cino

FUZZYSCAN

Barcode Programming Manual

International Edition, A15 Release

Revision History

REV.	Date	Briefing	
A1	Sep, 2022	[New]	First release
A2	Nov, 2022	[New]	Added User-defined Function Key
		[New]	Added Appendix – Function Key Character Table
		[New]	Added OK/NG indicator-related options of OK/NG Signal Output
		[New]	Added GS1 Prefix/Suffix Output
		[New]	Added GS1 Format Mismatch Rule
		[Changed]	Changed default option of OK/NG Beeping
		[Changed]	Renamed to Handheld Decode Timeout and Handsfree Decode Timeout
		[Changed]	Renamed to Handheld Center Alignment and Handsfree Center Alignment
		[Changed]	Renamed to 2D Handheld Illumination & Aiming Control and 2D Handsfree Illumination & Aiming Control
		[Changed]	Changed option code of Fixed Mount Scanners Operation Mode
A3	Jan, 2023	[New]	Renamed Presentation Trigger to Presentation Trigger Select
		[New]	Renamed Presentation Scan to Presentation Continuous Scan
		[New]	Changed default option of MicroPDF Readability
A4	Mar, 2023	[Changed]	Changed applied model of USB Data Merge to all models
A5	May, 2023	[New]	Added Keyboard Num Lock Auto Detect
		[New]	Added 2D Presentation Background Lighting
		[Changed]	Changedd default value of Auto-sense Control of Bluetooth scanners
A6	Jul, 2023	[New]	Added GS1 DataBar Limited Security Level
		[New]	Added Companion Function Key 1 and Function Key 2 Control
A7	Sep, 2023	[New]	Added I/O Active State
		[Changed]	Renamed Power-on Indicator to Power Indicator
A8	Oct, 2023	[New]	Added Modifier Key Output Control
		[Changed]	Revised 2D Smart Scene
A9	Dec, 2023	[New]	Added IR sensitivity
		[New]	Added Alt Code Digit Control
		[New]	Added Alt Code BREAK Control
		[New]	Added IR Sensitivity
		[New]	Added options of Arabic, Thai, Russian, and Vietnamese layouts to Keyboard Country Layout
		[New]	Added option of 230.4K BPS to Serial Baud Rate
		[New]	Added option of Image Motion Detect to Presentation Trigger Select
		[New]	Added functions of QR Append, QR Inverse, and QR Mirror Image to Micro QR code
		[New]	Added supported category Fixed Mount Scanners to Presentation Trigger Select
		[New]	Added option of Polish to Keyboard Country Layout
		[Changed]	Renamed UPC Leading Digit 1 to UPC E1 Readablity
A9	Dec, 2023	[Changed]	Changed default option of Presentation Continuous Scan
		[Changed]	Renamed Composite Code to GS1 Composite Code

Revision History (continued)

REV.	Date	Briefing	
A10	Feb, 2024	[Changed]	Changed default value of 2D scan engine to Regular Aiming under 2D Aiming Select
A11	Apr, 2024	[Changed]	Renamed 1D Reading Redundancy to Reading Redundancy
A12	Aug, 2024	[Changed]	Changed 1D scanner support for 1200 BPS in Serial Baud Rate
A13	Sep, 2024	[New]	Added Illumination Color, DPM Illumination, DPM Diffused Illumination, Illumination Rotation Interval, DPM Mode, 2D Illumination Intensity, Low Power State and Time Delay to Low Power State
		[New]	Added option of user-defined decoding area to Handheld/Hands-free Alignment
A14	Sep, 2024	[Changed]	Revised Handheld/Hands-free Alignment
A15	Dec, 2024	[New]	Added USB Legacy Mode, Trigger Toggle, Trigger Number, ROI, Swift Serial Reading, User-defined Serial Trigger On/Off, Command Barcode Lock

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About This Manual

This programming manual provides general instructions on setting up Cino's FuzzyScan scanners.

Chapter 1, Overview

This chapter contains an overview of the system commands, quick set commands, family codes, and option codes used when setting up FuzzyScan barcode scanners. It also presents general information on Cino's programming procedures, as well as simple flowcharts to help users better understand the configuration process.

Chapter 2, Interface Settings

This chapter presents different parameters to help users with host interface selection and related configurations. You will find settings that pertain to keyboard interface output (such as keypad layout and code pages), and serial interface output (such as baud rate, data frame, and more).

Chapter 3, Barcode Reading

This chapter contains the parameters that will help users set up their scanners to read different types of barcodes supported by FuzzyScan scanners. Corresponding detailed settings of each code type are also collected in this chapter. Users can enable the Barcode ID function to identify the type of code scanned.

Chapter 4, Operation Modes

This chapter provides a complete list of available operation modes for each product series. To fulfill the needs of different application scenarios, the scanners' default modes and available mode options vary from series to series.

Chapter 5, Operation Control

This chapter presents the parameters related to the operation of your scanner. You will find settings for functionalities, including general scanner settings, user feedback control such as buzzer and vibration, and special parameters for different scanners.

Chapter 6, Bluetooth Settings

The information contained in this chapter pertains to the Bluetooth-related settings of FuzzyScan cordless scanners. The parameters presented herein are exclusively on Bluetooth models (such as batch scanning and validation scanning), as well as general Bluetooth settings related to the device name, security, radio link and time-out settings.

Chapter 7, Data Modifications

This chapter presents the different parameters for altering data before the scanner transmits it. You will find the option to add extra characters or to include an informative element, as well as the parameters to control the powerful GS1 parsing tool.

Chapter 8, Appendix

The Appendix contains additional information that is essential to the programming of your FuzzyScan barcode scanners. In this chapter, you will find useful tables pertaining to 1D barcode ID, 2D barcode ID, keyboard function codes, ASCII/HEX conversion, code pages. This section also includes quick set commands, systems commands, as well as option codes.

Other Documentation

You may also refer to the documents below for additional information.

FuzzyScan Quick Start Guide

Quick introduction to scanner setup and operation

FuzzyScan User Manual

Information pertaining to the setup and operation of Cino barcode scanners

FuzzyScan Serial Command Manual

Information on using serial commands to program Cino barcode scanners

Table of Contents

1 Command Overview

This chapter contains an overview of the system commands, quick set commands, family codes, and option codes used when setting up FuzzyScan barcode scanners. It also presents general information on programming procedures, as well as simple flowcharts to help users better understand the configuration process.

1.1 Introduction

FuzzyScan command barcodes are specially designed barcodes that allow you to program Cino scanners. They can be grouped into three main categories: System Commands, Family Codes and Option Codes. Further details and programming flowcharts are provided below.

System Commands

System Commands direct FuzzyScan imagers to perform immediate operations, ie. enter programming mode (**PROGRAM**), exit programming mode (**END**), list system information (**SYSLIST**), and return to factory settings (**F_DEFAULT**). It will take a few seconds to complete the system command operations, so users must wait for the completion beeps before scanning another barcode.

Family Codes

Each parameter has a specific family code as its identification. There are over one hundred family codes available.

Option Codes

Option Codes are a set of command barcodes represented by the characters **"0-9"**, **"A-F"** and **FIN** (finish selection). For most settings, you must choose at least one option code after selecting a family code to set the desired parameter.

Quick Set Commands

Quick set commands are command barcodes designed to rapidly set your FuzzyScan imager to a particular operation mode, host interface setting, Bluetooth link mode, or keyboard language layout.

1.2 Programming Procedures

Selected parameters are stored in the internal Flash Memory ASIC or non-volatile memory, even after the scanner is powered off.

Most family codes require the **Single Scan Selection** programming procedure. Other family codes have more sophisticated procedures, such as **Multiple Scans Selection, Cycling Scan Selection** or **Dual Level Selection**. The flowchart for each procedure is provided below.

The beeping indications for each FuzzyScan model can be found in the corresponding user manuals. They will help you recognize the scanner's status during configuration.

1.3 Notational Conventions

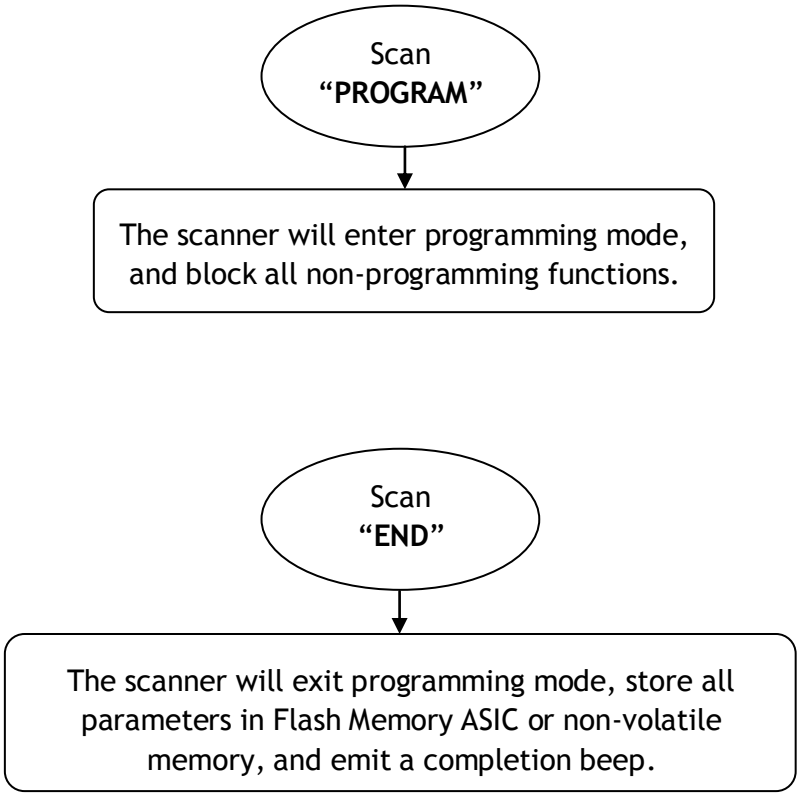
Conventions	Descriptions	
◄	Factory Default Value	
PP	SS : Single scan selection MS : Multiple scans selection	CS : Cycling scan selection DS : Dual level scan selection
OC1	Option Code 1	
OC2	Option Code 2	
( )	Necessary Option Code	
[ ]	Selectable Option Code	

Conventions	Descriptions
ALL	Family Code applies to all FuzzyScan models
2D ONLY	Family Code only applied to FuzzyScan 2D imager models: A800/BT, A700/BT, A600/BT, A500, FA400, PA600, S600, SE6000, SM6000 and SM5000 series
1D ONLY	Family Code only applied to FuzzyScan linear imager models: F800/BT, F700/BT, F600/BT, F500, L700/BT, L600/BT, FM400, PF600BT, PL600BT, SM400/300 series
HANDHELD	Family Code only applied to FuzzyScan handheld models: A800/BT, A700/BT, A600/BT, A500, F800/BT, F700/BT, F600/BT, F500, L700/BT, L600/BT, PA600BT, PF600BT, PL600BT series
COMPANION	Family Code only applied to FuzzyScan companion models: PA600BT, PF600BT, PL600BT series
FIXED MOUNT	Family Code only applied to FuzzyScan fixed mount models: FA400, FM400, SM5000 series
SCAN ENGINE	Family Code only applied to FuzzyScan scan engine/module models: SE6000, SE400/300, SM6000, SM400/300 series
SCAN MODULE	Family Code only applied to FuzzyScan integrated scan module models: IM600, IM300 series
ON COUNTER	Family Code only applied to FuzzyScan on-counter models: S600 series
CORDED	Family Code applies to FuzzyScan handheld corded models
CORDLESS	Family Code applies to FuzzyScan handheld cordless models
LASER ONLY	Family Code only applied to FuzzyScan laser imager models: L700/BT, L600/BT, PL600BT series
BLUETOOTH	Family Code only applied to FuzzyScan Bluetooth models: A800BT, A700BT, A600BT, F800BT, F700BT, F600BT, L700BT, L600BT, PA600BT, PF600BT, PL600BT series

1.4 Programming Flowcharts

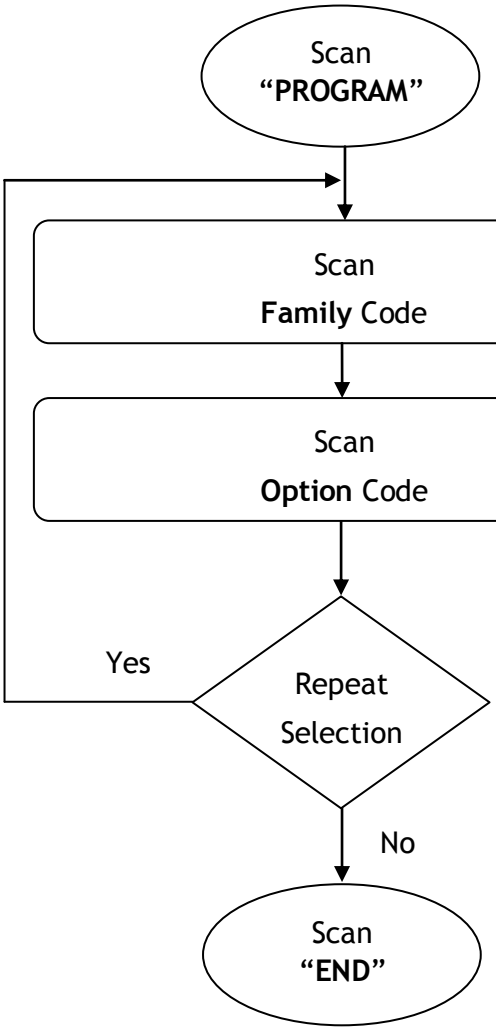
This section provides a simplified overview of how to program your scanner. Each flowchart is organized to guide you through a specific series of scanning sequence.

Program & End



It will take 3-4 seconds for the parameters to be stored after scanning **“END”**. Please **do not** turn off your scanner before hearing the completion beep. Otherwise, the settings may be lost.

Single Scan Selection



Enter programming mode.

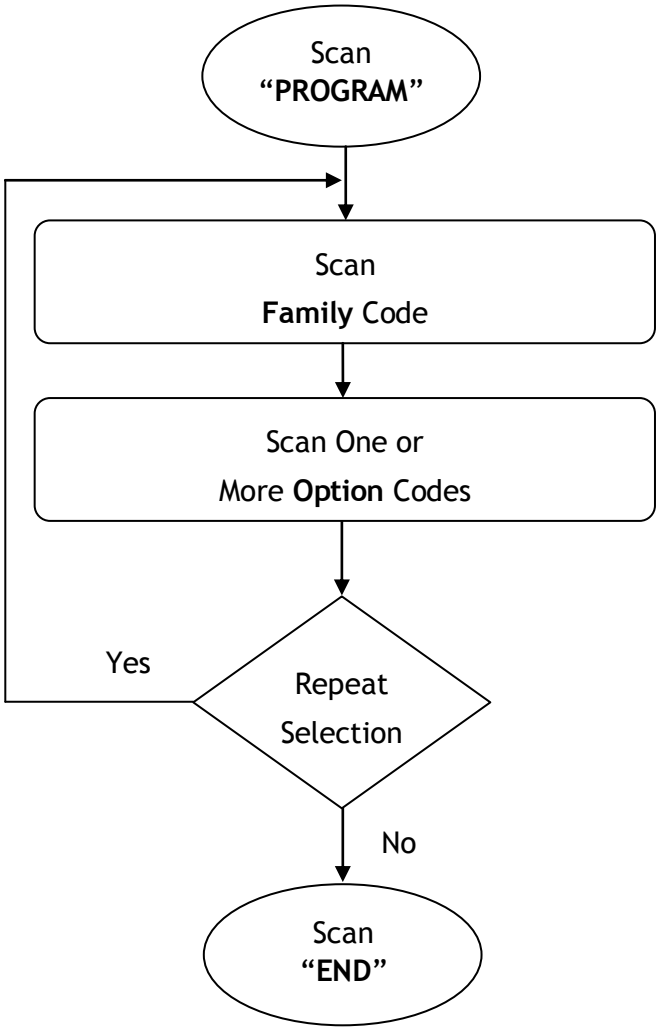
Select a family code.

Select an option code.

Decide whether or not to select another family code.

Exit programming mode.

Multiple Scans Selection



Enter programming mode.

Select a family code.

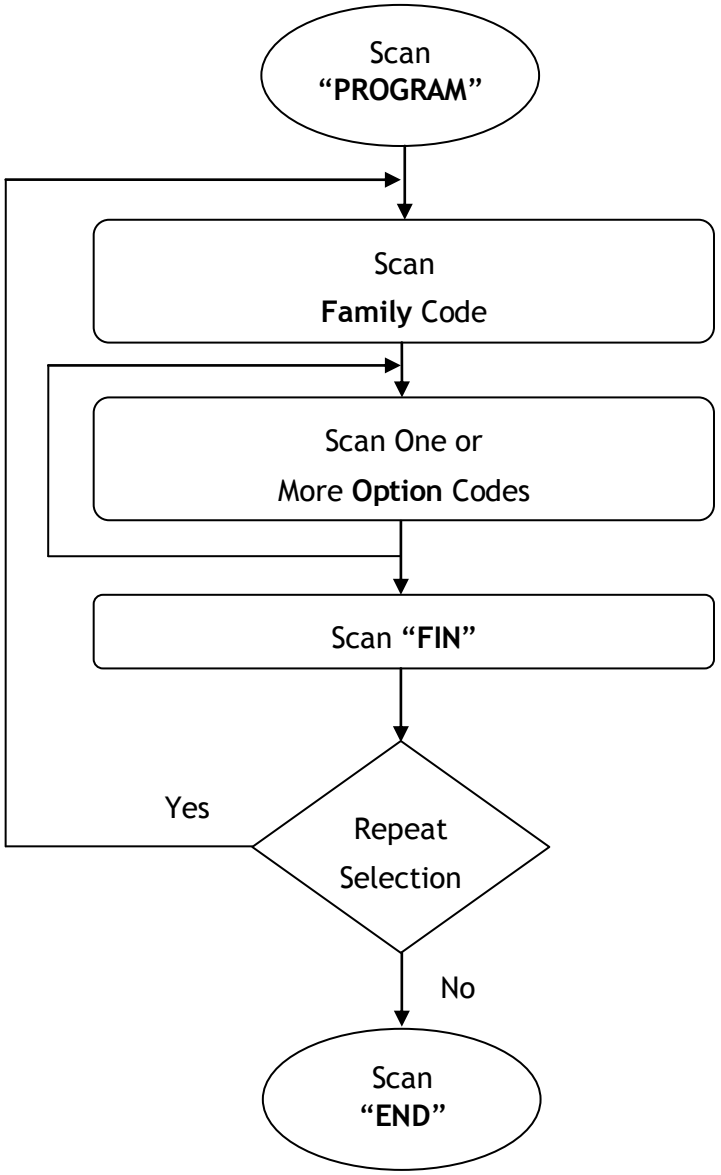
Select one or more option codes, as applicable.

Scan “FIN” to conclude an option code selection.

Decide whether or not to select another family code.

Exit programming mode.

Cycling Scan Selection



Enter programming mode.

Select a family code.

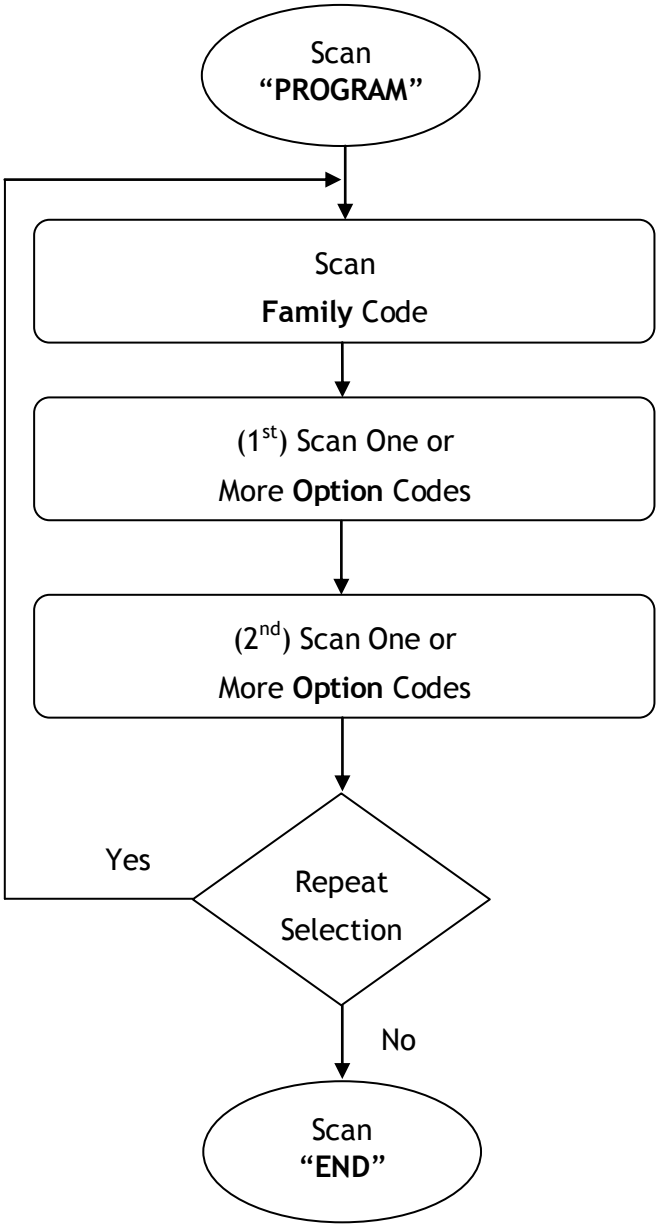
Select one or more option codes, with “SS” or “MS” procedures.

Scan “FIN” to conclude an option code selection.

Decide whether or not to select another family code.

Exit programming mode.

Dual Level Selection



Enter programming mode.

Select a family code.

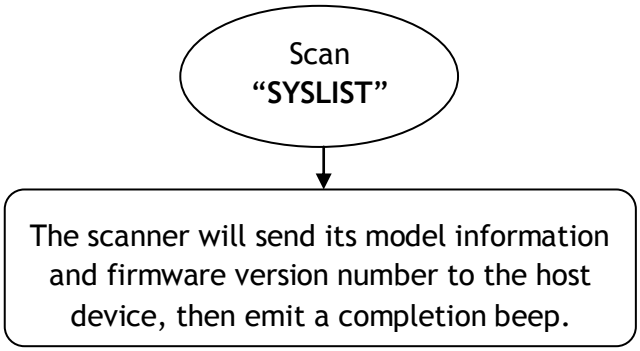
Select one or more option codes, as applicable.

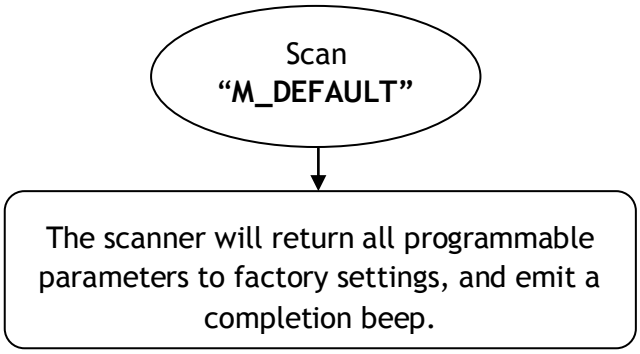
Scan "FIN" to conclude an option code selection.

Decide whether or not to select another family code.

Exit programming mode.

System & Quick Set Commands





2 Interface Settings

This chapter presents different parameters to help users with host interface selection and related configurations. You will find settings that pertain to keyboard interface output (such as keypad layout and code pages), and serial interface output (such as baud rate, data frame, and more).

2.1 Host Interface Settings

This section provides the command barcode for configuring the host interface settings of your scanner. Scan the **"Host Interface"** command barcode to select the desired host interface for your scanner.

Host Interface Selection

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Host Interface	MS	USB OEM	05
	MS	RS232 Serial	06
	MS	USB CDC/Virtual COM	09
	MS	Laser Emulation (1D Handheld only)	17
	MS	USB HID Keyboard ◄	18

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2.2 Keyboard Interface Settings

This section provides a series of command barcodes for configuring the keyboard, alt code and modifier settings of your scanner. You can find the functional details of each command barcode and specified parameter selection.

Caps Lock

ALL

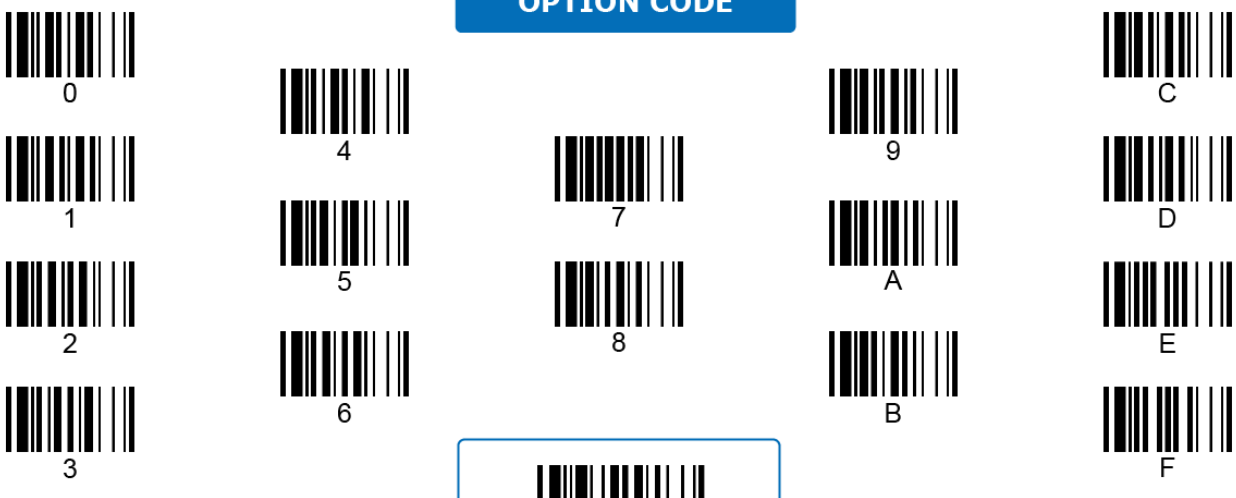
Program

Family Code	PP	Parameter Selection	Option Code
Caps Lock	SS	Caps Lock Off ◄	0
	SS	Caps Lock On	1
	SS	Auto Detect	2

Caps Lock is designed to control whether the actual character outputs in upper or in lower case.

- **Caps Lock Off**: When selected, the scanner transmits data in the **original state** if "Caps Lock" on the host keyboard is **off**, or transmits data in the **opposite state** if "Caps Lock" on the host keyboard is **on**.
- **Caps Lock On**: When selected, the scanner transmits data in the **opposite state** if "Caps Lock" on host keyboard is **off**, or transmits data in the **original state** if "Caps Lock" on the host keyboard is **on**.
- **Auto Detect**: When selected, the scanner always transmits data in the **original state** with the help of special transmission handshaking with the host device.
- Only available with IBM PP/AT, PS/VP, PS/2 series personal computers and compatible machines.

