Configuration Barcode Menu

1dimensional / 2dimensional Image Reader

*The functions that can be set according to this menu is different by model type of reader.
Please refer to the attached function table for usable setup and default value.

TOHKEN CO.,LTD.
TOHKEN

January 9, 2007

Third Edition

Table of contents

Introduction

Thank you for purchasing this Handheld 1D/2D Code Reader. These configuration barcodes provide instant set up for the different parameters of the scanner e.g. serial communication baud rate, enabling barcodes, disabling barcodes, etc. Please note that default values in this guide are indicated by the notation “(*)”.
One dimensional barcodes and two dimensional barcodes are referred to in the rest of this manual as ”symbols”.

Please read the operation Manual of this reader carefully to ensure correct use of the equipment. Keep the document near the equipment for reference in the event of problems.

The contents of this document are subject to change without notice.

After setup is completed, the "Save of Settings" command should be performed to save the settings to the non volatile flash memory. If the power supply is turned off without saving the new settings, the device will return to the initial state before starting the setup process.

Command manual Usage Notes

Some of the commands listed in this manual can also be set up by sending commands from host computer.

After setup is completed, the "Save of Settings" command should be performed to save the settings in the device’s non-volatile Flash memory. If the power supply is turned off without performing "setting value writing", it will return to the state before a setup.

Abbreviations used

Check digit ……. C/D.

Start stop……. ST/SP.

1. Setting Up Communications

Baud rate

Sets the baud rate for receiving and transmitting on the communications port.

1200[bps]

2400[bps]

4800[bps]

9600[bps]

19200[bps]

38400[bps]

57600[bps]

115200[bps]

Save of Setting
(Write Flash ROM)

Character Framing

Character framing sets up: bits per character, parity, and stop bits.

7 bits/Odd/Stop bit 1

7 bits/Odd/Stop bit 2

7 bits/Even/Stop bit 1

7 bits/Even/Stop bit 2

8 bits/Non/Stop bit 1

8 bits/Non/Stop bit 2

8 bits/Odd/Stop bit 1

8 bits/Odd/Stop bit 2

8 bits/Even/Stop bit 1

8 bits/Even/Stop bit 2

RS/CS Control

Sets the use of RTS & CTS control signals within the serial interface.

Use RTS/CTS control signals

Don’t use RTS/CTS control signals

Header

Sets the header character to add to the head of the reading data.

Non Header

Header [SX]

Header [EC]

Save of Setting
(Write Flash ROM)

Terminator

Sets the terminator added after the read data.

No Terminator

Terminator [EX]

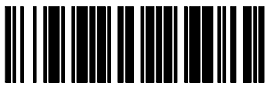
Terminator [EX][CR]

Terminator [CR][LF]

Terminator [CR]

Terminator [CR][TAB]

Terminator [TAB][CR]



Terminator [TAB]

Save of Setting
(Write Flash ROM)

2. Setting up the Symbol

2.1 Common Setup

All Symbol Systems

Set the scanner to read all symbol types.

Read All Symbol Type

Disable All Symbol Type

Mirror Image

Set the scanner for reading mirrored image symbols.
NOTES: The 1-dimentional barcode can be decoded Dark on Light and Mirror Image.

Read Dark on Light

Read Mirror Image

Center Reading Mode

Set the scanner to read symbols that are located on the pointer center only.
NOTES: Initial Mode does not initialize this Center Reading Mode.

Enable Center Reading

Disable Center Reading

High Density Mode (HD mode)

Set the scanner to read high density symbols (smaller than 0.167mm of cell size).

High Density mode

Normal mode

・Choosing of High Speed mode, Normal mode

In High Speed mode, the LED aiming beam keeps blinking, it does not in Normal mode instead.

High Speed mode
(The LED aiming beam keeps blinking)

Normal mode
(The LED aiming beam doesn't keep blinking)

・Minor modes for High Speed mode

There are two minor modes for High Speed mode, Mode 1 and Mode2.
Mode 1 is used when the decoding speed of high density barcodes is preceded.
Mode 2 is used when the decoding speed of normal or large size of barcodes is preceded.

Mode 1 (Precede high density barcodes)

Mode 2 (Precede normal or large size)

Save of Setting
(Write Flash ROM)

Reading Digits

Set the acceptable number of digits of symbols.

NOTE) This setting can be done only via sending serial command from host computer.

The command can be used for giving values with minimum and maximum digits number for each symbol. It will also set number of digits counts ST/SP and C/D exclude with Code128.

The command used is DIGIT=ab,c[CR]

What you need to do is to set the symbol type as the value **a**. Set the minimum number of digits as the value **b**, and the maximum number of digits as the value **c**, such that **b** <= **c** .

a = A:Code39 C:Code128 d:DataMatrix e:Composite,RSS

E:UPC/JAN/EAN F:Codabar G:Code93 I:ITF

L:PDF417 U:MaxiCode Q:QR Code

b = 1~2047 (Only ITF must be choiced whichever 2,4 and 6 through 2047.)

c = 1~2047 (Only ITF must be choiced whichever 2,4 and 6 through 2047.)

d= Option CC: Composite Symbol RSS:RSS

Setting Example1: Reading symbol sets for Code39 with 10 through 20 digits.
DIGIT=A10, 20

Setting Example2: Reading Symbol sets for RSS with 14 through 16 digits.
DIGIT=e14, 16-RSS

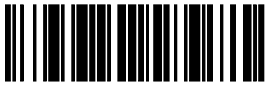
All symbol default values sets b=minimum, c=maximum. (Actually set digits and Non parity)

Optional setting is enabled when read symbols type set with Composite Symbol or/and RSS.

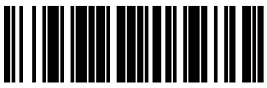
Save of Setting
(Write Flash ROM)

Separator

Sets a character code to be inserted between symbol data when using multiple symbol reading.



