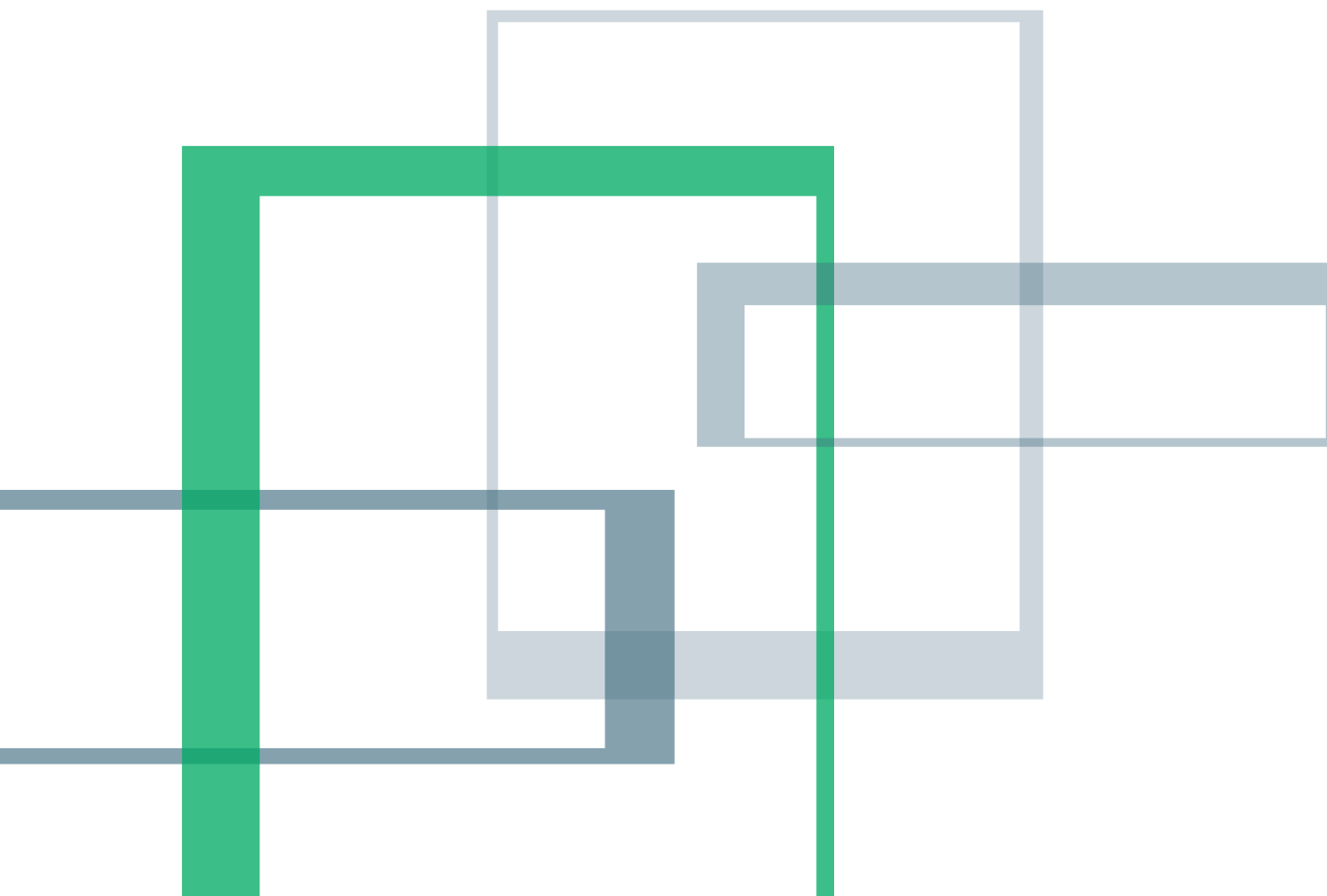# FUZZYSCAN
OEM SCAN ENGINE

Programming Manual

International Edition, Rev. A6

cino

Revision History

Rev. No.	Released Date	Description
Rev. A	May 26,2010	First Release
Rev. A1	Jun. 18,2010	❖ Page 16 Add "UPC/EAN Security Level" ❖ Page 38 Add "Immediate" parameter (option 5) to "Time Delay to Low Power Mode" and change the default value from 5 seconds to immediate.
Rev. A2	Jul. 28,2010	❖ Page 36 Cancel" Power On Indicator" and add "Good Read Indicator". ❖ Page 37 Add " Scan Voting"
Rev. A3	Sep 16 ,2010	❖ Page 14.15 Rename "Scan Voting" to "Supplement Scan Voting" and add "Supplement Scan Voting" in Symbology Reading Control. ❖ Page 16 Add "EAN Supplement Control" ❖ Page 27 Keyboard Layout – Add "Czech (QWERTY)", remove "Universal", and rename Spain (QWERTY) to Spain (Spanish QWERTY), Latin America (QWERTY) to Spain (Latin America, QWERTY) ❖ Page 36 Add "I/O Active State" ❖ Page 37 "Scan Rate Control "
Rev. A4	Nov 10 ,2010	❖ Page 33 Data Frame- Cancel Data Bit= 7 Baud Rate – Cancel Baud Rate 300/600 BPS.
Rev. A5	Mar 04 ,2011	❖ Page 33 Baud Rate – Revise 57.6K BPS and 115.2K BPS option code from 6.7. to 8.9.
Rev. A6	Mar 22, 2011	❖ Page 12 Add "Code 39 Security Level" ❖ Page 34 Add "NAK Retry Count" Add "ACK/NAK Transmission Indication"

Warranty

FuzzyScan Scan Engine
Programming Manual

Table of Contents

Getting Started

Configure Your FuzzyScan

Appendix

FuzzyScan Scan Engine Programming Manual