OPTION CODE



Caps Lock Release

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Caps Lock Release	SS	Caps Lock On, Caps Off ◄	0
	SS	Caps Lock On, Shift Off	1

Caps Lock Release controls how to release “Caps Lock” on host keyboard, by pressing the “Caps Lock” key again or by pressing the “Shift” key instead.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Num Lock Auto Detect

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Num Lock Auto Detect	SS	Disable ◄	3
	SS	Enable	4

Num Lock Auto Detect: When enabled, the scanner can successfully send out characters using Alt codes regardless the state of the Num Lock.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Record Suffix

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Keyboard Record Suffix	SS	None	**0**
	SS	RETURN ◄	**1**
	SS	TAB	**2**
	SS	SPACE	**3**
	DS	User-defined character (1 character)	**5, (00-7F)**

The table below shows the complete **Keyboard Interface Message String** (USB HID):

Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	Record Suffix (KB)
1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.

To enter the character, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Key Pad Emulation

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Key Pad Emulation	SS	Disable ◄	0
	SS	Enable	1

Key Pad Emulation: When enabled, the scanner outputs numeric characters as keystrokes on the key pad when “Num Lock” is on. When disabled, it outputs numeric characters as keystrokes on the typewriter keys. This function is only available with IBM PP/AT, PS/VP, PS/2 series personal computers and compatible machines.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Upper/Lower Case

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Upper/Lower Case	SS	Normal case ◄	0
	SS	Inverse case	1
	SS	Upper case	2
	SS	Lower case	3

Upper/Lower Case controls whether the output character(s) are in upper or lower case when the scanner is in:

- **Normal case**: The scanner transmits every data character in its original font case.
- **Inverse case**: The scanner alters the font case of every data character from upper case to lower case or from lower case to upper case before transmitting it out.
- **Upper case**: The scanner transmits every data character in upper case regardless of its original font case.
- **Lower case**: The scanner transmits every data character in lower case regardless of its original font case.

Be aware that **Caps Lock** is still effective with Keyboard Upper/Lower Case function. In other word, if Caps Lock is ON on the host keyboard, the output font case should be inversed to the font case mentioned in the options above.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Intercharacter Delay

ALL

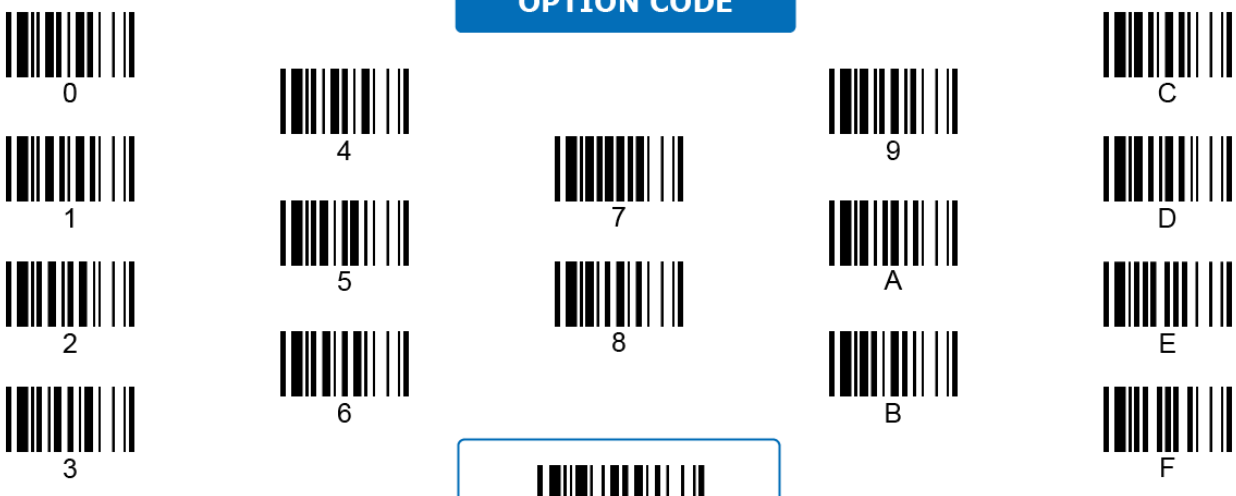
Program

Family Code	PP	Parameter Selection	Option Code
Keyboard Intercharacter Delay	SS MS	None ◄ 1-99 (x5) ms	FIN (2 digits)

Keyboard Intercharacter Delay is the time delay between characters transmitted by the scanner. Use this parameter to synchronize data communication when:

- Data transmission speed is too fast, causing characters to be skipped;
- Multitasking operation system or host computers in a network may slow down keyboard handling;
- Various notebook or desktop PC systems require different timing configurations.
- Add one extra unit as safety margin when configuring this parameter.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE



Keyboard Intermessage Delay

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Keyboard Intermessage Delay	SS	None ◄	FIN
	MS	1-99 (x5) ms (All corded series)	(2 digits)
	MS	1-99 (x10) ms (All Bluetooth series)	(2 digits)

- **Keyboard Intermessage Delay** is the time delay between messages transmitted by the scanner. Increasing this delay will help host applications process the incoming data on time.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Interfunction Delay

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Keyboard Interfunction Delay	SS MS	None ◄ 1-99 (x5) ms	FIN (2 digits)

- **Keyboard Interfunction Delay** is the time delay between two data segments divided by a function character.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Country Layout

ALL

Program

Family Code	PP	Parameter Selection		Option Code	
Keyboard Country Layout	SS	USA (QWERTY) ◄	Denmark (QWERTY)	00	12
	SS	France (AZERTY)	Belgium (AZERTY)	01	13
	SS	Germany (QWERTZ)	Swiss German (QWERTZ)	02	14
	SS	United Kingdom - UK (QWERTY)	Iceland (QWERTY)	03	15
	SS	Canadian French (QWERTY)	Japan (DOS/V)	04	16
	SS	Spain (Spanish, QWERTY)	Czech (QWERTY)	05	17
	SS	Sweden/Finland (QWERTY)	Arabic (101)	06	20
	SS	Portugal (QWERTY)	Thailand	07	23
	SS	Norway (QWERTY)	Russia (JCUKEN)	08	24
	SS	Spain (Latin America, QWERTY)	Vietnam (QWERTY)	09	26
	SS	Italy (QWERTY)	Polish	10	27
	SS	Netherlands (QWERTY)	Universal	11	99

Keyboard Country Layout enables the scanner to emulate a keyboard's output in different languages. To ensure the keyboard layout matches the language code page of the output data, it is necessary to set a correct corresponding code page using the **Keyboard Output Country Code Page** function.

- Refer to the **Appendix: Code Page - Table of Corresponding Languages** for more details about the code page of each language.
- When the **Universal** keyboard layout is selected, ASCII characters are transmitted using 'Alt Code outputs,' simulating a combination of the 'Alt' key with a series of numeric keypad inputs. For instance, the uppercase letter 'A' is transmitted as 'Alt + 0 0 6 5' in the Universal keyboard.
- The Universal keyboard layout is exclusively available for the Windows operating system.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Encoding Country Code Page

2D ONLY

Program

Family Code	PP	Parameter Selection		Option Code	
Keyboard Encoding Country Code Page	MS	UTF8	ISO 8859-1 Latin 1, West Euro	00	1E
	MS	Code page 950	ISO 8859-2 Latin 2, Central Euro	10	1F
	MS	Code page 949	ISO 8859-3 Latin 3, South Euro	11	20
	MS	Code page 936	ISO 8859-4 Latin 4, North Euro	12	21
	MS	Code page 932	ISO 8859-5 Cyrillic	13	22
	MS	Code page 874	ISO 8859-6 Arabic	14	23
	MS	WIN1250	ISO 8859-7 Greek	15	24
	MS	WIN1251	ISO 8859-8 Hebrew	16	25
	MS	WIN1252 ◄	ISO 8859-9 Latin 5, Turkish	17	26
	MS	WIN1253	ISO 8859-10 Latin 6, Nordic	18	27
	MS	WIN1254	ISO 8859-11 Thai	19	28
	MS	WIN1255	ISO 8859-13 Latin 7, Baltic	1A	29
	MS	WIN1256	ISO 8859-14 Latin 8, Celtic	1B	2A
	MS	WIN1257	ISO 8859-15 Latin 9	1C	2B
	MS	WIN1258	ISO 8859-16 Latin 10, SE Euro	1D	2C

Keyboard Encoding Country Code Page configures which code page the scanner uses when decoding 2D barcodes.

- Select **UTF8** if the 2D barcode is encoded in Unicode (UTF8).
- Make sure that the decoding code page matches the original encoding code page for the correct output. Refer to **Appendix: Code Page - Table of Corresponding Languages** for details about the code page of each language.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Keyboard Output Country Code Page

2D ONLY

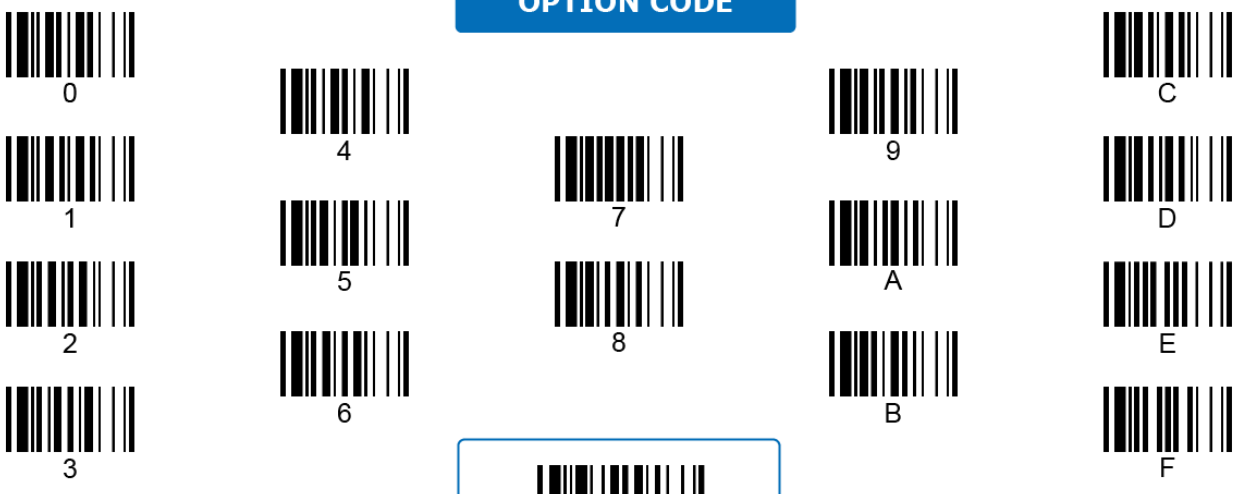
Program

Family Code	PP	Parameter Selection		Option Code	
Keyboard Output Country Code Page	MS	MAC Unicode	Code Page 855	01	31
	MS	WIN Notepad Unicode	Code Page 866	02	32
	MS	WIN WordPad Unicode	Code Page 850	03	33
	MS	Code Page 950	Code Page 437	10	34
	MS	Code Page 949	Code Page 737	11	35
	MS	Code Page 936	Code Page 857	12	36
	MS	Code Page 932	Code Page 862	13	37
	MS	Code Page 874	Code Page 720	14	38
	MS	WIN1250	Code Page 775	15	39
	MS	WIN1251	WIN1255	16	1A
	MS	WIN1252 ◄	WIN1256	17	1B
	MS	WIN1253	WIN1257	18	1C
	MS	WIN1254	WIN1258	19	1D
	MS	Code Page 852		30	

Keyboard Output Country Code Page controls which code page the scanner uses when it transmits the scanned data. Make sure that the output format matches the decoding format (**Encoding Country Code Page**) and language setting of the operating system on the host device.

- **Mac Device output**: Select "MAC Unicode Output" on the scanner, and select "Unicode Hex Input" as the input format on the MAC device with a 16-bit input setup.See **Appendix: Code Page - Unicode Hex Input Setup** for the setup process.
- **WIN Notepad Unicode output:** When outputting Unicode barcodes to Notepad, select "Unicode Hex Input" and set English (United States) as the system language on the host device. See **Appendix: Code Page - Unicode Hex Input Setup** for the setup process.
- **WIN WordPad Unicode output**: When outputting Unicode barcodes to WordPad, set English (United States) as the system language on the host device.

OPTION CODE



Alt Code Digit Control

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Alt Code Digit Control	SS	Transmit Alt Code with 3 digits	0
	SS	Transmit Alt Code with 4 digits ◄	1

Alt Code Digit Control configures how the scanner sends out ASCII codes using Alt Code output (The combination of modifier key "Alt" with several numeric keypad inputs):

- **Transmit Alt Code with 3 digits**: When selected, the scanner sends out the Alt Codes containing 3 numeric digits. For instance, the uppercase letter "A" is transmitted as "Alt + 0 6 5".
- **Transmit Alt Code with 4 digits**: When selected, the scanner sends out Alt Codes containing 4 numeric digits. For instance, the uppercase letter "A" is transmitted as "Alt + 0 0 6 5".

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Alt Code Break Control

ALL

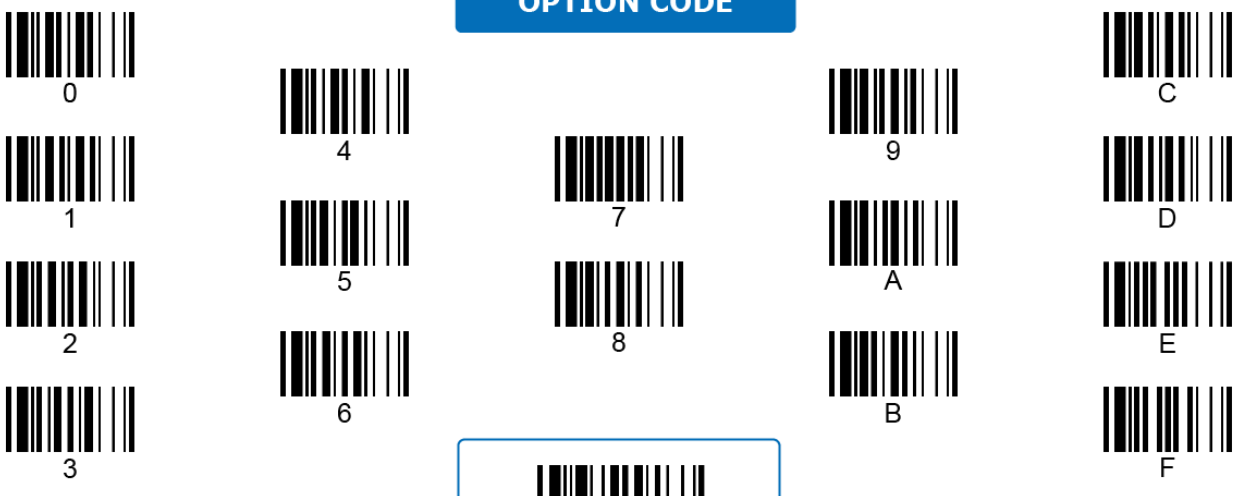
Program

Family Code	PP	Parameter Selection	Option Code
Alt Code Break Control	SS	Transmit Alt Code with BREAK keys	0
	SS	Transmit Alt Code without BREAK keys ◄	1

Alt Code Break Control configures the detail of key strokes when the scanner sends out ASCII codes using Alt Code output (The combination of modifier key "Alt" with several numeric keypad inputs):

- **Transmit Alt Code with BREAK keys**: When selected, the scanner sends out the Alt Codes with complete key strokes. For instance, when the scanner sends out uppercase letter "A" (Alt + 0 0 6 5), it sequentially sends out the key string "[Alt(MAKE)] [0(MAKE)] [0(BREAK)] [0(MAKE)] [0(BREAK)] [6(MAKE)] [6(BREAK)] [5(MAKE)] [5(BREAK)] [Alt(BREAK)].
- **Transmit Alt Code without BREAK keys**: When selected, the scanner omits the BREAK keys to speed up the transmission of the Alt Codes. For instance, when the scanner sends out uppercase letter "A" (Alt + 0 0 6 5), it sequentially sends out the key string "[Alt(MAKE)] [0(MAKE)] [0(MAKE)] [6(MAKE)] [5(MAKE)] [Alt(BREAK)]. This option enables the scanner to transmit Alt Codes more quickly but increases the likelihood of incompatibility with certain operating systems. Disable this function if you encounter difficulties sending Alt Codes.

OPTION CODE



User-defined Function Key

ALL

Program

Family Code	PP	Parameter Selection	OC 1	OC 2
User-defined Function Key	DS	Set output character [OC2] to value [OC1]	**[00-1F]**	**(4 digits)**

- **User-defined Function Key** enables the scanner to transmit special characters not defined in standard ASCII table. Follow the step below to output the desired characters:
  - Refer to **Appendix - Function Key Chararcter Table**, choose a special character from the table, and assign its corresponding **4-digit Option Code** to any of the 32 function key slots wih hex value identifiers between 00 and 1F. For example, scan [User-defined Function Key] [00] [003A] to assign function key character "F1" to slot 00.
  - The scanner can transmit the special character you defined when it reads a barcode containing the data value you defined.
  - Or you can enter the defined special character in the same way as you may enter other standard ASCII characters.
  - It is highly recommended to use the **PowerTool 3** software utility to set the Function Keys.
  - To guarantee the accuracy of the user-defined function keys, configure the **Keyboard Country Layout** to the **USA (QWERTY)** layout.
- Refer to Appendix – Function Key Character Table for a complete list of selectable characters.
- Refer to Appendix – Function Key Output Table for the default characters of the 32 Function Keys.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

USB Data Merge

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
USB Data Merge	SS	Disable ◄	0
	SS	Enable	1

USB Data Merge: When enabled, the decoded characters of the same barcode can be packed into fewer data packets to increase transmitting speed. Be aware that enabling data merge may lead to higher data loss possibility. Disable this function if you have connection difficulties.

- For all scanners, USB Data Merge is not available on macOS nor on iOS.
- For the A and PA series Bluetooth scanners, the Data Merge function is not available under Bluetooth SPP modes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

USB Legacy mode

ALL

Program

Family Code	PP	Parameter Selection	Option Code
USB Legacy Mode	SS	Disable ◄	0
	SS	Enable	1

USB Legacy Mode: When enabled, the scanner communicates with the host via USB HID interface. When disabled, the scanner communicates with the host via USB composite interface for enhanced functionality. One interface can function as a USB HID, while another can act as a USB Serial for more advanced communication with the host.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Modifier Key Output Control

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Modifier Key Output Control	SS	MAKE key + BREAK key output ◄	0
	SS	Composite output	1

Modifier Key Output Control determines how the scanner outputs data when the modifier key is used in combination with another non-modifier key.

- **MAKE key + BREAK key**: The scanner outputs data in a manner that simulates the sequential input of keystrokes. For example, if modifier key “SHIFT” is scanned together with numeric key “5”, the outcome would be SHIFT(MAKE) + SHIFT(BREAK) + 5(MAKE) + 5(BREAK).
- **Composite output**: The scanner generates output that mimics simultaneous pressing of the modifier key with the initial input key. For instance, when scanning the modifier key "SHIFT" alongside the numeric key "5," the result would be SHIFT(MAKE) + 5(MAKE) + 5(BREAK) + SHIFT(BREAK).

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2.3 Serial Interface Settings

This section provides the command barcodes for configuring the serial interface of your scanner. You can find the functional details of each command barcode and specified parameter selection.

STX/ETX Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
STX/ETX Transmit	SS	Disable ◄	0
	SS	Enable	1

STX/ETX Transmit: When enabled, the scanner transmits invisible STX and ETX characters under the serial interface. STX and ETX are characters used to indicate the start and end of a total data frame.

The table below shows the complete **Serial Interface Message String** (RS232, USB COM):

STX	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	ETX	Record Suffix
1 char.	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.	1 char.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Serial Record Suffix

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Serial Record Suffix	SS	None	**0**
	SS	CR (0Dh) ◄	**1**
	SS	LF (0Ah)	**2**
	SS	CRLF (0Dh 0Ah)	**3**
	SS	TAB (09h)	**4**
	SS	SPACE (20h)	**5**
	MS	User-defined character (1 character)	**6, (00-7F)**

The table below shows the complete **Serial Interface Message String** (RS232, USB COM):

STX	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	ETX	Record Suffix (Serial)
1 char.	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.	1 char.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Serial Intermessage Delay

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Serial Intermessage Delay	SS MS	None ◄ 1-99 (x5) ms	**FIN** **(2 digits)**

- **Serial Intermessage Delay** is the time delay between messages transmitted by the scanner. Increasing this delay will help host applications process the incoming data on time.
- For the A, F, L, and PA, PF, PL series Bluetooth scanners, Serial Intermessage Delay is not available under Bluetooth SPP and Bluetooth HID modes.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Serial Intercharacter Delay

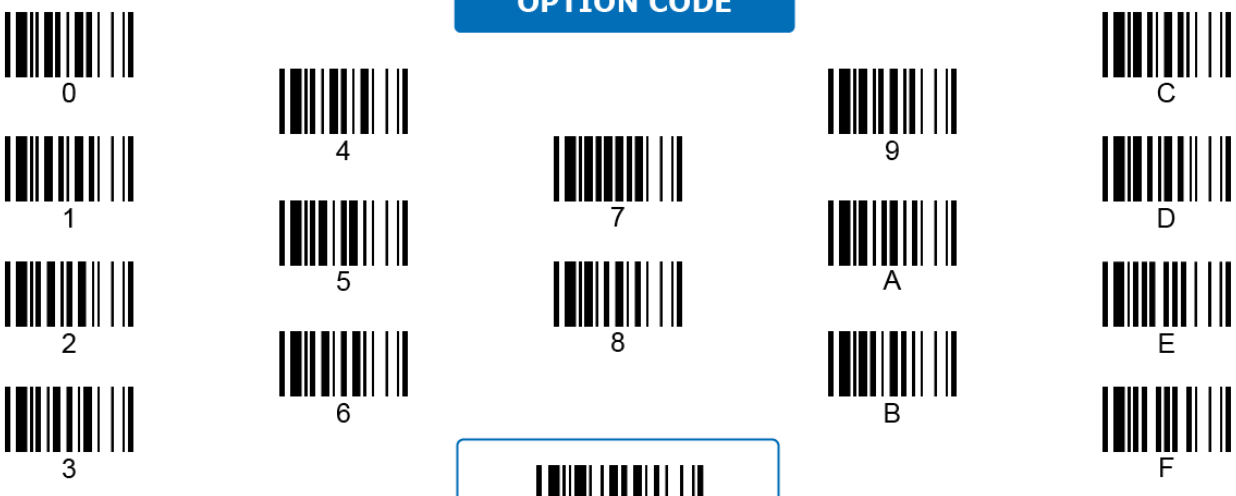
ALL

Program

Family Code	PP	Parameter Selection	Option Code
Serial Intercharacter Delay	SS	None ◄	FIN
	MS	1-99 (x5) ms (All corded series)	(2 digits)
	MS	1-99 (x10) ms (All Bluetooth series)	(2 digits)

- **Serial Intercharacter Delay** is the time delay between characters transmitted by the scanner. This parameter is used to synchronize data communication when:
- Data transmission speed is too fast, causing characters to be skipped;
- Multitasking operation system or host computers in a network may slow down keyboard handling;
- Various notebook or desktop PC systems require different timing configurations.
- Add one extra unit as safety margin
- For the A, F, L, and PA, PF, PL series Bluetooth scanners, Serial Intercharacter Delay is not available under Bluetooth SPP and Bluetooth HID modes.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE



Serial Interfunction Delay

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Serial Interfunction Delay	SS MS	None ◄ 1-99 (x5) ms	**FIN** **(2 digits)**

- **Serial Interfunction Delay** is the time delay between two data segments divided by a function character.
- For the A, F, L, and PA, PF, PL series Bluetooth scanners, Serial Interfunction Delay is not available under Bluetooth SPP and Bluetooth HID modes.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Handshaking Protocol

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Handshaking Protocol	SS	None ◄	0
	SS	RTS/CTS hardware handshaking	1
	SS	ACK/NAK software handshaking	2
	SS	XON/XOFF software handshaking	3

Handshaking Protocol configures which protocol is adapted by the scanner to communicate with the host device.

- USB CDC/Virtual COM does not support the RTS/CTS handshaking protocol.
- For A, F, L, and PA, PF, PL series Bluetooth models, the ACK/NAK handshaking protocol is available with:
  - **Pair mode**, using RS232 or USB CDC/Virtual COM interface.
  - **SPP master** or **slave mode**.
- **None:** When selected, the scanner transmits data whenever it decodes a barcode.
- **RTS/CTS hardware handshaking**: When selected, the scanner sends out RTS (request to send) and CTS (clear to send) signals before normal data communication begins. This protocol can ensure the reliability of data transmission.
- **ACK/NAK software handshaking**: When selected, the scanner waits for an ACK (acknowledgement) or NAK (negative acknowledgement) character sent from the host device after each data transmission. If it receives a NAK, the scanner re-sends the data until receiving an ACK.
- **XON/XOFF software handshaking**: When selected, the scanner waits for an XON (transmit on) or XOFF (transmit off) character sent from the host device after each data transmission.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Response/Baud Rate/Data Frame

ALL

Program

Family Code	PP	Parameter Selection		Option Code	
Response Timeout	SS	None	3 sec	0	6
	SS	200 ms	4 sec	1	7
	SS	500 ms ◄	5 sec	2	8
	SS	800 ms	8 sec	3	9
	SS	1 sec	10 sec	4	A
	SS	2 sec	15 sec	5	B
Baud Rate	SS	38.4K BPS	1200 BPS	0	5
	SS	19.2K BPS	57.6K BPS	1	8
	SS	9600 BPS ◄	115.2K BPS	2	9
	SS	4800 BPS	230.4K BPS	3	A
		2400 BPS		4	
Data Frame	SS	8, None, 1 ◄	7, Space, 1	0	8
	SS	8, Odd, 1	7, Mark, 1	1	9
	SS	8, Even, 1	7, None, 2	2	A
	SS	8, Space, 1	7, Odd, 2	3	B
	SS	8, Mark, 1	7, Even, 2	4	C
	SS	8, None, 2	7, Space, 2	5	D
	SS	7, Odd, 1	7, Mark, 2	6	E
	SS	7, Even, 1		7	

- **Response Timeout** configures how long the scanner waits for an ACK or NAK response from the host device before it discards the decoded data and issues an error indication.
- **1200 BPS:** This baud rate is not supported by 1D scanners.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Serial Encoding Country Code Page

2D ONLY

Program

Family Code	PP	Parameter Selection		Option Code	
Serial Encoding Country Code Page	MS	UTF8	ISO 8859-1 Latin 1, West Euro	00	1E
		Code Page 950	ISO 8859-2 Latin 2, Central Euro	10	1F
		Code Page 949	ISO 8859-3 Latin 3, South Euro	11	20
		Code Page 936	ISO 8859-4 Latin 4, North Euro	12	21
		Code Page 932	ISO 8859-5 Cyrillic	13	22
		Code Page 874	ISO 8859-6 Arabic	14	23
		WIN1250	ISO 8859-7 Greek	15	24
		WIN1251	ISO 8859-8 Hebrew	16	25
		WIN1252 ◄	ISO 8859-9 Latin 5, Turkish	17	26
		WIN1253	ISO 8859-10 Latin 6, Nordic	18	27
		WIN1254	ISO 8859-11 Thai	19	28
		WIN1255	ISO 8859-13 Latin 7, Baltic	1A	29
		WIN1256	ISO 8859-14 Latin 8, Celtic	1B	2A
		WIN1257	ISO 8859-15 Latin 9	1C	2B
		WIN1258	ISO 8859-16 Latin 10, SE Euro	1D	2C

Serial Encoding Country Code Page configures which code page the scanner uses when decoding 2D barcodes. Make sure that the decoding format matches the original encoding format for the correct output.