None



&

, (Comma)

[FS] (1C hex)

[GS] (1D hex)

[SP] (20 hex)

Reading multiple labels with single trigger input

With single trigger the scanner can read multiple symbols, up to 4 symbols.

[Procedure]

(1) Determine how many symbols will be read by the scanner at one time

(2) Determine the order of outputting the symbols' data (not specified, the number of digits, sort by specified character, sort by type of symbol) → Sorting method

(3) Determine the order of defining (1 to 4)

(4) Determine the item used for sorting for each order. Please choose one item from "The number of digits", "The first character", "The second character" and "The type of symbol"

(a) If the order is determined by the number of digits, please use setting barcodes on page 11.

(b) If the order is determined by the first or second character, please choose one character from '0' to 'F'

(c) If the order is determined by the type of symbol, please use setting barcodes on page 13.

(5) When the setting is completed, please read "Confirm" barcode on page 15. In the other cases, please read "Cancel" barcode on the same page.

(6) Please repeat process (3), (4) and (5) to set how to determine each order.

Note:

The reader can not read multiple RSS composite at one time but it is possible to read multiple symbols at one time if only one RSS composite is included in the multiple symbols.

Determine how many labels are read by the scanner at one time

Setting Limit for reading Maximum numbers of symbol at single trigger input.

One symbol

Two symbols

Three symbols

Four symbols

Save of Setting
(Write Flash ROM)

Determine the order of outputting the symbols

Not specified (the order of decoding) (Default)

The number of digits

Sort by specified character

Sort by the type of symbol

Order number to be set

Select order number to be set

Order 1

Order 2

Order 3

Order 4

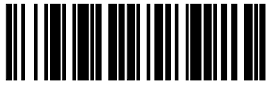
Start to define identifier

At first, please read the barcode menu to start to define an actual identifier according to the sorting method chosen.

The number of digits

First character

Second character



Type of symbol

Continue on page 24 to 28 to complete settings of multiple label reading.

Save of Setting
(Write Flash ROM)

Add Symbol Information (Add AIM Standard Code)

It sets add symbol system corresponding character after reading data.
Add the following symbol character to the top of reading data when setting it.

<Symbol Information Character>		AIM Standard Information Character	
Code39	]A0	Code128	]C0
EAN128	]C1	Codabar	]F0
ITF	]I0	JAN/EAN/UPC	（No-character）
Maxi Code	]U1	Data Matrix	]d1
PDF417	]L0	QR Code	]Q1
RSS	]e0	Code93	]G0
Composite	]e0		

Add Symbol
Information Character

Do not Add Symbol
Information Character

Save of Setting
(Write Flash ROM)

Add Symbol Information (Optional Data)

This is used to add symbol corresponding character after reading data.
It can be added as an optional single character and can be inserted in front of data or end of data.

<Procedures>

Select Enable / Disable Front of Data or End of Data

This will enable adding character in front of decoded data or at the end of decoded data.

Setup for Front of Data or End of Data by symbol type

Procedure1: Review Character Table (refer to Character Code section), and then confirm upper data and lower data.
Procedure2: By symbol type, setup “Start Reading Character”.
Procedure3: Read character data (refer to Character Code Section), then setup upper data.
Procedure4: Read character data (refer to Character Code Section), then setup lower data.
The user has to follow the procedures in order otherwise the setup will be ignored.

Optional Symbol data Add at Front

Enable or disable for adding symbol data.

Enable（Add at Front）

Disable

Setup Optional Symbol Data at Front

Start setup character.（Read upper data and lower data sequentially.）

Start Add Front Character for Code39

Start Add Front Character for Code128

Start Add Front Character for DataMatrix

Start Add Front Character for JAN/UPC

Start Add Front Character
for Codabar

Start Add Front Character
for ITF

Start Add Front Character
for PDF417

Start Add Front Character
for MaxiCode

Start Add Front Character
for QR-Code

Start Add Front Character
for EAN128

Start Add Front Character
for RSS

Start Add Front Character
for Code93

Start Add Front Character
for Composite

Save of Setting
(Write Flash ROM)

Setup Add Optional Symbol Data at End

Used to enable or disable for adding symbol data.

Enable (Add at End)

Disable

Setup Optional Symbol Data at End

Start setup character.（Read upper data and lower data sequentially.）

Start Add End Character
for Code39

Start Add End Character
for Code128

Start Add End Character
for DataMatrix

Start Add End Character
for JAN/UPC

Start Add End Character
for Codabar

Start Add End Character
for ITF

Start Add End Character
for PDF417

Start Add End Character
for MaxiCode

Start Add End Character
for QR-Code

Start Add End Character
for EAN128

Start Add End Character
for RSS

Start Add End Character
for Code93

Start Add End Character
for Composite

Save of Setting
(Write Flash ROM)

Additional Function of Optional Data for Prefix or Suffix

Setup for add single optional data which has no relation with symbol type.
It can be added as Prefix or Suffix.

<Procedures>

Select Enable / Disable with Prefix or Suffix

Enable prefix or suffix separately.

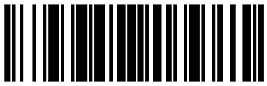
Setup for Optional Data with Prefix or Suffix Separately.

Procedure1: See Character Table (refer to Character Code section), and then confirm upper data and lower data.
Procedure2: By symbol type, set “Start Reading Character”.
Procedure3: Read character data (refer to Character Code section), then set upper data.
Procedure4: Read character data (refer to Character Code section), then set lower data .

※The user has to follow the procedures in order otherwise the setup will be ignored.

Add Prefix Data

Enable or disable for adding prefix data.



Enable Prefix

Disable Prefix

Setup Prefix Data

Start Setup Prefix character.（Read upper data and lower data sequentially.）

Start Setup Prefix Character

Add Suffix Data

Setups enable or disable for adding suffix data.

