MT89M
Scan Engine
User's Manual

Version 1.0

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1. Introduction

1.1 Manual Description

This user's manual mainly provides instruction on configuring MT89M. By scanning the configuration barcodes in this manual, you can change MT89M's interface, reading mode, data format and so on. The appendix lists the default configurations of MT89M. In most cases, user can use MT89M without further configuration.

1.2 Product Requirements

Model	Firmware Version	Interface
MT89M	HS:V1.10; F:V1.1.71; 2022.06.09 or later version	UART
		USB HID
		USB VCP

1.3 Barcode Configurability

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

Enable Barcode Configurability*

Disable Barcode Configurability

Scanning below configuration barcodes will allow/prohibit configuration barcode data output.

Enable Config Barcode Data Output

Disable Config Barcode Data Output*

1.4 Factory Default

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

Factory Default

1.5 Custom Default

You can create your own custom default. Scan **Save Custom Default** configuration barcode below and all the current settings of MT89M will be saved to your custom default, overwriting, if any, the previous one. Scan **Custom Default** to reset MT89M to the custom default settings.

Save Custom Default

Custom Default

1.6 Check Version

To check firmware version, please scan below configuration barcode.

Check Version

1.7 Write/Read Device ID

User can write or read Device ID of up to 16 bytes of alphanumeric via UART or USB VCP interface.

Device ID includes: SN: Serial Number
FID: Manufacturer
MID: Model Number

Device ID can be up to 64 bytes of alphanumerics.

To write Device ID:

Host sends: WriteDeviceID:SN:xxxx;MID:xxxx;FID:xxxx.

Device responds: same as write command

To read Device ID:

Host sends: ReadDeviceID.

Device responds: SN:xxxx;MID:xxxx;FID:xxxx.

Example: to write/read Device ID: SN:20230120;MID:MT89M;FID:MARSON.

To write Device ID:

Host sends: WriteDeviceID:SN:20230120;MID:MT89M;FID:MARSON.

Device responds: WriteDeviceID:SN:20230120;MID:MT89M;FID:MARSON.

To read Device ID:

Host sends: ReadDeviceID.

Device responds: SN:20230120;MID:MT89M;FID:MARSON.

Note:

1. Write command is followed by comma (.) as ending symbol.
2. When no Device ID is defined, device will respond with "SN:NULL;MID:NULL;FID:NULL." when read.
3. No response or "FALSE" as response indicates write command error (wrong format or data).

Check Device ID

2. Interface

2.1 Introduction

MT89M provides UART serial interface and multiple USB interfaces to communicate with the host. As a result it is possible to establish bi-directional communication which enables barcode data receiving and command sending between MT89M and host at the same time.

2.2 Interface Options

By default interface is USB HID. Scanning below configuration barcode will switch MT89M among different interfaces (UART/USB VCP/USB HID). When USB and UART are simultaneously needed, please select HID & UART. After switching interface, please wait for initialization to finish before operation.

UART

USB HID*

USB VCP

HID & UART

VID&PID can be used to locate MT89M by the host. Below are the corresponding VID&PID among various USB interfaces.

Interface	VID (hex)	PID (hex)
USB VCP	0x152A	0x880F
USB HID (HID KBW)	0x1FC9	0x5AA7
USB HID (HID POS)	0x1FCA	0x5AA8

2.2 UART

The UART communication of MT89M is based on TTL level signals. For RS232 communication, a conversion circuit must be added externally.

Parameter	Default
Serial communication type	UART (TTL-232)
Baud Rate	9600
Parity	None
Data Bits	8
Stop Bits	1
Hardware Flow Control	None

2.2.1 Baud Rate

The unit of Baud Rate is bps (bits per second); below are available options:

1200

4800

9600*

14400

19200

38400

57600

115200

2.2.2 Parity

Three parity options are available:

None*

Odd

Even

2.3 USB HID

2.3.1 HID Device Options

Two types of HID device options are available:

HID KBW*

HID POS

HID POS Packet Format

When a barcode is read, MT89M will send data in below format.

Incoming Packet								
	Bit							
Byte	7	6	5	4	3	2	1	0

0	Message ID = 0x02
1	Barcode Data Length
2	0x5D (Fixed Data)
3	0x51 (Fixed Data)
4	0x31 (Fixed Data)
5-60	Barcode Data
61	0x51 (Fixed Data)
62	0x51 (Fixed Data)
63	0x01 (More incoming packet) 0x0 (No more incoming packet)

2.3.2 Polling Rate

The smaller the value, the faster MT89M sends characters to the host. If the characters are missing in barcode data, please increase polling rate.

1ms*

3ms

5ms

10ms

2.3.3 Delay Before HID Release

Below are available options of Delay Before HID Release (the period of time from valid data to release data). The configurable range is from 1 to 63ms; default is 1ms.

1ms*

2ms

5ms

10ms

2.3.4 Delay After HID Release

Below are available options of Delay After HID Release (the period of time from release data to valid data). The configurable range is from 1 to 63ms; default is 1ms.

1ms*

2ms

5ms

10ms

2.3.5 CapsLock

CapsLock Off*

CapsLock On

2.3.6 HID Prefix

When HID Prefix is enabled, a prefix of Ctrl+Shift+r is added to each HID data, for host software development purpose.

Disable HID Prefix*

Enable HID Prefix

2.3.7 Keyboard Layout

English (USA)*

Czech

French

German

Hungarian

Italian

Japanese

Spanish

Turkish Q

Turkish F

Mexican
(Latin American)

2.3.8 Virtual Keyboard

To adapt to more regional applications, virtual keyboard can be enabled at the cost of data output speed. Please make sure all alphabet keys and number keys are available when using virtual keyboard.

Standard Keyboard*

Virtual Keyboard

1. Control Code Output Methods

Control code (0x00 ~ 0x1F) can be sent by two methods:

Ctrl Mode

Alt Mode

Disable Output*

2. Control Code Output

The ASCII between 0x00 to 0x1F can be transformed into control code. When virtual keyboard is enabled, the output sequence of control code is

as follows:

(1) Ctrl Mode:

A barcode of "A<HT>F" (0x41/0x09/0x46) is scanned, the output sequence of virtual keyboard 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. Please note that Ctrl Mode is only supported by English (USA) keyboard layout.

(2) Alt Mode:

When virtual keyboard and alt mode are enabled at the same time, the control code output will be ALT + ASCII Decimal Value. For <HT>, the output sequence of virtual keyboard is:

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

When in standard keyboard, control code (0x00 ~ 0x1F) will be sent according to its function key definition, as seen in below table:

Control Code Table

ASCII	Hex	Function Key	Ctrl Key Combination	CTRL+X Function
NUL	0	Null	Ctrl+@	
SOH	1	KeypadEnter	Ctrl+A	Select all
STX	2	CapsLock	Ctrl+B	Bold
ETX	3	ALT	Ctrl+C	Copy
EOT	4	Null	Ctrl+D	Bookmark
ENQ	5	CTRL	Ctrl+E	Center
ACK	6	Null	Ctrl+F	Find
BEL	7	Enter	Ctrl+G	
BS	8	LeftArrow	Ctrl+H	History

HT	9	Horizontal Tab	Ctrl+I	Italic
LF	0A	DownArrow	Ctrl+J	Justify
VT	0B	Vertical Tab	Ctrl+K	hyperlink
FF	0C	Delete	Ctrl+L	list,left align
CR	0D	Enter	Ctrl+M	
SO	0E	Insert	Ctrl+N	New
SI	0F	Esc	Ctrl+O	Open
DLE	10	F11	Ctrl+P	Print
DC1	11	Home	Ctrl+Q	Quit
DC2	12	PrintScreen	Ctrl+R	
DC3	13	Backspace	Ctrl+S	Save
DC4	14	tab+shift	Ctrl+T	
NAK	15	F12	Ctrl+U	
SYN	16	F1	Ctrl+V	Paste
ETB	17	F2	Ctrl+W	
CAN	18	F3	Ctrl+X	
EM	19	F4	Ctrl+Y	
SUB	1A	F5	Ctrl+Z	
ESC	1B	F6	Ctrl+[	
FS	1C	F7	Ctrl+\	
GS	1D	F8	Ctrl+]	
RS	1E	F9	Ctrl+6	
US	1F	F10	Ctrl+-	

2.3.9 Numeric Keypad

Number Keys On

Number Keys Off*

Symbol Keys On

Symbol Keys Off*

3. Reading Mode

3.1 Trigger Mode

In trigger mode, MT89M starts scanning barcode when trigger pin = low. If trigger stays low within LED timeout, the scanning continues. When LED timeout expires or a barcode is scanned, the scanning stops. To restart scanning, the host must reset trigger level first and then pull trigger low again.

