1 Scanner Basic Characteristics

1.1 Output Setting Content

Setting code content (such as "WFFD980") can be allowed to output. After scanning "Code Programming output content" and setting up successfully, when reading setting code, the setting code content will be output to the host. When the "Code Programming output content" is enabled, setting code only as an ordinary bar code can not be used to set the Scanning Engine. When reading engine re-power ,it will be resumed default setting---Code programming not output content, at this time code can be used to set the scanner engine

Code Programming output content

W401740

Default setting

WFFD980

1.2 Default Setting

Note: Please use the "Factory Default" function cautiously.

After scanning "Factory Default" ,scanning engine will lose the current parameter settings, instead of it is factory default parameters .

The factory default parameters and functions can be found in Appendix A

Factory Default

WFFD980

1.3 Communication Interface

1.3.1 Serial communication interface

Engine provide TTL-232 serial communication interface and USB interface to communicate with the host connection. Through the communication interface, can receive reading data, can control the instruction from the recognition engine, and also can modify the recognition engine function parameters. The recognition engine parameters can be modified through the reading setting code, but others can not be modified.

Parameters	Default
Serial Communication Type	Standard TTL-232
Baud Rate	9600
Check	None
Data bits	8
Stop bit	1
Hardware Flow Control	None

Baud Rate:

Baud Rate's unit is bit/s, The optional configuration parameters are as below:

9600

WFFD9D3

1200	19200
‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD9D0	WFFD9D5
2400	38400
‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD9D1	WFFD9D6
4800	57600
‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD9D2	WFFD9D7
14400	115200
‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD9D4	WFFD9D8

1.3.2 USB Interface

When reading engine connects to the host by USB cable, the system will use USB DATAPIPE MODE automatically.

1.3.2.1 USB DATAPIPE

DATAPIPE USB is a custom USB transport protocol. This feature requires the installation of the corresponding driver on the host.

Switch to USB DATAPIPE Mode

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W030D00

1.3.2.2 USB HID-KBW

When using the USB interface, you can simulate the engine to read HID-KBW equipment. In this mode, reading engine will become a virtual keyboard output data to the host.

Switch to USB HID-KBW Mode

||||||||||||||||||||||||||
W030D01

1.3.2.3 Standard Keyboard Input Mode

Standard keyboard input mode is the factory default setting.EM2000 reading engine provides another two input modes: Keyboard simulation input character mode and emulation input control character mode. It can be set according to the users's needs.

Switch to Standard keyboard input mode

||||||||||||||||||||||||||
W066000

1.3.2.4 Keyboard simulation input character mode

In order to input any ASCII character(16 hexadecimal value from 0x00～0xFF) in any kind of language, the virtual Keyboard can be set as Keyboard simulation input character mode. When using this combination of characters output, because of the large output data, the speed will slow down.

After switching to "Keyboard simulation input character mode", input the data corresponding ASCII character, the scanner will read the code with virtual keyboard as below:

4

(1)Keeping pressing the "ALT"

(2)According to the character code, input the number keys in the digital keyboard in turns.

(3)Release "ALT"

Switch to Keyboard Simulation Input Character Mode

W066004

Note: It is recommended that you turn Num Lock on the main numeric keypad when Enabling this mode.

1.3.2.5 Emulation Input Control Character Mode

The HEX from 0x00~0x1F of ASCII values could be matched to some control function keys, In emulation keyboard, the control function keys input as bellows:

(1)Keep pressing "Ctrl"

(2)Press the pointed control keys(the specific ASCII values match the keys details see below table<Emulation keyboard Input Control Characters Pairing Table>)

(3)Release the "Ctrl" and control keys

Switch to Emulation Input Control Character Mode

W066002

Emulation keyboard Input Control Characters Pairing Table

ASCII Value (HEX)	Function Key	ASCII Value (HEX)	Function Key
00	2	10	P

01	A	11	Q
02	B	12	R
03	C	13	S
04	D	14	T
05	E	15	U
06	F	16	V
07	G	17	W
08	H	18	X
09	I	19	Y
0A	J	1A	Z
0B	K	1B	[
0C	L	1C	\
0D	M	1D	]
0E	N	1E	6
0F	0	1F	.

1.3.2.6 Countries/Languages Keyboard Options

The language of different countries corresponding to the keyboard layout, symbols are not the same. According to the actual needs, Recognition engine can switch to different countries' keyboard system. The default is set to the first system---US English.

1.US English	2.Belgium
WFF6B00	**WFF6B01**
3.Brasil	4.Canada
WFF6B02	**WFF6B03**
5.Czechoslovakia	6.Denmark
WFF6B04	**WFF6B05**
7.Finland	8.France
WFF6B06	**WFF6B07**
9.Austria	10.Greece
WFF6B08	**WFF6B09**
11.Hungary	12.Israel
WFF6B0A	**WFF6B0B**
13.Italy	14.Latin America
WFF6B0C	**WFF6B0D**
15.Netherlands	16.Norway
WFF6B0E	**WFF6B0F**
17.Poland	18.Portugal
WFF6B10	**WFF6B11**

19.Romania	20.Russia
WFF6B12	WFF6B13

21.Slovakia	22.Spain
WFF6B15	WFF6B16

23.Sweden	24.Switzerland
WFF6B12	WFF6B18

25.Turkey1	26.Turkey2
WFF6B19	WFF6B1A

27.Britain	28.Japan
WFF6B1B	WFF6B1C

1.3.2.7 Unknown Characters Beep

Due to the existence of language differences in the keyboard, some characters which appears in the bar code but not shown in the current emulation keyboard system can not be sent. Through the following setting to decide whether the reading engine send a error tone or not.

If you scan "no-warning", there is no warning tone when the error happens. If you scan "warning", there will be a warning tone when the barcode includes unknown characters.

Warning	no-warning
‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖
W080E08	W080E00

1.3.2.8 Press Key Interval Delay Setting

Press key interval is the time between release the key and press the key.

0ms	5ms
‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖
WC06F00	WC06F40
10ms	15ms
‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖
WC06F80	WC06FC0

1.3.2.9 Caps Lock

When Scanning "Turn on Caps Lock", reading engine will convert the lower-case and capitals in the barcode information same as the open state of Caps Lock on the host keyboard.

Turn off Caps Lock	Turn On Caps Lock
‖‖‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖‖‖
W086000	W086008

Note: When use the "Keyboard simulation input character mode"or "Uppercase and Lowercase Enforce Transformation", this function is not valid.

For example: Turn on this function, reading engine reads the data for the "AbC" code, but host will receive "aBc".

9

1.3.2.10 **Uppercase and Lowercase Enforce Transformation**

If scan "All Turn to Uppercase", no matter the letters in the barcode is capitals or lowercase, all the letters change to capitals.

If scan "All Turn to Lowercase", no matter the letters in the barcode is capitals or lowercase, all the letters change to lowercase.