- Select **UTF8** if the 2D barcode is encoded in Unicode (UTF8).
- Refer to **Appendix: Code Page - Table of Corresponding Languages** for details about the code page of each language.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Serial Output Country Code Page

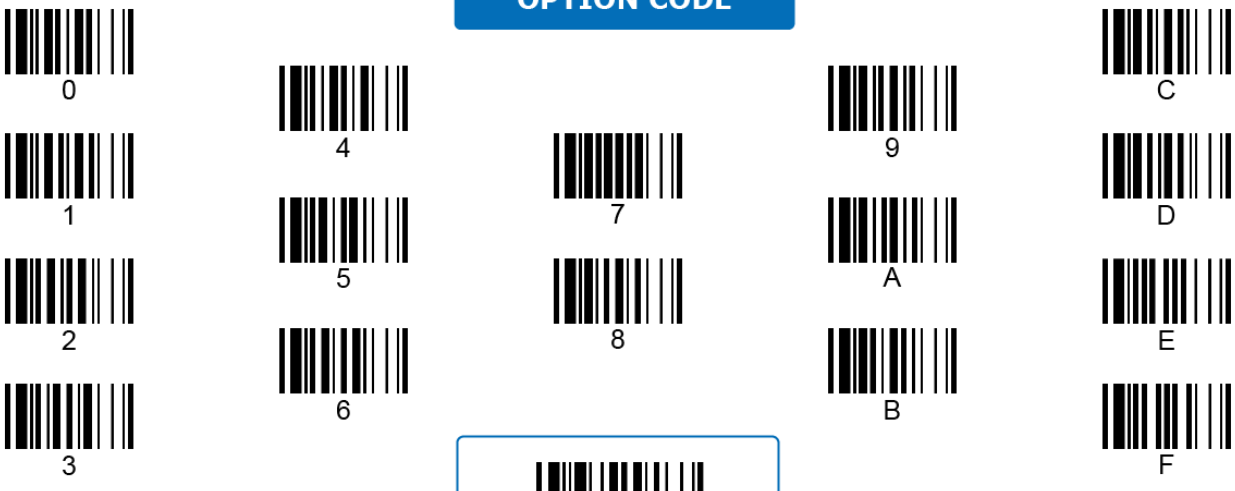
2D ONLY

Program

Family Code	PP	Parameter Selection		Option Code	
Serial Output Country Code Page	MS	Raw data◄	WIN1257	00	1C
		Unicode (Big Endian)	WIN1258	01	1D
		Unicode (Little Endian)	Code Page 852	02	30
		UTF8	Code Page 855	03	31
		Code Page 950 (Big Endian)	Code Page 866	10	32
		Code Page 949 (Big Endian)	Code Page 850	11	33
		Code Page 936 (Big Endian)	Code Page 437	12	34
		Code Page 932 (Big Endian)	Code Page 737	13	35
		Code Page 874	Code Page 857	14	36
		WIN1250	Code Page 862	15	37
		WIN1251	Code Page 720	16	38
		WIN1252	Code Page 775	17	39
		WIN1253	Code Page 950 (Little Endian)	18	90
		WIN1254	Code Page 949 (Little Endian)	19	91
		WIN1255	Code Page 936 (Little Endian)	1A	92
		WIN1256	Code Page 932 (Little Endian)	1B	93

Serial Output Country Code Page configures the data format when transmitting decoded data. For the correct output in the desired language, make sure that this setting matches the original encoding format (**Encoding Country Code Page**).

OPTION CODE



Serial NAK Retry Count

ALL

Program

Family Code	PP	Parameter Selection	Option Code
NAK Retry Count	SS	3 times ◄	**FIN**
	SS	Disable	**000**
	SS	1~254 times	**(3 digits)**
	SS	Retry unlimited times	**255**

NAK Retry Count configures how many times the scanner resends decoded data after receiving a NAK response. The scanner issues an error indication and discards decoded data if:

- The number of resend reaches the limit set by NAK Retry Count.
- The preset **Serial Response Timeout** is up before the NAK retry count reaches its limit.
- When disabled, the scanner discards the decoded data upon receiving a NAK.
- For the A, F, L, PA, PF, and PL series Bluetooth scanners, NAK Retry Count is not available under Batch Scanning mode. Enabling NAK Retry Count automatically disables out-of-range scanning under online (normal) scanning mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

ACK Indication

ALL

Program

Family Code	PP	Parameter Selection	Option Code
ACK Indication	SS	Disable ACK indication; disable ACK timeout indication	0
	SS	Disable ACK indication; enable ACK timeout indication ◄	1
	SS	Enable ACK indication; disable ACK timeout indication	2
	SS	Enable ACK indication; enable ACK timeout indication	3

- **ACK Timeout Indication**: When enabled, the scanner emits LED and beeping indications once the Serial Response Timeout is up.
- **ACK Indication:** When enabled, the scanner emits LED and beeping indications once it receives an ACK response.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

3 Barcode Reading

This chapter contains the parameters that will help users set up their scanners to read different types of barcodes supported by FuzzyScan scanners. Corresponding detailed settings of each code type are also collected in this chapter. Users can enable the Barcode ID function to identify the type of code scanned.

3.1 Code ID

This section provides the command barcodes for configuring the type of suffix and character to be transmitted by your scanner upon a good read. You can find the functional details of each command barcode and specified parameter selection.

Code ID Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code ID Transmit	SS	Disable ◄	**0**
	SS	Transmit Cino ID as prefix	**1**
	SS	Transmit Cino ID as suffix	**2**
	SS	Transmit Cino ID as prefix and suffix	**3**
	SS	Transmit AIM ID as prefix	**4**
	SS	Transmit AIM ID as suffix	**5**
	SS	Transmit AIM ID as prefix and suffix	**6**

Code ID Transmit: When enabled, the scanner sends out an ID alongside the data value to identify the type of scanned barcode. Code ID can be transmitted either as a prefix, a suffix, or both. Refer to **Appendix - Code ID Table** for a complete list of Cino ID or AIM ID.

The table below shows the complete **Keyboard Interface Message String** (USB HID):

Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	Record Suffix (KB)
1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.

The table below shows the complete **Serial Interface Message String** (RS232, USB COM):

STX	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	ETX	Record Suffix (Serial)
1 char.	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.	1 char.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code ID - 1 Character

ALL

Program

Family Code	PP	Parameter Selection	OC1	OC2	PP	Parameter Selection	OC1	OC2
Code ID - 1 Character	DS	Code 128 (**B**)	00	1 ch	DS	China Postal Code (**L**)	10	1 ch
	DS	GS1 128 (**C**)	01	1 ch	DS	German Postal Code (**M**)	11	1 ch
	DS	UPC A (**A**)	02	1 ch	DS	IATA (**O**)	12	1 ch
	DS	EAN 13 (**F**)	03	1 ch	DS	Code 11 (**P**)	13	1 ch
	DS	Codabar (**D**)	04	1 ch	DS	MSI (**R**)	14	1 ch
	DS	Code 39/Code 32 (**G**)	05	1 ch	DS	UK/Plessey (**S**)	15	1 ch
	DS	Code 93 (**H**)	06	1 ch	DS	Telepen (**T**)	16	1 ch
	DS	Industrial 25 (**I**)	07	1 ch	DS	GS1 DataBar (**X**)	17	1 ch
	DS	Interleaved 25 (**J**)	08	1 ch	DS	UPC E (**E**)	18	1 ch
	DS	Matrix 25 (**K**)	09	1 ch	DS	EAN 8 (**N**)	19	1 ch

- **Code ID - 1 Character** replaces the 1-character Cino ID from its default to the user-defined value.
- To scan the 2nd option code, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code ID – 1 Character (continued)

ALL

Program

Family Code	PP	Parameter Selection	OC1	OC2	PP	Parameter Selection	OC1	OC2
Code ID – 1 Character	DS	Trioptic Code 39 (W)	20	1 ch	DS	Australian Post (g)	33	1 ch
	DS	UCC Coupon Ext. Code (Z)	21	1 ch	DS	British Post (h)	34	1 ch
	DS	PDF417/Micro PDF417 (V)	22	1 ch	DS	Intelligent Mail (USPS 4CB) (j)	36	1 ch
	DS	Korea Post Code (a)	26	1 ch	DS	Japan Post (k)	37	1 ch
	DS	QR/Micro QR Code (b)	28	1 ch	DS	Netherlands KIX Post (l)	38	1 ch
	DS	Data Matrix (c)	29	1 ch	DS	US Planet (m)	39	1 ch
	DS	Maxi Code (d)	30	1 ch	DS	US Postnet (o)	41	1 ch
	DS	Aztec Code (e)	31	1 ch	DS	Posi LAPA code (q)	43	1 ch

To scan the 2nd option code, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

3.2 Barcode Readability

This section provides the command barcode for configuring the type of symbologies to be recognized and decoded by your scanner. You can find the functional details of each specified parameter selection.

Readable Barcode Settings

ALL

Program

Family Code	PP		Parameter Selection		Option Code	
Readable Barcode	SS	CS	Auto ◄	MSI	00	11
	CS	CS	Popular 1D	UK/Plessey	C0	12
	CS	CS	Code 128	Telepen	01	13
	CS	CS	GS1 128	GS1 DataBar	31	14
	CS	CS	UPC A	IATA	02	15
	CS	CS	UPC E	PDF417/Micro PDF417	03	17
	CS	CS	EAN 13	Korea Post Code	04	21
	CS	CS	EAN 8	QR Code/Micro QR Code	05	A0
	CS	CS	Codabar	Data Matrix	06	A1
	CS	CS	Code 39	MaxiCode	07	A2
	CS	CS	Trioptic Code 39	Aztec Code	47	A3
	CS	CS	Industrial 25	Australian Post	08	B0
	CS	CS	Matrix 25	British Post	38	B1
	CS	CS	Interleaved 25	Intelligent Mail	48	B3
	CS	CS	China Postal Code	Japan Post	58	B4
	CS	CS	German Postal Code	KIX Post	68	B5
	CS	CS	Code 93	US Planet Code	09	B6
	CS	CS	Code 11	US Postnet	10	B8

Readable Barcode Settings configures which code type(s) can be recognized and decoded by the scanner. Reducing readable barcode types improves reading speed and lowers the possibility of reading errors.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

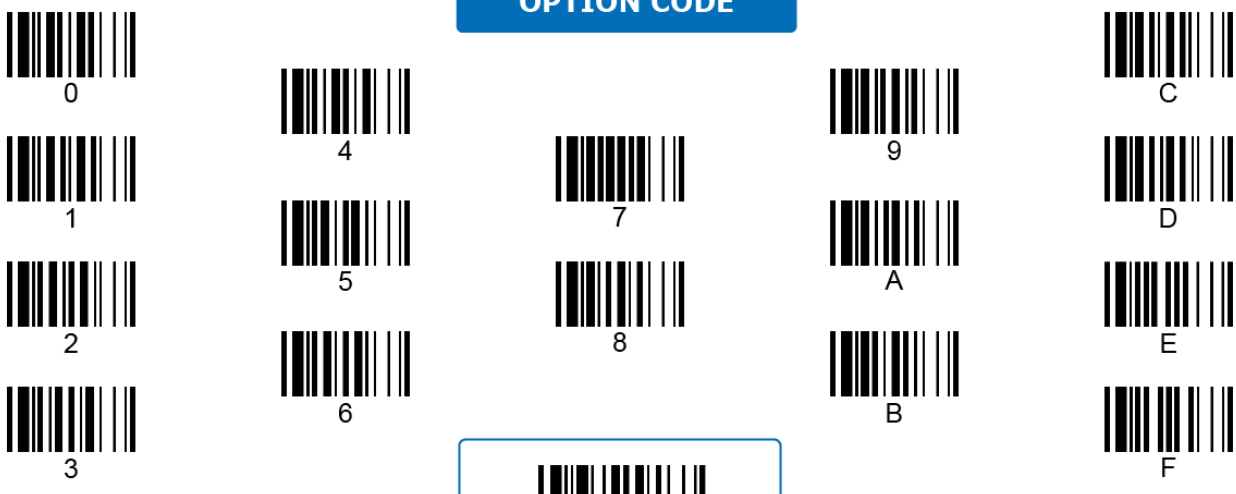
Readable Barcode Settings (continued)

ALL

Program

- **Auto**: When selected, the scanner only reads commonly used 1D and 2D barcode types marked with an asterisk in the table above.
- **Popular 1D**: When selected, the scanner stops reading 2D barcodes and only reads commonly used 1D barcodes including Code 128, GS1 128, UPC A, UPC E, EAN 13, EAN 8, Codabar, Code 39, Interleaved 25, Code 93, and GS1 DataBar.
- When the scanner is configured to stop reading 2D barcode types, reading speed and accuracy for all 1D barcode types will massively increase.
- Entering "**Auto**" ends the process automatically. For other options, scan "**FIN**" to end the process.

OPTION CODE



3.3 Barcode Settings

This section provides the command barcodes for configuring the type of barcodes to be recognized by your scanner. You can find the details of specified parameter selections under each command barcode.

Code 39/32, Trioptic Code 39

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code 39/32 Readability	SS SS	Disable Enable ◄	**0** **1**
Trioptic C39 Readability	SS SS	Disable ◄ Enable	**0** **1**

- Only supports **Trioptic Code 39** with 6 characters.
- **DO NOT** select "Full ASCII Code 39" in **Code 39 Primary Format** when enabling Trioptic Code 39.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 39

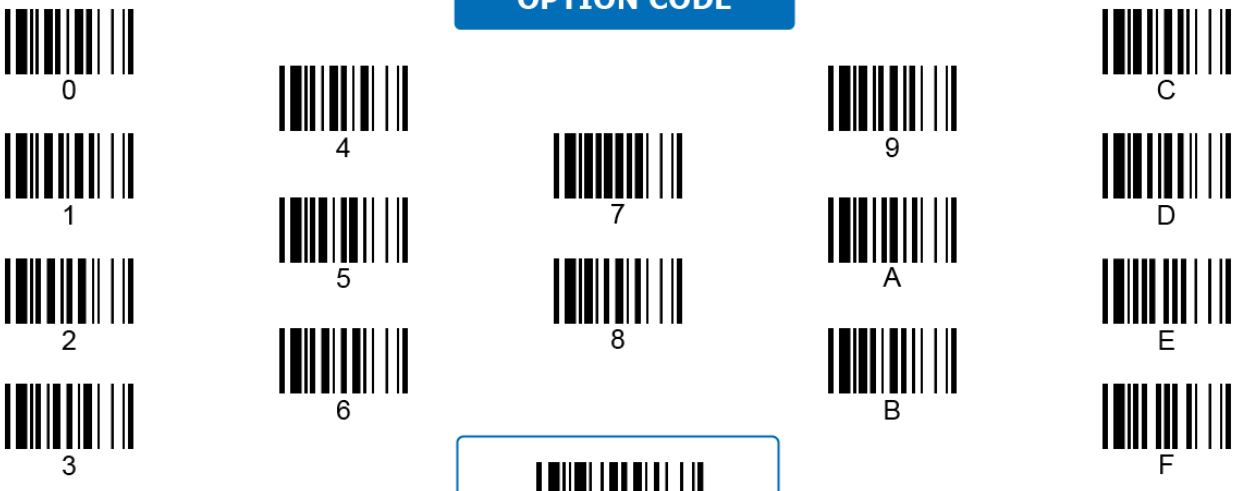
ALL

Program

Family Code	PP	Parameter Selection	Option Code
C39 Primary Format	SS	Standard Code 39 ◄	2
	SS	Full ASCII Code 39	3
	SS	Code 32 (PARAF, Italian Pharmaceutical)	4
C39 Start/Stop Transmit	SS	Disable◄	5
	SS	Enable	6
C32 Leading A Transmit	SS	Disable ◄	7
	SS	Enable	8

- **Standard Code 39**: When selected, the scanner decodes Code 39 with standard character sets consisting of numeric digits 0 - 9, uppercase letters A - Z, and special characters including the percent sign (%), plus sign (+), .dollar sign ($), slash (/), period (.) and hyphen (-).
- **Full ASCII Code 39**: When selected, the scanner decodes Code 39 with all 128 ASCII characters. The scanner treats certain pairs of special character and alphabet as a single ASCII character and transmits it. **Do not** enable Trioptic Code 39 with this option.
- **Code 32**: When selected, the scanner decodes Code 39 following the coding rule of Code 32 (also known as PARAF) commonly used by the Italian pharmaceutical industry.
- **Code 39 Start/Stop Transmit:** When enabled, the scanner transmits additional asterisk (*) characters to mark the beginning and the end of a Code 39.
- **Code 32 Leading A Transmit:** When enabled, the scanner transmits the leading character "A" which is normally skipped.

OPTION CODE



Code 39 (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
C39 Check Digit Verify	SS SS	Disable ◄ Enable	9 A
C39 Check Digit Transmit	SS SS	Disable ◄ Enable	B C
C39 Buffering	SS SS	Disable ◄ Enable	D E

- **Code 39 Check Digit Verify:** When enabled, the scanner only decodes Code 39 conforming to the MOD 43 checksum rule.
- **Code 39 Check Digit Transmit:** When enabled, the scanner transmits additional checksum digits that are normally skipped.
- **Code 39 Buffering:** When enabled, the scanner temporarily stores multiple Code 39 data in its buffer memory and transmits the data all together. When disabled, the scanner transmits each Code 39 data immediately.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 39 (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
C39 Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (2 digits)
C39 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)
C39 Security Level	SS SS SS SS	Level 0 Level 1 Level 2 ◄ Level 3	0 1 2 3

- For **Code 39 Minimum Length** and **Maximum Length**, the data length excludes start/stop characters, such as the barcode ID.
- **Code 39 Security Level** configures how well the scanner decodes poorly-printed or out-of-spec barcodes. Among the available levels, Level 1 has the highest level of sensitivity, but also the highest chance of a misread.
- **Code 39 Security Level** is only available on 1D scanners.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 93

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code 93 Readability	SS SS	Disable Enable ◄	0 1
C93 Check Digit Transmit	SS SS	Disable ◄ Enable	2 3
C93 Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (2 digits)
C93 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- For **Code 93 Minimum Length** and **Maximum Length**, the data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 128

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code 128 Readability	SS	Disable Code 128	0
	SS	Enable Code 128 ◄	1
C128 ISBT Concatenate	SS	Disable ISBT Concatenation ◄	2
	SS	Enable ISBT Concatenation	3
	SS	Enable ISBT Concatenation with table check	4
	SS	Enable ISBT Concatenation Auto	5

Code 128 ISBT Concatenate configures how the scanner reacts when it reads International Society of Blood Transfusion (ISBT) barcodes.

- **Disable ISBT Concatenation**: The scanner does not transmit any ISBT concatenated barcodes.
- **Enable ISBT Concatenation**: The scanner only decodes and transmits ISBT concatenated barcodes. The scanner does not decode any single (unconcatenated) ISBT barcode.
- **Enable ISBT Concatenation with table check**: The scanner only decodes and transmits concatenated ISBT barcodes which conform to ICCBBA standards and are listed in the Standard Technical Specification check table. The scanner does not decode any single ISBT barcode or ISBT concatenated barcode not conforming to ICCBBA standards.
- **Enable ISBT Concatenation Auto**: The scanner decodes and transmits both ISBT concatenated barcodes and single ISBT barcodes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 128 (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
C128 Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (2 digits)
C128 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)
C128 Security Level	SS SS	Level 0 Level 1 ◄	0 1

- For **Code 128 Minimum Length** and **Maximum Length**, the data length excludes start/stop characters, such as the barcode ID.
- **Code 128 Security Level** configures how the scanner decodes poorly-printed or out-of-spec barcodes. Level 1 has the highest level of sensitivity allowing faster scanning on in-spec barcodes, while Level 0 is used for reading poorly-printed or out-of-spec barcodes to avoid misreading.
- **Code 128 Security Level** is only available on 1D scanners.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Codabar

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Codabar Readability	SS	Disable	0
	SS	Enable ◄	1
Codabar Primary Format	SS	Standard format ◄	2
	SS	ABC format	3
	SS	CLSI format	4
	SS	CX format	5
Codabar Start/Stop Transmit	SS	Disable ◄	6
	SS	Transmit as ABCD/ABCD	7
	SS	Transmit as abcd/abcd	8
	SS	Transmit as ABCD/TN*E	9
	SS	Transmit as abcd/tn*e	A

- **Codabar Readability**: When enabled, the scanner recognizes and decodes Codabar barcodes.
- **Codabar Primary Format** configures which Codabar format or concatenating rule the scanner follows.
- **Codabar Start/Stop Transmit**: When enabled, the scanner converts the STX and ETX characters of a Codabar code into the selected format, and transmits them out with the decoded data.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Codabar (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Codabar Check Digit Verify	SS	Disable ◄	B
	SS	Enable	C
Codabar Check Digit Select	SS	Modulus 16◄	0
	SS	Modulus 10/Weight 3	1
	SS	Modulus 11	2
	SS	Modulus 10/Weight 2	3
	SS	7 check DR	4
	SS	Weight Modulus 11	5
	SS	Runes (Modulus 10/Weight 2)	6
Codabar Check Digit Transmit	SS	Disable ◄	D
	SS	Enable	E

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Codabar (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Codabar Minimum Length	SS MS	Default (04) ◄ 01 to Maximum	FIN (2 digits)
Codabar Maximum Length	SS MS	Default (98) ◄ Minimum to 98	FIN (2 digits)

- For **Codabar Minimum Length** and **Maximum Length**, the data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

UPC

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UPC A Readability	SS SS	Disable Enable ◄	0 1
UPC E Readability	SS SS	Disable Enable ◄	2 3
UPC E Expansion	SS SS	Disable ◄ Enable	4 5
UPC Standardization	SS SS	Disable ◄ Enable	6 7

- **UPC E Expansion**: When enabled, the decoded 8-digit UPC E is converted into a 12-digit UPC A and is affected by related settings, such as UPC standardization, UPC numeric system, and UPC A check digit transmission.
- **UPC Standardization**: When enabled, the scanner expands 12-digit UPC A to 13-digit EAN 13 by inserting an extra zero.

WPC Selection (UPC/EAN/CAN)	Basic Length	Disable Check Digit	Disable Numeric System	2-digit Addendum	5-digit Addendum	Enable Standardization	Enable Expansion
UPC A	12	- 1	- 1	+ 2	+ 5	+ 1	0
UPC E	8	- 1	- 1	+ 2	+ 5	+ 1	+ 4
EAN 13	13	- 1	NC	+ 2	+ 5	NC	0
EAN 8	8	- 1	NC	+ 2	+ 5	NC	+ 5

OPTION CODE

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

FIN

END

FACTORY DEFAULT

UPC (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UPC Numeric System	SS SS	Disable Enable ◄	8 9
UPC A Check Digit Transmit	SS SS	Disable Enable ◄	A B
UPC E Check Digit Transmit	SS SS	Disable Enable ◄	C D
UPC E1 Readability	SS SS	Disable ◄ Enable	E F

UPC E1 Readability: When enabled, the scanner recognizes and transmits UPC E1 codes with "1" as the first digit.

WPC Selection (UPC/EAN/CAN)	Basic Length	Disable Check Digit	Disable Numeric System	2-digit Addendum	5-digit Addendum	Enable Standardization	Enable Expansion
UPC A	12	- 1	- 1	+ 2	+ 5	+ 1	0
UPC E	8	- 1	- 1	+ 2	+ 5	+ 1	+ 4
EAN 13	13	- 1	NC	+ 2	+ 5	NC	0
EAN 8	8	- 1	NC	+ 2	+ 5	NC	+ 5

OPTION CODE

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

FIN

END

FACTORY DEFAULT

UPC (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UPC Supplement Digits Select	SS	Ignore supplement digits ◄	0
	SS	UPC with 2-digit supplement	1
	SS	UPC with 5-digit supplement	2
	SS	UPC with 2- or 5-digit supplement	3
UPC Supplement Digits Output	SS	Disable ◄	4
	SS	Enable	5
UPC Addenda Separator	SS	Disable ◄	6
	SS	Enable	7

- **UPC Supplement Digits Select** configures which type of UPC code the scanner decodes according to its supplement digit format.
- **UPC Supplement Digits Output:** When enabled, the scanner transmits the UPC type specified by **UPC Supplement Digit Select** together with its supplement digits.
- **UPC Addenda Separator:** With UPC Supplement Digits Output enabled and matching supplement digit format, enable this function to insert a space between the main UPC code and its supplement digits upon data transmission.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

UPC (continued)

ALL

Program

Family Code	PP	Parameter Selection		Option Code	
UPC A Security Level	SS	Level 0		0	
	SS	Level 1 ◄		1	
	SS	Level 2		2	
UPC Supplement Scan Voting	SS	None	Level 7	0	7
	SS	Level 1	Level 8	1	8
	SS	Level 2	Level 9	2	9
	SS	Level 3 ◄	Level 10	3	A
	SS	Level 4	Level 11	4	B
	SS	Level 5	Level 12	5	C
	SS	Level 6	Level 13	6	D

- **UPC A Security Level** configures how the scanner decodes poorly-printed or out-of-spec UPC A barcodes. Level 2 has the highest level of sensitivity among the available levels. At Level 2, the scanner decodes barcodes quickly, but easily misreads barcodes, especially character numbers 1, 2, 7, and 8.
- **UPC A Security Level** is only available on 1D scanners.
- **UPC Supplement Scan Voting** determines how many times an UPC/EAN with 2/5 supplement digits has to be decoded before output. Supplement Scan Voting is valid for UPC/EAN with only 2 supplement digits, UPC/EAN with only 5 supplement digits, or UPC/EAN with 2 or 5 supplement digits. Selecting a higher level might slow down the scanner when it reads poorly-printed, low contrast, or damaged barcodes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

EAN

ALL

Program

Family Code	PP	Parameter Selection	Option Code
EAN 13 Readability	SS SS	Disable Enable ◄	0 1
EAN 8 Readability	SS SS	Disable Enable ◄	2 3
EAN 8 Expansion	SS SS	Disable ◄ Enable	4 5

EAN 8 Expansion: When enabled, the scanner converts 8-digit EAN 8 to 13-digit EAN 13 and transmits it out.

WPC Selection (UPC/EAN/CAN)	Basic Length	Disable Check Digit	Disable Numeric System	2-digit Addendum	5-digit Addendum	Enable Standardization	Enable Expansion
UPC A	12	- 1	- 1	+ 2	+ 5	+ 1	0
UPC E	8	- 1	- 1	+ 2	+ 5	+ 1	+ 4
EAN 13	13	- 1	NC	+ 2	+ 5	NC	0
EAN 8	8	- 1	NC	+ 2	+ 5	NC	+ 5

OPTION CODE

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

FIN

END

FACTORY DEFAULT

EAN (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
EAN 13 Check Digit Transmit	SS SS	Disable Enable ◄	6 7
EAN 8 Check Digit Transmit	SS SS	Disable Enable ◄	8 9
EAN ISBN/ISSN Convert	SS SS	Disable ◄ Enable	A B

EAN ISBN/ISSN Convert: When enabled, the scanner converts and transmits EAN codes to ISBN or ISSN formats according to their prefixes respectively.

