of 100%.

Scan Mode

Level Mode: A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger.

Sense Mode: The scanner waits for the image stabilization timeout to expire before activating a decode session everytime it detects a change in ambient illumination. Decode session continues until a barcode is decoded or the decode session timeout expires. In this mode, a trigger pull can also activate a decode session. The decode session continues until a barcode is decoded or the trigger is released. When the session ends, the scanner continues to monitor ambient illumination. Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time. **Sensitivity** can change the Sense Mode’s sensibility to changes in ambient illumination.

Continuous Mode: The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **Reread Timeout** can avoid undesired rereading of same barcode in a given period of time.

Advanced Sense Mode: The scanner activates a decode session every time it detects a barcode presented to it. The decode session will continue after a barcode is decoded. If the undecoded duration reaches decode session timeout, the scanner will enter the sensor mode. When the scanner detects a barcode presented to it, it will start the decode session again. If rereading of same barcode is required, remove the barcode and then show the barcode on the scan window again.

Trigger Hold Multiple: The scanner enters the barcode reading mode when the trigger is held down. It continuously scans and decodes barcodes until the trigger is released or the “One Reading Timeout" duration is reached. The "Reread Delay" can prevent the same barcode from being read multiple times.

Level Mode

Sensor Mode

Continuous Mode

Advanced Mode

Trigger Hold Multiple

Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 1ms to 3,600,000ms. When it is set to 0, the timeout is infinite. This feature is only applicable to the Pulse, Sense and Level modes.

Decode Session Timeout

Set the decode session timeout to 1,500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Decode Session Timeout** barcode.
3. Scan the numeric barcodes “1-, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Enter the Detection/ Reading State (Sense Mode)

Scan appropriate barcodes below to enable the scanner to enter the detection state or reading state after a good read. This feature is only applicable to the Sense mode.

Enter the Detection State: The scanner stops reading after a barcode is decoded or the decode session timeout expires, and then it starts reading the new barcode presented to it after the Image stabilization timeout expires.

Enter the Reading State: The scanner continues reading after a barcode is decoded or the decode session timeout expires.

Enter the Detection State

Enter the Reading State

Image Stabilization Timeout (Sense Mode)

This parameter defines the amount of time the scanner will spend adapting to ambient environment after it decodes a barcode and “looks” for another. It is programmable in 1ms increments from 0ms to 3,000ms.

@SENIST

Image Stabilization Timeout

Set the image stabilization timeout to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Stabilization Timeout** barcode.
3. Scan the numeric barcodes “8”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Trigger Selection (Sense Mode)

Image Change Trigger

Image Change Trigger Sensitivity

This specifies the degree of acuteness of the scanner's response to changes in images captured. There are 20 levels to choose from. The smaller the value, the higher the sensitivity and the lower requirement in image change to trigger the scanner. You can select an appropriate degree of sensitivity that fits your application environment. This feature is only applicable to the Sense mode.

Low Sensitivity

Medium Sensitivity

High Sensitivity

Enhanced Sensitivity

Custom Sensitivity (Level 1-20)

Example

Set the image change trigger sensitivity to Level 10:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Sensitivity** barcode.
3. Scan the numeric barcodes "1" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.

Reread Timeout

Reread Timeout can avoid undesired rereading of same barcode in a given period of time. This feature is only applicable to the Sense and Continuous modes.

To enable/disable the Reread Timeout, scan the appropriate barcode below.

Enable Reread Timeout: Do not allow the scanner to re-read same barcode before the reread timeout expires.

Disable Reread Timeout: Allow the scanner to re-read same barcode.

Enable Reread Timeout

Disable Reread Timeout

The following parameter sets the time interval between two successive reads on same barcode. It is programmable in 1ms increments from 0ms to 3,600,000ms. When it is set to a value greater than 3,000, the timeout for rereading same programming barcode is limited to 3,000ms.

Reread Timeout

Set the reread timeout to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Reread Timeout** barcode.
3. Scan the numeric barcodes “1”, “0”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

You may wish to restart the reread timeout when the scanner encounters the same barcode that was decoded in the last scan session before the reread timeout expires. To enable this feature, scan the **Reread Timeout Reset On** barcode. This feature is only effective when **Reread Timeout** is enabled.

Reread Timeout Reset On

Reread Timeout Reset Off

Good Read Delay

Good Read Delay sets the minimum amount of time before the scanner can read another barcode after a good read. This parameter is programmable in 1ms increments from 1ms to 3,600,000ms. Scan the appropriate barcode below to enable or disable the delay.

Enable Good Read Delay

Disable Good Read Delay

To set the good read delay, scan the barcode below, then set the delay (from 1 to 3,600,000ms) by scanning the digit barcode(s) then scanning the **Save** barcode from the Appendix.

Good Read Delay

Set the good read delay to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Delay** barcode.
3. Scan the numeric barcodes “1”, “0”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Security Level

This parameter sets decoding times that is required to correctly read the barcode. The higher the security level, the lower the decoding error rate, but the slower the speed.

Security Level 1

Security Level 2

Security Level 3

Security Level 4

Decode Area

Whole Area Decoding: The scanner attempts to decode barcode(s) within its field of view, from the center to the periphery, and transmits the barcode that has been first decoded.

Multiple Area Decoding: After enabling multiple area decoding, user can specify several areas on the image. The scanner will only decode barcodes within these specified areas.

Whole Area Decoding

Multiple Area Decoding

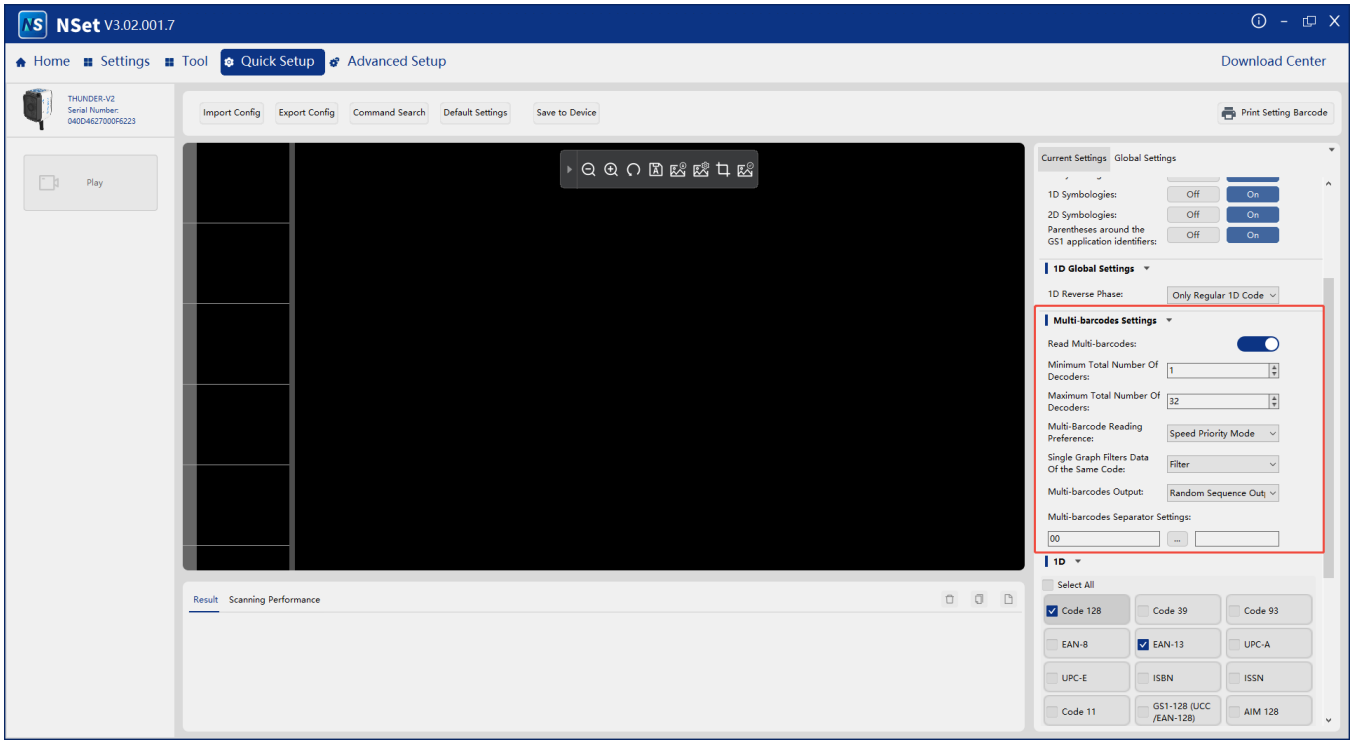
Users can obtain images through NSet and then directly set multiple decoding areas on the image using ROI. Alternatively, multiple areas can be set via commands. The command format is as follows:

CADMRIxxxSyyyIsssLwwwTnnnRmmmB...yyyIsssLwwwTnnnRmmmB

Where CADMRI is the command name, S indicates the number of decoding areas, with support for up to 64 areas. I represents the index number of the decoding area, L denotes the horizontal coordinate of the top-left corner, T denotes the vertical coordinate of the top-left corner, R denotes the horizontal coordinate of the bottom-right corner, and B denotes the vertical coordinate of the bottom-right corner.

Multi-barcodes Settings

The FM600 device features a multi-barcode parameter setting function, allowing users to configure decoding constraints and define output sequences for multiple barcodes.



Minimum & Maximum Total Number of Decoders

The number of decoded outputs is randomly determined within the specified range, from the minimum to the maximum limit. The lower limit is defined by the minimum setup value. For example, if the minimum setup is 2 and the maximum setup is 6, a single decoding operation can output 2-6 random barcodes, with a guaranteed minimum of 2. If the total number of decodable barcodes is less than 2, the output will be NG.

Multi-Barcode Reading Preference

Two modes are available: **Speed Priority** and **Quantity Priority**.

- **Quantity Priority**

1. During the trigger time, if the number of decoded barcodes reaches the maximum output limit, the reading process stops in non-continuous modes (Standard, Burst).
2. If the trigger ends and the number of decoded barcodes meets the minimum output limit, the data is output; otherwise, "NG" is output.

- **Speed Priority**

1. During the trigger time, if the number of decoded barcodes meets the minimum output limit, the reading process stops in non-continuous modes (Standard, Burst).
2. If the trigger ends and the number of decoded barcodes meets the minimum output limit, the data is output; otherwise, "NG" is output. In continuous mode, if the minimum output requirement is never met throughout the entire trigger duration, "NG" is output.

- Examples

Scenario 1: A product has 5 barcodes, but only 1 is required by the customer. The goal is to read as many barcodes as possible while ensuring a smooth reading experience.
Configuration: Speed Priority, Minimum Decoding Value = 1, Maximum Decoding Value = 5

Scenario 2: The number of barcodes on the product varies; some have 2 barcodes, while others have 3. All barcodes present on the item need to be read.
Configuration: Quantity Priority, Minimum Decoding Value = 2, Maximum Decoding Value = 3

Scenario 3: A product has 5 barcodes, and all must be decoded.
Configuration: Quantity Priority / Speed Priority, Minimum Decoding Value = 5, Maximum Decoding Value = 5

Single Graph Filters Data of The Same code

Filter data for the same barcode in the same image.

Multi-barcodes Position

The positional information of multiple barcodes can be obtained through a command.

Example:

Send:

~<SOH>0000@IMGTGT5T0R0F;<ETX>

Response:

<STX><SOH>0000@IMGTGT5T0R0F2N50C80X80D20A90Q6403M33S24P20L303132333435363738 39G0W0H|240W270H|309W395H|446W395H50C80S80D20A90Q6403M33S24P20L313233343536373839 30G320W272H|451W270H|309W395H|446W395H00058200xxxxxxxxxxxx<ACK>;<ETX>

Response Parsing:

The response indicates that two barcodes were decoded.