No Conversion

```
|| ||| |||| ||| ||| |||| |||| ||| |||
W306F00
```

All Turn to Lowercase

```
|| ||| |||| ||| ||| ||| |||
W306F30
```

All Turn to Uppercase

```
||| |||| |||| ||| ||| ||| |||
W306F20
```

For example: After scanning "All Turn to Lowercase" ,the reading information is "AbC", the host will receive "abc".

1.3.2.11 **Emulation Number Mini Keyboard**

Turn off this function, all output data is as big keyboard corresponding keys.

Turn on this function, when Num Lock is turned on, is the scanner decoded number is from "0-9",the output data is as emulation number mini keyboard corresponding keys. If the scanner decoded number is excluded from "0-9", and including the characters of "+" "_" "*" "/" ".", the output data is as big keyboard corresponding keys. When Num Lock is turned off, all output data is as big keyboard corresponding keys. When Num

Lock is turned on, all output data is as emulation number mini keyboard corresponding keys.

Turn On

W046F04

Turn Off

W046F00

1.3.2.12   USB COM Port Emulation

If you connect the engine to the Host via a USB connection, the USB COM Port Emulation feature allows the Host to receive data in the way as a serial port does. However, you need to set communication parameters on the engine to match the Host requirements. A driver is required for this feature.

USB COM Port Emulation

W030D02

1.3.2.14 HID-POS

The HID-POS interface is recommended for new application programs. It can send up to 56 characters in a single USB report and appears more efficient than USB HID-KBW.

Features:

1) HID based, no custom driver required.
2) Way more efficient in communication than USB HID-KBW and traditional RS-232 interface.

Note: HID-POS does not require a custom driver. However, a HID interface on Windows 98 does. All HID interfaces employ standard driver provided by the operating system. Use defaults when installing the driver.

HID-POS

```
W030D03
```

2. Scan Mode

2.1 Manual Mode

Manual Mode (default): A trigger pull activates a decode session. The decode session continues until the barcode is decoded or the trigger is released.

Manual Mode

```
W030000
```

2.2 Continuous Mode

Continuous Mode: The engine automatically activates a decode session. The decode session continues until the barcode is decoded or the decode session timeout expires. When a decode session is completed, the engine waits until the timeout between decodes expires and then starts next session. The engine continues to work in this pattern if the following situation does not happen: no barcode is presented to the engine or passed in front of it in a decode session, the engine will automatically suspend barcode reading. Pressing the trigger can suspend/resume barcode reading.

Continuous Mode

```
W030002
```

2.2.1 Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 0.1s increments from 0.1s to 25.5s. The default timeout is 5.0s. If the parameter is set to 0, the engine scans and decodes barcode continuously. To learn how to program this parameter, see Appendix D: Parameter Programming Examples.

Decode Session Timeout

M00031D

2.2.2 Timeout between Decodes

This parameter sets the timeout between decode sessions. When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 0.1s increments from 0.1s to 25.5s. The default timeout is 1.0s. To learn how to program this parameter, see Appendix D: Parameter Programming Examples

Timeout between Decodes

M00031C

2.3 Sense Mode

Sense Mode: The engine waits for the image stabilization timeout to expire before activating a decode session every time it detects a change in ambient illumination. Decode session continues until the barcode is decoded or the decode session timeout expires. After a decode session ends, the engine waits for

the timeout between decodes to expire before beginning to monitor ambient illumination. If no barcode is presented to the engine or passed in front of it in a decode session, the engine will automatically suspend barcode reading and start to monitor ambient illumination.

In the Sense mode, a trigger pull can also activate a decode session. The decode session continues until the barcode is decoded or the trigger is released. When the session ends, the engine will continue to monitor ambient illumination.

Sense Mode

|||||||||||||||||||||||||||||||
W030003

2.3.1 Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 0.1s increments from 0.1s to 25.5s. The default timeout is 5.0s. If the parameter is set to 0, the engine scans and decodes barcode continuously. To learn how to program this parameter, see Appendix D: Parameter Programming Examples.

Decode Session Timeout

|||||||||||||||||||||||||||||||
M00031D

2.3.2 Timeout between Decodes

After a decode session ends, the engine waits for the timeout between decodes to expire before beginning to monitor ambient illumination. This parameter is programmable in 0.1s increments

from 0.1s to 25.5s. The default timeout is 1.0s. To learn how to program this parameter, see AppendixD Parameter Programming Examples

Timeout between Decodes

M00031C

2.3.3 Image Stabilization Timeout

The engine waits for the image stabilization timeout to expire before activating a decode session every time it detects a change in ambient illumination. This parameter is programmable in 0.1s increments from 0.1s to 25.5s. The default timeout is 0.4s. To learn how to program this parameter, see Appendix D: Parameter Programming Examples

Image Stabilization Timeout

M00031B

2.3.4 Sensitivity

Sensitivity specifies the degree of acuteness of the engine's response to changes in ambient illumination. The higher the sensitivity, the lower requirement in illumination change to trigger the engine. You can select an appropriate degree of sensitivity that fits the ambient environment. The default setting is Medium Sensitivity.

High Sensitivity

|||||||||||||||||||||||||||
WFF0308

Medium Sensitivity

|||||||||||||||||||||||||||
WFF0320

Low Sensitivity

|||||||||||||||||||||||||||
WFF0340

Custom Sensitivity

|||||||||||||||||||||||||||
M00031A

Sensitivity levels range from 0 to 255. The smaller the number, the higher the sensitivity.

Users can select a desired sensitivity level that helps achieve greater efficiency. To learn how to program this parameter, see AppendixD: Parameter Programming Examples

2.4 Command Trigger Mode

Command Trigger Mode: Decode session is activated by a host command (i.e. set the bit0 of register 0x0002 to "1"). The decode session continues until the barcode is decoded or the decode session timeout expires.

Command Trigger Mode

|||||||||||||||||||||||||||
W030001

2.4.1 Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 0.1s increments from 0.1s to 25.5s. The default timeout is 5.0s. If the parameter is set to 0, the engine scans and decodes barcode continuously. To learn how to program this parameter, see Appendix D: Parameter Programming Examples.

Decode Session Timeout

```
M00031D
```

3. Illumination & Aiming

3.1 Illumination

A couple of illumination options are provided to improve the lighting conditions during every image capture:

Normal (default): Illumination LED is turned on during image capture.

Always ON: Illumination LED keeps ON after the engine is powered on.

OFF: Illumination LED is OFF all the time.

Normal

```
W0C0004
```

OFF

```
W0C000C
```

Always ON

```
W0C0000
```

3.2 Aiming

When scanning/capturing image, the engine projects an aiming beam which allows positioning the target barcode within its field of view and thus makes decoding easier.

Normal (default): The engine projects an aiming beam only during barcode scanning/capture.