WPC Selection (UPC/EAN/CAN)	Basic Length	Disable Check Digit	Disable Numeric System	2-digit Addendum	5-digit Addendum	Enable Standardization	Enable Expansion
UPC A	12	- 1	- 1	+ 2	+ 5	+ 1	0
UPC E	8	- 1	- 1	+ 2	+ 5	+ 1	+ 4
EAN 13	13	- 1	NC	+ 2	+ 5	NC	0
EAN 8	8	- 1	NC	+ 2	+ 5	NC	+ 5

OPTION CODE

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

FIN

END

FACTORY DEFAULT

EAN (continued)

ALL

Program

Family Code	PP	Parameter Selection		Option Code	
EAN 13 Security Level	SS	Level 0		0	
	SS	Level 1 ◄		1	
	SS	Level 2		2	
EAN Supplement Scan Voting	SS	None	Level 7	0	7
	SS	Level 1	Level 8	1	8
	SS	Level 2	Level 9	2	9
	SS	Level 3 ◄	Level 10	3	A
	SS	Level 4	Level 11	4	B
	SS	Level 5	Level 12	5	C
	SS	Level 6	Level 13	6	D

- **EAN 13 Security Level** configures how the scanner decodes poorly-printed or out-of-spec EAN 13 barcodes. Level 2 has the highest level of sensitivity among the available levels. At Level 2, the scanner decodes barcodes quickly, but easily misreads barcodes, especially character numbers 1, 2, 7, and 8.
- **EAN 13 Security Level** is only available on 1D scanners.
- **EAN Supplement Scan Voting** determines how many times an UPC/EAN with 2/5-digit supplement has to be decoded before being transmitted. Supplement Scan Voting is only valid for UPC/EAN with 2-digit, 5-digit, or 2/5-digit supplements. Selecting a higher level might slow down the scanner when it reads poorly-printed, low contrast, or damaged barcodes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

EAN (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
EAN Supplement Digits Select	SS	Ignore supplement digits ◄	0
	SS	EAN with 2-digit supplement	1
	SS	EAN with 5-digit supplement	2
	SS	EAN with 2- or 5-digit supplement	3
EAN Supplement Digits Output	SS	Disable ◄	4
	SS	Enable	5
EAN Addenda Separator	SS	Disable ◄	6
	SS	Enable	7

- **EAN Supplement Digits Select** configures which type of EAN code the scanner decodes according to its supplement digit format.
- **EAN Supplement Digits Output:** When enabled, the scanner transmits the EAN type that **EAN Supplement Digits Select** specifies together with its supplement digits.
- **EAN Addenda Separator:** With EAN Supplement Digits Output enabled and matching supplement digit format, enable this function to insert a space between the main EAN code and its supplement digits upon data transmission.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

EAN - Prefix

ALL

Program

Family Code	PP	Parameter Selection	Option Code
EAN Supplement Prefix	SS	Ignore supplement digits ◄	0
	SS	Transmit supplemented EAN with all prefix types	1
	SS	Transmit supplemented EAN with prefix 491	2
	SS	Transmit supplemented EAN with prefix 978/979	3
	SS	Transmit supplemented EAN with prefix 977	4
	SS	Transmit supplemented EAN with prefix 378/379	5
	SS	Transmit supplemented EAN with prefix 414/419	6
	SS	Transmit supplemented EAN with prefix 434/439	7

EAN Supplement Prefix: When enabled, the scanner transmits EAN with supplement digits according to the prefix of the EAN. This function is only available when **EAN Supplement Digits Select** is set at **EAN with 2-digit supplement, EAN with 5-digit supplement,** or **EAN with 2- or 5-digit supplement**:

- **Ignore supplement digits**: When selected, the scanner decodes and transmits EAN codes without regarding its prefix and supplement.
- **Transmit supplemented EAN with all prefix types:** When selected, the scanner decodes any EAN with the supplement without regarding its prefix.
- **Transmit supplemented EAN with prefix 491**: When selected, the scanner transmits EAN starting with the number "491" if it has supplement digits. The scanner **DOES NOT** transmit EAN without supplement digits.
- **Transmit supplemented EAN with prefix 978/979**: When selected, the scanner transmits EAN starting with the number "978" or "979" if it has supplement digits. The scanner **DOES** transmit EAN without supplement digits.
- **Transmit supplemented EAN with prefix 977**: When selected, the scanner transmits EAN starting with the number "977" if it has supplement digits. The scanner **DOES** transmit EAN without supplement digits.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

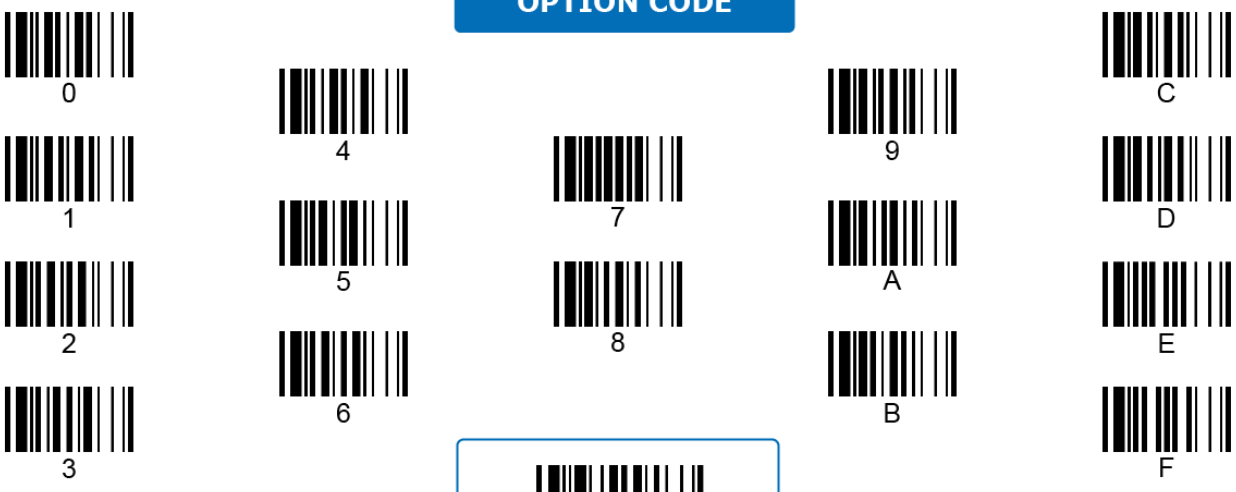
EAN - Prefix (continued)

ALL

Program

- **Transmit supplemented EAN with prefix 378/379:** When selected, the scanner transmits EAN starting with the number “378” or “379”. The scanner **DOES** transmits EAN without any supplement digits.
- **Transmit supplemented EAN with prefix 414/419:** When selected, the scanner transmits EAN starting with the number “414” or “419”. The scanner **DOES** transmits EAN without any supplement digits.
- **Transmit supplemented EAN with prefix 434/439:** When selected, the scanner transmits EAN starting with the number “434” or “439”. The scanner **DOES** transmits EAN without any supplement digits.

OPTION CODE



UCC Coupon Extended Code

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UCC Coupon Extended Code Readability	SS	Disable ◄	0
	SS	Enable	1

UCC Coupon Extended Code: After enabling UPC A, EAN and Code 128 readability, enable this function to set the scanner to only decode UPC A barcodes starting with the digit “5”, EAN 13 barcodes with the digit “99”, and GS1 128 Coupon Codes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

IATA

ALL

Program

Family Code	PP	Parameter Selection	Option Code
IATA Readability	SS	Disable ◄	0
	SS	Enable	1
IATA Checking Length	SS	15-digit fixed length checking	2
	SS	Variable length checking ◄	3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

IATA (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
IATA Check Digit Verify	SS	Disable ◄	4
	SS	Enable automatic check digit	5
	SS	Verify check digit on S/N only	6
	SS	Verify check digit on CPN only	7
	SS	Verify check digit on CPN, Airline, and S/N	8
IATA Check Digit Transmit	SS	Disable ◄	9
	SS	Transmit check digit	A
IATA Start/Stop Transmit	SS	Disable ◄	B
	SS	Transmit start/stop characters	C

IATA Strart/Stop Transmit: When enabled, the scanner transmits STX and ETX characters together with the decoded data.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Interleaved 25 (ITF)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Interleaved 25 Readability	SS	Disable	0
	SS	Enable ◄	1
I25 Primary Format	SS	Interleaved 25 ◄	2
	SS	German Postal Code	3
I25 Check Digit Verify	SS	Disable ◄	4
	SS	Verify with USS check digit	5
	SS	Verify with OPPC check digit	6
I25 Check Digit Transmit	SS	Disable ◄	7
	SS	Transmit check digit	8

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 25 Family

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Industrial 25 Readability	SS SS	Disable ◄ Enable	0 1
Matrix 25 Readability	SS SS	Disable ◄ Enable	2 3
China Postal Code Readability	SS SS	Disable ◄ Enable	4 5
Code 25 Check Digital Verify	SS SS	Disable ◄ Verify check digit	6 7
Code 25 Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	8 9

Enable only one type of Code 25 at the same time, or set either maximum or minimum barcode length. Enabling multiple Code 25 types or allowing a changing data length might increase the chance of reading errors.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 25 Family (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code 25 Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
Code 25 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code 11

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code 11 Readability	SS SS	Disable ◄ Enable	0 1
Code 11 Check Digit Verify	SS SS SS	Disable ◄ Verify with 1 modulo-11 check digit Verify with 2 modulo-11 check digits	2 3 4
Code 11 Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	5 6
Code 11 Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
Code 11 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

MSI

ALL

Program

Family Code	PP	Parameter Selection	Option Code
MSI Readability	SS SS	Disable ◄ Enable	0 1
MSI Check Digit Select	SS SS SS	Verify with MOD 10 check digit ◄ Verify with MOD 10-10 check digit Verify with MOD 11-10 check digit	2 3 4
MSI Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	5 6

OPTION CODE

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

FIN

END

FACTORY DEFAULT

MSI (continued)

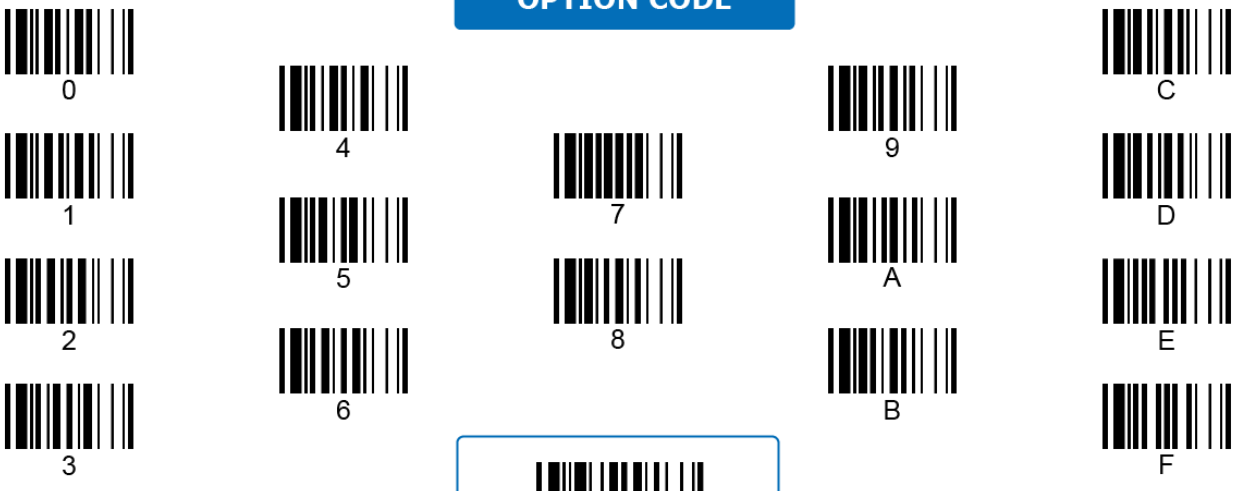
ALL

Program

Family Code	PP	Parameter Selection	Option Code
MSI Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
MSI Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE



UK/Plessey

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UK/Plessey Readability	SS SS	Disable ◄ Enable	0 1
UK/Plessey Primary Format	SS SS	Standard format ◄ CLSI format	2 3
UK/Plessey X to A-F Convert	SS SS	Disable ◄ Convert X to A-F	4 5
UK/Plessey Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	6 7

OPTION CODE

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

FIN

END

FACTORY DEFAULT

UK/Plessey (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
UK/Plessey Check Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
UK/Plessey Check Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

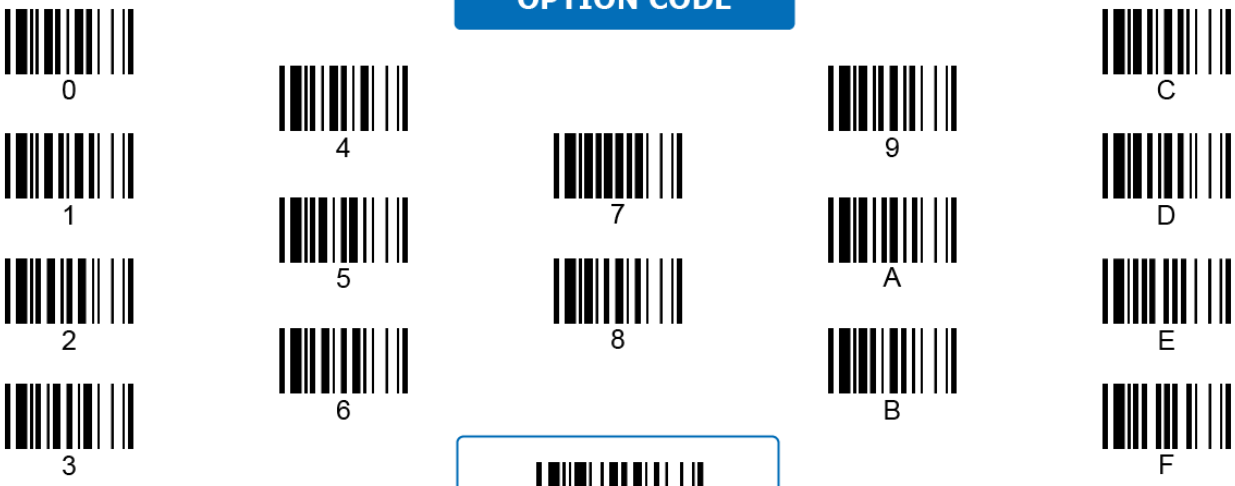
Telepen

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Telepen Readability	SS	Disable Telepen◄	0
	SS	Enable Telepen	1
Telepen Primary Format	SS	Telepen Numeric mode	2
	SS	Telepen Full ASCII mode ◄	3
Telepen Check Digit Transmit	SS	Disable ◄	4
	SS	Transmit check digit	5

OPTION CODE



Telephen (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Telepen Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
Telepen Maximum Length	SS MS	Default (98) ◄ 98-Minimum	FIN (2 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

PDF417/MicroPDF417

ALL

Program

Family Code	PP	Parameter Selection	Option Code
PDF417 Readability	SS	Disable	0
	SS	Enable ◄	1
MicroPDF417 Readability	SS	Disable ◄	2
	SS	Enable	3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

QR Code/Micro QR Code

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
QR Code Readability	SS SS	Disable Enable ◄	0 1
Micro QR Readability	SS SS	Disable Enable ◄	2 3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

QR Code/Micro QR Code (continued)

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
QR Code Append	SS	Disable	4
	SS	Enable ◄	5
QR Code Inverse Reading	SS	Disable	6
	SS	Enable	7
	SS	Auto detect ◄	8
QR Code Mirror Images	SS	Disable	9
	SS	Enable	A
	SS	Auto detect ◄	B

- **QR Code Append**: When enabled, the scanner only decodes and transmits data once it collects all the QR/Micro QR codes split from a single data message by Structured Append mode.
- **QR Code Inverse Reading:**
  - **Disable:** When selected, the scanner only decodes QR/Micro QR codes printed in a dark color over a light background.
  - **Enable:** When selected, the scanner only decodes QR/Micro QR codes printed in a light color over a dark background.
  - **Auto detect:** When selected, the scanner decodes both normal and inversed QR/Micro QR codes.
- **QR Code Mirror Images:**
  - **Disable:** When selected, the scanner only decodes standard QR/Micro QR codes.
  - **Enable:** When selected, the scanner only decodes mirrored (flipped) QR/Micro QR codes.
  - **Auto detect:** When selected, the scanner decodes both standard and mirrored QR/Micro QR codes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

QR Code/Micro QR Code (continued)

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
QR Code Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (4 digits)
QR Code Maximum Length	SS MS	Default (7089) ◄ 7089-Minimum	FIN (4 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- Supports both QR Code and Micro QR Code.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Data Matrix

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Data Matrix Readability	SS	Disable	0
	SS	Enable ◄	1
Data Matrix Inverse Reading	SS	Disable	4
	SS	Enable	5
	SS	Auto detect ◄	6
Data Matrix Mirror Images	SS	Disable	7
	SS	Enable	8
	SS	Auto detect ◄	9

- **Data Matrix Inverse Reading:**
  - **Disable:** When selected, the scanner only decodes Data Matrix codes printed in a dark color over a light background.
  - **Enable:** When selected, the scanner only decodes Data Matrix codes printed in a light color over a dark background.
  - **Auto detect:** When selected, the scanner decodes both normal and inversed Data Matrix codes.
- **Data Matrix Mirror Images:**
  - **Disable:** When selected, the scanner only decodes standard Data Matrix codes.
  - **Enable:** When selected, the scanner only decodes mirrored (flipped) Data Matrix codes.
  - **Auto detect:** When selected, the scanner decodes both standard and mirrored Data Matrix codes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Data Matrix (continued)

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Data Matrix Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (4 digits)
Data Matrix Maximum Length	SS MS	Default (3116) ◄ 3116-Minimum	FIN (4 digits)
Data Matrix Poor Quality Reading	SS SS	Disable ◄ Enable	0 1

- **Data Matrix Minimum Length** and **Data Matrix Maximum Length:**
  - The data length excludes start/stop characters, such as the barcode ID.
  - After scanning the 2 digits, the selection ends automatically.
- **Data Matrix Poor Quality Reading** configures how well the scanner decodes a high density or poor quality Data Matrix code. Set the level higher to improve readability. Be aware that when this function is enabled, the snappiness of the scanner will be compromised.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

MaxiCode

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
MaxiCode Readability	SS SS	Disable ◄ Enable	0 1
MaxiCode Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (3 digits)
MaxiCode Maximum Length	SS MS	Default (150) ◄ 150-Minimum	FIN (3 digits)

For **MaxiCode Minimum Length** and **Maximum Length**:

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Aztec Code

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Aztec Code Readability	SS	Disable	0
	SS	Enable ◄	1
Aztec Append	SS	Disable	2
	SS	Enable ◄	3
Aztec Inverse Reading	SS	Disable	4
	SS	Enable	5
	SS	Auto detect ◄	6

- **Aztec Append**: When enabled, the scanner only decodes and transmits data once it collects all the Aztec codes split from a single data message by Structured Append mode.
- **Aztec Inverse Reading:**
  - **Disable:** When selected, the scanner only decodes Aztec codes printed in a dark color over a light background.
  - **Enable:** When selected, the scanner only decodes Aztec codes printed in a light color over a dark background.
  - **Auto detect:** When selected, the scanner decodes both normal and inversed Aztec codes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Aztec Code (continued)

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Aztec Minimum Length	SS MS	Default (01) ◄ 01-Maximum	FIN (4 digits)
Aztec Maximum Length	SS MS	Default (3832) ◄ 3832-Minimum	FIN (4 digits)

- The data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Australia Post Code

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Australian Post Readability	SS	Disable ◄	0
	SS	Enable	1
Australian Post Encode	SS	Transmit with raw format ◄	2
	SS	Transmit with numeric encoding (N Table)	3
	SS	Transmit with alphanumeric encoding (C Table)	4
	SS	Auto-discriminate encoding (Combine C & N Table)	5

- **Australia Post Encode** configures which encoding table the scanner refers to when decoding Australia Post Codes.
- **Auto-discriminate encoding** increases chance of misread because the encoded data format does not specify the encoding table it is based on.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

British Post Code

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
British Post Readability	SS SS	Disable ◄ Enable	0 1
British Post Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	2 3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Netherlands KIX/Posi LAPA Code

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Netherlands KIX Code Readability	SS SS	Disable ◄ Enable	0 1
Posi LAPA Code Readability	SS SS	Disable ◄ Enable	0 1

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Japan Post/Korea Post Code

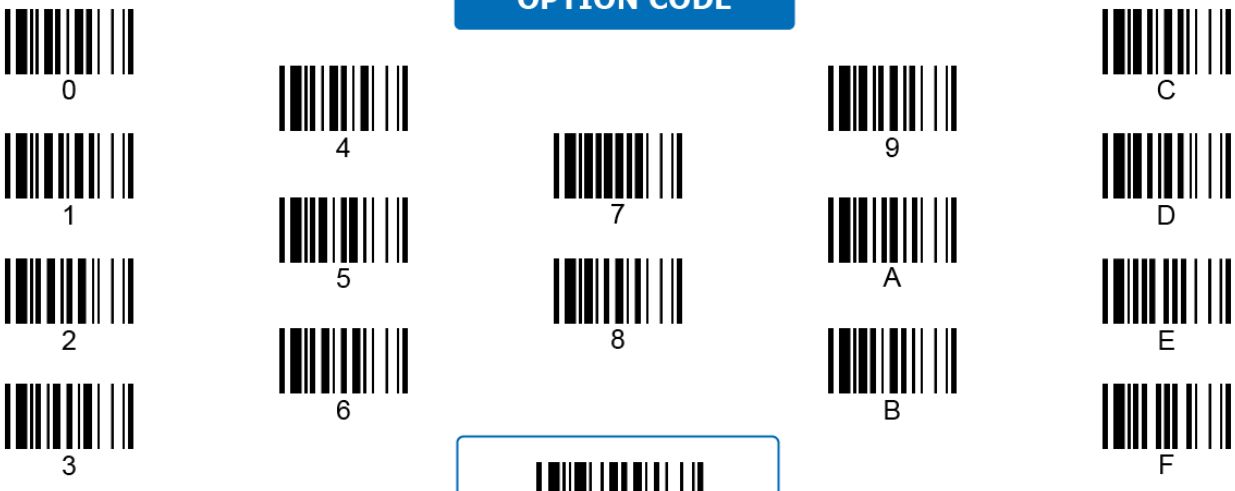
2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Japan Post Readability	SS SS	Disable ◄ Enable	0 1
Korea Post Readability	SS SS	Disable ◄ Enable	0 1

Korea Post Readability: Code length is fixed at 6 characters.

OPTION CODE



US Planet

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
US Planet Readability	SS SS	Disable ◄ Enable	0 1
US Planet Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	2 3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

US POSTNET

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
US POSTNET Readability	SS SS	Disable ◄ Enable	0 1
US POSTNET Check Digit Transmit	SS SS	Disable ◄ Transmit check digit	2 3

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Intelligent Mail

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Intelligent Mail Readability	SS	Disable ◄	0
	SS	Enable	1

Intelligent Mail Readability: When enabled, the scanner decodes Intelligent Mail (USPS4CB/One Code) and transmits data.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 128

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 128 Readability	SS SS	Disable Enable ◄	**0** **1**
GS1 128 Minimum Length	SS MS	Default (01) ◄ 01-Maximum	**FIN** **(2 digits)**
GS1 128 Maximum Length	SS MS	Default (98) ◄ 98-Minimum	**FIN** **(2 digits)**

- For **GS1 128 Minimum Length** and **GS1 128 Maximum Length**, the data length excludes start/stop characters, such as the barcode ID.
- After scanning the 2 digits, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

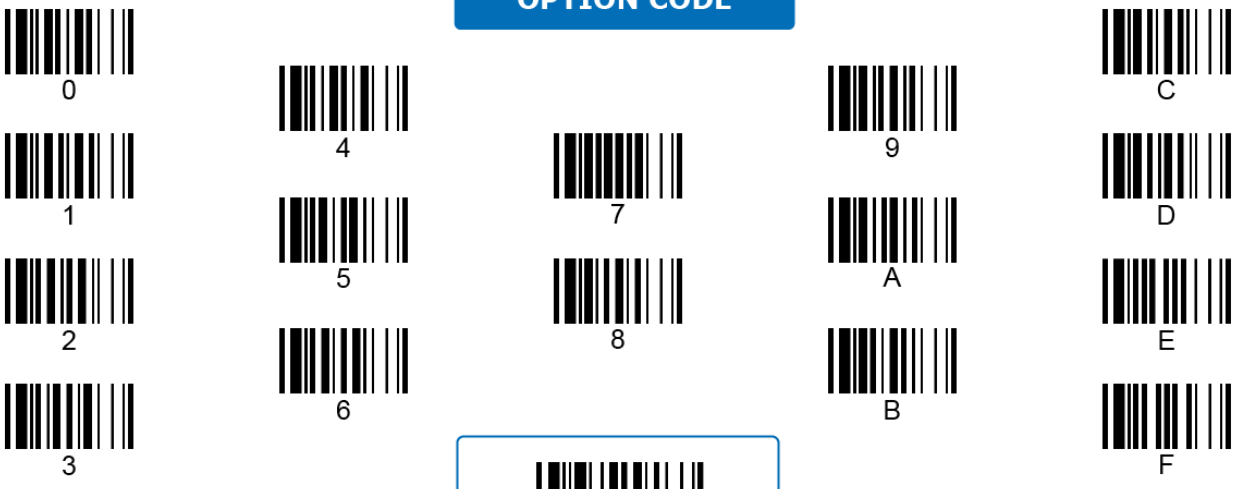
GS1 DataBar

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 DataBar	SS	Disable GS1 DataBar	0
	SS	Enable GS1 DataBar ◄	1
GS1 DataBar Ltd.	SS	Disable GS1 DataBar Limited	2
	SS	Enable GS1 DataBar Limited ◄	3
GS1 DataBar Exp.	SS	Disable GS1 DataBar Expanded	4
	SS	Enable GS1 DataBar Expanded ◄	5

OPTION CODE



GS1 Databar (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 DataBar Expanded Minimum Length	SS MS	Default (04) ◄ 01-Maximum	FIN (2 digits)
GS1 DataBar Expanded Maximum Length	SS MS	Default (74) ◄ 74-Minimum	FIN (2 digits)
GS1 DataBar Limited Security Level	SS SS SS	Level 1 Level 2 Level 3 ◄	0 1 2

- **GS1 DataBar Expanded Minimum Length** and **Maximum Length:**
  - The data length excludes start/stop characters, such as the barcode ID.
  - After scanning the 2 digits, the selection ends automatically.
- **GS1 DataBar Limited Security Level:**
  - Configures how well the scanner decodes poorly-printed or out-of-spec barcodes.
  - Level 1 is the most aggressive one and has the highest chance of a misread.
  - Only available on 1D scanners.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Composite Code

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Composite Code Readability	SS	Disable ◄	0
	SS	Enable	1
GS1 Composite Code UPC Link	SS	Disable ◄	2
	SS	Enable	3

GS1 Composite Code UPC Link: When disabled, the scanner transmits UPC regardless of the existence of an additional MicroPDF code. When enabled, the scanner only transmits those UPC codes extended with a MicroPDF code.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

4 Operation Modes

This chapter provides a complete list of available operation modes for each product series. To fulfill the needs of different application scenarios, the scanners' default modes and available mode options vary from series to series.

4.1 Operation Mode Settings

This section provides the command barcode for configuring the operation mode of your scanner. You can find the functional details of each parameter selection under each type of scanner.