- First barcode details:

Contrast: 50

Signal-to-noise ratio: 80

Clarity: 80

Damage level: 20

Quality: 90

Decoding time: 6403 μs

Type: QR

PPM: 24

Length: 20

Content: 0123456789 (converted from HEX to string)

Position in image (four coordinates): 0W0H|240W270H|309W395H|446W395H

- Second barcode details:

  Contrast: 50

  Signal-to-noise ratio: 80

  Clarity: 80

  Damage level: 20

  Quality: 90

  Decoding time: 6403 μs

  Type: QR

  PPM: 24

  Length: 20

  Content: 1234567890 (converted from HEX to string)

  Position in image (four coordinates): 320W272H|451W270H|309W395H|446W395H

The remaining data represents the image content.The image length is 0x00058200, and xxxxxxxxxxxx denotes the image data.

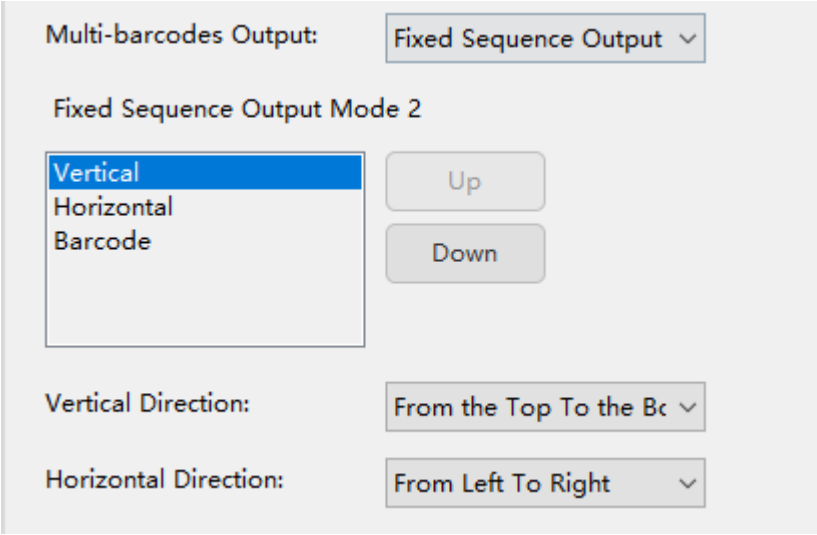
Multi-barcodes Output

Random Sequence Output

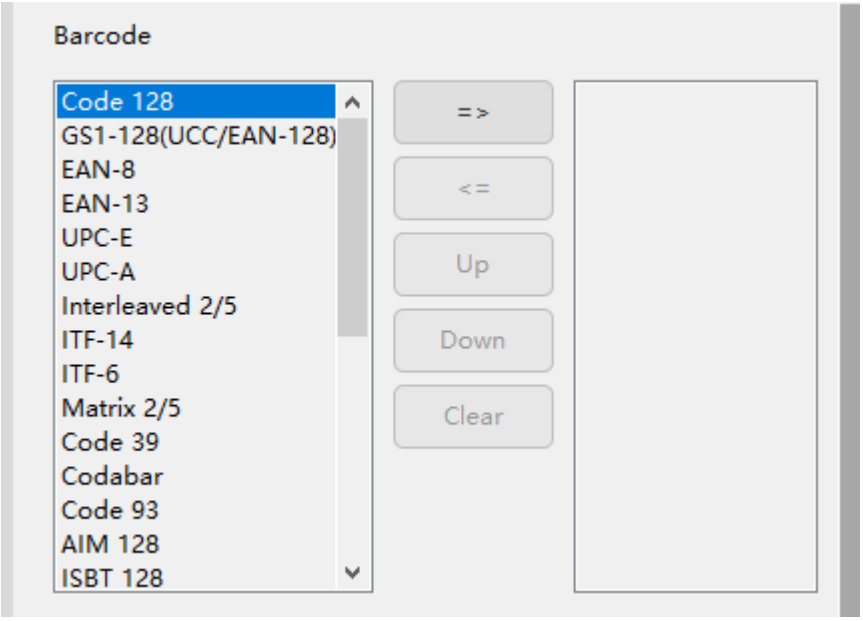
Output barcode information in random order.

Fixed Sequence Output Mode

Customize the sorting and output barcode information according to the characteristics of symbology type, vertical direction, horizontal direction, etc., and adjust the output priority by moving up/down.



Click “=> / <=” To add/remove symbology types and adjust output priority by moving up/down.



Multi-barcodes Separator Settings

Customize the separator between multiple barcodes.

Image Flipping

Do Not Flip

Flip Horizontally

Flip Vertically

Flip Horizontally & Vertically

Example of image not flipped

Example of image flipped horizontally

Example of image flipped vertically

Example of image flipped horizontally & vertically

Bad Read Message

Scan the appropriate barcode below to select whether or not to send a bad read message (user-programmable) when a good read does not occur before trigger release, or the decode session timeout expires, or the scanner receives the **Stop Scanning** command (For more information, see the “Serial Trigger Command” section in this Chapter).

Bad Read Message OFF

Bad Read Message ON

Set Bad Read Message

A bad read message can contain up to 7 characters (HEX values from 0x00 to 0xFF). To set a bad read message, scan the **Set Bad Read Message** barcode, the numeric barcodes representing the hexadecimal values of desired character(s) and the **Save** barcode.

Set Bad Read Message

Set the bad read message to “F” (HEX: 0x46):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Bad Read Message** barcode.
3. Scan the numeric barcodes “4”, 2”, 4”, 1”, “4” and “4” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Good Read Signal

The SCAN_OK signal can be used to indicate a good read.

On: The SCAN_OK pin can be used to generate a good read indicator when a good read occurs.

Off: The SCAN_OK pin is unable to generate a good read indicator when a good read occurs.

@GRSENA0

Off

@GRSENA1

On

Polarity of Good Read Signal

Low Level: The SCAN_OK pin produces low level output when a good read occurs.

High Level: The SCAN_OK pin produces high level output when a good read occurs.

Note: You must restart the scanner before this setting will take effect.

@GRSAPL0

Low Level

@GRSAPL1

High Level

Good Read Indicator Duration

This parameter sets the amount of time that the Good Read Indicator to remain on following a good read. It is programmable in 1ms increments from 1ms to 10000ms.

Good Read Indicator Duration

Set the Good Read Indicator duration to 1500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Indicator Duration** barcode.
3. Scan the numeric barcodes “1”, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Good Read Indicator Delay

This parameter sets the dealy time for generating a good read indicator when a good read occurs. It is programmable in 1ms increments from 0ms to 10000ms.

Good Read Indicator Delay

Set the Good Read Indicator delay to 1500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Indicator delay** barcode.
3. Scan the numeric barcodes “1”, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Bad Read Signal

The SCAN_NG signal can be used to indicate a bad read.

On: The SCAN_NG pin can be used to generate a bad read indicator when a bad read occurs.

Off: The SCAN_NG pin is unable to generate a bad read indicator when a bad read occurs.

Off

On

Polarity of Bad Read Signal

Low Level: The SCAN_NG pin produces low level output when a bad read occurs.

High Level: The SCAN_NG pin produces high level output when a bad read occurs.

Note: You must restart the scanner before this setting will take effect.

Low Level

High Level

Bad Read Indicator Duration

This parameter sets the amount of time that the Bad Read Indicator to remain on following a bad read. It is programmable in 1ms increments from 1ms to 10000ms.

Bad Read Indicator Duration

Set the Good Read Indicator duration to 1500ms:

6. Scan the **Enter Setup** barcode.
7. Scan the **Bad Read Indicator Duration** barcode.
8. Scan the numeric barcodes “1”, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
9. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
10. Scan the **Exit Setup** barcode.

Bad Read Indicator Delay

This parameter sets the dealy time for generating a bad read indicator when a bad read occurs. It is programmable in 1ms increments from 0ms to 10000ms.

Bad Read Indicator Delay

Set the Bad Read Indicator delay to 1500ms:

6. Scan the **Enter Setup** barcode.
7. Scan the **Bad Read Indicator delay** barcode.
8. Scan the numeric barcodes “1”, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
9. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
10. Scan the **Exit Setup** barcode.

Trigger

Enable or disable the TRIG_IN signal.

@TRGENA0

Enable Triggering

@TRGENA1

Disable Triggering

Trigger Signal

Types of Triggering

@TRGSGN0

Low Level Triggering

@TRGSGN1

High Level Triggering

Debounce

Enable or disable the debounce.

Enable Debounce

Disable Debounce

Debounce Time

Set the debounce time for the TRIG_IN signal.

Debounce Time

Set the debounce time to 20ms:

1. Scan the Enter Setup barcode.
2. Scan the **Debounce Time** barcode.
3. Scan the numeric barcodes “2” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Image Decoding Timeout

Image Decoding Timeout specifies the maximum time the scanner will spend decoding an image.

Image Decoding Timeout

Example

Set the image decoding timeout to 350ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Decoding Timeout** barcode.
3. Scan the numeric barcodes “3”, “5”, and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Trigger Commands

When **Enable Trigger Commands** is selected, you can activate and deactivate the scanner in the Level mode with serial trigger commands. Sending the **Start Scanning** command (default: **<SOH> T <EOT>**, user-programmable) to the scanner in the Level mode activates a decode session. The decode session continues until a barcode is decoded or the decode session timeout expires or the scanner receives the **Stop Scanning** command (default: **<SOH> P <EOT>**, user-programmable).

@SCNTCE0

Disable Trigger Commands

@SCNTCE1

Enable Trigger Commands

Modify Start Scanning Command

The **Start Scanning** command can consist of 1-10 characters (HEX values from 0x01 to 0xFF). In this command, the character "?" (HEX: 0x3F) cannot be the first character. The default **Start Scanning** command is **<SOH> T <EOT>**.

@SCNTCT

Modify Start Scanning Command

Set the Start Scanning command to "*T":

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify Start Scanning Command** barcode.
3. Scan the numeric barcodes "0", "1", "5", "3", "0" and "4" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.

Modify Stop Scanning Command

The **Stop Scanning** command can consist of 1-10 characters (HEX values from 0x01 to 0xFF). In this command, the character “?” (HEX: 0x3F) cannot be the first character. The default **Stop Scanning** command is **<SOH> P <EOT>**.

Modify Stop Scanning Command

Set the Stop Scanning command to “*P”:

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify Stop Scanning Command** barcode.
3. Scan the numeric barcodes “0”, “1”, “4” , “5”, “0” and “4” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Illumination

Illumination Setting

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

Normal: Illumination LEDs are turned on during image capture.

Off: Illumination LEDs are off all the time.

Normal

Off

Lighting Selection

The FM600 provides 4 high-brightness LED lights, choose lighting lights in different positions to meet different scanning needs.

Top Light

Bottom Light

Top Light + Bottom Light

Left Light

Top Light + Left Light

Bottom Light + Left Light

Top Light + Bottom Light + Left Light

Right Light

Top Light + Right Light

Bottom Light + Right Light

Top Light + Bottom Light + Right Light

Left Light + Right Light

Top Light + Left Light +Right Light

Bottom Light + Left Light + Right Light

Top Light + Bottom Light + Left Light + Right Light

Aiming

When scanning/capturing image, the engine projects an aiming pattern which allows positioning the target barcode within its field of view and thus makes decoding easier.

Normal: The engine projects an aiming pattern only during barcode scanning/capture.

Always On: Aiming pattern is constantly on after the engine is powered on.

Off: Aiming pattern is off all the time.

Normal

Off

Always On

Good Read LED

The green LED can be programmed to be On or Off to indicate good read.

On

Off

Good Read LED Duration

This parameter sets the amount of time that the Good Read LED to remain on following a good read. It is programmable in 1ms increments from 1ms to 2,500ms.

Short (20ms)

Medium (120ms)

Long (220ms)

Prolonged (320ms)

Custom (1 - 2,500ms）

Set the Good Read LED duration to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** barcode.
3. Scan the numeric barcodes “8”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Power On Beep

The scanner can be programmed to beep when it is powered on. Scan the **Off** barcode if you do not want a power on beep.

On

Off

Good Read Beep

Scanning the **Off** barcode can turn off the beep that indicates successful decode; scanning the **On** barcode can turn it back on.

On

Off

Good Read Beep Volume

There are 20 volume levels to choose from. The bigger the value, the louder the Good Read Beep.

