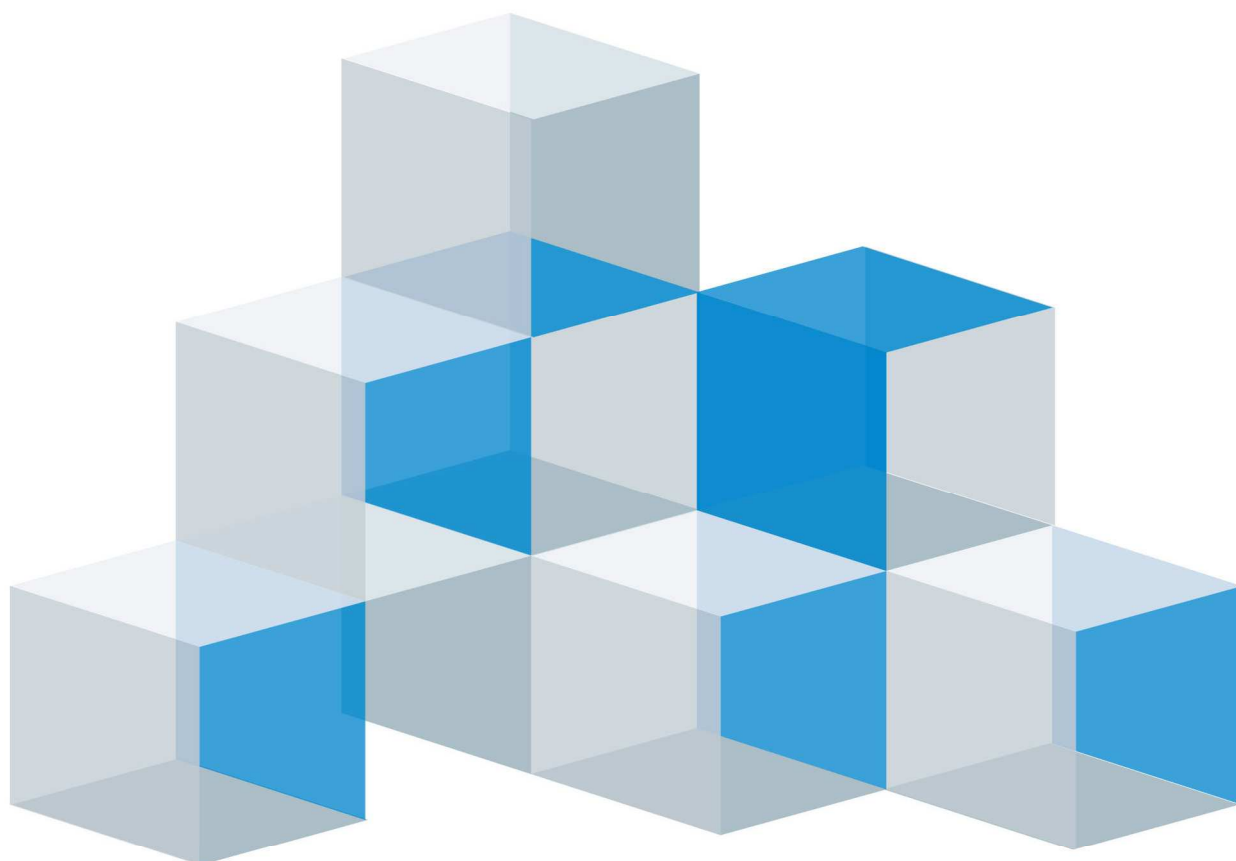


FUZZYSCAN

FIXED MOUNT SCANNER

Programming Manual

International Edition, Rev. D3



cino

Revision History

Rev. No.	Released Date	Description
Rev. A0	May 26, 2010	❖ First Release
Rev. A1	Jun. 18, 2010	❖ Add "Symbology Reading Control" - "UPC/EAN Security Level".
Rev. A2	Sep. 16, 2010	❖ Add "Symbology Reading Control" - "Supplement Scan Voting" and "EAN Supplement Control" ❖ Modify "Keyboard Interface Control" - "Keyboard Layout (Language) Setting" ❖ Remove "Operation Control" - "Power On Indicator" and add "Good Read Indicator". ❖ Add "Operation Control" - "Scan Rate Control" and "Good Read Indicator" ❖ Add "Operation Control" - "NG Message Output"
Rev. A3	Nov 11, 2010	❖ Modify "Serial Interface Control" - "Baud Rate"
Rev. A4	Mar 04, 2011	❖ Modify "Serial Interface Control" - "Baud Rate".
Rev. A5	Mar 22, 2011	❖ Modify "Symbology Reading Control" - "Code 39 Setting" ❖ Modify "Serial Interface Control" - "Protocol, ACK/NAK Setting"
Rev. A6	Jul 22, 2011	❖ Rename "Symbology Reading Control" - "UCC/EAN-128" to "GS1-128" ❖ Rename "Serial Interface Control" - "ACK/NAK Transmission Indication" to "ACK Indication" ❖ Modify "Serial Interface Control" - "ACK Indication" and "Serial response time -out".
Rev. A7	Nov 04, 2011	❖ Modify "Symbology Reading Control" - "Codabar/ NW-7 Setting"
Rev. A8	Mar 09, 2012	❖ Add "Operation Control" - "1D Barcode Forward-reading Indication", "1D Barcode Backward-reading Indication", "1D Barcode Direction Indication Transmission" and "Lateral Reading".

Revision History

Rev. No.	Released Date	Description
Rev.A9	Jul 25, 2012	❖ Add "Host Interface Selection"—" USB HID Legacy" ❖ Modify "Symbology Reading Control" - "Code 128 Setting"
Rev. B1	Aug 20, 2013	❖ Modify "Symbology Reading Control" - "Readable Bar Code Setting" ❖ Modify "Appendix" - "Symbology ID Table"
Rev. C1	Mar.3 2014	❖ Support 2D Functions
Rev. C2	Jun 23, 2014	❖ Modify "Operation Control" -"Illumination Control". ❖ Modify "Operation Control" -"Reread Delay"
Rev. C3	Feb. 6, 2015	❖ Modify "Symbology Reading Control" - "MaxiCode Setting"
Rev. C4	Dec. 23, 2015	❖ Update "Revision History"
Rev. C5	Aug. 4, 2016	❖ Add "Symbology Reading Control" - "Small DM Code Reading"
Rev. C6	Oct. 4, 2016	❖ Add "Operation Control" - "Buzzer Volume".
Rev. C7	Oct. 11, 2016	❖ Modify "Operation Control" - "Buzzer Tone Adjust" ❖ Modify "Operation Control"-"Lateral Reading"
Rev. C8	Mar. 9, 2017	❖ Modify "Operation Control" - "Buzzer Tone Adjust" ❖ Remove "Operation Control"- "Dollar Sign" to "Keyboard Interface Control"- "Dollar Sign Control"

Revision History

Rev. No.	Released Date	Description
Rev. C9	Sep.20, 2018	❖ Modified “Symbology Reading Control” – “Readable Bar Code Setting”–“Popular 1D” ❖ Added “Operation Control” - “Motion Control” ❖ Modified the description of “Symbology Reading Control”–“UPC/EAN Security Level” ❖ Added information on Code Pages
Rev. C10	Nov. 22, 2018	❖ Improved “Symbology Reading Control” – “Code 128 Setting ISBT” - ISBT Concatenation settings
Rev. C11	Mar. 6, 2019	❖ Modified “Symbology Reading Control” – “QR Code Setting” – “Auto detect QR Code Inverse Reading” ❖ Modified “Operation Control” – “Motion Control”. Redefined “Motion Control” as “Scene Mode”.
Rev. D1	Aug. 2, 2019	❖ Added information about new product models: FA480 and FA460. ❖ Modified “Operation Control” – “Scene Mode”. Renamed “Scene Mode” as “Smart Scene”.
Rev. D2	Apr. 8, 2020	❖ Added “Installing Your Scanner”–“Diagnostic Mode” ❖ Added “Keyboard Layout Setting” - “Universal” ❖ Added “Serial Interface Control”–“Serial Port Output” ❖ “Keyboard Interface Control” – “Function Key Emulation”: ❖ Renamed option “Enable ASCII 00-31 code as keyboard function code output” to “Enable Keyboard Function Code Table 1 Output” ❖ Renamed option “Ctrl-Output” to “Enable Keyboard Function Code Table 2 Output” ❖ Added option “Enable Keyboard Function Code Table 3 Output” ❖ Modified “Appendix” – “Keyboard Function Control Table”: ❖ Renamed column title “Key Function” to “Key Function 1” ❖ Renamed column title “Ctrl-Output” to “Key Function 2” ❖ Added column “Key Function 3”

Revision History

Rev. No.	Released Date	Description
Rev. D3	Jun,.2, 2020	❖ Modified “ Symbology Reading Control ” – “Small DM Code Reading” to “Damaged DM Code Reading”.

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Regulatory



FCC part 15B



EN55022, EN55024, EN61000-3-2, EN61000-3-3,



CNS13438



Clause 3, Article 58-2 of Radio Waves Act.



VCCI, TECHNICAL REQUIREMENTS, Class B ITE

LED Eye Safety

IEC62471 Exempt group

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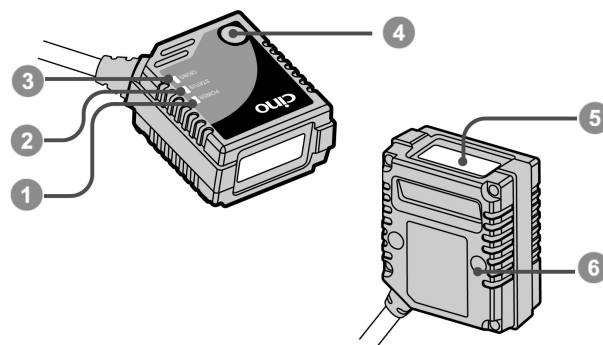
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GETTING STARTED

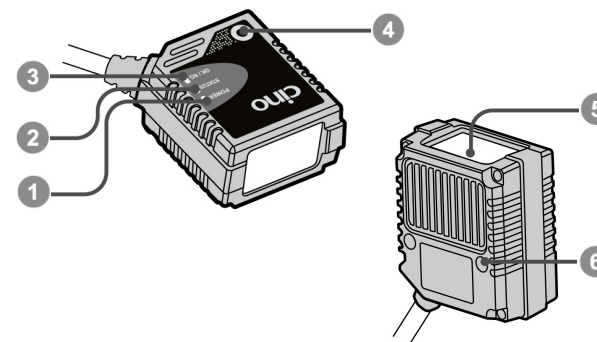
Getting Familiar with Your Scanner

Thank you for choosing Cino FuzzyScan Fixed Mount Scanner. Built with FuzzyScan Imaging Technology, durable ultra-compact design and rich functionality, it provides an ideal barcode scanning solution for both industrial and general purpose applications. This document provides a quick reference for installation and operation. The complete documentation is available at www.cino.com.tw.

FM480 Series (Front-view Model)

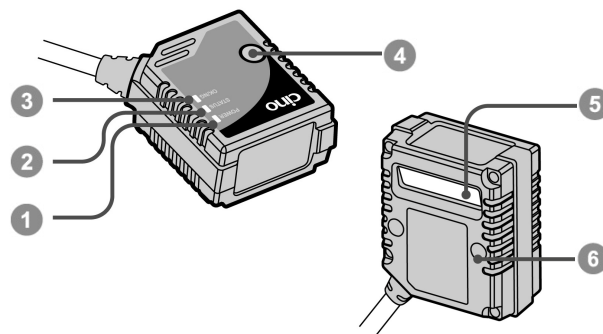


FA480/FA470/FA460 Series
(Front-view Model)

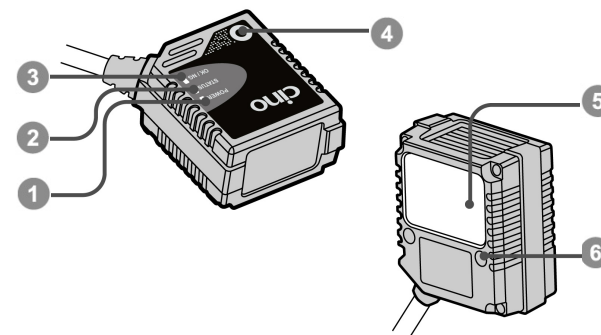


- 1 Power Indicator
- 2 Status Indicator
- 3 OK/NG Indicator
- 4 Intelli Button™
- 5 Scan Window
- 6 M3 Mounting Hole

FM480 Series (Side-view Model)



**FA480/FA470/FA460 Series
(Side-view Model)**



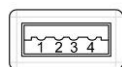
- 1 Power Indicator
- 2 Status Indicator
- 3 OK/NG Indicator
- 4 Intelli Button™
- 5 Scan Window
- 6 M3 Mounting Hole

Connecting to Your Host

Both RS232 and USB interfaces are available in different models. Each model is equipped with corresponding connector to meet various application demands.

USB Models (FM480-11x/FA4x0-xx-11x)

The USB models provide a plug-and-play solution. Both USB HID and USB COM Port Emulation interfaces are available for user's choice.

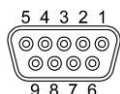


4-pin Type A
Connector

Pin No.	Signal	Description	I/O Type
Case	FG	Frame Ground	---
1	VCC	---	I
2	Data -	USB Data -	I/O
3	Data +	USB Data +	I/O
4	GND	---	---

RS232 Models (FM480-00x/FA4x0-xx-00x)

The RS232 models support the standard RS232 interface equipped a 9-pin D-sub connector with power jack for external 5Vdc power inlet.

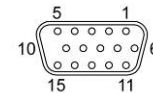


9-pin D-sub
Female Connector

Pin No.	Signal	Description	I/O Type
Case	FG	Frame Ground	---
1	---	---	---
2	TXD	Transmit Data	I
3	RXD	Receive Data	O
4	---	---	---
5	GND	Signal Ground	---
6	---	---	---
7	CTS	Clear to Send	I
8	RTS	Request to Send	O
9	VCC	5Vdc Power Supply	I

Universal Models (FM480-98x/FA4x0-xx-98x)

The universal models support RS232 and USB interfaces with OK/NG signal outputs and external trigger input.



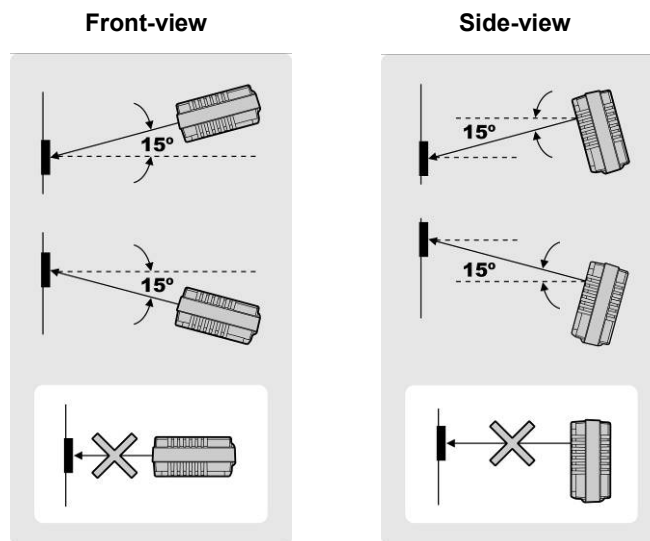
15-pin D-sub HD
Female Connector

Pin No.	Signal	Description	I/O Type
1	VCC	5Vdc Power Supply	I
2	TXD	Transmit Data	O
3	RXD	Receive Data	I
4	GND	Signal Ground	---
5	---	---	---
6	RTS	Request to Send	O
7	OK	OK Signal Output (3-24Vdc)	O
8	Data +	USB Data +	I/O
9	Trigger	External Trigger Input	I
10	CTS	Clear to Send	I
11	---	---	---
12	Data -	USB Data -	I/O
13	Shield	Frame Ground	---
14	NG	NG Signal Output (3-24Vdc)	O
15	Reserved	---	---

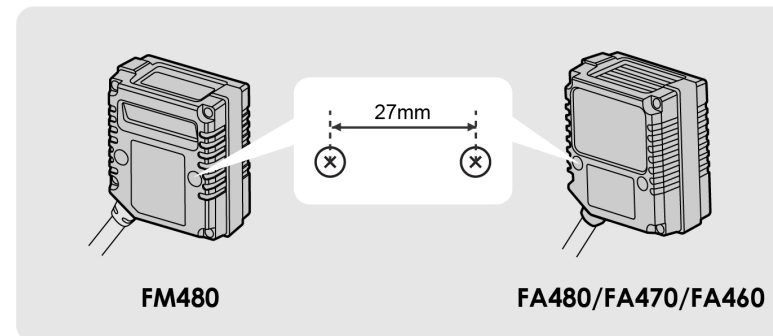
Installing Your Scanner

Adjust Reading Angle

The readability may be impacted by the specular reflection caused by the perpendicular reading angle. To get the most optimal reading performance, you are suggested to install the scanner at an approximate **15°** angle to the perpendicular line of the target barcode. However, the reading angle and distance may vary depending on the size and printing quality of barcodes.



