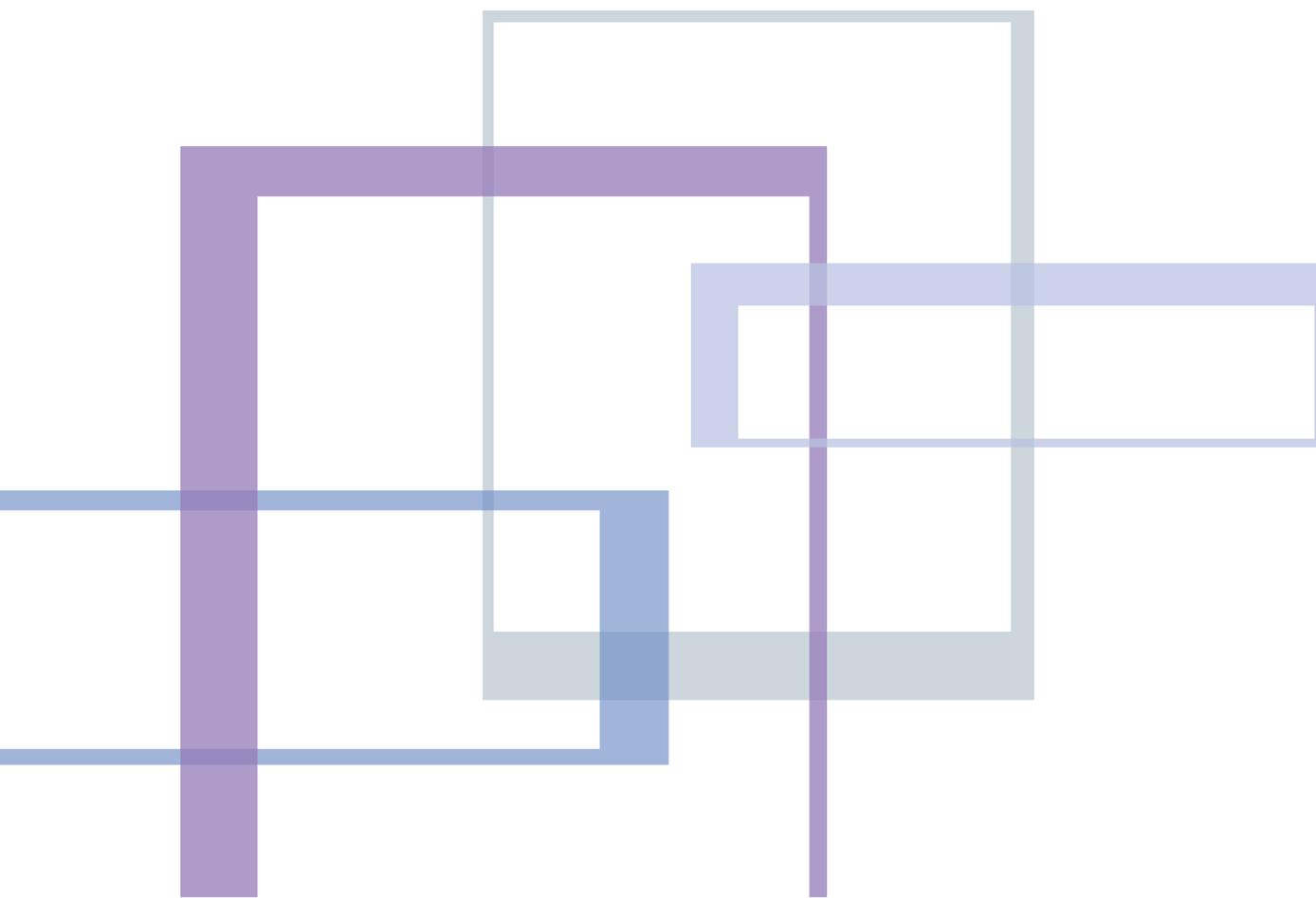# FUZZYSCAN
OEM SCAN MODULE

Programming Manual
International Edition, Rev. A2

cino

Revision History

Rev. No.	Released Date	Description
Rev. A1	May 2, 2014	First Release
Rev. A2	Feb. 06, 2015	❖ Page 42 Add "MaxiCode Setting"

Warranty

Cino warrants its products against defects in workmanship and materials from the date of shipment, provided that the product is operated under normal and proper conditions. The warranty provisions and durations are furnished by different warranty programs. The above warranty does not apply to any product which has been (i) misused; (ii) damaged by accident or negligence; (iii) modified or altered by the purchaser or other party; (iv) repaired or tampered by unauthorized representatives; (v) operated or stored beyond the specified operational and environmental parameters; (vi) applied software, accessories or parts are not supplied by Cino; (vii) damaged by circumstances out of Cino's control, such as, but not limited to, lightning or fluctuation in electrical power. Any defective product must follow the warranty program and RMA procedures to return Cino for inspection.