Loud

Medium

Low

Custom Volume (Level 1-20)

Set the Good Read Beep volume to Level 10:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Volume** barcode.
3. Scan the numeric barcode “1” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Good Read Beep Duration

This parameter sets the length of the beep the scanner emits on a good read. It is programmable in 1ms increments from 20ms to 300ms.

Short (40ms)

Medium (80ms)

Long (120ms)

Custom (20 – 300ms)

Set the Good Read Beep duration to 200ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** barcode.
3. Scan the numeric barcodes “2”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.

Good Read Beep Frequency

This parameter is programmable in 1Hz increments from 20Hz to 20,000Hz.

Extra Low (800Hz)

Low (1600Hz)

Medium (2730Hz)

High (4200Hz)

Custom (20 - 20,000Hz)

Chapter 10 Symbologies

Introduction

Every symbology (barcode type) has its own unique attributes. This chapter provides programming barcodes for configuring the scanner so that it can identify various symbologies. It is recommended to disable those that are rarely used to increase the efficiency of the scanner.

Global Settings

Enable/Disable All Symbologies

Despite the **Enable All Symbologies** feature is enabled, the scanner still cannot read Pharmacode. Pharmacode must be enabled separately. For details, please refer to the Pharmacode settings.

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

Enable All Symbologies

Disable All Symbologies

Enable/Disable 1D Symbologies

Despite the **Enable All Symbologies** feature is enabled, the scanner still cannot read Pharmacode. Pharmacode must be enabled separately. For details, please refer to the Pharmacode settings.

@ALL1DC1

Enable 1D Symbologies

@ALL1DC0

Disable 1D Symbologies

Enable/Disable 2D Symbologies

@ALL2DC1

Enable 2D Symbologies

@ALL2DC0

Disable 2D Symbologies

Enable/Disable Postal Symbologies

Enable All Postal Symbologies

Disable All Postal Symbologies

Inverse Code

Regular barcode: Dark bars on a bright background.
Inverse barcode: Bright bars on a dark background.

- ✧ **Regular 1D Code Only:** Read regular 1D code only.
- ✧ **Inverse 1D Code Only:** Read inverse 1D codes only.
- ✧ **Both Regular & Inverse:** Read both regular and inverse 1D codes.

Regular 1D Code Only

Inverse 1D Code Only

Both Regular & Inverse

Surround GS1 Application Identifiers (AI's) with Parentheses

When **Surround GS1 AI's with Parentheses** is selected, each application identifier (AI) contained in scanned data will be enclosed in parentheses in the output message.

@GS1AIP0

Do Not Surround GS1 AI's with Parentheses

@GS1AIP1

Surround GS1 AI's with Parentheses

(01) 0 0614141 99999 6 (10) 10ABCEDF123456

If **Surround GS1 AI's with Parentheses** is selected, the barcode above is output as (01)00614141999996(10)10ABCEDF123456.

If **Do Not Surround GS1 AI's with Parentheses** is selected, the barcode above is output as 0100614141999996 1010ABCEDF123456.

Code 128

Restore Factory Defaults

Restore the Factory Defaults of Code 128

Enable/Disable Code 128

Enable Code 128

Disable Code 128

If the scanner fails to identify Code 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 128** barcode.

Set Length Range for Code 128

The scanner can be configured to only decode Code 128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 128 barcodes with that length are to be decoded.

Set the scanner to decode Code 128 barcodes containing between 8 and12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

EAN-8

Restore Factory Defaults

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8

Enable EAN-8

Disable EAN-8

If the scanner fails to identify EAN-8 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable EAN-8** barcode.

Transmit Check Character

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

Transmit EAN-8 Check Character

Do Not Transmit EAN-8 Check Character

2-Digit Add-On Code

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

@EA8AD20

Disable 2-Digit Add-On Code

@EA8AD21

Enable 2-Digit Add-On Code

Disable 2-Digit Add-On Code: The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus 2-digit add-on barcode. It can also decode EAN-8 barcodes without 2-digit add-on codes.

Enable 2-Digit Add-On Code: The scanner decodes a mix of EAN-8 barcodes with and without 2-digit add-on codes.

5-Digit Add-On Code

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

@EA8AD50

Disable 5-Digit Add-On Code

@EA8AD51

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code: The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus 5-digit add-on barcode. It can also decode EAN-8 barcodes without 5-digit add-on codes.

Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-8 barcodes with and without 5-digit add-on codes.

Add-On Code Required

When **EAN-8 Add-On Code Required** is selected, the scanner will only read EAN-8 barcodes that contain add-on codes.

EAN-8 Add-On Code Not Required

EAN-8 Add-On Code Required

EAN-13

Restore Factory Defaults

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13

Enable EAN-13

Disable EAN-13

If the scanner fails to identify EAN-13 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable EAN-13** barcode.

Transmit Check Character

@E13CHK2

Transmit EAN-13 Check Character

@E13CHK1

Do Not Transmit EAN-13 Check Character

2-Digit Add-On Code

An EAN-13 barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is a two-digit add-on code.

@E13AD20

Disable 2-Digit Add-On Code

@E13AD21

Enable 2-Digit Add-On Code

Disable 2-Digit Add-On Code: The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus 2-digit add-on barcode. It can also decode EAN-13 barcodes without 2-digit add-on codes.

Enable 2-Digit Add-On Code: The scanner decodes a mix of EAN-13 barcodes with and without 2-digit add-on codes.

5-Digit Add-On Code

An EAN-13 barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is a five-digit add-on code.

@E13AD50

Disable 5-Digit Add-On Code

@E13AD51

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code: The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus 5-digit add-on barcode. It can also decode EAN-13 barcodes without 5-digit add-on codes.

Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-13 barcodes with and without 5-digit add-on codes.

Add-On Code Required

When **EAN-13 Add-On Code Required** is selected, the scanner will only read EAN-13 barcodes that contain add-on codes.

@E13REQ0

EAN-13 Add-On Code Not Required

@E13REQ1

EAN-13 Add-On Code Required

UPC-E

Restore Factory Defaults

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E

Enable UPC-E0

Disable UPC-E0

Enable UPC-E1

Disable UPC-E1

If the scanner fails to identify UPC-E0/UPC-E1 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable UPC-E0/UPC-E1** barcode.

Transmit Check Character

UPC-E is 8 digits in length with the last one as its check character used to verify the integrity of the data.

@UPECHK2

Transmit UPC-E Check Character

@UPECHK1

Do Not Transmit UPC-E Check Character

2-Digit Add-On Code

A UPC-E barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is a two-digit add-on code.

@UPEAD20

Disable 2-Digit Add-On Code

@UPEAD21

Enable 2-Digit Add-On Code

Disable 2-Digit Add-On Code: The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus 2-digit add-on barcode. It can also decode UPC-E barcodes without 2-digit add-on codes.

Enable 2-Digit Add-On Code: The scanner decodes a mix of UPC-E barcodes with and without 2-digit add-on codes.

5-Digit Add-On Code

A UPC-E barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is a five-digit add-on code.

@UPEAD50

Disable 5-Digit Add-On Code

@UPEAD51

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code: The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus 5-digit add-on barcode. It can also decode UPC-E barcodes without 5-digit add-on codes.

Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-E barcodes with and without 5-digit add-on codes.

Add-On Code Required

When **UPC-E Add-On Code Required** is selected, the scanner will only read UPC-E barcodes that contain add-on codes.

@UPEREQ0

UPC-E Add-On Code Not Required

@UPEREQ1

UPC-E Add-On Code Required

Transmit Preamble Character

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-E barcode. Select one of the following options for transmitting UPC-E preamble to the host device: transmit system character only, transmit system character and country code (“0” for USA), or transmit no preamble.

System Character

No Preamble

System Character & Country Code

UPC-A

Restore Factory Defaults

@UPADEF

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A

@UPAENA1

Enable UPC-A

@UPAENA0

Disable UPC-A

If the scanner fails to identify UPC-A barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable UPC-A** barcode.

Transmit Check Character

UPC-A is 13 digits in length with the last one as its check character used to verify the integrity of the data.

@UPACHK2

Transmit UPC-A Check Character

@UPACHK1

Do Not Transmit UPC-A Check Character

2-Digit Add-On Code

A UPC-A barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is a two-digit add-on code.

@UPAAD20

Disable 2-Digit Add-On Code

@UPAAD21

Enable 2-Digit Add-On Code

Disable 2-Digit Add-On Code: The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus 2-digit add-on barcode. It can also decode UPC-A barcodes without 2-digit add-on codes.

Enable 2-Digit Add-On Code: The scanner decodes a mix of UPC-A barcodes with and without 2-digit add-on codes.

5-Digit Add-On Code

A UPC-A barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is a five-digit add-on code.

@UPAAD50

Disable 5-Digit Add-On Code

@UPAAD51

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code: The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus 5-digit add-on barcode. It can also decode UPC-A barcodes without 5-digit add-on codes.

Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-A barcodes with and without 5-digit add-on codes.

Add-On Code Required

When **UPC-A Add-On Code Required** is selected, the scanner will only read UPC-A barcodes that contain add-on codes.

@UPAREQ0

UPC-A Add-On Code Not Required

@UPAREQ1

UPC-A Add-On Code Required

Transmit Preamble Character

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-A barcode. Select one of the following options for transmitting UPC-A preamble to the host device: transmit system character only, transmit system character and country code ("0" for USA), or transmit no preamble.

@UPAPRE0

No Preamble

@UPAPRE1

System Character

@UPAPRE2

System Character & Country Code

Coupon

UPC-A/EAN-13 with Extended Coupon Code

The following three types of coupon code + extended coupon code are supported:

- ✧ UPC-A (starting with “5”) + GS1-128
- ✧ UPC-A (starting with “5”) + GS1 Databar
- ✧ EAN-13 (starting with “99”) + GS1-128

Use the appropriate barcode below to enable or disable UPC-A/EAN-13 with Extended Coupon Code. When left on the default setting (**Off**), the scanner treats Coupon Codes and Extended Coupon Codes as single barcodes.

If you scan the **Allow Concatenation** code, when the scanner sees the coupon code and the extended coupon code in a single scan, it transmits both as separate symbologies. Otherwise, it transmits the first coupon code it reads.

If you scan the Require Concatenation code, the scanner must see and read the coupon code and extended coupon code in a single read to transmit the data. No data is output unless both codes are read.

@CPNENA0

**** Off**

@CPNENA1

Allow Concatenation

@CPNENA2

Require Concatenation

When using the UPC-A Coupon feature, please ensure that **System Character** or **System Character & Country Code** is selected for the “Transmit UPC-A Preamble Character” feature.

Coupon GS1 Databar Output

If you scan coupons that have both UPC and GS1 Databar codes, you may wish to scan and output only the data from the GS1 Databar code. Scan the **GS1 Output On barcode** below to scan and output only the GS1 Databar code data.

When **GS1 Output Off** is selected, coupons that have both UPC and GS1 Databar codes are transmitted depending on your selection for the “UPC-A/EAN-13 with Extended Coupon Code” feature.

**** GS1 Output Off**

GS1 Output On

When using the UPC-A Coupon feature, please ensure that **System Character** or **System Character & Country Code** is selected for the “Transmit UPC-A Preamble Character” feature

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

If the scanner fails to identify Interleaved 2 of 5 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Interleaved 2 of 5** barcode.

Set Length Range for Interleaved 2 of 5

The scanner can be configured to only decode Interleaved 2 of 5 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Interleaved 2 of 5 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Interleaved 2 of 5 barcodes with that length are to be decoded.

Set the scanner to decode Interleaved 2 of 5 barcodes containing between 8 and12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Interleaved 2 of 5 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- ✧ **Disable:** The scanner transmits Interleaved 2 of 5 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- ✧ **Transmit Check Character After Verification:** The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Since Interleaved 2 of 5 must always have an even number of digits, a zero may need to be added as the first digit when the check character is added. The check character is automatically generated when making Interleaved 2 of 5 barcodes.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Interleaved 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification**option is enabled and the minimum length is set to 4, Interleaved 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.)

ITF-14

ITF-14 is a special kind of Interleaved 2 of 5 with a length of 14 characters and the last character as the check character.