Mount Your Scanner



There are two **M3** mounting holes on the bottom of the chassis. Please follow below procedures to mount your scanner.

- 1 Prepare two appropriate M3 screws(minimal 4mm in depth) and decide your desired mounting location. Then adjust the two screws to accommodate **27mm** center width.
- 2 Optimize the mounting position by adjusting the reading angle and distance. Ensure the illumination envelop is not blocked by any external object. Use **Diagnostic Mode** to help on finding the optimal mounting position.
- 3 Use the **Intelli Button™** to trigger the **Test Mode** to verify the actual reading rate. If the reading rate is not good enough, please adjust the reading angle and distance to get the optimum readability.

Diagnostic Mode

Diagnostic Mode is designed to help on finding the optimal mounting position by visual and audio feedback. Under Diagnostic Mode, the light source of the scanner will be constantly on, regardless of other settings, such as reread delay or redundancy. The suitability of a mounting position can be evaluated via test scans under this mode and by listening to the frequency of reading beeps. The higher the frequency is, the better the position is.



Diagnostic Mode

To end the Diagnostic Mode, switch to any of the operation mode by scanning quick set command (see section **Getting Started - Operation Mode**) or sending serial command.

For normal operation, the Intelli Button™ of the scanner acts as a manual **Trigger Switch**. You can press the Intelli Button™ to scan the corresponding barcode commands to configure your scanner with ease. Moreover, the useful Intelli Button™ can help you to identify the best mounting position. Please refer to following descriptions for more details.

Once the mounting position for the scanner is determined, you may use the Intelli Button™ to optimize the mounting position with ease. Please follow below procedures to use the Intelli Button™.

- 1 Press and hold the Intelli Button™ for more than **5** seconds until the status indicator gives one green blink, then release the button. The scanner will emit 2 short beeps and the power indicator will flash blue blink per 1 second to indicate the force reading process is activated. The scanner will turn on the light source to scan barcodes continuously until the whole process completed.
- 2 Keep the scanner to read the same barcode. The scanner will count the **Good Read** numbers, then output the information of reading rate and refresh LED indications every 100 scans. The format of output message is listed below.

< Readout data > : <Reading rate (0 to 100)>

Meanwhile, both Status and OK/NG indicators provide the visible reading rate information as well. You may refer to the table listed below for details.

Reading rate	STATUS Indicator	OK/NG Indicator
100%	Steady Green	Steady Green
80 to 99%	Steady Red	Steady Green
50 to 79%	Steady Green	Steady Red
20 to 49%	Steady Orange	Steady Orange
0 to 19%	Steady Red	Steady Red

- 3 If the reading rate is not good enough, please adjust the reading angle and distance to get the optimum readability. If you would like to exit the force reading process, please press the Intelli Button™ once again.
-  1. If the scanner is unable to read any barcode during preset scan input time-out (default is 900ms), the scanner will count it as a NG reading
2. During force reading process, the OK/NG output signals will not be Performed.

Using Your Scanner

Both FuzzyScan **Barcode commands** and **Serial commands** are available to configure your scanner. The FuzzyScan barcode commands are a series of proprietary barcodes which allow you to easily configure the scanner for most applications. Moreover, the FuzzyScan serial commands are ideal for precise and complicated reading control in machine-controllable environments. Please refer to the relevant documentations for details.

External Trigger and Serial Trigger

The scanner provides both external trigger and serial trigger to activate the scanning processes. Please note that the external trigger is only available for universal models. The serial trigger is workable for all models including RS232 serial and USB COM Port Emulation interfaces.

User Defined Serial Trigger Command

For user's convenience to replace the other existing fixed mount scanner, the useful user defined serial trigger command allows you to trigger the scanner without impacting the existing application programs.

Scan Input Time-out

The scan input time-out is an adjustable value for the time period that light source turns on. It's available for presentation, alternative and level modes. The scanner keeps the light source on and continues to scan until the defined scan input time-out is up. You can adjust the time-out duration from 100 milliseconds to 99 seconds to meet various demands.

OK and NG Outputs

The universal models support additional OK and NG outputs for more precise reading control. If the scanner got a good read, a signal will be outputted through the OK pin. However, if the scanner failed to read the barcode during a reading cycle or preset scan input time-out, a signal will be outputted through the NG pin.

The OK and NG outputs are designed as **NPN** signal outputs and preset to active low. You may change the active state of OK and NG outputs to meet your applications

Operation Modes

The FuzzyScan Fixed Mount Scanner provides five different operation modes, including trigger, alternative, level, presentation and force modes to meet various application demands

Both the presentation and force modes support **triggerless** operation. You don't need to use either external trigger or serial trigger to activate the scanning. But the trigger, alternative and level modes **have to** work with **external trigger** or **serial trigger** to scan barcode.

Operation Mode FA480/FA470/FA460

The details of supported operation modes are listed below.



Trigger Mode

Under trigger mode, the scanner will turn on the light source to read barcode when it receives an external trigger or a serial trigger ON command. Once the external trigger has been released, or the scanner gets a good read or a serial trigger OFF command, the scanner will stop reading and wait for the next trigger to activate scanning again.



Alternative Mode

When the scanner receives an external trigger or a serial trigger ON command under alternative mode, the scanner will turn on the light source to read barcodes until the **preset scan input time-out** is up. The scan input time-out will be reset after each good read. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.



Level Mode

When the scanner receives an external trigger or a serial trigger ON command under level mode, the scanner will turn on the light source to read barcodes until **a good read** is performed or the **preset scan input time-out** is up. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.



Presentation Mode

When presentation mode is selected, the scanner is preset to turn on the background lighting to detect the bar codes. Once the scanner detects an image similar to a bar code in the scanner field of view, it will turn on the light source to scan until the **preset scan input time-out** is up. You may adjust the setting of "Presentation Sensitivity" to increase detection sensitivity.



Force Mode

Under Force Mode, the scanner continues to read barcodes without using external trigger or serial trigger. Please note that the scanner will not stop reading until you switch to another operation mode.

Operation Mode FM480

The details of supported operation modes are listed below.





Trigger Mode

Under trigger mode, the scanner will turn on the light source to read barcode when it receives an external trigger or a serial trigger ON command. Once the external trigger has been released, or the scanner gets a good read or a serial trigger OFF command, the scanner will stop reading and wait for the next trigger to activate scanning again.





Alternative Mode

When the scanner receives an external trigger or a serial trigger ON command under alternative mode, the scanner will turn on the light source to read barcodes until the **presets can input time-out** is up. The scan input time-out will be reset after each good read. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.





Level Mode

When the scanner receives an external trigger or a serial trigger ON command under level mode, the scanner will turn on the light source to read barcodes until **a good read** is performed or the **preset scan input time-out** is up. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.





Presentation Mode

Under presentation mode, the scanner will automatically detect the object movement in the scanner field of view. Once the scanner detects an image similar to a barcode, it will turn on the light source to scan until the **preset scan input time-out** is up. For dark environments, you may adjust the setting of "Presentation Sensitivity" to increase the detection sensitivity.





Force Mode

Under force mode, the scanner continues to read barcodes without using external trigger or serial trigger. Please note that the scanner will not stop reading until you switch to another operation mode.

CONFIGURING YOUR SCANNER

Barcode Programming Menu

The FuzzyScan bar code commands are specially designed **Proprietary** bar code labels which allow you to set the FuzzyScan internal programming parameters. There are **System Command**, **Family Code** and **Option Code** for programming purpose.

Each programmable family and bar code command label is listed on the same page with major system commands. The detailed explanations and special programming flowchart are printed on facing or following pages. You can read the explanation and set the FuzzyScan concurrently.

A supplemental bar code command menu incorporates the bar code command labels of System Command and Option Code. As you set the FuzzyScan, open the bar code command menu to find the option code page. You may scan the desired family code and option code to set FuzzyScan. If you want to change the programming family for multiple settings, you need only turn over the programming page to find next desired programming family.

System Command

The System Command is the highest level bar code command which directs FuzzyScan to perform immediate operations, such as entering programming mode (**PROGRAM**), exiting programming mode (**EXIT**), listing system information (**SYSLIST**), recovering to factory preset configurations (**M_DEFAULT**), and so on. Please note that all system commands will take a few seconds to complete the operations. User must wait for the completion beeps before scanning another bar code.

Family Code

The Family Code is scanned to select the user desired programming family. FuzzyScan has already provided more than one hundred programming families to meet any specific requirements.

Option Code

The Option Codes is a set of bar code commands represented by “**0–9**”, “**A–F**” and finishing selection (**FIN**). For most setting, you must select at least one option code following the family code selection to set the desired parameter for the selected programming family.

Programming Procedures

As you scan the bar code command to select the desired parameters, information about the final selected parameters represented by the bar code commands are stored in the FuzzyScan's internal Flash Memory ASIC or non-volatile memory. If you turn off the unit, the Flash Memory ASIC or non-volatile memory retains all programming options. You need not re-program the FuzzyScan if you want to keep the existing configurations in the next power on.

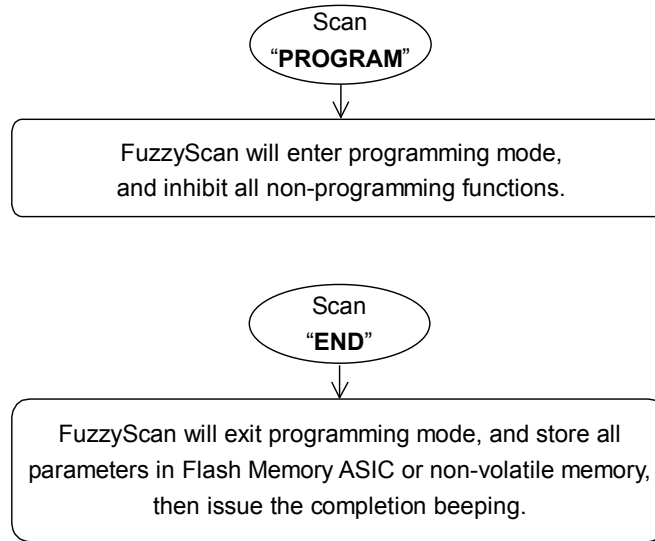
The programming procedures of FuzzyScan are designed as simple as possible for ease of setting. Most programming families take the **Single Scan Selection** programming procedure. But several programming families have more complex and flexible programmable options, and you must take **Multiple Scans Selection, Cycling Scan Selection or Dual Level Selection** to complete their programming procedures. Each kind of programming procedure is listed in the following pages for your reference. Please give careful attention to become familiar with each programming procedure.

If the programming family must take multiple scans selection, cycling scan selection, or dual level selection procedures, the family of the programming menu will be marked with the matched representing symbol of **Programming Category** (P.C.) in bold font listed in the following table. You can easily find the bold mark in the programming menu, and refer to their flowcharts for details. Before setting the FuzzyScan, please also refer to the "Beeping Indications" listed in Appendix to understand the details of programming beeping indications. It will be very helpful for you to know the existing status while you are programming the FuzzyScan.

Conventions of Programming Menu

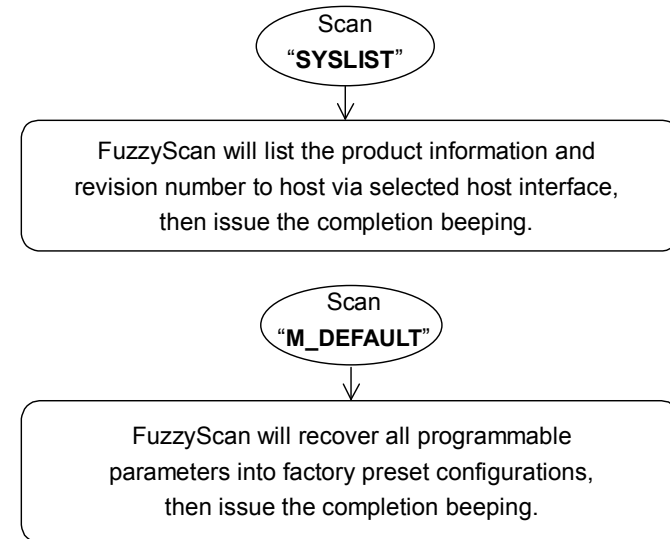
Conventions	Descriptions
◆	Factory Default Value
P.C.	Programming Category SS : Single scan selection MS : Multiple scans selection CS : Cycling scan selection DS : Dual level scan selection
()	Necessary Option Code
[]	Selectable Option Code

Program & End

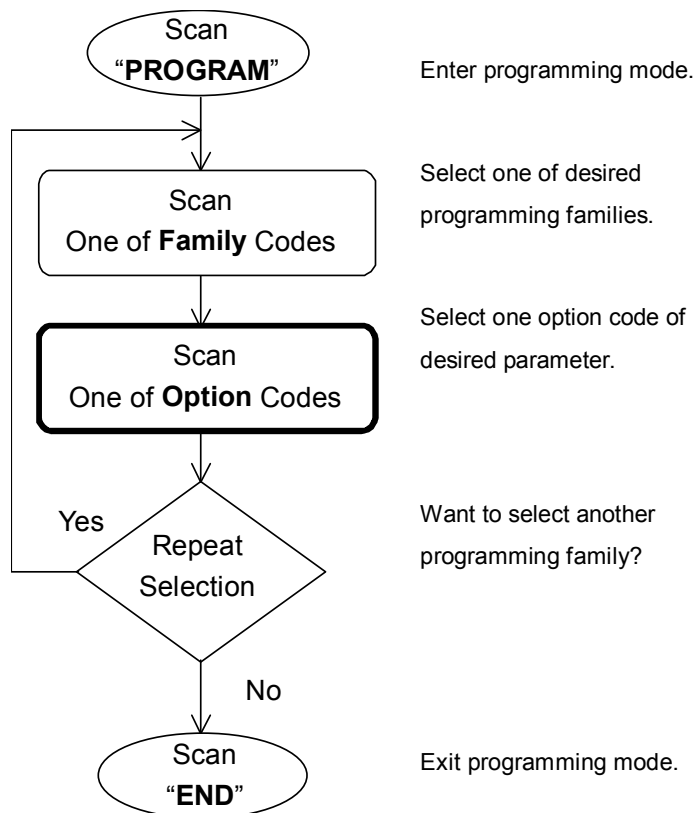


 Please note that the FuzzyScan will take 3-4 seconds to store parameters in internal Flash Memory ASIC or non-volatile memory after you scan the "END". Please **don't** turn off the power before the completion beeping. It may destroy all configured parameters.

