

# MT581

## 2D Wireless Ring Scanner

### User's Manual

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# Chapter 1 Introduction

This user's manual is dedicated to MT581, a wearable 2D wireless ring scanner that enables hands-free scanning for mobile operators who work with smartphones or other mobile devices of iOS and Android platform. With built-in Bluetooth 5.0 technology and disinfectant-ready housing, MT581 provides 20-meter wireless data transmission and microbe-free scanning experience.



## Specifications

Optic & Performance	
Light Source	White LED 625nm visible red LED
Sensor	640 x 480
Resolution	5mil (1D barcode) 6.67mil (2D barcode)
Scan Angle	Horizontal 42° Vertical 31.5°
Pitch Angle	±60°
Skew Angle	±30°
Roll Angle	360°
Print Contrast Ratio	40%
Width of Field	156mm (13Mil Code39)
Memory	2MB (20,000 barcodes)
Guaranteed D.O.F (Environment: 800 lux)	5 Mil Code 39 : 45 ~ 145mm
	13 Mil UPC/EAN : 65 ~ 345mm
	15 Mil QR Code : 35 ~ 165mm

	6.67 Mil PDF417 : 55 ~ 120mm
	10 Mil Data Matrix : 50 ~ 115mm
<b>Physical Characteristics</b>	
<b>Dimension</b>	W27.5 x L46.2 x H26.8 mm
<b>Weight</b>	19.4g
<b>Color</b>	Black/White
<b>Material</b>	PC+ABS
<b>Cable</b>	Micro(M) to USB A(M) Cable, 1.5M
<b>Trigger</b>	Touch Switches (Trigger Buttons) Function/Power Button
<b>Indicator</b>	LED, Buzzer
<b>Electrical</b>	
<b>Operation Voltage</b>	3.7 VDC ± 5%
<b>Working Current</b>	< 190mA
<b>Standby Current</b>	< 25mA
<b>Battery</b>	3.7V, 240mAh, Li-Polymer Battery
<b>Number of Scan (per full charge)</b>	4500 scans (1 scan/ 5 secs, Bluetooth connected)
<b>Connectivity</b>	
<b>Radio</b>	Bluetooth 5.0 dual mode (Class 2)
<b>Range</b>	66 ft/ 20m (line of sight)
<b>Interface/ Profile</b>	BT HID BT SPP USB HID USB VCP Memory
<b>User Environment</b>	
<b>Operating Temperature</b>	-10 ~ 50°C
<b>Storage Temperature</b>	-20 ~ 60°C
<b>Humidity</b>	0% ~ 95%RH (Non-condensing)
<b>Drop Durability</b>	1.5M
<b>Sealing</b>	IP42
<b>Ambient Light</b>	100,000 Lux (Sunlight)
<b>1D Symbolologies</b>	UPC-A/UPC-E, EAN-8/EAN-13, Industrial 2 of 5, Codabar, Matrix 2 of 5, Code 11, Code 93, Code 32, Code 128, Standard Code 39, Code 39, Interleaved 2 of 5, MSI Plessey Code, UK Plessey Code, EAN/UCC 128, IATA Code, GS1 Databar



<b>2D Symbologies</b>	QR Code, Micro QR Code, PDF417, Data Matrix, Aztec
<b>Regulatory</b>	
<b>ESD</b>	Functional after 4KV contact, 8KV air discharge
<b>EMC/RF</b>	FCC Part 15B Class B, Part15C CE EN62479, EN301489-1-17, EN300328 V2.1.1
<b>Safety Approval</b>	EN/IEC62471
<b>Environmental</b>	WEEE, RoHS 2.0
<b>Medical Compliance</b>	ISO 22196 (JIS Z 2801), ISO 11737-1/2

## Beeper Indication

<b>Beeper</b>	<b>Status</b>
<b>Single beep</b>	Good read
<b>Single short beep</b>	The scanner reads a Code39 ASCII during multi-step configuration
<b>Two beeps</b>	Wireless connection
	The scanner successfully reads a configuration barcode
<b>Three beeps</b>	Wireless disconnection
<b>Three short beeps</b>	The scanner reads a barcode while disconnected
	The scanner reads an unexpected barcode during multi-step configuration. (Please scan " <b>Abort</b> " and start over)
	Memory Full
<b>Four beeps (Hi-Lo-Hi-Lo)</b>	Out of range / Poor connection
<b>Five beeps</b>	Low power

## LED Indication

LED	Status
Off	Power off / Standby / Connected
Flashing blue	Disconnected / Discoverable
One green flash	Good read
Flashing red	Low power
Solid red	Charging

## Chapter 2 General Settings

### Barcode Configurability

Scanning below configuration barcodes will allow/prohibit user to change settings by scanning configuration barcodes in this manual.



\*.B015\$\*

**Enable Barcode Configurability\***



\*.B016\$\*

**Disable Barcode Configurability**

### Factory Default

Scanning below configuration barcode will reset all parameters to factory default settings (the ones with \* asterisk mark)



\*.A001\$\*

**Factory Default**

### Check Version

To check firmware version, please scan below configuration barcode.



\*.A007\$\*

**Check Version**

## Button Preference

Scan one of below barcodes to determine which touch-sensing button to enable according to your habit:



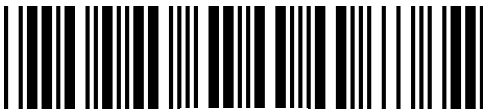
\*.F064\$\*

**Right Button Only**  
(For Left-handed User)



\*.F065\$\*

**Left Button Only\***  
(For Right-handed User)



\*.F066\$\*

**Both Button**

## Good Read Indicator

### Beep Tone



\*.F012\$\*

**Off**



\*.F022\$\*

**Beep Low (2.0KHz)**



\*.F018\$\*

**Beep Medium (2.7KHz)**



\*.F019\$\*

**Beep High (4.0KHz)\***

## Beep Mode



\*.F023\$\*

**Normal\***



\*.F024\$\*

**Warning Beep Only**



\*.F025\$\*

**Mute**

## Data Format

### UTF-8/Shift-JIS to Unicode Conversion



\*.C044\$\*

Disable\*



\*.C045\$\*

UTF-8 to Unicode  
(Word)



\*.C054\$\*

Shift-JIS  
(Notepad)



\*.C055\$\*

Shift-JIS to Unicode  
(Word)

### HT/CR/ESC Converts to TAB/ENTER/ESCAPE



\*.D026\$\*

Off\*



\*.D025\$\*

On

Note:

1. By default, HT [\$I], CR [\$M] and ESC [%A] is transmitted as <0x09>, <0x0D> and <0x1B> respectively.
2. When enabled, HT [\$I], CR [\$M] and ESC [%A] is transmitted as <TAB>, <ENTER> and <ESCAPE> on keyboard respectively.

## Function Code Conversion



\*.C020\$\*

Off



\*.C019\$\*

On\*

Note:

Once disabled, the scanner will output the original encoded data of the barcodes in Appendix - Function/Navigation/Modifier Keys.

## Control Code Output Method



\*.D028\$\*

Ctrl Mode\*



\*.D029\$\*

Alt Mode



\*.D027\$\*

Disable Output

Note:

Control code (0x01 ~ 0x1A) can be sent by two methods:

### (1) Ctrl Mode:

A barcode of "A<HT>F" (0x41/0x09/0x46) is scanned, the output sequence is:

- a. Enter "A" – Press A key
- b. Enter "Ctrl + I" – Since 0x09 corresponds to "Ctrl + I", virtual keyboard will press and hold Ctrl key, press I key, and release Ctrl key and I key
- c. Enter "F" – Press F key

Since "Ctrl+I" is shortcut for italicizing text in some software applications, the result of above output sequence can be a regular A plus an italic F.

**(2) Alt Mode:**

For <HT>, the output sequence of virtual keyboard is:

Enter "Alt + 0 + 0 + 0 + 9" – Virtual keyboard will press and hold Alt key, press "0", "0", "0" and "9" on numeric keypad respectively, and release Alt key.