Always ON: Aiming beam is constantly ON after the engine is powered on.

OFF: Aiming beam is OFF all the time.

Normal

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖ ‖‖ ‖‖‖
W300010

OFF

‖‖‖‖‖‖‖‖‖‖‖‖‖
W300000

Always ON

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖
W300030

4. Notification Beeps

4.1 Mute Mode

Scanning the Enable Mute Mode can turn off all notification beeps. By default, mute mode is disabled.

Enable Mute Mode

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖
W400000

Disable Mute Mode

‖‖‖ ‖‖‖‖‖‖‖‖‖ ‖‖‖‖
W400040

4.2 Good Read Beep

Scanning the Good Read Beep Off can turn off good read beeps. Scanning the Good Read Beep On, the good read beeps will be restored.

Good Read Beep On

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖
W040E04

Good Read Beep Off

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖
W040E00

4.2.1 Good Read Beep Frequency

Low

WFF09DA

Medium

WFF094B

High

WFF0925

4.2.2 Good Read Beep Duration

40ms

WFF0A1F

80ms

WFF0A3E

120ms

WFF0A5D

4.3 Good Read LED

Good Read LED On

W800080

Good Read LED Off

W800000

4.4 Decode Result Notification

When enabled, if a barcode does not decode, "F" is transmitted; if a barcode is decoded, "S" is appended to the barcode data as the most left character.

Note:This function is invalid under the USB DATAPIPE MODE.

Enable Decode Result Notification

||||||||||||||||||||||||||||
W400240

5. Data Formatting

In many applications, barcode data needs to be edited and distinguished from one another.

Usually AIM ID and Code ID can be used as identifiers, but in some special cases terminating character suffix like Carriage Return or Line Feed can also be the alternative.

The engine can be configured to transmit barcode data in the following format:

["F"/ "S"] + [Code ID] + [AIM ID] + [DATA] + [terminating character]

Barcode's data must be transmitted while others are optional parts.

5.1 AIM ID Prefix

AIM (Automatic Identification Manufacturers) IDs define symbology identifiers and data carrier identifiers. For the details, see Appendix B: AIM ID Table. If AIM ID prefix is enabled, the engine will add the symbology identifier before the scanned data after decoding.

nable AIM ID Prefix

||||||||||||||||||||||||||||
WFFD9C0

Disable AIM ID Prefix

||||||||||||||||||||||||||||
WFFD9C1

20

5.2 CODE ID Prefix

Code ID can also be used to identify barcode type. For more information, refer to Appendix C: Code ID Table

Enable CODE ID Prefix

W800280

Disable CODE ID Prefix

W800200

User can choose to transmit original CODE ID or visible CODE ID by scanning the appropriate barcode below.Refer to Appendix C: Code ID Table.

Original CODE ID

W018A00

Visible CODE ID

W018A01

5.3 Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) or horizontal tab (TAB) can be used to mark the end of data.

Disable Terminating Character Suffix

W616000

Append CR

W616001

Append CRLF

W616021

Append TAB

W616041

6. Symbologies

6.1 Global Settings

6.1.1 Enable/Disable All Symbologies

If all symbologies are disabled, the engine can only identify programming barcodes.

Enable All Symbologies

WFFD981

Disable All Symbologies

WFFD982

6.1.2 Enable/Disable 1D Symbologies

Scanning the following code set, only for all one-dimensional bar code type unified operation, or allow all reading, or total ban on reading.

Enable 1D Symbologies

WFFD983

Disable 1D Symbologies

WFFD984

6.1.3 Enable/Disable 2D Symbologies

Scanning the following code set, only for all two-dimensional bar code type unified operation, or allow all reading, or total ban on reading.

Enable 2D Symbologies

WFFD985

Disable 2D Symbologies

WFFD986

6.1.4 Video Reverse

Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

The examples of regular barcode and inverse barcode are shown below.

Regular barcode

Inverse barcode

Video Reverse ON: Read both regular barcodes and inverse barcodes.

Video Reverse OFF (default): Read regular barcodes only.

The engine shows a slight decrease in scanning speed when Video Reverse is ON.

Video Reverse ON

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W100210

Video Reverse OFF

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W100200

6.2 1D Symbologies

6.2.1 Code 128

6.2.1.1 Restore Factory Defaults

Restore the Factory Defaults of Code 128

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD990

6.2.1.2 Enable/Disable Code 128

Enable Code 128

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W011601

Disable Code 128

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W011600

6.2.1.3 UCC/EAN-128 (GS1-128)

Restore the Factory Defaults of UCC/EAN-128

||||||||||||||||||||||||
WFFD991

Enable UCC/EAN-128

||||||||||||||||||||||||
W011701

Disable UCC/EAN-128

||||||||||||||||||||||||
W011700

6.2.1.4 AIM 128

Restore the Factory Defaults of AIM 128

||||||||||||||||||||||||
WFFD992

Enable AIM 128

||||||||||||||||||||||||
W101610

Disable AIM 128

||||||||||||||||||||||||
W101600

6.2.2 EAN-8

6.2.2.1 Restore Factory Defaults

Restore the Factory Defaults of EAN-8

||||||||||||||||||||||||
WFFD994

6.2.2.2 Enable/Disable EAN-8

Enable EAN-8

||||||||||||||||||||||||
W011301

Disable EAN-8

||||||||||||||||||||||||
W011300

6.2.2.3 Transmit Check Digit

EAN-8 is 8 digits in length with the last one as its check digit used to verify the integrity of the data.

Transmit EAN-8 Check Digit

||||||||||||||||||||||||
W041304

Do Not Transmit EAN-8 Check Digit

||||||||||||||||||||||||
W041300

6.2.2.4 Add-On Code

An EAN-8 barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

||||||||||||||||
1234 567

||||||||||||||||
1234 567   89012

Enable 2-Digit Add-On Code

||||||||||||||||||||||||
W101310

Disable 2-Digit Add-On Code

||||||||||||||||||||||||
W101300

Enable 5-Digit Add-On Code

||||||||||||||||||||||||
W201320

Disable 5-Digit Add-On Code

||||||||||||||||||||||||
W201300

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The engine decodes a mix of EAN-8 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The engine decodes EAN-8 and ignores the add-on code

when presented with an EAN-8 plus add-on barcode. It can also decode EAN-8 barcodes without add-on codes.

6.2.2.5 Add-On Code Required

EAN-8 Add-On Code Required

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W081308

EAN-8 Add-On Code Not Required

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W081300

6.2.2.6 EAN-8 EXTEND TO EAN-13

EAN-8 extend to EAN 13 means add five leading zeros to decoded EAN-8 barcodes to extend to13 digits.