Trigger Mode*

3.1.1 Trigger Condition

When trigger condition = level, the trigger pin must always stay low during a scanning operation. The scanning will not stop until a barcode is scanned or LED timeout expires. When trigger condition = pulse, MT89M starts scanning whenever a low level pulse at trigger pin is detected, and will continue scanning until a barcode is scanned or LED timeout expires.

Level*

Pulse

3.1.2 LED Timeout

LED timeout is the maximum scanning duration. When LED timeout expires, the scanning operation stops automatically. The configurable range is from 100 to 25500ms; default is 5000ms.

1000ms

3000ms

5000ms*

10000ms

Unlimited

3.2 Serial Trigger Mode

In serial trigger mode, MT89M starts scanning barcode when trigger command (write '1' to bit0 of address 0x0002) is received from the host. When LED timeout expires or a barcode is scanned, the scanning stops. To restart scanning, the host must send trigger command again.

Serial Trigger Mode

3.2.1 Trigger Command Response

In serial trigger mode, the trigger command is 7E 00 08 01 00 02 01 AB CD. When MT89M receives trigger command, it responds with 02 00 00 01 00 33 31 and starts scanning. Scanning below configuration barcodes will allow/prohibit trigger command response.

Enable Trigger Command Response*

Disable Trigger Command Response

3.2.2 LED Timeout

Please refer to **3.1.2 LED Timeout** for configuration barcodes.

3.3 Continuous Mode

In continuous mode, MT89M keeps scanning barcodes continuously. By default, after a successful scan, MT89M enters a Scan Interval of 1000ms. During scanning, keeping the trigger pin low for 50ms will cause the scanning to pause. Likewise, during pause, keeping the trigger pin low for 50ms will restart the scanning.

Continuous Mode*

3.3.1 Trigger Control

Scanning below configuration barcodes will allow/prohibit trigger control over pause/restart scanning in continuous mode.

Trigger Control On*

Trigger Control Off

3.3.2 LED Timeout

Please refer to **3.1.2 LED Timeout** for configuration barcodes.

3.3.3 Scan Interval

Scan interval is the period of time between two consecutive scans. The configurable range is from 0 to 25500ms; default is 1000ms.

None

200ms

500ms

1000ms*

3000ms

5000ms

3.3.4 Identical Read Interval

When identical read interval is enabled, a barcode (or an identical one) can be re-scanned only after the defined amount of interval expires. This prevents repetitive scanning of a barcode in continuous mode.

Disable Identical Read Interval*

Enable Identical Read Interval

The configurable range of interval is from 0 to 12700ms. Please enable identical read interval before interval range setup.

None

500ms

1000ms

3000ms

5000ms

3.4 Auto-sensing Mode

In auto-sensing mode, MT89M automatically starts scanning barcode when image change is detected within its field of view. After a successful scan or LED timeout expiration, MT89M enters a Scan Interval of 1000ms by default. MT89M can also be triggered when trigger pin is pull low.

Auto-sensing Mode

3.4.2 LED Timeout

Please refer to **3.1.2 LED Timeout** for configuration barcodes.

3.4.3 Scan Interval

Please refer to **3.3.3 Scan Interval** for configuration barcodes.

3.4.4 Identical Read Interval

Please refer to **3.3.4 Identical Read Interval** for configuration barcodes.

3.4.5 Auto-sensing Sensitivity

Low

Medium*

High

Ultra High

3.4.6 Image Stabilization Timeout

Image stabilization timeout is the period of time needed for image to stay stable before scanning. The configurable range is from 0 to 25500ms in 100ms increments; default is 0ms.

0ms*

100ms

400ms

1000ms

2000ms

3.5 Sleep Mode

Scanning below configuration barcodes will enable/disable sleep mode. When enabled, MT89M automatically sleeps after a period of inactivity, or sleep timeout (default = 30 sec) to reduce power consumption (< 1mA). Please note that sleep mode only works in UART interface and sleep timeout can only be configured by serial command. MT89M can be woke up by either serial commands or hardware trigger.

Enable Sleep Mode

Disable Sleep Mode*

4. Illumination and Aimer

4.1 Illumination

Illumination is the white LED that provides supplemental light during scanning to increase image recognizability and adaptability to low ambient light condition.

Normal: LED turns on during scanning.

Always On: LED always stays on.

Always Off: LED always stays off.

Normal*

Always Off

Always On

4.2 Aimer

Aimer is the red LED that projects a red square aiming pattern to help user target barcode with ease.

On: LED stays on during scanning.

Flash: LED flashes during scanning.

Always On: LED always stays on.

Always Off: LED always stays off.

Flash*

On

Always Off

Always On

5. Indicator

5.1 General Settings

Mute

Unmute*

5.2 Power Up Beep

On*

Off

5.3 Good Read Beep

On*

Off

5.3.1 Good Read Beep Duration

30ms

60ms*

90ms **120ms**

5.4 Beep Frequency

Low

Medium*

High

5.5 Configuration Barcode Beep

On*

Off

5.6 Good Read LED

On*

Off

6. Data Format

The following is the complete data format:
[Preamble] + [Code ID] + [Data] + [Postamble] + [Terminator]

By default Code ID, Preamble and Postamble are disabled; terminator is 0x0D (Carriage Return). Data is the content encoded in a barcode, which can be further divided into [Start] + [Center] + [End] if the length of Start/End is defined.

6.1 Preamble

6.1.1 Enable/Disable Preamble

Enable Preamble

Disable Preamble*

6.1.2 Set Preamble

Set Preamble

Preamble can be up to 15 bytes of data, with each data converted into two-digit hex value during configuration. Please refer to Appendix C for ASCII table and corresponding hex value.

Example: to set Preamble as "CODE"
1. Convert "CODE" into Hex equivalent as 43, 4F, 44, 45
2. Scan **Set Preamble**
3. Scan **4**, **3**, **4**, **F**, **4**, **4**, **4**, **5** respectively from **8.1 Data 0~F**

4. Scan **Save Configuration** from **8.2 Save & Abort**

6.2 Postamble

6.2.1 Enable/Disable Postamble

Enable Postamble

Disable Postamble*

6.2.2 Set Postamble

Set Postamble

Postamble can be up to 15 bytes of data, with each data converted into two-digit hex value during configuration. Please refer to Appendix C for ASCII table and corresponding hex value.

