**Delfi** TECHNOLOGIES

**DelfiScan Programming Manual**

# DelfiScan C51 and C71

# Programming Manual

# Revision History

| Rev. No. | Released Date | Description |
|---|---|---|
| Rev.B Beta | Apr. 16, 2009 | First Release |
| Rev.B | May 05, 2009 | ❖ Page 22 Code 128/EAN-128 Setting – Modify ISBT Concatenation Off option code to "**4**" and ISBT Concatenation On option code to "**5**".<br>❖ Page 25 GS1 Databar Setting – All GS1 databar default values are changed to **Enable**.<br>❖ Page 45 Add "Symbology ID Table". |
| Rev.B1 | June 22, 2009 | ❖ Page 34 Add "Presentation Scanning Mode".<br>❖ Page 37 Add "Time Delay to Low Power Mode". |
| Rev.B2 | Aug. 21, 2009 | ❖ Page 9, 11 Add "PDF417/Micro PDF417", "Codablock F", "Korea Post Code".<br>❖ Page 26 Add "Composite Code Setting", "PDF/MicroPDF417 Setting", "Codablock F Setting", Korea Post Code Setting".<br>❖ Page 39 Add "SmartStand Power Off Timeout".<br>❖ Page 45 Add "PDF417/Micro PDF417", "Codablock F", "Korea Post Code" into Condensed DataWizard Table.<br>❖ Page 47 Add "PDF417/Micro PDF417", "Codablock F", "Composite Code", "Korea Post Code" into Symbology ID Table. |
| Rev.B3 | Oct. 7, 2009 | ❖ Page 8 Add "IBM PS/2, 25-30 series keyboard wedge interface".<br>❖ Page 39 Add "Presentation Scanning Auto-sense". |

**DelfiScan Programming Manual**

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**Disclaimer**

Delfi has taken reasonable measures to provide information in this manual that is complete and accurate, however, Delfi reserves the right to change any specification at any time without prior notice.

## Regulatory

| | |
|---|---|
| FC | FCC part 15B |
| CE | EN55022, EN55024, EN61000-3-2, EN61000-3-3 |
| ⊖ | CNS13438 |
| 🇨🇦 | Industry Canada ICES-003 |
| **LED Eye Safety** | IEC60825-1, EN60825-1 |

# Table of Contents

**Getting Started**

**Configure Your DelfiScan**

**Appendix**

## Getting Familiar with Your DelfiScan

Thank you for choosing Cino DelfiScan Imager. All DelfiScan imagers deliver world-class performance for a broad range of applications to unleash your productivity. This document provides an easy reference for installation and operation purposes. A complete documentation is provided by the DelfiScan Programming Manual available at www.delfi.com

**C71 Series**



① Power Indicator

② Status Indicator

③ Trigger

④ Scan Window

⑤ Beeper

⑥ Cable Release Hole
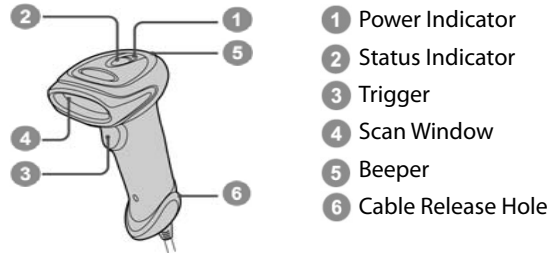
**C51 Series**
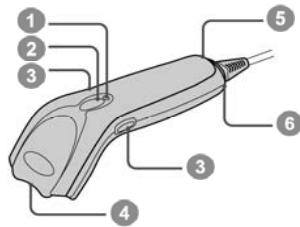


## Connecting to Your Host

DelfiScan imagers support PS/2(DOS/V) Keyboard Wedge, RS-232 Serial, and USB interfaces. Please choose your desired interface cable, then plug it into the cable interface port of the imager and connect it to the host. If you would like to remove the cable, please straighten one end of a paper clip, then insert it into the cable release hole to pull out the cable.
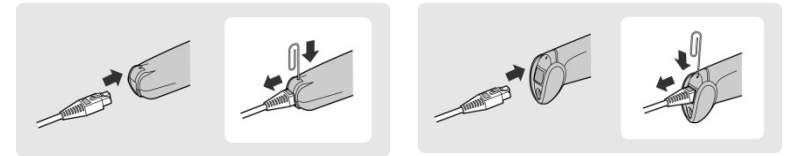


**USB**
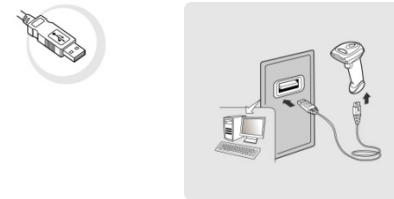


**RS232 Serial**



**PS/2(DOS/V) Keyboard Wedge**



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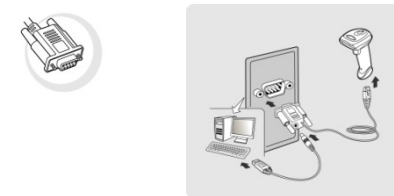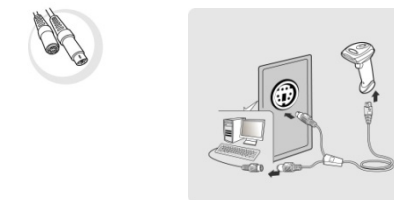
## Using Accessories

You can enhance productivity of your workforce by using various accessories to fulfill a wide variety of application demand.

### Universal Holder
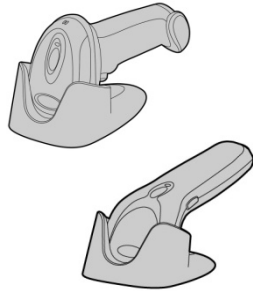
A stylish Universal Holder is designed for storing your imager when not in use. It serves to protect the imager from lens-scratched or falling. Moreover, its artistic-design enhances the entire value of the imager.

### Hand-free SmartStand
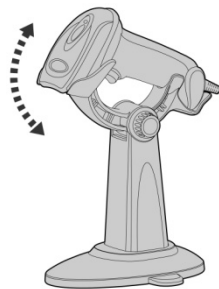
A SmartStand is specifically designed for hand-free applications to maximize user's comfort and productivity. You can adjust the scanner holder to desired position for optimized scanning.

Thanks to the auto-sense design, the imager is capable of switching between presentation scanning and hand-held scanning automatically while working with SmartStand.

Please note that the SmartStand is not applicable for C51 Series imager.