**Control Code Table**

ASCII	Hex	Dec	Ctrl Mode	Alt Mode
NUL	00	0	Alt+0+0	Alt+0+0+0+0
SOH	01	1	Ctrl+a	Alt+0+0+0+1
STX	02	2	Ctrl+b	Alt+0+0+0+2
ETX	03	3	Ctrl+c	Alt+0+0+0+3
EOT	04	4	Ctrl+d	Alt+0+0+0+4
ENQ	05	5	Ctrl+e	Alt+0+0+0+5
ACK	06	6	Ctrl+f	Alt+0+0+0+6
BEL	07	7	Ctrl+g	Alt+0+0+0+7
BS	08	8	Ctrl+h	Alt+0+0+0+8
HT	09	9	Ctrl+i	Alt+0+0+0+9
LF	0A	10	Ctrl+j	Alt+0+0+1+0
VT	0B	11	Ctrl+k	Alt+0+0+1+1
FF	0C	12	Ctrl+l	Alt+0+0+1+2
CR	0D	13	Ctrl+m	Alt+0+0+1+3
SO	0E	14	Ctrl+n	Alt+0+0+1+4
SI	0F	15	Ctrl+o	Alt+0+0+1+5
DLE	10	16	Ctrl+p	Alt+0+0+1+6
DC1	11	17	Ctrl+q	Alt+0+0+1+7
DC2	12	18	Ctrl+r	Alt+0+0+1+8
DC3	13	19	Ctrl+s	Alt+0+0+1+9
DC4	14	20	Ctrl+t	Alt+0+0+2+0
NAK	15	21	Ctrl+u	Alt+0+0+2+1
SYN	16	22	Ctrl+v	Alt+0+0+2+2
ETB	17	23	Ctrl+w	Alt+0+0+2+3
CAN	18	24	Ctrl+x	Alt+0+0+2+4
EM	19	25	Ctrl+y	Alt+0+0+2+5
SUB	1A	26	Ctrl+z	Alt+0+0+2+6
ESC	1B	27	Alt+0+0+2+7	Alt+0+0+2+7



FS	1C	28	Alt+0+0+2+8	Alt+0+0+2+8
GS	1D	29	Alt+0+0+2+9	Alt+0+0+2+9
RS	1E	30	Alt+0+0+3+0	Alt+0+0+3+0
US	1F	31	Alt+0+0+3+1	Alt+0+0+3+1

## Numeric Key



\*.D017\$\*

**Numeric Key**



\*.D018\$\*

**Alphanumeric Key\***

Note:

1. By default, the alphanumeric key is used for transmitting digits. Scan NUMERIC KEY if you want to use the keys on the numeric keypad.
2. If you select NUMERIC KEY, the Num Lock status of the physical keyboard should be ON.

## Capslock Mode



\*.A005\$\*

**Capslock Off\***



\*.A004\$\*

**Capslock On**



\*.A006\$\*

**Capslock Free**

Note:

When barcode scanner is set to Capslock Free mode, no matter keyboard Capslock LED indicator is ON or OFF, output will be always the same as the Original barcode. In other words, what you see is what output is.

## Keyboard Layout



\*.C010\$\*

English (US)\*



\*.C018\$\*

English (UK)



\*.C027\$\*

Danish



\*.C013\$\*

Spanish



\*.C021\$\*

Hungarian (QWERTZ)



\*.C024\$\*

Hungarian (QWERTY)



\*.C025\$\*

Canadian French



\*.C028\$\*

Dutch



\*.C014\$\*

Italian



\*.C012\$\*

French



\*.C011\$\*

German



\*.C016\$\*

Swiss German



\*.C023\$\*

**Swiss French**



\*.C026\$\*

**Swedish**



\*.C022\$\*

**Czech (QWERTZ)**



\*.C017\$\*

**Czech (QWERTY)**



\*.C029\$\*

**Norwegian**



\*.C030\$\*

**Belgian**



\*.C031\$\*

**Portuguese**



\*.C032\$\*

**Slovak**



\*.C033\$\*

**Brazilian (QWERTY)**



\*.C034\$\*

**Canadian (Traditional)**



\*.C009\$\*

**Japanese**



\*.C015\$\*

**Alt Code**

## Intercharacter Delay

The configurable range is from 0 to 255ms. The larger the number, the longer the delay.



\*.B009\$\*

### Set Intercharacter Delay

(Default = 10ms)

#### Example: Set Intercharacter Delay to 8ms

Step1: Scan Set Intercharacter Delay

Step2: Scan "0" "0" "8" in Appendix - Numbers

Step3: Scan Set Intercharacter Delay

## Interblock Delay

The configurable range is from 0 to 2550ms. The larger the number, the longer the delay.



\*.B007\$\*

### Set Interblock Delay

(Default = 0ms)

#### Example: Set Interblock Delay to 20ms

Step1: Scan Set Interblock Delay

Step2: Scan "0" "0" "2" in Appendix - Numbers

Step3: Scan Set Interblock Delay

## BCC (Binary Check Character)



\*.E029\$\*

On



\*.E030\$\*

Off\*

**Note:**

Once enabled, a checksum will be added to the end of each data to conduct Xor calculation. For Bluetooth SPP & USB-VCP, the BCC is 1 byte. For Bluetooth HID & USB HID, the BCC are 2 bytes.

**Example:**

The barcode data is "TEST" with terminator <CR><LF>

1. BT SPP & USB VCP:

Data Format = <T> + <E> + <S> + <T> + <CR> + <LF> + <BCC>.

BCC = 54h ^ 45h ^ 53h ^ 54h ^ 0Dh ^ 0Ah = 11h

2. BT HID & USB HID:

Data Format = <T> + <E> + <S> + <T> + <Enter> + <BCC>

BCC = 54h ^ 45h ^ 53h ^ 54h ^ E7h = F1h

However, since control character cannot be displayed in HID, BCC will be converted into 2 bytes of characters.

As a result, the data will be: TEST + <Enter> + F + 1

## Imaging Settings

### Inverse Barcode



\*.D054\$\*

**Disable Inverse Barcode\***



\*.D055\$\*

**Enable Inverse Barcode**

## Chapter 3 Interface

### BT HID

#### Getting Connected

1. Press the function button on the top to power up the scanner.
2. Scan "**Disconnect**", the scanner will emit two beeps.



\*.E031\$\*

**Disconnect**

3. Scan "**BT HID**", the scanner will emit two beeps.



\*.E043\$\*

**BT HID**

4. Select "Wireless Scanner" from discovered device list.
5. If Bluetooth application prompts you to enter a pincode, please follow the steps in **Pincode Setup** section.
6. The scanner will emit two beeps as indication that the Bluetooth connection has established successfully.
7. While conneted with the scanner as physical keyboard, the touch keyboard on iOS/Android device might disappear. To resolve this issue please do the following:
  - (1) For iOS device, simply press the function button on the top once.
  - (2) For Android device, go to "Settings" > "Language & Input", tap on "Default keyboard" and turn off "Physical keyboard" or turn on "On-screen keyboard".

## Pincode Setup

If Bluetooth application prompts you to enter a pincode, please follow the steps:

1. Scan "Pincode Start"



**Pincode Start**

2. Scan numeric barcodes below according to the pincode generated by the Bluetooth application.



**0**



**1**



**2**



**3**



**4**



**5**



**6**



**7**



**8**



**9**

3. Scan "Enter"



**Enter**

4. Scan “**Pincode Stop**”



\*.E033\$\*

**Pincode Stop**

## BT SPP

### Getting Connected

1. Press the function button on the top to power up the scanner.
2. Scan “**Disconnect**”, the scanner will emit two beeps.



\*.E031\$\*

**Disconnect**

3. Scan “**BT SPP Master**”(recommended) or “**BT SPP Slave**”, the scanner will emit two beeps. If host can't auto-reconnect, use BT SPP Master. If host can auto-reconnect, use BT SPP Slave to avoid conflict.