Example: to set Postamble as "CODE"

1. Convert "CODE" into Hex equivalent as 43, 4F, 44, 45
2. Scan **Set Postamble**
3. Scan **4**, **3**, **4**, **F**, **4**, **4**, **4**, **5** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

6.3 Code ID

6.3.1 Enable/Disable Code ID

Enable Code ID

Disable Code ID*

6.3.2 Reset Code ID

Scanning below configuration barcode will reset all Code IDs to default. Please refer to Appendix B – Code ID for each symbology's default Code ID.

Reset All Code ID to Default

6.3.3 Set Code ID

Example: to set PDF417 Code ID as 'p'

1. Convert 'p' to Hex equivalent as 70
2. Scan **Set PDF417 Code ID**
3. Scan **7**, **0** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

Set EAN-13 Code ID

Set EAN-8 Code ID

Set UPC-A Code ID

Set UPC-E0 Code ID

Set UPC-E1 Code ID

Set Code128 Code ID

Set Code39 Code ID

Set Code93 Code ID

Set Codabar Code ID

Set Interleaved 2/5 Code ID

Set Industrial 2/5 Code ID

Set Matrix 2/5 Code ID

Set Code11 Code ID

Set MSI Plessey Code ID

Set GS1 Databar Code ID

Set GS1 Databar Limited Code ID

Set GS1 Databar Expanded Code ID

Set QR Code Code ID

Set Data Matrix Code ID

Set PDF417 Code ID

Set Micro QR Code Code ID

Set Han Xin Code ID

Set MicroPDF417 Code ID

Set Standard 2/5 Code ID

Set UK Plessey Code ID

Set ChinaPost2/5 Code ID

Set Code16K Code ID

Set MaxiCode Code ID

Set Aztec Code ID

6.4 Terminator

None

CR (0x0D)*

TAB (0x09)

CF LF (0x0D 0x0A)

6.5 Data

6.5.1 Data Output

Data can be divided into three parts: [Start] + [Center] + [End]
They are valid only when Start/End Length is defined.

Send All*

Send Start Only

Send End Only

Send Center Only

6.5.2 Data Length

Set Start Length

Set End Length

Start/End Length can be 0 to 255 digits, converted into two-digit hex value (00 ~ FF) during configuration. Please refer to Appendix C – ASCII Table for corresponding hex value.

Example: to set Start Length as 2

1. Convert 2 to Hex equivalent as 02
2. Scan **Set Start Length**
3. Scan **0**, **2** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

6.6 Encoding Format

Below are output encoding format options. Please note that GBK is used for Notepad, UNICODE for Microsoft Word, and raw for serial data output.

GBK*

UTF8

Raw

UNICODE

6.7 RF Message

Read Fail (RF) message is the message sent from MT89M to the host device

in the case of scanning failure.

6.7.1 Enable/Disable RF Message

Enable RF Message

Disable RF Message*

6.7.2 Set RF Message

Set RF Message

The RF message can be up to 15 bytes of data, with each data converted into two-digit hex value during configuration. Please refer to Appendix C for ASCII table and corresponding hex value.

Example: to set RF Message as 'CODE'

1. Convert "CODE" into Hex equivalent as 43, 4F, 44, 45
2. Scan **Set RF Message**
3. Scan **4**, **3**, **4**, **F**, **4**, **4**, **4**, **5** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

Note: In the case of entering odd number of hex value during configuration, the last byte of data becomes invalid.

6.8 Output Protocol

The output protocol applies to UART/USB VCP interface, which, when enabeld, transforms data into below format:

[0x03] + [Length] + [Data]

Output Data Only*

Output Protocol

6.9 GS Replacement

GS (0x1D) stands for Group Separator and is used as delimiters to mark fields of data structures. As a control code, GS is non-displayable in many text applications and therefore it is requested to be replaced with displayable character in some use cases. In short, this function replaces 0x1D with a displayable ASCII character. GS can be replaced by 0x20 ~ 0x7E in ASCII table.

Example: to set GS Replacement as 'C'

1. Scan **Enable GS Replacement**
2. Scan **Set GS Replacement**
3. Convert "C" into Hex equivalent as 43
4. Scan **4**, **3** respectively from **8.1 Data 0~F**
5. Scan **Save Configuration** from **8.2 Save & Abort**

Enable GS Replacement

Disable GS Replacement*

Set GS Replacement

6.10 URL Output

Scanning below configuration barcodes will allow/prohibit URL (web address) barcode data output.

Enable URL Output*

Disable URL Output*

7. Symbologies

7.1 General Settings

Scanning below configuration barcodes will enable/disable all symbologies or enable symbologies by default.

Enable All Symbologies

Disable All Symbologies

Enable Default Symbologies*

7.2 Enhanced Decode Capability

When enhanced decode capability is enabled, the decode capability for damaged, twisted barcode is enhanced. When disabled, decode speed is increased.

Enable Enhanced Decode Capability

Disable Enhanced Decode Capability*

7.3 Inverse Barcode

Inverse barcode, also known as inverted barcode or negative barcode, is printed white lines/dots and black background.

Enable Inverse Barcodes **Disable Inverse Barcodes***

7.4 Mirrored Barcode

Mirrored barcode is printed with reversed direction perpendicular to the original barcode.

Enable Mirrored Barcodes **Disable Mirrored Barcodes***

7.5 Check Digit of Commodity Barcode

Scanning below configuration barcodes will allow/prohibit the check digit output of commodity barcode (EAN-13/EAN-8/UPC-A/UPC-E0/UPC-E1).

Enable Check Digit of Commodity Barcode* **Disable Check Digit of Commodity Barcode**

7.6 EAN-13

7.6.1 Enable/Disable EAN-13

.

Enable EAN-13* **Disable EAN-13**

7.6.2 Supplement

Supplement, also known as addenda or add-on, is the add-on barcode

encoded with supplementary information next to the main barcode on periodicals and paperback books. The supplement can be either 2 or 5 digits.

Enable 2-digit Supplement

Disable 2-digit Supplement*

Enable 5-digit Supplement

Disable 5-digit Supplement*

7.6.3 Supplement Required

When supplement required is enabled, MT89M can only output EAN-13 with supplement.

Enable Supplement Required

Disable Supplement Required*

7.6.4 Check Digit

Send Check Digit*

Not Send Check Digit

7.7 EAN-8

7.7.1 Enable/Disable EAN-8

.

Enable EAN-8*

Disable EAN-8

7.7.2 Supplement

Supplement, also known as addenda or add-on, is the add-on barcode encoded with supplementary information next to the main barcode on periodicals and paperback books. The supplement can be either 2 or 5 digits.

Enable 2-digit Supplement

Disable 2-digit Supplement*

Enable 5-digit Supplement

Disable 5-digit Supplement*

7.7.3 Supplement Required

When supplement required is enabled, MT89M can only output EAN-8 with supplement.

Enable Supplement Required

Disable Supplement Required*

7.7.4 Check Digit

Send Check Digit*

Not Send Check Digit

7.8 UPC-A

7.8.1 Enable/Disable UPC-A

Enable UPC-A*

Disable UPC-A

7.8.2 Supplement

Supplement, also known as addenda or add-on, is the add-on barcode encoded with supplementary information next to the main barcode on periodicals and paperback books. The supplement can be either 2 or 5 digits.

Enable 2-digit Supplement

Disable 2-digit Supplement*

Enable 5-digit Supplement

Disable 5-digit Supplement*

7.8.3 Supplement Required

When supplement required is enabled, MT89M can only output UPC-A with supplement.

Enable Supplement Required

Disable Supplement Required*

7.8.4 UPC-A to EAN-13

Scanning below configuration barcodes will allow/prohibit the conversion of UPC-A into EAN-13.