Enable Suffix

Disable Suffix

Setups Suffix Data

Start Setup Prefix character.（Read upper data and lower data sequentially.）

Start Setup Suffix Character

Save of Setting
(Write Flash ROM)

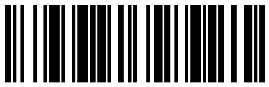
[GS] Control

Set for Transmission of [GS] Control Signal

Transmit Control Character [GS]

Settings enable or disable transmit control character [GS].

Transmit GS



Disable Transmit GS

Method of Transmit Control Code

Settings method of transmit control character [GS].

Pass Through

Change Control Code to
ASCII code within [ ].
Example : [SX]1234[EX]
↓
[02]1234[03]

Transform optional character from GS Output

Outputs transform optional character from control character [GS].

<Procedure>

- Refer to **Character Code Table (refer to Character Code section),** confirm upper character and lower character.
- By symbol system, read barcode menu

Start optional character setting for GS

- Reading character data (refer to Section Character Code), then set upper character data from 0 through F.
- Reading character data (refer to Section Character Code), then set lower character data from 0 through F.

Note: The user has to follow the procedures in order otherwise the setup will be ignored

Start optional character setting for GS

Character Code

Character Code used for setting below function of optional character.

Add Symbol Information Data (Optional data)
Add optional data (Prefix/Suffix)
Transform optional character from GS

Character Table

UPPER DATA

LOWER DATA	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p				ー	タ	ミ		
1	SOH	DC1	!	1	A	Q	a	q			。	ア	チ	ム		
2	STX	DC2	"	2	B	R	b	r			「	イ	ツ	メ		
3	ETX	DC3	#	3	C	S	c	s			」	ウ	テ	モ		
4	EOT	DC4	$	4	D	T	d	t			、	エ	ト	ヤ		
5	ENQ	NAK	%	5	E	U	e	u			・	オ	ナ	ユ		
6	ACK	SYN	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	BEL	ETB	*	7	G	W	g	w			ァ	キ	ヌ	ラ		
8	BS	CAN	(	8	H	X	h	x			ィ	ク	ネ	リ		
9	HT	EM	)	9	I	Y	i	y			ゥ	ケ	ノ	ル		
A	LF	SUB	*	:	J	Z	j	z			ェ	コ	ハ	レ		
B	VT	ESC	+	;	K	[	k	{			ォ	サ	ヒ	ロ		
C	FF	FS	,	<	L	¥	l	|			ャ	シ	フ	ワ		
D	CR	GS	-	=	M	]	m	}			ュ	ス	ヘ	ン		
E	SO	RS	.	>	N	^	n	"			ョ	セ	ホ	゛		
F	SI	US	/	?	O	_	o	DEL			ッ	ソ	マ	゜		

Example: Setting Character A Read Upper Data 4,Lower Data 1.

Note: HID type reader will be recognized as keyboard. Therefore, gray part character cannot send data for computer.

Save of Setting
(Write Flash ROM)

Character Data

Configuration barcodes are the same for upper data and lower data.
Read upper data first, and then read lower data.

1

0

2

3

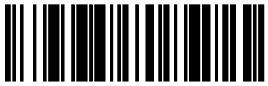
4

5

6

7

8



9

A

B

C

D

E

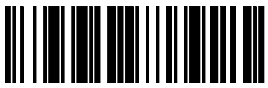
F

Save of Setting
(Write Flash ROM)

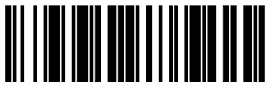
Symbol type

Not specified (Default)

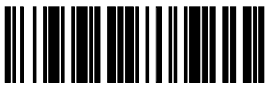
Code39



Code128



ITF



Codabar

JAN/EAN/UPC

PDF417

QR-Code

DataMatrix

MaxiCode

Save of Setting
(Write Flash ROM)

EAN-128

Postal

RSS

Composite

Code93

Confirm the order of outputting for multiple reading

Confirm

Cancel

Save of Setting
(Write Flash ROM)

2.2 Setting up the Symbol Reading System

Code39 Setup

Reading Code39 Bar Codes
C/D verification: Modulus 43

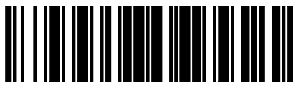
Read Code39
No Check of C/D

Read Code39
Check C/D
Transmit C/D

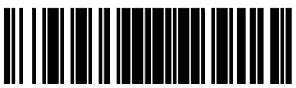
Read Code39
Check C/D
No Transmit of C/D

Read Code39
No Check of C/D
FULL ASCII On

Read Code39
Check C/D
Transmit C/D
FULL ASCII On



Read Code39
Check C/D
No Transmit of C/D
FULL ASCII On



Disable Read Code39

Code39 ST/SP Transmit

Used to set the transmission of ST/SP characters before and after the read data.

Transmits Code39 ST/SP

Not Transmit
Code39 ST/SP

Code128

Enables Code128 Bar Codes

Read Code128

Disable Code128

EAN128

Enables EAN 128 Bar Codes

Read EAN128

Disable EAN128

Save of Setting
(Write Flash ROM)

Codabar Setup

Enables CODABAR bar codes, and sets for C/D C/D Verification: Modulus 16

Read Codabar
No Check of C/D

Read Codabar
Check C/D
Transmit C/D

Read Codabar
Check C/D
Not Transmit of C/D

Disable Codabar

Codabar ST/SP Character Case

Sets the case properties for ST/SP characters to Upper or Lower case

Codabar ST/SP
Character
Lower case

Codabar ST/SP
Character
Upper case

Codabar ST/SP Transmit

Sets for transmission of ST/SP characters

Transmit Codabar
ST/SP

Not Transmit Codabar
ST/SP

ITF Setup

Enables ITF (Interleaved 2 of 5) bar codes, and sets for C/D verification
C/D Verification: Modulus 10

Read ITF
No Check of C/D

Read ITF
Check C/D
Transmit C/D

Read ITF
Check C/D
No Transmit of C/D

Disable Read ITF

ITF Digits Setup

Sets the range for the acceptable number of 2, 4 and 6 through 2047 digits for ITF bar codes
Number of digits count includes C/D.