\*.E042\$\*

**BT SPP Master**  
**(Auto-reconnect)**



\*.E052\$\*

**BT SPP Slave**  
**(No Auto-reconnect)**

4. Select “Wireless Scanner” from discovered device list.
5. If Bluetooth application prompts you to enter a pincode, enter “1234” from the host.
6. Enter serial communication software on your host and open the port occupied by the scanner.
7. The scanner will emit two beeps as indication that the Bluetooth connection has established successfully.



## Set SPP Pincode

By default, the pincode under BT SPP profile for the scanner is "1234". It is configurable up to 8 numbers.



### Set SPP Pincode

**Example: Set SPP Pincode to 0000.**

Step1: Scan "Set SPP Pincode"

Step2: Scan "0" "0" "0" "0" in Appendix - Numbers

Step3: Scan "Set SPP Pincode"

## General Bluetooth Settings

### Power Off Timeout

The power off timeout is 3 minutes & 0 second by default. They are configurable from a minimum of 10 seconds (00:10) to a maximum of 60 minutes and 59 seconds (60:59)



\*.B030\$\*

**Set Minute**  
(Default = 03)



\*.B029\$\*

**Set Second**  
(Default = 00)

**Example: Set Power Off Timeout to 5 minutes and 30 seconds.**

Step1: Scan "Set Minute"

Step2: Scan "0" "5" in Appendix - Numbers

Step3: Scan "Set Minute"

Step4: Scan "Set Second"

Step5: Scan "3" "0" in Appendix - Numbers

Step6: Scan "Set Second"

To disable Power Off Timeout (make scanner always on), scan below barcode:



\*.B021\$\*

**Disable Timeout**

## Set Bluetooth Device ID

Bluetooth device name is configurable up to 16 alphanumeric characters:



### Set Bluetooth Device ID

#### Example: Set XYZ123 as Bluetooth Device ID

Step 1: Scan "Set Bluetooth Device ID"

Step 2: Scan "X" "Y" "Z" "1" "2" "3" in Appendix - Upper Case Alphabets & Numbers

Step 3: Scan "Set Bluetooth Device ID"

To reset Bluetooth Device ID to "Wireless Scanner", scan below barcode:



### Reset Bluetooth Device ID

## Check Bluetooth Firmware Version



### Check Bluetooth Firmware Version

## Check Device MAC Address



\*.E038\$\*

Check Device MAC Address

## Check Host MAC Address



\*.E039\$\*

Check Host MAC Address

## Check Battery Life

To check scanner's battery life, please connect to a host device and scan below configuration barcode.



\*.E250\$\*

Check Battery Life

## ScanLink

ScanLink is a connection method that turns the scanner into a master device, which initiates the Bluetooth connection with the target host device (now a slave device). This, as a result, saves user the trouble of going through numerous setup procedures on the host device to establish connection.

Simply generate ScanLink barcode for the target slave device in below rule:

For BT HID profile, please encode:

**HID<MAC Address>** in Code39 without checksum or QR Code.

For BT SPP profile, please encode:

**SPP<MAC Address>** in Code39 without checksum or QR Code.

**Example: Target Slave Device MAC Address = 00:15:83:52:2C:3B, Profile = BT HID**

Encode **HID001583522C3B** in Code39 without checksum or QR Code.

## Memory Mode



\*.C035\$\*

### Memory Mode

After scanning the above barcode, the scanner will be able to collect barcode data off-line. The barcode data will be stored in the format of:

**<Date>, <Time>, <Barcode Data> <CR>**

To retrieve stored data, please connect the scanner to the host with USB cable, access removable storage device "**MiniScan**" from which you may open or copy the file "**BARCODE.txt**" to your computer.

To exit Memory Mode, simply scan any interface barcode (e.g. "**BT HID**", "**BT SPP Master/Slave**", "**USB HID**", "**USB VCP**") other than memory mode.

## Delete Last Record

To delete last memory data, please scan below barcode or press function button once when the scanner is in memory mode.



\*.R005\$\*

### Delete Last Record

## Clear All Record

To delete all memory data, please connect the scanner to the host with USB cable, access removable storage device "**MiniScan**", and delete the file "**BARCODE.txt**". The scanner will emit two beeps as indication that the file has been successfully deleted.

## Data Format

The default Data Format in memory mode is <Date>, <Time>, <Barcode Data>.



**Data Format**

Below are configurable items and their setup codes:

Code	Item
2	Date
3	Time
4	Barcode Data

**Example: Set Data Format as <Barcode Data>, <Date>, <Time>**

Step1: Scan "Data Format"

Step2: Scan "4" "3" "2" respectively in Appendix - Numbers

Step3: Scan "Data Format"

## Field Separator

The field separator in memory mode is comma ( , ) by default. It can be replaced by any alphanumeric characters.



**Field Separator**

**Example: Set Field Separator as Semicolon ( ; )**

Step1: Scan "Field Separator"

Step2: Scan " ; " in Appendix - Symbols

Step3: Scan "Field Separator"

## Date Format

The default Date Format is **DD/MM/YYYY** (Code = 09)



\*.R008\$\*

### Date Format

Below are available Date Format and their setup codes:

Code	Date Format	Code	Date Format
01	DD-MM-YYYY	09	DD/MM/YYYY
02	MM-DD-YYYY	10	MM/DD/YYYY
03	DD-MM-YY	11	DD/MM/YY
04	MM-DD-YY	12	MM/DD/YY
05	YYYY-MM-DD	13	YYYY/MM/DD
06	YY-MM-DD	14	YY/MM/DD
07	DD-MM	15	DD/MM
08	MM-DD	16	MM/DD

### Example: Set Date Format as MM/DD/YY (Code = 12)

Step1: Scan "Date Format"

Step2: Scan "1" "2" respectively in Appendix - Numbers

Step3: Scan "Date Format"

## Time Format



\*.R024\$\*

HH:MM:SS\*



\*.R025\$\*

HH:MM



## Date & Time Setup



\*.R006\$\*

**Set Date**



\*.R007\$\*

**Set Time**

**Example: Set date as 2021-07-27, set time as 08:10:30 am (HH:MM:SS)**

Step1: Scan "Set Date"

Step2: Scan "2" "1" "0" "7" "2" "7" in Appendix - Numbers

Step3: Scan "Set Date"

Step4: Scan "Set Time"

Step5: Scan "0" "8" "1" "0" "3" "0" in Appendix - Numbers

Step6: Scan "Set Time"

## USB HID



\*.C008\$\*

**USB HID**

## USB VCP



\*.C006\$\*

**USB VCP**

## Chapter 4 Reading Mode

### Trigger Mode

In Trigger Mode the LED will stay on once trigger is pressed and held, and will turn off automatically once a barcode is read or LED Auto-Off timeout expires.



**Trigger Mode\***

### Pulse Mode

In Pulse Mode the LED will stay on once trigger is pressed, and will not turn off until a barcode is read.



**Pulse Mode**

### Trigger / Pulse Mode – LED Auto-Off Timeout

The configurable range is 0.1 ~ 125 sec. 3 digits must be programmed during the multi-step configuration. (001 = 0.1 sec, 002 = 0.2 sec, 003 = 0.3 sec, 004 = 0.4 sec, 005 = 0.5 sec, 0.6 = 1 sec, 007 = 1.5 sec, 008 = 2.0 sec, 009 = 2.5 sec, 010 = 3 sec, ..... 254 = 125 sec, 255 = unlimited)



**LED Auto-Off Timeout**

(Default = 3 sec)

**Example: Set LED Auto-Off Timeout as 5 sec**

Step1: Scan "LED Auto-Off Timeout"

Step2: Scan "0" "1" "4" in Appendix - Numbers

Step3: Scan "LED Auto-Off Timeout"

## Batch Mode

In Batch Mode the LED will stay on when trigger is pressed and held, during which the scanner will read each unique barcode once. It cannot be read again until the next cycle.