Enable UPC-A to EAN-13

Disable UPC-A to EAN-13*

7.8.5 Check Digit

Send Check Digit*

Not Send Check Digit

7.9 UPC-E0

7.9.1 Enable/Disable UPC-E0

Enable UPC-E0*

Disable UPC-E0

7.9.2 Supplement

Supplement, also known as addenda or add-on, is the add-on barcode encoded with supplementary information next to the main barcode on periodicals and paperback books. The supplement can be either 2 or 5 digits.

Enable 2-digit Supplement

Disable 2-digit Supplement*

Enable 5-digit Supplement

Disable 5-digit Supplement*

7.9.3 Supplement Required

When supplement required is enabled, MT89M can only output UPC-E0 with supplement.

Enable Supplement Required

Disable Supplement Required*

7.9.4 Check Digit

Send Check Digit*

Not Send Check Digit

7.10 UPC-E1

7.10.1 Enable/Disable UPC-E1

Enable UPC-E1*

Disable UPC-E1

7.10.2 Supplement

Supplement, also known as addenda or add-on, is the add-on barcode encoded with supplementary information next to the main barcode on periodicals and paperback books. The supplement can be either 2 or 5 digits.

Enable 2-digit Supplement

Disable 2-digit Supplement*

Enable 5-digit Supplement

Disable 5-digit Supplement*

7.10.3 Supplement Required

When supplement required is enabled, MT89M can only output UPC-E1 with

supplement.

Enable Supplement Required

Disable Supplement Required*

7.10.4 Check Digit

Send Check Digit*

Not Send Check Digit

7.11 Code128

7.11.1 Enable/Disable Code128

Enable Code128*

Disable Code128

7.11.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.11.3 Code128 Prefix (11)

Enable Code128 Prefix (11)

Disable Code128 Prefix (11)*

7.12 Code39

7.12.1 Enable/Disable Code39

Enable Code39*

Disable Code39

7.12.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.12.3 Send Start & Stop

Send Start

Not Send Start*

Send Stop

Not Send Stop*

7.12.4 Verification

Enable Verification

Disable Verification*

7.12.5 Check Digit

Send Check Digit

Not Send Check Digit*

7.12.6 Enable/Disable Code32

Enable Code32

Disable Code32*

7.12.7 Code32 Preamble ('A')

Enable Preamble ('A')*

Disable Preamble ('A')

7.12.8 Full ASCII Code39

Enable Full ASCII Code39

Disable Full ASCII Code39*

7.13 Code93

7.13.1 Enable/Disable Code93

Enable Code93*

Disable Code93

7.13.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.14 Codabar

7.14.1 Enable/Disable Codabar

Enable Codabar*

Disable Codabar

7.14.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.14.3 Send Start & Stop

Send Start

Not Send Start*

7.14.4 Verification

Verification = None*

Verification = Mod10

Verification = Mod16

Verification = Mod10/Mod16

7.14.5 Check Digit

Send Check Digit

Not Send Check Digit*

7.15 Interleaved 2/5

7.15.1 Enable/Disable Interleaved 2/5

Enable Interleaved 2/5

Disable Interleaved 2/5*

7.15.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.15.3 Verification

Verification = None*

Verification = Mod10

7.15.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.16 Industrial 2/5

7.16.1 Enable/Disable Industrial 2/5

Enable Industrial 2/5

Disable Industrial 2/5*

7.16.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.16.3 Verification

Verification = None*

Verification = Mod10

7.16.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.17 Matrix 2/5

7.17.1 Enable/Disable Matrix 2/5

Enable Matrix 2/5

Disable Matrix 2/5*

7.17.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.17.3 Verification

Verification = Mod10

Verification = None*

7.17.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.18 Standard 2/5

7.18.1 Enable/Disable Standard 2/5

Enable Standard 2/5

Disable Standard 2/5*

7.18.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.18.3 Verification

Enable Verification

Disable Verification*

7.18.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.19 ChinaPost 2/5

7.19.1 Enable/Disable ChinaPost 2/5

Enable ChinaPost 2/5

Disable ChinaPost 2/5*

7.19.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.19.3 Verification

Enable Verification

Disable Verification*

7.19.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.20 Code11

7.20.1 Enable/Disable Code11

Enable Code11

Disable Code11*

7.20.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.20.3 Verification

Verification = 1bit*

Verification = 2bit

7.20.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.21 MSI Plessey

7.21.1 Enable/Disable MSI Plessey

Enable MSI Plessey

Disable MSI Plessey*

7.21.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.21.3 Verification

Verification = Mod10

Verification = Double Mod10

7.21.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.22 UK Plessey

7.22.1 Enable/Disable UK Plessey

Enable UK Plessey

Disable UK Plessey*

7.22.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.22.3 Verification

Enable Verification

Disable Verification*

7.22.4 Check Digit

Send Check Digit

Not Send Check Digit*

7.23 GS1 Databar

7.23.1 Enable/Disable GS1 Databar

Enable GS1 Databar

Disable GS1 Databar*

7.23.2 GS1 Databar AI Parentheses

Enable GS1 Databar
AI Parenthese*

Disable GS1 Databar
AI Parenthese

7.23.3 Enable/Disable GS1 Databar Limited

Enable GS1 Databar Limited

Disable GS1 Databar Limited*

7.23.4 GS1 Databar Limited AI Parentheses

Enable GS1 Databar Limited AI Parenthese*

Disable GS1 Databar Limited AI Parenthese

7.23.5 Enable/Disable GS1 Databar Expanded

Enable GS1 Databar Expanded

Disable GS1 Databar Expanded*

7.23.6 GS1 Databar Expanded AI Parentheses

Enable GS1 Databar Expanded AI Parenthese*

Disable GS1 Databar Expanded AI Parenthese

7.23.6 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.24 Code16K

7.24.1 Enable/Disable Code16K

Enable Code16K

Disable Code16K*

7.24.2 Min/Max Length

Min Length = 00

Min Length = 04*

Max Length = 32*

Max Length = 255

7.25 QR Code

7.25.1 Enable/Disable QR Code

Enable QR Code*

Disable QR Code

7.25.2 Model 1 QR Code

Enable Model 1 QR Code

Disable Model 1 QR Code*

7.25.3 QR Code Prefix (11)

Enable QR Code Prefix (11)

Disable QR Code Prefix (11)*

7.26 Micro QR Code

Enable Micro QR Code*

Disable Micro QR Code

7.27 Data Matrix

7.27.1 Enable/Disable Data Matrix

Enable Data Matrix*

Disable Data Matrix

7.27.2 Multicode

Scanning below configuration barcodes will allow/prohibit multiple Data Matrix barcodes to be scanned at the same time.

Enable Multicode

Disable Multicode*

7.28 PDF417

Enable PDF417*

Disable PDF417

7.29 MicroPDF417

Enable MicroPDF417*

Disable MicroPDF417

7.30 Aztec

Enable Aztec

Disable Aztec*

7.31 MaxiCode

Enable MaxiCode

Disable MaxiCode*

7.32 Han Xin (Chinese Sensible Code)

Enable Han Xin

Disable Han Xin*

8. Configuration Barcode

8.1 Data 0~F

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

8.2 Save & Abort

If there is an error reading data barcode during configuration, you may cancel 1/all data by scanning below configuration barcodes.

For example, barcode data '1', '2' ,'3' have been scanned respectively during configuration. If you want to cancel '3', scan **Abort 1 Data**. If you want to cancel '123', scan **Abort All Data**. Alternatively you may scan **Abort Configuration** to cancel the whole configuration process.

Save Configuration

Abort 1 Data

Abort All Data

Abort Configuration

9. Batch Setup

Configuring multiple devices by scanning barcode one by one can be toublesome. To solve such issue, MT89M supports batch setup where user can create a single QR Code containing multiple configurations acceptable by MT89M.