ITF 2 digits

ITF 4 digit

ITF 6 digits～ 2047 digits

Code93 Setup

Enables the reading of Code93 bar codes.

Read Code93

Disable Code93

RSS Setup

Enables the reading of RSS bar codes.

Read RSS

Disable RSS

Composite Setup

Enables the reading of Composite symbol.

Read Composite Symbol

Disable Composite Symbol

Save of Setting
(Write Flash ROM)

JAN/EAN/UPC Setup

Enables the reading of JAN/EAN/UPC bar codes.

Reading JAN/EAN/UPC

Disable JAN/EAN/UPC

JAN/EAN/UPC Standard C/D Transmission

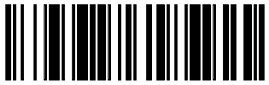
C/D transmitting is sets for JAN/EAN Standard.

JAN/EAN Standard
Transmit C/D

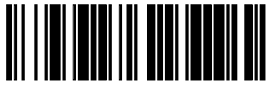
JAN/EAN Standard
No Transmit C/D

JAN/EAN/UPC Shortened C/D Transmission

C/D transmitting is sets for JAN/EAN Shortened.



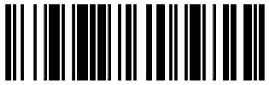
JAN/EAN Shortened
Transmit C/D



JAN/EAN Shortened
No Transmit C/D

C/D Transmission (UPC-A)

C/D transmitting is set for UPC-A.



UPC-A Transmits C/D

UPC-A No Transmits C/D

C/D Transmission (UPC-E)

C/D transmitting is set for UPC-A.

UPC-E Transmits C/D

UPC-E No Transmits C/D

Transmission of UPC-A Number System

Sets for transmitting the Number System for UPC-A

UPC-A Transmit
Number System

UPC-A No Transmit
Number System

Transmission of UPC-E Number System

UPC-E Transmitting
Number System

UPC-E Not Transmitting
Number System

Save of Setting
(Write Flash ROM)

UPC-E Format Conversion

Enable he conversion UPC-E codes and output them in UPC-A format.

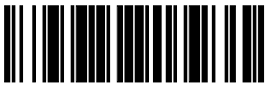
Format Conversion
to UPC-A

Not Format Conversion

UPC Output Digits

Sets whether 12 digit UPC codes are output as 13 digit UPC codes.
In such case, a leading 0 (zero) digit is added to the head of the read data.

12 digit codes unchanged



13 digit codes changed

If UPC-E format conversion is NOT converted as above, then UPC output digits have no effect.
The default setting is assumed, and 0 is not appended. 12 Digit codes are left unchanged.

Save of Setting
(Write Flash ROM)

DataMatrix Setup

Reading DataMatrix 2D Codes
Supports ECC200 Symbol

Read DataMatrix
(Square)
(Dark on Light)

Read DataMatrix
(Square)
(Light on Dark)

Read DataMatrix
(Square)
(Dark on Light & Light on Dark)

Read DataMatrix
(Square & Rectangle)
(Dark on Light)

Read DataMatrix
(Square & Rectangle)
(Light on Dark)

Read DataMatrix
(Square & Rectangle)

Disable DataMatrix
(Dark on Light &
Light on Dark)

Maxi Code Setup

Enables the reading MaxiCode

Read Maxi Code
(All Mode)

Read Maxi Code
Mode 0

Read Maxi Code
Mode 1

Read Maxi Code
Mode 2

Read Maxi Code
Mode 3

Read Maxi Code
Mode 4

Read Maxi Code
Mode 5

Disable Maxi Code

Accept MaxiCode Primary Data

Accept transmitting of only the Primary data, when only the Primary data was readable.

Transmitting Primary Data

Not Transmitting
Primary Data

PDF417 Setup

Enables the reading of PDF417

Read PDF417

Disable PDF417

QR Code Setup

Enables the reading of QR-Code

Read QR Code
(Dark on Light)

Read QR Code
(Light on Dark)

Read QR Code
(Dark on Light & Light on Dark)

Disable QR Code

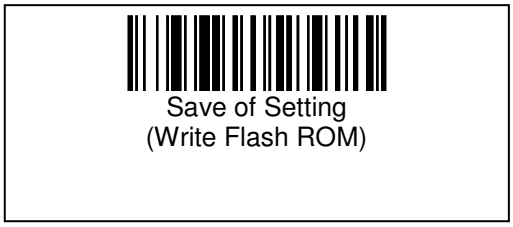
Save of Setting
(Write Flash ROM)

3. Operational Setup

3.1 General Operational Setup

Writes Setup Values

Saves all current settings into the non-volatile memory of the device.
When saving the settings is completed normally, the text message **"Write OK[CR]**" is sent back on the serial interface.



Save of Setting
(Write Flash ROM)

Setting initialization

Setting value is returned to initial value (default).

Setting Initial value (default)

Buzzer setup

Setup Buzzer Beeps On or off.

Buzzer On

Buzzer Off

Continuous Reading

Enable continuous reading without pushing the reading switch.

Continuous Reading Mode

Sets the scanner for continuous reading of barcodes.
After this setting, continuous reading will start without pushing the reading switch.

Enable Continuous
Reading Mode

Disable Continuous
Reading Mode

Enable Continuous Reading Interval Mode

Sets the wait interval between successive reads of the continuous reading mode.