## Continuous Mode

In Continuous Mode the LED will stay on once trigger is pressed, and will not turn off until the trigger is pressed again.



## Auto-sensing Mode

In Auto-sensing Mode the LED will turn off automatically after LED Auto-Off timeout expires. Any change detected in image will make LED turn on again.



**Auto-sensing Mode**

**Auto-sensing Mode – Sensitivity**

The configurable range is 01 ~ 20. 2 digits must be programmed during the multi-step configuration.



**Sensitivity**  
(Default = 10)

**Example: Set Sensitivity as 20**

- Step1: Scan “**Sensitivity**”
- Step2: Scan “**2**” “**0**” in Appendix - Numbers
- Step3: Scan “**Sensitivity**”

**Continuous / Auto-sensing Mode – Identical Read Interval**

When enabled, the scanner will not read a barcode twice until Identical Read Interval expires.



**Identical Read Interval On\***



**Identical Read Interval Off**

The configurable range is 0.1 ~ 125 sec. 3 digits must be programmed during the multi-step configuration. (001 = 0.1 sec, 002 = 0.2 sec, 003 = 0.3 sec, 004 = 0.4 sec, 005 = 0.5 sec, 0.6 = 1 sec, 007 = 1.5 sec, 008 = 2.0 sec, 009 = 2.5 sec, 010 = 3 sec, ..... 254 = 125 sec, 255 = unlimited)



\*.F040\$\*

**Identical Read Interval**

(Default = 1 sec)

**Example: Set Identical Read Interval as 5 sec**

Step1: Scan "Identical Read Interval"

Step2: Scan "0" "1" "4" in Appendix - Numbers

Step3: Scan "Identical Read Interval"

## Chapter 5 Data Format

By default data format is as follows:

<Preamble> <Code ID> <Barcode Length> <Barcode Data> <Postamble> <Terminator>

### Code ID



\*.A009\$\*

Disable Code ID\*



\*.A008\$\*

Enable Factory ID



\*.A014\$\*

Enable AIM ID



\*.A015\$\*

Enable Set ID

### Set ID

Set ID can be 0 ~ 2 alphanumeric for each symbology.



\*.P005\$\*

Set ID - Code39



\*.P008\$\*

Set ID - Code39 Full ASCII



\*.P011\$\*

Set ID - Code32



\*.P007\$\*

Set ID - Codabar



\*.P006\$\*

Set ID – Interleaved 2 of 5



\*.P052\$\*

Set ID – ITF-14



\*.P053\$\*

Set ID – ITF-6



\*.P021\$\*

Set ID – Standard 2 of 5



\*.P017\$\*

Set ID – Matrix 2 of 5



\*.P018\$\*

Set ID – Industrial 2 of 5



\*.P009\$\*

Set ID – Code11



\*.P014\$\*

Set ID – MSI Plessey



\*.P015\$\*

Set ID – UK Plessey



\*.P001\$\*

Set ID – EAN-13



\*.P004\$\*

Set ID – UPC-A



\*.P002\$\*

Set ID – EAN-8



\*.P003\$\*

Set ID – UPC-E



\*.P055\$\*

Set ID – ISBN



\*.P054\$\*

Set ID – ISSN



\*.P013\$\*

Set ID – Code93



\*.P010\$\*

Set ID – Code128



\*.P016\$\*

Set ID – GS1-128



\*.P056\$\*

Set ID – AIM 128



\*.P027\$\*

Set ID – Data Matrix



\*.P024\$\*

Set ID – GS1 Databar



\*.P026\$\*

Set ID – QR Code



\*.P050\$\*

Set ID – Micro QR Code



\*.P025\$\*

Set ID – PDF417



\*.P027\$\*

Set ID – Data Matrix



\*.P033\$\*

Set ID – Aztec

**Example: Set Code39 Set ID as XY**

Step1: Scan “Set ID – Code39”

Step2: Scan “X” “Y” in Appendix - Upper Case Alphabets

Step3: Scan “Set ID – Code39”



## Data Length



\*.D020\$\*

Send Data Length Off\*



\*.D019\$\*

Send Data Length On

## Preamble

Preamble can be up to 16 bytes of data.



\*.A012\$\*

Set Preamble

### Example: Set Preamble as XYZ123

Step 1: Scan "Set Preamble"

Step 2: Scan "X" "Y" "Z" "1" "2" "3" in Appendix - Upper Case Alphabets & Numbers

Step 3: Scan "Set Preamble"

## Postamble

Postamble can be up to 16 bytes of data.



\*.A013\$\*

Set Postamble

### Example: Set Postamble as XYZ123

Step 1: Scan "Set Postamble"

Step 2: Scan "X" "Y" "Z" "1" "2" "3" in Appendix - Upper Case Alphabets & Numbers

Step 3: Scan "Set Postamble"

## Clear Preamble/Postamble



\*.A011\$\*

Clear Preamble/Postamble

## Terminator



\*.D010\$\*

None



\*.D011\$\*

<LF>



\*.D012\$\*

<CR>\*



\*.D013\$\*

<CR><LF>



\*.D014\$\*

<TAB>



\*.D015\$\*

<Space>



\*.D016\$\*

<ESC>

# Chapter 6 Symbologies

## General Settings



\*.A002\$\*

**Enable All Symbologies**



\*.A003\$\*

**Disable All Symbologies**



\*.G036\$\*

**Enable All 1D Symbologies**



\*.G035\$\*

**Disable All 1D Symbologies**



\*.G038\$\*

**Enable All 2D Symbologies**



\*.G037\$\*

**Disable All 2D Symbologies**

Note: When all symbologies are disabled, configuration barcodes are still readable.