Operation Mode - Corded Imager

CORDED HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Trigger mode ◄	1
	SS	Presentation mode	2
	SS	Force mode	9
	SS	Multiple read mode	C

- **Trigger Mode:** When enabled, the imager provides a longer Depth of Field (DOF) and goes into standby state after each reading for power saving. Press the trigger to activate the scanning process.
- **Presentation Mode:** When enabled, the preset background lighting of the imager will automatically turn on for barcode detection. The scanning process will automatically activate upon detecting a moving object within its field of view.
- **Force Mode:** The imager always keeps its LED illumination on and scans automatically for continuous operations.
- **Multiple Read Mode:** When enabled, press and hold the trigger to scan multiple barcodes continuously. The imager will beep after each successful scan. Upon decode timeout or releasing the trigger, the imager will switch to the standby state.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Operation Mode - Cordless Imager

CORDLESS HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Trigger mode ◄	1
	SS	Presentation mode	2
	SS	Multiple Read mode	C
Trigger Toggle	SS	Disable ◄	0
	SS	BT on-screen keyboard	3
	SS		
	SS		
Trigger Number	SS	2 Quick Triggers ◄	0
	SS	3 Quick Triggers	1
	SS	4 Quick Triggers	2

- **Trigger Mode:** When enabled, the imager provides a longer Depth of Field (DOF) and goes into standby state after each reading for power saving. Press the trigger to activate the scanning process.
- **Presentation Mode:** When enabled, the preset background lighting of the imager will automatically turn on for barcode detection. The scanning process will automatically activate upon detecting a moving object within its field of view.
- **Multiple Read Mode:** When enabled, press and hold the trigger to scan multiple barcodes continuously. The imager will beep after each successful scan. Upon decode timeout or releasing the trigger, the imager will switch to the standby state.
- **Trigger Toggle:** When enabled, you can switch the data input between the scanner and the on-screen keyboard of connected Bluetooth devices. Please refer to the "BT On-screen Keyboard" setting to select either the iOS Approach or the General Approach.
- **Trigger Number:** The number of times the trigger key must be pressed to activate the Trigger Toggle funciton.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Operation Mode – On Counter Scanner

ON COUNTER

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Trigger mode	1
	SS	Presentation mode ◄	2
	SS	Force mode	9
	SS	Multiple read mode	C

- **Trigger Mode:** When enabled, the scanner provides a longer Depth of Field (DOF) and goes into idle state after each reading. Press the trigger to activate the scanning process.
- **Presentation Mode:** When enabled, the preset background lighting of the scanner will automatically turn on for barcode detection. The scanning process will automatically activate upon detecting a moving object within its field of view.
- **Force Mode:** The scanner always scans automatically for continuous operations.
- **Multiple Read Mode:** When enabled, press and hold the trigger to scan multiple barcodes continuously. The scanner will beep after each successful scan. Upon decode timeout or releasing the trigger, the scanner will switch to the standby state.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Operation Mode - Companion Scanner

COMPANION

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Trigger mode ◄	1
	SS	Multiple Read mode	C
Trigger Toggle	SS	Disable ◄	0
	SS	BT on-screen keyboard	3
Trigger Number	SS	2 Quick Triggers ◄	0
	SS	3 Quick Triggers	1
	SS	4 Quick Triggers	2

- **Trigger Mode:** When enabled, press the trigger to scan the barcode. Once the trigger is pressed, the scanner will execute a single scan. The scanning process will terminate upon decode timeout or releasing the trigger. Press the trigger to activate the next scanning process.
- **Multiple Read Mode:** When enabled, press and hold the trigger to scan multiple barcodes continuously. The scanner will beep after each successful scan. Upon decode timeout or releasing the trigger, the scanner will switch to the standby state.
- **Trigger Toggle:** When enabled, you can switch the data input between the scanner and the on-screen keyboard of connected Bluetooth devices. Please refer to the "BT On-screen Keyboard" setting to select either the iOS Approach or the General Approach.
- **Trigger Number:** The number of times the trigger key must be pressed to activate the Trigger Toggle funciton.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Operation Mode – Fixed Mount Scanner

FIXED MOUNT

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Trigger mode ◄	1
	SS	Presentation mode	2
	SS	Force mode	9
	SS	Multiple read mode	C

- **Trigger Mode:** When enabled, the scanner goes into idle state after each reading. The scanner provides a longer Depth of Field (DOF) and sends **Trigger On** command to activate the scanning process.
- **Presentation Mode:** When enabled, the scanner provides a higher motion tolerance and its background lighting will be activated for barcode detection. The aimer, illumination and scanning process will activate upon detecting an object.
- **Force Mode:** The scanner always keeps its LED illumination on and scans automatically for continuous operations.
- **Multiple Read Mode:** When enabled, the scanner sends **Trigger On** and **Trigger Off** serial commands to activate and terminate a multiple read decode session. During each multiple read decode session, the scanner beeps after each good read.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Operation Mode – Scan Module

SCAN MODULE

Program

Family Code	PP	Parameter Selection	Option Code
Operation Mode	SS	Presentation mode ◄	1

- **Presentation Mode:** When enabled, the scan module provides a higher motion tolerance and its background lighting will be activated for barcode detection. The aimer, illumination and scanning process will activate upon detecting an object.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

5 Operation Control

This chapter presents the parameters related to the operation of your scanner. You will find settings for functionalities, including general scanner settings, user feedback control such as buzzer and vibration, and special parameters for different scanners.

5.1 Scanner Operation

This section provides the command barcodes for configuring the delay, timeout, sensitivity, and output response of your scanner. You can find the functional details of specified parameter selections.

Reread Delay/Good Read Delay

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Reread Delay	SS	Disable	0
	SS	Immediate	1
	SS	Extremely short ◄	2
	SS	Short	3
	SS	Medium	4
	SS	Long	5
	SS	Force verification	6
Good Read Delay	SS	None ◄	0
	SS	200 ms	1
	SS	500 ms	2
	SS	1 sec	3
	SS	1.5 sec	4
	SS	2 sec	5
	SS	3 sec	6

- **Reread Delay** prevents the scanner from decoding the same barcode twice in a pre-defined duration. Among the options, **Force verification** prevents decoding the same barcode twice before the trigger session ends. Reread Delay is only effective under hands-free modes.
- **Good Read Delay** configures the length of interval between each good read.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Handheld Decode Timeout

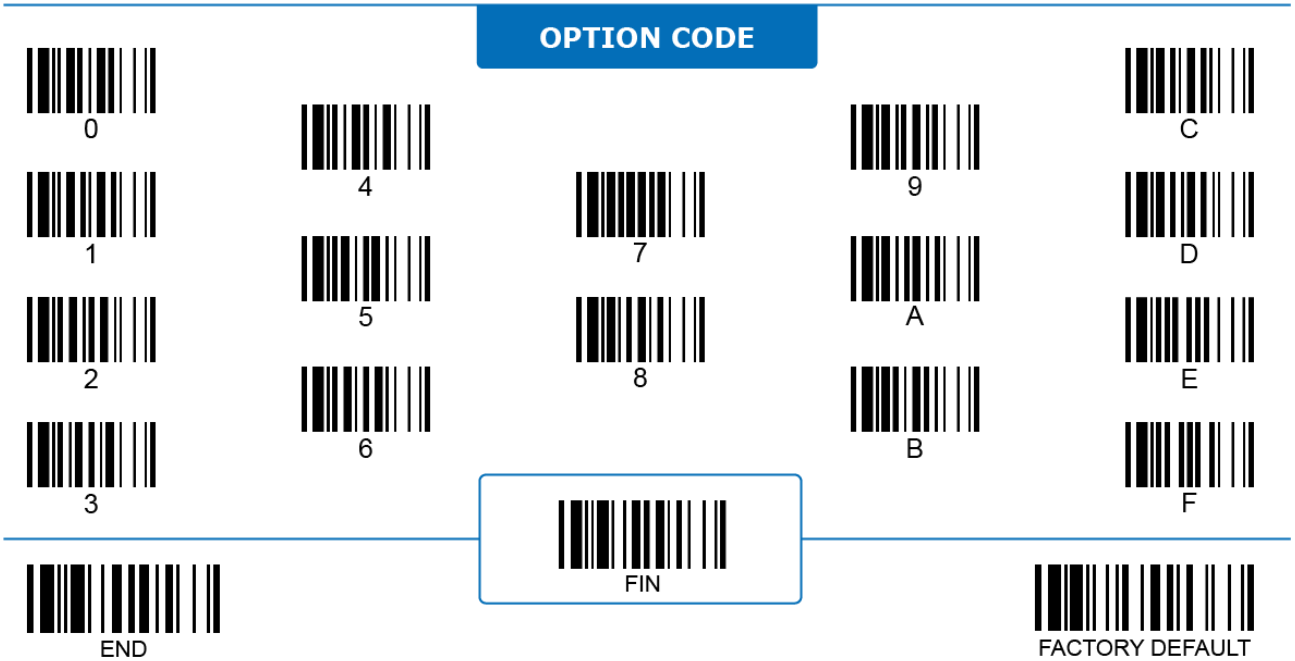
ALL

Program

Family Code	PP	Parameter Selection	Option Code
Handheld Decode Timeout	SS	Disable ◄	0
	SS	100 ms	1
	SS	200 ms	2
	SS	300 ms	3
	SS	400 ms	4
	SS	500 ms	5
	SS	600 ms	6
	SS	700 ms	7
	SS	800 ms	8
	SS	900 ms	9
	SS	1 sec	A
	SS	2 sec	B
	SS	4 sec	C
	SS	6 sec ◄ (Default of Cordless Bluetooth scanners)	D
	SS	8 sec	E
	MS	User-defined: 1 – 99 sec	F, (2 digits)

Handheld Decode Timeout configures the duration of a decode session under **Trigger mode** and **Multiple read mode**. When enabled, a decode session ends when any of following occurs:

- The scanner successfully decodes and transmits a barcode during the decode session. The result is categorized as a “Good Read” (or an “OK”).
- The scanner cannot decode any barcode before the time is up. The result is categorized as a “No Good Read” (or a “NG”).
- Trigger or button of the scanner is released before the scanner can decode a barcode.
- The scanner received a **Serial Trigger Off** command before it can decode a barcode.



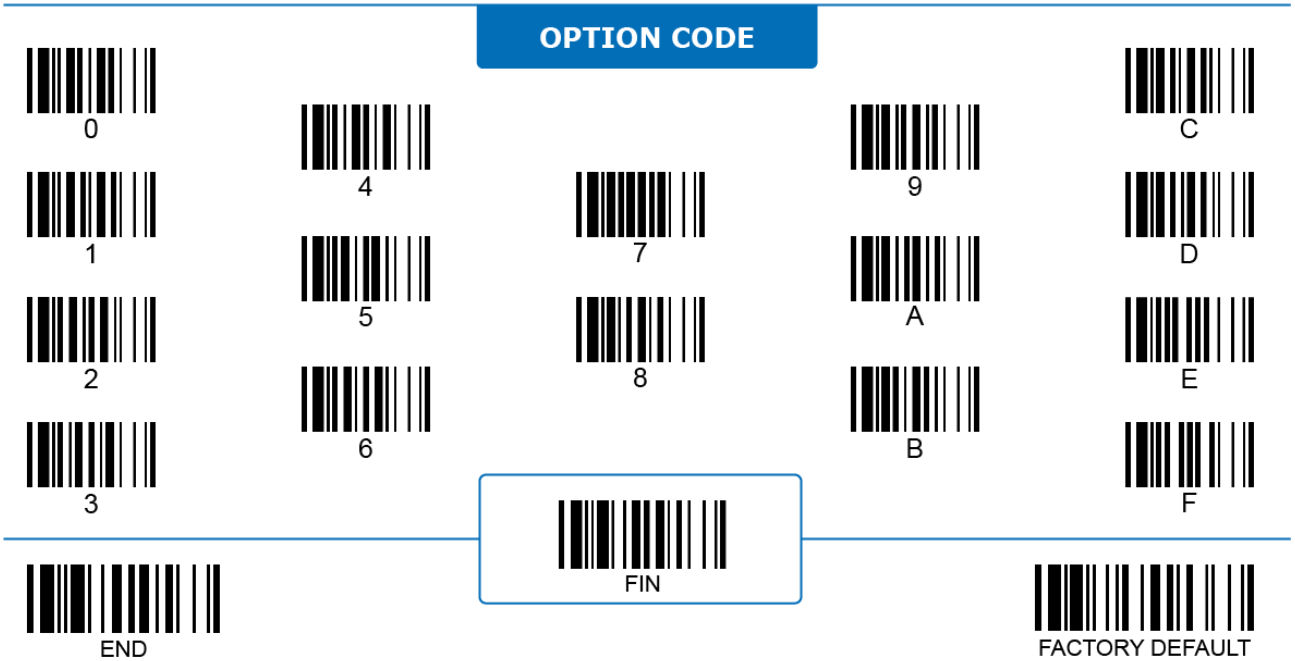
Handheld Decode Timeout (continued)

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Handheld Decode Timeout	SS	Disable ◄	0
	SS	100 ms	1
	SS	200 ms	2
	SS	300 ms	3
	SS	400 ms	4
	SS	500 ms	5
	SS	600 ms	6
	SS	700 ms	7
	SS	800 ms	8
	SS	900 ms	9
	SS	1 sec	A
	SS	2 sec	B
	SS	4 sec	C
	SS	6 sec ◄ (Default of Cordless Bluetooth scanners)	D
	SS	8 sec	E
	MS	User-defined: 1 – 99 sec	F, (2 digits)

When **disabled**, a decode session ends when any of the above occurs except event ii: cannot decode any barcode before the time is up.



Hands-free Decode Timeout

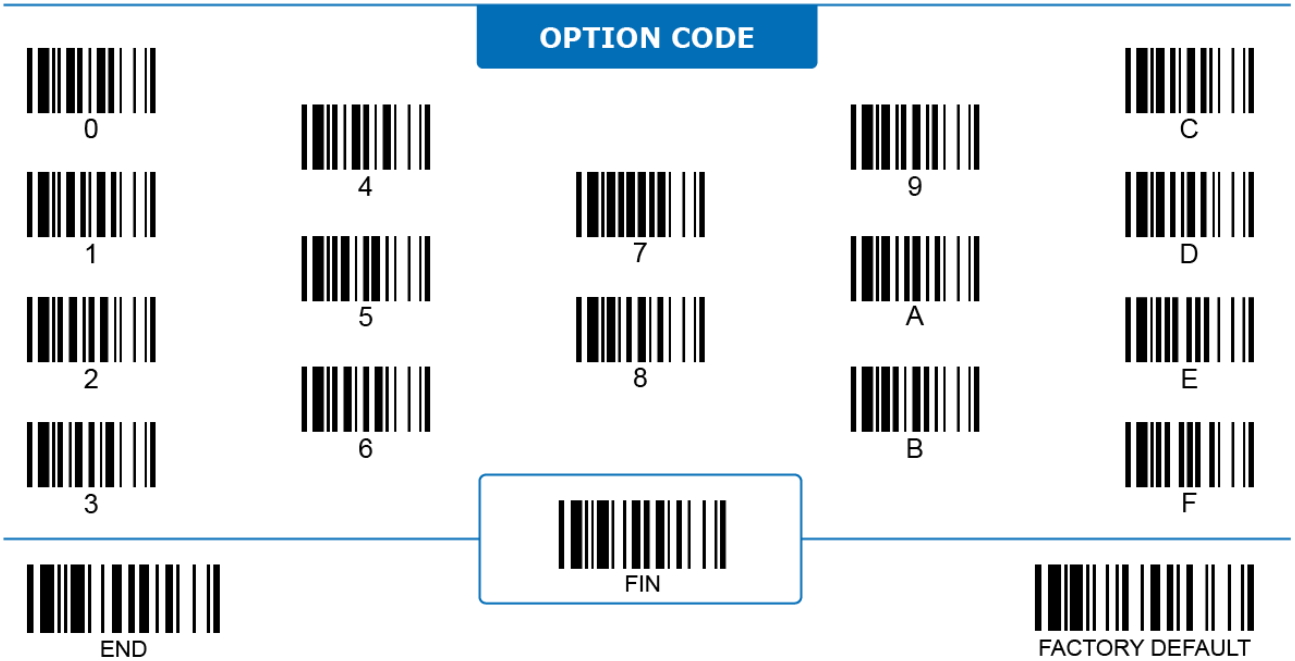
ALL

Program

Family Code	PP	Parameter Selection	Option Code
Hands-free Decode Timeout	SS	100 ms	1
	SS	200 ms	2
	SS	300 ms	3
	SS	400 ms	4
	SS	500 ms	5
	SS	600 ms	6
	SS	700 ms	7
	SS	800 ms	8
	SS	900 ms	9
	SS	1 sec	A
	SS	2 sec ◄ (Default of On-counter scanners)	B
	SS	4 sec	C
	SS	6 sec ◄	D
	SS	8 sec	E
	MS	User-defined: 1 – 99 sec	F, (2 digits)

Hands-free Decode Timeout configures the duration of a decode session under **Presentation mode**. A decode session ends when any of following event happens:

- The scanner successfully decodes and transmits a barcode during the decode session. The result is categorized as a “Good Read” (or an “OK”).
- The scanner cannot decode any barcode before the time is up. The result is categorized as a “No Good Read” (or a “NG”).



Presentation Scanning Activation

ON COUNTER SCAN MODULE

Program

Family Code	PP	Parameter Selection	Option Code
Presentation Scanning Activation	SS	Image motion detect ◄	0
	SS	IR proximity sensing ◄ (Default of On-counter scanners)	1
	SS	Image proximity sensing	2

Presentation Scanning Activation configures which sensor the scanner relies on to trigger a decode session under Presentation mode.

- **Image motion detect:** The scanner uses its image sensor to continuously monitor the environment when the scanner is in standby condition. It is triggered to scan upon detection of any object in motion within its field of view. Utilize **2D Image Sensitivity** to adjust the scanner's sensitivity when operating in image motion detect mode.
- **IR proximity sensing:** The scanner uses its IR sensor to continuously monitor the environment when the scanner is in standby condition. It is triggered to scan when the IR sensor detects something entering its field of view and approaching the scanner. Utilize **IR Sensitivity** to adjust the sensitivity of the IR sensor when operating in IR proximity sensing mode.
- **Image proximity sensing:** The scanner uses its image sensor to continuously monitor the environment when the scanner is in standby condition. It is triggered to scan when its image sensor detects something entering its field of view and approaching the scanner. The image proximity sensing mode requires sufficient background lighting to function accurately. In this mode, the background LED of the scanner is activated, regardless of the setting of the **2D Presentation Background Lighting** parameter.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Presentation Continuous Scan

ON COUNTER SCAN MODULE

Program

Family Code	PP	Parameter Selection	Option Code
Presentation Continuous Scan	SS	Disable	1
	SS	Enable ◄	0

Presentation Continuous Scan:

- When disabled, the scanner goes into standby condition once it has a Good Read and waits for the next triggering event.
- When enabled, the scanner begins a new decode session immediately after it has a Good Read (decoded a barcode and transmitted it out successfully).
- Continuous scan improves the speed of the scanner under Presentation mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Object-in/Object-out Message Output

ON COUNTER

Program

Family Code	PP	Parameter Selection	Option Code
Object-in Message Output	SS	None ◄	0
	SS	Default message “OBJECT_IN” with CRLF	1
	MS	User-defined message	2, [00 - 7F]
Object-out Message Output	SS	None ◄	0
	SS	Default message “OBJECT_OUT” with CRLF	1
	MS	User-defined message	2, [00 - 7F]

- **Object-in Message Output:** When enabled, the scanner sends out an “OBJECT_IN” message to the host when its image or IR-based proximity sensor detects any object entering its reading range and begins a decode session. Available under Presentation mode with either image or IR proximity sensing.
- **Object-out Message Output:** When enabled, the scanner sends out an “OBJECT_OUT” message to the host when its IR-based proximity sensor finds that the detected object leaving its reading range and ends the decode session. Only available under Presentation mode with IR proximity sensing.
- **Parameter Selection** allows 1 to 15 characters. Scan “FIN” to end the selection.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2D Image Sensitivity

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Image Sensitivity	SS	Level 1	**0**
	SS	Level 2	**1**
	SS	Level 3	**2**
	SS	Level 4	**3**
	SS	Level 5 ◄	**4**
	SS	Level 6	**5**
	SS	Level 7	**6**

2D Image Sensitivity configures the sensitivity when the scanner uses its image sensor to trigger a decode session in Presentation mode; barcodes may not be detected due to insufficient ambient light. Choose higher levels of Presentation Sensitivity to improve barcode detection if needed. Setting the sensitivity level too high might cause unwanted triggering.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

IR Sensitivity

ON COUNTER

Program

Family Code	PP	Parameter Selection	Option Code
IR Sensitivity	SS	Low ◄	0
	SS	High	1

- **IR Sensitivity** configures how sensitive the IR proximity sensor is.
- **Low**: The scanner exhibits lower sensitivity and is triggered to decode only when the target object enters the scanner's field-of-view in close proximity and moves closer to the scanner.
- **High**: The scanner exhibits higher sensitivity and is triggered to decode when the target object enters the scanner's field-of-view in considerable distance and gradually move closer to the scanner.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

1D Barcode Inverse Reading

ALL

Program

Family Code	PP	Parameter Selection	Option Code
1D Barcode Inverse Reading	SS	Disable ◄	0
	SS	Enable	1

1D Barcode Inverse Reading: When enabled, the scanner decodes 1D barcodes printed with a light color over a dark background.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Hands-free Timeout

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Hands-free Timeout	SS	Short ◄	0
	SS	Medium	1
	SS	Long	2
	SS	Extremely long	3
	SS	Disable	4

Under hands-free operation modes, the scanner automatically changes to Trigger mode when its trigger button is pressed. **Hands-free Timeout** controls the duration the scanner stays in Trigger mode. The timeout resets every time the trigger is pressed, and the scanner switches back to the original hands-free mode when the timeout is up.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Auto-sense Control

HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Auto-sense Control	SS	Disable ◄ (Default of Bluetooth scanners)	0
	SS	Enable ◄	1

Auto-sense Control: When enabled, the scanner switches to hands-free mode automatically when a handheld corded scanner is placed on a Smart Stand, or when a handheld Bluetooth scanner is placed on a cradle.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Auto-sense Mode Select

HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Auto-sense Mode Select	SS	Presentation mode ◄	0
	SS	Force mode	2

Auto-sense Mode Select configures which hands-free mode the scanner switches to when its Auto-sense function is enabled and triggered. Bluetooth scanners do not offer this particular function.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Laser Auto-sense Power Off Timeout

LASER ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Power Off Timeout	SS	3 min ◄	0
	SS	5 min	1
	SS	10 min	2

Laser Auto-sense Power-off Timeout configures how long the LED illumination of L-series Laser corded scanner stays on when its Auto-sense function is triggered.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

NG Message Output

FIXED MOUNT ON COUNTER

Program

Family Code	PP	Parameter Selection	Option Code
NG Message Output	SS	None ◄	0
	SS	Default message “NG” with CRLF	1
	MS	User-defined message (1~15 characters)	2, 〔00 - 7F〕

- When enabled, the scanner transmits a NG message when it has a No Good Read (NG) result.
- **Parameter Selection** allows 1 to 15 characters. Scan “FIN” to end the selection.

For character input, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Handheld/Hands-free Alignment

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Handheld Center Alignment	SS	Disable ◄	0
	SS	Enable ◄ (Default of On-counter scanners)	1
Hands-free Center Alignment	SS	Disable ◄	2
	SS	Enable	3

- **Handheld Center Alignment:** When enabled, the scanner only decodes barcode(s) very close to the aiming line/dot under handheld modes including **Trigger mode** and **Multiple read mode**.
- **Hands-free Center Alignment:** When enabled, the scanner only decodes barcode(s) very close to the aiming line/dot under hands-free modes including **Presentation mode** and **Force mode**.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Handheld/Hands-free Alignment (continued)

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Top of Center Window	MS	User-defined: 0-100%	[0-100], FIN
Bottom of Center Window	MS	User-defined: 0-100%	[0-100], FIN
Left of Center Window	MS	User-defined: 0-100%	[0-100], FIN
Right of Center Window	MS	User-defined: 0-100%	[0-100], FIN

OPTION CODE

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

FIN

END

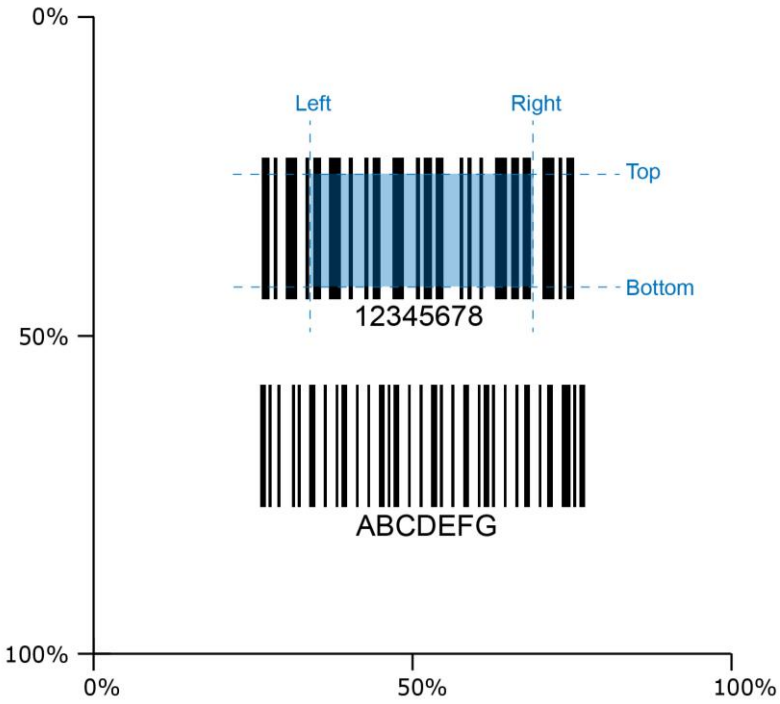
FACTORY DEFAULT

Handheld/Hands-free Alignment (continued)

2D ONLY

Program

- The default decoding area is an area of 40% top, 60% bottom, 40% left and 60% right of the scanner's field of view.
- By enabling Handheld/Hands-free Center Alignment, the scanner only decodes barcode(s) very close to the decoding area. You can define this area by configuring a desired percentage (0-100) for the **Top of Center Window**, **Bottom of Center Window**, **Left of Center Window** and **Right of Center Window**.
- When defining the decoding area, please refer to the illustration below. By setting the value of Bottom greater than that of Top and the value of Right greater than that of Left, the barcode will always stay within your scanner's field of view.