FuzzyScan OEM Scan Module Programming Manual

FuzzyScan OEM Scan Module Programming Manual

Regulatory

LED Eye Safety   IEC62471 Exempt group

Table of Contents

Getting Started

Configure Your FuzzyScan

Appendix

Getting Familiar with Your FuzzyScan

Thank you for choosing Cino FuzzyScan Scan Module SM380/SM5700 Series. Powered by the cutting-edge FuzzyScan 3.0 imaging technology, the compact and easy-integration scan module comes with exceptional reading capability yet versatile functionality. Designed with system integration in mind, FuzzyScan OEM Scan Module combines all characteristics of FuzzyScan fixed mount scanner in a small and compact package. It provides an ideal solution for embedded barcode scanning applications.

SM380
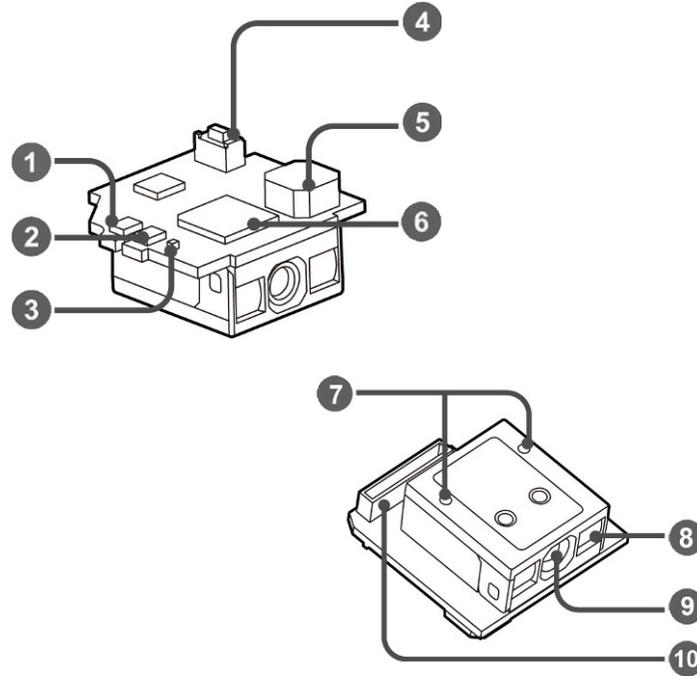
1	OK/NG Indicator
2	Status Indicator
3	Power Indicator
4	Trigger Button
5	Buzzer
6	Main Processor
7	Mounting holes (ø1.2 x 4mm depth) TP1.7 screws suggested
8	Condenser
9	Lens
10	15-pin interface connector

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SM5700
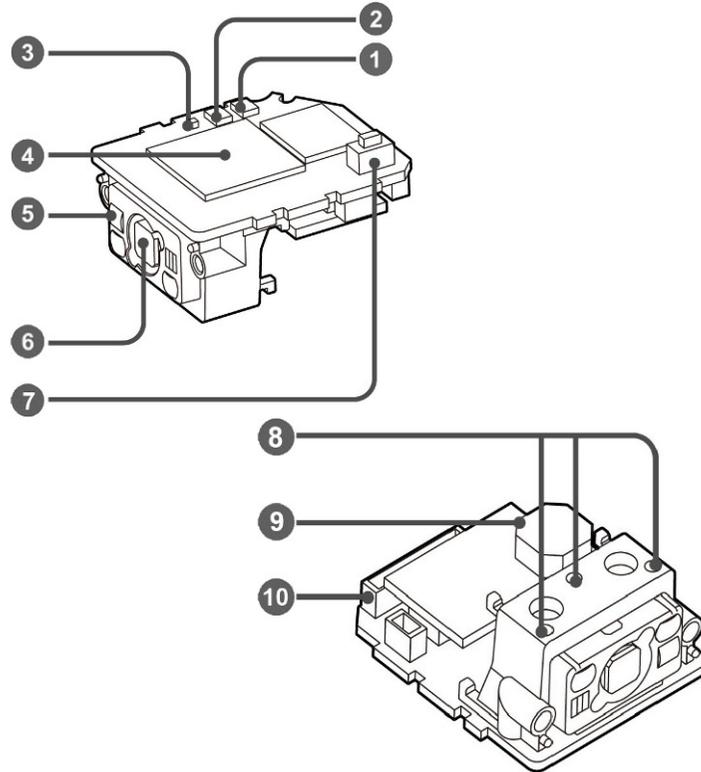
1	OK/NG Indicator
2	Status Indicator
3	Power Indicator
4	Main Processor
5	Condenser
6	Lens
7	Trigger Button
8	Mounting holes (ø1.7 x 3mm depth) TP2.0 screws suggested
9	Buzzer
10	15-pin interface connector

Connect to Your Host

FuzzyScan Scan Module is designed to support RS232 Serial, USB HID and USB COM Port Emulation interfaces. The Evaluation Kit incorporates 2 scan modules, USB, RS232, Universal interface cables and power steal cable. It enables you to make immediate evaluation once you plug in the interface cable. You may choose one of the interface cables to connect the scan module and host device.