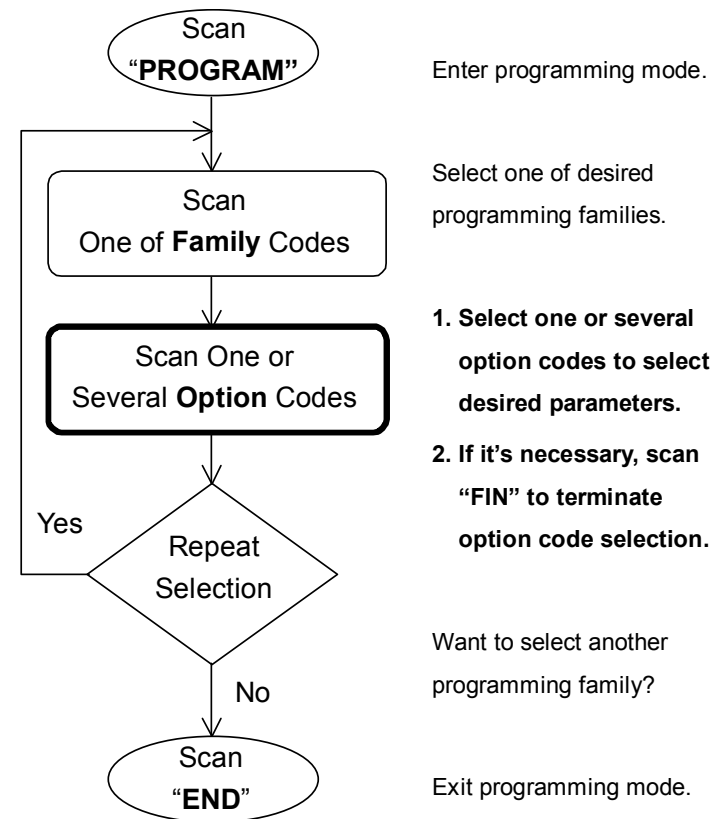
System List, Group & Master Default



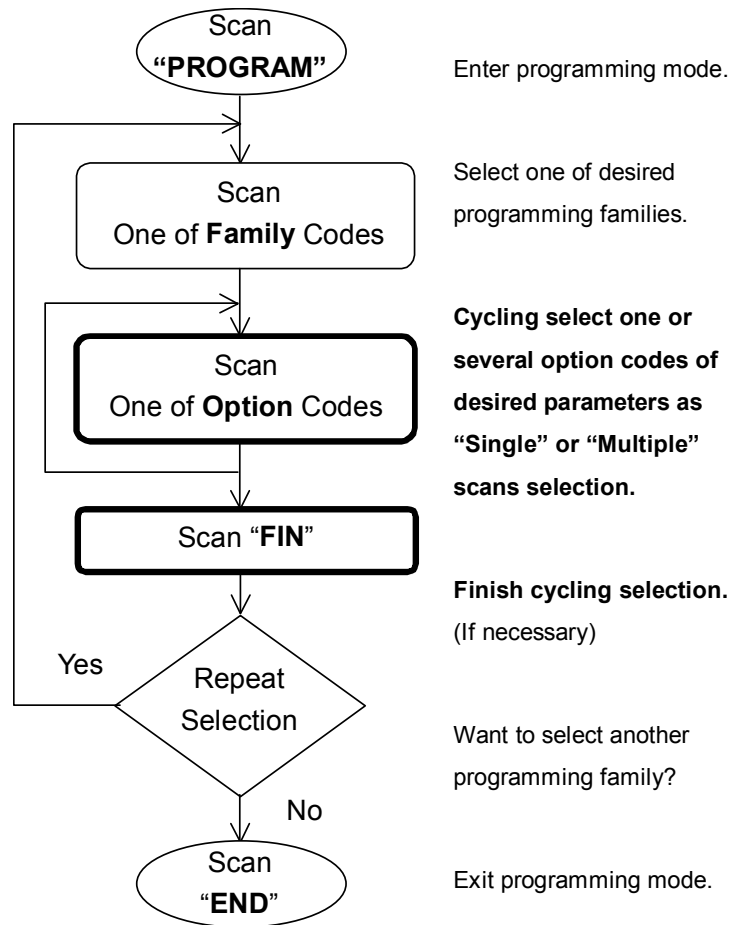
Single scan selection



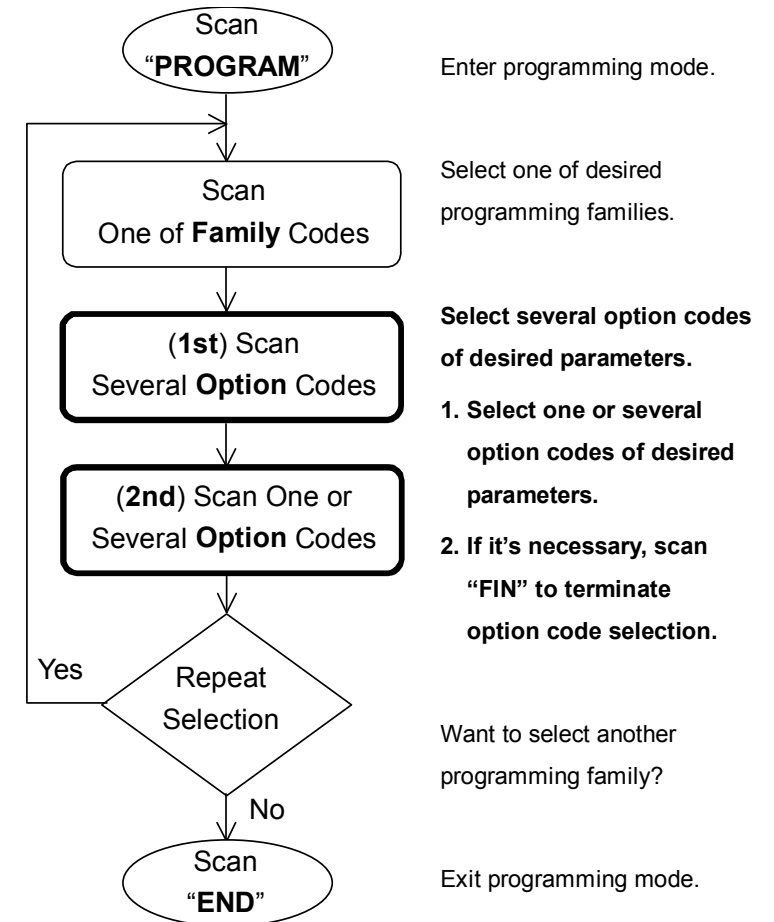
Multiple scans selection



Cycling scan selection



Dual level selection





PROGRAM

Host Interface Selection



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
 Host Interface Selection	MS	Standard/TTL RS232 peer-to-peer serial	06
	MS	USB Com Port Emulation	09
	MS	USB HID standard mode	18
	MS	USB HID turbo mode	19
	MS	USB HID Legacy	20



PROGRAM

Symbology Reading Control

User Defined Symbol ID



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2ndOption Code
Symbol ID : 1 character 	DS	Code 128 (default=B)	00	(1 character)
		GS1-128 (default=C)	01	(1 character)
		UPC-A (default=A)	02	(1 character)
		EAN-13 (default=F)	03	(1 character)
		Codabar/NW-7 (default=D)	04	(1 character)
		Code 39/Code 32 (default=G)	05	(1 character)
		Code 93 (default=H)	06	(1 character)
		Standard/Industrial 2 of 5 (default=I)	07	(1 character)
		Interleaved 2 of 5 (default=J)	08	(1 character)
		Matrix 2 of 5 (default=K)	09	(1 character)
		China Postal Code (default=L)	10	(1 character)
		German Postal Code (default=M)	11	(1 character)
		IATA (default=O)	12	(1 character)
		Code 11 (default=P)	13	(1 character)
		MSI/Plessey (default=R)	14	(1 character)
		UK/Plessey (default=S)	15	(1 character)
		Telepen (default=T)	16	(1 character)
		GS1 DataBar (default=X)	17	(1 character)
		UPC-E (default=E)	18	(1 character)
		EAN-8 (default=N)	19	(1 character)
		Trioptic Code 39 (Default=W)	20	(1 character)
		UCC Coupon Extended Code (Default=Z)	21	(1 character)
		PDF417/Micro PDF417 (default=V)	22	(1 character)
		Codablock F (default=Y)	23	(1 character)
		Code 16K (default=Q)	24	(1 character)
		Code 49 (default=U)	25	(1 character)
		Korea Post Code (default=a)	26	(1 character)
		QR & Micro QR Code (default=b)	28	(1 character)
		Data Matrix (default=c)	29	(1 character)
		Maxi Code (default=d)	30	(1 character)



PROGRAM

Symbology Reading Control

User Defined Symbol ID (continued)



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option Code
Symbol ID : 1 character 	DS	Aztec Code (default=e)	31	(1 character)
		Chinese Sensible (default=f)	32	(1 character)
		Australian Post (default=g)	33	(1 character)
		British Post (default=h)	34	(1 character)
		Intelligent Mail (USPS 4CB/One Code) (default=j)	36	(1 character)
		Japan Post (default=k)	37	(1 character)
		Netherlands KIX Post (default=l)	38	(1 character)
		US Planet (default=m)	39	(1 character)
		US Postnet (default=o)	41	(1 character)



PROGRAM

Symbology Reading Control Symbology ID Transmission



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Symbology ID Transmission 	SS	Disable symbology ID transmission◆	0
	SS	Enable prefix CINO symbology ID transmission	1
	SS	Enable suffix CINO symbology ID transmission	2
	SS	Enable both prefix and suffix CINO symbology ID transmission	3
	SS	Enable prefix AIM symbology ID transmission	4
	SS	Enable suffix AIM symbology ID transmission	5
	SS	Enable both prefix and suffix AIM symbology ID transmission	6



PROGRAM

Symbology Reading Control

Readable Bar Code Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Readable Symbology Setting  Remember to scan "FIN" to terminate this selection. But if you select the "Auto", FuzzyScan will terminate this selection automatically.	SS	Auto ◆	00
	CS	Popular 1D	C0
	CS	Code 128 *	01
	CS	GS1-128 *	31
	CS	UPC-A *	02
	CS	UPC-E *	03
	CS	EAN-13 *	04
	CS	EAN-8 *	05
	CS	Codabar/NW-7 *	06
	CS	Code 39 *	07
	CS	Trioptic Code 39	47
	CS	Standard/Industrial 2 of 5	08
	CS	Matrix 2 of 5	38
	CS	Interleaved 2 of 5 *	48
	CS	China Postal Code	58
	CS	Germany Postal Code	68
	CS	Code 93 *	09
	CS	Code 11	10
	CS	MSI/Plessey	11
	CS	UK/Plessey	12
	CS	Telepen	13
	CS	GS1 DataBar (RSS-14) *	14
	CS	IATA	15
	CS	PDF417 * /Micro PDF417	17
	CS	Codablock F	18
	CS	Code 16K	19
	CS	Code 49	20
	CS	Korea Post Code	21
	CS	QR Code * / Micro QR Code *	A0
	CS	Data Matrix *	A1
	CS	MaxiCode	A2
	CS	Aztec Code *	A3
	CS	Chinese Sensible (Han Xin) Code	A4



PROGRAM

Symbology Reading Control

Readable Bar Code Setting (continued)



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Readable Symbology Setting 	CS CS CS CS CS CS CS	Australian Post British Post Intelligent Mail barcode Japanese Post KIX Post Planet Code Postnet	B0 B1 B3 B4 B5 B6 B8

- If your application is known, you may select those known symbologies only to increase the reading speed and decrease the possibility of reading error. Furthermore, to add the **"Symbology ID"** into the transmitted data is also helpful to identify the specific symbology.
- Above symbologies marketed with * are enabled as default. When you select "Auto", the scanner only reads those symbologies marked with *.
- When you set the minimum and maximum length of each symbology, please note the data length of scanned bar code doesn't include start/stop characters.
- **"Popular 1D"** includes "Code 128", "GSA-128", "UPC-A", "UPC-E", "EAN-13", "EAN-8", "Codabar/NW-7", "Code 39", "Interleaved 2 of 5", "Code 93", "GS1 DataBar (RSS-14)".



PROGRAM

Symbology Reading Control

Code 39/Code 32 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 39 Family Setting 	SS	Disable Code 39	0
	SS	Enable Code 39 ◆	1
	SS	Select Standard Code 39 as primary format ◆	2
	SS	Select Full ASCII Code 39 as primary format	3
	SS	Select Code 32 (PARAF, Italian Pharmaceutical) as primary format	4
	SS	Disable start/stop symbol transmission ◆	5
	SS	Enable start/stop symbol transmission	6
	SS	Disable Code 32 leading A transmission ◆	7
	SS	Enable Code 32 leading A transmission	8
	SS	Disable MOD 43 check digit verification ◆	9
	SS	Enable MOD 43 check digit verification	A
	SS	Disable check digit transmission ◆	B
	SS	Enable check digit transmission	C
	SS	Disable Code 39 buffering ◆	D
	SS	Enable Code 39 buffering	E
Trioptic Code 39 Setting 	SS	Disable Trioptic Code 39 ◆	0
	SS	Enable Trioptic Code 39	1
Code 39 Min. Length 	SS	Default (01) ◆	FIN (2 digits)
	MS	01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	
Code 39 Max. Length 	SS	Default (98) ◆	FIN (2 digits)
	MS	98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	

■ Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously.



PROGRAM

Symbology Reading Control Code 39 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 39 Security Level 	SS SS SS SS	Level 0 Level 1 Level 2 ♦ Level 3	0 1 2 3

▪ Code 39 Security Level

The scanner offers four levels of decode security for Code39 bar codes:

Level 0: If you are experiencing misread of poorly-printed or serious out-of-spec. bar codes in level 1, please select level 0.

Level 1: If you are experiencing misread of poorly-printed or out-of-spec. bar codes in level 2, please select level 1.

Level 2: This is the default setting which allows the scanner to operate fastest, while providing sufficient security in decoding "in-spec" Code39 bar codes.

Level 3: If you failed to read poorly-printed or out-of-spec. bar codes in level 2, please select level 3. This is the most aggressive setting and may increase the misread.



PROGRAM

Symbology Reading Control

Codabar/NW-7 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Codabar Setting 	SS	Disable Codabar	0
	SS	Enable Codabar ◆	1
	SS	Select Codabar standard format ◆	2
	SS	Select Codabar ABC format	3
	SS	Select Codabar CLSI format	4
	SS	Select Codabar CX format	5
	SS	Disable start/stop symbol transmission ◆	6
	SS	Enable ABCD/ABCD start/stop symbol transmission	7
	SS	Enable abcd/abcd start/stop symbol transmission	8
	SS	Enable ABCD/TN*E start/stop symbol transmission	9
	SS	Enable abcd/tn*e start/stop symbol transmission	A
	SS	Disable check digit verification ◆	B
	SS	Enable check digit verification	C
	SS	Disable check digit transmission ◆	D
	SS	Enable check digit transmission	E
Codabar Check Digit Settings 	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 Min. Length 	SS	Default (04) ◆	FIN (2 digits)
	MS	01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	



PROGRAM

Symbology Reading Control Codabar/NW-7 Setting_(continued)



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Codabar Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control

UPC-A & UPC-E Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
UPC Family Setting 	SS	Disable UPC-A	0
	SS	Enable UPC-A ◆	1
	SS	Disable UPC-E	2
	SS	Enable UPC-E ◆	3
	SS	Disable UPC-E expansion ◆	4
	SS	Enable UPC-E expansion	5
	SS	Disable UPC standardization ◆	6
	SS	Enable UPC standardization	7
	SS	Disable UPC numeric system	8
	SS	Enable UPC numeric system ◆	9
	SS	Disable UPC-A check digit transmission	A
	SS	Enable UPC-A check digit transmission ◆	B
	SS	Disable UPC-E check digit transmission	C
	SS	Enable UPC-E check digit transmission ◆	D
	SS	Disable UPC "leading 1" portion ◆	E
	SS	Enable UPC "leading 1" portion	F

- When enable UPC-E expansion, the UPC-E decoded data will be converted to UPC-A format and affected by related setting, such as UPC standardization, UPC numeric system, UPC-A check digit transmission.
- **UPC-E & EAN-8 Expansion** : Expand the 8-digit UPC-E and 8-digit ENA-8 to 12-digit UPC-A and 13-digit EAN-13.
- **UPC-A Standardization** : Expand the 12-digit UPC-A to 13-digit EAN-13 with 1 zero insertion.
- **UPC Lead 1 Numeric System** : Enable to read UPC leading with the 1 numeric system, you must enable this option.

WPC Selection (UPC/EAN/CAN)	Basic Length	Disable Check Digit	Disable Numeric System	With 2-digit Addendum	With 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



PROGRAM

Symbology Reading Control

UPC-A & UPC-E Setting (continued)



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
UPC Supplement Setting 	SS	Select UPC without supplement digits ◆		0	
	SS	Select UPC with only 2 supplement digits		1	
	SS	Select UPC with only 5 supplement digits		2	
	SS	Select UPC with 2/5 supplement digits		3	
	SS	Disable force supplement digits output ◆		4	
	SS	Enable force supplement digits output		5	
	SS	UPC Family Addenda Separator Off ◆		6	
	SS	UPC Family Addenda Separator On		7	
UPC/EAN Security Level 	SS	Level 0		0	
	SS	Level 1 ◆		1	
	SS	Level 2		2	
		Only available for UPC-A & EAN-13			
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/EAN Security Level

The scanner offers three levels of decode security for UPC/EAN bar codes:

Level 0: If you are experiencing misread of poorly-printed or out-of-spec. bar codes, especially in characters 1, 2, 7, and 8 in level 1, please select level 0. Selection of this security level may significantly impair the decoding ability of the scanner.

Level 1: This is the default setting which allows the scanner to operate fastest, while providing sufficient security in decoding "in-spec" UPC/EAN bar codes.

Level 2: If you failed to read poorly-printed or out-of-spec. bar codes in level 1, please select level 2. This is the most aggressive setting and may increase the misread.

- The **Supplement Scan Voting** is the number of times the same UPC/EAN with 2/5 supplement digits has to be decoded before it is transmitted. It is helpful when decoding a mix of UPC/EAN symbols with and without supplement digits. This function is effective when you select UPC/EAN with only 2 supplement digits, UPC/EAN with only 5 supplement digits or UPC/EAN with 2/5 supplement digits. The default value is Level 3. When you select higher level, it may impact the reading speed on poorly-printed, low contrast or damage barcode labels.