ITF-14 priority principle: For the Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character, the ITF-14 configurations shall take precedence over the Interleaved 2 of 5 settings.

Restore Factory Defaults

@I14DEF

Restore the Factory Defaults of ITF-14

Enable/Disable ITF-14

@I14ENA0

Disable ITF-14

@I14ENA1

Enable ITF-14 But Do Not Transmit Check Character

@I14ENA2

Enable ITF-14 and Transmit Check Character

An example of the ITF-14 priority principle: when ITF-14 is enabled and Interleaved 2 of 5 is disabled, the scanner only decodes Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character.

ITF-6

ITF-6 is a special kind of Interleaved 2 of 5 with a length of 6 characters and the last character as the check character.

ITF-6 priority principle: For the Interleaved 2 of 5 barcodes with a length of 6 characters and the last character as the check character, the ITF-6 configurations shall take precedence over the Interleaved 2 of 5 settings.

Restore Factory Defaults

@IT6DEF

Restore the Factory Defaults of ITF-6

Enable/Disable ITF-6

@IT6ENA0

Disable ITF-6

@IT6ENA1

Enable ITF-6 But Do Not Transmit Check Character

@IT6ENA2

Enable ITF-6 and Transmit Check Character

An example of the ITF-6 priority principle: when ITF-6 is enabled and Interleaved 2 of 5 is disabled, the scanner only decodes Interleaved 2 of 5 barcodes with a length of 6 characters and the last character as the check character.

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

If the scanner fails to identify Matrix 2 of 5 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Matrix 2 of 5** barcode.

Set Length Range for Matrix 2 of 5

The scanner can be configured to only decode Matrix 2 of 5 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Matrix 2 of 5 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Matrix 2 of 5 barcodes with that length are to be decoded.

Set the scanner to decode Matrix 2 of 5 barcodes containing between 8 and12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Matrix 2 of 5 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- ✧ **Disable:** The scanner transmitsMatrix 2 of 5 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Matrix 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- ✧ **Transmit Check Character After Verification:** The scanner checks the integrity of all Matrix 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Since Matrix 2 of 5 must always have an even number of digits, a zero may need to be added as the first digit when the check character is added. The check character is automatically generated when making Matrix 2 of 5 barcodes.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Matrix 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Matrix 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.)

Code 39

Restore Factory Defaults

Restore the Factory Defaults of Code 39

Enable/Disable Code 39

Enable Code 39

Disable Code 39

If the scanner fails to identify Code 39 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 39** barcode.

Set Length Range for Code 39

The scanner can be configured to only decode Code 39 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 39 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 39 barcodes with that length are to be decoded.

Set the scanner to decode Code 39 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Code 39 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- **Disable:** The scanner transmitsCode 39 barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Code 39 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 39 barcodes with a total length of 4 characters including the check character cannot be read.)

Transmit Start/Stop Character

Code 39 uses an asterisk (*) for both the start and the stop characters. You can choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.

Do Not Transmit Start/Stop Character

Transmit Start/Stop Character

Enable/Disable Code 39 Full ASCII

The scanner can be configured to identify all ASCII characters by scanning the appropriate barcode below.

Disable Code 39 Full ASCII

Enable Code 39 Full ASCII

Enable/Disable Code 32 (Italian Pharma Code)

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable Code 32. Code 39 must be enabled and Code 39 check character verification must be disabled for this parameter to function.

Disable Code 32

Enable Code 32

Code 32 Prefix

Scan the appropriate barcode below to enable or disable adding the prefix character “A” to all Code 32 barcodes. Code 32 must be enabled for this parameter to function.

Disable Code 32 Prefix

Enable Code 32 Prefix

Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Start/Stop Character

Transmit Code 32 Start/Stop Character

Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Check Character

Transmit Code 32 Check Character

Codabar

Restore Factory Defaults

Restore the Factory Defaults of Codabar

Enable/Disable Codabar

Enable Codabar

Disable Codabar

If the scanner fails to identify Codabar barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Codabar** barcode.

Set Length Range for Codabar

The scanner can be configured to only decode Codabar barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Codabar barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Codabar barcodes with that length are to be decoded.

Set the scanner to decode Codabar barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Codabar and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- **Disable:** The scanner transmits Codabar barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Codabar barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all Codabar barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Codabar barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Codabar barcodes with a total length of 4 characters including the check character cannot be read.)

Start/Stop Character

You can set the start/stop characters and choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.

Do Not Transmit Start/Stop Character

Transmit Start/Stop Character

ABCD/ABCD as the Start/Stop Character

ABCD/TN*E as the Start/Stop Character

abcd/abcd as the Start/Stop Character

abcd/tn*e as the Start/Stop Character

Code 93

Restore Factory Defaults

Restore the Factory Defaults of Code 93

Enable/Disable Code 93

Enable Code 93

Disable Code 93

If the scanner fails to identify Code 93 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 93** barcode.

Set Length Range for Code 93

The scanner can be configured to only decode Code 93 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 93 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 93 barcodes with that length are to be decoded.

Set the scanner to decode Code 93 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

China Post 25

Restore Factory Defaults

Restore the Factory Defaults of China Post 25

Enable/Disable China Post 25

Enable China Post 25

Disable China Post 25

If the scanner fails to identify China Post 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable China Post 25** barcode.

Set Length Range for China Post 25

The scanner can be configured to only decode China Post 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes China Post 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only China Post 25 barcodes with that length are to be decoded.

Set the scanner to decode China Post 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for China Post 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- **Disable:** The scanner transmits China Post 25 barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all China Post 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all China Post 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, China Post 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, China Post 25 barcodes with a total length of 4 characters including the check character cannot be read.)

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

If the scanner fails to identify GS1-128 barcodes, you may first try this solution by scanning the **EnterSetup** barcode and then **Enable GS1-128** barcode.

Set Length Range for GS1-128

The scanner can be configured to only decode GS1-128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes GS1-128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only GS1-128 barcodes with that length are to be decoded.

Set the scanner to decode GS1-128 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

GS1 Databar (RSS)

Restore Factory Defaults

Restore the Factory Defaults of GS1 Databar

Enable/Disable GS1 Databar

Enable GS1 Databar

Disable GS1 Databar

If the scanner fails to identify GS1 Databar barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable GS1 Databar** barcode.

Transmit Application Identifier “01”

Transmit Application Identifier “01”

Do Not Transmit Application Identifier “01”

GS1 Composite (EAN·UCC Composite)

Restore Factory Defaults

@CPTDEF

Restore the Factory Defaults of GS1 Composite

Enable/Disable GS1 Composite

@CPTENA1

Enable GS1 Composite

@CPTENA0

Disable GS1 Composite

If the scanner fails to identify GS1 Composite barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable GS1 Composite** barcode.

Enable/Disable UPC/EAN Composite

Enable UPC/EAN Composite

Disable UPC/EAN Composite

Code 11

Restore Factory Defaults

Restore the Factory Defaults of Code 11

Enable/Disable Code 11

Enable Code 11

Disable Code 11

If the scanner fails to identify Code 11 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 11** barcode.

Set Length Range for Code 11

The scanner can be configured to only decode Code 11 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 11 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 11 barcodes with that length are to be decoded.

Set the scanner to decode Code 11 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

Check characters are optional for Code 11 and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits Code 11 barcodes as is.

Disable

One Check Character, MOD11

Two Check Characters, MOD11/MOD11

Two Check Characters, MOD11/MOD9

One Check Character, MOD11 (Len<=10)

Two Check Characters, MOD11/MOD11(Len>10)

One Check Character, MOD11 (Len<=10)

Two Check Characters, MOD11/MOD9 (Len>10)

Transmit Check Character

Do Not Transmit Code 11 Check Character

Transmit Code 11 Check Character

If you select a check character algorithm and the **Do Not Transmit Check Character** option, Code 11 barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD11** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, Code 11 barcodes with a total length of 4 characters including the check character cannot be read.)

ISBN

Restore Factory Defaults

Restore the Factory Defaults of ISBN

Enable/Disable ISBN

Enable ISBN

Disable ISBN

If the scanner fails to identify ISBN barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISBN** barcode.

Set ISBN Format

ISBN-10

ISBN-13

ISSN

Restore Factory Defaults

Restore the Factory Defaults of ISSN

Enable/Disable ISSN

Enable ISSN

Disable ISSN

If the scanner fails to identify ISSN barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISSN** barcode.

Industrial 25

Restore Factory Defaults

Restore the Factory Defaults of Industrial 25

Enable/Disable Industrial 25

Enable Industrial 25

Disable Industrial 25

If the scanner fails to identify Industrial 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Industrial 25** barcode.

Set Length Range for Industrial 25

The scanner can be configured to only decode Industrial 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Industrial 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Industrial 25 barcodes with that length are to be decoded.

Set the scanner to decode Industrial 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Industrial 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- **Disable:** The scanner transmits Industrial 25 barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Industrial 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Industrial 25 barcodes with a total length of 4 characters including the check character cannot be read.)

Standard 25

Restore Factory Defaults

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25

Enable Standard 25

Disable Standard 25

If the scanner fails to identify Standard 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Standard 25** barcode.

Set Length Range for Standard 25

The scanner can be configured to only decode Standard 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Standard 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Standard 25 barcodes with that length are to be decoded.

Set the scanner to decode Standard 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

A check character is optional for Standard 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- **Disable:** The scanner transmits Standard 25 barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Standard 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all Standard 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Standard 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Standard 25 barcodes with a total length of 4 characters including the check character cannot be read.)

Plessey

Restore Factory Defaults

Restore the Factory Defaults of Plessey

Enable/Disable Plessey

Enable Plessey

Disable Plessey

If the scanner fails to identify Plessey barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Plessey** barcode.

Set Length Range for Plessey

The scanner can be configured to only decode Plessey barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Plessey barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Plessey barcodes with that length are to be decoded.

Set the scanner to decode Plessey barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

Check characters are optional for Plessey and can be added as the last two characters, which are calculated values used to verify the integrity of the data.

- **Disable:** The scanner transmits Plessey barcodes as is.
- **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.
- **Transmit Check Character After Verification:** The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

Disable

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Do Not Transmit Check Character After Verification** option is enabled, Plessey barcodes with a length that is less than the configured minimum length after having the check characters excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Plessey barcodes with a total length of 4 characters including the check characters cannot be read.)

MSI-Plessey

Restore Factory Defaults

Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey

Enable MSI-Plessey

Disable MSI-Plessey

If the scanner fails to identify MSI-Plessey barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable MSI-Plessey** barcode.

Set Length Range for MSI-Plessey

The scanner can be configured to only decode MSI-Plessey barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes MSI-Plessey barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only MSI-Plessey barcodes with that length are to be decoded.

Set the scanner to decode MSI-Plessey barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Check Character Verification

Check characters are optional for MSI-Plessey and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits MSI-Plessey barcodes as is.

Disable

One Check Character, MOD10

Two Check Characters, MOD10/MOD10

Two Check Characters, MOD10/MOD11

Transmit Check Character

Transmit MSI-Plessey Check Character

Do Not Transmit MSI-Plessey Check Character

If you select a check character algorithm and the **Do Not Transmit Check Character** option, MSI-Plessey barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD10** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, MSI-Plessey barcodes with a total length of 4 characters including the check character cannot be read.)

AIM 128

Restore Factory Defaults

Restore the Factory Defaults of AIM 128

Enable/Disable AIM 128

Enable AIM 128

Disable AIM 128

If the scanner fails to identify AIM 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable AIM 128** barcode.

Set Length Range for AIM 128

The scanner can be configured to only decode AIM 128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes AIM 128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only AIM 128 barcodes with that length are to be decoded.

Set the scanner to decode AIM 128 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

ISBT 128

Restore Factory Defaults

Restore the Factory Defaults of ISBT 128

Enable/Disable ISBT 128

Enable ISBT 128

Disable ISBT 128

If the scanner fails to identify ISBT 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISBT 128** barcode.