Reading Interval 0 second

Reading Interval 1 second

Reading Interval 2 second

Reading Interval 3 second

Reading Interval 4 second

Reading Interval 5 second

Reading Interval 6 second

Reading Interval 7 second

Reading Interval 8 second

Reading Interval 9 second

Prohibit Continuous Reading for Same Symbol Setup Mode

This will enable or disable reading the same symbol when in continuous reading mode.

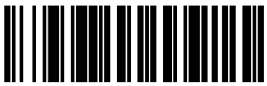
Normal Continuous Reading

Prohibit Continuous Reading same symbol

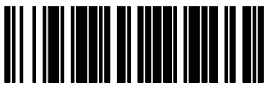
Prohibit Continuous Reading Duration for Same Symbol Setup Mode

Prohibit Duration 0.5sec.

Prohibit Duration 5sec.



Prohibit Duration 10sec.



Prohibit Duration 0.5sec. Increments

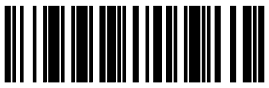
Prohibit Duration 0.5secDecrements

Save of Setting
(Write Flash ROM)

3.2 Auto Detection mode

Auto Detection mode

By using this mode, the reader can decode symbols automatically when the device detects changes of image in its field of view, like change of environmental brightness, motion of objects.



Auto Detection mode ON

Auto Detection mode OFF (Default)

Save of Setting
(Write Flash ROM)

Setting of detection ignore function

After several seconds from decoding with Auto Detection mode, if the label doesn't move out from the field of view, the device assumes that the label has gone and starts to try to detect new label. The following barcodes can be used to set the time from end of decoding to the assumption.

100 ms

300 ms

500 ms (Default)

1 s

1.5 s

2 s

2.5 s (Default)

3 s

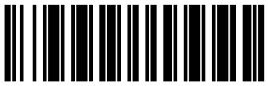
Decoding timeout

Set the limit time from detection of a label to complete decoding. The following barcodes can be used to set the time.
If the symbol going to be read has large quantity of data, the limit time should be long.
On the other hand, if the symbol's data is small, the limit time can be short.

(Default: 1 s)

0.5 s

5 s



10 s

Add 0.5 s

Subtract 0.5 s

Save of Setting
(Write Flash ROM)

Setting of aiming beam during Auto Detection mode

Select the behavior of aiming beam when the device is in Auto Detection mode.
This setting does not influence the behavior of aiming beam set in 3.1.1 (normal use).

Blink (Default)

OFF

Save of Setting
(Write Flash ROM)

Setting of sensitivity

Modify the sensitivity for Auto detection mode. High sensitivity makes detection of labels easier. On the other hand, please use low sensitivity when the scanner reacts too sensitive against the change of brightness of its field of view.

0:Highest sensitivity

1:High sensitivity

2:Normal sensitivity

3:Low sensitivity

4:Lowest sensitivity

Save of Setting
(Write Flash ROM)

Prohibit Continuous Reading for Same Symbol (with Auto Detection mode)

Select whether the reader can read the same symbol continuously with Auto Detection mode or not.

The same symbol can be read continuously

The same symbol can't be read continuously

The time for Prohibit Continuous Reading for Same Symbol (with Auto Detection mode)

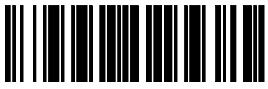
During the following time, the device doesn't read the same symbol continuously with Auto Detection mode.

(3 s: Default)

500 ms

5 s

10 s



Add 0.5 s

Subtract 0.5 s

Save of Setting
(Write Flash ROM)

3.3 Image cropping for the decoding area

Because of its large size of image, the decoding time sometimes becomes longer. If the size of symbol or the position in the scanner's field of view is invariable, image cropping for the decoding area may reduce the decoding time.
The following shows how to crop the area.

Image cropping for the decoding area

Full size of horizontal (Default)

75% of horizontal

50% of horizontal

25% of horizontal

Full size of vertical (Default)

75% of vertical

50% of vertical

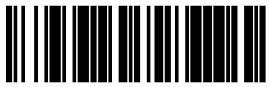
25% of vertical

Save of Setting
(Write Flash ROM)

3.4 Setting for the Vibration

Vibration

Enable/Disable of the vibration that indicates the successful decoding



Disable (not vibrate)

Enable (vibrate when decoding is successful)

3.5 Setting Camera Controls

AGC

This is used to enable AGC (auto gain control) of the internal-camera.
It reads auto adjusting at Dark on Light.
The setting method of a fixed gain is in the state in the fixed mode, inputs AGC value into the value of a, and carries out it to it.

Enable AGC
(Automatic control of camera gain)

Disable AGC
(Fixed camera gain)

Save of Setting
(Write Flash ROM)

3.6 Preset Mode setting

This is used to set the scanner for reading and comparing against “preset” data. (Excluding a “Preset Mode” barcode from a barcode menu.)
Preset Mode has two types for registering preset data as Mode 1 and comparing as Mode2.
Preset function can be set without relation to symbol type. Reading “Preset Mode 0” cancel preset mode.

Preset Mode

Cancel Preset Mode

Preset Mode 0
(Cancel Preset Mode)

Preset Mode 1

After power is switched ON, the first OK read data is registered within the reader as “preset data”. Subsequent barcodes will be read and compared with the preset data, resulting, in OK if they were the same as the preset data, or NG if they were different.
The preset data is cleared when the powered OFF.

To set the scanner for Preset Mode1, the user should read first the “Preset Mode 1” code below and then read “Save of Setting”. Then restart the scanner after reading that barcode menu.

Preset Mode 1

Save of Setting
(Write Flash ROM)

Preset Mode 2

In this mode, the preset data (its digit count and its characters) is registered within flash memory. Then barcodes are read and their data is compared with the preset reference (as in Preset Mode 1).

The preset data is NOT cleared when the power is turned OFF.
This feature is independent of barcode encoding type.

Set scanner for Preset Mode2, reading the code labeled “Preset Mode 2” and then choose either choice a) or b) as explained below.