PROGRAM

Symbology Reading Control

EAN Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
EAN Setting 	SS	Disable EAN-13		0	
	SS	Enable EAN-13 ♦		1	
	SS	Disable EAN-8		2	
	SS	Enable EAN-8 ♦		3	
	SS	Disable EAN-8 expansion ♦		4	
	SS	Enable EAN-8 expansion		5	
	SS	Disable EAN-13 check digit transmission		6	
	SS	Enable EAN-13 check digit transmission ♦		7	
	SS	Disable EAN-8 check digit transmission		8	
	SS	Enable EAN-8 check digit transmission ♦		9	
	SS	Disable ISBN/ISSN Conversion reading check ♦		A	
	SS	Enable ISBN/ISSN Conversion reading check		B	
EAN Supplement Setting 	SS	Select EAN without supplement digits ♦		0	
	SS	Select EAN with only 2 supplement digits		1	
	SS	Select EAN with only 5 supplement digits		2	
	SS	Select EAN with 2/5 supplement digits		3	
	SS	Disable force supplement digits output ♦		4	
	SS	Enable force supplement digits output		5	
	SS	EAN Addenda Separator Off ♦		6	
	SS	EAN Addenda Separator On		7	
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

The **Supplement Scan Voting** is the number of times the same UPC/EAN with 2/5 supplement digits has to be decoded before it is transmitted. It is helpful when decoding a mix of UPC/EAN symbols with and without supplement digits. This function is effective when you select UPC/EAN with only 2 supplement digits, UPC/EAN with only 5 supplement digits or UPC/EAN with 2/5 supplement digits. The default value is Level 3. When you select higher level, it may impact the reading speed on poorly-printed, low contrast or damage barcode labels.



PROGRAM

Symbology Reading Control

UPC/EAN Security Level Setting, EAN Supplement Control



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
UPC/EAN Security Level	SS	Level 0	0
	SS	Level 1 ◆	1
	SS	Level 2	2
		Only available for UPC-A & EAN-13	
EAN Supplement Control	SS	Disable all specific prefix supplement digital output ◆	0
	SS	Enable all specific prefix supplement digital output	1
	SS	Enable 491 Supplement Digit Output	2
	SS	Enable 978/979 Supplement Digit Output	3
	SS	Enable 977 Supplement Digit Output	4
	SS	Enable 378/379 Supplement Digit Output	5
	SS	Enable 414/419 Supplement Digit Output	6
	SS	Enable 434/439 Supplement Digit Output	7

■ UPC/EAN Security Level

The scanner offers three levels of decode security for UPC/EAN bar codes:

Level 0: If you are experiencing misread of poorly-printed or out-of-spec. bar codes, especially in characters 1, 2, 7, and 8 in level 1, please select level 0. Selection of this security level may significantly impair the decoding ability of the scanner.

Level 1: This is the default setting which allows the scanner to operate fastest, while providing sufficient security in decoding "in-spec" UPC/EAN bar codes.

Level 2: If you failed to read poorly-printed or out-of-spec. bar codes in level 1, please select level 2. This is the most aggressive setting and may increase the misread.

■ EAN Supplement Control

If you select EAN with only 2, or 5 or 2/5 supplement digits and enable 491 prefix supplement digit output, the scanner will transmit EAN with 2, or 5 or 2/5 supplement digits bar codes starting with 491 prefix. The EAN without supplement digit **will not** be transmitted.

If you select EAN with only 2, or 5 or 2/5 supplement digits and enable the other except 491 prefix supplement digit output, the scanner will transmit EAN with 2, or 5, or 2/5 supplement digits bar codes starting with specific prefix. The EAN without supplement digit **will** be transmitted.



PROGRAM

Symbology Reading Control UCC Coupon Extended Code Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
UCC Coupon Extended Code 	SS SS	Disable UCC Coupon Extended Code ◆ Enable UCC Coupon Extended Code	0 1

▪ UCC Coupon Extended Code

When UCC coupon extended code function is enabled, scanner decodes UPC-A barcodes starting with digit “5”, EAN-13 barcodes starting with digit “99” and GS1-128 Coupon Codes. UPC-A, EAN-13 and EAN-128 must be enabled to scan all types of Coupon Codes.



PROGRAM

Symbology Reading Control IATA& Interleaved 2 of 5Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
IATA Setting 	SS	Disable IATA ◆	0
	SS	Enable IATA	1
	SS	Select 15-digit fixed length IATA checking ◆	2
	SS	Select variable length IATA	3
	SS	Disable check digit verification ◆	4
	SS	Enable check digit automatic verification	5
	SS	Enable S/N checking digit verification only	6
	SS	Enable CPN checking digit verification only	7
	SS	Enable CPN, Airline and S/N check digit verification	8
	SS	Disable check digit transmission ◆	9
	SS	Enable check digit transmission	A
	SS	Disable start/stop symbol transmission ◆	B
	SS	Enable start/stop symbol transmission	C
Interleaved 2 of 5 Setting 	SS	Disable Interleaved 2 of 5	0
	SS	Enable Interleaved 2 of 5 ◆	1
	SS	Select Interleaved 2 of 5 as primary format ◆	2
	SS	Select German Postal Code as primary format	3
	SS	No check character ◆	4
	SS	Validate USS check digit	5
	SS	Validate OPCC check digit	6
	SS	Disable check digit transmission ◆	7
	SS	Enable check digit transmission	8



PROGRAM

Symbology Reading Control

Code 25 Family Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 25 Setting 	SS SS SS SS SS SS SS SS SS SS	Disable Standard/Industrial 2 of 5 ◆ Enable Standard/Industrial 2 of 5 Disable Matrix 2 of 5 ◆ EnableMatrix 2 of 5 Disable China Postal Code ◆ Enable China Postal Code Disable check digit verification ◆ Enable check digit verification Disable check digit transmission ◆ Enable check digit transmission	0 1 2 3 4 5 6 7 8 9
Code 25 Family Min. Length 	SS MS	Default (04) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 25 Family Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)

- For **Code25 setting**, we recommend you to select **only one** type of Code 25 or set the **maximum/minimum bar code length**. To decode all types of Code 25 or to variable length of Code 25 will increase the possibility of reading error.



PROGRAM

Symbology Reading Control

Code 11 & Code 93 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 11 Setting 	SS SS SS SS SS SS SS	Disable Code 11 ◆ Enable Code 11 Disable check digit verification ◆ Select 1-check digit verification Select 2-check digit verification Disable check digit transmission ◆ Enable check digit transmission	0 1 2 3 4 5 6
Code 11 Min. Length 	SS MS	Default (04) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 11 Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 93 Setting 	SS SS SS SS	Disable Code 93 Enable Code 93 ◆ Disable check digit transmission ◆ Enable check digit transmission	0 1 2 3
Code 93 Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 93 Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control MSI/Plessey Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
MSI/Plessey Setting 	SS SS SS SS SS SS SS	Disable MSI/Plessey ♦ Enable MSI/Plessey Select MOD 10 check digit ♦ Select MOD 10-10 check digit Select MOD 11-10 check digit Disable check digit transmission ♦ Enable check digit transmission	0 1 2 3 4 5 6
MSI/Plessey Min. Length 	SS MS	Default (04) ♦ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
MSI/Plessey Max. Length 	SS MS	Default (98) ♦ 98-Minimum Scan 2 digits from the option code chart in Appendix, and then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control

Code 128 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 128 Setting 	SS SS SS SS	Disable Code 128 Enable Code 128 ◆ ISBT Concatenation Off ◆ ISBT Concatenation On ISBT Concatenation On – Check ISBT table ISBT Concatenation Auto	0 1 2 3 4 5
Code 128 Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 128 Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 128 Security Level 	SS SS	Level 0 Level 1 ◆	0 1

■ Code 128 Setting

ISBT Concatenation Off: The scanner will not output ISBT concatenated barcodes.

ISBT Concatenation On: The scanner will only decode and output ISBT concatenated barcodes. The scanner will not decode or output single ISBT barcodes.

ISBT Concatenation On – Check ISBT table: The scanner will only output ISBT concatenated barcodes that conform to ICCBBA standards. The scanner will not output single ISBT barcodes or ISBT concatenated barcodes that do not conform to ICCBBA standards.

ISBT Concatenation Auto: The Scanner will decode and output both ISBT concatenated barcodes and single ISBT barcodes.

■ Code 128 Security Level

The scanner offers two levels of decode security for Code128 bar codes:

Level 0: If you are experiencing misread of poor-printed or out-of-spec. barcode in level1, please select level 0.

Level 1: This is the default setting which allows the scanner to operate fastest, while providing sufficient security in decoding "in-spec." Code128 barcodes.



PROGRAM

Symbology Reading Control GS1-128 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
GS1-128 Setting 	SS SS	Disable GS1-128 Enable GS1-128 ◆	0 1
GS1-128 Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
GS1-128 Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control UK/Plessey Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
UK/Plessey Setting 	SS	Disable UK/Plessey ◆	0
	SS	Enable UK/Plessey	1
	SS	Select UK/Plessey Standard Format ◆	2
	SS	Select UK/Plessey CLSI Format	3
	SS	Disable Convert X to A-F ◆	4
	SS	Enable Convert X to A-F	5
	SS	Disable check digit transmission ◆	6
	SS	Enable check digit transmission	7
UK/Plessey Min. Length 	SS	Default (04) ◆	FIN (2 digits)
	MS	01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	
UK/Plessey Max. Length 	SS	Default (98) ◆	FIN (2 digits)
	MS	98-Minimum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	



PROGRAM

Symbology Reading Control Telepen Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Telepen Setting 	SS SS SS SS SS SS	Disable Telepen ◆ Enable Telepen Select Telepen Numeric mode ◆ Select Telepen Full ASCII mode Disable check digit transmission ◆ Enable check digit transmission	0 1 2 3 4 5
Telepen Min. Length 	SS MS	Default (04) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Telepen Max. Length 	SS MS	Default (98) ◆ 98-Minimum Scan 2 digits from the option code chart in Appendix, and then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control

GS1 DataBar Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
GS1 DataBar Setting 	SS	Disable GS1 DataBar (RSS-14)	0
	SS	Enable GS1 DataBar (RSS-14) ◆	1
	SS	Disable GS1 DataBar Limited	2
	SS	Enable GS1 DataBar Limited ◆	3
	SS	DisableGS1 DataBar Expanded	4
	SS	EnableGS1 DataBar Expanded ◆	5
GS1 DataBar Min. Length 	SS	Default (04) ◆	FIN (2 digits)
	MS	01-Maximum	
		Only available for GS1 Databar Expanded . Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	
GS1 DataBar Max. Length 	SS	Default (74) ◆	FIN (2 digits)
	MS	74-Minimum	
		Only available for GS1 Databar Expanded . Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	



PROGRAM

Symbology Reading Control

Composite Codes, PDF417/microPDF417, & Codablock F Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Composite Codes Setting 	SS SS SS SS	Disable composite codes ◆ Enable composite codes UPC Composite Mode: UPC never linked ◆ UPC Composite Mode: UPC always linked If UPC Composite Mode: UPC never linked is selected, UPC barcodes are transmitted whether MicroPDF417 symbol is detected or not. If UPC Composite Mode: UPC always linked is selected, UPC barcodes are only transmitted when the MicroPDF417 is detected.	0 1 2 3
PDF417/MicroPDF417 Setting 	SS SS SS SS	Disable PDF417 Enable PDF417 ◆ Disable MicroPDF417 ◆ Enable MicroPDF417	0 1 2 3
Codablock F Setting 	SS SS	Disable ◆ Enable	0 1



PROGRAM

Symbology Reading Control Code 16K & Code 49 Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 16K Setting 	SS SS	Disable Code 16K ◆ Enable Code 16K	0 1
Code 16K Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 3 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (3 digits)
Code 16K Max. Length 	SS MS	Default (160) ◆ 160-Minimum Scan 3 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (3 digits)
Code 49 Setting 	SS SS	Disable Code 49 ◆ Enable Code 49	0 1
Code 49 Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Code 49 Max. Length 	SS MS	Default (81) ◆ 81-Minimum Scan 2 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (2 digits)



PROGRAM

Symbology Reading Control

QR Code Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
QR Code Setting 	SS SS	Disable QR Code Enable QR Code ◆ Disable MicroQR Code Enable MicroQR Code ◆ Disable QR Code Append Enable QR Code Append ◆ Disable QR Code Inverse Reading Enable QR Code Inverse Reading Auto detect QR Code Inverse Reading ◆	0 1 2 3 4 5 6 7 8
QR Code Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)
QR CodeMax. Length 	SS MS	Default (7089) ◆ 7089-Minimum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)



PROGRAM

Symbology Reading Control

Data Matrix Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Data Matrix Setting 	SS SS SS SS SS SS SS SS	Disable Data Matrix Enable Data Matrix ◆ Disable Data Matrix Inverse Reading Enable Data Matrix Inverse Reading Auto Detect Data Matrix Inverse Reading ◆ Disable Data Matrix Mirror Images Enable Data Matrix Mirror Images Auto Detect Data Matrix Mirror Images ◆	0 1 4 5 6 7 8 9
Data Matrix Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)
Data Matrix Max. Length 	SS MS	Default (3116) ◆ 3116-Minimum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)
Damaged DM Code Reading 	SS SS SS	Standard ◆ Level 1 Level 2	0 1 2

▪ **Damaged DM Code Reading:**

When using 2D scanner to read damaged DataMatrix codes, you can enable this function to improve the scanner's reading ability. Be aware that the scanner's snappiness decreases when the function is enabled.



PROGRAM

Symbology Reading Control

MaxiCode Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
MaxiCode Setting 	SS SS	Disable MaxiCode ◆ Enable MaxiCode	0 1
MaxiCode Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 3 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (3 digits)
MaxiCode Max. Length 	SS MS	Default (150) ◆ 150-Minimum Scan 3 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (3 digits)



PROGRAM

Symbology Reading Control Aztec Code Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Aztec Code Setting 	SS SS	Disable Aztec Code Enable Aztec Code ◆	0 1
Aztec Code Min. Length 	SS MS	Default (01) ◆ 01-Maximum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)
Aztec Code Max. Length 	SS MS	Default (3832) ◆ 3832-Minimum Scan 4 digits from the option code chart in Appendix; then FuzzyScan will terminate this selection automatically.	FIN (4 digits)



PROGRAM

Symbology Reading Control

Australian Post, US Planet, US Postnet, British Post, & Japan Post Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Australian Post Setting 	SS	Disable Australian Post ◆	0
	SS	Enable Australian Post	1
	SS	Raw format Output ◆	2
	SS	Numeric Encoding Output (N Encoding Table)	3
	SS	Alphanumeric Encoding Output (C Encoding Table)	4
	SS	Auto-discriminate Output (Combination C & N Encoding Table)	5
US Planet Setting 	SS	Disable US Planet ◆	0
	SS	Enable US Planet	1
	SS	Disable Check Digit Transmission ◆	2
	SS	Enable Check Digit Transmission	3
US Postnet Setting 	SS	Disable US Postnet ◆	0
	SS	Enable US Postnet	1
	SS	Disable Check Digit Transmission ◆	2
	SS	Enable Check Digit Transmission	3
British Post Setting 	SS	Disable British Post ◆	0
	SS	Enable British Post	1
	SS	Disable Check Digit Transmission ◆	2
	SS	Enable Check Digit Transmission	3
Japan Post Setting 	SS	Disable Japan Post ◆	0
	SS	Enable Japan Post	1

■ **Australian Post Setting:** Auto-discriminate output option increase the risk of misread because the encoded data format does not specify the Encoding Table used for encoding.



PROGRAM

Symbology Reading Control

Netherlands KIX Code, Intelligent Mail, & Korea Post Code Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Netherlands KIX Code Setting 	SS SS	Disable Netherlands KIX Code ◆ Enable Netherlands KIX Code	0 1
Intelligent Mail Setting (USPS 4CB/One Code) 	SS SS	Disable Intelligent Mail ◆ Enable Intelligent Mail	0 1
Korea Post Code Setting 	SS SS	Disable ◆ Enable Length fixed in 6 characters.	0 1



PROGRAM

Keyboard Interface Control

Keyboard Layout (Language) Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Keyboard Layout 	SS	USA (QWERTY) ◆	00
	SS	France (AZERTY)	01
	SS	Germany (QWERTZ)	02
	SS	United Kingdom - UK (QWERTY)	03
	SS	Canadian French (QWERTY)	04
	SS	Spain (Spanish, QWERTY)	05
	SS	Sweden/Finland (QWERTY)	06
	SS	Portugal (QWERTY)	07
	SS	Norway (QWERTY)	08
	SS	Spain (Latin America, QWERTY)	09
	SS	Italy (QWERTY)	10
	SS	Netherlands (QWERTY)	11
	SS	Denmark (QWERTY)	12
	SS	Belgium (AZERTY)	13
	SS	Switzerland-Germany (QWERTY)	14
	SS	Iceland (QWERTY)	15
	SS	Japan (DOS/V)	16
	SS	Czech (QWERTY)	17
	SS	Universal	99

- Please refer to the **ASCII/HEX Table** listed in the Appendix to determine HEX codes for characters, symbols, and functions to be used as preamble or postamble.
- To set preamble or postamble as function key output, you must enable the “**Function Key Emulation**” feature as listed in page 3-25 first.
- **Keyboard Interface Message String :**

Preamble	Data Length	Prefix Symbol ID	Scanned Data	Suffix Symbol ID	Postamble	Record Suffix
1-15 characters	2-4 digits	1 or 3 characters	Variable length	1 or 3 characters	1-15 characters	1 character



PROGRAM

Keyboard Interface Control

Record Suffix, Preamble, Postamble, FNC1 Symbol Character Transmit



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Record Suffix 	SS SS SS SS SS SS	None RETURN ◆ TAB SPACE ENTER (Numeric Key Pad) User defined character (1 character)	0 1 2 3 4 5, (00-7F)
Preamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
Postamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
FNC1 Symbol Char. Transmit 	SS SS	Disable Enable ◆	0 1

- **FNC1 Symbol Char. Transmit:** When this function is enabled and the FNC1 is contained in scanned data, the scanner transmits the FNC1 to the host. Chart of the FNC1 is provided in Appendix- Keyboard Function Code Table. When the scanner interface is set to keyboard, the scan code is converted to corresponding key function before it is transmitted.