## UPC-A

### Enable/Disable UPC-A



\*.H001\$\*

Enable UPC-A\*



\*.H002\$\*

Disable UPC-A

### Check Digit



\*.H005\$\*

Send Check Digit\*



\*.H006\$\*

Not Send Check Digit

### Lead Digit



\*.H089\$\*

No Preamble\*



\*.H003\$\*

Send System Character & Country Code



\*.H004\$\*

Send System Character

### Supplement



\*.H033\$\*

5-digit Supplement On



\*.H034\$\*

5-digit Supplement Off\*



\*.H035\$\*

**2-digit Supplement On**



\*.H036\$\*

**2-digit Supplement Off\***



\*.H060\$\*

**Supplement Required On**



\*.H059\$\*

**Supplement Required Off\***

## UPC-E

### Enable/Disable UPC-E



\*.H007\$\*

**Enable UPC-E\***



\*.H008\$\*

**Disable UPC-E**

### Check Digit



\*.H011\$\*

**Send Check Digit\***



\*.H012\$\*

**Not Send Check Digit**

## Lead Digit



\*.H088\$\*

No Preamble\*



\*.H009\$\*

Send System Character & Country Code



\*.H010\$\*

Send System Character

## Supplement



\*.H037\$\*

5-digit Supplement On



\*.H038\$\*

5-digit Supplement Off\*



\*.H039\$\*

2-digit Supplement On



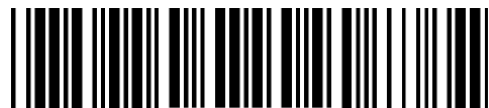
\*.H040\$\*

2-digit Supplement Off\*



\*.H056\$\*

Supplement Required On



\*.H055\$\*

Supplement Required Off\*

## UPC-E to UPC-A



\*.H054\$\*

Disable UPC-E to UPC-A\*



\*.H053\$\*

Enable UPC-E to UPC-A

## EAN-8

### Enable/Disable EAN-8



\*.H019\$\*

Enable EAN-8\*



\*.H020\$\*

Disable EAN-8

## Check Digit



\*.H024\$\*

Not Send Check Digit



\*.H023\$\*

Send Check Digit\*

## Supplement



\*.H029\$\*

5-digit Supplement On



\*.H030\$\*

5-digit Supplement Off\*



\*.H031\$\*

**2-digit Supplement On**



\*.H032\$\*

**2-digit Supplement Off\***



\*.H062\$\*

**Supplement Required On**



\*.H061\$\*

**Supplement Required Off\***

## **EAN-13**

### **Enable/Disable EAN-13**



\*.H013\$\*

**Enable EAN-13\***



\*.H014\$\*

**Disable EAN-13**

### **Check Digit**



\*.H018\$\*

**Not Send Check Digit**



\*.H017\$\*

**Send Check Digit\***

### **Supplement**



\*.H025\$\*

**5-digit Supplement On**



\*.H026\$\*

**5-digit Supplement Off\***





\*.H027\$\*

2-digit Supplement On



\*.H028\$\*

2-digit Supplement Off\*



\*.H058\$\*

Supplement Required On



\*.H057\$\*

Supplement Required Off\*

## ISBN



\*.H049\$\*

On



\*.H050\$\*

Off\*



\*.H073\$\*

ISBN-10\*



\*.H074\$\*

ISBN-13

## ISSN



\*.H051\$\*

On



\*.H052\$\*

Off\*

## Code 128

### Enable/Disable Code 128



\*.J010\$\*

**Enable Code 128\***



\*.J011\$\*

**Disable Code 128**

### Code128 Min/Max Length



\*.J012\$\*

**Set Min Length**  
(Default = 01)



\*.J013\$\*

**Set Max Length**  
(Default = 48)

#### **Example: Set Min Length as 8, Max Length as 12 for Code128**

Step1: Scan "**Set Min Length**"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "**Set Min Length**"

Step4: Scan "**Set Max Length**"

Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "**Set Max Length**"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## GS1-128(UCC/EAN 128)

### Enable/Disable GS1-128



\*.M001\$\*

**Enable GS1-128\***



\*.M002\$\*

**Disable GS1-128**

### GS1-128 Min/Max Length



\*.M019\$\*

**Set Min Length**

(Default = 01)



\*.M020\$\*

**Set Max Length**

(Default = 48)

#### **Example: Set Min Length as 8, Max Length as 12 for GS1-128**

Step1: Scan "**Set Min Length**"

Step2: Scan "**0**" "**8**" in Appendix - Numbers

Step3: Scan "**Set Min Length**"

Step4: Scan "**Set Max Length**"

Step5: Scan "**1**" "**2**" in Appendix - Numbers

Step6: Scan "**Set Max Length**"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## AIM 128

### Enable/Disable AIM 128



\*.J051\$\*

Enable AIM 128



\*.J050\$\*

Disable AIM 128\*

### AIM 128 Min/Max Length



\*.J052\$\*

Set Min Length

(Default = 01)



\*.J053\$\*

Set Max Length

(Default = 48)

#### Example: Set Min Length as 8, Max Length as 12 for AIM 128

Step1: Scan "Set Min Length"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Code 39

### Enable/Disable Code 39



\*.G008\$\*

Enable Code 39\*



\*.G009\$\*

Disable Code 39

### Verification



\*.G003\$\*

Disable CDV\*



\*.G004\$\*

CDV & Send CD



\*.G005\$\*

CDV & Not Send CD

### Start/Stop



\*.G015\$\*

Not Send Start/Stop\*



\*.G014\$\*

Send Start/Stop\*

## Full ASCII Code39



\*.G001\$\*

**Enable Full ASCII Code39\***



\*.G002\$\*

**Disable Full ASCII Code39**

## Code39 Min/Max Length



\*.G006\$\*

**Set Min Length**  
(Default = 01)



\*.G007\$\*

**Set Max Length**  
(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for Code39

Step1: Scan **"Set Min Length"**

Step2: Scan **"0" "8"** in Appendix - Numbers

Step3: Scan **"Set Min Length"**

Step4: Scan **"Set Max Length"**

Step5: Scan **"1" "2"** in Appendix - Numbers

Step6: Scan **"Set Max Length"**

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Code 32

### Enable/Disable Code 32



\*.K010\$\*

**Enable Code 32**



\*.K011\$\*

**Disable Code 32\***

**Notw:** Please make sure Code39 is enabled with verification disabled before enabling Code32.

### Leading/Tailing



\*.K012\$\*

**Not Send Leading & Tailing\***



\*.K013\$\*

**Send Leading Only**



\*.K014\$\*

**Send Tailing Only**



\*.K015\$\*

**Send Leading & Tailing**

## Code 93

### Enable/Disable Code 93



\*.G010\$\*

Enable Code 93



\*.G011\$\*

Disable Code 93\*

### Verification



\*.G069\$\*

Disable CDV



\*.G016\$\*

CDV & Send CD



\*.G017\$\*

CDV & Not Send CD\*

### Code 93 Min/Max Length



\*.G012\$\*

Set Min Length

(Default = 01)



\*.G013\$\*

Set Max Length

(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for Code93

Step1: Scan "Set Min Length"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"



Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Code 11

### Enable/Disable Code 11



\*.I010\$\*

Enable Code 11



\*.I011\$\*

Disable Code 11\*

### Verification



\*.I012\$\*

Disable CDV



\*.I013\$\*

CDV & Send CD\*



\*.I014\$\*

CDV & Not Send CD

### Check Digit



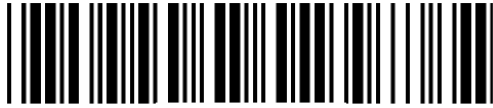
\*.I046\$\*

Single Digit (MOD11)\*



\*.I047\$\*

Double Digits (MOD11/MOD11)



\*.I048\$\*

Double Digits (MOD11/MOD9)



\*.I049\$\*

Single Digit (MOD11)  
Double Digits (MOD11/MOD11)



\*.I050\$\*

Single Digit (MOD11)  
Double Digits (MOD11/MOD9)

### Code 11 Min/Max Length



\*.I015\$\*

**Set Min Length**  
(Default = 04)



\*.I016\$\*

**Set Max Length**  
(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for Code11

- Step1: Scan "Set Min Length"
- Step2: Scan "0" "8" in Appendix - Numbers
- Step3: Scan "Set Min Length"
- Step4: Scan "Set Max Length"
- Step5: Scan "1" "2" in Appendix - Numbers
- Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Codabar (NW-7)

### Enable/Disable Codabar



\*.1001\$\*

Enable Codabar\*



\*.1002\$\*

Disable Codabar

### Verification



\*.1005\$\*

Disable CDV\*



\*.1006\$\*

CDV & Send CD



\*.1007\$\*

CDV & Not Send CD

### Start/Stop



\*.1004\$\*

Not Send Start/Stop\*



\*.1003\$\*

Send Start/Stop



\*.1029\$\*

ST/SP: ABCD/ABCD\*



\*.1030\$\*

ST/SP: abcd/abcd



\*.1031\$\*

ST/SP: ABCD/TN\*E



\*.1032\$\*

ST/SP: abcd/tn\*e

## Codabar Min/Max Length



\*.1008\$\*

**Set Min Length**

(Default = 02)



\*.1009\$\*

**Set Max Length**

(Default = 60)

### Example: Set Min Length as 8, Max Length as 12 for Codabar

Step1: Scan "**Set Min Length**"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "**Set Min Length**"

Step4: Scan "**Set Max Length**"

Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "**Set Max Length**"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Interleaved 2 of 5

### Enable/Disable Interleaved 2 of 5



\*.J001\$\*

Enable Interleaved 2 of 5\*



\*.J002\$\*

Disable Interleaved 2 of 5

### Verification



\*.J003\$\*

Disable CDV\*



\*.J004\$\*

CDV & Send CD



\*.J005\$\*

CDV & Not Send CD

## Interleaved 2 of 5 Min/Max Length



\*.J006\$\*

**Set Min Length**

(Default = 06)



\*.J007\$\*

**Set Max Length**

(Default = 80)

### Example: Set Min Length as 8, Max Length as 12 for Interleaved 2 of 5

Step1: Scan "Set Min Length"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## ITF-14