Code 49

Restore Factory Defaults

Restore the Factory Defaults of Code 49

Enable/Disable Code 49

Enable Code 49

Disable Code 49

If the scanner fails to identify Code 49 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 49** barcode.

Set Length Range for Code 49

The scanner can be configured to only decode Code 49 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 49 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 49 barcodes with that length are to be decoded.

Set the scanner to decode Code 49 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Code 16K

Restore Factory Defaults

Restore the Factory Defaults of Code 16K

Enable/Disable Code 16K

Enable Code 16K

Disable Code 16K

If the scanner fails to identify Code 16K barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 16K** barcode.

Set Length Range for Code 16K

The scanner can be configured to only decode Code 16K barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

If minimum length is set to be greater than maximum length, the scanner only decodes Code 16K barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 16K barcodes with that length are to be decoded.

Set the scanner to decode Code 16K barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Pharmacode

Restore Factory Defaults

Restore the Factory Defaults of Pharmacode

Enable/Disable Pharmacode

When the Pharmacode is enabled, other symbologies will be automatically disabled

Enable Pharmacode

Disable Pharmacode

If the scanner fails to identify **Pharmacode** barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Pharmacode** barcode.

Pharmacode One-Track

Enable/Disable Pharmacode One-Track

Enable Pharmacode One-Track

Disable Pharmacode One-Track

Set Pharmacode One-Track Decoding Direction

Left to Right

Right to Left

Upward

Downward

Set the Number of Pharmacode One-Track

Set the Minimum Number

Set the Maximum Number

The maximum number of 1D barcode must not exceed 16. If the maximum number of barcode is same as the minimum number, only barcode with that number are to be decoded

Set the scanner to decode between 2 and 12 Pharmacode One-Track barcodes.

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Number** barcode.
3. Scan the numeric barcode “2” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Number** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Pharmacode One-Track Inverse

@PHCOIV0

Decode Regular Pharmacode One-Track Barcodes Only

@PHCOIV1

Decode Inverse Pharmacode One-Track Barcodes Only

@PHCOIV2

Decode Both

Set Pharmacode One-Track Quiet Zone

@PHCOQS

Set Quiet Zone

Set Pharmacode One-Track Output Format

@PHCOFM0

Normal Format

@PHCOFM1

Binary Format

Pharmacode Two-Track

Enable/Disable Pharmacode Two-Track

Enable Pharmacode Two-Track

Disable Pharmacode Two-Track

Set Pharmacode Two-Track Decoding Direction

Left to Right

Right to Left

Upward

Downward

Set the Number of Pharmacode Two-Track

Set the Minimum Number

Set the Maximum Number

The maximum number of 1D barcode must not exceed 16. If the maximum number of barcode is same as the minimum number, only barcode with that number are to be decoded

Set the scanner to decode between 2 and 12 Pharmacode Two-Track barcodes.

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Number** barcode.
3. Scan the numeric barcode “2” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Number** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Pharmacode Two-Track Inverse

Decode Regular Pharmacode Two-Track Barcodes Only

Decode Inverse Pharmacode Two-Track Barcodes Only

Decode Both

Set Pharmacode Two-Track Quiet Zone

Set Quiet Zone

Set Pharmacode Two-Track Output Format

Normal Format

Binary Format

PDF417

Restore Factory Defaults

Restore the Factory Defaults of PDF417

Enable/Disable PDF417

Enable PDF417

Disable PDF417

If the scanner fails to identify PDF417 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable PDF417** barcode.

Set Length Range for PDF417

The scanner can be configured to only decode PDF417 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read PDF417 barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode PDF417 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

PDF417 Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

Decode Regular PDF417 Barcodes Only

Decode Inverse PDF417 Barcodes Only

Decode Both

Character Encoding

Default Character Encoding

UTF-8

Automatically Select UTF-8 or Code Page

PDF417 ECI Output

Disable PDF417 ECI Output

Enable PDF417 ECI Output

Micro PDF417

Restore Factory Defaults

Restore the Factory Defaults of Micro PDF417

Enable/Disable Micro PDF417

Enable Micro PDF417

Disable Micro PDF417

If the scanner fails to identify Micro PDF417 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Micro PDF417** barcode.

Set Length Range for Micro PDF417

The scanner can be configured to only decode Micro PDF417 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Micro PDF417 barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Micro PDF417 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

QR Code

Restore Factory Defaults

Restore the Factory Defaults of QR Code

Enable/Disable QR Code

Enable QR Code

Disable QR Code

If the scanner fails to identify QR Code barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable QR Code** barcode.

Set Length Range for QR Code

The scanner can be configured to only decode QR Code barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read QR Code barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode QR Code barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

QR Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

Decode Regular QR Barcodes Only

Decode Inverse QR Barcodes Only

Decode Both

Character Encoding

Default Character Encoding

UTF-8

Automatically Select UTF-8 or Code Page

QR ECI Output

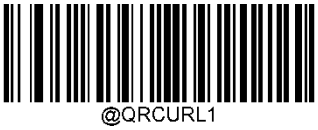
Disable QR ECI Output

Enable QR ECI Output

URL QR

URL QR code refers to QR code whose barcode data begins with the http or HTTP.

Disable URL QR



Enable URL QR

- **Custom URL QR**

You can append to the QR barcode data several user-defined strings (separated by “|”) that cannot exceed 64 characters, including separators (HEX values from 0x00 to 0xFF). When URL QR is enabled, the scanner will not read the QR code whose barcode data starts with custom strings.

Custom URL QR

Micro QR Code

Restore Factory Defaults

Restore the Factory Defaults of Micro QR

Enable/Disable Micro QR

Enable Micro QR

Disable Micro QR

If the scanner fails to identify Micro QR barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Micro QR** barcode.

Set Length Range for Micro QR

The scanner can be configured to only decode Micro QR barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Micro QR barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Micro QR Code barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Aztec

Restore Factory Defaults

Restore the Factory Defaults of Aztec Code

Enable/Disable Aztec Code

Enable Aztec Code

Disable Aztec Code

If the scanner fails to identify Aztec Code barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Aztec Code** barcode.

Set Length Range for Aztec Code

The scanner can be configured to only decode Aztec barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Aztec barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Aztec barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Aztec Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

Decode Regular Aztec Barcodes Only

Decode Inverse Aztec Barcodes Only

Decode Both

Character Encoding

Default Character Encoding

UTF-8

Automatically Select UTF-8 or Code Page

Aztec ECI Output

Disable Aztec ECI Output

Enable Aztec ECI Output

Data Matrix

Restore Factory Defaults

Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix

Enable Data Matrix

Disable Data Matrix

If the scanner fails to identify Data Matrix barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Data Matrix** barcode.

Set Length Range for Data Matrix

The scanner can be configured to only decode Data Matrix barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Data Matrix barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Data Matrix barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Rectangular Barcode

Data Matrix has two formats:

Square barcodes having the same amount of modules in length and width: 10*10, 12*12.... 144*144.

Rectangular barcodes having different amounts of models in length and width: 6*16, 6*14...14*22.

Enable Rectangular Barcode

Disable Rectangular Barcode

Data Matrix Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

Decode Regular Data Matrix Barcodes Only

Decode Inverse Data Matrix Barcodes Only

Decode Both

Character Encoding

Default Character Encoding

UTF-8

Automatically Select UTF-8 or Code Page

Data Matrix ECI Output

Disable Data Matrix ECI Output

Enable Data Matrix ECI Output

Maxicode

Restore Factory Defaults

Restore the Factory Defaults of Maxicode

Enable/Disable Maxicode

Enable Maxicode

Disable Maxicode

If the scanner fails to identify Maxicode barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Maxicode** barcode.

Set Length Range for Maxicode

The scanner can be configured to only decode Maxicode barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Maxicode barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Maxicode barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Chinese Sensible Code

Restore Factory Defaults

Restore the Factory Defaults of Chinese Sensible Code

Enable/Disable Chinese Sensible Code

Enable Chinese Sensible Code

Disable Chinese Sensible Code

If the scanner fails to identify Chinese Sensible Code barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Chinese Sensible Code** barcode.

Set Length Range for Chinese Sensible Code

The scanner can be configured to only decode Chinese Sensible Code barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Chinese Sensible Code barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Chinese Sensible Code barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Chinese Sensible Code Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

Decode Regular Chinese Sensible Barcodes Only

Decode Inverse Chinese Sensible Barcodes Only

Decode Both

GM Code

Restore Factory Defaults

Restore the Factory Defaults of GM

Enable/Disable GM

Enable GM

Disable GM

If the scanner fails to identify GM barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable GM** barcode.

Set Length Range for GM

The scanner can be configured to only decode GM barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read GM barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode GM barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Code One

Restore Factory Defaults

Restore the Factory Defaults of Code One

Enable/Disable Code One

Enable Code One

Disable Code One

If the scanner fails to identify Code One barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code One** barcode.

Set Length Range for Code One

The scanner can be configured to only decode Code One barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.

Set the Minimum Length

Set the Maximum Length

Minimum length is not allowed to be greater than maximum length. If you only want to read Code One barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Set the scanner to decode Code One barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.

Chapter 11 Prefix & Suffix

Introduction

A 1D barcode could contain digits, letters, symbols, etc. A 2D barcode could contain more data, such as Chinese characters and other multi-byte characters. However, in real applications, they do not and should not have all information we need, such as barcode type, data acquisition time and delimiter, in order to keep the barcodes short and flexible.

Preffix and suffix are how to fulfill the needs mentioned above. They can be added, removed and modified while the original barcode data remains intact.

Barcode processing procedure:

1. Edit data with Data Formatter
2. Append prefix/suffix
3. Pack data
4. Append terminating character

Global Settings

Enable/Disable All Prefixes/Suffixes

Disable All Prefixes/Suffixes: Transmit barcode data with no prefix/suffix.

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

Disable All Prefixes/Suffixes

Enable All Prefixes/Suffixes

Prefix Sequence

Code ID+ Custom +AIM ID

Custom + Code ID + AIM ID

Custom Prefix

Enable/Disable Custom Prefix

If custom prefix is enabled, you are allowed to append to the data a user-defined prefix that cannot exceed 10 characters. For example, if the custom prefix is “AB” and the barcode data is “123”, the Host will receive “AB123”.

Disable Custom Prefix

Enable Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired prefix then the **Save** barcode.

Note: A custom prefix cannot exceed 10 characters.

Set Custom Prefix

Set the custom prefix to “CODE” (HEX: 0x43/0x4F/0x44/0x45):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Custom Prefix** barcode.
3. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Enable Custom Prefix** barcode.
6. Scan the **Exit Setup** barcode.

AIM ID Prefix

AIM (Automatic Identification Manufacturers) ID defines symbology identifier (For the details, see the “AIM ID Table” section in Appendix). If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.

Disable AIM ID Prefix

Enable AIM ID Prefix

AIM ID is not user programmable.

Code ID Prefix

Code ID can also be used to identify barcode type. Unlike AIM ID, Code ID is user programmable. Code ID can only consist of one or two English letters.

@CIDENA0

Disable Code ID Prefix

@CIDENA1

Enable Code ID Prefix

Restore All Default Code IDs

For the information of default Code IDs, see the “Code ID Table” section in Appendix.

@CIDDEF

Restore All Default Code IDs

Modify Code ID

See the examples below to learn how to modify a Code ID and restore the default Code IDs of all symbologies.

Modify PDF417 Code ID to be "p" (HEX: 0x70):

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify PDF417 Code ID** barcode.
3. Scan the numeric barcodes "7" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.

Restore the default Code IDs of all symbologies:

1. Scan the **Enter Setup** barcode.
2. Scan the **Restore All Default Code IDs** barcode**.**
3. Scan the **Exit Setup** barcode.