PROGRAM

Keyboard Interface Control

Caps Lock& Caps Lock Release Control



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Caps Lock Control 	SS SS SS	“Caps Lock Off” State ◆ “Caps Lock On” State Auto Detect (PC/AT, PS/2, Keyboard Replacement and DOS/V Machines only)	0 1 2
Caps Lock Release Control 	SS SS	“Caps Lock On, Caps Off” ◆ “Caps Lock On, Shift Off”	0 1

- The function of “**Caps Lock Control**” is **only** available for IBM PC/AT, PS/VP, PS/2 series personal computers and compatible machines. While selecting the other host interfaces, these selections don’t perform the above functions for you.
- Please check the **actual** Caps Lock state in use while software application is running. If the Caps Lock state is off select “**Caps Lock Off**” state, then FuzzyScan will perform normal data transmission. If the Caps Lock state is on, select “**Caps Lock On**” state. Select “**Auto Detect**”, FuzzyScan will perform special transmission handshaking without changing the status of Caps Lock switch.



PROGRAM

Keyboard Interface Control Delay Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Intermessage Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Intercharacter Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Interfunction Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)

- **Intermessage Delay** is a time delay between messages output by FuzzyScan. Increasing this delay will help host applications process the incoming data on time.
- **Intercharacter Delay** is a time delay between data characters output by FuzzyScan. These two parameters are used to synchronize data communication when : 1) the data transmission speed is too fast, characters may be skipped; 2) multitasking operation system or host computers in a network may slow down the keyboard handling; 3) various notebook or desktop PC systems require different timing parameter settings. Please always add one extra unit as safety margin when adjusting these two parameters.
- **Interfunction Delay** is a time delay between the transmission of each segment of the message string.



PROGRAM

Keyboard Interface Control

Function Key & Key Pad Emulation, Upper/Lower Case Setting, Dollar Sign Control



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Function Key Emulation 	SS SS SS	Enable Keyboard Function Code Table 1 Output ◆ Enable Keyboard Function Code Table 2 Output (Ctrl-Output) Enable Keyboard Function Code Table 3 Output Refer to Appendix – “Keyboard Function Code Table” for details.	0 1 2
Key Pad Emulation 	SS SS	Disable key pad emulation ◆ Enable numeric output as key pad (Num Lock On) output	0 1
Upper/Lower Case 	SS SS SS SS	Normal case (neglect the upper/lower case control) ◆ Inverse case (change all characters output to inverse case) Upper case (force all characters output as upper case) Lower case (force all characters output as lower case)	0 1 2 3
Dollar Sign Control 	SS SS SS SS SS	Dollar sign output as “\$” ◆ Dollar sign output as “¥” Dollar sign output as “€” Dollar sign output as “£” Dollar sign output as “¢”	0 1 2 3 4

- The function of “Key Pad Emulation” is **only** available for IBM PC/AT, PS/VP, PS/2 series personal computers and compatible machines. While selecting the other host interfaces, these selections don't perform the above functions for you.



PROGRAM

Keyboard Interface Control

Code Page: Barcode Encoding Format, Keyboard Output



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Barcode Encoding Format 	MS	UTF8 Codepage 950 Codepage 949 Codepage 936 Codepage 932 Codepage 874 WIN1250 WIN1251 WIN1252◆ WIN1253 WIN1254 WIN1255 WIN1256 WIN1257 WIN1258 ISO 8859-1 Latin 1, Western European ISO 8859-2 Latin 2, Central European ISO 8859-3 Latin 3, Southern European ISO 8859-4 Latin 4, Northern European ISO 8859-5 Cyrillic ISO 8859-6 Arabic ISO 8859-7 Greek ISO 8859-8 Hebrew ISO 8859-9 Latin 5, Turkish ISO 8859-10 Latin 6, Nordic	00 10 11 12 13 14 15 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21 22 23 24 25 26 27

		ISO 8859-11 Thai	28
		ISO 8859-13 Latin 7, Baltic	29
		ISO 8859-14 Latin 8, Celtic	2a
		ISO 8859-15 Latin 9	2b
		ISO 8859-16 Latin 10, South-Eastern European	2c
Keyboard Output 	MS	MAC Unicode Output WIN Notepad Unicode Output WIN Wordpad Unicode Output Codepage 950 Output Codepage 949 Output Codepage 936 Output Codepage 932 Output Codepage 874 Output WIN1250 Output WIN1251 Output WIN1252 Output◆ WIN1253 Output WIN1254 Output Codepage 852 Output Codepage 855 Output Codepage 866 Output Codepage 850 Output Codepage 437 Output Codepage 737 Output Codepage 857 Output Codepage 862 Output Codepage 720 Output Codepage 775 Output WIN1255 Output WIN1256 Output WIN1257 Output WIN1258 Output	01 02 03 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39 1a 1b 1c 1d

- **Corresponding Languages:** Please see Appendix below, “Code Page - Table of Corresponding Languages”.
- **Barcode Encoding Format:** 2D barcodes can be encoded using different code pages. To properly decode the data of a 2D barcode, the scanner must first be set to the corresponding code page of such data. Select UTF8 if the 2D barcode was encoded in Unicode (UTF-8).
- **Keyboard Output:** Different languages use different code pages. For your scanner to properly display the content of a 2D barcode, select the code page that corresponds to the content's language. Please check your system locale setting in Windows and make sure that it also matches this language.
 - 1) Mac Device Output: If your host is a Mac device, select “MAC Unicode Output” as the scanner's output setting (the data will be in Unicode). You must also first ensure that your Mac device has the required Unicode Hex Input Setup and is configured for the 16-bit input method. Please see Appendix below, “Code Page - Unicode Hex Input Setup”.
 - 2) WIN Notepad Unicode Output: If your host is a Windows device, you can output the data in Unicode format to Notepad. You must first ensure that your Windows device has the required Unicode Hex Input Setup, and is set to the US English input method. Please see Appendix below, “Code Page - Unicode Hex Input Setup”.
 - 3) WIN WordPad Unicode Output: If your host is a Windows device, you can output the data in Unicode format to WordPad. You must first ensure that your Windows device is set to the US English input method.



PROGRAM

Serial Interface Control

STX/ETX Control, Record Suffix, Preamble, Postamble, FNC1 Symbol Char. Transmit



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
STX/ETX Control 	SS SS	Disable STX/ETX transmission ◆ Enable STX/ETX transmission STX/ETX are two characters used to indicate the starting and ending of the total data frame transmitted via serial interface.	0 1
Record Suffix 	SS SS SS SS SS SS MS	None CR (0DH) ◆ LF (0AH) CRLF (0D0AH) TAB (09H) SPACE (20H) User defined character (1 character)	0 1 2 3 4 5 6, (00-7F)
Preamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
Postamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
FNC1 Symbol Char. Transmit 	SS SS	Disable Enable ◆ When this function is enabled and the FNC1 is contained in scanned data, the scanner transmits the FNC1 to the host. Chart of the FNC1 is provided in Appendix-Keyboard Function Code Table. When the scanner interface is set to keyboard, the scan code is converted to corresponding key function before it is transmitted	0 1

Serial Interface Message String (RS232, USB COM) :

STX	Preamble	Data Length	Prefix Symbol ID	Scanned Data	Suffix Symbol ID	Postamble	ETX	Record Suffix
1 character	1-15 characters	2-4 digits	1 or 3 characters	Variable length	1 or 3 characters	1-15 characters	1 character	1 character



PROGRAM

Serial Interface Control Delay Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Intermessage Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Intercharacter Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)
Interfunction Delay 	SS MS	None ◆ 1-99 (x5) msec. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	FIN (2 digits)

- **Intermessage Delay** is a time delay between messages output by FuzzyScan. Increasing this delay will help host applications process the incoming data on time.
- **Intercharacter Delay** is a time delay between data characters output by FuzzyScan. These two parameters are used to synchronize data communication when : 1) the data transmission speed is too fast, characters may be skipped; 2) multitasking operation system or host computers in a network may slow down the keyboard handling; 3) various notebook or desktop PC systems require different timing parameter settings. Please always add one extra unit as safety margin when adjusting these two parameters.
- **Interfunction Delay** is a time delay between the transmission of each segment of the message string.



PROGRAM

Serial Interface Control Protocol, ACK/NAK Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Handshaking Protocol 	SS SS SS SS	None (free running mode) ◆ RTS/CTS (hardware handshaking) ACK/NAK (software handshaking) Xon/Xoff (software handshaking)	0 1 2 3
NAK Retry Count 	SS SS	3 times ◆ 0~255 times	FIN (3 digits)
ACK Indication 	SS SS SS SS	Disable ACK Time-out Indication Enable ACK Time-out Indication ◆ Disable ACK Indication ◆ Enable ACK Indication	0 1 2 3

- USB COM doesn't support RTS/CTS handshaking protocol. When the **ACK/NAK Software Handshaking** option is selected, the FuzzyScan waits for an **ACK** (acknowledge) or **NAK** (not acknowledge) from the host computer after each data transmission. If the NAK is received, FuzzyScan will re-send the data until receiving ACK.
- When the **RTS/CTS Hardware Handshaking** option is selected, the **RTS** (request to send) and **CTS** (clear to send) signals will be issued before normal data communication. This option is very helpful to ensure the reliability of data communication.
- **NAK Retry Count**
After transmitting data, the scanner expects a NAK response from the host up to the preset "Serial Response Time-out". If the scanner doesn't get a response, the scanner will issue an error indication and discard the data. When a NAK is received, the scanner transmits the same data again and waits for either an ACK or NAK. The scanner issues an error indication and discards the data under following two conditions:
1) After preset NAK retry counts is received within the preset serial response time-out.
2) If the preset time-out is up but the preset NAK retry counts haven't come to the end.
The default retry counts are three times. If you program "0 time", the scanner won't resend the data to the host when the scanner receives a NAK. The scanner will discard the data. If you program "255 times", the scanner can receive unlimited NAKs from the host within the pre-set serial response time-out.
This function is not available for batch mode. When you enable this function in on-line mode, the out-of-range function will be disable automatically.
- **ACK Indication:**
Disable: There's neither LED nor beeping indication for this setting.
Enable: There's a specific LED and beeping indication for this setting.



PROGRAM

Serial Interface Control

Time Out Setting, Baud Rate, Data Frame



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
Serial Response Time-out 	SS	None	3 seconds	0	6
	SS	200 msec.	4 seconds	1	7
	SS	500 msec. ◆	5 seconds	2	8
	SS	800 msec.	8 seconds	3	9
	SS	1 second	10 seconds	4	A
	SS	2 seconds	15 seconds	5	B
Baud Rate (BPS) 	SS	38.4K BPS	2400 BPS	0	4
	SS	19.2K BPS	1200 BPS	1	5
	SS	9600 BPS ◆	57.6K BPS	2	8
	SS	4800 BPS	115.2K BPS	3	9
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	

- The **Serial Response Time-out** is a pre-defined delay time for FuzzyScan to wait for handshaking, acknowledgment or non-acknowledgment from the host computer.



PROGRAM

Serial Interface Control

FA480/FA470/FA460

Code Page: Barcode Encoding Format, Serial Port Output



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
Barcode Encoding Format 	MS	UTF8	ISO 8859-5 Cyrillic	00	22
		Code page 950	ISO 8859-6 Arabic	10	23
		Code page 949	ISO 8859-7 Greek	11	24
		Code page 936	ISO 8859-8 Hebrew	12	25
		Code page 932	ISO 8859-9 Latin 5, Turkish	13	26
		Code page 874	ISO 8859-10 Latin 6, Nordic	14	27
		WIN1250	ISO 8859-11 Thai	15	28
		WIN1251	ISO 8859-13 Latin 7, Baltic	16	29
		WIN1252 ◆	ISO 8859-14 Latin 8, Celtic	17	2a
		WIN1253	ISO 8859-15 Latin 9	18	2b
		WIN1254	ISO 8859-16 Latin 10, South-Eastern European	19	2c
		WIN1255		1a	
		WIN1256		1b	
		WIN1257		1c	
		WIN1258		1d	
		ISO 8859-1 Latin 1, Western European		1e	
		ISO 8859-2 Latin 2, Central European		1f	
		ISO 8859-3 Latin 3, Southern European		20	
		ISO 8859-4 Latin 4, Northern European		21	
Serial Port Output 	MS	Raw Data ◆		00	
		Unicode (Big Endian)		01	
		Unicode (Little Endian)		02	
		UTF8		03	
		CP950 Output (Big Endian)		10	
		CP949 Output (Big Endian)		11	
		CP936 Output (Big Endian)		12	

	CP932 Output (Big Endian)	13
	CP874 Output	14
	WIN1250 Output	15
	WIN1251 Output	16
	WIN1252 Output	17
	WIN1253 Output	18
	WIN1254 Output	19
	WIN1255 Output	1A
	WIN1256 Output	1B
	WIN1257 Output	1C
	WIN1258 Output	1D
	CP852	30
	CP855	31
	CP866	32
	CP850	33
	CP437	34
	CP737	35
	CP857	36
	CP862	37
	CP720	38
	CP775	39
	CP950 Output (Little Endian)	90
	CP949 Output (Little Endian)	91
	CP936 Output (Little Endian)	92
	CP932 Output (Little Endian)	93

▪ To get multilingual output with the serial interface, please choose correct barcode encoding format and its corresponding serial port output format.



PROGRAM

Operation Control

FM480

Operation Mode



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Operation Mode 	SS	Trigger mode ◆	1
	SS	Presentation mode	2
	SS	Alternative mode	3
	SS	Force mode	5
	SS	Level mode	8

- **Trigger Mode (External Triggering):** When the scanner receives an external trigger or a serial trigger ON command under trigger mode, the scanner will turn on the light source to read barcode until gets a good read, a serial trigger OFF command or a release of external trigger. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.
- **Presentation Mode (Auto Detection):** Under presentation mode, the scanner will automatically detect the object movement in the scanner field of view. Once the scanner detected a similar barcode image, the scanner will turn on the light source to read barcodes until the **preset scan input time-out** is up. For dark environments, you may adjust the setting of "Presentation Sensitivity" to increase the detection sensitivity
- **Alternative Mode (Periodic Power Off)**When the scanner receives an external trigger or a serial trigger ON command under alternative mode, the scanner will turn on the light source to read barcodes until the **preset scan input time-out** is up. The scan input time-out will be reset after each good read. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.
- **Force Mode (Continued Power On)**Under force mode, the scanner continues to read barcodes without using external trigger or serial trigger. Please note that the scanner will not stop reading until you switch into another operation mode.
- **Level Mode (Auto Power Off)**When the scanner receives an external trigger or a serial trigger ON command under level mode, the scanner will turn on the light source to read barcodes until a **good read** is performed or the **preset scan input time-out** is up. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.