### Enable/Disable ITF-14



\*.J027\$\*

Disable ITF-14\*



\*.J028\$\*

Enable ITF-14, CDV & Not Send CD

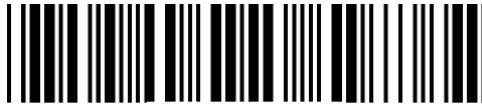


\*.J029\$\*

Enable ITF-14, CDV & Send CD

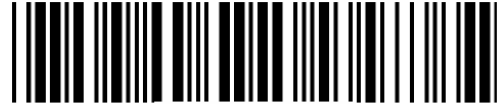
## ITF-6

### Enable/Disable ITF-14



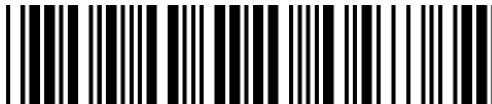
\*.J030\$\*

Disable ITF-6\*



\*.J031\$\*

Enable ITF-6, CDV & Not Send CD



\*.J032\$\*

Enable ITF-6, CDV & Send CD

## Matrix 2 of 5

### Enable/Disable Matrix 2 of 5



\*.M010\$\*

Enable Matrix 2 of 5\*



\*.M011\$\*

Disable Matrix 2 of 5

### Verification



\*.M012\$\*

Disable CDV\*



\*.M013\$\*

CDV & Send CD



\*.M014\$\*

CDV & Not Send CD



## Matrix 2 of 5 Min/Max Length



\*.M015\$\*

**Set Min Length**

(Default = 04)



\*.M016\$\*

**Set Max Length**

(Default = 80)

### Example: Set Min Length as 8, Max Length as 12 for Matrix 2 of 5

Step1: Scan **"Set Min Length"**

Step2: Scan **"0" "8"** in Appendix - Numbers

Step3: Scan **"Set Min Length"**

Step4: Scan **"Set Max Length"**

Step5: Scan **"1" "2"** in Appendix - Numbers

Step6: Scan **"Set Max Length"**

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Industrial 2 of 5

### Enable/Disable Industrial 2 of 5



\*.N001\$\*

Enable Industrial 2 of 5



\*.N002\$\*

Disable Industrial 2 of 5\*

### Verification



\*.N003\$\*

Disable CDV\*



\*.N004\$\*

CDV & Send CD



\*.N005\$\*

CDV & Not Send CD

## Industrial 2 of 5 Min/Max Length



\*.N006\$\*

**Set Min Length**

(Default = 06)



\*.N007\$\*

**Set Max Length**

(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for Industrial 2 of 5

Step1: Scan **"Set Min Length"**

Step2: Scan **"0" "8"** in Appendix - Numbers

Step3: Scan **"Set Min Length"**

Step4: Scan **"Set Max Length"**

Step5: Scan **"1" "2"** in Appendix - Numbers

Step6: Scan **"Set Max Length"**

Note: Configurable range for Min/Max Length is 01 ~ 99.

## Standard 2 of 5 (IATA)

### Enable/Disable Standard 2 of 5



\*.N017\$\*

Enable Standard 2 of 5



\*.N018\$\*

Disable Standard 2 of 5\*

### Verification



\*.N019\$\*

Disable CDV\*



\*.N020\$\*

CDV & Send CD



\*.N021\$\*

CDV & Not Send CD

## Standard 2 of 5 Min/Max Length



\*.N022\$\*

**Set Min Length**

(Default = 06)



\*.N023\$\*

**Set Max Length**

(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for Standard 2 of 5

Step1: Scan "**Set Min Length**"

Step2: Scan "**0**" "**8**" in Appendix - Numbers

Step3: Scan "**Set Min Length**"

Step4: Scan "**Set Max Length**"

Step5: Scan "**1**" "**2**" in Appendix - Numbers

Step6: Scan "**Set Max Length**"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## UK Plessey

### Enable/Disable UK Plessey



\*.L010\$\*

Enable UK Plessey



\*.L011\$\*

Disable UK Plessey\*

### Verification



\*.L017\$\*

Disable CDV\*



\*.L012\$\*

CDV & Send CD



\*.L013\$\*

CDV & Not Send CD

### UK Plessey Min/Max Length



\*.L022\$\*

Set Min Length  
(Default = 04)



\*.L023\$\*

Set Max Length  
(Default = 48)

#### Example: Set Min Length as 8, Max Length as 12 for UK Plessey

Step1: Scan "Set Min Length"

Step2: Scan "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "1" "2" in Appendix - Numbers

Step6: Scan "**Set Max Length**"

Note: Configurable range for Min/Max Length is 01 ~ 99.

## MSI Plessey

### Enable/Disable MSI Plessey



\*.L001\$\*

Enable MSI Plessey



\*.L002\$\*

Disable MSI Plessey\*

### Verification



\*.L016\$\*

Disable CDV



\*.L004\$\*

CDV & Send CD\*



\*.L003\$\*

CDV & Not Send CD

### Check Digit



\*.L009\$\*

Single Digit (MOD10)\*



\*.L007\$\*

Double Digits (MOD10/MOD10)



\*.L008\$\*

Double Digits (MOD10/MOD11)



## MSI Plessey Min/Max Length



\*.L005\$\*

**Set Min Length**

(Default = 04)



\*.L006\$\*

**Set Max Length**

(Default = 48)

### Example: Set Min Length as 8, Max Length as 12 for MSI Plessey

Step1: Scan **"Set Min Length"**

Step2: Scan **"0" "8"** in Appendix - Numbers

Step3: Scan **"Set Min Length"**

Step4: Scan **"Set Max Length"**

Step5: Scan **"1" "2"** in Appendix - Numbers

Step6: Scan **"Set Max Length"**

Note: Configurable range for Min/Max Length is 01 ~ 99.

## GS1 DataBar (RSS-14)

### Enable/Disable GS1 DataBar



\*.N032\$\*

Enable GS1 DataBar\*



\*.N033\$\*

Disable GS1 DataBar

### Prefix AI



\*.N036\$\*

Send Prefix AI (01)\*



\*.N037\$\*

Not Send Prefix AI (01)

## QR Code

### Enable/Disable QR Code



\*.G025\$\*

Enable QR Code\*



\*.G026\$\*

Disable QR Code

## QR Code Min/Max Length



\*.G029\$\*

**Set Min Length**  
(Default = 0001)



\*.G030\$\*

**Set Max Length**  
(Default = 4000)

### Example: Set Min Length as 8, Max Length as 12 for QR Code

Step1: Scan "Set Min Length"

Step2: Scan "0" "0" "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "0" "0" "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 0001 ~ 4000.

## QR Twin Code

QR twin code is 2 QR code paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.



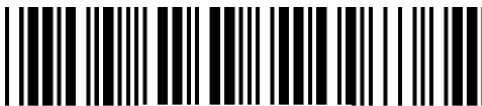
\*.G077\$\*

**Single QR Code Only\***



\*.G078\$\*

**Twin QR Code Only**



\*.G079\$\*

**Both Single & Twin**

## Micro QR Code

### Enable/Disable Micro QR Code



\*.G027\$\*

**Enable Micro QR Code\***



\*.G028\$\*

**Disable Micro QR Code**

### Micro QR Code Min/Max Length



\*.G093\$\*

**Set Min Length**  
(Default = 01)



\*.G094\$\*

**Set Max Length**  
(Default = 35)

### Example: Set Min Length as 8, Max Length as 12 for Micro QR Code

- Step1: Scan "Set Min Length"
- Step2: Scan "0" "8" in Appendix - Numbers
- Step3: Scan "Set Min Length"
- Step4: Scan "Set Max Length"
- Step5: Scan "1" "2" in Appendix - Numbers
- Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 01 ~ 35.