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# Bar Code Programming Menu

The DelfiScan bar code commands are specially designed **Proprietary** bar code labels which allow you to set the DelfiScan 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 DelfiScan concurrently.

A supplemental bar code command menu incorporates the bar code command labels of System Command and Option Code. As you set the DelfiScan, open the bar code command menu to find the option code page. You may scan the desired family code and option code to set DelfiScan. 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 DelfiScan 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. DelfiScan 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 DelfiScan'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 DelfiScan if you want to keep the existing configurations in the next power on.

The programming procedures of DelfiScan 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 DelfiScan, 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 DelfiScan.

### Conventions of Programming Menu

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

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## Program & End

Scan
"PROGRAM"

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

Scan
"END"

DelfiScan will exit programming mode, and store all
parameters in Flash Memory ASIC or non-volatile memory,
then issue the completion beeping.

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

## System List, Group & Master Default

Scan
"SYSLIST"

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

Scan
"M_DEFAULT"

DelfiScan will recover all programmable
parameters into factory preset configurations,
then issue the completion beeping.

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## Single scan selection

Scan
"PROGRAM"

Enter programming mode.

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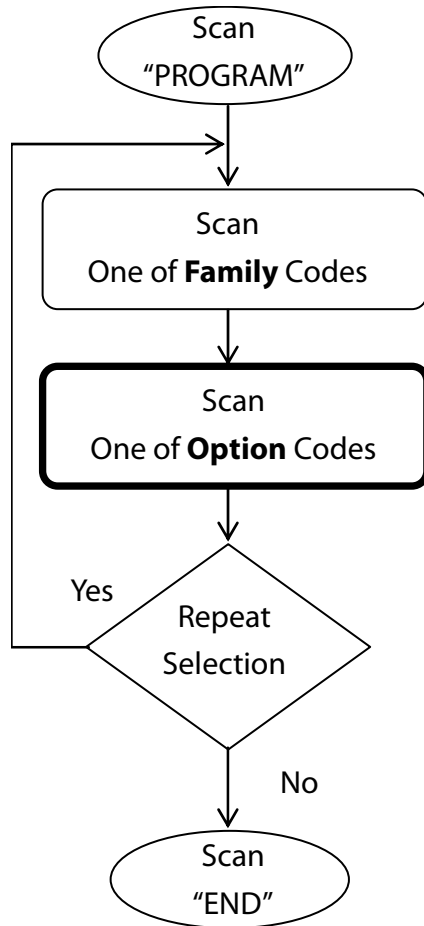
Select one of desired
programming families.

Scan
One of **Option** Codes

Select one option code of
desired parameter.

Yes

Repeat
Selection

Want to select another
programming family?

No

Scan
"END"

Exit programming mode.

## Multiple scans selection
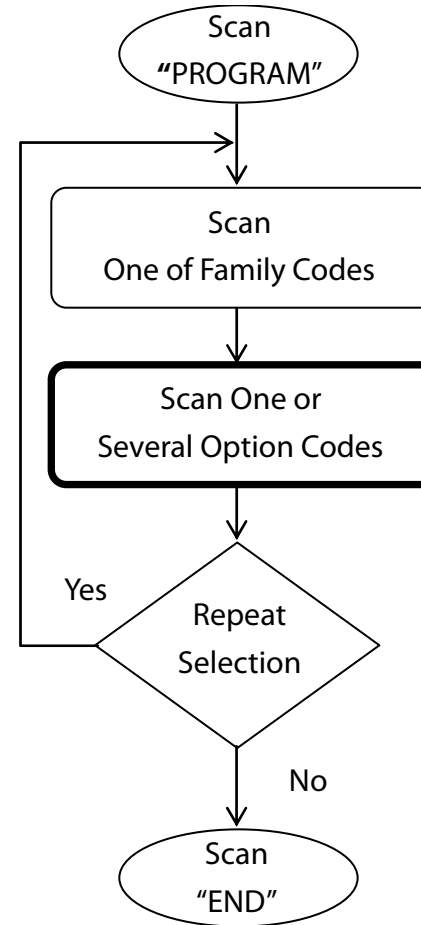
Scan
"PROGRAM"

Enter programming mode.

Scan
One of Family Codes

Select one of desired
programming families.

Scan One or
Several Option Codes

1. **Select one or several
option codes to select
desired parameters.**
2. **If it's necessary, scan
"FIN" to terminate
option code selection.**

Yes

Repeat
Selection

Want to select another
programming family?

No

Scan
"END"

Exit programming mode.

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## Cycling scan selection

Scan "PROGRAM" — Enter programming mode.

Scan One of **Family** Codes — Select one of desired programming families.
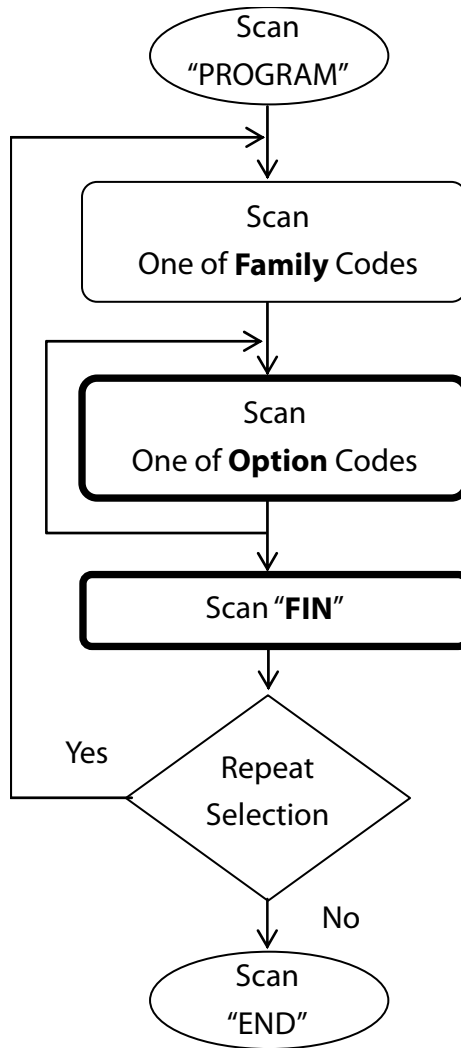
Scan One of **Option** Codes — **Cycling select one or several option codes of desired parameters as "Single" or "Multiple" scans selection.**