PROGRAM

Operation Control

FM480

1D Barcode Reading Direction & Indication Transmission



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
1D Barcode Forward-reading Indication 	SS SS MS	None ◆ “S” User defined character(1 character)	0 1 2 [00-7F]
1D Barcode Backward-reading Indication 	SS SS MS	None “X” ◆ User defined character(1 character)	0 1 2 [00-7F]
1D Barcode Direction Indication Transmission 	SS SS SS SS	Disable ◆ Enable prefix direction mark transmission Enable suffix direction mark transmission Enable both prefix and suffix direction mark transmission	0 1 2 3



PROGRAM

Operation Control

FM480

Scan Rate Control, Lateral Reading



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Scan Rate Control 	SS SS	Dynamic ♦ Fixed	0 1
Lateral Reading 	SS SS	Disable ♦ Enable	0 1

- **Scan Rate Control:** The scanner will have better motion tolerance when you select “Fixed” scan rate. It’s suitable for application which needs higher motion tolerance on the move. But this may impact to the reading distance.
- **Lateral Reading** is not a standard function, only available for tailor-made FM480



PROGRAM

Operation Control

FA480/FA470/FA460



F_DEFAULT

Operation Mode, Presentation Background Lighting Control

Family Code Selection	P.C	Parameter Selection	Option Code
Operation Mode 	SS SS SS SS SS SS	Trigger mode (External triggering) ◆ Presentation mode (Auto detection) Alternative mode (Periodic power off) Force mode (Continued power on) Level mode (Auto power off) Diagnostic mode (Test reading)	1 2 3 4 7 A
Presentation Background Lighting 	SS SS	LEDs Off LEDs On ◆	0 1

- **Trigger Mode (External Triggering):** When the scanner receives an external trigger or a serial trigger ON command under trigger mode, the scanner will turn on the light source to read barcode until gets a good read, a serial trigger OFF command or a release of external trigger. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.
- **Presentation Mode (Auto Detection):** When presentation mode is selected, the scanner is preset to turn on the background lighting to detect the barcode. Once the scanner detected a similar barcode image, the scanner will turn on the light source to read barcodes until the **preset scan input time-out** is up. For dark environments, you may adjust the setting of "Presentation Sensitivity" to increase the detection sensitivity
- **Alternative Mode (Periodic Power Off):** When the scanner receives an external trigger or a serial trigger ON command under alternative mode, the scanner will turn on the light source to read barcodes until the **preset scan input time-out** is up. The scan input time-out will be reset after each good read. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.
- **Force Mode (Continued Power On):** Under force mode, the scanner continues to read barcodes without using external trigger or serial trigger. Please note that the scanner will not stop reading until you switch into another operation mode.
- **Level Mode (Auto Power Off):** When the scanner receives an external trigger or a serial trigger ON command under level mode, the scanner will turn on the light source to read barcodes until a **good read** is performed or the **preset scan input time-out** is up. Once the light source goes off, the scanner is waiting for the next trigger to activate scanning again.
- **Diagnostic Mode (Test Reading):** This operation mode is specifically designed for diagnostic purposes. When this operation mode is selected, the light source of the scanner is force on without regard for other programmable parameters, such as reread delay, redundancy, and so forth.
- **Presentation Background Lighting Control:** You can enable or disable presentation background lighting of the scanner according to the ambient light condition in presentation mode. When the ambient light is dim or dark, you can enable this function to turn on the scanner's LED illumination at a dim level. This is helpful for scanner to detect the motion of scene.



PROGRAM

Operation Control

FA480/FA470/FA460



F_DEFAULT

Aiming, Delay Aiming, Decode Aiming, & Illumination Control, Center Alignment

Family Code Selection	P.C	Parameter Selection		Option Code	
Aiming Control 	SS	Regular Aiming		0	
	SS	Intelligent Aiming ◆		1	
	SS	Delay Aiming Control		2	
Delay Aiming Time-out Control 	SS	200 ms	1.5 sec	0	4
	SS	400 ms ◆	2 sec	1	5
	SS	800 ms	3 sec	2	6
	SS	1 sec	4 sec	3	7
Decode Aiming Control 	SS	Disable in Hand-Held mode		0	
	SS	Enable in Hand-Held mode ◆		1	
	SS	Disable in Hand-Free mode		2	
	SS	Enable in Hand-Free mode ◆		3	
Illumination Control 	SS	Disable		0	
	SS	Enable ◆		1	
Center Alignment 	SS	Disable in Hand-Held Mode ◆		0	
	SS	Enable in Hand-Held Mode		1	
	SS	Disable in Hand-Free Mode ◆		2	
	SS	Enable in Hand-free Mode		3	

- The **Aiming Control** is only available for trigger mode. In Intelligent Aiming, the aiming light is turned on when the scanner is lifted. A trigger pull activates decoding process. After 2 seconds of inactivity, the aiming light will be shut off. Delay Aiming Control allows a delay time for the operator to aim the scanner before the image is taken. During the delay time, the aiming light will be on, but the LED illumination won't be turned on until the delay time is up.
- The **Delay Aiming Time-out Control** is only available for trigger mode. You can use Delay Aiming Time-out Control to set the delay time.
- The **Illumination Control** is only available for trigger mode, alternative mode and level mode.
- **Center Alignment:** When this function is enabled, the scanner only decodes barcode(s) around aiming line.



PROGRAM

Operation Control FA480/FA470/FA460

Batch Reading



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Batch Reading 	SS	None◆ Batch Reading rule input (01-16 rules)	[FIN] [Rules] [FIN]

▪ **Batch Reading:** When this function is enabled, you can scan multiple barcodes one by one continuously upon one trigger event. The scanner reports a good read beep and indication only if all bar codes set by the "Batch Reading Rule" are read. Otherwise, the scanner reports an error beep and indication. The scanned data will be transmitted according to the preset sequence which is defined in "Batch Reading Rule" regardless the scanned order of those barcodes.

- Batch Reading function is only available **Trigger Mode**.
- Batch Reading is not available when **Multiple Read Mode** or **Center Alignment** is turned on.
-

▪ **Batch Reading Rule:**

- To set the Batch Reading rule
 1. Scan the **PROGRAM** symbol.
 2. Scan the **Batch Reading** symbol (Family Code).
 3. Use the **Option Code** to define the preset Batch Reading rule.
 4. Scan the **FIN** symbol.
 5. Scan the **END** symbol to save your Batch Reading rule.

Note: Scan the **ABORT** and **END** symbol to exit without saving any Batch Reading rule setting.

- When you scan "None", the preset Batch Reading Rule will be cancelled.

- Batch Reading Rule Syntax:

[n] [Element 1] FF [Element 2] FF [Element 3] FF ...[Element n] FF

Where **n** is the number of elements in the overall rule. The number of elements is up to 16. **FF** indicates the end of one element.

- Element structure:

[Cino ID Hex value] [Code length] [Character match (es)]

Where:

- **[Cino ID Hex value]**

Length: 2 byte

Please find Cino ID hex value from **Symbology ID Table** in appendix. Locate the Hex value for the symbology and scan the 2 digit hex values from the **Option Code**.

Note: 99 is the universal number, indicating all symbologies.

- **[Code length]**

Length: 4 byte

Specify what length of data output will be acceptable for this symbology. When you calculate the length, you must consider the whole data string which includes the programmed Preamble, Postamble, Scanned Data Length, Prefix/Suffix Symbol ID or AIM ID. Scan the four digit data length from the **Option Code**.

Note: 40 characters is entered as 0040; 9999 is a universal number, indicating all lengths.

- **[Character match]**

Length: 2-8 byte

You can refer to **HEX/ASCII Reference Table** to find the Hex value that represents the character(s) you want to match. Use the **Option Code** to scan the alphanumeric combination that represents the ASCII characters. You can match up to 4 characters which are counted from the start character of the whole **Data String**.

Note: When setting the matched character(s), you must match the content of the whole Data String, including the programmed Preamble, Postamble, Scanned Data Length, Prefix/Suffix Symbol ID OR AIM ID if you had defined. **FF** is the universal character, indicating all characters.

- **Batch Reading rule example**

In this example, you are scanning Code 39, Code 128, and Code 93 bar codes, but you would like to output the data in following sequence:

Code 128 - Code 39 - Code 93



B-CODE39



A-CODE128



C-CODE93

You would set up the Batch Reading rule with the following command line:

```
[PROGRAM] [Batch Reading] [0301999941FF07999942FF09999943FF] [FIN] [END]
```

The breakdown of the command line is shown below:

03	The number of elements in the overall rule
01	Code identifier of Code 128
9999	Code length that must match for Code 128, 9999 = all lengths
41	Start character match for Code 128, 41h = "A"
FF	End of first code
07	Code identifier of Code 39
9999	Code length that must match for Code 39, 9999 = all lengths
42	Start character that must match for Code 39, 42h = "B"
FF	End of second code
09	Code identifier of Code 93
9999	Code length that must match for Code 93, 9999 = all lengths
43	Start character match for Code 93, 43h = "C"
FF	End of third code

To program the previous example using specific lengths, you would have to count the programmed Preamble, Postamble, Scanned Data Length, Prefix/Suffix Symbol ID OR AIM ID if you had defined as part of the length. If you enable the Suffix Symbol ID of symbology, you would add one character to the previous example's length.

You would set up the Batch Reading rule with the following command line:

```
[PROGRAM] [Batch Reading] [0301001041FF070009FF09000943FF] [FIN] [END]
```

The breakdown of the command line is shown below:

03	The number of elements in the overall rule
01	Code identifier of Code 128
0010	Code length that must match for Code 128 A-CODE128 sample length (9) plus Suffix Symbol ID (1) = 10
41	Start character match for Code 128, 41h = "A"
FF	End of first code
07	Code identifier of Code 39
0009	Code length that must match for Code 39 B-CODE39 sample length (8) plus Suffix Symbol ID (1) = 9
FF	Universal matched character, indicating all character Also indicate end of second code
09	Code identifier of Code 93
0009	Code length that must match for Code 93 C-CODE93 sample length (8) plus Suffix Symbol ID (1) = 9
43	Start character match for Code 93, 43h = "C"
FF	End of third code

Note: If the [Character match(es)] is set to "FF", the following "FF" which indicated the end of the code was not need to set.

- Structure of **Data String**

STX (RS232/USB COM interface)	Preamble	Scanned Data Length	Prefix Symbol ID Or Prefix AIM Symbol ID	Scanned Data modified by DataWizard	Suffix Symbol ID Or Suffix AIM Symbol ID	Postamble	ETX (RS232/USB COM interface)
1 character	1-15 characters	2-4 digits	1 or 3 characters	Variable length	1 or 3 characters	1-15 characters	1 character



PROGRAM

Operation Control

FM480, FA480/FA470/FA460

Buzzer Tone Adjustment, Power On Indicator, 1D Barcode Inverse Reading



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Buzzer Tone Adjustment 	SS SS SS SS SS SS SS	Buzzer tone – mute Buzzer tone – low (Frequency 1.2 kHz) Buzzer tone – medium (Frequency 2.70 kHz) ◆ Buzzer tone – high (Frequency 2.81 kHz) Buzzer tone - extremely high (Frequency 2.93 kHz) Power-on beep ◆ No power-on beep	0 1 2 3 4 5 6
Power On Indicator 	SS SS	Disable (LED off) LED steady on ◆ LED flash	0 1 2
1D Barcode Inverse Reading 	SS SS	Disable ◆ Enable	0 1



PROGRAM

Operation Control
FA480/FA470/FA460



F_DEFAULT

Buzzer Volume

Family Code Selection	P.C	Parameter Selection	Option Code
Buzzer Volume 	SS SS SS	Low Medium High ◆	0 1 2



PROGRAM

Operation Control
FM480



F_DEFAULT

Redundancy

Family Code Selection	P.C	Parameter Selection	Option Code
Redundancy 	SS SS SS SS SS SS	None Level 1 ◆ Level 2 Level 3 Level 4 Level 5 To prevent potential miss reading.	0 1 2 3 4 5

■ The **Redundancy** is the number of times the same bar code label has to be decoded before it is transmitted.



PROGRAM

Operation Control

FM480, FA480/FA470/FA460



F_DEFAULT

Reread Delay& Good Read Delay Setting

Family Code Selection	P.C	Parameter Selection	Option Code
Reread Delay (Double Scan Verification) 	SS	Disable	0
	SS	Immediate time out ◆	1
	SS	Short time out	2
	SS	Medium time out	3
	SS	Long time out	4
	SS	Force verification	5
Good Read Delay 	SS	None ◆	0
	SS	200 msec.	1
	SS	500 msec.	2
	SS	1 sec.	3
	SS	1.5 sec.	4
	SS	2 sec.	5
	SS	3 sec.	6

- The **Reread Delay (Double Scan Verification)** is designed to inhibit FuzzyScan from reading the same bar code label twice in pre-defined short duration. Force Verification will not allow reading of the same bar code twice.
- This **Good Read Delay** is the minimum amount of time before the imager can read another bar code.



PROGRAM

Operation Control

FM480, FA480/FA470/FA460



F_DEFAULT

Time-out & Duration Setting

Family Code Selection	P.C	Parameter Selection		Option Code	
Scan Input Time-out 	SS	100 msec.	600 msec.	0	5
	SS	200 msec.	700 msec.	1	6
	SS	300 msec.	800 msec.	2	7
	SS	400 msec.	900 msec. ◆	3	8
	SS	500 msec.		4	
	MS		User define: 1-99 sec.		9, (2digits)
Hands Free Time-out 	SS	Short ◆		0	
	SS	Medium		1	
	SS	Long		2	
	SS	Extremely long		3	
	SS	Disable		4	
Good Read Duration 	SS	Short		0	
	SS	Medium ◆		1	
	SS	Long		2	
	SS	Extremely long		3	
	SS	Extremely short		4	

- The **Scan Input Time-out** is a preset light source time out counter for Alternative Mode, Presentation Mode and Level Mode. The scanner keeps the light source on till the preset light source on time is up. You can adjust this parameter to meet your own application requirement.
- The presentation mode and force mode will be automatically changed to manual trigger mode when you activate the trigger. You can remain the scanner in manual trigger mode by setting the **Hands Free Time-Out**. Once the time-out duration is up (if there's no any trigger operation), the scanner will revert to the original presentation or force mode.



PROGRAM

Operation Control

FM480, FA480/FA470/FA460

Presentation Sensitivity



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
Presentation Sensitivity 	SS	Level 1	Level 6	0	5
	SS	Level 2	Level 7	1	6
	SS	Level 3		2	
	SS	Level 4		3	
	SS	Level 5 ◆		4	

- The **Presentation Sensitivity** is used to configure the sensitivity level when the scanner is set as presentation mode. The higher lever means higher sensitivity for detecting the barcode.



PROGRAM

Operation Control FA480/FA470/FA460 Smart Scene



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Smart Scene 	SS	Scene 1 ◆	0
	SS	Scene 2	1
	SS	Scene 3	2
	SS	Scene 4	3
	SS	Scene 5	4
	SS	Scene 6	5
	SS	Scene 7	6

- **Smart Scene** optimizes the scanner's motion tolerance, scanning speed and scanning sensitivity in different environments.

Scene 1: This is the default setting. It optimizes the scanner's motion tolerance, scanning speed and scanning sensitivity in most working environments.

Scene 2: When scanning high-density barcodes, you can set the scanner to "Scene 2" to optimize scanners' motion tolerance, scanning speed and scanning sensitivity.

Scene 3: Scene 3 is for general retail applications. When scanning common retail barcodes, you can set the scanner to "Scene 3" to optimize scanner's motion tolerance, scanning speed and scanning sensitivity.

Scene 4: Scene 4 is also for general retail applications. It optimizes the scanner's sensitivity and speed when scanning common retail barcodes. Moreover, it provides superior reading performance when scanning barcodes from the screens of mobile devices, especially large screens or screens with low brightness.

Scene 5: Scene 5 is application-specific. It optimizes the scanner's motion tolerance, scanning speed and scanning sensitivity when scanning low PCS (print contrast) barcodes on circuit boards.

Scene 6: Scene 6 is application-specific. It optimizes the scanner's motion tolerance, scanning speed and scanning sensitivity when scanning barcodes on circuit boards under sufficient ambient light.

Scene 7: Scene 7 is application-specific. It optimizes the scanner's motion tolerance, scanning speed and scanning sensitivity when scanning barcodes from the screens of mobile devices.



PROGRAM

Operation Control

FM480, FA480/FA470/FA460

OK/NG Signal & Beeping Control



F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
OK/NG Signal Active State 	SS SS SS SS	OK low/NG low ◆ OK low/NG high OK high/NG low OK high/NG high		0 1 2 3	
OK/NG Signal Output Control 	SS SS SS SS	Disable OK and NG output Enable NG output Enable OK output Enable OK and NG output ◆		0 1 2 3	
OK/NG Signal Duration 	SS SS SS SS SS MS	10 msec. 20 msec. 30 msec. 40 msec. 50 msec.	60 msec. 70 msec. 80 msec. 90 msec. 100 msec. ◆ User define: 1-99 (x50) msec.	0 1 2 3 4	5 6 7 8 9 A, (2 digits)
OK/NG Beeping Control 	SS SS SS SS	Disable OK and NG beep Enable OK and NG beep ◆ Enable OK beep and disable NG beep Enable NG beep and disable OK beep		0 1 2 3	

- The **OK/NG Signal Active State** can control the logic level in digit circuits design, you can adjust the active-high or active-low state for OK and NG signal outputs. The OK and NG signals are NPN outputs.
- The **OK/NG Signal Output Control** can control the OK/NG signal outputs and OK/NG indications of the scanner. If you disable OK or NG signal output, the scanner OK or NG indication will be disabled.
- The **OK/NG Signal Duration** can control the OK/NG signal duration and OK/NG indication duration of the scanner.