## Data Matrix

### Enable/Disable Data Matrix



\*.G031\$\*

**Enable Data Matrix\***



\*.G032\$\*

**Disable Data Matrix**

### Data Matrix Min/Max Length



\*.G033\$\*

**Set Min Length**  
(Default = 0001)



\*.G034\$\*

**Set Max Length**  
(Default = 3116)

#### Example: Set Min Length as 8, Max Length as 12 for Data Matrix

- Step1: Scan "Set Min Length"
- Step2: Scan "0" "0" "0" "8" in Appendix - Numbers
- Step3: Scan "Set Min Length"
- Step4: Scan "Set Max Length"
- Step5: Scan "0" "0" "1" "2" in Appendix - Numbers
- Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 0001 ~ 3116.

### Data Matrix Twin Code

Data Matrix twin code is 2 Data Matrix barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.



\*.G084\$\*

Single Data Matrix Only\*



\*.G085\$\*

Twin Data Matrix Only



\*.G086\$\*

Both Single & Twin

## Rectangular Barcode



\*.G092\$\*

Enable\*



\*.G091\$\*

Disable

## PDF417

### Enable/Disable PDF417



\*.G021\$\*

Enable PDF417\*



\*.G022\$\*

Disable PDF417

## PDF417 Min/Max Length



\*.G023\$\*

**Set Min Length**  
(Default = 0001)



\*.G024\$\*

**Set Max Length**  
(Default = 2710)

### Example: Set Min Length as 8, Max Length as 12 for PDF417

Step1: Scan "Set Min Length"

Step2: Scan "0" "0" "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "0" "0" "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 0001 ~ 2750.

## PDF417 Twin Code

PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.



\*.G070\$\*

**Single PDF417 Only\***



\*.G071\$\*

**Twin PDF417 Only**



\*.G072\$\*

**Both Single & Twin**

## Aztec

### Enable/Disable Aztec



\*.G055\$\*

Enable Aztec



\*.G056\$\*

Disable Aztec\*

### Aztec Min/Max Length



\*.G057\$\*

Set Min Length  
(Default = 0001)



\*.G058\$\*

Set Max Length  
(Default = 4000)

### Example: Set Min Length as 8, Max Length as 12 for Aztec

Step1: Scan "Set Min Length"

Step2: Scan "0" "0" "0" "8" in Appendix - Numbers

Step3: Scan "Set Min Length"

Step4: Scan "Set Max Length"

Step5: Scan "0" "0" "1" "2" in Appendix - Numbers

Step6: Scan "Set Max Length"

Note: Configurable range for Min/Max Length is 0001 ~ 4000



# Chapter 7 Appendix

## Appendix - Numbers



0



1



2



3



4



5



6



7



8



9

## Appendix - Upper Case Alphabets



A



B



C



D



E



F



G



H



I



J



K



L



M



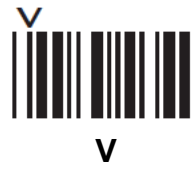
N



O



P



## Appendix - Lower Case Alphabets



a



b



c



d



e



f



g



h



i



j



k



l



m



n



o



p



## Appendix – Control Codes



NUL



SOH



STX



ETX



EOT



ENQ



ACK



BEL



BS



HT



LF



VT



FF



CR



SO



SI



DLE



DC1



DC2



DC3



DC4



NAK



SYN



ETB



CAN



EM



SUB



ESC



FS



GS



RS



US

## Appendix – Symbols



+



-



.



\$



%



/



\



!



@



#



^



~



&



\*



-



=







**SP**



**DEL**

## Appendix – Function Keys



F1



F2



F3



F4



F5



F6



F7



F8



F9



F10



F11



F12



Home



End



Enter (Numeric Key)



App

## Appendix – Navigation Keys



Cursor Left



Cursor Right



Cursor Up



Cursor Down



Page Up



Page Down



Tab



Back Tab



Esc



Enter



BS



Ins



Del

## Appendix – Modifier Keys

\$T%L



Alt (Left) make \*1

\$T%M



Alt (Left) break

\$T+E



Alt (Right) make

\$T+F



Alt (Right) break

\$T%N



Shift (Left) make \*2

\$T%□



Shift (Left) break

\$T+I



Shift (Right) make

\$T+J



Shift (Right) break

\$T+K



Win (Left) make

\$T+L



Win (Left) break

\$T+M



Win (Right) make

\$T+N



Win (Right) break

\$T%W



**Ctrl (Left) make \*3**

\$T+A



**Ctrl (Left) break**

\$T+G



**Ctrl (Right) make**

\$T+H



**Ctrl (Right) break**

Note:

\*1: When "Alt (Left) make" is programmed, please scan "Alt (Left) break" to resume barcode setting.

\*2: When "Shift (Left) make" is programmed, please scan "Shift (Left) break" to resume barcode setting.

\*3: When "Ctrl (Left) make" is programmed, please scan "Ctrl (Left) break" to resume barcode setting.

## Appendix - Abort

If there is an error reading data barcode during multi-step configuration, you may cancel configuration by scanning below configuration barcode.



\*.P023\$\*

**Abort**

## Appendix - Default Table

Function	Default	Remark
<b>General Settings</b>		
Barcode Configurability	ON	
Button Preference	Left Button Only (for Right-handed User)	
Beep Tone	High (4.0KHz)	
Beep Mode	Normal	
<b>Data Format</b>		
UTF-8/Shift-JIS to Unicode Conversion	OFF	
HT/CR/ESC Converts to TAB/ENTER/ESCAPE	OFF	
Function Code Conversion	ON	
Control Code Output Method	Ctrl Mode	
Numeric Key	OFF	
Capital Lock Mode	OFF	
Keyboard Layout	English (US)	
Intercharacter Delay	10ms	
Interblock Delay	0ms	
BCC	OFF	
<b>Image Settings</b>		
Inverse Barcode	OFF	
<b>Interface</b>		
<b>BT HID</b>		
Getting Connected	N/A	
<b>BT SPP</b>		
Getting Connected	N/A	
Set SPP Pincode	1234	
<b>General Bluetooth Settings</b>		
Power Off Timeout	03:00	
Set Bluetooth Device ID	Wireless Scanner	
<b>Memory Mode</b>		
Data Format	<Date>,<Time>,<Barcode Data>	
Field Separator	,	
Date Format	DD/MM/YYYY	
Time Format	HH:MM:SS	
Date & Time Setup	N/A	

<b>USB HID</b>	N/A
<b>USB VCP</b>	N/A
<b>Reading Mode</b>	
Trigger Mode	Trigger Mode
Pulse Mode	N/A
Trigger / Pulse Mode – LED Auto-Off Timeout	3 sec
Batch Mode	N/A
Continuous Mode	N/A
Auto-sensing Mode	N/A
Auto-sensing Mode – Sensitivity	10
Continuous / Auto-sensing Mode – Identical Read Interval	ON 1 sec
<b>Data Format</b>	
Code ID	Disable
Set ID	N/A
Data Length	OFF
Preamble	N/A
Postamble	N/A
Terminator	CR
<b>Symbologies</b>	
General Settings	N/A
<b>UPC-A</b>	
Enable/Disable	ON
Check Digit	Send
Lead Digit	No Preamble
Supplement	5-digit OFF
	2-digit OFF
	Required OFF
UPC-A to EAN-13	OFF
<b>UPC-E</b>	
Enable/Disable	ON
Check Digit	Send
Lead Digit	No Preamble
Supplement	5-digit OFF
	2-digit OFF
	Required OFF
UPC-E to UPC-A	OFF
<b>EAN-8</b>	
Enable/Disable	ON



Check Digit	Send
Supplement	5-digit OFF
	2-digit OFF
	Required OFF
<b>EAN-13</b>	
Enable/Disable	ON
Check Digit	Send
Supplement	5-digit OFF
	2-digit OFF
	Required OFF
ISBN	OFF
	ISBN-10
ISSN	OFF
<b>Code 128</b>	
Enable/Disable	ON
Min Length	01
Max Length	48
<b>GS1-128(UCC/EAN 128)</b>	
Enable/Disable	ON
Min Length	01
Max Length	48
<b>AIM 128</b>	
Enable/Disable	OFF
Min Length	01
Max Length	48
<b>Code 39</b>	
Enable/Disable	ON
Verification	Disable CDV
Start/Stop	Not Send
Full ASCII Code39	ON
Min Length	01
Max Length	48
<b>Code 32</b>	
Enable/Disable	OFF
Leading/Tailing	Not Send Leading & Tailing
<b>Code 93</b>	
Enable/Disable	OFF
Verification	Disable CDV
Min Length	01
Max Length	48