OPTION CODE

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

FIN

END

FACTORY DEFAULT

ROI

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
ROI	SS SS	Disable ◄ Enable	0 1
Top of ROI	MS	User-defined: 0-100%	[0-100], FIN
Bottom of ROI	MS	User-defined: 0-100%	[0-100], FIN
Left of ROI	MS	User-defined: 0-100%	[0-100], FIN
Right of ROI	MS	User-defined: 0-100%	[0-100], FIN

OPTION CODE

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

FIN

END

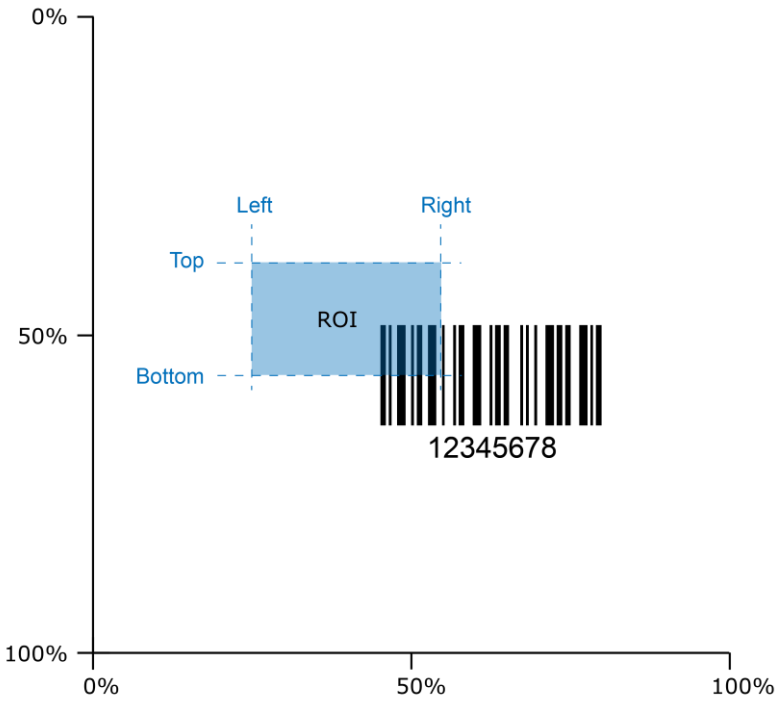
FACTORY DEFAULT

ROI (continued)

2D ONLY

Program

- **ROI:** When enabled, the scanner only reads barcodes that intersect a predefined decoding area. You can define this area by configuring a desired percentage (0-100) for the **Top of ROI**, **Bottom of ROI**, **Left of ROI** and **Right of ROI**.
- When defining the decoding area, please refer to the illustration below. By setting the value of Bottom greater than that of Top and the value of Right greater than that of Left, the barcode will always stay within your scanner's field of view.



OPTION CODE

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

FIN

END

FACTORY DEFAULT

Unique Barcode Reporting

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Unique Barcode Reporting	SS	Disable ◄	0
	SS	Enable	1

Unique Barcode Reporting: When enabled, the scanner only transmits each unique barcode one time before the trigger is released in Multiple read mode. Unique Barcode Reporting can prevent unwanted repeated reading of the same barcode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2D Smart Scene

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Smart Scene	SS	Auto mode ◄	0
	SS	Handheld optimized mode	1
	SS	Hands-free optimized mode	2
	SS	High motion mode	3
	SS	High density mode	4
	SS	Smartphone mode	5

2D Smart Scene provides a series of pre-defined scanner profiles optimized for different application scenarios:

- **Auto mode**: When selected, the scanner automatically switch to **Handheld optimized mode** in handheld Trigger mode and Multiple read mode, or switch to **Hands-free optimized mode** in hands-free Presentation mode and Force mode.
- **Handheld optimized mode**: When selected, the scanner is configured for optimal reading range and can adapt to different lighting conditions effectively in all operation modes.
- **Hands-free optimized mode**: When selected, the scanner is set up to deliver the best scanner response and improved motion tolerance across all operation modes.
- **High motion mode**: When selected, the scanner is fine-tuned to read barcodes on rapidly moving objects at a consistent reading distance.
- **High density mode**: When selected, the scanner is optimized to decode high density barcodes.
- **Smartphone mode**: When selected, the scanner is configured to efficiently read barcodes displayed on self-illuminated surfaces with a glossy finish, like those found on smartphone or PC screens.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

DPM Mode

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
DPM Mode	SS	Disable	0
	SS	DPM Standard Mode ◄	1

- **DPM Mode:** When enabled, the scanner uses an advanced DPM decoding algorithm to read challenging DPM codes.
- This function is only available for A800 series DP and all XD models.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Swift Serial Reading

FIXED MOUNT | SCAN ENGINE | 2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Swift Serial Reading	SS	Disable ◄	0
	SS	Enable	1

- **Swift Serial Reading:** When enabled, the scanner outputs multiple adjacent 1D barcodes in sequence.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Low Power State

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Low Power State	SS	Disable ◄	0
	SS	Enable	1

Low Power State: When enabled, the scanner switches to the idle state after scanning activity, and then to the low power state after the preset low power timeout (see **"Time Delay to Low Power State"**) for power conservation. The scanner can be reactivated by pressing the trigger or when the host initiates communication with the scanner.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Time Delay to Low Power State

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Time Delay to Low Power State	SS	1 sec	0
	SS	3 sec	1
	SS	5 sec	2
	SS	7 sec	3
	SS	9 sec	4
	SS	Immediate ◄	5

Time Delay to Low Power State sets the time for scanner to switch to the low power state after any scanning activity.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Reading Redundancy

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Reading Redundancy	SS	Level 1 ◄	1
	SS	Level 2	2
	SS	Level 3	3
	SS	Level 4	4
	SS	Level 5	5

For all scanners, **Reading Redundancy** configures how many times a barcode has to be decoded and matches the previous result before it is transmitted. The level of reading redundancy is dynamically adjusted by the scanner based on the image quality and scanning conditions. The higher the level, the slower the scanning speed is with less chance of a misread. The lower the level, the faster the scanning speed is with higher chance of a misread.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

1D Scan Rate

1D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
1D Scan Rate	SS	Dynamic ◄	0
	SS	Fixed	1

1D Scan Rate configures the exposure duration of each scan of a 1D scanner. When **Fixed** is selected, the motion tolerance is improved, while compromising the reading distance.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

1D Reading Direction Indication

1D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Direction Indication	SS	Disable ◄	0
	SS	Transmit direction character as prefix	1
	SS	Transmit direction character as suffix	2
	SS	Transmit direction character as prefix and suffix	3

1D Reading Direction Indication: When enabled, the scanner attaches specified prefix and/or suffix characters to decoded data according to the reading direction of a 1D barcode, to identify whether the barcode is in its normal or reversed position.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Forward/Backward-read Indication

1D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Forward-read Indication	SS	None ◄	0
	SS	“S”	1
	MS	User-defined character (1 character)	2〔00-7F〕
Backward-read Indication	SS	None	0
	SS	“X” ◄	1
	MS	User-defined character (1 character)	2〔00-7F〕

1D Barcode Forward/Backward-reading Indication defines the characters attached and transmitted with the main data to identify the barcode direction.

For character input, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

OK/NG Signal Output

FIXED MOUNT

Program

Family Code	PP	Parameter Selection	Option Code
Signal Output	SS	Disable OK output; disable NG output; disable OK/NG indicators ◄	0
	SS	Disable OK output; **enable NG output**; disable OK/NG indicators	1
	SS	**Enable OK output**; disable NG output; disable OK/NG indicators	2
	SS	**Enable OK output**; **enable NG output**; disable OK/NG indicators	3
	SS	Disable OK output; **enable NG output**; **enable NG indicator**	4
	SS	**Enable OK output**; disable NG output; **enable OK indicator**	5
	SS	**Enable OK output**; **enable NG output**; **enable OK/NG indicators**	6
	SS	Disable OK output; disable NG output; **enable NG indicator**	7
	SS	Disable OK output; disable NG output; **enable OK indicator**	8
	SS	Disable OK output; disable NG output; **enable OK/NG indicators**	9

- **OK/NG Signal Output:** When enabled, the scanner sends out an electrical signal through either the OK output pin or NG output pin according to the result of each decode session (Good Read or No Good Read). It is only effective in operation modes with the timeout function enabled.
- **OK/NG Indicators:** When enabled, the scanner emits a LED indicator according to the result of each decode session. It is only effective in operation modes with timeout function enabled.
- OK/NG signal outputs are only available on scanners with a Universal Interface. These include FA480-9, FA470-9, FA460-9, FM480-9, SM5800-9, SM5600-9, and SM380-9.
- OK/NG indicators are available on all fixed mount scanner models.
- Only available on scanners with Universal interface.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

OK/NG Signal Active State

FIXED MOUNT

Program

Family Code	PP	Parameter Selection	Option Code
OK/NG Signal Active State	SS	Set OK low; set NG low ◄	0
	SS	Set OK low; set NG high	1
	SS	Set OK high; set NG low	2
	SS	Set OK high; set NG high	3

- **OK/NG Signal Active State** configures the logic level of the active state of OK/NG signal output. The scanner works as a NPN (sinking) device through OK and NG signal output pins.
- Scanners with a Universal Interface include FA480-9, FA470-9, FA460-9, FM480-9, SM5800-9, SM5600-9, and SM380-9.
- Only available on scanner with Universal Interface.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

OK/NG Signal Duration

FIXED MOUNT

Program

Family Code	PP	Parameter Selection	Option Code
OK/NG Signal Duration	SS	10 ms	**0**
	SS	20 ms	**1**
	SS	30 ms	**2**
	SS	40 ms	**3**
	SS	50 ms	**4**
	SS	60 ms	**5**
	SS	70 ms	**6**
	SS	80 ms	**7**
	SS	90 ms	**8**
	SS	100 ms ◄	**9**
	MS	User-defined: 1 – 99 (x50) ms	**A,** (2 digits)

OK/NG Signal Duration configures the duration of OK/NG signal outputs and OK/NG LED indications.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

I/O Active State

SCAN ENGINE

Program

Family Code	PP	Parameter Selection	Option Code
I/O Active State	SS	Active high	0
	SS	Active low ◄	1

I/O Active State configures the active state of the Beeper and Good Read indicator pins of the scan engines or scan modules. For additional information, consult the integration manual specific to the scan engine or scan module product line.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

User-defined Serial Trigger On/Off

ALL

Program

Family Code	PP	Parameter Selection	Option Code
User-defined Serial Trigger On	SS SS	None ◄ User-defined	0 1〔00-7F〕
User-defined Serial Trigger Off	SS SS	None ◄ User-defined	0 1〔00-7F〕

User-defined Serial Trigger On/Off enables users to customize the serial command for triggering the scanner on or off.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Companion Function Key Control

COMPANION

Program

Family Code	PP	Parameter Selection	Option Code
Companion Function Key 1 Control	SS	Disable short and long press	0
	SS	Enable short press only	1
	SS	Enable long Press only	2
	SS	Enable short and long press ◄	3
Companion Function Key 2 Control	SS	Disable short and long press	4
	SS	Enable short press only	5
	SS	Enable long Press only	6
	SS	Enable short and long press ◄	7

Companion Function Key 1 & 2 Control configures the on or off of the short and long press on Function Key 1 (**FN1**) and Function Key 2 (**FN2**).

Command Barcode Lock

- Once the Command Barcode Lock is enabled, the scanner will no longer allow any settings to be charnged by scanning barcode commands. Please contact cino technical support for further information.

5.2 Illumination Settings

This section provides the command barcodes for configuring the aimer and illumination settings of your scanner. You can find the functional details of specified parameter selections under each setting.

2D Illumination & Aiming Control

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Handheld Illumination & Aiming Control	SS	Disable illumination; disable aiming	0
	SS	Disable illumination; enable aiming	1
	SS	Enable illumination; disable aiming	2
	SS	Enable illumination; enable aiming ◄	3
2D Hands-free Illumination & Aiming Control	SS	Disable illumination; disable aiming	0
	SS	Disable illumination; enable aiming	1
	SS	Enable illumination; disable aiming ◄ (On-counter scanners)	2
	SS	Enable illumination; enable aiming ◄	3

- **2D Handheld Illumination & Aiming Control** configures the on/off of the illumination LED and aiming LED in trigger mode or multiple read mode.
- **2D Hands-free Illumination & Aiming Control** configures the on/off of the illumination LED and aiming LED in presentation mode or force mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2D Illumination Intensity

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Handheld Illumination Intensity	SS SS SS	High ◄ Medium Low	**0** **1** **2**
2D Hands-free Illumination Intensity	SS SS SS	High ◄ Medium Low	**0** **1** **2**

- **2D Handheld Illumination Intensity** configures the intensity of the illumination in trigger mode or multiple read mode.
- **2D Hands-free Illumination Intensity** configures the intensity of the illumination in presentation mode or force mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2D Aiming Select/Pre-decode Aiming

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Aiming Select	SS	Regular Aiming ◄(Default of Bluetooth & 2D scan engines)	0
	SS	Intelligent Aiming ◄(Default of Corded & On-counter scanners)	1
	SS	Pre-decode Aiming	2
2D Pre-decode Aiming Timeout	SS	200 ms	0
	SS	400 ms ◄	1
	SS	800 ms	2
	SS	1 sec	3
	SS	1.5 sec	4
	SS	2 sec	5
	SS	3 sec	6
	SS	4 sec	7

- **2D Aiming Select** configures the 2D scanner behavior of aiming the line/dot with the 3 following options:
  - **Regular Aiming:** Aiming line/dot is turned on only when the trigger is pressed.
  - **Intelligent Aiming:** Aiming line/dot is turned on when the user lifts up the scanner, or when the scanner detects any movement in front of it.
  - **Pre-decode Aiming** provides a duration for the user to aim at the target barcode before the scanner turns on its LED illumination and starts to decode the barcode. The aiming line/dot stays on during **Pre-decode Aiming Timeout**. This mode is recommended when decoding many barcodes which are packed into a close distance. This option is only available under Trigger mode.
- **2D Aiming Select** is only available under Trigger mode and Multiple read mode.
- **2D Pre-decode Aiming Timeout** configures how long the duration is when the 2D scanner turns on its aiming line/dot before the decode session begins.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

2D Presentation Background Lighting

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
2D Presentation Background Lighting	SS	Disable ◄ (Default of On-counter scanners)	0
	SS	Enable ◄	1

- **2D Presentation Background Lighting** configures the behavior of the LED illumination in Presentation mode. When enabled, the scanner maintains a dim LED illumination in the background while on standby. Disabling the background lighting when the ambient light is poor could impede the scanner's responsiveness.
- In Presentation mode, if the scanner uses Image Proximity Sensing while its triggering method and background lighting are disabled, the scanner will not function properly.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Laser Aiming Control

LASER ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Laser Aiming Control	SS	Disable	0
	SS	Enable ◄	1

Laser Aiming Control: When disabled, the scanner turns off its Laser aiming line but keeps the LED illumination on when it is triggered. Disabling the Laser aiming line can improve the reading of stacked **PDF417** and **Micro PDF417** codes.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Laser Aiming Select, Pre-decode Aim

LASER ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Laser Aiming Select	SS	Regular aiming ◄	0
	SS	Pre-decode aiming	1
Pre-decode Aim Timeout	SS	100 ms	0
	SS	150 ms ◄	1
	SS	200 ms	2
	SS	250 ms	3
	SS	300 ms	4

- **Laser Aiming Select** configures the aiming line/dot behavior of L-series Laser scanners with 2 following options:
  - **Regular aiming:** Aiming line/dot is turned on only when the trigger is pressed.
  - **Pre-decode aiming** provides a duration for the user to aim at the target barcode before the scanner turns on its LED illumination and starts to decode the barcode. The aiming line/dot stays on during **Laser Pre-decode Aiming Timeout**. This mode is recommended when decoding many barcodes packed into a close distance. This option is only available under Trigger mode.
- **Laser Aiming Select** is only available in Trigger mode and Multiple read mode.
- **Laser Pre-decode Aiming Timeout** configures the length of time the laser scanner turns on its aiming line/dot before the decode session begins.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Illumination Color

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Illumination Color	SS	White Illumination ◄	0
	SS	Red Illumination	1

- **Illumination Color** configures the color of your direct illumination with 2 following options:
  - **White Illumination:** The scanner turns on the white LED illumination.
  - **Red Illumination:** The scanner turns on the red LED illumination.
- This function is only available for A800 series.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

DPM Illumination

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
DPM Illumination	SS	Direct Illumination	0
	SS	Diffused Illumination	1
	SS	Cycle Illumination ◄	2

- **Illumination Color** configures the source of your illumination.
  - **Direct Illumination:** The scanner turns on the direct illumination (dual-color lighting).
  - **Diffused Illumination:** The scanner turns on the diffused illumination (DPM diffuser).
  - **Cycle Illumination:** The scanner cycles between multiple light sources in a fixed sequence. To configure the length of interval between each light source, refer to **Illumination Rotation Interval**.
- This function is only available for A800 series DP models.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

DPM Diffused Illumination

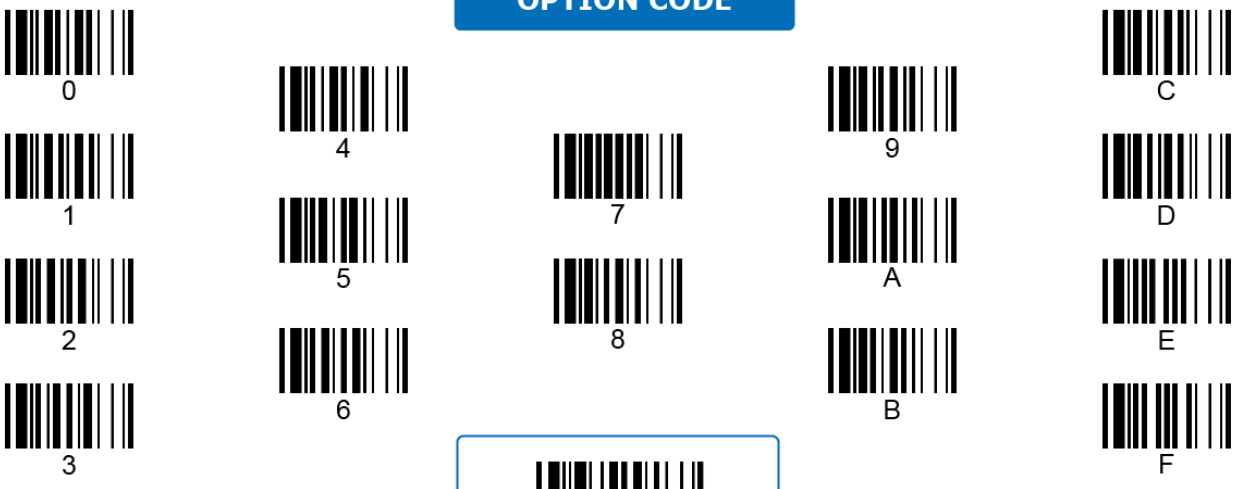
2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
DPM Diffused Illumination	SS	Full Lighting ◄	0
	SS	Sided Lighting	1
	SS	Bottom Lighting	2

- **DPM Diffused Illumination** configures the behavior of your DPM diffuser.
  - **Full Lighting:** The scanner turns on the left, right and bottom sides of the DPM diffuser.
  - **Sided Lighting:** The scanner turns on the left and right sides of the DPM diffuser.
  - **Bottom Lighting:** The scanner turns on the bottom side of the DPM diffuser.
- This function is only available for A800 series DP models.

OPTION CODE



Illumination Rotation Interval

2D ONLY

Program

Family Code	PP	Parameter Selection	Option Code
Illumination Rotation Interval	SS	500 ms	**0**
	SS	1 sec	**1**
	SS	1.5 sec	**2**
	SS	2 sec ◄	**3**
	SS	2.5 sec	**4**
	SS	3 sec	**5**
	MS	User-Defined 1-99 (x500) ms	**6, (2 digits)**

- **Illumination Rotation Interval** configures the length of interval between each light source for **Cycle Illumination**.
- This function is only available for A800 series DP models.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

5.3 Audio & Indicator Settings

This section provides the command barcodes for configuring the audio and indicator settings of your scanner. You can find the functional details of specified parameter selections under each setting.

Buzzer Tone/Buzzer Volume

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Buzz Tone	SS	Low (Frequency 1.20 kHz)	1
	SS	Medium (Frequency 2.70 kHz) ◄	2
	SS	High (Frequency 2.81 kHz)	3
	SS	Extremely high (Frequency 2.93 kHz)	4
Buzz Volume	SS	Low	0
	SS	Medium	1
	SS	High ◄	2

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Good Read Beeping

HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Good Read Beeping	SS	Disable	8
	SS	Enable ◄	7

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Power On/Off Beeping

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Power On/Off Beeping	SS	Disable	6
	SS	Enable ◄	5

- **Power On/Off Beeping**: When enabled, the scanner emits a beeping sound right after it is powered on.
- Cordless Bluetooth scanners emit an additional beeping sound before being powered off.
- Power off beep is only available on cordless Bluetooth scanners.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

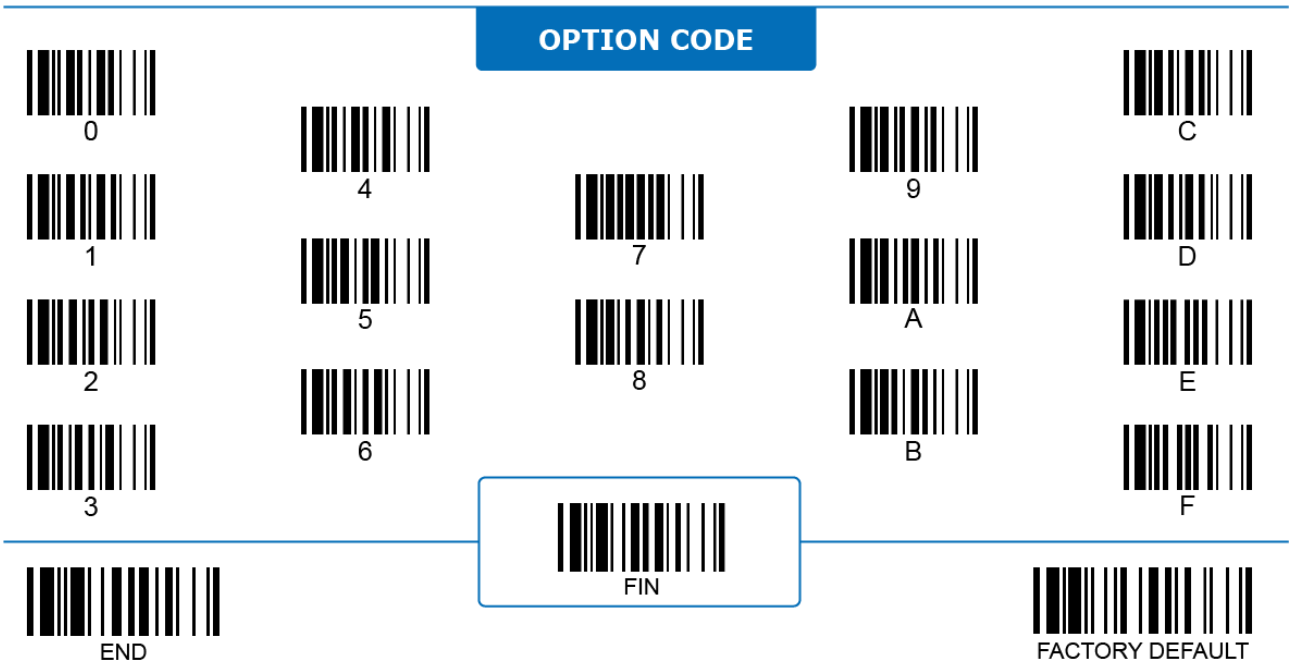
Good Read Indicator, Power Indicator

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Good Read Indicator	SS	Disable	0
	SS	Enable ◄	1
Power Indicator	SS	Disable	0
	SS	Enable with LED steady on ◄	1
	SS	Enable with LED flashing	2

Power Indicator: When enabled, the scanner illuminates its blue LED indicator to show that it is presently powered. A570, A560, F560, and all BT scanners do not support this function.



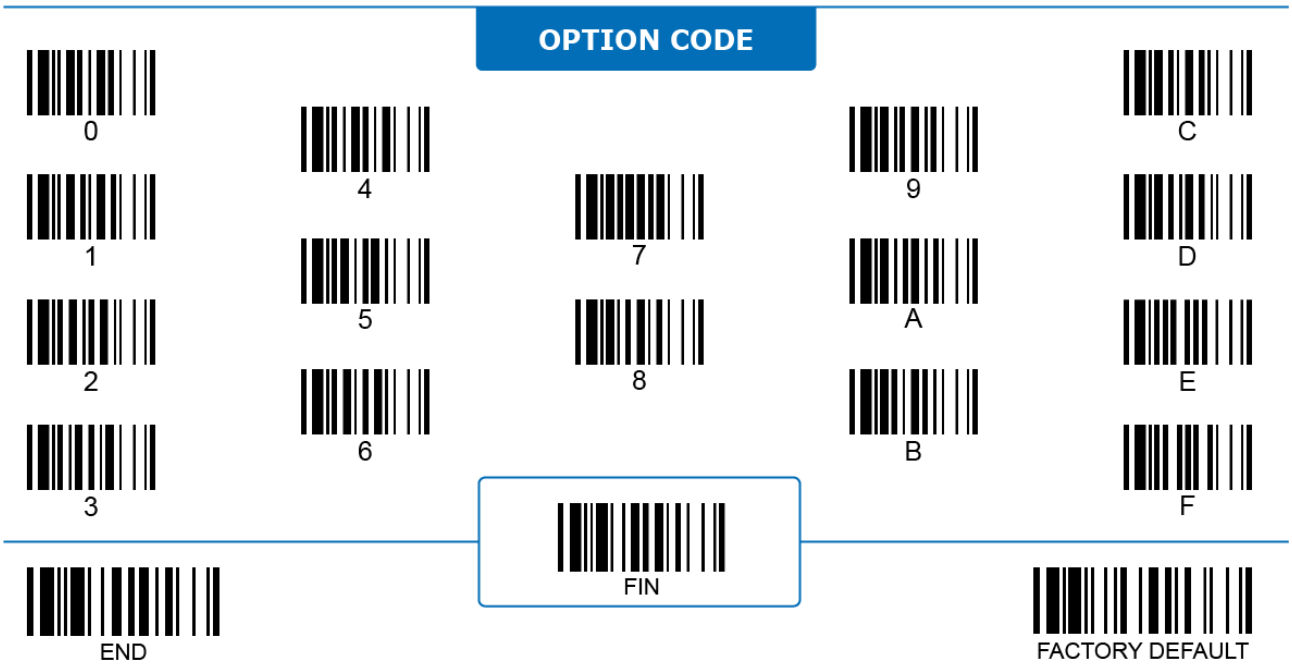
Vibration Control

HANDHELD

Program

Family Code	PP	Parameter Selection	Option Code
Vibration Control	SS	Disable	0
	SS	Enable ◄	1

Vibration Control: Only available on models with the vibration function.