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.
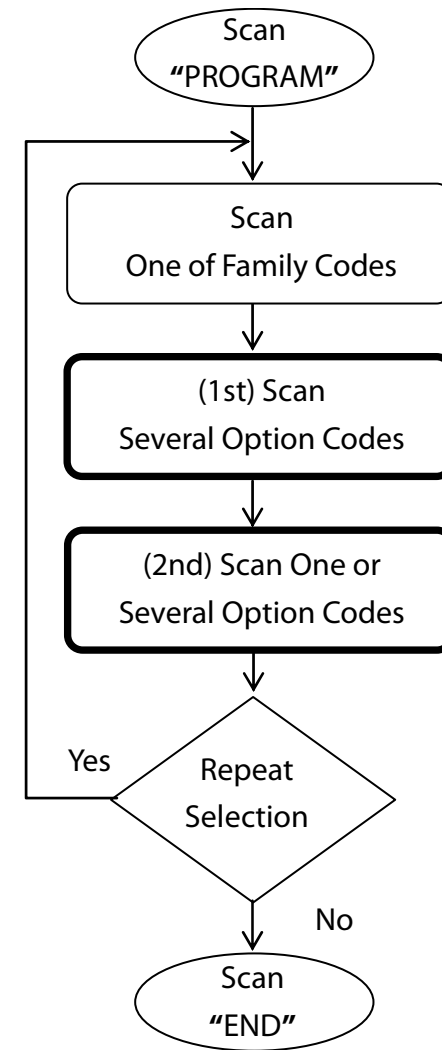
(1st) Scan Several Option Codes — **Select several option codes of desired parameters.**

(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

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Host Interface Selection** | **MS** | IBM PS/2, 25-30 series keyboard wedge interface | 02 |
| | **MS** | Standard/TTL RS-232 peer-to-peer serial | 06 |
| | **MS** | Wand emulation | 08 |
| | **MS** | USB Com Port Emulation | 09 |
| | **MS** | PS/2 (DOS/V) direct link (keyboard replacement) | 10 |
| | **MS** | PS/2 (DOS/V) keyboard wedge turbo mode | 13 |
| | **MS** | PS/2 (DOS/V) keyboard wedge standard mode | 14 |
| | **MS** | Laser emulation | 17 |
| | **MS** | USB HID standard mode | 18 |
| | **MS** | USB HID turbo mode | 19 |

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# Symbology Reading Control
## User Defined Symbol ID

**PROGRAM**

**M_DEFAULT**

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

**Symbology Reading Control**

**Symbology ID Transmission**

PROGRAM

M_DEFAULT

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

## Symbology Reading Control
### ♦ Readable Bar Code Setting ♦

PROGRAM

M_DEFAULT

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| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| Readable Symbology Setting | SS | Auto ◆ | 00 |
| | CS | Code 128 * | 01 |
| | CS | UPC-A * | 02 |
| | CS | UPC-E * | 03 |
| | CS | EAN-13 * | 04 |
| | CS | EAN-8 * | 05 |
| | CS | Codabar/NW-7 * | 06 |
| | CS | Code 39 * | 07 |
| | CS | Trioptic Code 39 | 47 |
| | CS | Standard/Industrial 2 of 5 | 08 |
| | CS | Matrix 2 of 5 | 38 |
| | CS | Interleaved 2 of 5 * | 48 |
| | CS | China Postal Code | 58 |
| | CS | German Postal Code | 68 |
| | CS | Code 93 * | 09 |
| | CS | Code 11 | 10 |
| | CS | MSI/Plessey | 11 |
| | CS | UK/Plessey | 12 |
| | CS | Telepen | 13 |
| | CS | GS1 DataBar (RSS-14) * | 14 |
| | CS | IATA | 15 |
| | CS | PDF417/Micro PDF417 | 17 |
| | CS | Codablock F | 18 |
| | CS | Korea Post Code | 21 |

Remember to scan **"FIN"** to terminate this selection. But if you select the **" Auto "**, DelfiScan will terminate this selection **automatically**.

▪ If your application is reading known, limited bar code symbologies, you may increase the reading speed and decrease the reading error possibility by selecting those known symbologies only. Furthermore, to add the "**Symbology ID**" into the transmitted data is also helpful for applications to identify the specific symbology ID.

▪ Above symbologies marketed with * are enable as default. When you select "Auto", the imager only read those symbologies marked with **\***

▪ When you set the minimum and maximum length of each symbology, please note the data length of scanned bar code doesn't include star/stop characters.

# Symbology Reading Control

## Code 39/Code 32 Setting

**PROGRAM**

**M_DEFAULT**

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

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

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## Symbology Reading Control

### Codabar/NW-7 Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Codabar Setting** | SS | Disable Codabar | 0 |
| | SS | Enable Codabar | 1 |
| | SS | Select Codabar standard format | 2 |
| | SS | Select Codabar ABC format | 3 |
| | SS | Select Codabar CLSI format | 4 |
| | SS | Select Codabar CX format | 5 |
| | SS | Disable start/stop symbol transmission | 6 |
| | SS | Enable ABCD/ABCD start/stop symbol transmission | 7 |
| | SS | Enable abcd/abcd start/stop symbol transmission | 8 |
| | SS | Enable ABCD/TN*E start/stop symbol transmission | 9 |
| | SS | Enable abcd/tn*e start/stop symbol transmission | A |
| | SS | Disable check digit verification | B |
| | SS | Enable check digit verification | C |
| | SS | Disable check digit transmission | D |
| | SS | Enable check digit transmission | E |
| **Codabar Min. Length** | SS | Default (04) | **FIN** |
| | MS | 01-Maximum | **(2 digits)** |
| | | Scan 2 digits from the option code chart in Appendix, then DelfiScan will terminate this selection automatically. | |
| **Codabar Max. Length** | SS | Default (98) | **FIN** |
| | MS | 98-Minimum | **(2 digits)** |
| | | Scan 2 digits from the option code chart in Appendix, then DelfiScan will terminate this selection automatically. | |

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## Symbology Reading Control

### UPC-A & UPC-E Setting

**PROGRAM**

**M_DEFAULT**

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

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## Symbology Reading Control
### UPC-A & UPC-E Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **UPC Supplement Setting** | SS | Select UPC without supplement digits | 0 |
| | SS | Select UPC with only 2 supplement digits | 1 |
| | SS | Select UPC with only 5 supplement digits | 2 |
| | SS | Select UPC with 2/5 supplement digits | 3 |
| | SS | Disable force supplement digits output | 4 |
| | SS | Enable force supplement digits output | 5 |
| | SS | UPC Family Addenda Separator Off | 6 |
| | SS | UPC Family Addenda Separator On | 7 |