USB Interface

Both USB HID and USB COM Port Emulation interfaces are available for user's choice.
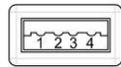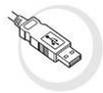
4-pin Type A Connector

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	---	---

Standard RS232 Interface

The standard RS232 interface cable equips a 9-pin D-sub connector with power jack for external 5Vdc power inlet.
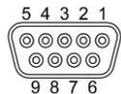
9-pin D-sub Female Connector

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 Interface

The scan module supports RS232 and USB interfaces with OK/NG signal outputs and external trigger input.
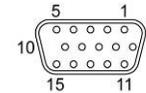
15-pin D-sub HD Female Connector

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	---	---

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Connecting Host Interface
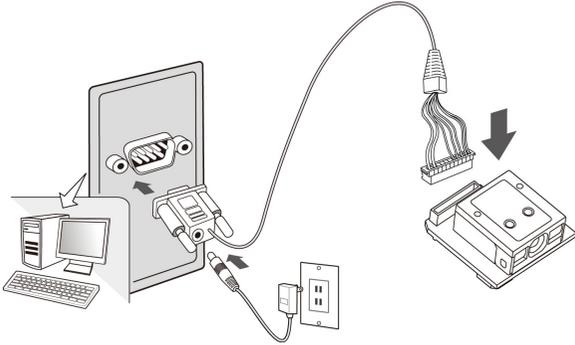
Standard RS232	
Universal	
USB	
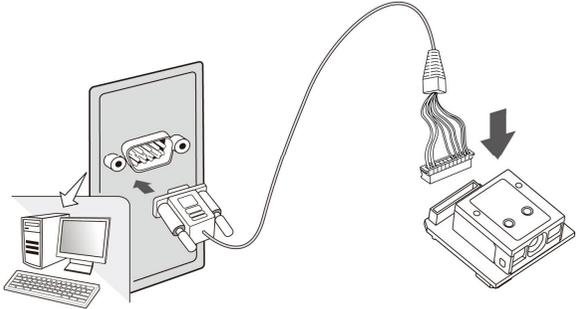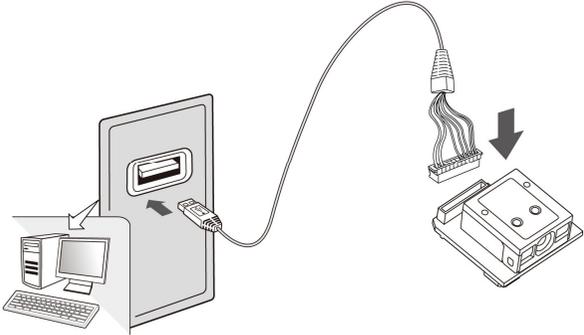
Intelli Button

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

Optimize Your Installation

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

❶ Press and hold the Intelli Button for more than **5** seconds until the status indicator gives one green blink, then release the button. The scan module 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 scan module will turn on the light source to scan barcodes continuously until the whole process completed.

❷ Keep the scan module to read the same barcode. The scan module 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	POWER Indicator	STATUS Indicator	OK/NG Indicator	Beeper
100%		Steady Green	Steady Green	
80 to 99%		Steady Red	Steady Green	
50 to 79%	1 blue blink per 1 sec	Steady Green	Steady Red	One short beep
20 to 49%		Steady Orange	Steady Orange	
0 to 19%		Steady Red	Steady Red	

❸ 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 scan module is unable to read any barcode during preset scan input time-out (default is 900ms), the scan module will count it as a NG reading

2. During force reading process, the OK/NG output signals will not be Performed.

Use Your FuzzyScan

Both FuzzyScan **Barcode commands** and **Serial commands** are available to configure your scan module. The FuzzyScan barcode commands are a series of proprietary barcodes which allow you to easily configure the scan module 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 scan module 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 Standard RS232 serial and USB COM Port Emulation interfaces.

User Defined Serial Trigger Command

For user's convenience to replace the other existing scan module, the useful user defined serial trigger command allows you to trigger the scan module 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 scan module 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 scan module got a good read, a signal will be outputted through the OK pin. However, if the scan module 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 Scan Module 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 🅰 area-imaging scan module

The details of each operation mode supported by SM5700 area-imaging scan module are listed below.

🅰 |||||| |||||||||||||||| |||

Trigger Mode

Under trigger mode, the scan module 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 scan module gets a good read or a serial trigger OFF command, the scan module will stop reading and wait for the next trigger to activate scanning again.

🅰 |||||| |||||||||||||| |||

Alternative Mode

When the scan module receives an external trigger or a serial trigger ON command under alternative mode, the scan module 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 is off, the scan module is waiting for the next trigger to activate scanning again.