Setup Mode

Preset Mode2 Command
PREM=2[CR]

a) Preset Data by Reading Barcode Menu Item

Reading the bar code which follows will initiate a Preset setup sequence. After that, the next barcode to be read will be taken as preset data. The number of digits and data characters is both set based on the content of that bar code.

Setup for Preset Data

b) Preset Number of Digits
Sets the actual value of the number of digits to compare against.

Command
SET=PRENa[CR] a = 0 Meaning number of digits are not compared.
a = 1~ 100 Sets the required number of digits for read data.

Reading barcode menu can be set ignoring number of digits. “Set Preset Data number of digits is not compared”.

Setup Preset Character
Data and Number of Digits

c) Preset character data

Set the actual value of the character to compare against value by sending command from host. Preset character “?” work as wild card. A wild card is coincidence with any single character. Therefore “?” character can not use to compare with “?”.

Command

SET=PREDabcdef… [CR] : abcdef…: Data character

SET=PRED?[CR] : Meaning characters are not compared.

NOTE) When set Control code (00[hex] ~ 1F[hex], 7F[hex]),please set by reading barcode menu.

Also this barcode menu can be set characters are not compared.

Set Preset Characters
are not compared

Save of Setting
(Write Flash ROM)

d) Example of Preset data

Example 1: Compare with preset "12345" and read data.

Result example : 12345 Match
1234 NOT match
012345 NOT match

●Preset data by reading barcode menu item

1) Setup of Reading Preset Mode 2
2) Setup of Reading Preset Data
3) Read "12345" barcode symbol
4) Setup of Reading Save setting

●Preset by sending command

As following sequence, send command THIR-3000N from host computer.

1) PREM=2[CR]
2) SET=PRED12345[CR]
3) WSETS[CR]

Example 2: Compare with first4 digits as “ABCD” (No specific Digits)

Result Example : ABCD3333 Match
ABCD7777777 NOT Match
DABC3333 NOT Match
ABC**7**7777777 NOT Match

●Preset barcode menu

1) Setup of Reading Preset Mode 2
2) Read "ABCD" barcode symbol
3) Setup of Reading Set Preset Data Number of digits is not compared
4) Setup of Reading Save setting

●Preset by sending Command

As following sequence, send command THIR-3000N from host computer.

1) PREM=2[CR]
2) SET=PREDABCD[CR]
3) SET=PREN0[CR]
4) WSETS[CR]

Example 3) When 10 digits are expected, and the 3rd through 6th digits should be "ALFA".

Result Example : 00ALFA1234 Match
AAALFAAAAA Match
00ALFA1234**4** NOT Match
0ALFA01234 NOT Match

●Preset barcode menu

It is not capable to setup only barcode menu.

●Setup by Sending Command

As following sequence, send command THIR-3000N from host computer.

1) PREM=2[CR]
2) SET=PRED??ALFA????[CR]
3) SET=PREN10[CR]
4) WSETS[CR]

Transmitting Preset Status

The status of Preset data is output.
Using barcode menu, output status report after reading Transmitting Preset Status.

Transmitting Preset Status

Command **?pre [CR]**

Output Example
PREM=0 (0:non 1:power on 2:saved)
PRESET LENGTH:41
DATA(HEX):
31 32 33 3F 3F 3F 3F 3F 3F 3F
3F 41 42 43 43 44 45 03 04 05
3F 3F 3F 3F 3F 3F 3F 3F 46 47
48 49 3F 3F 3F 3F 3F 3F 39 31
30
DATA(ASCII):
123????????ABCCDE***????????FGHI??????910

Output Format
PREM=a (0:non 1:power on 2:saved)[CR]
PRESET LENGTH:b[CR]
DATA(HEX):[CR]
XX XX XX XX XX XX XX XX XX XX[CR]
XX XX XX XX XX XX XX XX XX XX[CR]
XX XX XX XX [CR]
DATA(ASCII):[CR]
xxxxxxxxxxxxxxxxxxxxxxx

a : Preset mode
b : The number of Preset data digits
XX XX … : Preset data characters, displayed as Hexadecimal number pairs
xxxxxx… : Preset data character(ASCII/JIS Character code)
Preset data is including of control character, the control characters converted by “*”.

4. Diagnosis

Output the Decode Time

The actual time consumed during symbol decoding, (starting with the SYNC ON event), can be appended to the output data in the serial interface output.

Added Decode Time

NOT Added Decode Time

Output Example
1912345678907(0238ms)[CR]

Format
<Header>•<read data><aaaa>**ms**•<Terminator>
Where <aaaa>=4 digits of decode time in mil second.

Save of Setting
(Write Flash ROM)

Output Actual Reading Statistics 1

A statistical report of actual reading quality (the total number of SYNC events, the number and percentage of OK Reads, and the number and percentage of Bad Reads) can be output through the serial interface. The report covers the time period since the last command, or else since power ON.

Report explanation:

“OK” denotes the cases when symbol reading and decode were successful.

“NG” denotes the cases when symbol reading or decode failed.

When multiple bar code label reading is enabled, the OK designation means that ALL labels read OK; The NG designation means that at least one label reading failed. (Multiple label symbol reading is an optional feature.)

Statistics Report Output

Clear Statistics Report Output

Output Example

*** TOTAL ***

NG 2:OK 175/SYNC 177

NG 1.12%:OK 98.87%

Format

*** TOTAL ***[CR]

NGaaaaa:OKbbbbb/SYNCccccc[CR]

NGddd.dd%:Okeee.ee%[CR]

aaaaa :	Number of bad reads	(0 to 65535, 65535 more displays as 65535)
bbbbb :	Number of good reads	(0 to 65535, 65535 more displays as 65535)
ccccc :	Number of reads count	(0 to 65535, 65535 more displays as 65535)
ddd.dd:	% of NG reads	(0.00 to 100.00, displays second decimal places)
eee.ee:	% of Good reads	(0.00 to 100.00, displays second decimal places)

Save of Setting
(Write Flash ROM)

Output Actual Reading Statistics

A statistical report of actual reading quality based on decode time can be output through the serial interface. The report contains minimum, maximum and average times for OK reads and Bad reads, and also the total count of SYNC events, OK reads and Bad reads. The report covers the time period since the last read barcode menu of **Clear Decode Time, Output Reads Count**, or else since power ON.