- **UPC-E & EAN-8 Expansion** : Expand the 7-digit UPC-E and 8-digit ENA-8 to 12-digit UPC-A and 13-digit EAN-13.
- **UPC-A/E Standardization** : Expand the 7-digit UPC-E and 12-digit UPC-A to 8-digit EAN-8 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 | 7 | - 1 | - 1 | + 2 | + 5 | + 1 | + 5 |
| 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

### EAN Setting

**PROGRAM**

**M_DEFAULT**

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

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## Symbology Reading Control
### UCC Coupon Extended Code Setting

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **UCC Coupon Extended Code** | SS<br>SS | Disable UCC Coupon Extended Code<br>Enable UCC Coupon Extended Code | 0<br>1 |

▪ UCC Coupon Extended Code
  When enabled, this parameter decodes UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digit "99", and UCC/EAN-128 Coupon Codes. UPC-A, EAN-13 and EAN-128 must be enabled to scan all types of Coupon Codes.

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**PROGRAM**

# Symbology Reading Control
## IATA & Interleaved 2 of 5 Setting

**M_DEFAULT**

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

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## Symbology Reading Control

### Code 25 Family Setting

**PROGRAM**

**M_DEFAULT**

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

▪ We recommend that you select **only one** kind of Code 25 for reading, or set limited **maximum and minimum reading length** for reading, because the encoding algorithm of Code 25 isn't very good. To decode all Code 25 automatically or to read variable length Code 25 will increase the error reading rate.

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## Symbology Reading Control

### Code 11 & Code 93 Setting

**PROGRAM**

**M_DEFAULT**

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

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**PROGRAM**

## Symbology Reading Control

### MSI/Plessey Setting

**M_DEFAULT**

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

**PROGRAM**

## Symbology Reading Control

### Code 128 & UCC/EAN 128 Setting

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Code 128/EAN-128 Setting** | SS | Disable Code 128 and UCC/EAN-128 | 0 |
| | SS | Enable Code 128 and UCC/EAN-128 | 1 |
| | SS | Disable function code conversion | 2 |
| | SS | Enable function code conversion | 3 |
| | SS | ISBT Concatenation Off | 4 |
| | SS | ISBT Concatenation On | 5 |
| **Code 128/EAN-128 Min. Length** | SS | Default (01) | FIN |
| | MS | 01-Maximum | (2 digits) |
| | | Scan 2 digits from the option code chart in Appendix, then DelfiScan will terminate this selection automatically. | |
| **Code 128/EAN-128 Max.** | SS | Default (98) | FIN |
| | MS | 98-Minimum | (2 digits) |
| | | Scan 2 digits from the option code chart in Appendix, then DelfiScan will terminate this selection automatically. | |

## Symbology Reading Control

### UK/Plessey Setting

PROGRAM

M_DEFAULT

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

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## Symbology Reading Control

### Telepen Setting

**PROGRAM**

**M_DEFAULT**

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

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## Symbology Reading Control

### GS1 DataBar Setting

**PROGRAM**

**M_DEFAULT**

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

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**Symbology Reading Control**

**Linear-stacked & Korea Post Code Setting**

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Composite Codes Setting** | SS<br>SS<br>SS<br>SS | Disable composite codes<br>Enable composite codes<br>UPC Composite Mode: UPC never linked<br>UPC Composite Mode: UPC always linked | 0<br>1<br>2<br>3 |
| **PDF417/MicroPDF417 Setting** | SS<br>SS<br>SS<br>SS | Disable PDF417<br>Enable PDF417<br>Disable MicroPDF417<br>Enable MicroPDF417 | 0<br>1<br>2<br>3 |
| **Codablock F Setting** | SS<br>SS | Disable<br>Enable | 0<br>1 |
| **Korea Post Code Setting** | SS<br>SS | Disable<br>Enable<br><br>Length fixed in 6 characters. | 0<br>1 |

▪ Composite Codes Setting
  If UPC Composite Mode: UPC never linked is selected, UPC barcodes are transmitted regardless of whether a MicroPDF417 symbol is detected.
  If UPC Composite Mode: UPC always linked is selected, UPC barcodes are only transmitted when the MicroPDF417 is detected.

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**Keyboard Interface Control**

**Keyboard Layout (Language) Setting**

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Keyboard Layout** | SS | USA (QWERTY) | 00 |
| | SS | France (AZERTY) | 01 |
| | SS | Germany (QWERTZ) | 02 |
| | SS | United Kingdom - UK (QWERTY) | 03 |
| | SS | Canadian French (QWERTY) | 04 |
| | SS | Spain (QWERTY) | 05 |
| | SS | Sweden/Finland (QWERTY) | 06 |
| | SS | Portugal (QWERTY) | 07 |
| | SS | Norway (QWERTY) | 08 |
| | SS | 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 | Universal * (see note) | 99 |

▪ The "**Universal Selection**" is only for PC/AT, PS/VP, PS/2 and compatible ones in **DOS** or **Windows** environment which can perform unique output **without** Caps Lock on/off (Output Style) concern. All transmitted data will follow the original full ASCII form. You also need not worry about the upper/lower case control.

▪ Please refer to the **ASCII/HEX Table** listed in the Appendix to determine HEX codes for characters, symbols, and functions to be used as premble or postamble.

▪ To set preamble or postamble as function key output, you must enable the **"Function Key Emulation"** feature as listed in page 3-25 first.

▪ **Keyboard Interface Message String :**

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

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## Keyboard Interface Control

### Record Suffix, Preamble, Postamble & Caps Lock

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Record Suffix** | SS<br>SS<br>SS<br>SS<br>SS<br>SS | None<br>RETURN<br>TAB<br>SPACE<br>ENTER (Numeric Key Pad)<br>User defined character (1 character) | 0<br>1<br>2<br>3<br>4<br>**5, (00-7F)** |
| **Preamble** | SS<br>**MS** | None<br>1-15 characters<br><br>Maximum 15-character input; scan "FIN" to terminate this selection. | **FIN**<br>**[00-7F], [FIN]** |
| **Postamble** | SS<br>**MS** | None<br>1-15 characters<br><br>Maximum 15-character input; scan "FIN" to terminate this selection. | **FIN**<br>**[00-7F], [FIN]** |
| **Caps Lock Control** | SS<br>SS<br>SS | "Caps Lock Off" State<br>"Caps Lock On" State<br>Auto Detect (PC/AT, PS/2, Keyboard Replacement and DOS/V Machines only) | 0<br>1<br>2 |
| **Caps Lock Release Control** | SS<br>SS | "Caps Lock On, Caps Off"<br>"Caps Lock On, Shift Off" | 0<br>1 |

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

▪ Please check the **actual** Caps Lock state in use while software application is running. If the Caps Lock state is off, select "**Caps Lock Off**" state, then DelfiScan will perform normal data transmission. If the Caps Lock state is on, select "**Caps Lock On**" state. Select "**Auto Detect**", DelfiScan will perform special transmission handshaking without changing the status of Caps Lock switch.