Good Read Duration

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Good Read Duration	SS	Short	0
	SS	Medium ◄	1
	SS	Long	2
	SS	Extreme long	3
	SS	Extreme short	4

Good Read Duration is the duration of a good read beep.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

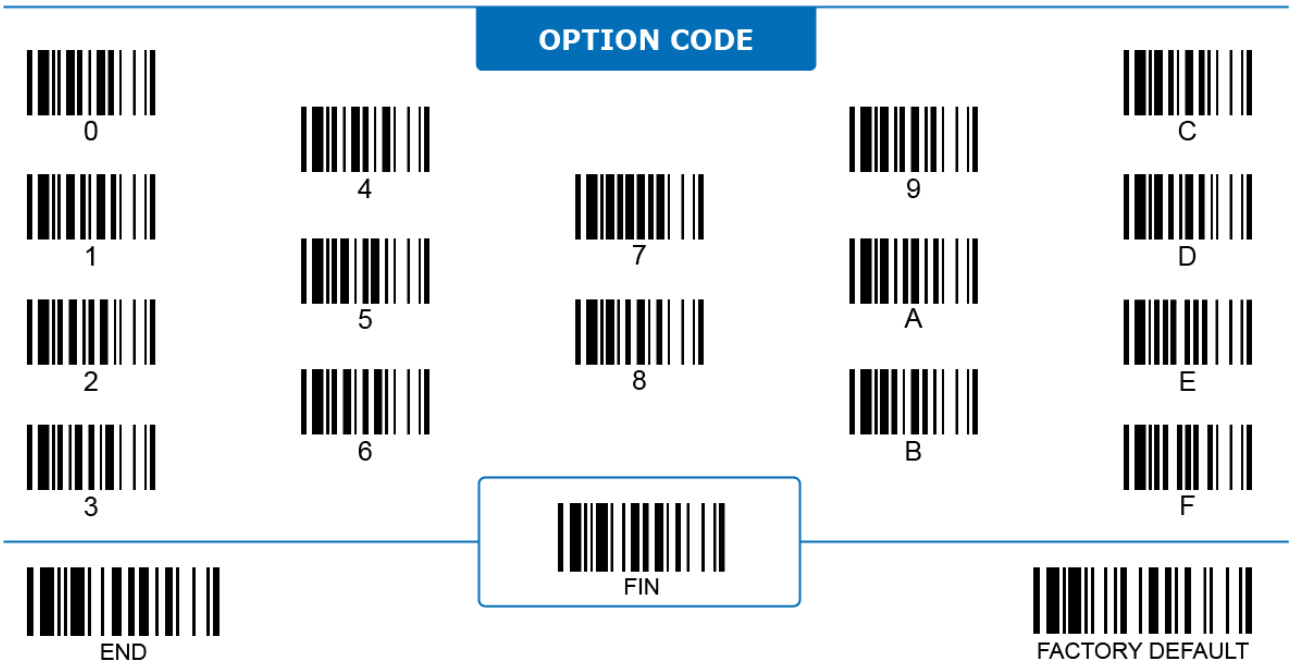
OK/NG Beeping

FIXED MOUNT ON COUNTER

Program

Family Code	PP	Parameter Selection	Option Code
OK/NG Beeping	SS	Disable OK beep; disable NG beep	0
	SS	Enable OK beep; enable NG beep	1
	SS	Enable OK beep; disable NG beep ◄	2
	SS	Disable OK beep; enable NG beep	3

OK/NG Beeping: When enabled, the scanner emits a corresponding buzzing beep corresponding to the result of each decode session (Good Read or No Good Read).



6 Bluetooth Settings

The information contained in this chapter pertains to the Bluetooth-related settings of FuzzyScan **cordless scanners**. The parameters presented herein are exclusively on Bluetooth models (such as batch scanning and validation scanning), as well as general Bluetooth settings related to device name, security, radio link and time-out.

6.1 General Bluetooth Settings

This section provides the command barcodes for configuring all Bluetooth-related settings on FuzzyScan cordless scanners. You can find the functional details of specified parameter selections under each setting.

BT Device Name

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Device Name	SS MS	Default device name ◄ User-defined	**FIN** **[00-7F], FIN**

Default **BT Device Name** differs according to product series:

- **F / L / PF / PL series**: “FxxxBT-xxxx”, “LxxxBT-xxxx”, “PFxxxBT-xxxx” and “PLxxxBT-xxxx”; 1-16 characters
- **A / PA series:** “AxxxBT-xxxx”, PAxxxBT-xxxx; 1-32 characters

For character input, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT PIN Code

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT PIN Code	SS MS	Default PIN code as “00000000” ◄ User-defined PIN code, 1 to 8 numbers	**FIN** **[30-39], FIN**

Input PIN code by scanning HEX values (1-8 numbers), then scan FIN to finish the process.

For character input, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Discoverable Protocol Selection

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Discoverable Protocol	SS	HID ◄	0
	SS	HID with Passkey	1
	SS	SPP Slave	3

- **BT Discoverable Protocol Selection** configures which Bluetooth protocol the companion scanner uses when it is under discoverable mode. Press the FN1 button for 3 seconds to enter discoverable mode.
- **BT Discoverable Protocol** is only available for PA, PF, and PL series companion scanners.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Link Quality

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Link Quality	SS	Disable ◄	0
	SS	Level 1	1
	SS	Level 2	2
	SS	Level 3	3
	SS	Level 4	4

BT Link Quality: When enabled, the reliability of the Bluetooth connection can be improved but with a shorter connection distance. This is recommended when operating the scanner near the boundary of the BT coverage zone. The higher the level, the more reliable the connection is within shorter distances. BT Link Quality is only available for Bluetooth SPP and Bluetooth HID protocols.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Out-of-range Scanning

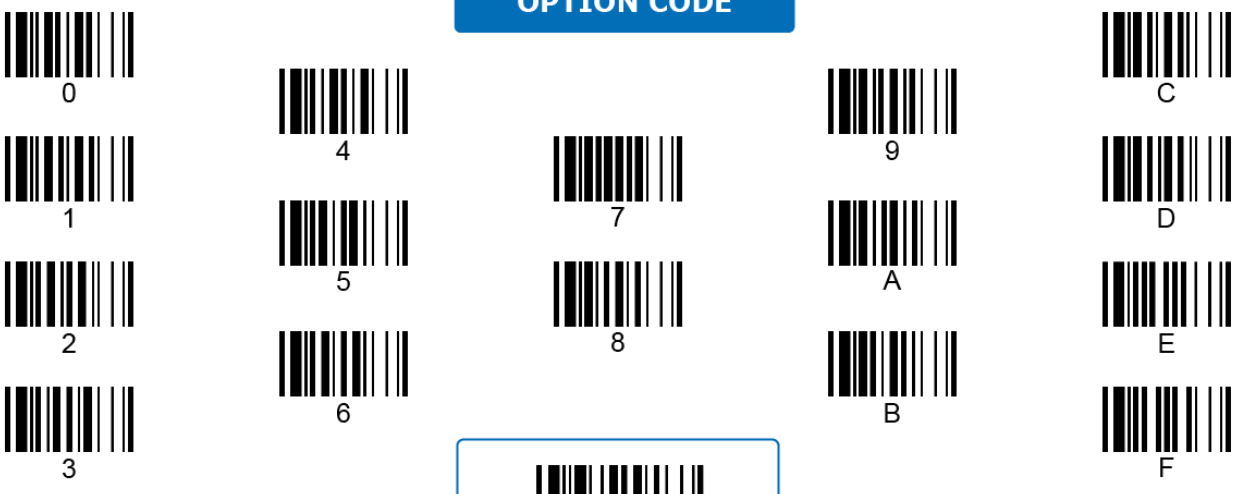
BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Out-of-range Scan	SS	Disable ◄	0
	SS	Enable	1

BT Out-of-range Scanning: When enabled, the scanner continues scanning when it loses radio link to the host device.

OPTION CODE



BT Radio Off Timeout

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Radio off Timeout, Connected	SS SS MS	Disabled 60 minutes ◄ 1-99 (x5) minutes	**0** **FIN** **(2 digits)**
BT Radio off Timeout, Disconnected	SS SS MS	Disabled 1 minute ◄ 1-99 minutes	**0** **FIN** **(2 digits)**

- **BT Radio off Timeout, Connected**: When enabled, the scanner automatically turns off its BT connection to save power if its trigger has not been pressed for the preset time duration. If the connection between the scanner and its host exists, the preset timeout is controlled by the **"BT Radio off Timeout, Connected"** parameter.
- **BT Radio off Timeout, Disconnected**: When enabled, the scanner automatically turns off its BT connection to save power if its trigger has not been pressed for the preset time duration. If the connection between the scanner and its host does not exist, the preset timeout is controlled by the **"BT Radio off Timeout, Disconnected"** parameter, which is significantly shorter than the timeout of a connected scanner.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Power off Timeout

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Power off Timeout	SS SS MS	Immediately 5 minutes ◄ 1-99 (x5) minutes	**0** **FIN** **(2 digits)**

BT Power off Timeout: When enabled, the scanner automatically turns itself off when its radio link to the host device is not established before the preset timeout is due. Press the trigger to turn the scanner on again.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT On-screen Keyboard

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT On-screen Keyboard	SS	iOS approach	0
	SS	General approach ◄	1

- **BT On-screen Keyboard** provides a way to toggle the primary keyboard of the host device between its own on-screen keyboard and a connected scanner. This function is supported by **most popular devices**. Select **"iOS Approach"** for iOS devices, or **"General Approach"** for most Android and other devices.
- After choosing the appropriate approach, use the **"Switch On-Screen Keyboard"** quick set command to switch the primary input method from the scanner to an on-screen keyboard. Scanning the **"Switch**
- **On-Screen Keyboard** quick set command again will switch the input method back to scanner input.

Switch On-screen Keyboard

- For **PA, PF, and PL series** companion scanners, the **FN1 key** and **trigger key** can be used to switch the primary input method between scanner input and on-screen keyboard. For the General Approach, press the **FN1 key** shortly to switch the primary input method from the scanner to an on-screen keyboard. After you have finished typing on the **on-screen keyboard**, press the scanner's trigger key once to turn off the on-screen keyboard and resume the BT connection.
- For the iOS Approach, press the **FN1 key** shortly to switch the primary input method between the scanner input and an on-screen keyboard.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT HID Transmit Delay

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Out-of-range Scan	SS MS	Disable ◄ 1-250 ms	FIN (3 digits)

- **BT HID Transmission Delay:**
  - When enabled, the transmission of BT HID is delayed for a more secured connection.
  - When the scanner is paired with an Android device, set the delay value to 70ms to avoid data loss.
  - After scanning the 3-digit code, the selection ends automatically.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Connect Beeping Control & Select

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Connect Beep Control	SS	Enable ◄	0
	SS	Disable	1
BT Connect Beep Select	SS	Four beeps ◄	0
	SS	Two beeps	1

- **BT Connect Beeping Control**: When enabled, the scanner emits a "connected" beep to indicate that the BT connection is established, or a "disconnected" beep to indicate that the connection is lost.
- **BT Connect Beeping Select** configures the style of the beeping:
  - **Four beeps:** When selected, the scanner emits four beeps in an ascending tone for a successful connection, and four beeps in a descending tone for a disconnection.
  - **Two beeps:** When selected, the scanner emits low to high toned beeps for a connection, and high to low toned beeps for a disconnection.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Battery Low Beeping

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Battery Low Beeping	SS	Enable ◄	2
	SS	Disable	3

BT Battery Low Beeping: When enabled, the scanner emits warning beeps if the battery power is lower than a certain level.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Low Power Link Indicator

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Low Power Link Indicator	SS	LED indicator off	0
	SS	LED indicator lasts for 1 minute ◄	1
	SS	LED indicator stays on until the scanner powers off	2

BT Low Power Link Indicator configures the behavior of the link status LED Indicator when the scanner goes into **Low Power Standby Mode** to save power.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Sniff Control

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Sniff Control	SS	Disable ◄	0
	SS	Enable	1

BT Sniff Control: When enabled, the Bluetooth scanner goes into Bluetooth Sniff Mode to lower power consumption.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

BT Cradle PAIR Lock

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
BT Cradle PAIR Lock	SS	Locked PAIR mode	0
	SS	Unlocked PAIR mode ◄	1

BT Cradle PAIR Lock configures the PAIR link between a scanner and the cradle it is pairing with.

- **Locked PAIR mode:** When selected, the cradle is locked with the scanner it is paired with and rejects any pairing request from other scanners. Uninstall your scanner to free the cradle before pairing it with another scanner.
- **Unlocked PAIR mode:** When selected, any pairing request from a scanner is accepted by the cradle. It also automatically cuts off the pairing with the previous scanner.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

6.2 Bluetooth Special Modes

This section provides the command barcodes for configuring the batch and validation scanning operations You can find the functional details of specified parameter selections under each setting.

Batch Scanning Link Control

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Batch Scanning Link Control	SS	Disable	0
	SS	Enable ◄	1

- **Batch Scanning Mode (Inventory Mode)** is an exclusive function mode of FuzzyScan Bluetooth scanners. Under this mode the scanner stores decoded data in its memory and transmit the data as a data batch, instead of transmitting the data immediately after each decode. Scan following command barcodes to enter or exit the batch scanning mode:

Enter Batch Scanning

Exit Batch Scanning

- **Batch Scanning Link Control:** When disabled, the scanner cuts off its radio link to the host device once it enters batch scanning mode. The scanner resumes its radio link when transmitting data batches or exiting batch scanning mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Batch Scanning Data Transmit

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Data Transmit	SS	On cradle or scan “Transmit Stored Data”	0
	SS	On cradle	1
	SS	Scan “Transmit Stored Data”◄	2

- **Batch Scanning Data Transmit** configures when the scanner transmits its stored data to the host device under batch scanning mode.
- When **Scan “Transmit Stored Data”** is selected, scan the following barcode command to trigger data transmissions manually:

Transmit Stored Data

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Batch Scanning Data Delete

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Data Delete	SS	Disable ◄	0
	SS	Enable	1

- **Batch Scanning Data Delete:** When enabled, the scanner deletes all decoded data stored in its memory immediately after transmitting. When disabled, the scanner keeps all its decoded data until “Clear All Stored Data” is scanned.
- Scan the following barcode command to manually clean up all the stored data in the scanner’s memory:

Clear All Stored Data

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Batch Scanning ID Output

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
ID Output	SS	Transmit scanned data only ◄	0
	SS	Transmit as <MAC address><Scanned data>	1
	SS	Transmit as <Scanner ID><Scanned data>	2

Batch Scanning ID Output:

- When enabled, the scanner adds extra info in front of the scanned data to identify the scanner.
- Only available with RS232 serial, USB HID, and USB CDC/Virtual COM interfaces under PAIR or PICO mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Batch Scanning Quantity Transmit

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Batch Scanning Quantity Transmit	SS	Transmit as many times as the quantity indicates ◄	0
	SS	<Quantity><Field delimiter><Scanned Data>	1
	SS	<Scanned Data><Field delimiter><Quantity>	2

- **Batch Scanning Quantity Transmit** configures how quantity values are sent out to the host device in relation to the scanned data. To add a quantity value, scan the target barcode first then immediately enter a number between 1 and 9999 by scanning the corresponding **quantity option code**(s) as shown below. The entered quantity values are stored in memory and are later transmitted together with the barcode data in the selected format.
- **Transmit as many times as the quantity indicates**: When selected, the scanner transmits scanned data as many times as indicated by the entered quantity, instead of transmitting the quantity number directly.

Quantity Option 0

Quantity Option 1

Quantity Option 2

Quantity Option 3

Quantity Option 4

Quantity Option 5

Quantity Option 6

Quantity Option 7

Quantity Option 8

Quantity Option 9

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Batch Scaning Field Delimiter

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Batch Field Delimiter	SS	None	**0**
	SS	“ , ” (Comma) ◄	**1**
	SS	SPACE	**2**
	SS	“ - “(Dash)	**3**
	SS	“ . ”(Period)	**4**
	SS	User-defined	**5, [00-7F]**

Batch Scanning Field Delimiter configures the single character delimiter which separates scanned data and quantity value.

To enter the character, refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Validation Scanning Link Control

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Validation Scanning Link Control	SS	Disable	0
	SS	Enable ◄	1

- **Validation Scanning Mode** is an exclusive function mode of FuzzyScan Bluetooth scanners. Under this mode the scanner can check whether or not the scanned barcode matches the registered master data. Scan following command barcodes to enter or exit the validation scanning mode:

Enter Validation Scanning

Exit Validation Scanning

- **Validation Scanning Link Control:** When disabled, the scanner cuts off its radio link to the host device once it enters validation scanning mode. Radio link resumes later when the data transmission is activated or when the scanner exits validation scanning mode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Validation Scanning Master Data

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Validation Scanning Master Data	SS	Single master data ◄	0
	SS	Multiple master data	1

Validation Scanning Master Data configures if the validation scanning is based on a single master data or on multiple master data sets:

- **Single master data:** Scan the **"Register Master Data"** quick set command to start registering master data, and scan **"Finish Registering"** to end the registration. During the session the user can scan as many as barcodes, but only the last one can be stored and registered as the master data.
- **Multiple master data:** Scan the **"Register Master Data"** quick set command to start registering master data, and scan **"Finish Registering"** to end the registration. All barcodes scanned during the session are stored and registered as the master data. FuzzyScan Bluetooth scanners can store up to 2K bytes of master data. To clear all registered master data in the scanner's memory, scan **"Clear Master Data"**.

Register Master Data

Finish Registering

Clear Master Data

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Validation Scanning Output Select

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Validation Scanning Output Select	SS	Disable data transmission ◄	0
	SS	Transmit valid data	1
	SS	Transmit invalid data	2
	SS	Transmit valid data or “NG”	3
	SS	Transmit invalid data or “OK”	4
	SS	Transmit “OK” or “NG”	5

Validation Scanning Output Select configures how the scanner reacts after comparing the scanned data and the master data stored in its memory:

- **Disable data transmission**: When selected, the scanner does not transmit anything. You can still recognize the comparison results by the “OK” or “NG” beep the scanner emits
- **Transmit valid data**: When selected, the scanner only transmits matched result, and abandons mismatched data.
- **Transmit invalid data**: When selected, the scanner abandons matched data, and only transmits mismatched data.
- **Transmit valid data or “NG”**: When selected, the scanner transmits matched data or transmits a “NG” message if it is a mismatch.
- **Transmit invalid data or “OK”**: When selected, the scanner transmits an “OK” message if it is a match or the mismatched data otherwise.
- **Transmit “OK” or “NG”**: When selected, the scanner only transmits “OK” or “NG” message according to the match result, instead of transmitting the scanned data itself.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Companion FN2 Select

BLUETOOTH

Program

Family Code	PP	Parameter Selection	Option Code
Companion FN2 Select	SS	Batch Scanning ◄	0
	SS	Validation Scanning	1

Companion FN2 Select configures which BT special mode the scanner switches to when its Function Key No.2 (FN2) is pressed. This is only available on PA, PF, and PL series companion scanners.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

7 Data Modification

This chapter presents the different parameters for altering data before the scanner transmits it. You will find the option to add extra characters or to include an informative element, as well as the parameters to control the powerful GS1 parsing tool.

7.1 Global Settings

This section provide the command barcodes for configuring the data to be transmitted. You can find the functional details of specified parameter selections under each command barcode.

Preamble

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Preamble	SS MS	None ◄ 1-15 characters	**FIN** **[00-7F], [FIN]**

Parameter Selection allows 1-15 characters. Scan "FIN" to end the selection.

STX and ETX are only transmitted under Serial Interfaces (RS232 and USB COM). The table below shows the complete **Message String:**

(STX)	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	(ETX)	Record Suffix (Serial)
(1 char.)	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	(1 char.)	1 char.

To enter the character(s), refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Postamble

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Postamble	SS MS	None ◄ 1-15 characters	**FIN** **[00-7F], [FIN]**

Parameter Selection allows 1-15 characters. Scan "FIN" to end the selection.

STX and ETX are only transmitted under Serial Interfaces (RS232 and USB COM). The table below shows the complete **Message String:**

(STX)	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	(ETX)	Record Suffix (Serial)
(1 char.)	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	(1 char.)	1 char.

To enter the character(s), refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Dollar Sign Convert

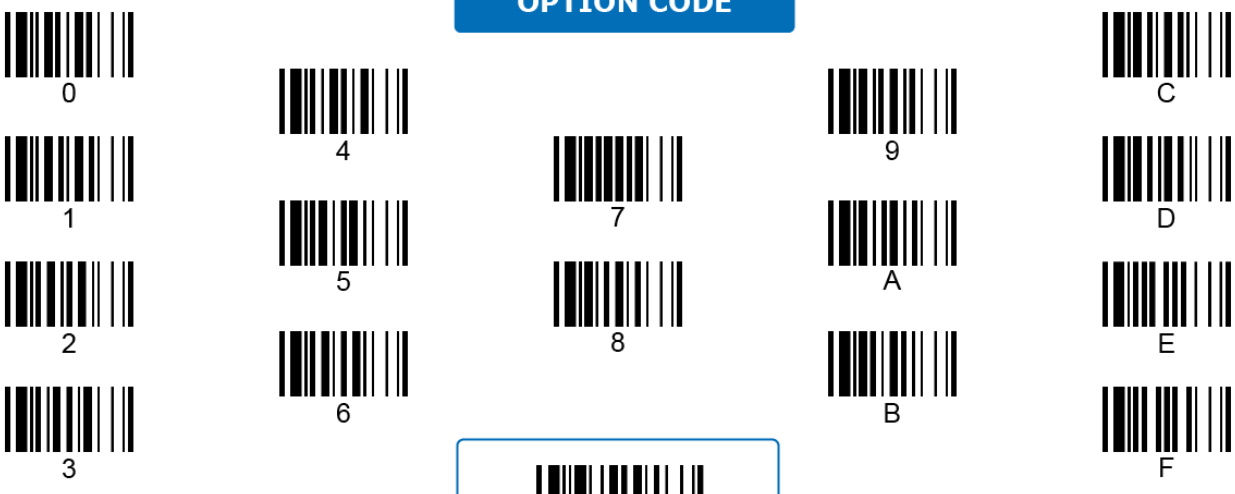
ALL

Program

Family Code	PP	Parameter Selection	Option Code
Dollar Sign Convert	SS	Output as " $ "◀	0
	SS	Output as "¥"	1
	SS	Output as " € "	2
	SS	Output as " £"	3
	SS	Output as "¢ "	4

Dollar Sign Convert configures what the scanner actually transmits when it decodes a barcode containing the dollar sign.

OPTION CODE



FNC1 Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
FNC1 Transmit	SS	Disable	0
	SS	Enable ◄	1

FNC1 Transmit: When enabled, the scanner transmits FNC1 (Function 1 Character) to the host if FNC1 is included in the decoded data.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Data Length Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Data Length Transmit	SS	Disable ◄	0
	SS	Enable	1

Data Length Transmit: When enabled, the scanner transmits length information of the **scanned data** in a 2- or 4-digit format. If the data length is shorter than 100 characters, length information is sent as a 2-digit number.

The table below shows the complete **Keyboard Interface Message String** (USB HID):

Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	Record Suffix (KB)
1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.

The table below shows the complete **Serial Interface Message String** (RS232, USB COM):

STX	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	ETX	Record Suffix (Serial)
1 char.	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.	1 char.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

Code ID Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
Code ID Transmit	SS	Disable ◄	0
	SS	Transmit Cino ID as prefix	1
	SS	Transmit Cino ID as suffix	2
	SS	Transmit Cino ID as prefix and suffix	3
	SS	Transmit AIM ID as prefix	4
	SS	Transmit AIM ID as suffix	5
	SS	Transmit AIM ID as prefix and suffix	6

Code ID Transmit: When enabled, the scanner transmits code ID together with decoded data to identify the type of scanned barcode. Code ID can be transmitted either as a prefix, a suffix, or both. Refer to **Appendix - Code ID Table** for a complete list of Cino ID and AIM ID.

The table below shows the complete: **Keyboard Interface Message String** (USB HID):

Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	Record Suffix (KB)
1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.

The table below shows the complete **Serial Interface Message String** (RS232, USB COM):

STX	Preamble	Scanned Data Length	Prefix Code ID	Scanned Data	Suffix Code ID	Postamble	ETX	Record Suffix (Serial)
1 char.	1-15 char.	2-4 digits	1 or 3 char.	Variable length	1 or 3 char.	1-15 char.	1 char.	1 char.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

ECI ID Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
ECI ID Transmit	SS	Disable ◄	0
	SS	Enable	1

ECI ID Transmit: When enabled, the scanner transmits the ECI (Extended Channel Interpretation) ID embedded in the barcode.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

7.2 GS1 Settings

This section provides the command barcodes for configuring GS1 data. You can find the functional details of specified parameter selections under each command barcode.

GS1 Special Function

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Special Function	SS	Disable ◄	0
	SS	Enable	1

GS1 Special Function: When enabled, the scanner analyzes and transmits GS1 codes according to the settings of GS1-related parameters and GS1 formatter. When disabled, the scanner directly transmits these codes as normal barcodes. The **GS1 formatter** is provided by the FuzzyScan PowerTool 3 utility software.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 1st FNC1 Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 1st FNC1 Transmit	SS	Disable ◄	2
	SS	Enable	3

GS1 1st FNC1 Transmit: When enabled, the scanner converts the invisible FNC1 character in GS1 codes into a visible text string "**]C1**" and transmits it to the host. With this option, if there is more than one FNC1 character in the GS1 code, only the first FNC1 is converted.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Noninitial FNC1 Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Noninitial FNC1 Transmit	SS	None ◄	0
	SS	<GS> (1Dh)	1
	MS	User-defined character (1~2 characters)	2, [00-7F], [FIN]

GS1 Noninitial FNC1 Transmit: In GS1 codes, non-initial FNC1 (FNC1 not located at the start of the barcode) is used to mark the end position of a data field with a variable length. When **FNC1 Transmit** is enabled and the GS1 contains a data field(s) with a variable data length, the scanner converts and transmits the invisible FNC1 character(s) accordingly.

- **None:** The scanner divides the variable length data field according to the non-initial FNC1, but does not transmit the FNC1.
- **<GS>**: The scanner converts the non-initial FNC1 to <GS> (value 1Dh) in serial interface, or its corresponding character in HID keyboard interface.
- **User-defined**: The scanner converts the non-initial FNC1 to the user-defined value in a serial interface, or its corresponding character(s) in a HID keyboard interface.

To enter the character(s), refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 AI Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 AI Transmit	SS	Do not transmit AI ◄	4
	SS	Transmit AI	5
	SS	Transmit AI enclosed with parentheses “(“ and “)”	6

GS1 AI Transmit configures how the scanner processes the **Application Identifier (AI)** embedded in the GS1 code. When disabled, the scanner organizes decoded data before transmitting according to the embedded AIs, but does not directly transmit the AI characters themselves.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Failure Rule

ALL

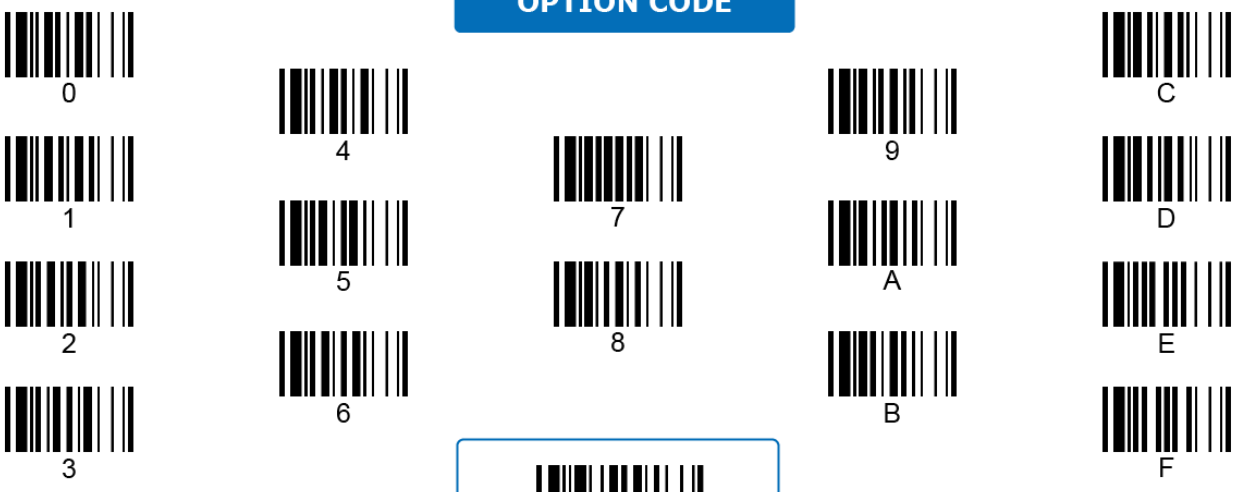
Program

Family Code	PP	Parameter Selection	Option Code
GS1 Failure Rule	SS	Abandon data ◄	0
	SS	Transmit unparsed data	1

GS1 Failure Rule configures how the scanner processes the decoded data when the GS1 parsing rule fails. GS1 Parsing fails under the following conditions:

- The scanned data is labeled as GS1 but (part of) its format does not follow GS1 standard.
- The scanned data contains rarely used Application Identifier (AI) not supported by FuzzyScan products.