Enable EAN-8 Zero Extend

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W401340

Disable EAN-8 Zero Extend

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W401300

6.2.3 EAN-13

6.2.3.1 Restore Factory Defaults

Restore the Factory Defaults of EAN-13

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
WFFD995

6.2.3.2 Enable/Disable EAN-13

Enable EAN-13

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W011101

Disable EAN-13

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
W011100

6.2.3.3 Transmit Check Digit

EAN-13 is 13 digits in length with the last one as its check digit used to verify the integrity of the data.

Transmit EAN-13 Check Digit

||||||||||||||||||||||||||
W041104

Do Not Transmit EAN-13 Check Digit

||||||||||||||||||||||||||
W041100

6.2.3.4 Add-On Code

An EAN-13 barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is add-on code.

Enable 2-Digit Add-On Code

||||||||||||||||||||||||||
W101110

Disable 2-Digit Add-On Code

||||||||||||||||||||||||||
W101100

Enable 5-Digit Add-On Code

||||||||||||||||||||||||||
W201120

Disable 5-Digit Add-On Code

||||||||||||||||||||||||||
W201100

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The engine decodes a mix of EAN-13 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The engine decodes EAN-13 and ignores the add-on code

when presented with an EAN-13 plus add-on barcode. It can also decode EAN-13 barcodes without add-on codes.

6.2.3.5 Add-On Code Required

EAN-13 Add-On Code Required

||||| ||| ||| ||||| ||||| |||
W081108

EAN-13 Add-On Code Not Required

||||| ||| ||| ||||| ||||| |||
W081100

6.2.3.6 ISSN

Restore the Factory Defaults of ISSN

||||| ||| ||||| ||||| ||||| |||
WFFD996

Enable ISSN

||||| ||| ||| ||||| ||||| |||
W401140

Disable ISSN

||||| ||| ||| ||||| ||||| |||
W401100

6.2.3.7 ISBN

Restore the Factory Defaults of ISBN

||||| ||| ||||| ||||| ||||| |||
WFFD997

Enable ISBN

||||| ||| ||| ||||| ||||| |||
W011201

Disable ISBN

||||| ||| ||| ||||| ||||| |||
W011200

ISBN-13

||||| ||| ||| ||||| ||||| |||
W041200

ISBN-10

||||| ||| ||| ||||| ||||| |||
W041204

6.2.4 UPC-E

6.2.4.1 Restore Factory Defaults

Restore the Factory Defaults of UPC-E

WFFD998

6.2.4.2 Enable/Disable UPC-E

Enable UPC-E

W011501

Disable UPC-E

W011500

6.2.4.3 Transmit Check Digit

UPC-E is 8 digits in length with the last one as its check digit used to verify the integrity of the data.

Transmit UPC-E Check Digit

W041504

Do Not Transmit UPC-E Check Digit

W041500

6.2.4.4 Add-On Code

A UPC-E barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is add-on code.

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Enable 2-Digit Add-On Code

```
W201520
```

Disable 2-Digit Add-On Code

```
W201500
```

Enable 5-Digit Add-On Code

```
W401540
```

Disable 5-Digit Add-On Code

```
W401500
```

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code:
The engine decodes a mix of UPC-E barcodes with and without
2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code:
The engine decodes UPC-E and ignores the add-on code when
presented with a UPC-E plus add-on barcode. It can also decode
UPC-E barcodes without add-on codes.

6.2.4.5 Add-On Code Required

UPC-E Add-On Code Required

```
W101510
```

UPC-E Add-On Code Not Required

```
W101500
```

6.2.4.6 Transmit System Character

The first character of UPC-E barcode is the system
character "0".

Transmit System Character "0"

```
W081508
```

Do Not Transmit System Character "0"

```
W081500
```

6.2.4.7 UPC-E Extension

Enable UPC-E Extend

```
W801580
```

Disable UPC-E Extend

```
W801500
```

6.2.5 UPC-A

6.2.5.1 Restore Factory Defaults

Restore the Factory Defaults of UPC-A

```
WFFD999
```

6.2.5.2 Enable/Disable UPC-A

Enable UPC-A

```
W011401
```

Disable UPC-A

```
W011400
```

6.2.5.3 Transmit Check Digit

UPC-A is 13 digits in length with the last one as its check digit used to verify the integrity of the data.

Transmit UPC-A Check Digit

```
W041404
```

Do Not Transmit UPC-A Check Digit

```
W041400
```

6.2.5.4 Add-On Code

A UPC-A barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below,

the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is add-on code.

Enable 2-Digit Add-On Code

W201420

Disable 2-Digit Add-On Code

W201400

Enable 5-Digit Add-On Code

W401440

Disable 5-Digit Add-On Code

W401400

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The engine decodes a mix of UPC-A barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The engine decodes UPC-A and ignores the add-on code when presented with a UPC-A plus add-on barcode. It can also decode UPC-A barcodes without add-on codes.

6.2.5.5 Add-On Code Required

UPC-A Add-On Code Required

W101410

UPC-A Add-On Code Not Required

W101400

6.2.5.6 Transmit Preamble Character

Transmit Preamble Character "0"

Do Not Transmit Preamble Character "0"

W081408

W081400

Note: The preamble character "0" usually does not appear in printed UPC-A barcodes,so the first byte of the printed barcode may be not "0".

6.2.6 Interleaved 2 of 5

6.2.6.1 Restore Factory Defaults

Restore the Factory Defaults of Interleaved 2 of 5

WFFD99A

6.2.6.2 Enable/Disable Interleaved 2 of 5

Enable Interleaved 2 of 5

Disable Interleaved 2 of 5

W011801

W011800

6.2.6.3 Check Digit Verification

A check digit is optional for Interleaved 2 of 5 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The engine will not read barcode data for verification.

.

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Do Not Transmit Check Digit After Verification: The engine checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit After Verification: The engine checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

Disable

```
W0C1800
```

Do Not Transmit Check Digit After Verification

```
W0C1804
```

Transmit Check Digit After Verification

```
W0C180C
```

6.2.6.4 Transmit Appended "0"

If an Interleaved 2 of 5 barcode contains an odd number of characters, a leading zero must be appended. Scan the appropriate barcode to choose whether to transmit the appended "0".

Transmit Appended "0"

```
W101800
```

Do Not Transmit Appended "0"

```
W101810
```

6.2.6.5 ITF-6

ITF-6 is a special kind of Interleaved 2 of 5 with a length of 6 characters and the last character as the check character.

Restore the Factory Defaults of ITF-6

```
WFFD99B
```

Disable ITF-6

```
W011900
```

Enable ITF-6 But Do Not Transmit Check Digit

```
W051901
```

Enable ITF-6 and Transmit Check Digit

```
W051905
```

6.2.6.6 ITF-14

ITF-14 is a special kind of Interleaved 2 of 5 with a length of 14 characters and the last character as the check character.