🅰 |||||| |||||||||||| |||

Level Mode

When the scan module receives an external trigger or a serial trigger ON command under level mode, the scan module 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 scan module is waiting for the next trigger to activate scanning again.

🅰 ||| |||| |||||||||||| |||

Presentation Mode

When presentation mode is selected, the scan module is preset to turn on the background lighting to detect the bar codes. Once the scan module detects an image similar to a bar code in the scan module 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 scan module continues to read barcodes without using external trigger or serial trigger. Please note that the scan module will not stop reading until you switch to another operation mode.

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Operation Mode F linear imaging scan module

The details of each operation mode supported by SM380 scan module are listed below.

F

Trigger Mode

Under trigger mode, the scan module 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 scan module gets a good read or a serial trigger OFF command, the scan module will stop reading and wait for the next trigger to activate scanning again.

F

Alternative Mode

When the scan module receives an external trigger or a serial trigger ON command under alternative mode, the scan module 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 scan module is waiting for the next trigger to activate scanning again.

F

Level Mode

When the scan module receives an external trigger or a serial trigger ON command under level mode, the scan module 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 scan module is waiting for the next trigger to activate scanning again.

F

Presentation Mode

Under presentation mode, the scan module will automatically detect the object movement in the scanning field of view. Once the scan module 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. You may adjust the setting of "Presentation Sensitivity" to increase the detection sensitivity.

F

Force Mode

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

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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.

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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

◆	**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
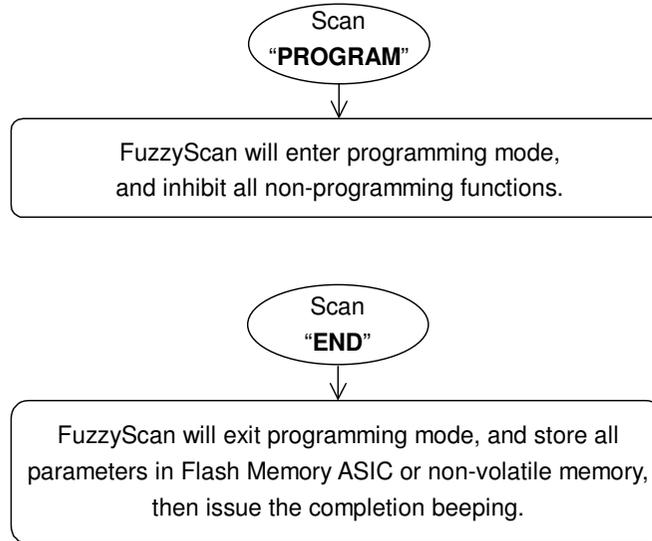
System List, Group & Master Default

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.

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.

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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.

Repeat Selection — Want to select another programming family?
Yes / 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.**

Repeat Selection — Want to select another programming family?
Yes / No

Scan "**END**" — Exit programming mode.

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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 — Want to select another programming family?

Yes / No

Scan **"END"** — Exit programming mode.

Dual level selection

Scan **"PROGRAM"** — Enter programming mode.

Scan One of **Family** Codes — Select one of desired programming families.
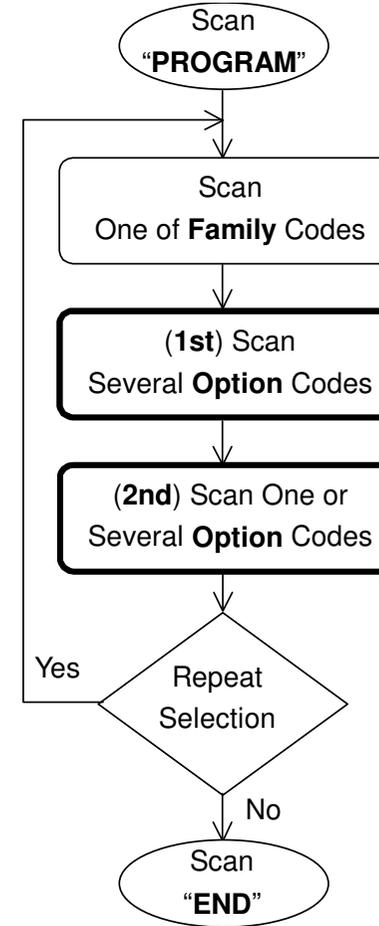
(**1st**) Scan Several **Option** Codes — **Select several option codes of desired parameters.**

(**2nd**) Scan One or Several **Option** Codes — **1. Select one or several option codes of desired parameters.**

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

Repeat Selection — Want to select another programming family?

Yes / No

Scan **"END"** — Exit programming mode.