Below are rules of batch setup:

1. Batch setup format: @WSM + [Parameter 1] ; [Parameter 2] ; [Parameter n] ;
2. Parameter for each configuration is listed in Appendix E – Batch Setup Parameter
3. Two parameters are separated by semicolon (;). Batch setup format must also end with semicolon (;). Please note that no space is allowed within/between parameters.
4. Maximum number of parameters per batch setup is 30.
5. Encode the whole batch setup parameters in a QR Code.

Example: to include following configurations in batch setup:
Enable barcode configurability (Parameter: 00000000), Auto-sensing Mode (Parameter: 02000003), Illumination – Normal (Parameter: 03000000), LED Timeout – 3000ms (Parameter: 0202001E), Disable Interleaved 2/5 (Parameter: 070A0100), the complete batch setup parameters should be:
@WSM00000000;02000003;03000000;0202001E;070A0100;

Appendix

Appendix A - Default Table

Function		Default	Remark
General Settings			
Barcode Configurability		Enable	
Config Barcode Data Output		Disable	
Interface			
Interface		USB HID	
UART	Baud Rate	9600	
	Parity	None	
	Data Bits	8	
	Stop Bit	1	
	Hardware Flow Control	None	
USB HID	HID Device Options	HID KBW	
	Polling Rate	1ms	Range: 1 ~ 64ms
	Delay Before HID Release	1ms	Range: 1 ~ 63ms
	Delay After HID Release	1ms	Range: 1 ~ 63ms
	CapsLock	Off	
	HID Prefix	Disable	
	Keyboard Layout	English (USA)	
	Virtual Keyboard	Standard	
	Control Code Output Methods	Disable Output	
	Numeric Keypad	Number Keys Off	
		Symbol Keys Off	
Reading Mode			
Reading Mode		Trigger Mode	
Trigger Mode	Trigger Condition	Level	
	LED Timeout	5000ms	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
Serial Trigger Mode	Trigger Command Response	Enable	

	LED Timeout	5000ms	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
Continuous Mode	Trigger Control	On	
	LED Timeout	5000ms	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
	Scan Interval	1000ms	Range: 0 ~ 25500ms Increment: 100ms
	Identical Read Interval	Disable	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
Auto-sensing Mode	Advanced Mode Setup	Standard	
	LED Timeout	5000ms	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
	Scan Interval	1000ms	Range: 0 ~ 25500ms Increment: 100ms
	Identical Read Interval	Disable	Range: 100 ~ 25500ms Increment: 100ms 0x00: Unlimited
	Auto-sensing Sensitivity	Medium	Range: 00 ~ FF The larger the number, the lower the sensitivity
	Image Stabilization Timeout	0ms	Range: 0 ~ 25500ms Increment: 100ms
Sleep Mode		Disable	
Illumination and Aimer			
Illumination		Normal	
Aimer		Flash	
Indicator			
General Settings		Unmute	
Power Up Beep		On	
Good Read Beep		On	
Good Read Beep Duration		60ms	Range: 0 ~ 255ms
Beep Frequency		Medium	
Configuration Barcode Beep		On	

Good Read LED		On	
Data Format			
Preamble		Disable	
Set Preamble		None	
Postamble		Disable	
Set Postamble		None	
Code ID		Disable	
Set Code ID		None	
Terminator		CR (0x0D)	
Data Output		Send All	
Data Length	Set Start Length	0	
	Set Start Length	0	
Encoding Format		GBK	
Data Length		0	
RF Message	Enable/Disable	Disable	
	Set RF Message	None	
Output Protocol		Output Data Only	
GS Replacement	Enable/Disable	Disable	
	Set GS Replacement	None	
URL Output		Disable	
Symbologies			
General Settings		Enable Default Symbologies	
Enhanced Decode Capability		Disable	
Inverse Barcode		Disable	
Mirrored Barcode		Disable	
Check Digit of Commodity Barcode		Enable	EAN-13/EAN-8/UPC-A/UPC-E0/1
EAN-13			
Enable/Disable		Enable	
2-digit Supplement		Disable	
5-digit Supplement		Disable	
Supplement Required		Disable	
Check Digit		Send	
EAN-8			
Enable/Disable		Enable	
2-digit Supplement		Disable	
5-digit Supplement		Disable	

Supplement Required	Disable	
Check Digit	Send	
UPC-A		
Enable/Disable	Enable	
2-digit Supplement	Disable	
5-digit Supplement	Disable	
Supplement Required	Disable	
UPCA to EAN13	Disable	
Check Digit	Send	
UPC-E0		
Enable/Disable	Enable	
2-digit Supplement	Disable	
5-digit Supplement	Disable	
Supplement Required	Disable	
Check Digit	Send	
UPC-E1		
Enable/Disable	Enable	
2-digit Supplement	Disable	
5-digit Supplement	Disable	
Supplement Required	Disable	
Check Digit	Send	
Code128		
Enable/Disable	Enable	
Max Length	32	
Min Length	04	
Code128 Prefix (11)	Disable	
Code39		
Enable/Disable	Enable	
Max Length	32	
Min Length	04	
Send Start	Not Send	
Send Stop	Not Send	
Verification	Enable	
Check Digit	Not Send	
Code32	Disable	
Code32 Preamble ('A')	Disable	Prerequisite: Enable Code32
Full ASCII Code39	Disable	

Code93		
Enable/Disable	Enable	
Max Length	32	
Min Length	04	
Codabar		
Enable/Disable	Enable	
Max Length	32	
Min Length	04	
Send Start & Stop	Not Send	
Verification	None	
Check Digit	Not Send	
Interleaved 2/5		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	None	
Check Digit	Not Send	
Industrial 2/5		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	None	
Check Digit	Not Send	
Matrix 2/5		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	None	
Check Digit	Not Send	
Standard 2/5		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	Disable	
Check Digit	Not Send	
ChinaPost 2/5		
Enable/Disable	Disable	

Max Length	32	
Min Length	04	
Verification	Disable	
Check Digit	Not Send	
Code11		
Enable/Disable	Disable	
Max Length	324	
Min Length	04	
Verification	1bit	
Check Digit	Not Send	
MSI Plessey		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	Mod10	
Check Digit	Not Send	
UK Plessey		
Enable/Disable	Disable	
Max Length	32	
Min Length	04	
Verification	Disable	
Check Digit	Not Send	
GS1 Databar		
Enable/Disable GS1 Databar	Disable	
Enable/Disable GS1 Databar AI Parenthese	Enable	
Enable/Disable GS1 Databar Limited	Disable	
Enable/Disable GS1 Databar Limited AI Parenthese	Enable	
Enable/Disable GS1 Databar Expanded	Disable	
Enable/Disable GS1 Databar Expanded AI Parenthese	Enable	
Max Length	32	
Min Length	04	
Code16K		
Enable/Disable	Disable	
Max Length	32	

Min Length	04	
QR Code		
Enable/Disable	Enable	
Model 1 QR Code	Disable	
QR Code Prefix (11)	Disable	
Micro QR Code		
Enable/Disable	Enable	
Data Matrix		
Enable/Disable	Enable	
Multicode	Disable	
PDF417		
Enable/Disable	Enable	
MicroPDF417		
Enable/Disable	Enable	
Aztec		
Enable/Disable	Disable	
MaxiCode		
Enable/Disable	Disable	
Han Xin (Chinese Sensible Code)		
Enable/Disable	Disable	