Getting Familiar with Your FuzzyScan

Thank you for choosing Cino FuzzyScan SE380 Series Scan Engine. The OEM miniature decoded out scan engine is designed for easy integration into devices which need scanning capability. It delivers superior reading performance, reliability and durability. This document provides an easy reference for using FuzzyScan Barcode Commands. A complete documentation is available at **www.cino.com.tw**.
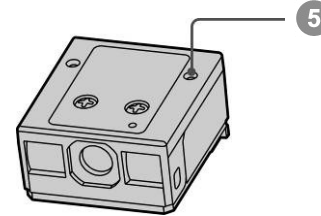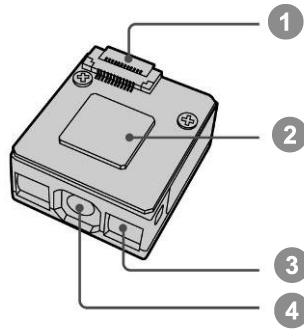
1 12-pin Interface Connector

2 Main Processor

3 Condenser

4 Lens

5 Mounting Hole

Bar Code 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.

FuzzyScan Scan Engine
Programming Manual

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** : Signle scan selection **MS** : Multiple scans selection **CS** : Cycling scan selection **DS** : Dual level scan selection
( )	**Necessary Option Code**
[ ]	**Selectable Option Code**

Program & End

Scan
"**PROGRAM**"

↓

FuzzyScan will enter programming mode,
and inhibit all non-programming functions.

Scan
"**END**"

↓

FuzzyScan will exit programming mode, and store all
parameters in Flash Memory ASIC or non-volatile memory,
then issue the completion beeping.
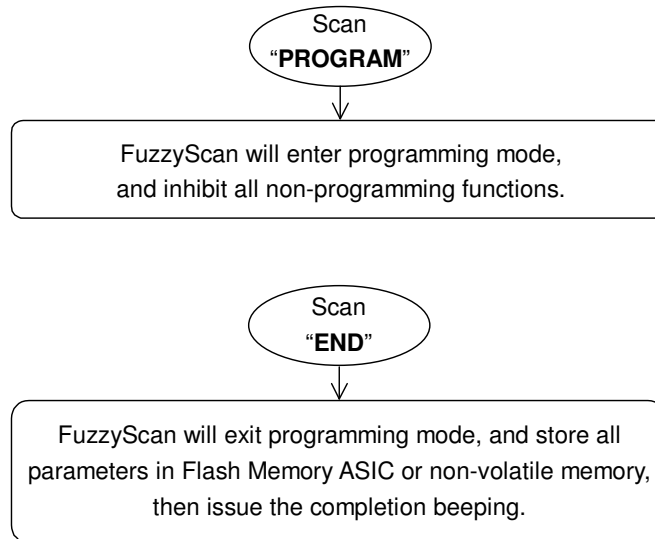
System List, Group & Master Default

Scan
"**SYSLIST**"

↓

FuzzyScan will list the product information and
revision number to host via selected host interface,
then issue the completion beeping.