Restore the Factory Defaults of ITF-14

```
WFFD99C
```

Disable ITF-14

```
W201800
```

Enable ITF-14 But Do Not Transmit Check Digit

```
WA01820
```

** Enable ITF-14 and Transmit Check Digit

```
WA018A0
```

6.2.6.7 Matrix 2 of 5

Restore the Factory Defaults of Matrix 2 of 5

WFFD99F

Enable Matrix 2 of 5

W011A01

Disable Matrix 2 of 5

W011A00

6.2.6.8 Check Digit Verification

Disable

W041A00

Do Not Transmit Check Digit After Verification

W0C1A04

Transmit Check Digit After Verification

W0C1A0C

6.2.7 Industrial 25

6.2.7.1 Restore Factory Defaults

Restore the Factory Defaults of Industrial 25

WFFD9A0

6.2.7.2 Enable/Disable Industrial 25

Enable Industrial 25

W081908

Disable Industrial 25

W081900

6.2.7.3 Check Digit Verification

Disable

W201900

Do Not Transmit Check Digit After Verification Transmit Check

W601920

Digit After Verification

W601960

6.2.8 Standard 25

6.2.8.1 Restore Factory Defaults

Restore the Factory Defaults of Standard 25

WFFD9A1

6.2.8.2 Enable/Disable Standard 25

Enable Standard 25

W101A10

Disable Standard 25

W101A00

6.2.8.3 Check Digit Verification

Disable

W401A00

Do Not Transmit Check Digit After Verification

WC01A40

Transmit Check Digit After Verification

WC01AC0

6.2.9 Code 39

6.2.9.1 Restore Factory Defaults

Restore the Factory Defaults of Code 39

```
WFFD9A2
```

6.2.9.2 Enable/Disable Code 39

Enable Code 39

```
W011C01
```

Disable Code 39

```
W011C00
```

6.2.9.3 Transmit Start/Stop Character

Code 39 bar code data before and after each have a character as the start and terminator, it can be set or not be set output.

Transmit Start/Stop Character

```
W041C04
```

Do Not Transmit Start/Stop Character

```
W041C00
```

6.2.9.4 Check Digit Verification

Disable

```
W081C00
```

Do Not Transmit Check Digit After Verification

```
W181C08
```

Transmit Check Digit After Verification

```
W181C18
```

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6.2.9.5 Enable/Disable Code 39 Full ASCII

The engine can be configured to identify all ASCII characters by scanning the appropriate barcode below.

Enable Code 39 Full ASCII

||||||||||||||||||||||||
W201C20

Disable Code 39 Full ASCII

||||||||||||||||||||||||
W201C00

6.2.10 CODABAR

6.2.10.1 Restore Factory Defaults

Restore the Factory Defaults of Codabar

||||||||||||||||||||||||
WFFD9A3

6.2.10.2 Enable/Disable Codabar

Enable Codabar

||||||||||||||||||||||||
W011E01

Disable Codabar

||||||||||||||||||||||||
W011E00

6.2.10.3 Check Digit Verification

Disable

||||||||||||||||||||||||
W101E00

Do Not Transmit Check Digit After Verification

||||||||||||||||||||||||
W301E10

Transmit Check Digit After Verification

||||||||||||||||||||||||
W301E30

6.2.10.4 Transmit Start/Stop Character

Codebar bar code data before and after each have a character as the start and terminator, it can be set or not be set output.

Transmit Start/Stop Character

```
W021E02
```

Do Not Transmit Start/Stop Character

```
W021E00
```

6.2.10.5 Start/Stop Character Format

The starting and ending symbols of the codabar can be set to any of the following formats.

ABCD/ABCD as the Start/Stop Character

```
W0C1E00
```

ABCD/TN*E as the Start/Stop Character

```
W0C1E04
```

abcd/abcd as the Start/Stop Character

```
W0C1E08
```

abcd/tn*e as the Start/Stop Character

```
W0C1E0C
```

6.2.11 Code 93

6.2.11.1 Restore Factory Defaults

Restore the Factory Defaults of Code 93

```
WFFD9A4
```

6.2.11.2 Enable/Disable Code 93

Enable Code 93

```
W081208
```

Disable Code 93

```
W081200
```

6.2.11.3 Check Digit Verification

Disable

```
W201200
```

** Do Not Transmit Check Digit After Verification

```
W601220
```

Transmit Check Digit After Verification

```
W601260
```

6.2.12 Code 11

6.2.12.1 Restore Factory Defaults

Restore the Factory Defaults of Code 11

```
WFFD9A5
```

6.2.12.2 Enable/Disable Code 11

Enable Code 11

```
W011D01
```

Disable Code 11

```
W011D00
```

6.2.12.3 Check Digit Verification

Disable

```
W1C1D00
```

One Check Digit, MOD11

```
W1C1D04
```

Two Check Digits, MOD11/MOD11

```
W1C1D08
```

Two Check Digits, MOD11/MOD9

```
W1C1D0C
```

One Check Digit, MOD11 (Len <= 11)   One Check Digit, MOD11 (Len <= 11)

Two Check Digits, MOD11/MOD11 (Len > 11)   Two Check Digits, MOD11/MOD9 (Len > 11)

W1C1D10

W1C1D14

Transmit Check Digit   Do Not Transmit Check Digit

W201D20

W201D00

6.2.13 Plessey

6.2.13.1 Restore Factory Defaults

Restore the Factory Defaults of Plessey

WFFD9A6

6.2.13.2 Enable/Disable Plessey

Enable Plessey

W011F01

Disable Plessey

W011F00

6.2.13.3 Check Digit Verification

Disable

W021F00

** Do Not Transmit Check Digit After Verification

W061F02

Transmit Check Digit After Verification

W061F06

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6.2.14 MSI-Plessey

6.2.14.1 Restore Factory Defaults

Restore the Factory Defaults of MSI-Plessey

WFFD9A7

6.2.14.2 Enable/Disable MSI-Plessey

Enable MSI-Plessey

W081F08

Disable MSI-Plessey

W081F00

6.2.14.3 Check Digit Verification

Disable

W301F00

One Check Digit, MOD10

W301F10

Two Check Digits, MOD10/MOD10

W301F20

Two Check Digits, MOD10/MOD11

W301F30

Transmit Check Digit

W401F40

Do Not Transmit Check Digit

W401F00

6.2.15 RSS-14

6.2.15.1 Restore Factory Defaults

Restore the Factory Defaults of RSS-14

||||||||||||||||||||
WFFD9A8

6.2.15.2 Enable/Disable RSS-14

Enable RSS-14

||||||||||||||||||||
W011B01

Disable RSS-14

||||||||||||||||||||
W011B00

6.2.15.3 Transmit Application Identifier "01"

Transmit Application Identifier "01"

||||||||||||||||||||
W041B04

Do Not Transmit Application Identifier "01"