PROGRAM

Operation Control
FM480, FA480/FA470/FA460
 NG Message Output



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
NG Message Output 	SS SS SS	None◆ Message "NG" User defined message (1~15 characters) Maximum 15-character input; scan "FIN" to terminate this section.	0 1 2, [00- 7F]



PROGRAM

Condensed DataWizard

FM480, FA480/FA470/FA460



F_DEFAULT

Preamble, Postamble, Data Length & Symbol ID

Family Code Selection	P.C	Parameter Selection	Option Code
Preamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
Postamble 	SS MS	None ◆ 1-15 characters Maximum 15-character input; scan "FIN" to terminate this selection.	FIN [00-7F], [FIN]
Data Length Transmission 	SS SS	Disable ◆ Enable 2 digits data length transmission If data length exceeds 99, 3-digit data length will be transmitted.	0 1
Symbology ID Transmission 	SS SS SS SS SS SS SS	Disable symbology ID transmission ◆ Enable prefix symbology ID transmission Enable suffix symbology ID transmission Enable both prefix and suffix symbology ID transmission Enable prefix AIM symbology ID transmission Enable suffix AIM symbology ID transmission Enable both prefix and suffix AIM symbology ID transmission	0 1 2 3 4 5 6

- **DataWizard** is the most powerful, Artificial-Intelligence based data editing expert system provided specially for the FuzzyScan family bar code readers. Through DataWizard, you can process the scanned data prior the transmissions in many ways as **Insert**, **Delete**, **Match**, **Verify**, **Replace**, **Reorganize**, and **Repeat Transmission**. It will help you to arrange the transmission of scanned data to any specific format without software modification.
- Due to the resources used by this system, **Full-feature DataWizard** is only supported by **PowerTool**. Through the PowerTool, all settings and configurations can be done on-screen, under Windows 95/98/NT/2000/XP environment.
- A **Condensed Version DataWizard** is provided by each FuzzyScan series. Through this menu, the condensed DataWizard can be utilized via bar code menu readings with ease.
- Please note that all "**Character**" input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.
- If you have any problem to use DataWizard, please refer to following pages for details and consult your local FuzzyScan vendor or our web site for any assistance.



PROGRAM

Condensed DataWizard FM480, FA480/FA470/FA460

Data Formatter Setting



F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2ndOption Code
Formatter Control 	SS MS MS	Disable ◆ Select one bar code symbology Select all bar code symbologies	FIN (2 digits) 00	automatic termination automatic termination
1st Insertion 	SS DS	Disable ◆ Enable 2-digits identified position; max. 3 insertion characters	FIN (2 digits) position	[1-3 characters], [FIN]
2nd Insertion 	SS DS	Disable ◆ Enable 2-digits identified position; max. 3 insertion characters	FIN (2 digits) position	[1-3 characters], [FIN]
3rd Insertion 	SS DS	Disable ◆ Enable 2-digits identified position; max. 3 insertion characters	FIN (2 digits) position	[1-3 characters], [FIN]
4th Insertion 	SS DS	Disable ◆ Enable 2-digits identified position; max. 3 insertion characters	FIN (2 digits) position	[1-3 characters], [FIN]

- The **Data Formatter** is used to edit the scanned raw data prior to transmitting the data to the host computers or terminals. It allows you to select desired bar code symbologies for formatter control, and provides **Multiple Position Insertion** and **Multiple Character Insertion** (max three characters) in the identified position.
- While the Data Formatter is enabled, it arranges only scanned data without **Preamble**, **Postamble**, **STX**, **ETX**, **Data Length**, **Prefix/Suffix Symbology ID** or **Record Suffix**. All of the above programmable parameters perform the same function depending on your setting.
- Regarding the “**Bar Code Selection**” and “**Position Calculation**” of data formatter, please refer to page 49 for details.
- Please note that all “**Character**” input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.



PROGRAM

Condensed DataWizard FM480, FA480/FA470/FA460



F_DEFAULT

Data Verifier Setting

Family Code Selection	P.C	Parameter Selection	Option Code	2ndOption Code
Verifier Control 	SS MS MS	Disable ◆ Select one bar code symbology Select all bar code symbologies	FIN (2 digits) 00	automatic termination automatic termination
Identified Data Length 	SS DS	Disable ◆ Enable Determine the identified data length for verification.	FIN (2 digits)	
1st Identified Character 	SS DS	Disable ◆ Enable 2-digits checking position; 1 identified character	FIN (2 digits) position	[00-7F]
2nd Identified Character 	SS DS	Disable ◆ Enable 2-digits checking position; 1 identified character	FIN (2 digits) position	[00-7F]
3rd Identified Character 	SS DS	Disable ◆ Enable 2-digits checking position; 1 identified character	FIN (2 digits) position	[00-7F]

- The **Data Verifier** is used to provide advanced verification for error-free scanning and to work as an **Embedded Data Transmitting Filter**.
- All data must conform to the **Identified Bar Code Symbologies**, **Identified Data Length**, and one to three **Identified Characters** in the checking position. Otherwise, the FuzzyScan will not transmit the data to the host computers or terminals, but will instead issue **3 long beeps** for verification error and **skip** the scanned data.
- The Data Verifier checks only scanned data without **Preamble**, **Postamble**, **STX**, **ETX**, **Data Length**, **Prefix/Suffix Symbology ID** or **Record Suffix**.
- Regarding the “**Bar Code Selection**” and “**Position Calculation**” of **Data Verifier**, please refer to page 49 for details.
- Please note that all “**Character**” input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.



PROGRAM

Condensed DataWizard FM480, FA480/FA470/FA460



F_DEFAULT

Data Replacer Setting

Family Code Selection	P.C	Parameter Selection	Option Code	2ndOption Code
Replacer Control 	SS MS MS	Disable ◆ Select one bar code symbology Select all bar code symbologies	FIN (2 digits) 00	automatic termination automatic termination
1st Replacement 	SS DS	Disable ◆ Enable 2-digits identified position; 1 replacement character	FIN (2 digits) position	[00-7F]
2nd Replacement 	SS DS	Disable ◆ Enable 2-digits identified position; 1 replacement character	FIN (2 digits) position	[00-7F]
3rd Replacement 	SS DS	Disable ◆ Enable 2-digits identified position; 1 replacement character	FIN (2 digits) position	[00-7F]

- The **Data Replacer** is used to edit the scanned raw data prior to transmitting the data to the host computers or terminals. It allows you to select desired bar code symbologies for replacer control, and provides **Multiple Position Replacement** in the identified position.
- All data must conform to the **Identified Bar Code Symbologies**, and one to three **Identified Characters** in the identified position. While the Data Replacer is enabled, it arranges only scanned data without **Preamble**, **Postamble**, **STX**, **ETX**, **Data Length**, **Prefix/Suffix Symbology ID** or **Record Suffix**.
- Regarding the “**Bar Code Selection**” and “**Position Calculation**” of Data Replacer, please refer to page 49 for details.
- Please note that all “**Character**” input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.



PROGRAM

Condensed DataWizard

FM480, FA480/FA470/FA460



F_DEFAULT

Data Organizer Setting

Family Code Selection	P.C	Parameter Selection	Option Code	2ndOption Code
Organizer Control 	SS MS MS	Disable ◆ Select one bar code symbology Select all bar code symbologies	FIN (2 digits) 00	automatic termination automatic termination
1st Organization 	SS DS	Disable ◆ Enable 2-digits identified position; Forward/backward data transmission setting	FIN (2 digits) position direction	0 (Forward) ◆ 1 (Backward)
2nd Organization 	SS DS	Disable ◆ Enable 2-digits identified position; Forward/backward data transmission setting	FIN (2 digits) position direction	0 (Forward) ◆ 1 (Backward)
Include/Exclude Control 	SS DS	Transmitted data excluded the data of identified position ◆ Transmitted data included the data of identified position	0 1	

- The **Data Organizer** is used to edit the scanned raw data prior to transmitting the data to the host computers or terminals. It allows you to select desired bar code symbologies for organizer control, and provides maximum two identified positions to send the data **forward** or **backward**. It also allows you to control the transmitted data **including** or **excluding** the data of identification position. Please refer to the application example listed in page 37 for details.
- While the Data Organizer is enabled, it arranges only scanned data without **Preamble**, **Postamble**, **STX**, **ETX**, **Data Length**, **Prefix/Suffix Symbology ID** or **Record Suffix**.
- Regarding the “**Bar Code Selection**” and “**Position Calculation**” of Data Organizer, please refer to page 49 for details.
- Please note that all “**Character**” input should be referred to the **ASCII/HEX Table**.

Select a Bar Code Symbology

You can select one or all types of bar code symbologies to use Condensed DataWizard for advanced transmission arrangement. If you scan “00” to select all types, the FuzzyScan will arrange all incoming data to meet your pre-defined format. If you want to select only one type bar code, please select one of the option code listed below.

1D Bar Code Symbology			
Code 128	01	Matrix 2 of 5	38
GS1-128	31	Interleaved 2 of 5	48
UPC-A	02	China Postal Code	58
UPC-A with 2 supplement	32	German Postal Code	68
UPC-A with 5 supplement	42	Standard/Industrial 2 of 5	08
UPC-E	03	Code 93	09
UPC-E with 2 supplement	33	Code 11	10
UPC-E with 5 supplement	43	MSI/Plessey	11
EAN-13	04	UK/Plessey	12
EAN-13 with 2 supplement	34	Telepen	13
EAN-13 with 5 supplement	44	GS1 DataBar	14
EAN-8	05	GS1 DataBar Limited	22
EAN-8 with 2 supplement	35	GS1 DataBar Expanded	23
EAN-8 with 5 supplement	45	Composite Codes	24
Codabar/NW-7	06	IATA	15
Code 39	07	Coupon Code	16
Code 32	37	PDF417	17
Trioptic Code 39	47	Micro PDF417	25
		Codablock F	18
		Code 16K	19
		Code 49	20

2D Bar Code Symbology			
QR Code	A0	MaxiCode	A2
MicroQR Code	A0	Aztec Code	A3
DataMatrix	A1	Chinese Sensible Code	A4
GS1 DataMatrix	A5		

Postal Code			
Korea Post Code	21	Japanese Post	B4
Australian Post	B0	KIX Post	B5
British Post	B1	Planet Code	B6
Intelligent Mail barcode	B3	Postnet	B8

Position Calculation

[Data Formatter]

If there is a 5-character input data string, refer to the following to calculate the actual position for insertion:

	X		X		X		X		X
00		01		02		03		04	05

[Data Verifier, Data Replacer, Data Organizer]

If there is a 11-character data string, please refer to the following to calculate the actual position for identification.

X	X	X	X	X	X	X	X	X	X	X
00	01	02	03	04	05	06	07	08	09	10

Application Example

If your bar code label is a 16-digit Interleaved 2 of 5 which includes the information of 6-digit date code, 6-digit serial number and 4-digit unit price, you want the FuzzyScan do the following for you without software modification:

- Apply only Interleaved 2 of 5 to the condensed DataWizard.
- Check bar code is actually with 16-digit length.
- Allow bar code output whose date code is leading with “9”.
- Three outputs with “TAB” suffix.
- The date code output should skip “9” and replaced it by “A”.
- The serial number output should be led with “SN”.
- The unit price output should be skipped the first 2 digits.
- Test Bar Code : 9 8 1 0 2 5 1 2 3 4 5 6 9 8 7 6
- Actual Output : **A81025[TAB]SN123456[TAB]76[TAB]**

Programming Procedure

[Data Verifier]

- Scan “Program” to enter the programming mode.
- Scan “Verifier Control” and set bar code symbology to “48” (Interleaved 2 of 5).
- Scan “Identified Data Length” and set the length to “16”.
- Scan “1st Identified Character” and set the identified position to “00”, then set the identified character to “39” (Hex Code of 9).

[Data Formatter]

- Scan “Formatter Control” and set bar code symbology to “48”.
- Scan 1st Insertion” and set the identified position to “06”, then inserted characters to “09” (Hex Code of TAB), “53” (Hex Code of S), “4E” (Hex Code of N).
- Scan “2nd Insertion” and set the identified position to “12”, then inserted character to “09”. In the final, you must scan “FIN” (Finish) code to terminate this selection.
- Scan “3rd Insertion” and set the identified position to “16”, then inserted character to “09”. In the final, you must scan “FIN” (Finish) code to terminate this selection.

[Data Replacer]

- Scan “Replacer Control” and set bar code symbology to “**48**”.
- Scan “1st Replacement” and set the identified position to “**00**”, then replaced character to “**41**” (Hex Code of A).

[Data Organizer]

- Scan “Organizer Control” and set bar code symbology to “**48**”.
- Scan “1st Organization” and set the identified position to “**16**”, then set the data transmission to “**0**” (forward).
- Scan “2nd Organization” and set the identified position to “**17**”, then set the data transmission to “**1**” (backward).
- Scan “**END**” (Exit) to terminate the programming.

[Important Notice]

Please note that Condensed DataWizard will follow the preset working flow as below:

Verifier » Formatter » Replacer » Organizer

So when you set the identified position in Data Organizer, you must consider the inserted data which you already set via Data Formatter.

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APPENDIX

Symbology ID Table

Each AIM Code Identifier contains the three-character string **Jcm** where:

J = Flag Character; **c** = Code Character; **m** = Modifier Character

1D Symbology ID Table													
Code Family	Primary Format	Cino ID		AIM ID		Code Family	Primary Format	Cino ID		AIM ID			
		Hex Value	Char.	Code Char.	Modified Char.			Hex Value	Char.	Code Char.	Modified Char.		
UPC	UPC-A	2	A	E	0	EAN/JAN	EAN/JAN-8	05	N	E	4		
	UPC-A with 2 suppl.	32			1		EAN/JAN-8 with 2 suppl.	35			1		
	UPC-A with 5 suppl.	42			2		EAN/JAN-8 with 5 suppl.	45			2		
	UPC-E	3	E		0		EAN/JAN-13	04	F	E	0		
	UPC-E with 2 suppl.	33			1		EAN/JAN-13 with 2 suppl.	34			1		
	UPC-E with 5 suppl.	43			2		EAN/JAN-13 with 5 suppl.	44			2		
	Example: A UPC-A bar code 012345678950 with 2 supplement 12 is transmitted as JE0012345678950JE112						Example: A EAN/JAN-8 bar code 49123562 with 5 supplement 12345 is transmitted as JE449123562JE212345						
	Code 128	Code 128	01	B	C		m	Code 93	Code 93	09	H	G	m
GS1-128		31	C	1		Code 11	Code 11	10	P	H	m		
Codabar	Codabar/NW-7	06	D	F	m	MSI/Plessey	MSI/Plessey	11	R	M	m		
Code 25	Standard/Industrial 2 of 5	08	I	S	0	UK/Plessey	UK/Plessey	12	S	P	0		
	Matrix 2 of 5	38	K	X	0	Telepen	Telepen	13	T	B	m		
	Interleaved 2 of 5	48	J	I	m	GS1 DataBar	GS1 Databar	14	X	e	m		
	GS1 DataBar Limited						22						
	GS1 DataBar Expanded						23						
	China Postal Code	58	L	X	0	Composite	Composite Code	24					
	German Postal Code	68	M	I	m	Code 39	Code 39	07	G	A	m		
					Code 39 Trioptic		47	W	X	0			
IATA	IATA	15	O	R	m		Code 32	37	G	A	0		
UCC Coupon	UCC Coupon Code	Z				PDF417	PDF417	17	V	L	m		
							Micro PDF417	25					
	Example : A UPC-A 512345678900 + GS1-128 81010123451297 bar code is transmitted as JE0512345678900JC181010123451297 Example: A EAN-13 9923456789019 + GS1-128 81010123451297 bar code is transmitted as JE09923456789019JC181010123451297						Codablock	Codablock F	18	Y	O	m	
							Korea Post	Korea Post Code	21	a	X	0	
Remark: Above examples are given for the transmission of AIM ID.													