Scan
"**M_DEFAULT**"

↓

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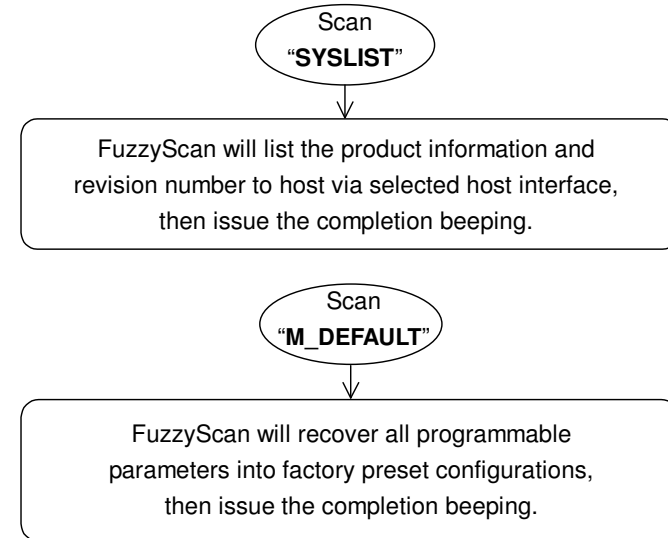
✍ Please note that the FuzzyScan will take 3-4 seconds to store parameters in internal Flash Memory ASIC or non-volatile memory after you scan the "**END**". Please **don't** turn off the power before the completion beeping. It may destroy all configured parameters.

FuzzyScan Scan Engine Programming Manual

Single scan selection

Scan
"PROGRAM"

Enter programming mode.

Scan
One of **Family** Codes
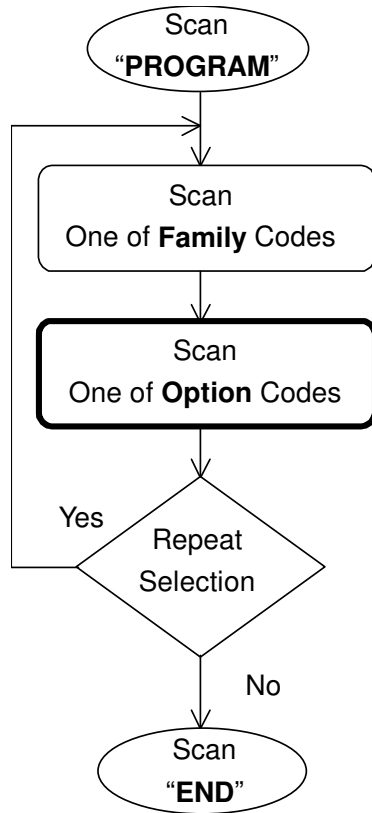
Select one of desired
programming families.

Scan
One of **Option** Codes

Select one option code of
desired parameter.

Yes

Repeat
Selection

Want to select another
programming family?

No

Scan
"END"

Exit programming mode.

Multiple scans selection

Scan
"PROGRAM"

Enter programming mode.

Scan
One of **Family** Codes
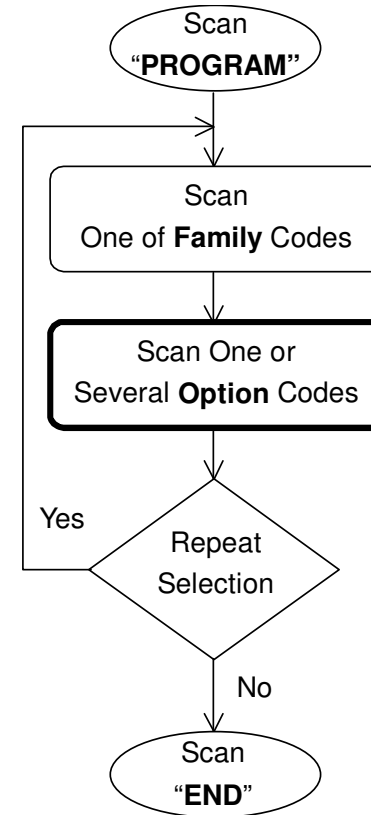
Select one of desired
programming families.

Scan One or
Several **Option** Codes

**1. Select one or several
option codes to select
desired parameters.**

**2. If it's necessary, scan
"FIN" to terminate
option code selection.**

Yes

Repeat
Selection

Want to select another
programming family?

No

Scan
"END"

Exit programming mode.

FuzzyScan Scan Engine Programming Manual

Cycling scan selection

Scan
"PROGRAM"

Enter programming mode.

Scan
One of **Family** Codes
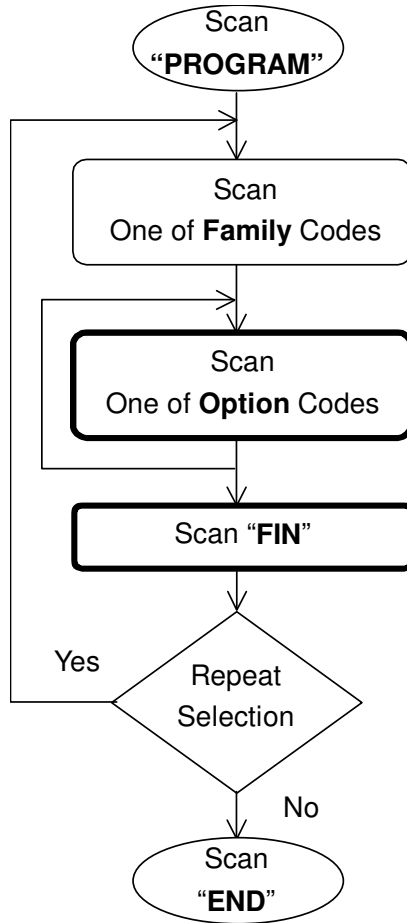
Select one of desired programming families.