||||||||||||||||||||
W041B00

6.2.16 RSS-Limited

6.2.16.1 Restore Factory Defaults

Restore the Factory Defaults of RSS-Limited

||||||||||||||||||||
WFFD9A9

6.2.16.2 Enable/Disable RSS-Limited

Enable RSS-Limited

||||||||||||||||||||
W081B08

Disable RSS-Limited

||||||||||||||||||||
W081B00

6.2.16.3 Transmit Application Identifier "01"

Transmit Application Identifier "01"

```
W201B20
```

Do Not Transmit Application Identifier "01"

```
W201B00
```

6.2.17 RSS-Expand

6.2.17.1 Restore Factory Defaults

Restore the Factory Defaults of RSS-Expand

```
WFFD9AA
```

6.2.17.2 Enable/Disable RSS-Expand

Enable RSS-Expand

```
W401B40
```

Disable RSS-Expand

```
W401B00
```

6.3 2D Symbologies

6.3.1 PDF417

6.3.1.1 Restore Factory Defaults

Restore the Factory Defaults of PDF417

```
WFFD9B0
```

6.3.1.2 Enable/Disable PDF417

Enable PDF417

```
W010C01
```

Disable PDF417

```
W010C00
```

6.3.2 Data Matrix

6.3.2.1 Restore Factory Defaults

Restore the Factory Defaults of Data Matrix

```
WFFD9B1
```

6.3.2.2 Enable/Disable Data Matrix

Enable Data Matrix

```
W080C08
```

Disable Data Matrix

```
W080C00
```

6.3.2.3 Rectangular Barcodes

Decode Rectangular Barcodes

```
W034B03
```

Do Not Decode Rectangular Barcodes

```
W034B00
```

6.3.2.4 Mirror Images

Decode Unmirrored DM Only

```
W0C4A00
```

Decode Mirrored DM Only

```
W0C4A04
```

Decode Both

```
W0C4A0C
```

6.3.3 QR Code

6.3.3.1 Restore Factory Defaults

Restore the Factory Defaults of QR Code

```
WFFD9B2
```

6.3.3.2 Enable/Disable QR Code

Enable QR Code

```
W800D80
```

Disable QR Code

```
W800D00
```

6.3.4 Micro QR

Enable Micro QR

```
W049904
```

Disable Micro QR

```
W049900
```

6.3.4.1   Mirrored Micro QR

Decode Mirrored Micro QR

```
W089908
```

Do Not Decode Mirrored Micro QR

```
W089900
```

7 Appendix

7.1 Appendix A: Factory Defaults Table

Parameter		Factory Default	Remark
Programming Barcode			
Barcode Programming		Barcode Programming	Barcode Programming
Programming Barcode Data		Programming Barcode Data	Programming Barcode Data
Communication Interfaces			
TTL-232	Baud Rate	9600	
	Parity Check	None	
	Number of Data Bits	8	
	Number of Stop Bits	1	
	Hardware Flow Control	None	
USB Interface		USB DATAPIPE	Other options: USB HID-KBW, USB COM Port Emulation, HID-POS.
USB HID-KBW	Input Mode	Standard Keyboard	
	USB Country Keyboard Type	U.S.	
	Beep on Unknown	Enabled	

	Character		
	Inter-Keystroke Delay	No delay	
	Caps Lock	Disabled	
	Convert Case	No conversion	
	Emulate Numeric Keypad	Disabled	
Scan Mode			
Scan Mode		Manual mode	Other options: Continuous Mode, Sense Mode, Command Trigger Mode.
Continu- ous Mode	Decode Session Timeout	3.0s	0.1-25.5s; 0: infinite.
	Timeout between Decodes	1.0s	0-25.5s
Sense Mode	Decode Session Timeout	3.0s	0.1-25.5s; 0: infinite.
	Timeout between Decodes	1.0s	0-25.5s
	Image Stabilization Timeout	0.4s	0-25.5s
	Sensitivity	Medium	

Command			
Trigger	Decode Session	3.0s	0.1-25.5s; 0: infinite.
Mode	Timeout		

Illumination & Aiming

Illumination		Normal	Turn on when scanning barcode
Aiming		Normal	Turn on when scanning barcode

Notification

Mute Mode		Disabled	
Good Read Beep	Beep on Good Read	Enabled	
	Beep Frequency	Medium	
	Beep Duration	80ms	Other options: 40ms, 120ms.
Good Read LED		Enabled	
Decode Result Notification		Disabled	"S": Good read; "F": No read. NOT applicable to USB DATAPIPE.

Data Formatting

AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	

Code ID Type	Original Code ID	
Terminating Character Suffix	Disabled	Terminating character options:CR, CRLF,TAB.

Symbologies

Video Reverse	Disabled	Applicable to all symbologies.

Code 128

Code 128	Enabled	

UCC/EAN-128 (GS1-128)

UCC/EAN-128	Enabled	

AIM 128

AIM 128	Enabled	

EAN-8

EAN-8	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to EAN-13	Disabled	

EAN-13

EAN-13	EAN-13	
Check Digit	Check Digit	
2-Digit Add-On Code	2-Digit Add-On Code	
5-Digit Add-On Code	5-Digit Add-On Code	
Add-On Code	Add-On Code	

ISSN		
ISSN	Disabled	

ISBN		
ISBN	Enabled	
ISBN Format	ISBN-13	

UPC-E		
UPC-E	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to UPC-A	Disabled	
System Character "0"	Do not transmit	

UPC-A		
UPC-A	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Preamble Character "0"	Do not transmit	

Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Appended "0"	Transmit	For Interleaved 2 of 5 barcodes that contain an

		odd number of characters
ITF-6		
ITF-6	Disabled	
Check Digit	Do not transmit	
ITF-14		
ITF-14	Enabled	
Check Digit	Transmit	
Matrix 2 of 5		
Matrix 2 of 5	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Industrial 25		
Industrial 25	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Code 39		
Code 39	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Disabled	
Codabar		
Codabar	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	

Start/Stop Character	Transmit	
Start/Stop Character Format	ABCD/ABCD	

Code 93		
Code 93	Enabled	
Check Digit Verification	Enabled	
Check Digit	Do not transmit	

Code 11		
Code 11	Enabled	
Check Digit Verification	One check digit, MOD11	
Check Digit	Transmit	

Plessey		
Plessey	Enabled	
Check Digit Verification	Enabled	
Check Digit	Do not transmit	

MSI-Plessey		
MSI-Plessey	Enabled	
Check Digit Verification	One check digit, MOD10	
Check Digit	Transmit	

RSS-14		
RSS-14	Enabled	
AI (Application Identifier)	Transmit	

RSS-Limited		
RSS-Limited	Enabled	
AI (Application Identifier)	Transmit	

RSS-Expand		

RSS-Expand	Enabled	
PDF417		
PDF417	Enabled	
Data Matrix		
Data Matrix	Enabled	
Rectangular Barcodes	Decode	
Mirror Images	Decode unmirrored DM only	
QR Code		
QR Code	Enabled	
Micro QR	Enabled	
Mirrored Micro QR	Do not decode	