1D symbologies:

Modify Code 128 Code ID

Modify GS1-128 Code ID

Modify EAN-8 Code ID

Modify EAN-13 Code ID

Modify UPC-E Code ID

Modify UPC-A Code ID

Modify Interleaved 2 of 5 Code ID

Modify ITF-14 Code ID

Modify ITF-6 Code ID

Modify Matrix 2 of 5 Code ID

Modify Code 39 Code ID

Modify Codabar Code ID

Modify Code 93 Code ID

Modify China Post 25 Code ID

Modify AIM 128 Code ID

Modify ISBT 128 Code ID

Modify ISSN Code ID

Modify ISBN Code ID

Modify Industrial 25 Code ID

Modify Standard 25 Code ID

Modify Plessey Code ID

Modify Code 11 Code ID

Modify MSI-Plessy Code ID

Modify GS1 Composite Code ID

Modify GS1 Databar Code ID

Modify Code 49 Code ID

Modify Code 16K Code ID

2D symbologies:

Modify PDF417 Code ID

Modify QR Code ID

Modify Aztec Code ID

Modify Data Matrix Code ID

Modify Maxicode Code ID

Modify Chinese Sensible Code ID

Modify GM Code ID

Modify Micro PDF417 Code ID

Modify Micro QR Code ID

Modify Code One Code ID

DotCode

Postal symbologies:

Modify USPS Postnet Code ID

Modify USPS Inteligent Mail Code ID

Modify Royal Mail Code ID

Modify USPS Planet Code ID

Modify KIX Post Code ID

Modify Australian Postal Code ID

Modify Japan Post Code ID

OCR:

Modify Chinese ID Card OCR Code ID

Modify Passport OCR Code ID

Modify China Travel Permit OCR Code ID

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. For example, if the custom suffix is “AB” and the barcode data is “123”, the Host will receive “123AB”.

Disable Custom Suffix

Enable Custom Suffix

Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired suffix then the **Save** barcode.

Note: A custom suffix cannot exceed 10 characters.

Set Custom Suffix

Set the custom suffix to “CODE” (HEX: 0x43/0x4F/0x44/0x45):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Custom Suffix** barcode.
3. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Enable Custom Suffix** barcode.
6. Scan the **Exit Setup** barcode.

Terminating Character Suffix

Enable/Disable Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) can only be used to mark the end of data, which means nothing can be added after it.

Disable Terminating Character Suffix

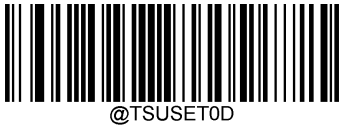
Enable Terminating Character Suffix

Set Terminating Character Suffix

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired terminating character then the **Save** barcode.

Note: A terminating character suffix cannot exceed 2 characters.

Set Terminating Character Suffix



Set Terminating Character to CR (0x0D)

Set Terminating Character to CRLF (0x0D,0x0A)

Set the terminating character suffix to 0x0A:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Terminating Character Suffix** barcode.
3. Scan the numeric barcodes “0” and “A” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Enable Terminating Character Suffix** barcode.
6. Scan the **Exit Setup** barcode.

Chapter 12 Programming Commands

Use of Programming Command

Besides the barcode programming method, the scanner can also be configured by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters**.

Command Syntax

Prefix StorageType Tag SubTag {Data} [,SubTag {Data}] [;Tag SubTag {Data}] […] Suffix

Prefix: "~<SOH>0000" (HEX: **7E 01 30 30 30 30**), 6 characters.

StorageType: "@" (HEX: **40**) or "#" (HEX: **23**), 1 character. "@" means permanent setting which will not be lost by removing power from the scanner or rebooting it; "#" means temporary setting which will be lost by removing power from the scanner or rebooting it.

Tag: A 3-character case-sensitive field that identifies the desired command group. For example, all USB HID Keyboard configuration settings are identified with a Tag of KBW.

SubTag: A 3-character case-sensitive field that identifies the desired parameter within the tag group. For example, the SubTag for the keyboard layout is CTY.

Data: The value for a feature or parameter setting, identified by the Tag and SubTag.

Suffix: ";<ETX>" (HEX: **3B 03**), 2 characters.

Multiple commands can be issued within one Prefix/Suffix sequence. For configuration commands, only the **Tag**, **SubTag**, and **Data** fields must be repeated for each command in sequence. If an additional command is to be applied to the same Tag, then the command is separated with a comma (,) and only the **SubTag** and **Data** fields of the additional commands are issued. If the additional command requires a different **Tag** field, the command is separated from previous command by a semicolon (;).

Query Commands

For query commands, the entry in the **Data** field in the syntax above is one of the following characters means:

* (HEX: **2A**) What is the scanner's current value for the setting(s).

& (HEX: **26**) What is the factory default value for the setting(s).

^ (HEX: **5E**) What is the range of possible values for the setting(s).

The value of the **StoreType** field in a query command can be either "@" (HEX: **40**) or "#" (HEX: **23**).

A query command with the **SubTag** field omitted means to query all the settings concerning a tag. For example, to query all the current settings about Code 11, you should enter **7E 01 30 30 30 30 40 43 31 31 2A 3B 03** (i.e. ~<SOH>0000@C11*;<ETX>).

Responses

Different from command sequence, the prefix of a response consists of the six characters of "<STX><SOH>0000" (HEX: **02 01 30 30 30 30**).

The scanner responds to serial commands with one of the following three responses:

<ACK> (HEX: **06**) Indicates a good command which has been processed.

<NAK> (HEX: **15**) Indicates a good configuration command with its **Data** field entry out of the allowable range for this Tag and SubTag combination (e.g. an entry for an inter-keystroke delay of 100 when the field will only allow 2 digits), or an invalid query command.

<ENQ> (HEX: **05**) Indicates an invalid Tag or SubTag command.

When responding, the scanner echoes back the command sequence with the status character above inserted directly before each of the punctuation marks (the comma or semicolon) in the command.

Examples

Example 1: Enable Code 11, set the minimum and maximum lengths to 12 and 22 respectively.

Enter: **7E 01 30 30 30 30 40 43 31 31 45 4E 41 31 2C 4D 49 4E 31 32 2C 4D 41 58 32 32 3B 03**
(~<SOH>0000@C11ENA1,MIN12,MAX22;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 45 4E 41 31 06 2C 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11ENA1<ACK>,MIN12<ACK>,MAX22<ACK>;<ETX>)

Example 2: Query the current minimum and maximum lengths of Code 11.

Enter: **7E 01 30 30 30 30 40 43 31 31 4D 49 4E 2A 2C 4D 41 58 2A 3B 03**
(~<SOH>0000@C11MIN*,MAX*;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11MIN12<ACK>,MAX22<ACK>;<ETX>)

Note: If you need to change device parameters in real-time via the host, it is recommended to use the temporary setting with **StorageType set to** “#”. The permanent setting, with **StorageType set to** “@”, involves erasing and writing to the flash memory, which may affect the lifespan of the device's flash memory.

Chapter 13 Batch Programming

Introduction

Batch programming enables users to integrate a batch of commands into a single batch barcode.

Listed below are batch programming rules:

1. Command format: Command + Parameter Value.

2. Each command is terminated by a semicolon (;). Note that there is no space between a command and its terminator semicolon.

3. Use the barcode generator software to generate a 2D batch barcode.

Example: Create a batch barcode for **Illumination Always On**, **Sense Mode**, **Decode Session Timeout** = 2s:

1. Input the commands:

   @ILLSCN2;SCNMOD2;ORTSET2000;

2. Generate a batch barcode.

When setting up a scanner with the above configuration, scan the **Enable Batch Barcode** barcode and then the batch barcode generated.

@BATCHS

Enable Batch Barcode

Create a Batch Command

A batch command may contain a number of individual commands each of which is terminated by a semicolon (;).

For more information, refer to the “Use of Programming Command” section in Chapter 3.

Create a Batch Barcode

Batch barcodes can be produced in the format of PDF417, QR Code or Data Matrix.

Example: Create a batch barcode for **Illumination Always On**, **Sense Mode**, **Decode Session Timeout** = 2s:

1. Input the following commands:

   @ILLSCN2;SCNMOD2;ORTSET2000;

2. Generate a PDF417 batch barcode.

Use Batch Barcode

To put a batch barcode into use, scan the following barcodes. (Use the example above.)

Enter Setup

Enable Batch Barcode

Batch Barcode

Exit Setup

Chapter 14 JavaScript Development Guide

Introduction

This chapter introduces the core operation of JavaScript in the FM600 device. It covers key development aspects such as variable control, flow statements, and string processing, helping users quickly build barcode data processing logic.

Function

Core Functions

Below are the core functions available for scripting in the FM600 device:

Function	int get_codes()
Description	Retrieves the total number of codewords, supporting both single-barcode and multi-barcode scenarios.
Parameters	None
Return Value	Integer, representing the number of codewords.
Function	string get_decMsg(int n)
Description	Retrieves the nth codeword from the list of all codewords.
Parameters	n (integer, range: 0 to N); the index of the codeword in the list of all codewords.
Return Value	String, representing the nth codeword
Function	int get_msgLength(int n)
Description	Retrieves the length of the nth codeword from the list of all codewords.
Parameters	n (integer, range: 0 to N); the index of the codeword in the list of all codewords.
Return Value	Integer, representing the length of the nth codeword.

Function	void set_codes (int n)
Description	Sets or modifies the total number of codewords
Parameters	n (integer); the total number of codewords.
Return Value	None
Function	void set_decMsg (int n,string newMess,int length)
Description	Sets, edits, or modifies the nth codeword
Parameters	n (integer): The index of the codeword in the list of all codewords. newMess (string): The new content of the codeword. length (integer): The length of the codeword.
Return Value	None

Data Processing Functions

String Extraction: `substring(start, end)` / `substr(start, length)`

String Replacement: `replace(oldStr, newStr)`

String Conversion: `toLowerCase()` / `toUpperCase()`

String Concatenation: `concat(str1, str2, ...)`

String Reversal: `split("").reverse().join("")`

Basic Programming Guidelines

Variable Management

// Variable declaration example

var codeCount = get_codes(); *// Automatically inferred as an integer type*

var message = get_decMsg(0); *// Automatically inferred as a string type*

Conditional Judgment

```
var msgLen = get_msgLength(0);

if (msgLen <= 10) {

    var result = "short";

} else {

    var result = "long";

}
```

Loop Control

```
for (var i = 0; i < get_codes(); i++) {

    var currentMsg = get_decMsg(i);

    // Execute specific business logic

}
```

Advanced String Processing

Content Operations

```
// Character positioning and substring extraction

var msg = get_decMsg(0);

var index = msg.indexOf('123');

var subMsg = msg.substr(index + 1);

// Regular expression matching
```

```
var searchResult = msg.search(/abc/);
```

Format Conversion

```
// Case conversion
var upperMsg = msg.toLocaleUpperCase();
var lowerMsg = msg.toLowerCase();
// Type conversion
var numericValue = parseInt(msg);
var stringValue = numericValue.toString();
```

System Configuration Methods

Scanner Settings

```
// Set default parameters
function initScannerConfig() {
    set_codes(200); // Initialize codeword library capacity
    set_decMsg(0, "DEFAULT_CODE", 10); // Set default codeword
}

// Dynamic configuration update
function updateConfig() {
    var currentCount = get_codes();
    for (var i = 0; i < currentCount; i++) {
        var msg = get_decMsg(i);
```

```
            if (msg.startsWith("TEMP")) {
                set_decMsg(i, msg.replace("TEMP", "ACTIVE"), msg.length);
            }
        }
    }
```

Security and Exception Handling

Parameter Validation

```
function validateInput(n) {
    if (typeof n !== 'number' || n < 0 || n >= get_codes()) {
        return -1; // Return error code
    }
    return 0; // Return 0 if validation passes
}
// Example call
var validationResult = validateInput(100);
if (validationResult !== 0) {
    var errorMsg = "Invalid parameter";
    // Execute error handling logic
}
```