Scan
One of **Option** Codes

Cycling select one or several option codes of desired parameters as "Single" or "Multiple" scans selection.

Scan "**FIN**"

Finish cycling selection.
(If necessary)

Repeat Selection

Yes

No

Want to select another programming family?

Scan
"END"

Exit programming mode.

Dual level selection

Scan
"PROGRAM"

Enter programming mode.

Scan
One of **Family** Codes

Select one of desired programming families.

(**1st**) Scan
Several **Option** Codes
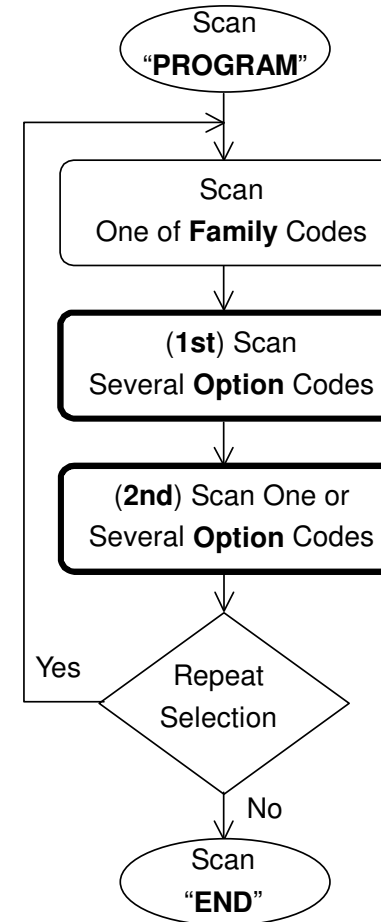
(**2nd**) Scan One or
Several **Option** Codes

Select several option codes of desired parameters.

1. Select one or several option codes of desired parameters.

2. If it's necessary, scan "FIN" to terminate option code selection.

Repeat Selection

Yes

No

Want to select another programming family?

Scan
"END"

Exit programming mode.

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FuzzyScan Scan Engine Programming Manual

Host Interface Selection

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Host Interface Selection	MS	Standard/TTL RS-232 peer-to-peer serial	06
	MS	Wand emulation	08
	MS	USB Com Port Emulation	09
	MS	Laser emulation	17
	MS	USB HID standard mode	18
	MS	USB HID turbo mode	19

Symbology Reading Control

♦ User Defined Symbol ID ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option Code
Symbol ID : 1 character	DS	Code 128 (default=**B**)	00	(1 character)
		UCC/EAN-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)
		Korea Post Code (default =**a**)	26	(1 character)

FuzzyScan Scan Engine Programming Manual

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

Symbology Reading Control

♦ Readable Bar Code Setting ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Readable Symbology Setting	SS	Auto ◆	00
	CS	Code 128 *	01
	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	German Postal Code	68
	CS	Code 93 *	09
	CS	Code 11	10
Remember to scan **"FIN"** to terminate this selection. But if you select the **" Auto "**, FuzzyScan will terminate this selection **automatically**.	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	Korea Post Code	21

▪ 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 enable as default. When you select "Auto", the imager only read 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 star/stop characters.

Symbology Reading Control

◆ Code 39/Code 32 Setting ◆

PROGRAM

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**
	MS	01-Maximum	**(2 digits)**
		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**
	MS	98-Minimum	**(2 digits)**
		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.

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

♦ Code 39 Setting ♦

PROGRAM

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.

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

◆ Codabar/NW-7 Setting ◆

PROGRAM

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 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)**
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)**

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

♦ UPC-A & UPC-E Setting ♦

PROGRAM

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

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

♦ UPC-A & UPC-E Setting ♦

PROGRAM

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 are experiencing misread of poorly-printed, soiled or damage 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.

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

◆ EAN Setting ◆

PROGRAM

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.

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FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

◆ EAN Setting ◆

PROGRAM

F_DEFAULT

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

FuzzyScan Scan Engine Programming Manual

‖|‖|‖‖|‖‖|‖‖|‖|‖
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, engine decodes UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digit "99" and UCC/EAN-128 Coupon Codes. UPC-A, EAN-13 and EAN-128 must be enabled to scan all types of Coupon Codes.