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Host Interface Selection

Family Code Selection	P.C	Parameter Selection	Option Code
Host Interface Selection	**MS** **MS** **MS** **MS** **MS**	Standard/TTL RS-232 peer-to-peer serial USB Com Port Emulation USB HID standard mode USB HID turbo mode USB HID Legacy	06 09 18 19 20

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Symbology Reading Control

♦ **User Defined Symbol ID** ♦

Family Code Selection	P.C	Parameter Selection	Option Code	2nd Option 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)**

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Symbology Reading Control

♦ User Defined Symbol ID ♦

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)

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Symbology Reading Control

◆ Symbology ID Transmission ◆

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

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Family Code Selection	P.C	Parameter Selection	Option Code
Readable Symbology Setting	SS	Auto ◆	00
	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
Remember to scan **"FIN"** to terminate this selection. But if you select the **"Auto"**, FuzzyScan will terminate this selection **automatically**.	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

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Symbology Reading Control

◆ Readable Bar Code Setting ◆

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

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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.

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Code 39 Security Level			F_DEFAULT
	SS	Level 0	0
	SS	Level 1	1
	SS	Level 2 ◆	2
	SS	Level 3	3

▪ **Code 39 Security Level**

The scan module 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 scan module 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.

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**
	MS	01-Maximum	**(2 digits)**
		Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	

Symbology Reading Control

◆ Codabar/NW-7 Setting ◆

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)**

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Symbology Reading Control

♦ UPC-A & UPC-E Setting ♦

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

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Symbology Reading Control

◆ UPC-A & UPC-E Setting , Supplement Scan Voting◆

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 scan module 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 scan module..

Level 1: This is the default setting which allows the scan module 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.

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Symbology Reading Control

♦ EAN Setting , Supplement , Supplement Scan Voting♦

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.

Symbology Reading Control

♦ UPC/EAN Security Level Setting , EAN Supplement Control♦

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 scan module 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 scan module..

Level 1: This is the default setting which allows the scan module 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 scan module 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 scan module 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.

Symbology Reading Control

♦ UCC Coupon Extended Code Setting ♦

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, scan module 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.

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

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.

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)**

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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.	

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♦ Code 128 Setting ♦

Family Code Selection	P.C	Parameter Selection	Option Code
Code 128 Setting	SS	Disable Code 128	0
	SS	Enable Code 128 ◆	1
	SS	ISBT Concatenation Off ◆	2
	SS	ISBT Concatenation On	3
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	Level 0	0
	SS	Level 1 ◆	1

▪ **Code 128 Security Level**

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

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

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

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)**

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Symbology Reading Control

♦ UK/Plessey Setting ♦

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) ◆ 01-Maximum Scan 2 digits from the option code chart in Appendix, then FuzzyScan will terminate this selection automatically.	**FIN** **(2 digits)**
UK/Plessey 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)**

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, then FuzzyScan will terminate this selection automatically.	**FIN** **(2 digits)**

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Family Code Selection	P.C	Parameter Selection	Option Code
GS1 DataBar Setting	SS SS SS SS SS SS	Disable GS1 DataBar (RSS-14) Enable GS1 DataBar (RSS-14) ◆ Disable GS1 DataBar Limited Enable GS1 DataBar Limited ◆ Disable GS1 DataBar Expanded Enable GS1 DataBar Expanded ◆	0 1 2 3 4 5
GS1 DataBar Min. Length	SS **MS**	Default (04) ◆ 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.	**FIN** **(2 digits)**
GS1 DataBar Max. Length	SS **MS**	Default (74) ◆ 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.	**FIN** **(2 digits)**

Symbology Reading Control

◆ Composite Codes, PDF417/microPDF417, Codablock F Setting ◆

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

Symbology Reading Control

♦ Code 16K & Code 49 Setting ♦

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)

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Symbology Reading Control

◆ QR Code Setting ◆

PROGRAM

F_DEFAULT

Family Code Selection	P.C	Parameter Selection	Option Code
QR Code Setting	SS SS	Disable QR Code Enable QR Code ◆	0 1
		Disable MicroQR Code Enable MicroQR Code ◆	2 3
		Disable QR Code Append Enable QR Code Append ◆	4 5
		Disable QR Code Inverse Reading◆ Enable QR Code Inverse Reading Auto detect QR Code Inverse Reading	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 Code Max. 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)**

Symbology Reading Control

♦ Data Matrix Setting ♦

11Family Code Selection	P.C	Parameter Selection	Option Code
Data Matrix Setting	SS	Disable Data Matrix	0
	SS	Enable Data Matrix ◆	1
	SS	Disable Data Matrix Inverse Reading	4
	SS	Enable Data Matrix Inverse Reading	5
	SS	Auto Detect Data Matrix Inverse Reading ◆	6
	SS	Disable Data Matrix Mirror Images	7
	SS	Enable Data Matrix Mirror Images	8
	SS	Auto Detect Data Matrix Mirror Images ◆	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)

Symbology Reading Control

◆MaxiCode Setting ◆

Family Code Selection	P.C	Parameter Selection	Option Code
MaxiCode Setting	SS	Disable MaxiCode ◆	0
	SS	Enable MaxiCode	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)**

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)**

Symbology Reading Control

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

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.