Appendix B - Code ID

Symbology	Code ID
EAN-13	d
EAN-8	d
UPC-A	c
UPC-E0	c
UPC-E1	c
Code128	j
Code39	b
Code93	i
Codabar	a
Interleaved 2/5	e
Industrial 2/5	D
Matrix 2/5	v
Standard 2/5	f
ChinaPost 2/5	X
Code11	H
MSI Plessey	m
UK Plessey	n
GS1 Databar	R
GS1 Databar Limited	R
GS1 Databar Expanded	R
Code16K	X
QR Code	Q
Micro QR Code	X
Data Matrix	u
PDF417	r
MicroPDF417	R
Aztec	z
MaxiCode	x
Han Xin	h

Appendix C - ASCII Table

Hex	Dec	ASCII	
00	0	NUL	(Null char.)
01	1	SOH	(Start of Header)
02	2	STX	(Start of Text)
03	3	ETX	(End of Text)
04	4	EOT	(End of Transmission)
05	5	ENQ	(Enquiry)
06	6	ACK	(Acknowledgment)
07	7	BEL	(Bell)
08	8	BS	(Backspace)
09	9	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)(DeviceControl1)
12	18	DC2	(DeviceControl2)
13	19	DC3	(XOFF)(DeviceControl3)
14	20	DC4	(DeviceControl4)
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)

Appendix D - Configuration Method

Preamble/Postamble

Example: to set Preamble/Postamble as "CODE"

1. Convert "CODE" into Hex equivalent as 43, 4F, 44, 45
2. Scan **Set Preamble/Set Postamble**
3. Scan **4**, **3**, **4**, **F**, **4**, **4**, **4**, **5** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

Code ID

Example: to set EAN-13 Code ID as 'A'

1. Convert 'A' to Hex equivalent as 41
2. Scan **Set EAN-13 Code ID**
3. Scan **4**, **1** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

Send Start Only

Example: to send the first 10 digits of a "1234567890ABC" barcode

1. Convert '10' to Hex equivalent as 0A
2. Scan **Set Start Length**
3. Scan **0**, **A** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**
5. Scan **Send Start Only**

Send End Only

Example: to send the last 10 digits of a "1234567890ABC" barcode

1. Convert '10' to Hex equivalent as 0A
2. Scan **Set End Length**
3. Scan **0**, **A** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**
5. Scan **Send End Only**

Send Center Only

Example: to send the middle "ABC" out of a "1234567890ABC1234567890" barcode

1. Convert '10' to Hex equivalent as 0A
2. Scan **Set End Length**
3. Scan **0**, **A** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**
5. Scan **Set Start Length**
6. Scan **0**, **A** respectively from **8.1 Data 0~F**
7. Scan **Save Configuration** from **8.2 Save & Abort**
8. Scan **Send Center Only**

RF (Read Fail) Message

Example: to set RF Message as 'FAIL'

1. Convert 'FAIL" to Hex equivalent as 46, 41, 49, 4C
2. Scan **Set RF Message**
3. Scan **4**, **6**, **4**, **1**, **4**, **9**, **4**, **C** respectively from **8.1 Data 0~F**
4. Scan **Save Configuration** from **8.2 Save & Abort**

GS Replacement

Example: to set GS Replacement as 'D'

1. Convert 'D' to Hex equivalent as 44
2. Scan **Enable GS Replacement**
3. Scan **Set GS Replacement**
4. Scan **4**, **4** respectively from **8.1 Data 0~F**
5. Scan **Save Configuration** from **8.2 Save & Abort**

Appendix E – Batch Setup Parameter

Function	Parameter	Remark
Barcode Configurability	00000000	Please make sure this function is enabled during batch setup
UART	01000000	
UBS HID	01000001	
USB VCP	01000002	
HID & UART	01000003	
HID KBW	01010000	
HID POS	01010001	
1200bps	010209C4	
4800bps	01020271	
9600bps	01020139	
14400bps	010200D0	
19200bps	0102009C	
38400bps	0102004E	
57600bps	01020034	
115200bps	0102001A	
Parity – None	01030000	
Parity – Odd	01030001	
Parity – Even	01030002	
Polling Rate – 1ms	01040001	Change the last two digits for other options
Polling Rate – 2ms	01040003	
Polling Rate – 5ms	01040005	
Polling Rate – 10ms	0104000A	
Delay Before HID Release – 1ms	01050001	Change the last two digits for other options
Delay Before HID Release – 2ms	01050002	
Delay Before HID Release – 5ms	01050005	
Delay Before HID Release – 10ms	0105000A	
Delay After HID Release – 1ms	01060001	Change the last two digits for other options
Delay After HID Release – 2ms	01060002	
Delay After HID Release – 5ms	01060005	
Delay After HID Release – 10ms	0106000A	
CapsLock - Off	01070000	
CapsLock - On	01070001	

Enable HID Prefix	01080000	
Disable HID Prefix	01080001	
Trigger Mode	02000000	
Trigger Condition – Level	02010000	
Trigger Condition – Pulse	02010001	
LED Timeout – 1000ms	0202000A	Change the last two digits for other options
LED Timeout – 3000ms	0202001E	
LED Timeout – 5000ms	02020032	
LED Timeout – 10000ms	02020064	
LED Timeout – Unlimited	02020000	
Serial Trigger Mode	02000001	
Trigger Command Response – Disable	020A0000	
Trigger Command Response – Enable	020A0001	
Continuous Mode	02000002	
Trigger Control – Off	020A0010	
Trigger Control – On	020A0011	
Scan Interval – None	02050000	Change the last two digits for other options
Scan Interval – 500ms	02050005	
Scan Interval – 1000ms	0205000A	
Scan Interval – 3000ms	0205001E	
Scan Interval – 5000ms	02050032	
Disable Identical Read Interval	02060000	
Enable Identical Read Interval	02060001	
Identical Read Interval – Unlimited	02070000	Change the last two digits for other options
Identical Read Interval – 500ms	02070005	
Identical Read Interval – 1000ms	0207000A	
Identical Read Interval – 3000ms	0207001E	
Identical Read Interval – 5000ms	02070032	
Auto-sensing Mode	02000003	
Auto-sensing Sensitivity – Medium	0209640A	
Auto-sensing Sensitivity – Low	020932A0	
Auto-sensing Sensitivity – High	0209320A	
Auto-sensing Sensitivity – Ultra High	02093205	
Image Stabilization Timeout – 0ms	02080000	Change the last two digits for other options
Image Stabilization Timeout – 100ms	02080001	
Image Stabilization Timeout – 400ms	02080004	
Image Stabilization Timeout – 1000ms	0208000A	

Image Stabilization Timeout – 2000ms	02080014	
Sleep Mode – Enable	02030000	
Sleep Mode – Disable	02030001	
Illumination – Normal	03000000	
Illumination – Always On	03000001	
Illumination – Always Off	03000002	
Aimer – Flash	03010000	
Aimer – Always On	03010001	
Aimer – Always Off	03010002	
Aimer – On	03010003	
Mute	04000000	
Unmute	04000001	
Beep Frequency – Low	04010000	
Beep Frequency – Medium	04010001	
Beep Frequency – High	04010002	
Configuration Barcode Beep – On	04020000	
Configuration Barcode Beep – Off	04020001	
Power Up Beep – On	04030000	
Power Up Beep – Off	04030001	
Good Read LED – On	04040000	
Good Read LED – Off	04040001	
Good Read Beep – On	04040002	
Good Read Beep – Off	04040003	
Good Read Beep Duration – 30ms	0404011E	Change the last two digits for other options
Good Read Beep Duration – 60ms	0404013C	
Good Read Beep Duration – 90ms	0404015A	
Good Read Beep Duration – 120ms	04040178	
Encoding Format – GBK	04050000	
Encoding Format – UTF8	04050001	
Encoding Format – Raw	04050002	
Encoding Format – UNICODE	04050003	
Keyboard Layout – English (USA)	04060000	
Keyboard Layout – Czech	04060001	
Keyboard Layout – French	04060002	
Keyboard Layout – German	04060003	
Keyboard Layout – Hungarian	04060004	
Keyboard Layout – Italian	04060005	