Error Handling Mechanism

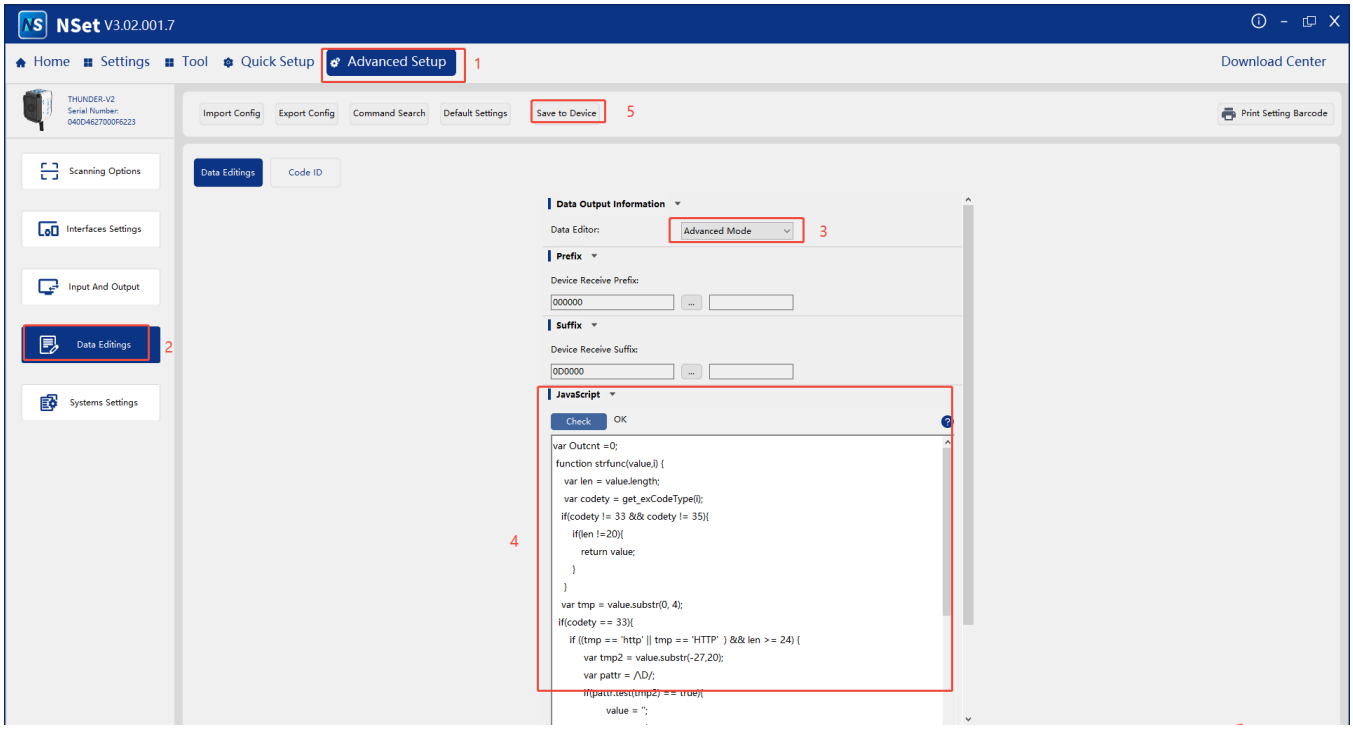
```
var errorStatus = 0;
```

```
try {
    var sensitiveMsg = get_decMsg(100); // Index out of range
} catch (error) {
    errorStatus = 1; // Set error status code
    set_decMsg(999, "ERROR_CODE", 10); // Record error code
}



// Perform follow-up operations based on error status
if (errorStatus === 1) {
    // Handle error scenario
}
```

Configuration

Use the Nset to configure the JavaScript

1. Go to **Advanced Setup**
2. Select **Data Editing**
3. In **Data Editing**, Select **"Advanced Mode"**
4. Navigate to **JavaScript** and write the script
5. Save the settings to the device



Appendix

Digit Barcodes

0~9

0

1

2

3

4

5

6

7

8

9

A~F

A

B

C

D

E

F

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 Last Digit** barcode and then the correct digit, or scan the **Delete All Digits** barcode and then the digits you want.

For instance, after reading the **Maximum Length** barcode and numeric barcodes “1”, “2” and “3”, you scan:

- **Delete the Last Digit:** The last digit “3” will be removed.
- **Delete All Digits:** All digits “123” will be removed.
- **Cancel:** The maximum length configuration will be cancelled. And the scanner is still in the setup mode.

Save

Cancel

Delete the Last Digit

Delete All Digits

Factory Defaults Table (V1.00.0)

Parameter	Factory Default	Remark
Setup Settings		
Barcode Programming	Disabled (Exit Setup)	
Programming Barcode Data	Do not transmit	
Communication Settings		
Adaptive Wired Communication	On	
Default Interface	USB CDC	
RS-232 Interface		
Baud Rate	9600	
Parity Check	None	
Data Bits	8	
Stop Bits	1	
USB Interface		
USB Country Keyboard	US keyboard	USB HID Keyboard
Beep on Unknown Character	Off	USB HID Keyboard
Emulate ALT+Keypad	Off	USB HID Keyboard
Code Page	Code Page 1252 (West European Latin)	USB HID Keyboard
Unicode Encoding	Off	USB HID Keyboard
Emulate Keypad with Leading Zero	On	USB HID Keyboard
Function Key Mapping	Disable	USB HID Keyboard
Inter-Keystroke Delay	No Delay	USB HID Keyboard
Caps Lock	Caps Lock OFF, non-Japanese Keyboard	USB HID Keyboard
Convert Case	No Case Conversion	USB HID Keyboard
Emulate Numeric Keypad 1	Off	USB HID Keyboard
Emulate Numeric Keypad 2	Off	USB HID Keyboard
Fast Mode	Off	USB HID Keyboard
Polling Rate	4ms	USB HID Keyboard
Basic Settings		
Scan Mode	Level Mode	
Decode Session Timeout	3000ms	1-3,600,000ms; 0: Infinite
Types of Triggering	High Level Triggering	
Enter the Detection/Reading State	Enter the Detection	
Image Stabilization Timeout	500ms	1-3000ms

Trigger Selection	IR Proximity Trigger	
Image Change Trigger Sensitivity	5	
Scanning Interval (Continuous Mode)	500ms	
eread Timeout	Disabled ,1500ms	1-3,600,000ms
Reread Timeout Reset	Off	
Good Read Delay	Disabled, 500ms	1-3,600,000ms
Scanning Preference	Normal Mode	
Security Level	Security Level 0	
Decode Area	Whole Area Decoding	
Image Flipping	Do Not Flip	
Bad Read Message	Do not Send	
Bad Read Message	NG	
Polarity of Good Read Signal	Low Level Output	
Good Read Indicator Duration	500ms	
Good Read Indicator Delay	0	
Polarity of Bad Read Signal	Low Level Output	
Bad Read Indicator Duration	500ms	
Bad Read Indicator Delay	0	
Trigger Commands	Enabled	
Start Scanning Command	<SOH> T <EOT>	
Stop Scanning Command	<SOH> P <EOT>	
Power On LED Indicator	On	
Illumination	On	
Aiming	On	
Good Read LED	On	
Good Read LED Duration	20ms	
Power On Beep	On	
Good Read Beep	On	
Good Read Beep Duration	Medium (80ms)	
Good Read Beep Frequency	Medium (2730Hz)	
Good Read Beep Volume	Loud	
Auto Sleep	Disabled	
Time Period from Idle to Sleep		
Symbologies		
Global Settings		

1D Inverse Code	Regular 1D Code Only	
Surround GS1 AI's with Parentheses	Do Not Surround GS1 AI's with Parentheses	
Code 128		
Code 128	Enabled	
Maximum Length	127	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Character	Transmit the Check Character	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
EAN-13		
EAN-13	Enabled	
Check Character	Transmit the Check Character	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
UPC-E		
UPC-E0	Enabled	
UPC-E1	Disabled	
Check Character	Transmit the Check Character	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	System Character	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit the Check Character	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	Do Not Transmit	
Coupon		
UPC-A/EAN-13 with Extended Coupon Code	Disabled	

Coupon GS1 DataBar Output	Disabled	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Maximum Length	127	
Minimum Length	1	No less than 4
Check Character Verification	Disabled	
Febraban		
Febraban	Disabled	
Transmit Delay per Character	Disabled	
	70ms	
Transmit Delay per 12 Characters	Disabled	
	500ms	
ITF-14		
ITF-14	Disabled	
ITF-6		
ITF-6	Disabled	
Matrix 2 of 5		
Matrix 2 of 5	Enabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	Disabled	
Code 39		
Code 39	Enabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Enabled	
Code 32 Pharmaceutical (PARAF)	Disabled	
Code 32 Prefix	Disabled	
Code 32 Start/Stop Character	Do not transmit	
Code 32 Check Character	Do not transmit	
Codabar		
Codabar	Enabled	
Maximum Length	127	

Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
	ABCD/ABCD	
Code 93		
Code 93	Enabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	Enabled	
China Post 25		
China Post 25	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification		
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier “01”	Transmit	
EAN•UCC Composite		
GS1 Composite	Disabled	
UPC/EAN Composite	Disabled	
Code 11		
Code 11	Disabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	One Check Character, MOD11	
Check Character	Transmit	
ISBN		
ISBN	Enabled	
Set ISBN Format	ISBN-13	
ISSN		

ISSN	Disabled	
Industrial 25		
Industrial 25	Disabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	Disabled	
Standard 25		
Standard 25	Enabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	Disabled	
Plessey		
Plessey	Enabled	
Maximum Length	127	
Minimum Length	1	No less than1
Check Character Verification	Disabled	
MSI-Plessey		
MSI-Plessey	Enabled	
Maximum Length	127	
Minimum Length	1	No less than 1
Check Character Verification	One Check Character, MOD10	
Check Character	Do Not Transmit	
AIM 128		
AIM 128	Enabled	
Maximum Length	127	
Minimum Length	1	
ISBT 128		
ISBT 128	Disabled	
Code 49		
Code 49	Disabled	
Maximum Length	80	
Minimum Length	1	
Code 16K		
Code 16K	Disabled	
Maximum Length	80	

Minimum Length	1	
Pharmacode		
Pharmacode	Disable	
One-Track	Enable	
Pharmacode One-Track Decoding Direction	Left to Right	
Minimum Number of Pharmacode One-Track	9	2~16
Maximum Number of Pharmacode One-Track	16	
Pharmacode One-Track Inverse	Regular	
Pharmacode One-Track Quiet Zone	9	1~20
Pharmacode One-Track Output Format	Normal Format	
Two-Track	Enable	
Pharmacode Two-Track Decoding Direction	Left to Right	
Minimum Number of Pharmacode Two -Track	9	2~16
Maximum Number of Pharmacode Two -Track	16	
Pharmacode Two -Track Inverse	Regular	
Pharmacode Two -Track Quiet Zone	9	1~20
Pharmacode Two -Track Output Format	Normal Format	
PDF417		
PDF417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF417 Inverse	Decode Regular PDF417 Barcodes Only	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Enabled	
Micro PDF417		
Micro PDF417	Disabled	
Maximum Length	366	
Minimum Length	1	
QR Code		
QR Code	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Inverse	Decode Regular QR Barcodes Only	
Character Encoding	Default Character Encoding	
QR ECI Output	Enabled	

URL QR		
Custom URL QR		
Micro QR Code		
Micro QR	Enabled	
Maximum Length	35	
Minimum Length	1	
Aztec		
Aztec Code	Disabled	
Maximum Length	3832	
Minimum Length	1	
Aztec Inverse	Decode Regular Aztec Barcodes Only	
Character Encoding	Default Character Encoding	
Aztec ECI Output	Enabled	
Data Matrix		
Data Matrix	Enabled	
Maximum Length	3116	
Minimum Length	1	
Rectangular Barcode	Enabled	
Data Matrix Inverse	Decode Regular Data Matrix Barcodes Only	
Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
Maxicode		
Maxicode		
Maxicode	Disabled	
Maximum Length	150	
Minimum Length	1	
Chinese Sensible Code		
Chinese Sensible Code	Disabled	
Maximum Length	7827	
Minimum Length	1	
Chinese Sensible Code Inverse	Decode Regular Chinese Sensible Barcodes Only	
GM Code		
GM	Disabled	
Maximum Length	2751	