2D Symbology ID Table											
Code Family	Primary Format	Cino ID		AIM ID		Code Family	Primary Format	Cino ID		AIM ID	
		Hex Value	Char.	Code Char.	Modified Char.			Hex Value	Char.	Code Char.	Modified Char.
QR Code	QR Code	A0	b	Q	m	British Post	British Post	B1	h	X	0
Micro QR Code	Micro QR Code					Intelligent Mail barcode	Intelligent Mail barcode	B3	j		0
Data Matrix	Data Matrix	A1	c	d	m	Japanese Post	Japanese Post	B4	k		0
	GS1 Data Matrix	A5									0
MaxiCode	MaxiCode	A2	d	U	m	KIX Post	KIX Post	B5	l		0
Aztec Code	Aztec Code	A3	e	z	m	Planet Code	Planet Code	B6	m		0
Chinese Sensible	Chinese Sensible	A4	f	X	0	Postnet	Postnet	B8	o		0
Australian Post	Australian Post	B0	g		0						

Keyboard Function Code Table

No.	ANSI	ASCII	Key Function 1	Key Function 2	Key Function 3
00	NUL	00H	RESERVED	Ctrl + @	CTRL MAKE (Left)
01	SOH	01H	CTRL (Left)	Ctrl + A	CTRL BREAK (Left)
02	STX	02H	ALT (Left)	Ctrl + B	ALT MAKE (Left)
03	ETX	03H	SHIFT	Ctrl + C	ALT BREAK (Left)
04	EOT	04H	CAPS LOCK	Ctrl + D	CAPS LOCK
05	ENQ	05H	NUM LOCK	Ctrl + E	NUM LOCK
06	ACK	06H	ESC	Ctrl + F	ESC
07	BEL	07H	F1	Ctrl + G	F1
08	BS	08H	BACK SPACE	Ctrl + H	BACK SPACE
09	HT	09H	TAB	Ctrl + I	TAB
10	LF	0AH	F2	Ctrl + J	F2
11	VT	0BH	F3	Ctrl + K	F3
12	FF	0CH	F4	Ctrl + L	F4
13	CR	0DH	ENTER (CR)	Ctrl + M	ENTER (CR)
14	SO	0EH	F5	Ctrl + N	F5
15	SI	0FH	F6	Ctrl + O	F6
16	DLE	10H	F7	Ctrl + P	F7
17	DC1	11H	F8	Ctrl + Q	F8
18	DC2	12H	F9	Ctrl + R	F9
19	DC3	13H	F10	Ctrl + S	F10

No.	ANSI	ASCII	Key Function 1	Key Function 2	Key Function 3
20	DC4	14H	F11	Ctrl + T	WIN MAKE (Left)
21	NAK	15H	F12	Ctrl + U	WIN BREAK (Left)
22	SYN	16H	INS (Insert) (Edit)	Ctrl + V	SHIFT MAKE (Left)
23	ETB	17H	DEL (Delete) (Edit)	Ctrl + W	SHIFT BREAK (Left)
24	CAN	18H	HOME (Edit)	Ctrl + X	HOME (Edit)
25	EM	19H	END (Edit)	Ctrl + Y	END (Edit)
26	SUB	1AH	PAGE UP (Edit)	Ctrl + Z	PAGE UP (Edit)
27	ESC	1BH	PAGE DOWN (Edit)	Ctrl + [	PAGE DOWN (Edit)
28	FS	1CH	UP (Edit)	Ctrl + \	UP (Edit)
29	GS	1DH	DOWN (Edit)	Ctrl +]	DOWN (Edit)
30	RS	1EH	LEFT (Edit)	Ctrl + 6	LEFT (Edit)
31	US	1FH	RIGHT (Edit)	*see below note	RIGHT (Edit)

 To emulate the keyboard function key input for user definable parameters, user must configure actual content using the **Reserved ASCII00 – 31** characters, and also **enable** the “Function Key Emulation”. Otherwise, the Ctrl output will be done by the scanner. Please refer to the above Keyboard Function Code Table which is for IBM PC/XT/AT, PS/2, PS/VP, COMPAQ PC, HP Vectra PC, Notebook PC, APPLE and PowerMac, and WYSE PC Enhanced or fully compatible machines.

 The last character in the Ctrl Output column is varied for different countries.

Country (refer to Keyboard Layout)& Character					
United State	-	Switzerland	-	France	=
Belgium	-	UK	-	Germany	-
Sweden	-	Denmark	-	Norway	-
Spain	-	Italy	-		

Code Page – Table of Corresponding Languages

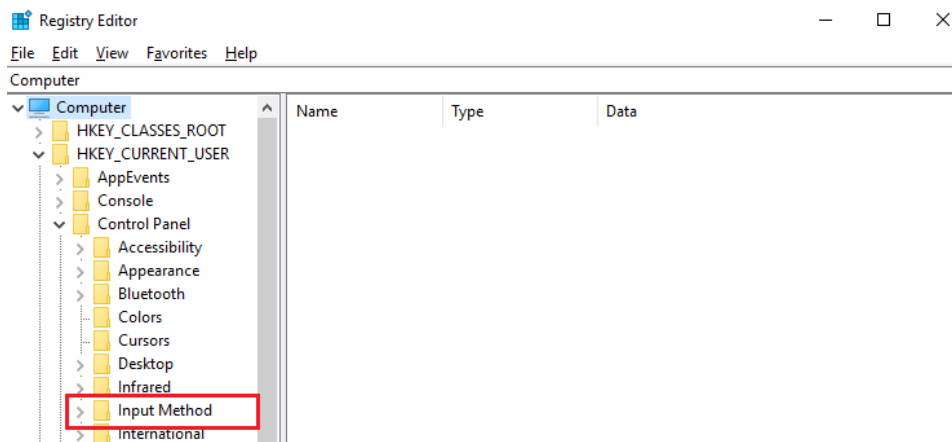
Description	Code Page	Description	Code Page
Albanian	850	Hungarian	852
Arabic	1256	Icelandic	850
Arabic	720	Italian	850
Baltic	1257	Japanese	932
Bulgarian	866	Korean	949
Catalan	850	Latin 1	1252
Croatian	852	Latin 2	1250
Cyrillic	1251	Latin 5	1254
Czech	852	Latin American	850
Danish	850	Latvian	775
Dutch	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

Code Page – Unicode Hex Input Setup

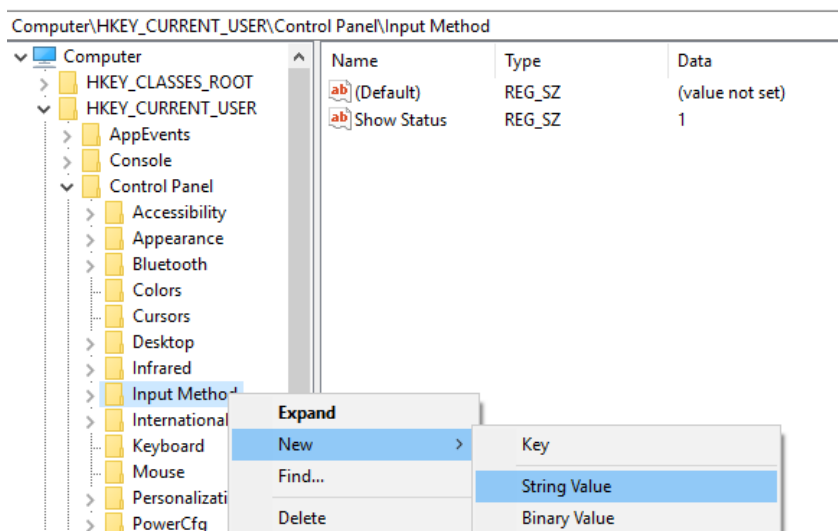
1. Windows- Setting up the Windows Registry

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

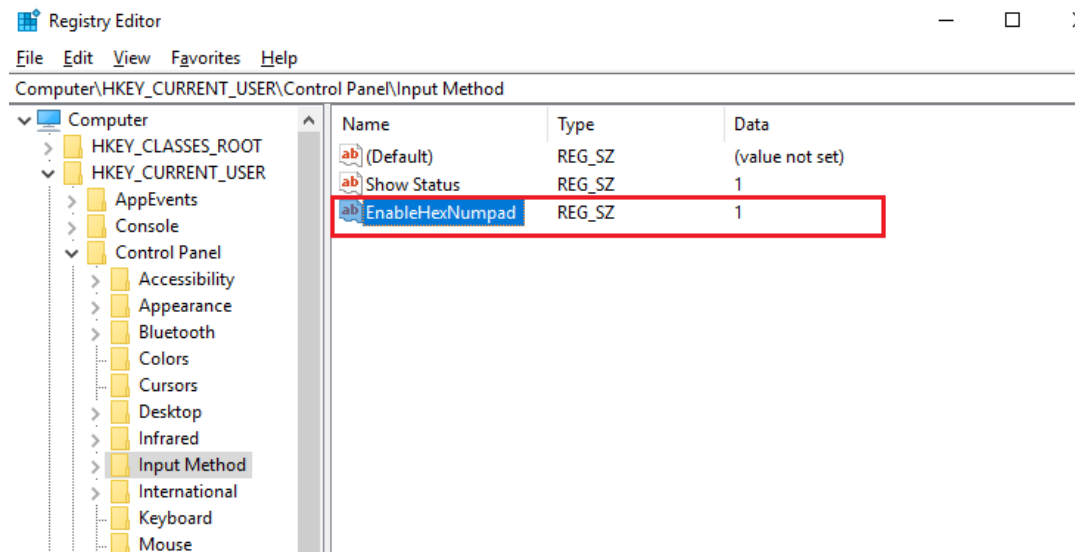
Step 2:Go to HKEY_CURRENT_USER\Control Panel\Input Method



Step 3: Right-click on 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”.



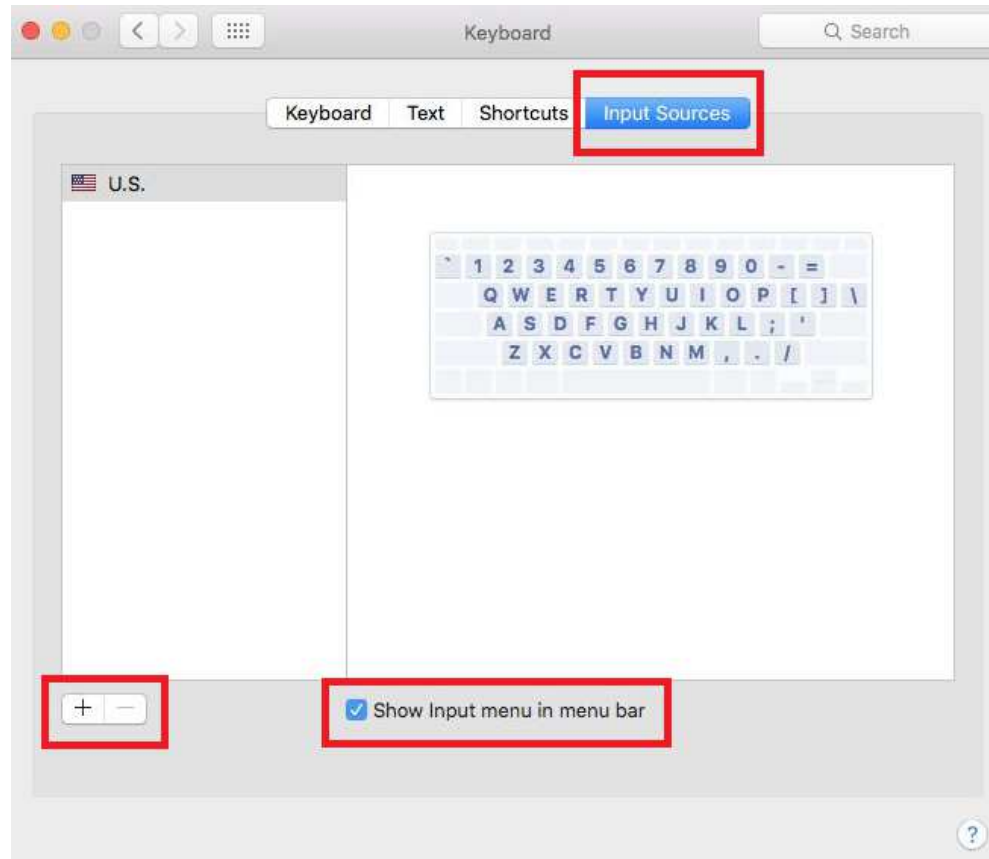
Step 5: Reboot the computer.

2. **MAC** - Adding Unicode Hex Input in menu bar

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

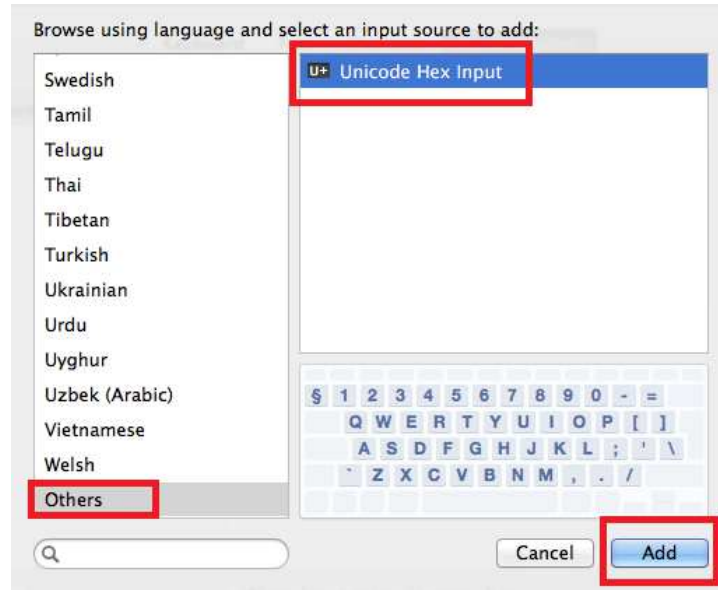


Step 2: On the Keyboard tab, click on “Input Sources” and check the “Show Input menu in menu bar” box.



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.



Step 5: Close the Keyboard Preferences menu.

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



ASCII Input Shortcut

To configure the user definable parameters of FuzzyScan via programming menu, FuzzyScan will ask you to scan your desired ASCII value in **HEX** form. You have to refer to the “**HEX/ASCII Table**” for details.

Example:

If you want the scanned data output leading with a Dollar Sign, you have to set the “Preamble” to “\$”. The configuration procedure is listed below for reference.

- Scan the system command – **PROGRAM** listed on page 3-24 to enter programming mode.
- Scan family code – **PREAMBLE** to select this family.
- Refer to the **Hex/ASCII Table**, you will find the HEX value of “\$” is **24**.
- Scan the option code – **2** listed on the fold out back cover.
- Scan the option code – **4** listed on the fold out back cover.
- Scan the system command – **FIN (Finish)** to terminate Preamble setting.
- Scan the system command – **End** to exit the programming mode for normal operation.

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

Host Interface Quick Set Commands



RS232 Serial



USB HID Standard Mode



USB Com Port Emulation



USB HID Turbo Mode

Operation Mode Quick Set Commands

FM480



◆Trigger Mode



Alternative Mode (Periodic power off)



Force Mode (Continued power on)



Presentation Mode (Auto sensing)



Level Mode (Auto power off)

FA480/FA470/FA460



◆Trigger Mode



Alternative Mode (Periodic power off)



Force Mode (Continued power on)



Presentation Mode (Auto sensing)



Level Mode (Auto power off)

Option Codes



0



1



2



3



4



FIN (Finish)



5



6



7



8



9



A



B



C



D



E



F



Abort



END (Exit)

System Commands



PROGRAM
(Enter Programming Mode)



FIN (Finish)



END
(Exit Programming Mode)



Save User Default



User Default



System Information List
(SYSLIST)



PowerTool Host Link



Factory Default



Master Default

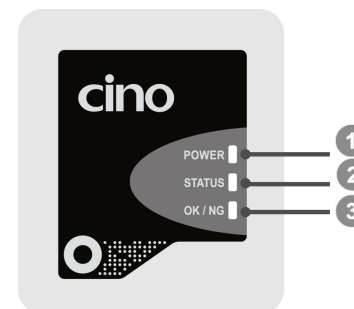
- 
Factory Default: After scanning "Factory Default" command, all parameters will be returned to factory default value.
- Master Default:** After scanning "Master Default" command, the scanner will remain the pre-set parameters of **Host Interface Selection**, **Keyboard Interface Control** (except Record Suffix; Preamble; Postamble), **Serial Interface Control** (except Record Suffix; Preamble; Postamble), and **Wand/Laser Emulation Control**, the rest of parameters will be returned to default value.
- User Default:** After scanning "Save User Default" command, all current parameters will be stored to the flash memory. Once you change the parameter and would like to return to previous setting, please scan "User Default".

Indications



FM480

1
2
3



FA480/FA470/FA460

Normal Operation

Descriptions	Indicators			Beeper
	Power	Status	OK/NG	
Power on	Steady blue	Off	Off	Power on beep
Good read (OK reading)	Off	Off	1 green blink	1 good read beep
No read (NG reading)	Off	Off	1 red blink	1 no read beep

Intelli Button™ Reading Rate Information

Reading Rate	Indicators			Beeper
	Power	Status	OK/NG	
100%	1 blue blink per 1 sec.	Steady Green	Steady Green	One short beep
80 to 99%		Steady Red	Steady Green	
50 to 79%		Steady Green	Steady Red	
20 to 49%		Steady Orange	Steady Orange	
0 to 19%		Steady Red	Steady Red	



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Fixed Mount Scanner Programming Manual

CINO GROUP

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