Symbology Reading Control

◆ IATA & Interleaved 2 of 5 Setting ◆

PROGRAM

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

Symbology Reading Control

◆ Code 25 Family Setting ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 25 Setting	SS	Disable Standard/Industrial 2 of 5 ◆	0
	SS	Enable Standard/Industrial 2 of 5	1
	SS	Disable Matrix 2 of 5 ◆	2
	SS	Enable Matrix 2 of 5	3
	SS	Disable China Postal Code ◆	4
	SS	Enable China Postal Code	5
	SS	Disable check digit verification ◆	6
	SS	Enable check digit verification	7
	SS	Disable check digit transmission ◆	8
	SS	Enable check digit transmission	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.

Symbology Reading Control

♦ Code 11 & Code 93 Setting ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 11 Setting	SS	Disable Code 11 ◆	0
	SS	Enable Code 11	1
	SS	Disable check digit verification ◆	2
	SS	Select 1-check digit verification	3
	SS	Select 2-check digit verification	4
	SS	Disable check digit transmission ◆	5
	SS	Enable check digit transmission	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	Disable Code 93	0
	SS	Enable Code 93 ◆	1
	SS	Disable check digit transmission ◆	2
	SS	Enable check digit transmission	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)**

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FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

♦ MSI/Plessey Setting ♦

PROGRAM

F_DEFAULT

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

FuzzyScan Scan Engine
Programming Manual

Symbology Reading Control

♦ **Code 128 & UCC/EAN 128 Setting** ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Code 128/EAN-128 Setting	SS	Disable Code 128 and UCC/EAN-128	0
	SS	Enable Code 128 and UCC/EAN-128 ◆	1
	SS	Disable function code conversion ◆	2
	SS	Enable function code conversion	3
	SS	ISBT Concatenation Off ◆	4
	SS	ISBT Concatenation On	5
Code 128/EAN-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/EAN-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)**

FuzzyScan Scan Engine Programming Manual

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 MS	Default (04) ◆	**FIN (2 digits)**
		01-Maximum	
		Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	
UK/Plessey Max. Length	SS MS	Default (98) ◆	**FIN (2 digits)**
		98-Minimum	
		Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	

FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

◆ Telepen Setting ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Telepen Setting	SS	Disable Telepen ◆	0
	SS	Enable Telepen	1
	SS	Select Telepen Numeric mode ◆	2
	SS	Select Telepen Full ASCII mode	3
	SS	Disable check digit transmission ◆	4
	SS	Enable check digit transmission	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, then FuzzyScan will terminate this selection automatically.	**FIN** **(2 digits)**

FuzzyScan Scan Engine
Programming Manual

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	Disable GS1 DataBar Expanded	4
	SS	Enable GS1 DataBar Expanded ◆	5
GS1 DataBar Min. Length	SS **MS**	Default (04) ◆ 01-Maximum Only available for **Expanded** GS1 Databar. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	**FIN** **(2 digits)**
GS1 DataBar Max. Length	SS **MS**	Default (74) ◆ 74-Minimum Only available for **Expanded** GS1 Databar. Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	**FIN** **(2 digits)**

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FuzzyScan Scan Engine Programming Manual

Symbology Reading Control

◆ Linear-stacked & Korea Post Code Setting ◆

PROGRAM

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	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
Korea Post Code Setting	SS SS	Disable ◆ Enable Length fixed in 6 characters.	0 1

▪ Composite Codes Setting

  If UPC Composite Mode: UPC never linked is selected, UPC barcodes are transmitted regardless of whether a MicroPDF417 symbol is detected.

  If UPC Composite Mode: UPC always linked is selected, UPC barcodes are only transmitted when the MicroPDF417 is detected.

FuzzyScan Scan Engine Programming Manual

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

▪ 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	2-3 digits	1 or 2 characters	Variable length	1 or 2 characters	1-15 characters	1 character

FuzzyScan Scan Engine Programming Manual

Keyboard Interface Control

◆ Record Suffix, Preamble, Postamble & Caps Lock ◆

PROGRAM

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]**
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**" and "**Key Pad Emulation**" are **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.

FuzzyScan Scan Engine Programming Manual

Keyboard Interface Control

♦ Delay Setting ♦

PROGRAM

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.

FuzzyScan Scan Engine Programming Manual

Keyboard Interface Control

♦ **Emulation Setting & Upper/Lower Case Setting** ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Function Key Emulation	SS SS	Enable ASCII 00-31 code as keyboard function code output ◆ Ctrl-Output Refer to Appendix – Keyboard Function Code Table for details.	0 1
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

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Serial Interface Control

◆ Record Suffix, Preamble ,Postamble Setting ◆

PROGRAM

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]

▪ **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	2-3 digits	1 or 2 characters	Variable length	1 or 2 characters	1-15 characters	1 character	1 character

Serial Interface Control

♦ Delay Setting ♦

PROGRAM

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.