## Keyboard Interface Control

### Delay Setting

**PROGRAM**

**M_DEFAULT**

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

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

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## Keyboard Interface Control

### Emulation Setting & Upper/Lower Case Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Function Key Emulation** | SS<br>SS | Enable ASCII 00-31 code as keyboard function code output<br>Ctrl-Output<br><br>Refer to Appendix – Keyboard Function Code Table for details. | 0<br>1 |
| **Key Pad Emulation** | SS<br>SS | Disable key pad emulation<br>Enable numeric output as key pad (Num Lock On) output | 0<br>1 |
| **Upper/Lower Case** | SS<br>SS<br>SS<br>SS | Normal case (neglect the upper/lower case control)<br>Inverse case (change all characters output to inverse case)<br>Upper case (force all characters output as upper case)<br>Lower case (force all characters output as lower case) | 0<br>1<br>2<br>3 |

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## Serial Interface Control

### Record Suffix, Preamble ,Postamble Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **STX/ETX Control** | SS<br>SS | Disable STX/ETX transmission<br>Enable STX/ETX transmission | 0<br>1 |
| | | STX/ETX are two characters used to indicate the starting and ending of the total data frame transmitted via serial interface. | |
| **Record Suffix** | SS<br>SS<br>SS<br>SS<br>SS<br>SS<br>**MS** | None<br>CR (0DH)<br>LF (0AH)<br>CRLF (0D0AH)<br>TAB (09H)<br>SPACE (20H)<br>User defined character (1 character) | 0<br>1<br>2<br>3<br>4<br>5<br>**6, (00-7F)** |
| **Preamble** | SS<br>**MS** | None<br>1-15 characters | **FIN<br>[00-7F], [FIN]** |
| | | Maximum 15-character input; scan "FIN" to terminate this selection. | |
| **Postamble** | SS<br>**MS** | None<br>1-15 characters | **FIN<br>[00-7F], [FIN]** |
| | | Maximum 15-character input; scan "FIN" to terminate this selection. | |

▪ **Serial Interface Message String (RS232, USB COM) :**

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

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## Serial Interface Control

### Delay Setting

**PROGRAM**

**M_DEFAULT**

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

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

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## Serial Interface Control

### Protocol, Baud Rate, Data Frame & Time Out Setting

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | | Option Code | |
|---|---|---|---|---|---|
| **Handshaking Protocol** | SS<br>SS<br>SS<br>SS | None (free running mode)<br>RTS/CTS (hardware handshaking)<br>ACK/NAK (software handshaking)<br>Xon/Xoff (software handshaking) | | 0<br>1<br>2<br>3 | |
| **Baud Rate (BPS)** | SS<br>SS<br>SS<br>SS | 38.4K BPS<br>19.2K BPS<br>9600 BPS<br>4800 BPS | 2400 BPS<br>1200 BPS<br>600 BPS<br>300 BPS | 0<br>1<br>2<br>3 | 4<br>5<br>6<br>7 |
| **Data Frame** | SS<br>SS<br>SS<br>SS<br>SS<br>SS<br>SS<br>SS | 8, None, 1<br>8, Odd, 1<br>8, Even, 1<br>8, Space, 1<br>8, Mark, 1<br>8, None, 2<br>7, Odd, 1<br>7, Even, 1 | 7, Space, 1<br>7, Mark, 1<br>7, None, 2<br>7, Odd, 2<br>7, Even, 2<br>7, Space, 2<br>7, Mark, 2 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 8<br>9<br>A<br>B<br>C<br>D<br>E |
| **Time Out Control** | SS<br>SS<br>SS<br>MS | None<br>200 mseconds<br>500 mseconds | 1 second<br>2 seconds<br>5 seconds<br>User defined value (seconds) | 0<br>1<br>2 | 3<br>4<br>5<br>**6, (2 digits)** |

▪ 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.

▪ When the **ACK/NAK Software Handshaking** option is selected, the DelfiScan waits for an **ACK** (acknowledge) or **NAK** (not acknowledge) from the host computer after each data transmission. If the NAK is received, DelfiScan will re-send the data until receiving ACK.

▪ The **Time Out Control** is a pre-defined delay time for DelfiScan to wait for handshaking, acknowledgment or non-acknowledgment from the host computer.

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## Wand/Laser Emulation Control
### Output Polarity, Signal State, Margin/Module Time, etc.

PROGRAM

M_DEFAULT

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

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

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## Operation Control

### Operation Mode Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | | Option Code | |
|---|---|---|---|---|---|
| **Operation Mode** | SS<br>SS<br>SS<br>SS<br>SS | Low Power mode<br>Trigger mode/Serial mode<br>Presentation mode<br>Alternative mode<br>Flash mode | Force mode<br>Toggle mode<br>Diagnostic mode<br>Level mode | 0<br>1<br>2<br>3<br>4 | 5<br>6<br>7<br>8 |
| **Presentation Scanning Mode** | SS<br>SS<br>SS | Presentation mode<br>Flash mode<br>Force mode | | 0<br><br>1<br><br>2 | |

- **Lower Power Mode (Low Power Triggering)** The scanner goes into idle state after scanning the bar code. You must press the trigger to wake up the scanner for operation. It is very helpful for mobile data collection and application, which are concerned with power savings.

- **Trigger Mode/Serial Mode (External Triggering)** The scanner goes into standby state after scanning the bar code. You must press the trigger to turn on the light source of the scanner before scanning the bar code.

- **Presentation Mode (Auto Detection)** Presentation mode uses ambient light to detect bar codes. The LEDs are off for ambient conditions until a change occurs in the imager's field of view. Then the LEDs turn on automatically to read the bar code. If the light level in the room is not high enough, Presentation Mode may not work properly.

- **Alternative Mode (Periodic Power Off)** The scanner keeps the light source of the scanner turned on and disables the infrared sensor till the pre-defined auto power off duration is up. After the scanner turns off the light source, you must press the trigger to turn on the light source again. After each good read, the auto power off timer counter is reset. You do not have to press the trigger frequently, it is very convenient for multiple scanning.