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Symbology Reading Control

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

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

Keyboard Interface Control

◆ Keyboard Layout (Language) Setting ◆

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	2-4 digits	1 or 3 characters	Variable length	1 or 3 characters	1-15 characters	1 character

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Keyboard Interface Control

♦ **Record Suffix, Preamble, Postamble**

FNC1 Transmit & Caps Lock ♦

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
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

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- **FNC1 Symbol Char. Transmit:** When this function is enabled and the FNC1 is contained in scanned data, the scan module transmits the FNC1 to the host. Chart of theFNC1 is provided in Appendix- Keyboard Function Code Table. When the scan module interface is set to keyboard, the scan code is converted to corresponding key function before it is transmitted.

- 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.

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 transmissions of each segment of the message string.

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	0 1
		Refer to Appendix – Keyboard Function Code Table for details.	
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

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]
FNC1 Symbol Char. Transmit	SS SS	Disable Enable ◆ When this function is enabled and the FNC1 is contained in scanned data, the scan module transmits the FNC1 to the host. Chart of the FNC1 is provided in Appendix – Keyboard Function Code Table. When the scan module 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

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 OEM Scan Module Programming Manual

Serial Interface Control

◆ Protocol, ACK/NAK Setting ◆

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.

▪ **NAK Retry Count**

After transmitting data, the scan module expects a NAK response from the host up to the preset "Serial Response Time-out". If the scan module doesn't get a response, the scan module will issue an error indication and discard the data. When a NAK is received, the scan module transmits the same data again and waits for either an ACK or NAK. The scan module 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 scan module won't resend the data to the host when the scan module receives a NAK. The scan module will discard the data. If you program "255 times", the scan module 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.

Serial Interface Control

♦Time Out Setting, Baud Rate, Data Frame♦

Family Code Selection	P.C	Parameter Selection		Option Code	
Serial Response Time-out	SS	None	3 seconds	0	6
	SS	200 mseconds	4 seconds	1	7
	SS	500 mseconds ◆	5 seconds	2	8
	SS	800 mseconds	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	

▪ 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.

Operation Control

SM380

◆ Operation Mode Setting ◆

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 scan module receives an external trigger or a serial trigger ON command under trigger mode, the scan module 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 scan module is waiting for the next trigger to activate scanning again.

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

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

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

FuzzyScan OEM Scan Module Programming Manual

♦**1D Barcode Reading Direction, 1D Barcode Direction Indication Transmission, Scan Rate Control**♦

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
Lateral Reading	SS SS	Disable ◆ Enable	0 1
Scan Rate Control	SS SS	Dynamic ◆ Fixed	0 1

▪**Scan Rate Control**: The scan module 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.

Operation Control
SM5700
♦ Operation Control,
Presentation Background lighting Control♦

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

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

▪ **Presentation Mode (Auto Detection)** When presentation mode is selected, the scan module is preset to turn on the background lighting to detect the barcode. Once the scan module detected a similar barcode image, the scan module 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 scan module receives an external trigger or a serial trigger ON command under alternative mode, the scan module 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 scan module is waiting for the next trigger to activate scanning again.

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

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

▪ **Hand-Free Mode:** Presentation mode, Force mode

▪ **Presentation Background Lighting Control:** You can enable or disable presentation background lighting of the scan module 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 scan module's LED illumination at a dim level. This is helpful for scan module to detect the motion of scene.

FuzzyScan OEM Scan Module Programming Manual

Operation Control
SM5700
◆ **Aiming Control, Delay Aiming, Illumination Control, Center Alignment & Decode Aiming Control** ◆

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

▪ The **Aiming Control** is only available for trigger mode. In Intelligent Aiming, the aiming light is turned on when the scan module 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 scan module 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 scan module only decodes barcode(s) around aiming line.

Operation Control
SM5700

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 scan module reports a good read beep and indication only if all bar codes set by the "Batch Reading Rule" are read. Otherwise, the scan module 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/Suffi 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

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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

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

Operation Control
SM380, SM5700
◆Dollar Sign, Redundancy◆

Family Code Selection	P.C	Parameter Selection	Option Code
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
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.

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Family Code Selection	P.C	Parameter Selection	Option Code
Reread Delay **(Double San 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 imager can read another bar code.

Operation Control
SM380, SM5700
♦ Time-out and 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 scan module 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 scan module 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 scan module will revert to the original presentation or force mode.

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Operation Control
SM380, SM5700
♦ Presentation Sensitivity♦

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 scan module is set as presentation mode. The higher lever means higher sensitivity for detecting the barcode.

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	
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〕	
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	

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- 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 scan module. If you disable OK or NG signal output, the scan module 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 scan module.

Condensed DataWizard

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

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.

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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 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.

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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 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.

Condensed DataWizard

◆ Data Replacer Setting ◆

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 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.

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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 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**.