Report explanation:

"OK" denotes the cases when bar code reading and decode were successful.

"NG" denotes the cases when bar code reading or decode failed.

When multiple bar code label reading is enabled, the OK designation means that ALL labels read OK; The NG designation means that at least one label reading failed. (Multiple label symbol reading is an optional feature.)

Decode Time,
Output Read Count

Clear Decode Time,
Output Read Count

Example Output

*** DECODE TIME ***

OK: min(0186ms),max(0271ms),ave(0238ms)

NG: min(0382ms),max(1000ms),ave(0691ms)

NG 2:OK 177/SYNC 179

Format

*** DECODE TIME ***[CR]

OK: min(aaaams),max(bbbbms),ave(ccccms)[CR]

NG: min(ddddms),max(eeeems),ave(ffffms)[CR]

NGggggg:Okhhhhh/SYNCiiiii[CR]

aaaa	: The shortest decode time for OK reads (0000~6000)
bbbb	: The longest decode time for OK reads (0000~6000)
cccc	: Average decode time for OK reads (0000~6000)
dddd	: The shortest decode time for NG reads (0000~6000)
eeee	: The longest decode time for NG reads (0000~6000)
ffff	: Average decode time for NG reads (0000~6000)
ggggg	: The number NG reads (0~65535, more displays 65535)
hhhhh	: The number OK reads (0~65535, more displays 65535)
iiiii	: The number of SYNC events(0~65535, more displays 65535)

Output of Bar Code Position Information

a) Geometric Center Coordinate

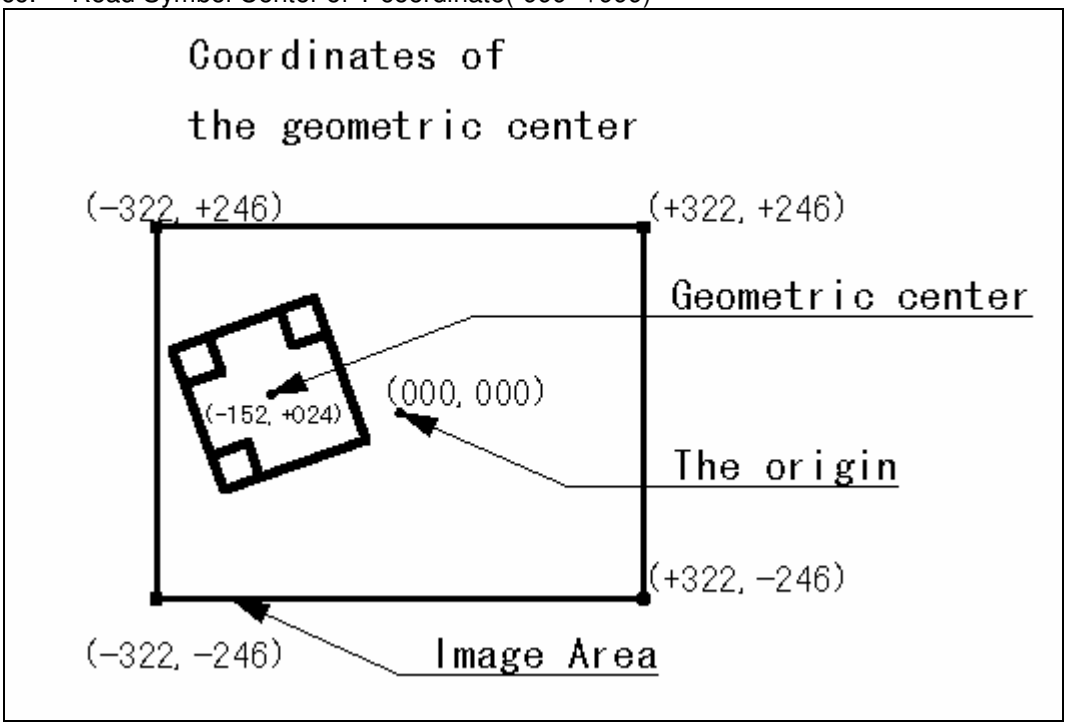
The X,Y coordinates of the center of symbols which were successfully read can be added to the output data and transmitted over the serial interface.
The screen center serves as the Origin point (000, 000).

Example Output

100000000990703(-122,+024)

Format

<Header>•<read data>(abbb,accc)•<Terminator>
a :+ or -
bbb: Read Symbol Center of X coordinate(-999~+999)
ccc: Read Symbol Center of Y coordinate(-999~+999)



Save of Setting
(Write Flash ROM)

b) 4 Corner Coordinate Data

Coordinates of the four corners of the symbols are determined and added to the output data. The screen upper left corner serves as the Origin point (000, 000).