Keyboard Layout – Japanese	04060006	
Keyboard Layout – Spanish	04060007	
Keyboard Layout – Turkish Q	04060008	
Keyboard Layout – Turkish F	04060009	
Keyboard Layout – Mexican (Latin A.)	0406000A	
Standard Keyboard	04070000	
Virtual Keyboard	04070001	
Ctrl Mode	04070010	
Alt Mode	04070011	
Disable Output	04070012	
Numeric Keypad – Number Keys On	040C0000	
Numeric Keypad – Number Keys Off	040C0001	
Numeric Keypad – Symbol Keys On	040C0002	
Numeric Keypad –Symbol Keys Off	040C0003	
Enable Mirrored Barcode	04080000	
Disable Mirrored Barcode	04080001	
Disable Inverse Barcode	04090000	
Enable Inverse Barcode	04090001	
Enable Preamble	05000000	
Disable Preamble	05000001	
Set Preamble	05000002	
Enable Postamble	05010000	
Disable Postamble	05010001	
Set Postamble	05010002	
Enable Code ID	05020000	
Disable Code ID	05020001	
Reset All Code ID to Default	05020002	
Set EAN-13 Code ID	05030000	
Set EAN-8 Code ID	05030001	
Set UPC-A Code ID	05030002	
Set UPC-E0 Code ID	05030003	
Set UPC-E1 Code ID	05030004	
Set Code128 Code ID	05030005	
Set Code39 Code ID	05030006	
Set Code93 Code ID	05030007	
Set Codabar Code ID	05030008	
Set Interleaved 2/5 Code ID	05030009	

Set Industrial 2/5 Code ID	0503000A	
Set Matrix 2/5 Code ID	0503000B	
Set Code11 Code ID	0503000C	
Set MSI Plessey Code ID	0503000D	
Set GS1 Databar Code ID	0503000E	
Set GS1 Databar Limited Code ID	05030010	
Set GS1 Databar Expanded Code ID	05030011	
Set QR Code Code ID	05030012	
Set Data Matrix Code ID	05030013	
Set PDF417 Code ID	05030014	
Set Micro QR Code Code ID	05030015	
Set Han Xin Code ID	05030016	
Set MicroPDF417 Code ID	05030017	
Set Standard 2/5 Code ID	05030018	
Set UK Plessey Code ID	05030019	
Set ChinaPost 2/5 Code ID	0503001A	
Set Code16K Code ID	0503001B	
Set MaxiCode Code ID	0503001D	
Set Aztec Code ID	0503001E	
Terminator – None	05040000	
Terminator – CR	05040001	
Terminator – TAB	05040002	
Terminator – CR LF	05040003	
Send All	05050000	
Send Start Only	05050001	
Send End Only	05050002	
Send Center Only	05050003	
Set Start Length	05050004	
Set End Length	05050005	
Enable RF Message	05060000	
Disable RF Message	05060001	
Set RF Message	05060002	
Output Data Only	05070000	
Output Protocol	05070001	
Enable GS Replacement	050A0000	
Disable GS Replacement	050A0001	
Set GS Replacement	050A0002	

Enable URL Output	050B0000	
Disable URL Output	050B0001	
Enable All Symbologies	07000000	
Disable All Symbologies	07000001	
Enable Default Symbologies	07000002	
Enable Enhanced Decode Capability	07000007	
Disable Enhanced Decode Capability	07000008	
Enable Check Digit of Commodity Barcode	05090000	
Disable Check Digit of Commodity Barcode	05090001	
Enable EAN-13	07010000	
Disable EAN-13	07010100	
Enable EAN-13 Supplement Required	07011000	
Disable EAN-13 Supplement Required	07011100	
Enable EAN-13 2-digit Supplement	07012000	
Disable EAN-13 2-digit Supplement	07012100	
Enable EAN-13 5-digit Supplement	07013000	
Disable EAN-13 5-digit Supplement	07013100	
Send EAN-13 Check Digit	07014000	
Not Send EAN-13 Check Digit	07014100	
Enable EAN-8	07020000	
Disable EAN-8	07020100	
Enable EAN-8 Supplement Required	07021000	
Disable EAN-8 Supplement Required	07021100	
Enable EAN-8 2-digit Supplement	07022000	
Disable EAN-8 2-digit Supplement	07022100	
Enable EAN-8 5-digit Supplement	07023000	
Disable EAN-8 5-digit Supplement	07023100	
Send EAN-8 Check Digit	07024000	
Not Send EAN-8 Check Digit	07024100	
Enable UPC-A	07030000	
Disable UPC-A	07030100	
Enable UPC-A Supplement Required	07031000	
Disable UPC-A Supplement Required	07031100	
Enable UPC-A 2-digit Supplement	07032000	
Disable UPC-A 2-digit Supplement	07032100	

Enable UPC-A 5-digit Supplement	07033000	
Disable UPC-A 5-digit Supplement	07033100	
Enable UPC-A to EAN-13	05080000	
Disable UPC-A to EAN-13	05080001	
Send UPC-A Check Digit	07034000	
Not Send UPC-A Check Digit	07034100	
Enable UPC-E0	07040000	
Disable UPC-E0	07040100	
Enable UPC-E0 Supplement Required	07041000	
Disable UPC-E0 Supplement Required	07041100	
Enable UPC-E0 2-digit Supplement	07042000	
Disable UPC-E0 2-digit Supplement	07042100	
Enable UPC-E0 5-digit Supplement	07043000	
Disable UPC-E0 5-digit Supplement	07043100	
Send UPC-E0 Check Digit	07044000	
Not Send UPC-E0 Check Digit	07044100	
Enable UPC-E1	07050000	
Disable UPC-E1	07050100	
Enable UPC-E1 Supplement Required	07051000	
Disable UPC-E1 Supplement Required	07051100	
Enable UPC-E1 2-digit Supplement	07052000	
Disable UPC-E1 2-digit Supplement	07052100	
Enable UPC-E1 5-digit Supplement	07053000	
Disable UPC-E1 5-digit Supplement	07053100	
Send UPC-E1 Check Digit	07054000	
Not Send UPC-E1 Check Digit	07054100	
Enable Code128	07060000	
Disable Code128	07060100	
Code128 Min Length = 00	07061000	Change the last two digits for other options
Code128 Min Length = 04	07061004	
Code128 Max Length = 32	07061120	
Code128 Max Length = 255	070611FF	
Enable Code128 Prefix (11)	07062000	
Disable Code128 Prefix (11)	07062100	
Enable Code39	07070000	
Disable Code39	07070100	
Code39 Min Length = 00	07071000	

Code39 Min Length = 04	07071004	
Code39 Max Length = 32	07071120	
Code39 Max Length = 255	070711FF	
Send Code39 Start	07072000	
Not Send Code39 Start	07072100	
Send Code39 Stop	07073000	
Not Send Code39 Stop	07073100	
Enable Code39 Verification	07077000	
Disable Code39 Verification	07077100	
Send Code39 Check Digit	07078000	
Not Send Code39 Check Digit	07078100	
Enable Code32	07074000	
Disable Code32	07074100	
Enable Code32 Preamble ('A')	07076000	
Disable Code32 Preamble ('A')	07076100	
Enable Full ASCII Code39	07075000	
Disable Full ASCII Code39	07075100	
Enable Code93	07080000	
Disable Code93	07080100	
Code93 Min Length = 00	07081000	Change the last two digits for other options
Code93 Min Length = 04	07081004	
Code93 Max Length = 32	07081120	
Code93 Max Length = 255	070811FF	
Enable Codabar	07090000	
Disable Codabar	07090100	
Codabar Min Length = 00	07091000	Change the last two digits for other options
Codabar Min Length = 04	07091004	
Codabar Max Length = 32	07091120	
Codabar Max Length = 255	070911FF	
Send Codabar Start/Stop	07092000	
Not Send Codabar Start/Stop	07092100	
Codabar Verification = None	07093000	
Codabar Verification = Mod10	07093100	
Codabar Verification = Mod16	07093200	
Codabar Verification = Mod10/Mod16	07093300	
Send Codabar Check Digit	07094000	
Not Send Codabar Check Digit	07094100	