- **Flash Mode (Pulse Driven Reading)** The scanner flashes the light source of the scanner without using the trigger. If the scanner detects an image which is similar to a bar code, the scanner forces on the light source automatically and scans the bar code. Flash Duty Cycle adjustment can change the frequency of the blinking.

- **Force Mode (Continued Power On)** The light source of the scanner is forced on for continued operation without pressing the trigger switch. This mode is convenient for high speed bar code reading.

- **Toggle Mode (Repeat Reading)** The toggle mode is very similar to the Alternative Mode without the pre-defined auto power off duration concern. You must press the trigger to turn on the light source of the scanner to scan. The scanner keeps the light source turned on until you press the trigger again.

- **Diagnostic Mode (Test Reading)** This operation mode is specifically designed for diagnostic purposes. When this operation mode is selected, the light source of the scanner is force on without regard for other programmable parameters, such as reread delay, redundancy, and so forth.

- **Level Mode (Auto Power Off)** When this operation mode is selected, the scanner continues to turn on the light source of the scanner before a good read or pre-defined auto power off duration. If the scanner decodes a bar code successfully, it turns off the light source immediately. After the scanner turns off the light source, you must press the trigger to turn on the light source again. If there is no scanning operation performed during the

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pre-defined auto power off time, the scanner enters the idle state after the pre-defined auto power off duration.

- **Presentation Scanning Mode** When the scanner is placed on SmartStand, the scanner's built-in sensor will switch the scanner from hand-held scanning to presentation scanning automatically. Three presentation scanning modes are available. Your are recommended to use flash mode or force mode while under insufficient ambient light.
- Only **Lower power mode**, **Trigger mode**, **Presentation mode** and **Level mode** are available for DelfiScan Laser model.

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## Operation Control

### Buzzer, Indicator, Vibrator, Inverse Reading, Dollar Sign

PROGRAM                                                                                    M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Buzzer Tone Adjust** | SS<br>SS<br>SS<br>SS<br>SS<br>SS<br>SS | Buzzer tone – mute<br>Buzzer tone – low<br>Buzzer tone – medium<br>Buzzer tone – high<br>Buzzer tone - extremely high<br>Power-on beep<br>No power-on beep | 0<br>1<br>2<br>3<br>4<br>5<br>6 |
| **Power On Indicator** | SS<br>SS | Disable (LED off)<br>LED steady on<br>LED flash | 0<br>1<br>2 |
| **Vibrator Control** | SS<br>SS | Disable<br>Enable<br><br>Optional function, only available for vibrator model. | 0<br>1 |
| **Inverse Reading** | SS<br>SS | Disable<br>Enable | 0<br>1 |
| **Dollar Sign Control** | SS<br>SS<br>SS<br>SS<br>SS | Dollar sign output as " $ "<br>Dollar sign output as "¥"<br>Dollar sign output as " € "<br>Dollar sign output as " £ "<br>Dollar sign output as " ¢ " | 0<br>1<br>2<br>3<br>4 |

**DelfiScan Programming Manual**

## Operation Control

### Flash Duty Cycle, Redundancy, Delay Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Flash Duty Cycle** | SS<br>SS<br>SS<br>SS | 1/2 duty cycle<br>2/3 duty cycle<br>3/4 duty cycle<br>4/5 duty cycle | 0<br>1<br>2<br>3 |
| **Redundancy (Scan Voting)** | SS<br>SS<br>SS<br>SS<br>SS<br>SS | None<br>Level 1<br>Level 2<br>Level 3<br>Level 4<br>Level 5<br>To prevent potential miss reading. | 0<br>1<br>2<br>3<br>4<br>5 |
| **Reread Delay** | SS<br>SS<br>SS<br>SS<br>SS<br>SS | Disable<br>Immediate time out<br>Short time out<br>Medium time out<br>Long time out<br>Force verification | 0<br>1<br>2<br>3<br>4<br>5 |
| **Good Read Delay** | SS<br>SS<br>SS<br>SS<br>SS<br>SS<br>SS | None<br>200 msec.<br>500 msec.<br>1 sec.<br>1.5 sec.<br>2 sec.<br>3 sec. | 0<br>1<br>2<br>3<br>4<br>5<br>6 |

▪ The **Flash Duty Cycle** is designed to control the flashing frequency of the light source.

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

▪ The **Reread Delay** is designed to inhibit DelfiScan 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.

**DelfiScan Programming Manual**

**Operation Control**

**Time-out Setting, Good Read Beep Duration**

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Auto Power Off Duration** | SS<br>SS<br>SS<br>SS | Short<br>Medium<br>Long<br>Extremely long | 0<br>1<br>2<br>3 |
| **Hands Free Time-out** | SS<br>SS<br>SS<br>SS | Short<br>Medium<br>Long<br>Extremely long | 0<br>1<br>2<br>3 |
| **Good Read Duration** | SS<br>SS<br>SS<br>SS | Short<br>Medium<br>Long<br>Extremely long | 0<br>1<br>2<br>3 |
| **Time Delay to Low Power Mode** | SS<br>SS<br>SS<br>SS<br>SS | 1 sec<br>3 secs<br>5 secs<br>7 secs<br>9 secs | 0<br>1<br>2<br>3<br>4 |

▪ The **Auto Power Off Duration** is a pre-defined power off time out counter for Alternative Mode, Presentation Mode and Flash Mode. The scanner keeps the light source on till the pre-defined auto power off duration is up. You can adjust this parameter to meet your own application requirement.

▪ The Presentation Mode, Force Mode and Flash Mode are referred to as "hands free" modes. The hands free mode will be automatically changed to manual trigger mode if you remove the imager from stand. The manual trigger mode will be changed to hands free mode if you place the imager back to stand. You can set the time for imager to remain in manual trigger mode by setting the **Hands Free Time-Out**. Once the time-out value is up (if there have been no further trigger pulls), the imager reverts to the original hands free mode.

▪ The **Time Delay to Low Power Mode** sets the time for scanner to enter low power mode after any scanning activity when the scanner is in the Low Power Mode.