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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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Symbology ID Table

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

] = 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 supple.	32			1		EAN/JAN-8 with 2 supple.	35			1
	UPC-A with 5 supple.	42			2		EAN/JAN-8 with 5 supple.	45			2
	UPC-E	3	E		0		EAN/JAN-13	04	F	E	0
	UPC-E with 2 supple.	33			1		EAN/JAN-13 with 2 supple.	34			1
	UPC-E with 5 supple.	43			2		EAN/JAN-13 with 5 supple.	44			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	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			
						Code 39	Code 39	07	G	A	m
	German Postal Code	68	M	I	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**]E0**512345678900**]C1**81010123451297					Codablock	Codablock F	18	Y	O	m
						Korea Post	Korea Post Code	21	a	X	0
	Example: A EAN-13 9923456789019 + GS1-128 81010123451297 bar code is transmitted as **]E0**9923456789019**]C1**81010123451297					Remark: Above examples are given for the transmission of AIM ID.					

2D Symbology ID Table

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

Keyboard Function Code Table

No.	ANSI	ASCII	Key Function	Ctrl Output	No.	ANSI	ASCII	Key Function	Ctrl Output
00	NUL	00H	RESERVED	Ctrl + @	16	DLE	10H	F7	Ctrl + P
01	SOH	01H	CTRL (Left)	Ctrl + A	17	DC1	11H	F8	Ctrl + Q
02	STX	02H	ALT (Left)	Ctrl + B	18	DC2	12H	F9	Ctrl + R
03	ETX	03H	SHIFT	Ctrl + C	19	DC3	13H	F10	Ctrl + S
04	EOT	04H	CAPS LOCK	Ctrl + D	20	DC4	14H	F11	Ctrl + T
05	ENQ	05H	NUM LOCK	Ctrl + E	21	NAK	15H	F12	Ctrl + U
06	ACK	06H	ESC	Ctrl + F	22	SYN	16H	INS (Insert) (Edit)	Ctrl + V
07	BEL	07H	F1	Ctrl + G	23	ETB	17H	DEL (Delete) (Edit)	Ctrl + W
08	BS	08H	BACK SPACE	Ctrl + H	24	CAN	18H	HOME (Edit)	Ctrl + X
09	HT	09H	TAB	Ctrl + I	25	EM	19H	END (Edit)	Ctrl + Y
10	LF	0AH	F2	Ctrl + J	26	SUB	1AH	PAGE UP (Edit)	Ctrl + Z
11	VT	0BH	F3	Ctrl + K	27	ESC	1BH	PAGE DOWN (Edit)	Ctrl + [
12	FF	0CH	F4	Ctrl + L	28	FS	1CH	UP (Edit)	Ctrl + \
13	CR	0DH	ENTER (CR)	Ctrl + M	29	GS	1DH	DOWN (Edit)	Ctrl +]
14	SO	0EH	F5	Ctrl + N	30	RS	1EH	LEFT (Edit)	Ctrl + 6
15	SI	0FH	F6	Ctrl + O	31	US	1FH	RIGHT (Edit)	*see note

⌥ To emulate the keyboard function key input for user definable parameters, user must configure actual content using the **Reserved ASCII 00 – 31** characters, and also **Enable** the "Function Key Emulation". Otherwise, the Ctrl output will be done by the scan module. 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	-		

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 Com Port Emulation

USB HID Turbo Mode

Operation Mode Quick Set

SM380

◆**Trigger Mode**

Force Mode (Continued power on)

Alternative Mode (Periodic power off)

Presentation Mode (Auto sensing)

Level Mode (Auto power off)

Operation Mode Quick Set

SM5700

◆Trigger Mode

Presentation Mode (Auto sensing)

Alternative Mode (Periodic power off)

Force Mode (Continued power on)

Level Mode (Auto power off)

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Option Codes

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

FIN (Finish)

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 scan module 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".

Status Indications

SM380   SM5700

1 Power Indicator

2 Status Indicator

3 OK/NG Indicator
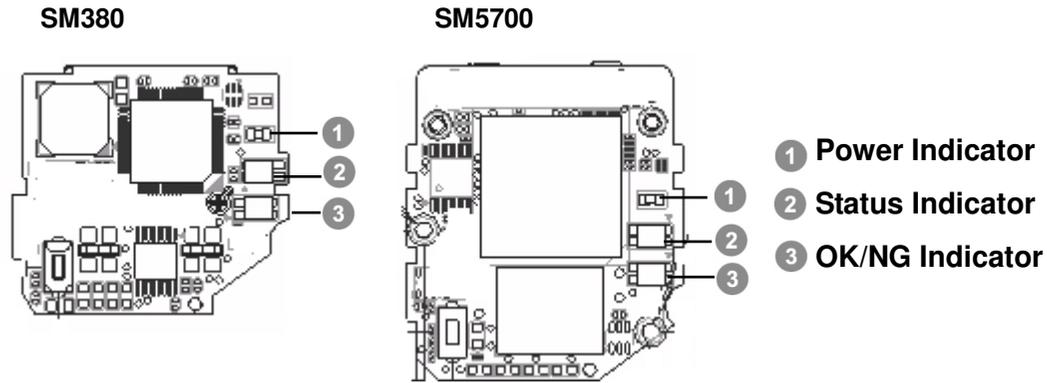
Beeper and LED Definitions

The pin **BEEPER** of the host interface connector of the scan module is designed to send a PWM output for generating acoustic signal. The **3 LED** modules on the right side of the scan module are designed to drive the LED to indicate working status. These signals are used to indicate different status of the device by a variety of sequences and patterns.