Enable Interleaved 2/5	070A0000	
Disable Interleaved 2/5	070A0100	
Interleaved 2/5 Min Length = 00	070A1000	Change the last two digits for other options
Interleaved 2/5 Min Length = 04	070A1004	
Interleaved 2/5 Max Length = 32	070A1120	
Interleaved 2/5 Max Length = 255	070A11FF	
Interleaved 2/5 Verification = Mod10	070A2000	
Interleaved 2/5 Verification = None	070A2100	
Send Interleaved 2/5 Check Digit	070A3000	
Not Send Interleaved 2/5 Check Digit	070A3100	
Enable Industrial 2/5	070B0000	
Disable Industrial 2/5	070B0100	
Industrial 2/5 Min Length = 00	070B1000	Change the last two digits for other options
Industrial 2/5 Min Length = 04	070B1004	
Industrial 2/5 Max Length = 32	070B1120	
Industrial 2/5 Max Length = 255	070B11FF	
Industrial 2/5 Verification = Mod10	070B2000	
Industrial 2/5 Verification = None	070B2100	
Send Industrial 2/5 Check Digit	070B3000	
Not Send Industrial 2/5 Check Digit	070B3100	
Enable Matrix 2/5	070C0000	
Disable Matrix 2/5	070C0100	
Matrix 2/5 Min Length = 00	070C1000	Change the last two digits for other options
Matrix 2/5 Min Length = 04	070C1004	
Matrix 2/5 Max Length = 32	070C1120	
Matrix 2/5 Max Length = 255	070C11FF	
Matrix 2/5 Verification = Mod10	070C2000	
Matrix 2/5 Verification = None	070C2100	
Send Matrix 2/5 Check Digit	070C3000	
Not Send Matrix 2/5 Check Digit	070C3100	
Enable Standard 2/5	07200000	
Disable Standard 2/5	07200100	
Standard 2/5 Min Length = 00	07201000	Change the last two digits for other options
Standard 2/5 Min Length = 04	07201004	
Standard 2/5 Max Length = 32	07201120	
Standard 2/5 Max Length = 255	072011FF	
Enable Standard 2/5 Verification	07202000	

Disable Standard 2/5 Verification	07202100	
Send Standard 2/5 Check Digit	07203000	
Not Send Standard 2/5 Check Digit	07203100	
Enable ChinaPost 2/5	07220000	
Disable ChinaPost 2/5	07220100	
ChinaPost 2/5 Min Length = 00	07221000	Change the last two digits for other options
ChinaPost 2/5 Min Length = 04	07221004	
ChinaPost 2/5 Max Length = 32	07221120	
ChinaPost 2/5 Max Length = 255	072211FF	
Enable ChinaPost 2/5 Verification	07222000	
Disable ChinaPost 2/5 Verification	07222100	
Send ChinaPost 2/5 Check Digit	07223000	
Not Send ChinaPost 2/5 Check Digit	07223100	
Enable Code11	070D0000	
Disable Code11	070D0100	
Code11 Min Length = 00	070D1000	Change the last two digits for other options
Code11 Min Length = 04	070D1004	
Code11 Max Length = 32	070D1120	
Code11 Max Length = 255	070D11FF	
Code11 Verification = 1bit	070D2000	
Code11 Verification = 2bit	070D2100	
Send Code11 Check Digit	070D3000	
Not Send Code11 Check Digit	070D3100	
Enable MSI Plessey	070E0000	
Disable MSI Plessey	070E0100	
MSI Plessey Min Length = 00	070E1000	Change the last two digits for other options
MSI Plessey Min Length = 04	070E1004	
MSI Plessey Max Length = 32	070E1120	
MSI Plessey Max Length = 255	070E11FF	
MSI Plessey Verification = Mod10	070E2000	
MSI Plessey Verification = Double Mod10	070E2100	
Send MSI Plessey Digit	070E3000	
Not Send MSI Plessey Check Digit	070E3100	
Enable UK Plessey	07210000	
Disable UK Plessey	07210100	
UK Plessey Min Length = 00	07211000	Change the last two

UK Plessey Min Length = 04	07211004	digits for other options
UK Plessey Max Length = 32	07211120	
UK Plessey Max Length = 255	072111FF	
Enable UK Plessey Verification	07212000	
Disable UK Plessey Verification	07212100	
Send UK Plessey Check Digit	07213000	
Not Send UK Plessey Check Digit	07213100	
Enable GS1 Databar	070F0000	
Disable GS1 Databar	070F0100	
Disable GS1 Databar AI Parentheses	070F5000	
Enable GS1 Databar AI Parentheses	070F5100	
Enable GS1 Databar Limited	070F1000	
Disable GS1 Databar Limited	070F1100	
Disable GS1 Databar Limited AI Parentheses	070F7000	
Enable GS1 Databar Limited AI Parentheses	070F7100	
Enable GS1 Databar Expanded	070F2000	
Disable GS1 Databar Expanded	070F2100	
Disable GS1 Databar Expanded AI Parentheses	070F9000	
Enable GS1 Databar Expanded AI Parentheses	070F9100	
GS1 Databar Min Length = 00	070F3000	Change the last two digits for other options
GS1 Databar Min Length = 04	070F3004	
GS1 Databar Max Length = 32	070F3120	
GS1 Databar Max Length = 255	070F31FF	
Enable Code16K	07230000	
Disable Code16K	07230100	
Code16K Min Length = 00	07231000	Change the last two digits for other options
Code16K Min Length = 04	07231004	
Code16K Max Length = 32	07231120	
Code16K Max Length = 255	072311FF	
Enable QR Code	07140000	
Disable QR Code	07140100	
Enable Model 1 QR Code	07141000	
Disable Model 1 QR Code	07141100	

Enable QR Code Prefix (11)	07142000	
Disable QR Code Prefix (11)	07142100	
Enable Micro QR Code	07190000	
Disable Micro QR Code	07190100	
Enable Data Matrix	07150000	
Disable Data Matrix	07150100	
Enable Multicode	07151000	
Disable Multicode	07151100	
Enable PDF417	07160000	
Disable PDF417	07160100	
Enable MicroPDF417	07180000	
Disable MicroPDF417	07180100	
Enable Aztec	071B0000	
Disable Aztec	071B0100	
Enable MaxiCode	071A0000	
Disable MaxiCode	071A0100	
Enable Han Xin	07170000	
Disable Han Xin	07170100	
Save Configuration	08000000	
Abort 1 Data	08000001	
Abort All Data	08000002	
Abort Configuration	08000003	
0	08010000	
1	08010001	
2	08010002	
3	08010003	
4	08010004	
5	08010005	
6	08010006	
7	08010007	
8	08010008	
9	08010009	
A	0801000A	
B	0801000B	
C	0801000C	
D	0801000D	
E	0801000E	

F	0801000F	

Version History

Rev	Date	Description	Issued
1.0	2023.01.16	Initial Release	Shaw

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