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## Operation Control

### SmartStand Power Off & Presentation Auto-sense

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **SmartStand Power Off**<br><br>**Timeout** | SS<br>SS<br>SS | 3 mins<br>5 mins<br>10 mins<br><br>Only available for DelfiScan Laser model | 0<br>1<br>2 |
| **Presentation Scanning**<br><br>**Auto-sense** | SS<br>SS | Disable<br>Enable | 0<br>1 |

▪ The SmartStand Power Off Timeout is a pre-defined duration for scanner placed in SmartStand. While the scanner is placed in SmartStand, the scanner's built-in sensor will switch the scanner from hand-held scanning to presentation scanning and the light source will be forced on automatically. The light source will be off when the pre-defined power off duration is up.

▪ The **Presentation Scanning Auto-sense** can auto switch the presentation scanning and hand-held scanning by using the SmartStand.

## Condensed DataWizard

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

**PROGRAM**  **M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code |
|---|---|---|---|
| **Preamble** | SS **MS** | None 1-15 characters<br><br>Maximum 15-character input; scan "FIN" to terminate this selection. | **FIN [00-7F], [FIN]** |
| **Postamble** | SS **MS** | None 1-15 characters<br><br>Maximum 15-character input; scan "FIN" to terminate this selection. | **FIN [00-7F], [FIN]** |
| **Data Length Transmission** | SS SS | Disable<br>Enable 2 digits data length transmission<br><br>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<br>Enable prefix symbology ID transmission<br>Enable suffix symbology ID transmission<br>Enable both prefix and suffix symbology ID transmission<br>Enable prefix AIM symbology ID transmission<br>Enable suffix AIM symbology ID transmission<br>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 DelfiScan 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 DelfiScan 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 DelfiScan vendor or our web site for any assistance.

**DelfiScan Programming Manual**

## Condensed DataWizard

### Data Formatter Setting

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code | 2nd Option Code |
|---|---|---|---|---|
| **Formatter Control** | SS **MS** **MS** | Disable<br>Select one bar code symbology<br>Select all bar code symbologies | FIN<br>(2 digits)<br>00 | automatic termination<br>automatic termination |
| **1st Insertion** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; max. 3 insertion characters | FIN<br>(2 digits)<br><br>position | [1-3 characters], [FIN] |
| **2nd Insertion** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; max. 3 insertion characters | FIN<br>(2 digits)<br><br>position | [1-3 characters], [FIN] |
| **3rd Insertion** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; max. 3 insertion characters | FIN<br>(2 digits)<br><br>position | [1-3 characters], [FIN] |
| **4th Insertion** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; max. 3 insertion characters | FIN<br>(2 digits)<br><br>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 Symbolology 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 46 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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**PROGRAM**

# Condensed DataWizard
## Data Verifier Setting

‖‖‖‖‖‖‖‖‖‖‖
**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code | 2nd Option Code |
|---|---|---|---|---|
| **Verifier Control** ‖‖‖‖‖‖‖‖ | SS **MS** **MS** | Disable<br>Select one bar code symbology<br>Select all bar code symbologies | FIN **(2 digits)** **00** | automatic termination<br>automatic termination |
| **Identified Data Length** ‖‖‖‖‖‖‖‖ | SS **DS** | Disable<br>Enable<br><br>Determine the identified data length for verification. | FIN **(2 digits)** | |
| **1st Identified Character** ‖‖‖‖‖‖‖‖ | SS **DS** | Disable<br>Enable<br><br>2-digits checking position; 1 identified character | FIN **(2 digits)**<br><br>position | **[00-7F]** |
| **2nd Identified Character** ‖‖‖‖‖‖‖‖ | SS **DS** | Disable<br>Enable<br><br>2-digits checking position; 1 identified character | FIN **(2 digits)**<br><br>position | **[00-7F]** |
| **3rd Identified Character** ‖‖‖‖‖‖‖‖ | SS **DS** | Disable<br>Enable<br><br>2-digits checking position; 1 identified character | FIN **(2 digits)**<br><br>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 DelfiScan 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 46 for details.
- Please note that all "**Character**" input should be referred to the **ASCII/HEX Table** listed in Appendix to find matched HEX value.

**DelfiScan Programming Manual**

## Condensed DataWizard

### Data Replacer Setting

PROGRAM

M_DEFAULT

| Family Code Selection | P.C | Parameter Selection | Option Code | 2nd Option Code |
|---|---|---|---|---|
| **Replacer Control** | SS **MS** **MS** | Disable<br>Select one bar code symbology<br>Select all bar code symbologies | FIN **(2 digits)** **00** | automatic termination<br>automatic termination |
| **1st Replacement** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; 1 replacement character | FIN **(2 digits)**<br><br>position | **[00-7F]** |
| **2nd Replacement** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; 1 replacement character | FIN **(2 digits)**<br><br>position | **[00-7F]** |
| **3rd Replacement** | SS **DS** | Disable<br>Enable<br><br>2-digits identified position; 1 replacement character | FIN **(2 digits)**<br><br>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 Replcement** 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 46 for details.

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

**DelfiScan Programming Manual**

## Condensed DataWizard

### Data Organizer Setting

**PROGRAM**

**M_DEFAULT**

| Family Code Selection | P.C | Parameter Selection | Option Code | 2nd Option Code |
|---|---|---|---|---|
| **Organizer Control** | SS<br>**MS**<br>**MS** | Disable<br>Select one bar code symbology<br>Select all bar code symbologies | FIN<br>**(2 digits)**<br>**00** | automatic termination<br>automatic termination |
| **1st Organization** | SS<br>**DS** | Disable<br>Enable | FIN<br>**(2 digits)** | 0 (Forward)<br>1 (Backward) |
| | | 2-digits identified position;<br>Forward/backward data transmission setting | position<br>direction | |
| **2nd Organization** | SS<br>**DS** | Disable<br>Enable | FIN<br>**(2 digits)** | 0 (Forward)<br>1 (Backward) |
| | | 2-digits identified position;<br>Forward/backward data transmission setting | position<br>direction | |
| **Include/Exclude Control** | SS<br>**DS** | Transmitted data excluded the data of identified position<br>Transmitted data included the data of identified position | 0<br>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 46 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 DelfiScan will arrange all incoming data to meet your pre-defined format. If you want to select only one type bar code, please select one of the option code listed below.

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

## 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 DelfiScan do the following for you without software modification:

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

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## Programming Procedure

### [Data Verifier]

- Scan "Program" to enter the programming mode.

- Scan "Verifier Control" and set bar code symbology to "**48**" (Interleaved 2 of 5).

- Scan "Identified Data Length" and set the length to "**16**".

- Scan "1st Identified Character" and set the identified position to "**00**", then set the identified character to "**39**" (Hex Code of 9).