7.2 Appendix B: AIM ID Table

Symbology	AIM ID	Remark
Code 128	]C0	Standard Code 128
UCC/EAN 128 (GS1-128)	]C1	FNC1 is the character right after the start character
AIM 128	]C2	FNC1 is the 2nd character after the start character
EAN-8	]E4	Standard EAN-8
	]E4….]E1…	EAN-8 + 2-Digit Add-On Code
	]E4….]E2…	EAN-8 + 5-Digit Add-On Code
EAN-13	]E0	Standard EAN-13
	]E3	EAN-13 + 2/5-Digit Add-On Code

ISSN	]X5	Standard ISSN
ISBN	]X4	Standard ISBN
UPC-E	]E0	Standard UPC-E
	]E3	UPC-E + 2/5-Digit Add-On Code
UPC-A	]E0	Standard UPC-A
	]E3	UPC-A + 2/5-Digit Add-On Code
Interleaved 2 of 5	]I0	No check digit verification
	]I1	Transmit check digit after verification
	]I3	Do not transmit check digit after verification
ITF-6	]I1	Transmit check digit
	]I3	Do not transmit check digit
ITF-14	]I1	Transmit check digit
	]I3	Do not transmit check digit
Matrix 2 of 5	]X1	No check digit verification
	]X2	Transmit check digit after verification
	]X3	Do not transmit check digit after verification
Industrial 25	]S0	Not specified
Standard 25	]R0	No check digit verification
	]R8	One check digit, MOD 7; do not transmit check digit
	]R9	One check digit, MOD 7; transmit check digit
Code 39	]A0	Transmit barcodes as is; Full ASCII disabled; no check digit verification
	]A1	One check digit, MOD 43; transmit check digit
	]A3	One check digit, MOD 43; do not transmit check

		digit
	]A4	Full ASCII enabled; no check digit verification
	]A5	Full ASCII enabled; MOD43; transmit check digit
	]A7	Full ASCII enabled; MOD43; do not transmit check digit
Codabar	]F0	Standard Codabar
	]F2	Transmit check digit after verification
	]F4	Do not transmit check digit after verification
Code 93	]G0	Not specified
Code 11	]H0	One check digit, MOD11; transmit check digit
	]H1	Two check digits, MOD11/MOD11; transmit check digit
	]H3	Do not transmit check digit after verification
	]H8	Two check digits, MOD11/MOD9; transmit check digit
	]H9	No check digit verification
Plessey	]P0	Not specified
MSI Plessey	]M0	One check digit, MOD10; transmit check digit
	]M1	One check digit, MOD10; do not transmit check digit
	]M7	Two check digits, MOD10 /MOD11; do not transmit check digit
	]M8	Two check digits, MOD10 /MOD11; transmit check digit
	]M9	No check digit verification
RSS-14	]e0	

RSS-Limited		
RSS-Expand		
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC 000 - 140
	]d1	ECC 200
	]d2	ECC 200; FNC1 is the 1st or 5th character after the start character
	]d3	ECC 200; FNC1 is the 2nd or 6th character after the start character
	]d4	ECC 200, ECI protocol supported
	]d5	ECC 200; FNC1 is the 1st or 5th character after the start character; ECI supported
	]d6	ECC 200; FNC1 is the 2nd or 6th character after the start character; ECI supported
QR Code	]Q0	QR1 (comply with AIM ISS 97-001 specifications)
	]Q1	QR2 (2005 symbol), ECI protocol not supported
	]Q2	QR2 (2005 symbol), ECI protocol supported
	]Q3	QR2 (2005 symbol), ECI protocol not supported; FNC1 is the character right after the start character
	]Q4	QR2 (2005 symbol), ECI protocol supported; FNC1 is the character right after the start character
	]Q5	QR2 (2005 symbol), ECI protocol not supported; FNC1 is the 2nd character right after the start

		character
	]Q6	QR2 (2005 symbol), ECI protocol supported; FNC1 is the 2nd character right after the start character

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers)

7.3 Appendix C: Code ID Table

Symbology	Original Code ID	Visible Code ID
Code 128 FNC3	1	A(0x41)
Code 128	2	B(0x42)
UCC/EAN 128	3	C(0x43)
EAN-8	4	D(0x44)
EAN-13	5	E(0x45)
UPC-E	6	F(0x46)
UPC-A	7	G(0x47)
Interleaved 2 of 5	8	H(0x48)
ITF-14	9	I(0x49)
ITF-6	10	J(0x4A)
Code 39	13	M(0x4D)
Codabar	15	O(0x4F)
Standard 25	16	P(0x50)

Code 93	17	Q(0x51)
AIM 128	21	U(0x55)
MSI Plessey	22	V(0x56)
ISBN	23	W(0x57)
Industrial 25	24	X(0x58)
Matrix 2 of 5	25	Y(0x59)
RSS-14	26	Z(0x5A)
RSS Limited	27	[(0x5B)
RSS Expand	28	\(0x5C)
Code 11	29	](0x5D)
Plessey	30	^(0x5E)
ISSN	31	_(0x5F)
PDF417	32	`(0x60)
QR	33	a(0x61)
Data Matrix	35	c(0x63)

7.4 Appendix D: Parameter Programming Examples

The following examples show you how to program parameters by scanning programming barcodes.

7.4.1 Program the Decode Session Timeout

Example: Set the decode session timeout to 5.0s

1. Scan the Decode Session Timeout barcode.

2. Scan the numeric barcodes "5" and "0".

3. Scan the Save barcode.

7.4.2 Program the Timeout between Decodes

Example: Set the timeout between decodes to 5.0s

1. Scan the Timeout between Decodes barcode.

2. Scan the numeric barcodes "5" and "0".

3. Scan the Save barcode.

7.4.3 Program the Image Stabilization Timeout

Example: Set the image stabilization timeout to 5.0s

1. Scan the Image Stabilization Timeout barcode.

2. Scan the numeric barcodes "5" and "0".

3. Scan the Save barcode.

7.4.4 Program the Sensitivity Level

Example: Set the sensitivity level to 5

1. Scan the Custom Sensitivity barcode.

2. Scan the numeric barcode "5".

3. Scan the Save barcode.

7.4 Appendix E: Digit Barcodes

0～5

0

||||||||||||||||||||||
D000000

1

||||||||||||||||||||||
D000001

2

||||||||||||||||||||||
D000002

3

||||||||||||||||||||||
D000003

61

4

```
D000004
```

5

```
D000005
```

6～9

6

```
D000006
```

7

```
D000007
```

8

```
D000008
```

9

```
D000009
```

A～F

A

```
D00000A
```

B

```
D00000B
```

C

```
D00000C
```

D

```
D00000D
```

E

```
D00000E
```

F

```
D00000F
```

7.6 Appendix F: Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the Save barcode to save the data. If you scan the wrong digit(s), you can either scan the Cancel the Last Digit barcode and then the correct digit, or scan the Cancel All Digits barcode and then the digits you want.