The table listed below shows acoustic and visual signals (beep and LED signals) which occur during normal scanning and programming.

Normal Operation

Descriptions	Indicators			Beeper
	Power	**Status**	**OK/NG**	
Power On	Steady	Off	Off	Power on
Good read (OK	Off	Off	1 green	1 good read
No read (NG reading)	Off	Off	1 red blink	1 no read beep
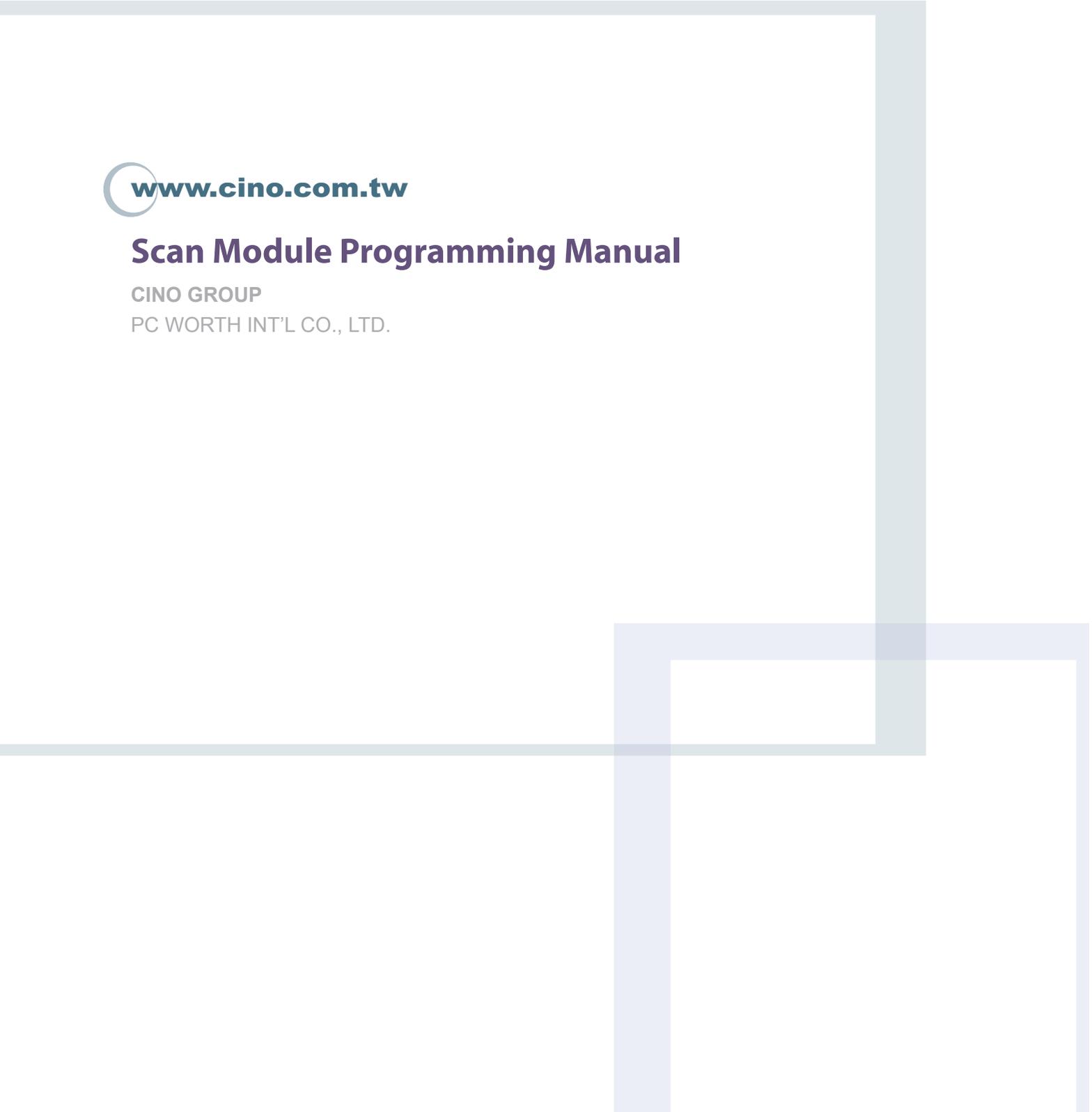
Scan Module Programming Manual

CINO GROUP

PC WORTH INT'L CO., LTD.

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