OPTION CODE



GS1 Prefix/Suffix Output

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Prefix/Suffix Output	SS	Output prefix/suffix of all AI fields ◄	0
	SS	Output prefix/suffix of existing AI fields only	1

GS1 Prefix/Suffix Output configures how the scanner processes the user-defined prefix/suffix set by **GS1 formatter** in the PowerTool 3 utility software:

- **Output prefix/suffix of all AI fields**: If you have set a prefix/suffix for a specific Application Identifier (AI) field but the AI doesn't exist in the GS1 code you scan, the scanner outputs the prefix/suffix without its corresponding AI and scanned data.
- **Output prefix/suffix of existing AI fields only**: If you have set a prefix/suffix for a specific AI field but the AI doesn't exist in the GS1 code you scan, the scanner skips the AI and its corresponding prefix/suffix.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Format Mismatch Rule

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Format Mismatch Rule	SS	Abandon data ◄	2
	SS	Output original data	3

GS1 Format Mismatch Rule configures how the scanner processes the scanned GS1 data if all the Application Identifier (AI) fields in the barcodes mismatch with the AI fields you have defined with the **GS1 formatter** in PowerTool 3 utility software:

- **Abandon data**: Abandon the complete GS1 code and transmit nothing.
- **Output original data**: Keep the data and transmit it as a normal barcode without GS1 parsing.

GS1 Format Mismatch Rule is only effective when **GS1 Prefix/Suffix Output** is set to "Output prefix/suffix of all AI fields".

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Date Field ‘DD=00’ Transmit

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 ‘DD=00’ Transmit	SS	Disable	7
	SS	Transmit ‘DD=00’ ◄	8

GS1 Date Field “DD=00” Transmit: When enabled, the scanner transmits “00” directly if the data string contains date-type field and the last two digits of YYMMDD equals to “00”. When disabled, the scanner omits “00” and sends out YYMM instead.

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Decimal Point Insert

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Decimal Point Insert	SS	Disable ◄	9
	SS	Enable	A

GS1 Decimal Point Insert: When enabled, the scanner inserts a decimal point into each number-type data field if the decimal point position is implied in its Application Identifier (AI).

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Element String Separator

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Element String Separator	SS MS	None ◄ User-defined character (1~2 characters)	FIN [00-7F], [FIN]

GS1 Element String Separator: When enabled, the user-defined character appears at the end of each element string except the last one.

The FNC1 character is enclosed within the element string (positioned before the separator) if **GS1 Noninitial FNC1 Transmission Selection** is enabled.

To enter the character(s), refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

GS1 Data Separator

ALL

Program

Family Code	PP	Parameter Selection	Option Code
GS1 Data Separator	SS	None ◄	FIN
	MS	User-defined character (1~2 characters)	[00-7F], [FIN]

GS1 Data Separator: When enabled, the user-defined character appears at the second dividing position between data sections within an element string if there are three or more data sections.

For example, data field ITIP (AI 8006) has a format of N4+N14+N2+N2. If you set the comma (2Ch) as the GS1 Data Separator and enables AI transmission, the scanner actually transmits out (800) N14, N2, N2 for the specific element string.

To enter the character(s), refer to the **HEX to ASCII Conversion Table** below:

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

OPTION CODE

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

FIN

END

FACTORY DEFAULT

8 Appendix

The Appendix contains additional information that is essential to the programming of your FuzzyScan barcode scanners. You will find useful tables pertaining to 1D barcode ID, 2D barcode ID, keyboard function codes, ASCII/HEX conversion, code pages.

8.1 Code ID Table - 1D Barcodes

Code ID Table - 1D Barcodes				
Code Family	**Primary Format**	**Cino ID**	**AIM ID**	
		Char.	**Code Char.**	**Modified Char.**
UPC	UPC A	A	E	0
	UPC A with 2 suppl.			1
	UPC A with 5 suppl.			2
	UPC E	E		0
	UPC E with 2 suppl.			1
	UPC E with 5 suppl.			2
	AIM ID Example: UPC A barcode "012345678950" with 2-digit supplement "12" is sent as "**]E0**012345678950**]E1**12"			
Code 128	Code 128	B	C	m
	GS1 128	C		1
Codabar	Codabar	D	F	m
Code 25	Industrial 25	I	S	0
	Matrix 25	K	X	0
	Interleaved 25	J	I	m
	China Postal Code	L	X	0
	German Postal Code	M	I	m
IATA	IATA	O	R	m
UCC Coupon	UCC Coupon Code	Z		
	AIM ID Examples: UPC A "512345678900" plus GS1 128 "81010123451297" is sent as "**]E0**512345678900**]C1**81010123451297" EAN 13 "9923456789019" plus GS1 128 "81010123451297" is sent as "**]E0**9923456789019**]C1**81010123451297"			
EAN/JAN	EAN/JAN 8	N	E	4
	EAN/JAN 8 with 2 suppl.			1
	EAN/JAN 8 with 5 suppl.			2
	EAN/JAN 13	F	E	0
	EAN/JAN 13 with 2 suppl.			1
	EAN/JAN 13 with 5 suppl.			2
	AIM ID Example: EAN/JAN-8 "49123562" with 5-digit supplement "12345" is sent as "**]E4**49123562**]E2**12345"			
Code 93	Code 93	H	G	m
Code 11	Code 11	P	H	m
MSI	MSI	R	M	m
UK/Plessey	UK/Plessey	S	P	0
Telepen	Telepen	T	B	m
GS1 DataBar	GS1 DataBar	X	e	m
	GS1 DataBar Limited			
	GS1 DataBar Expanded			
	GS1 Composite Code			
Code 39	Code 39	G	A	m
	Code 39 Trioptic	W	X	0
	Code 32	G	A	0
PDF417	PDF417	V	L	m
	Micro PDF417			
Korea Post	Korea Post Code	a	X	0
Each AIM Code Identifier contains a three-character string **]cm** where:] = Flag Character; c = Code Character; m = Modifier Character				

8.2 Code ID Table - 2D Barcodes

Code ID Table - 2D Barcodes				
Code Family	**Primary Format**	**Cino ID**	**AIM ID**	
		Char.	**Code Char.**	**Modified Char.**
QR Code	QR Code	b	Q	m
	Micro QR Code			
	GS1 QR Code	s		3
Data Matrix	Data Matrix	c	d	M
	GS1 Data Matrix	r		2
MaxiCode	MaxiCode	d	U	m
Aztec Code	Aztec Code	e	z	m
Australia Post	Australian Post	g	X	0
British Post	British Post	h		0
Intelligent Mail	Intelligent Mail	j		0
Japanese Post	Japanese Post	k		0
KIX Post	KIX Post	l		0
Posi LAPA Code	Posi LAPA Code	q		0
Planet Code	Planet Code	m		0
Postnet	Postnet	o		0
Each AIM Code Identifier contains a three-character string **]cm** where:] = Flag Character; c = Code Character; m = Modifier Character				

8.3 ASCII Input Shortcut

To configure user-definable parameters, scan the desired ASCII value in **HEX** form. See the "**HEX/ASCII Table**" for details.

Example:

To have data output lead with a Dollar Sign, set the "Preamble" to "$". The configuration procedure is listed below.

- Scan system command – **PROGRAM** to enter programming mode.
- Scan family code – **PREAMBLE**.
- See the **Hex/ASCII Table**. HEX value of "**$**" is **24**.
- Scan option code – **2**.
- Scan option code – **4**.
- Scan system command – **FIN (Finish)** to terminate Preamble setting.
- Scan system command – **End** to exit programming mode.

8.4 HEX/ASCII Reference Table

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

Example: ASCII "A" →HEX "41"; ASCII "a" → "61"

■ : High Byte of HEX Value

□ : Low Byte of HEX Value

8.5 Function Key Output Table

	ASCII	ANSI	Function Key Character (Default)
00	00H	NUL	RESERVED
01	01H	SOH	CTRL (Left)
02	02H	STX	ALT (Left)
03	03H	ETX	SHIFT
04	04H	EOT	CAPS LOCK
05	05H	ENQ	NUM LOCK
06	06H	ACK	ESC
07	07H	BEL	F1
08	08H	BS	BACK SPACE
09	09H	HT	TAB
10	0AH	LF	F2
11	0BH	VT	F3
12	0CH	FF	F4
13	0DH	CR	ENTER (CR)
14	0EH	SO	F5
15	0FH	SI	F6
16	10H	DLE	F7
17	11H	DC1	F8
18	12H	DC2	F9
19	13H	DC3	F10
20	14H	DC4	F11
21	15H	NAK	F12
22	16H	SYN	INS (Insert) (Edit)
23	17H	ETB	DEL (Delete) (Edit)
24	18H	CAN	HOME (Edit)
25	19H	EM	END (Edit)
26	1AH	SUB	PAGE UP (Edit)
27	1BH	ESC	PAGE DOWN (Edit)
28	1CH	FS	UP (Edit)
29	1DH	GS	DOWN (Edit)
30	1EH	RS	LEFT (Edit)
31	1FH	US	RIGHT (Edit)

- To emulate the keystroke to send out special function characters under HID keyboard interface, you must configure actual content using the reserved ASCII 0 – 31 characters. You can change the output character of each key with User-defined Function Key, or by editing the Function Key Output Table via the PowerTool 3 software utility. Refer to Function Key Character Table for a complete list of special characters you can assign to each key.
- Function Key Emulation is applicable for IBM PP/XT/AT, PS/2, PS/VP, COMPAQ PP, HP Vectra PP, Notebook PP, APPLE and PowerMac, and WYSE PP Enhanced or fully compatible machines.

8.6 Function Key Character Table

	Category	Function Key Character	Option Code
1	Control Key	L-Ctrl + 2	01 1F
2	Control Key	L-Ctrl + a	01 04
3	Control Key	L-Ctrl + b	01 05
4	Control Key	L-Ctrl + c	01 06
5	Control Key	L-Ctrl + d	01 07
6	Control Key	L-Ctrl + e	01 08
7	Control Key	L-Ctrl + f	01 09
8	Control Key	L-Ctrl + g	01 0A
9	Control Key	L-Ctrl + h	01 0B
10	Control Key	L-Ctrl + i	01 0C
11	Control Key	L-Ctrl + j	01 0D
12	Control Key	L-Ctrl + k	01 0E
13	Control Key	L-Ctrl + l	01 0F
14	Control Key	L-Ctrl + m	01 10
15	Control Key	L-Ctrl + n	01 11
16	Control Key	L-Ctrl + o	01 12
17	Control Key	L-Ctrl + p	01 13
18	Control Key	L-Ctrl + q	01 14
19	Control Key	L-Ctrl + r	01 15
20	Control Key	L-Ctrl + s	01 16
21	Control Key	L-Ctrl + t	01 17
22	Control Key	L-Ctrl + u	01 18
23	Control Key	L-Ctrl + v	01 19
24	Control Key	L-Ctrl + w	01 1A
25	Control Key	L-Ctrl + x	01 1B
26	Control Key	L-Ctrl + y	01 1C
27	Control Key	L-Ctrl + z	01 1D
28	Control Key	L-Ctrl + [	01 2F
29	Control Key	L-Ctrl + \	01 31
30	Control Key	L-Ctrl +]	01 30
31	Control Key	L-Ctrl + 6	01 23
32	Alt Key	L-Alt + a	04 04
33	Alt Key	L-Alt + b	04 05
34	Alt Key	L-Alt + c	04 06
35	Alt Key	L-Alt + d	04 07
36	Alt Key	L-Alt + e	04 08
37	Alt Key	L-Alt + f	04 09
38	Alt Key	L-Alt + g	04 0A
39	Alt Key	L-Alt + h	04 0B
40	Alt Key	L-Alt + i	04 0C

Function Key Character Table (continued)

	Category	Character	Option Code
41	Alt Key	L-Alt + j	04 0D
42	Alt Key	L-Alt + k	04 0E
43	Alt Key	L-Alt + l	04 0F
44	Alt Key	L-Alt + m	04 10
45	Alt Key	L-Alt + n	04 11
46	Alt Key	L-Alt + o	04 12
47	Alt Key	L-Alt + p	04 13
48	Alt Key	L-Alt + q	04 14
49	Alt Key	L-Alt + r	04 15
50	Alt Key	L-Alt + s	04 16
51	Alt Key	L-Alt + t	04 17
52	Alt Key	L-Alt + u	04 18
53	Alt Key	L-Alt + v	04 19
54	Alt Key	L-Alt + w	04 1A
55	Alt Key	L-Alt + x	04 1B
56	Alt Key	L-Alt + y	04 1C
57	Alt Key	L-Alt + z	04 1D
58	Alt Key	L-Alt + [	04 2F
59	Alt Key	L-Alt + \	04 31
60	Alt Key	L-Alt +]	04 30
61	Alt Key	L-Alt + 6	04 23
62	Function Key	F1	00 3A
63	Function Key	F2	00 3B
64	Function Key	F3	00 3C
65	Function Key	F4	00 3D
66	Function Key	F5	00 3E
67	Function Key	F6	00 3F
68	Function Key	F7	00 40
69	Function Key	F8	00 41
70	Function Key	F9	00 42
71	Function Key	F10	00 43
72	Function Key	F11	00 44
73	Function Key	F12	00 45
74	Function Key	F13	00 68
75	Function Key	F14	00 69
76	Function Key	F15	00 6A
77	Function Key	F16	00 6B
78	Function Key	F17	00 6C
79	Function Key	F18	00 6D
80	Function Key	F19	00 6E

Function Key Character Table (continued)

	Category	Character	Option Code
81	Function Key	F20	00 6F
82	Function Key	F21	00 70
83	Function Key	F22	00 71
84	Function Key	F23	00 72
85	Function Key	F24	00 73
86	Keypad	Num Lock	00 53
87	Keypad	Keypad +	00 57
88	Keypad	Keypad -	00 56
89	Keypad	Keypad *	00 55
90	Keypad	Keypad /	00 54
91	Keypad	Keypad Delete	00 63
92	Keypad	Keypad 0 (Insert)	00 62
93	Keypad	Keypad 1 (End)	00 59
94	Keypad	Keypad 2 (Down)	00 5A
95	Keypad	Keypad 3 (Page Down)	00 5B
96	Keypad	Keypad 4 (Left)	00 5C
97	Keypad	Keypad 5	00 5D
98	Keypad	Keypad 6 (Right)	00 5E
99	Keypad	Keypad 7 (Home)	00 5F
100	Keypad	Keypad 8 (Up)	00 60
101	Keypad	Keypad 9 (Page Up)	00 61
102	Keypad	Keypad Enter	00 58
103	Modifier Key	L-Ctrl (Make)	11 EE
104	Modifier Key	L-Shift (Make)	22 EE
105	Modifier Key	L-Alt (Make)	44 EE
106	Modifier Key	L-Win (Make)	88 EE
107	Modifier Key	Alt GR (Make)	44 EF
108	Modifier Key	L-Ctrl (Break)	11 00
109	Modifier Key	L-Shift (Break)	22 00
110	Modifier Key	L-Alt (Break)	44 00
111	Modifier Key	L-Win (Break)	88 00
112	Navigation Key	Home	00 4A
113	Navigation Key	End	00 4D
114	Navigation Key	Page Up	00 4B
115	Navigation Key	Page Down	00 4E
116	Navigation Key	Up Arrow	00 52
117	Navigation Key	Down Arrow	00 51
118	Navigation Key	Left Arrow	00 50
119	Navigation Key	Right Arrow	00 4F
120	System & Edit Key	Tab	00 2B
121	System & Edit Key	ESC	00 29

Function Key Character Table (continued)

	Category	Character	Option Code
122	System & Edit Key	Print Screen	00 46
123	System & Edit Key	Pause/Break	00 48
124	System & Edit Key	Caps Lock	00 39
125	System & Edit Key	Scroll Lock	00 47
126	System & Edit Key	Insert	00 49
127	System & Edit Key	Delete	00 4C
128	System & Edit Key	Back Space	00 2A
129	System & Edit Key	Enter (CR)	00 28
130	System & Edit Key	Null	00 00
131	System & Edit Key	L-Ctrl	01 00
132	System & Edit Key	L-Shift	02 00
133	System & Edit Key	L-Alt	04 00
134	System & Edit Key	L-Win	08 00
135	System & Edit Key	Alt GR (R-Alt)	40 00

Examples of Usage:

- Set Enter on the Keypad as the Record Suffix under HID Keyboard interface:
  - Replace **Enter (CR)** with **Enter Keypad** by programming the scanner with the following command line:

    [PROGRAM] [User-defined Function Key] [0D] [0058] [END]
  - In the command line, option code 1 [0D] is the hex value identifier of Enter (CR) in the default function key table, and option code 2 [0058] is the 4-digit code of Keypad Enter.
  - Set Enter Keypad as the user-defined character of Record Suffix (Keyboard) with the following command line:

    [PROGRAM] [Record Suffix (Keyboard)] [5] [0D] [FIN] [END]
  - In the command line, option code 1 [5] is for selecting the user-defined character as the record suffix, and option code 2 [0D] is the identifier of Enter Keypad.
- Replace the noninitial FNC1 in GS1 barcodes with Ctrl characters under HID Keyboard interface:
  - Replace any two function keys with Ctrl characters with following two command lines:

    [PROGRAM] [User-defined Function Key] [1E] [010A] [END]

    [PROGRAM] [User-defined Function Key] [1F] [0116] [END]
  - In the first command line, option code 1 [1E] is the hex value identifier of the target function key slot, and option code 2 [010A] is the 4-digit code of **Ctrl + g**.
  - In the second command line, option code 1 [1F] is the hex value identifier of another target function key slot, and the option code 2 [0116] is the 4-digit code of **Ctrl + s**.
  - Replace noninitial FNC1 with user-defined Ctrl characters with following command line:

    [PROGRAM] [Noninitial FNC1 Transmit] [2] [1E] [1F] [FIN] [END]
  - In the command line, option code 1 [2] is for selecting user-defined characters as the converted output for FNC1 characters, and option code 2 [1E] and [1F] are to set **Ctrl + g** and **Ctrl + s** as the user-defined characters.

8.7 Table of Corresponding Languages

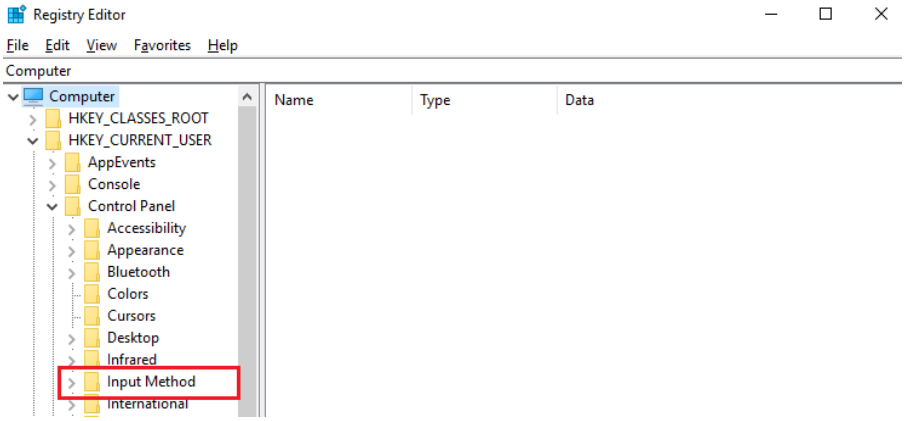
Description	Code Page	Description	Code Page
Albanian	850	Hungarian	852
Arabic	1256	Icelandic	850
Arabic	720	Italian	850
Baltic	1257	Japanese	932
Bulgarian	866	Korean	949
Catalan	850	Latin 1	1252
Croatian	852	Latin 2	1250
Cyrillic	1251	Latin 5	1254
Czech	852	Latin American	850
Danish	850	Latvian	775
Dutch	850	Lithuanian	775
Estonian	775	Norwegian	850
English - United Kingdom	850	Polish	852
English - Australia	850	Portuguese	850
English - Canada	850	Romanian	852
English - New Zealand	850	Russian	866
English - United States	437	Serbian	855
English - South Africa	437	Slovakian	852
English - Philippines	437	Slovenian	852
Finnish	850	Spanish	850
French	850	Swedish	850
German	850	Chinese (Tradition)	950
Greece	737	Chinese (Simple)	936
Greece	1253	Thai	874
Hebrew - write	1255	Turkish	857
Hebrew Israel	862	Vietnamese	1258

8.8 Unicode Hex Input Setup

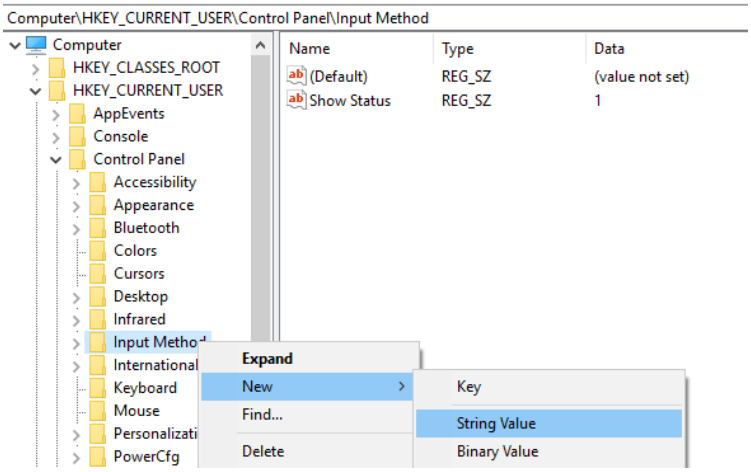
Windows - Setting up the Windows Registry

Step 1: Open the Registry Editor. You can do so by typing “regedit” in the “Search Windows” function or in Command Prompt.

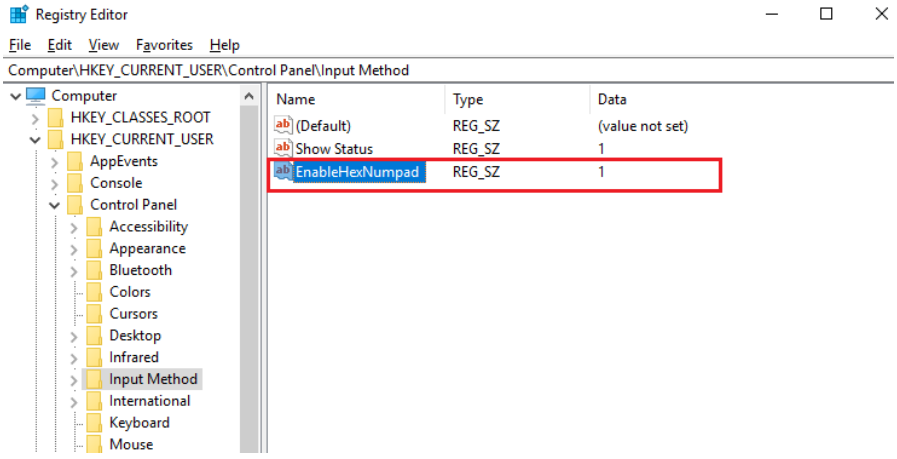
Step 2: Go to HKEY_CURRENT_USER\Control Panel\Input Method.



Step 3: Right-click on your mouse or press shift + F10 (on keyboard) to add a new String Value (of type “REG_SZ”).



Step 4: Name the new String value as “EnableHexNumpad” and set its Value data to “1”.



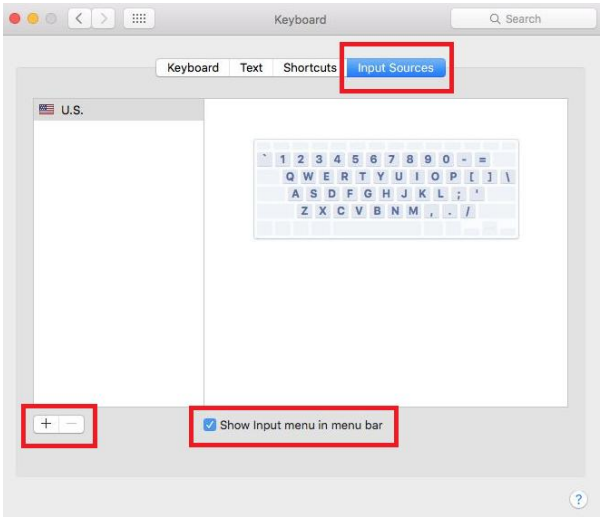
Step 5: Reboot the computer.

Unicode Hex Input Setup (continued)

MAC - Adding Unicode Hex Input in menu bar

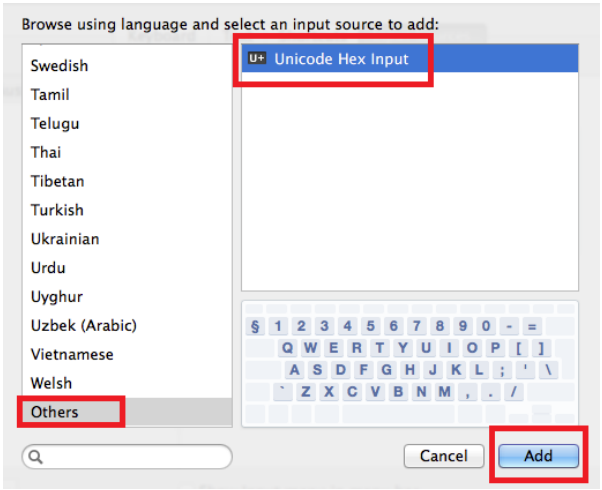
Step 1: Go to the Apple Menu -> System Preferences -> Keyboard

Step 2: On the Keyboard tab, click on "Input Sources" and check the "Show Input menu in menu bar" box.



Step 3: Click the "+" button to add an input source.

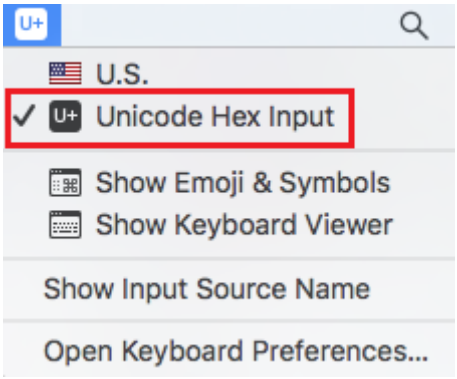
Step 4: Scroll to and select "Others". Click on "Unicode Hex Input" (you can also use the Search function to find it). When done, click on the "Add" button.



Unicode Hex Input Setup (continued)

Step 5: Close the Keyboard Preferences menu.

Step 6: Change the input selection to Unicode Hex Input in the menu bar.



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