For instance, after reading the Decode Session Timeout barcode and numeric barcodes "1", "2" and "3", you scan:

Cancel the Last Digit: The last digit "3" will be removed.

Cancel All Digits: All digits "123" will be removed.

Save

D000012

Cancel the Last Digit

D000010

Cancel All Digits

D000011

8. WIRELESS SETTING

8.1 Reset Configuration to Defaults

（1）Reset Para.for Tx

After scanning 0B,scanner will perform the following operations:

The scanner parameters are set to factory defaults,detail parameters please see appendix A.

All the wireless parameters are set to original state, and stop any transceiver.

（2）Reset Para. for Rx

After scanning 0C, receiver will preform the following operations:

Reset all the wireless parameters to factory defaults, details as appendix A.

Reset Para for Tx

%%GZSC0B

Reset Para for Rx

%%GZSC0C

8.2 Firmware Version

After scanning 0A successfully, the scanner version will be showed on the terminal; after scanning 0D success, the receiver version will be showed on the terminal.

Firmware Version(Tx)

%%GZSC0A

Firmware Version(Rx)

%%GZSC0D

8.3 Forced into Sleep Mode

After scanning 0E, scanner will enter the sleep mode no matter how the current state is. To use the setting is to reset some temporary wireless data and re-establish the connection.

Forced into Sleep Mode

%%GZSC0E

8.4 Transmission Mode

Transmission for scanner and receiver:

Scanner has 2 wireless data transmission mode:

-Random mode will upload the data after success scanning with beep, and upload fail with alarm and data will not be stored, and it is the defaulted mode.

-Inventory mode, the user to scan the data to memory, and data will be uploaded to terminal after scan the inventory mode.

Note:Switch between any mode will clear the memory.

Random Mode

%%GZSC031000

Inventory Mode

%%GZSC031002

Receiver has 2 wireless data transmission mode:

USB-KBW

%%GZSC03B000

USB-VCOM

%%GZSC03B001

8.5 Fast Pairing

Pairing means the scanner matches to the receiver to avoid system working confusion. Scanner read the paring setting, and the receiver will be observed with indicator flashing. As the matching process is the scanner broadcasting process, please keep one receiver power on only in 10m, otherwise will broadcast to other terminal.

Once scanner cancel pairing, scanner sending data is in broadcasting state, any terminal will receive it.

Fast Pairing

||||||||||||||||||||||||||||||||

%%GZSC033001

Cancel Pairing

||||||||||||||||||||||||||||||||

%%GZSC033000

8.6 Frequency Offset

Frequency offset is valid for scanner and terminal, to change the current frequency to avoid other interference. This system working band is 433MHz, is also factory default band. The system also provides 21 channels for setting, detail as below:

Firstly setting the channel for terminal,and waiting for the scanner to response;

Then setting the channel for scanner, make sure this channel is same as for terminal.

The following is the channel point corresponding to the setting code for scanner:

NO	FRE. (M)	BARCODE	NO	FRE. (M)	BARCODE

0	433.092	034000	10	442.092	034010
1	430.092	034001	11	445.092	034011
2	427.092	034002	12	448.092	034012
3	424.092	034003	13	451.092	034013
4	421.092	034004	14	454.092	034014
5	418.092	034005	15	457.092	034015
6	415.092	034006	16	460.092	034016
7	412.092	034007	17	463.092	034017
8	436.092	034008	18	466.092	034018
9	439.092	034009	19	469.092	034019
			20	472.092	034020

For terminal: all the channels are same as scanner's, only the first four numbers are "0390".Such as the setting code of channel 0 is 039000, setting code of channel 18 will be 039018. The following are some setting codes for scanner and terminal:

Scanner Channel 0

||||||||||||||||||||||||||||||

%%GZSC034000

Scanner Channel 7

||||||||||||||||||||||||||||||

%%GZSC034007

Scanner Channel 20

||||||||||||||||||||||||||||||

%%GZSC034020

Terminal Channel 0

||||||||||||||||||||||||||||||

%%GZSC039000

Terminal Channel 7

||||||||||||||||||||||||||||||

%%GZSC039007

8.7 Inventory Options

Terminal Channel 20

||||||||||||||||||||||||||||||

%%GZSC039020

All the inventory options will be valid in inventory mode, will be generated a error tone in other modes.

（1）Checking the total number of inventory data,Scanning "032100"，the total number of inventory data will be showed on the terminal.

（2）Uploading inventory data,Scanning "032200", all the scanning data will be uploaded on the terminal.

Checking Total Number

```
||||||||||||||||||||||||||||||
%%GZSC032100
```

Uploading the Inventory Data

```
||||||||||||||||||||||||||||||
%%GZSC032200
```

（3）Inventory auto clear on and off

Inventory data mode can set to clear memory automatically after uploading.

Auto Clear

```
||||||||||||||||||||||||||||||
%%GZSC032301
```

No Auto Clear

```
||||||||||||||||||||||||||||||
%%GZSC032300
```

8.8 Memory Options

（1）Allow uploading data after sleeping

The function can use in none lost mode and inventory mode only.If the scanner is time to sleep, before sleeping data upload unsuccessful because of bad wireless signal,it could be set to upload the unfinished data after wake up.

Upload Data after Sleeping

```
||||||||||||||||||||||||||||||
%%GZSC030001
```

Clear after Sleeping

```
||||||||||||||||||||||||||||||
%%GZSC030000
```

（2）Clear Memory

Once scan this setting, all the memory will be clear no matter when the scanner is in any mode, scanner will stop wireless transmission and waiting for new data.

Clear Memory

```
%%GZSC032400
```

8.9 Address Options

（1）Setting scanner physical address

Each scanner has it own physical address, factory default is 0#, maximum is 254#. We will suggest customers to set the physical address for scanners when one terminal matches to more than one scanners.

Scanner Physical Address 1#
```
%%GZSC037001
```

Scanner Physical Address 2#
```
%%GZSC037002
```

Scanner Physical Address10#
```
%%GZSC037010
```

Scanner Physical Address 254#
```
%%GZSC037254
```

（2）Output Physical Address On and Off

If this function is on, scanner physical address will be showed with data on the terminal. For example, scanner 1# uploads data ABC, terminal will show 001--ABC.

Output Physical Add.On
```
%%GZSC038001
```

Output Physical Add.Off
```
%%GZSC038000
```

8.10 Transmit Speed Options

The transmit speed between characters of bar code is 10ms after scan the bar code 03C001. When the last number plus 1, the transmit speed will be add more 10ms, the longest delay is 250ms.

0ms
```
%%GZSC03C000
```

10ms
```
%%GZSC03C001
```

250ms

%%GZSC03C025