<b>Code 11</b>	
Enable/Disable	OFF
Verification	CDV & Send CD
Check Digit	Single Digit (MOD11)
Min Length	04
Max Length	48
<b>Codabar</b>	
Enable/Disable	ON
Verification	Disable CDV
Start/Stop	Not Send ST/SP: ABCD/ABCD
Min Length	02
Max Length	60
<b>Interleaved 2 of 5</b>	
Enable/Disable	ON
Verification	Disable CDV
Min Length	06
Max Length	80
<b>ITF-14</b>	
Enable/Disable	OFF
<b>ITF-6</b>	
Enable/Disable	OFF
<b>Matrix 2 of 5</b>	
Enable/Disable	ON
Verification	Disable CDV
Min Length	04
Max Length	80
<b>Industrial 2 of 5</b>	
Enable/Disable	OFF
Verification	Disable CDV
Min Length	06
Max Length	48
<b>Standard 2 of 5 (IATA)</b>	
Enable/Disable	OFF
Verification	Disable CDV
Min Length	06
Max Length	48
<b>UK Plessey</b>	
Enable/Disable	OFF
Verification	Disable CDV

Min Length	04
Max Length	48
<b>MSI Plessey</b>	
Enable/Disable	OFF
Verification	CDV & Send CD
Check Digit	Single Digit (MOD10)
Min Length	04
Max Length	48
<b>GS1 Databar (RSS-14)</b>	
Enable/Disable	ON
Prefix AI	Send
<b>QR Code</b>	
Enable/Disable	ON
Min Length	0001
Max Length	4000
QR Twin Code	Single QR Code Only
<b>Micro QR Code</b>	
Enable/Disable	ON
Min Length	01
Max Length	35
<b>Data Matrix</b>	
Enable/Disable	ON
Min Length	0001
Max Length	3116
Data Matrix Twin Code	Single Data Matrix Only
Rectangular Barcode	ON
<b>PDF 417</b>	
Enable/Disable	ON
Min Length	0001
Max Length	2710
PDF417 Twin Code	Single PDF417 Only
<b>Aztec</b>	
Enable/Disable	OFF
Min Length	0001
Max Length	4000

## Appendix - Factory ID

#	Symbology	Code ID	HEX
0	UPC-E	E	45
1	UPC-A	A	41
2	EAN-8	S	53
3	EAN-13	F	46
4	ISSN	o	6F
5	ISBN	h	68
6	Code 128	K	4B
7	GS1-128	T	54
8	AIM 128	q	71
9	Code 39	M	4D
10	Full ASCII Code 39	D	44
11	Code 32	B	42
12	Code 93	L	4C
13	Code 11	J	4A
14	Codabar	N	4E
15	Interleaved 2 of 5 / ITF-14	I	49
16	Matrix 2 of 5	Y	59
17	Industrial 2 of 5	V	56
18	Standard 2 of 5 (IATA 2 of 5)	R	52
19	GS1 Databar	G	47
20	MSI Plessey	O	4F
21	UK Plessey	P	50
22	PDF 417	Z	5A

<b>23</b>	Data Matrix	X	58
<b>24</b>	QR Code	W	57
<b>25</b>	Micro QR Code	w	77
<b>26</b>	Aztec	z	7A
<b>27</b>	ITF-6	6	36

## Appendix - AIM ID

#	Symbology	AIM ID	Possible AIM ID Modifiers (m)
0	Code128	JC0	
1	GS1-128 (UCC/EAN-128)	JC1	
2	EAN-8	JE4	
3	EAN-8 with Addon	JE3	
4	EAN-13	JE0	
5	EAN-13 with Addon	JE3	
6	UPC-E	JE0	
7	UPC-E with Addon	JE3	
8	UPC-A	JE0	
9	UPC-A with Addon	JE3	
10	Interleaved 2 of 5	Jlm	0, 1, 3
11	ITF-14	Jlm	1, 3
12	ITF-6	Jlm	1, 3
13	Matrix 2 of 5	JX0	
14	Code 39, Code 32	JAm	0, 1, 3, 4, 5, 7
15	Codabar	JFm	0, 2, 4
16	Code 93	JG0	
17	AIM 128	JC2	
18	ISSN	JX0	
19	ISBN	JX0	
20	Industrial 2 of 5	JS0	
21	Standard 2 of 5 (IATA)	JR0	
22	UK Plessey	JP0	

23	Code 11	]Hm	0, 1, 3
24	MSI Plessey	]Mm	0, 1
25	GS1 Databar	]e0	
26	PDF417	]Lm	0-2
27	QR Code	]Qm	0-6
28	Aztec	]zm	0
29	Data Matrix	]dm	0-6
30	Micro QR	]Q1	

**Note:** “m” represents the AIM modifier character. Refer to ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers) for AIM modifier character details.

## Appendix - ASCII Table

Note: ASCII 0~31 are non-printable characters, ASCII 32~127 are printable characters.

Hex	Dec	ASCII
00	00	NUL (Null char.)
01	01	SOH (Start of Header)
02	02	STX (Start of Text)
03	03	ETX (End of Text)
04	04	EOT (End of Transmission)
05	05	ENQ (Enquiry)
06	06	ACK (Acknowledgment)
07	07	BEL (Bell)
08	08	BS (Backspace)
09	09	HT (Horizontal Tab)
0A	10	LF (Line Feed)
0B	11	VT (Vertical Tab)
0C	12	FF (Form Feed)
0D	13	CR (Carriage Return)
0E	14	SO (Shift Out)
0F	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1A	26	SUB (Substitute)
1B	27	ESC (Escape)
1C	28	FS (File Separator)
1D	29	GS (Group Separator)
1E	30	RS (Request to Send)
1F	31	US (Unit Separator)
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)



23	35	# (Number Sign)
24	36	\$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	( (Right / Closing Parenthesis)
29	41	) (Right / Closing Parenthesis)
2A	42	* (Asterisk)
2B	43	+ (Plus)
2C	44	, (Comma)
2D	45	- (Minus / Dash)
2E	46	. (Dot)
2F	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3A	58	: (Colon)
3B	59	; (Semi-colon)
3C	60	< (Less Than)
3D	61	= (Equal Sign)
3E	62	> (Greater Than)
3F	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4A	74	J

4B	75	K
4C	76	L
4D	77	M
4E	78	N
4F	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5A	90	Z
5B	91	[ (Left / Opening Bracket)
5C	92	\ (Back Slash)
5D	93	] (Right / Closing Bracket)
5E	94	^ (Caret / Circumflex)
5F	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6A	106	j
6B	107	k
6C	108	l
6D	109	m
6E	110	n
6F	111	o
70	112	p
71	113	q
72	114	r

73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7A	122	z
7B	123	{ (Left/ Opening Brace)
7C	124	(Vertical Bar)
7D	125	} (Right/Closing Brace)
7E	126	~ (Tilde)
7F	127	DEL (Delete)

# Version History

Rev	Date	Description	Issued
1.0	2021.07.28	Initial Release	Shaw
1.1	2021.10.12	Updated Product Picture	Shaw
1.2	2021.12.02	Updated Range to 66ft/20m, EMC/RF with CE/FCC	Shaw
1.3	2022.09.08	Removed Scan Rate	Shaw
1.4	2022.12.08	FW: HM3-g-1.02.BTA.R1 Default Button Preference revised to Left Button Only (for Right-handed User) Added Shift-JIS to Unicode Conversion Added Control Code Output Method Added Check Battery Life Updated Code 32 Leading/Tailing	Shaw