### [Data Formatter]

- Scan "Formatter Control" and set bar code symbology to "**48**".

- Scan 1st Insertion" and set the identified position to "**06**", then inserted characters to "**09**" (Hex Code of TAB), "**53**" (Hex Code of S), "**4E**" (Hex Code of N).

- Scan "2nd Insertion" and set the identified position to "**12**", then inserted character to "**09**". In the final, you must scan "**FIN**" (Finish) code to terminate this selection.

- Scan "3rd Insertion" and set the identified position to "**16**", then inserted character to "**09**". In the final, you must scan "**FIN**" (Finish) code to terminate this selection.

### [Data Replacer]

- Scan "Replacer Control" and set bar $code$ symbology to "**48**".

- Scan "1st Replacement" and set the identified position to "**00**", then replaced character to "**41**" (Hex Code of A).

### [Data Organizer]

- Scan "Organizer Control" and set bar code symbology to "**48**".

- Scan "1st Organization" and set the identified position to "**16**", then set the data transmission to "**0**" (forward).

- Scan "2nd Organization" and set the identified position to "**17**", then set the data transmission to "**1**" (backward).

- Scan "**END**" (Exit) to terminate the programming.

### [Important Notice]

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

**Verifier       Formatter       Replacer       Organizer**

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

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## Symbology ID Table

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

] = Flag Character

c = Code Character

m = Modifier Character

| Code Family | Primary Format | Cino ID Code Character | AIM ID Code Character | AIM ID Modified Character | Code Family | Primary Format | Cino ID Code Character | AIM ID Code Character | AIM ID Modified Character |
|---|---|---|---|---|---|---|---|---|---|
| UPC | UPC-A | A | E | m | EAN/JAN | EAN/JAN-8 | N | E | 4 |
| | UPC-A with 2 supple. | | | 1 | | EAN/JAN-8 with 2 supple. | | | 1 |
| | UPC-A with 5 supple. | | | 2 | | EAN/JAN-8 with 5 supple. | | | 2 |
| | UPC-E | E | | m | | EAN/JAN-13 | F | E | m |
| | UPC-E with 2 supple. | | | 1 | | EAN/JAN-13 with 2 supple. | | | 1 |
| | UPC-E with 5 supple. | | | 2 | | EAN/JAN-13 with 5 supple. | | | 2 |
| | Example: A UPC-A bar code 012345678950 with 2 supplement 12 is transmitted as ]E0012345678950]E112 | | | | | Example: A EAN/JAN-8 bar code 49123562 with 5 supplement 12345 is transmitted as ]E449123562]E212345 | | | |
| Codabar | Codabar/NW-7 | D | F | m | Code 11 | Code 11 | P | H | m |
| Code 25 | Standard/Industrial 2 of 5 | I | S | 0 | MSI/Plessey | MSI/Plessey | R | M | m |
| | Matrix 2 of 5 | K | X | 0 | UK/Plessey | UK/Plessey | S | P | 0 |
| | Interleaved 2 of 5 | J | I | m | Telepen | Telepen | T | B | m |
| | China Postal Code | L | X | 0 | GS1 DataBar | GS1 Databar | X | e | 0 |
| | | | | | Compsoite | Composite Code | | | |
| | German Postal Code | M | I | 3 | Code 39 | Code 39 | G | A | m |
| IATA | IATA | O | R | m | | Code 39 Trioptic | W | X | 0 |
| Code 93 | Code 93 | H | G | m | | Code 32 | G | A | 0 |
| UCC Coupon | UCC Coupon Code | Z | | | PDF417 | PDF417/Micro PDF417 | V | L | 0 |
| | Example : A UPC-A 512345678900 + UCC/EAN-128 81010123451297 bar code is transmitted as]E0512345678900]C181010123451297  Example: A EAN-13 9923456789019 + UCC/EAN-128 81010123451297 bar code is transmitted as ]E09923456789019]C181010123451297 | | | | Codablock | Codablock F | Y | O | 0 |
| | | | | | Korea Post | Korea Post Code | a | X | 0 |
| | | | | | | Remark: Above examples are given for the transmission of AIM ID. | | | |

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## Keyboard Function Code Table

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

To emulate the keyboard function key input for user definable parameters, user must configure actual content using the **Reserved ASCII 0 – 31** characters, and also **Enable** the "Function Key Emulation". Otherwise, the Ctrl output will be done by the scanner. Please refer to the above Keyboard Function Code Table which is for IBM PC/XT/AT, PS/2, PS/VP, COMPAQ PC, HP Vectra PC, Notebook PC, APPLE and PowerMac, and WYSE PC Enhanced or fully compatible machines.

## ASCII Input Shortcut

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

### Example:

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

- Scan the system command – **PROGRAM** listed on page 3-24 to enter programming mode.

- Scan family code – **PREAMBLE** to select this family.

- Refer to the **Hex/ASCII Table**, you will find the HEX value of "**$**" is **24**.

- Scan the option code – **2** listed on the fold out back cover.

- Scan the option code – **4** listed on the fold out back cover.

- Scan the system command – **FIN (Finish)** to terminate Preamble setting.

- Scan the system command – **End** to exit the programming mode for normal operation.

## HEX/ASCII Reference Table

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

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

: High Byte of HEX Value

: Low Byte of HEX Value

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## Host Interface Quick Set

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**RS232 Serial**

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**Keyboard Replacement**

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**USB HID Standard Mode**

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**USB HID Turbo Mode**

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**USB Com Port Emulation**

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**PS/2 (DOS/V) KBW Standard Mode**

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**PS/2 (DOS/V) KBW Turbo Mode**

## Operation Mode Quick Set

Lower Power (Low power trigger)

Trigger (External trigger)

Presentation (Auto sensing)

Alternative (Periodic power off)

Flash (Pulse driven reading)

Level (Auto power off)

Force (Continued power on)

Toggle (Repeat reading)

Diagnostic (Test reading)

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## Option Codes

| | |
|---|---|
| **0** | |
| | **4** |
| **1** | |
| | **5** |
| **2** | |
| | **6** |
| **3** | |
| | **7** |

| | |
|---|---|
| **8** | |
| | **C** |
| **9** | |
| | **D** |
| **A** | |
| | **E** |
| **B** | |
| | **F** |

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# System Commands

**PROGRAM
(Enter Programming Mode)**

**FIN (Finish)**

**END
(Exit Programming Mode)**

**Save User Default**

**User Default**

**System Information List
(SYSLIST)**

**Factory Default
(M_DEFAULT)**

**PowerTool Host Link**