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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/NAK Transmission Indication	SS SS	Disable Enable ◆	0 1

▪ 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 ach data transmission. If the NAK is received, FuzzyScan will re-send the data until receiving ACK.

▪ **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/NAK Transmission Indication:**
Disable: There's neither LED nor beeping indication for this setting.
Enable: There's a specific LED and beeping indication for this setting.

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Serial Interface Control

◆ Time Out Setting, Baud Rate, Data Frame ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
Serial Response Time-out	SS SS SS **MS**	None 200 mseconds 500 mseconds ◆	1 second 2 seconds 5 seconds User defined value (seconds)	0 1 2	3 4 5 **6, (2 digits)**
Baud Rate (BPS)	SS SS SS SS	38.4K BPS 19.2K BPS 9600 BPS ◆ 4800 BPS	2400 BPS 1200 BPS 57.6K BPS 115.2K BPS	0 1 2 3	4 5 8 9
Data Frame	SS SS SS SS SS SS	8, None, 1 ◆ 8, Odd, 1 8, Even, 1 8, Space, 1 8, Mark, 1 8, None, 2		0 1 2 3 4 5	

▪ 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.

▪ 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.

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Wand/Laser Emulation Control

♦ **Output Polarity, Signal State, Margin/Module Time, etc.** ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection		Option Code	
Output Polarity	SS SS	High level (5Vdc) on Bar (low level on Space) ◆ Low level (0Vdc) on Bar (high level on Space) Determine the output voltage level for both bar and space.		0 1	
Initial Signal State	SS SS	High Level (5Vdc) ◆ Low Level (0Vdc) Determine the initial state of output voltage level.		0 1	
Margin Time	SS SS SS SS	10 msec. 15 msec. 20 msec. ◆ 25 msec.	30 msec. 50 msec. 100 msec. Delay time before data transmission	0 1 2 3	4 5 6
Module Time	SS SS SS	Extremely short Short Medium ◆	Long Time base of minimum narrow bar	0 1 2	3
Narrow/Wide Ratio	SS SS SS	1:2 ◆ 1:2.5 1:3		0 1 2	
Code 39/Code 128 Emulation	SS SS SS SS SS	Disable standard Code 39 emulation ◆ Enable standard Code 39 skip emulation Enable standard Code 39 replace emulation Enable Full ASCII Code 39 emulation Enable Code 128 emulation		0 1 2 3 4	

▪ **[Code 39 Skip]** : When this option is selected, all scanned data will be translated as Standard Code 39 wand/laser emulation output. If any lower case characters are read, they will be translated to upper case characters. Any other characters that are not available in Code 39 symbology set will be **skipped**.

▪ **[Code 39 Replace]** : Any character not normally available in the standard Code 39 symbology set, will be translated as **Space.**

FuzzyScan Scan Engine Programming Manual

Operation Control

♦ **Operation Mode Setting** ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Operation Mode	SS	Low Power mode	0
	SS	Trigger mode ◆	1
	SS	Presentation mode	2
	SS	Alternative mode	3
	SS	Force mode (L680/L780 laser imagers don't support this mode.)	5
	SS	Level mode	8

- **Lower Power Mode (Low Power Triggering)** When the engine receives an external trigger or a serial trigger ON command under trigger mode, the engine 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 engine goes to idle state, you must wake up the engine for operation.

- **Trigger Mode (External Triggering)** When the engine receives an external trigger or a serial trigger ON command under trigger mode, the engine 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 engine is waiting for the next trigger to activate scanning again.

- **Presentation Mode (Auto Detection)** Under presentation mode, the engine will automatically detect the object movement in the engine field of view. Once the engine detected a similar barcode image, the engine 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 engine receives an external trigger or a serial trigger ON command under alternative mode, the engine 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 engine is waiting for the next trigger to activate scanning again.

- **Force Mode (Continued Power On)** Under force mode, the engine continues to read barcodes without using external trigger or serial trigger. Please note that the engine will not stop reading until you switch into another operation mode.

- **Level Mode (Auto Power Off)** When the engine receives an external trigger or a serial trigger ON command under level mode, the engine 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 engine is waiting for the next trigger to activate scanning again.

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Operation Control

♦ Buzzer, Indicator, Inverse Reading, Dollar Sign♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
Buzzer Tone Adjust	SS SS SS SS SS SS SS	Buzzer tone – mute Buzzer tone – low Buzzer tone – medium ◆ Buzzer tone – high Buzzer tone - extremely high Power-on beep No power-on beep ◆	0 1 2 3 4 5 6
Good Read Indicator	SS SS	Disable ◆ Enable	0 1
Inverse Reading	SS SS	Disable ◆ Enable	0 1
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
I/O Active State	SS SS	High Low ◆	0 1

▪ **I/O Active State:** You can set "active low" or "active high" for the I/O active state of buzzer and good read LED.