Minimum Length	1	
Code One		
Code One	Disabled	
Maximum Length	3550	
Minimum Length	1	
DotCode		
DotCode	Disabled	
Maximum Length		
Minimum Length		
USPS Postnet		
USPS Postnet	Disabled	
Check Character	Transmit	
USPS Intelligent Mail		
USPS Intelligent Mail	Disabled	
Royal Mail		
Royal Mail	Disabled	
USPS Planet		
USPS Planet	Disabled	
Check Character	Transmit	
KIX Post		
KIX Post	Disabled	
Australian Postal		
Australian Postal	Disabled	
Japan Post		
Japan Post	Disabled	
Chinese ID Card OCR		
Chinese ID Card OCR	Disabled	
Passport OCR		
Passport OCR	Disabled	
China Travel Permit OCR		
China Travel Permit OCR	Disabled	
Prefix & Suffix		
All Prefixes/Suffixes	Disabled	
Prefix Sequence	Code ID+ Custom +AIM ID	
Custom Prefix	Disabled	

AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	
Custom Suffix	Disabled	
Terminating Character Suffix	Enabled（Return）	

AIM ID Table (V1.00.0)

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code 128	]C0	
GS1-128 (UCC/EAN-128)	]C1	
EAN-8	]E4	
EAN-8 with Addon	]E3	
EAN-13	]E0	
EAN-13 with Addon	]E3	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5	]Im	0，1，3
ITF-14	]Im	1，3
ITF-6	]Im	1，3
Matrix 2 of 5	]X0	
Code 39	]Am	0，1，3，4，5，7
Codabar	]Fm	0，2，4
Code 93	]G0	
China Post 25	]X0	
AIM 128	]C2	
ISBT 128	]C4	
ISSN	]X0	
ISBN	]X0	
Industrial 25	]S0	
Standard 25	]R0	
Plessey	]P0	
Code 11	]Hm	0，1，3
MSI Plessey	]Mm	0，1
GS1 Composite	]em	0-3
GS1 Databar(RSS）	]e0	
Code 49	]T0	
Code 16K	]K0	
Pharmacode	]X0	

PDF417	]Lm	0-2
QR Code	]Qm	0-6
Aztec	]zm	0-9， A-C
Data Matrix	]dm	0-6
Maxicode	]Um	0-3
汉信码（Chinese Sensible Code）	]X0	
GM	]gm	(0~9)
Micro PDF417	]L0	
Micro QR	]Q1	
Code One	]X0	
DotCode	]Jm	0~5
USPS Postnet	]X0	
USPS Inteligent Mail	]X0	
Royal Mail	]X0	
USPS Planet	]X0	
KIX Post	]X0	
Australian Postal	]X0	
Japan Post	]X0	
Passport OCR	]o2	
Chinese ID Card	]o2	
China Travel Permit OCR	]o2	

Code ID Table (V1.00.0)

Symbology	Code ID
Code 128	j
GS1-128 (UCC/EAN-128)	j
EAN-8	d
EAN-13	d
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-14	e
ITF-6	e
Matrix 2 of 5	v
Code 39	b
Codabar	a
Code 93	i
China Post 25	X
AIM 128	X
ISBT 128	X
ISSN	g
ISBN	B
Industrial 25	I
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Composite	y
GS1 Databar (RSS)	R
Code 49	X
Code 16K	X
Pharmacode	X
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u

MaxiCode	x
Chinese Sensible Code	h
GM Code	x
Micro PDF417	R
Micro QR	X
Code One	X
DotCode	X
USPS Postnet	P
USPS Intelligent Mail	M
Royal Mail	x
USPS Planet	L
KIX Post	K
Australian Postal	A
Japan Post	J
Passport OCR	O
Chinese ID Card	S
China Travel Permit OCR	S

Symbology ID Number (V1.00.0)

Symbology	ID Number
Code 128	002
GS1-128 (UCC/EAN-128)	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 OF 5	008
ITF-14	009
ITF-6	010
Matrix 2 of 5	011
Code 39	013
Codabar	015
Code 93	017
China Post 25	019
AIM 128	020
ISBT 128	021
ISSN	023
ISBN	024
Industrial25	025
Standard25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Composite	030
GS1 Databar (RSS)	031
PDF417	032
QR Code	033
Aztec	034
Data Matrix	035
Maxicode	036
Chinese Sensible Code	039
GM Code	040

Micro PDF417	042
Micro QR	043
Code One	048
DotCode	050
Chinese ID Card	065
Passport OCR	066
China Travel Permit OCR	068
USPS Postnet	096
USPS Inteligent Mail	097
Royal Mail	098
USPS Planet	099
KIX Post	100
Australian Postal	101
Japan Post	102
Code 49	132
Code 16K	133

ASCII Table

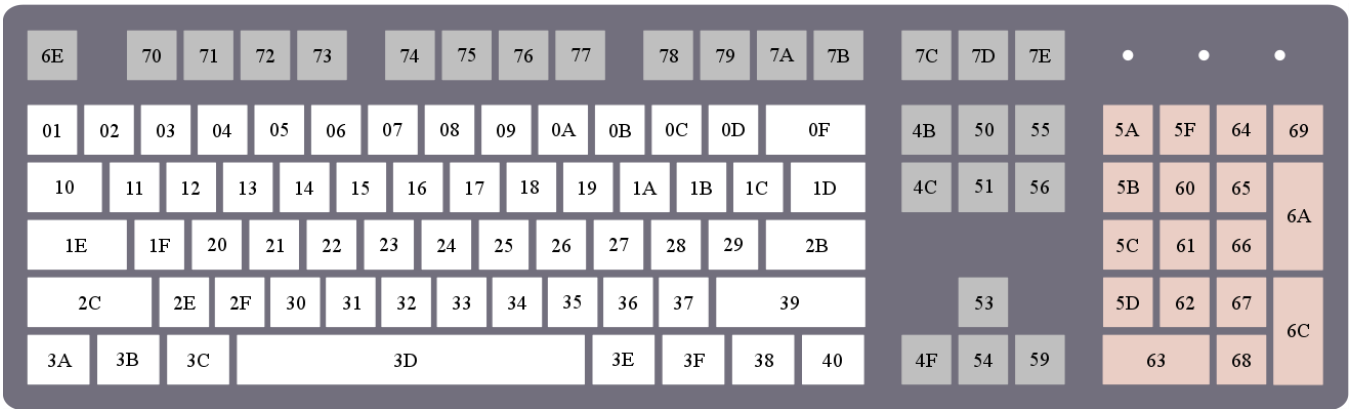
Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (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	((Left/ Opening 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)

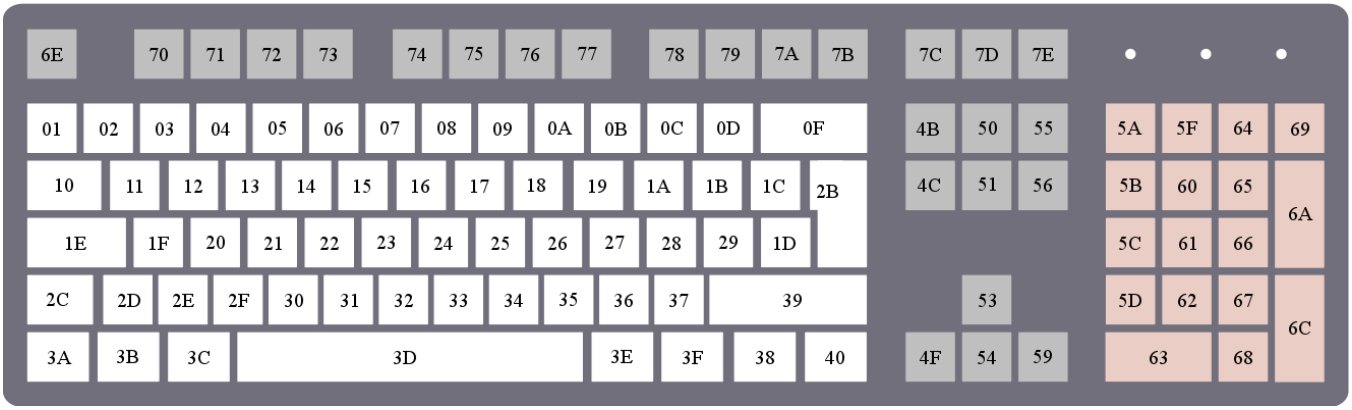
Hex	Dec	Char
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left/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

Keyboard Key References

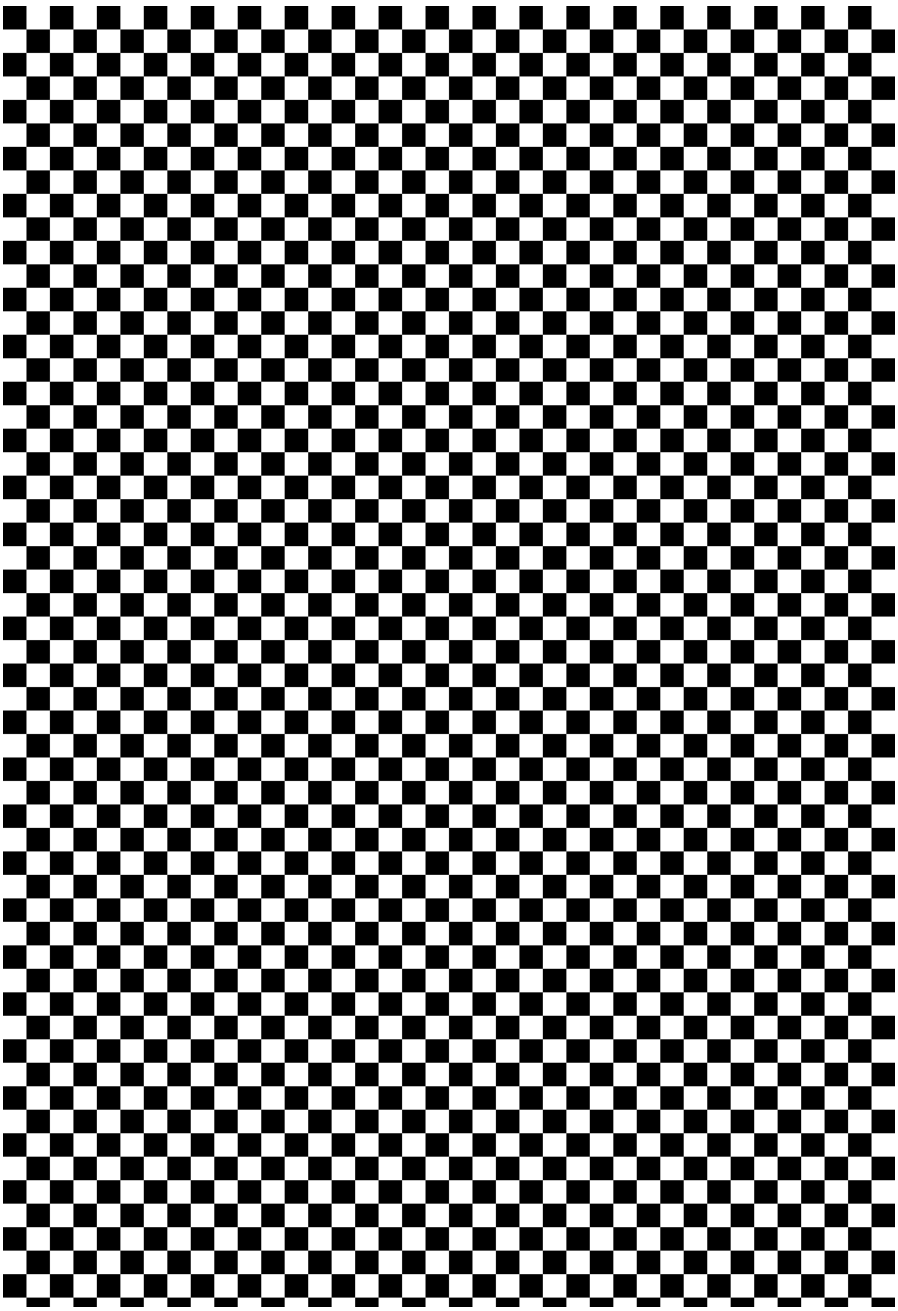


104 Key U.S. Style Keyboard



105 Key European Style Keyboard

Calibration Grid



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