FuzzyScan Scan Engine Programming Manual

Operation Control

◆ Redundancy, Scan Rate Control ◆

PROGRAM

F_DEFAULT

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
Scan Rate Control	SS SS	Dynamic ◆ Fixed	0 1

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

▪ **Scan Rate Control**: When you select "Fixed" scan rate, the scanner will have better motion tolerance. It's suitable for application which needs higher motion tolerance on the move. But this may have little impact to the reading distance.

Operation Control

♦ Delay Setting ♦

PROGRAM

F_DEFAULT

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

FuzzyScan Scan Engine Programming Manual

Operation Control

◆ Time-out Setting, Good Read Beep Duration ◆

PROGRAM

F_DEFAULT

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
Time Delay to Low Power Mode	SS	1 sec			0
	SS	3 secs			1
	SS	5 secs			2
	SS	7 secs			3
	SS	9 secs			4
	SS	Immediate ◆			5

▪ The **Scan Input Time-out** is a pre-defined light source time out counter for Alternative Mode, Presentation Mode and Level Mode. The engine keeps the light source on till the pre-defined light source on time is up. You can adjust this parameter to meet your own application requirement.

▪ The Presentation Mode and Force Mode are referred to as "hands free" mode. The hands free mode will be automatically changed to manual trigger mode when you activate the trigger. You can remain the engine 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 imager will revert to the original hands free mode.

▪ The **Time Delay to Low Power Mode** sets the time for engine to enter low power mode after any scanning activity. This setting is only available for the engine is in low power mode.

Operation Control

◆ Presentation Scanning Setting ◆

PROGRAM

F_DEFAULT

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

▪ When enable the **Presentation Auto-sense,** the engine can be switched between hands free scanning and hand-held scanning automatically when working with the SmartStand.

▪ The presentation sensitivity is used to configure the sensitivity level when the engine is set as presentation mode. The higher lever means higher sensitivity for detecting the barcode.

Condensed DataWizard

◆ Preamble, Postamble, Data Length & Symbol ID Trans. ◆

PROGRAM

F_DEFAULT

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.

FuzzyScan Scan Engine Programming Manual

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Condensed DataWizard

♦ Data Formatter Setting ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option 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 47 for details.

▪ Please note that all "**Character**" input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.

FuzzyScan Scan Engine Programming Manual

Condensed DataWizard

◆ Data Verifier Setting ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option 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 47 for details.
- Please note that all "**Character**" input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.

FuzzyScan Scan Engine Programming Manual

Condensed DataWizard

◆ Data Replacer Setting ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option 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 47 for details.

▪ Please note that all "**Character**" input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.

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Condensed DataWizard

♦ Data Organizer Setting ♦

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option 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	FIN **(2 digits)**	0 (Forward) ◆ 1 (Backward)
		2-digits identified position; Forward/backward data transmission setting	position direction	
2nd Organization	SS **DS**	Disable ◆ Enable	FIN **(2 digits)**	0 (Forward) ◆ 1 (Backward)
		2-digits identified position; Forward/backward data transmission setting	position direction	
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 47 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 47 for details.

- Please note that all "**Character**" input should be referred to the **ASCII/HEX Table**.

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FuzzyScan Scan Engine
Programming Manual

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.

Code 128 : **01**	EAN-8 : **05**	Code 93 : **09**
UCC/EAN 128 : **31**	EAN-8 with 2 supple : **35**	Code 11 : **10**
UPC-A : **02**	EAN-8 with 5 supple.: **45**	MSI/Plessey : **11**
UPC-A with 2 supple.: **32**	Codabar/NW-7 : **06**	UK/Plessey : **12**
UPC-A with 5 supple.: **42**	Code 39 : **07**	Telepen : **13**
UPC-E : **03**	Code 32 : **37**	GS1 Data Bar : **14**
UPC-E with 2 supple.: **33**	Trioptic Code 39: **47**	IATA : **15**
UPC-E with 5 supple.: **43**	Matrix 2 of 5 : **38**	Coupon Code : **16**
EAN-13 : **04**	Interleaved 2 of 5 : **48**	PDF417/MicroPDF417: **22**
EAN-13 with 2 supple. : **34**	China Postal Code : **58**	Codablock: **23**
EAN-13 with 5 supple. : **44**	German Postal Code : **68**	Korea Post Code: **26**

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]**

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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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Symbology ID Table

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

] = Flag Character
c = Code Character
m = Modifier Character

| Code Family | Primary Format | Cino ID | AIM ID | | Code Family | Primary Format | Cino ID | AIM ID | |
		Code Character	Code Character	Modified Character			Code Character	Code Character	Modified Character
UPC	UPC-A	A	E	m	EAN/JAN	EAN/JAN-8	N	E	4
	UPC-A with 2 supple.			1		EAN/JAN-8 with 2 supple.			1
	UPC-A with 5 supple.			2		EAN/JAN-8 with 5 supple.			2
	UPC-E	E		m		EAN/JAN-13	F	E	m
	UPC-E with 2 supple.			1		EAN/JAN-13 with 2 supple.			1
	UPC-E with 5 supple.			2		EAN/JAN-13 with 5 supple.			2
	Example: A UPC-A bar code 012345678950 with 2 supplement 12 is transmitted as **]E0**012345678950**]E1**12					Example: A EAN/JAN-8 bar code 49123562 with 5 supplement 12345 is transmitted as **]E4**49123562**]E2**12345			
Code 128	Code 128	B	C	m	Code 93	Code 93	H	G	m
	UCC/EAN-128	C		1	Code 11	Code 11	P	H	m
Codabar	Codabar/NW-7	D	F	m	MSI/Plessey	MSI/Plessey	R	M	m
Code 25	Standard/Industrial 2 of 5	I	S	0	UK/Plessey	UK/Plessey	S	P	0
	Matrix 2 of 5	K	X	0	Telepen	Telepen	T	B	m
	Interleaved 2 of 5	J	I	m	GS1 DataBar	GS1 Databar	X	e	0
	China Postal Code	L	X	0	Composite	Composite Code			
	German Postal Code	M	I	3	Code 39	Code 39	G	A	m
IATA	IATA	O	R	m		Code 39 Trioptic	W	X	0
UCC Coupon	UCC Coupon Code	Z				Code 32	G	A	0
	Example : A UPC-A 512345678900 + UCC/EAN-128 81010123451297 bar code is transmitted as**]E0**512345678900**]C1**81010123451297 Example: A EAN-13 9923456789019 + UCC/EAN-128 81010123451297 bar code is transmitted as **]E0**9923456789019**]C1**81010123451297				PDF417	PDF417/Micro PDF417	V	L	0
					Codablock	Codablock F	Y	O	0
					Korea Post	Korea Post Code	a	X	0
					Remark: Above examples are given for the transmission of AIM ID.				

Keyboard Function Code Table

No.	ANSI	ASCII	Key Function	No.	ANSI	ASCII	Key Function
00	NUL	00H	RESERVED	16	DLE	10H	F7
01	SOH	01H	CTRL (Left)	17	DC1	11H	F8
02	STX	02H	ALT (Left)	18	DC2	12H	F9
03	ETX	03H	SHIFT	19	DC3	13H	F10
04	EOT	04H	CAPS LOCK	20	DC4	14H	F11
05	ENQ	05H	NUM LOCK	21	NAK	15H	F12
06	ACK	06H	ESC	22	SYN	16H	INS (Insert) (Edit)
07	BEL	07H	F1	23	ETB	17H	DEL (Delete) (Edit)
08	BS	08H	BACK SPACE	24	CAN	18H	HOME (Edit)
09	HT	09H	TAB	25	EM	19H	END (Edit)
10	LF	0AH	F2	26	SUB	1AH	PAGE UP (Edit)
11	VT	0BH	F3	27	ESC	1BH	PAGE DOWN (Edit)
12	FF	0CH	F4	28	FS	1CH	UP (Edit)
13	CR	0DH	ENTER (CR)	29	GS	1DH	DOWN (Edit)
14	SO	0EH	F5	30	RS	1EH	LEFT (Edit)
15	SI	0FH	F6	31	US	1FH	RIGHT (Edit)

To emulate the keyboard function key input for user definable parameters, user must configure actual content using the **Reserved ASCII 0 – 31** characters, and also **Enable** the "Function Key Emulation". Otherwise, the Ctrl output will be done by the engine. 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.

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"

☐ (shaded) : High Byte of HEX Value

☐ : Low Byte of HEX Value

Host Interface Quick Set

RS232 Serial

USB HID Standard Mode

USB HID Turbo Mode

USB Com Port Emulation

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Operation Mode Quick Set

‖‖‖‖‖‖‖‖‖‖‖

Lower Power (Low power trigger)

‖‖‖‖‖‖‖‖‖‖‖

◆Trigger (External triggering)

‖‖‖‖‖‖‖‖‖‖

Presentation (Auto sensing)

‖‖‖‖‖‖‖‖‖

Alternative (Periodic power off)

‖‖‖‖‖‖‖‖‖‖

Level (Auto power off)

‖‖‖‖‖‖‖‖‖

Force (Continued power on)

Option Codes

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

FIN (Finish)

END (Exit)

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System Commands

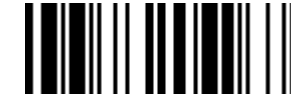**PROGRAM
(Enter Programming Mode)**

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 engine 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".

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