Example Output

100000000990703(+269,+011)(+455,+086)(+386,+270)(+198,+199)

Format

<Header>•<read data> (A1)(A2)(A3)(A4)•<Terminator>

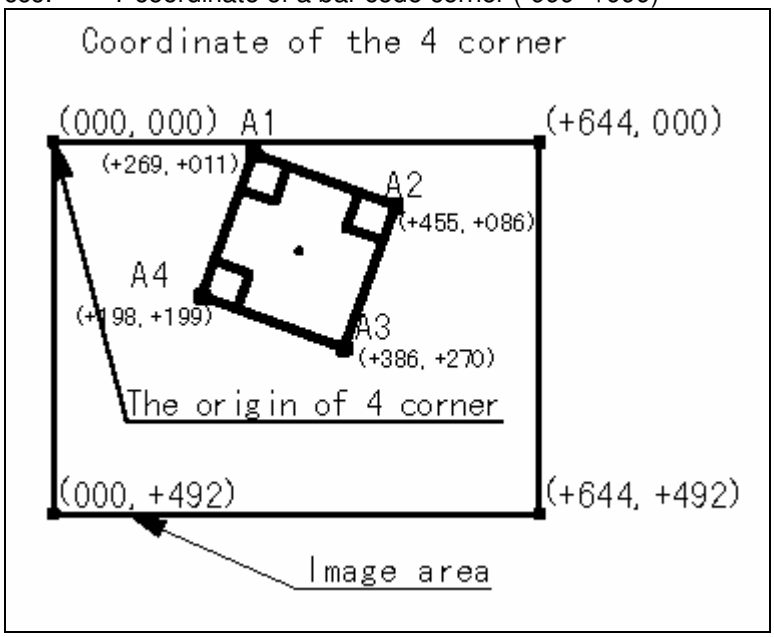
A1~A4：(abbb,accc)

Output coordinates of points A1, A2, A3, and A4 in that order each the following format.

a :+ or –

bbb: = X coordinate of a bar code corner (-999~+999)

ccc: = Y coordinate of a bar code corner (-999~+999)

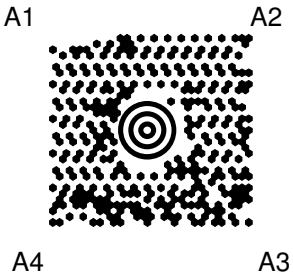


Reference 4 Coordinate Position of Each Symbol

1 dimensional barcode

2 dimensional barcode

MaxiCode



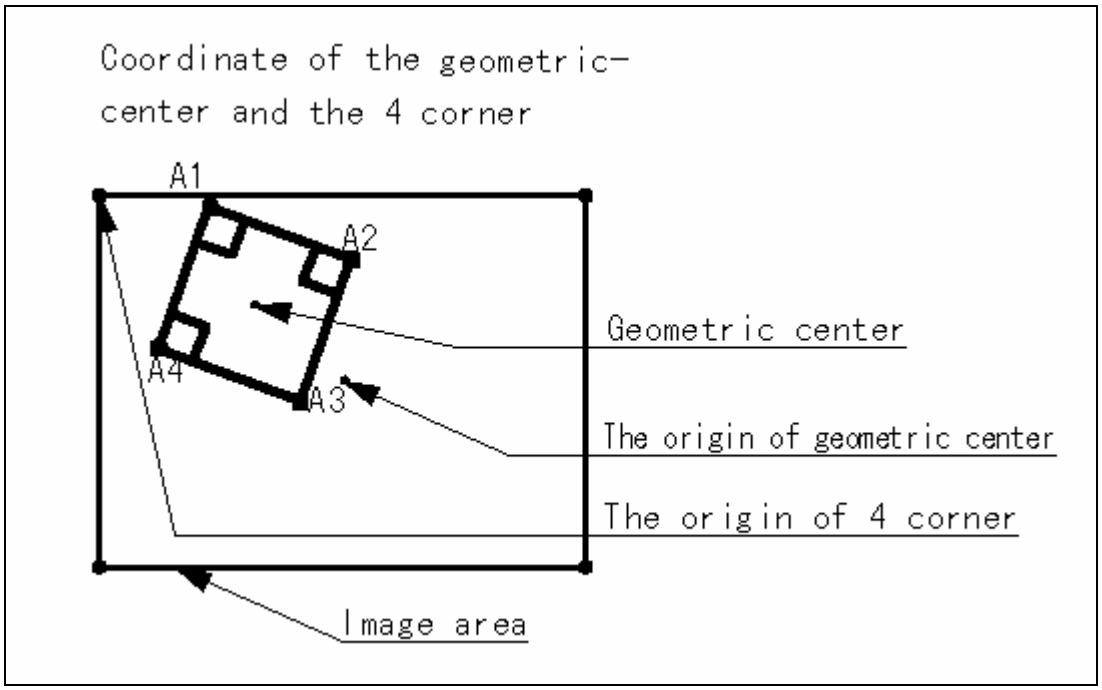
PDF417

QRCode

DataMatrix

c) Output of Both Geometrical Center and 4 Corner Coordinates

Data of the geometrical center coordinates and 4 corner coordinates are both output to the serial interface with the read data.



Example Output

100000000990703(+007,+103)(+269,+011)(+455,+086)(+386,+270)(+198,+199)

Format

<Header>•<read data><B>(A1)(A2)(A3)(A4)•Terminator

B：Geometric Center

(A1)(A2)(A3)(A4)：Coordinates of 4 corners

B、A1~A4：(abbb,accc)

Output coordinates of points B, A1 through A4 in that order each the following format.

a :+ or -

bbb:X coordinate (-999~+999)

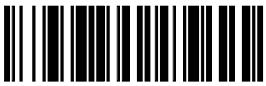
ccc:Y coordinate (-999~+999)

Setup Output Coordinate

NOT Output Coordinate

Output Geometric Center

Output 4 Corner Coordinate



Output Geometric Center and 4 Corners Coordinate

Save of Setting
(Write Flash ROM)

5. Image Data Transmission Setup

Image Output Mode

Disables image output

Image output
with protocol:
XMODEM(SUM128)

Image output
with protocol:
XMODEM(CRC16)

Setup Image Size

Sets output image size.

Smaller image size makes faster transmission.

Image Size 644x494
(Full pixel)

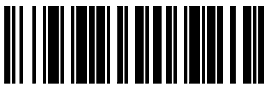
Image Size 320x247

Image Size 160x123

Image Data Compression

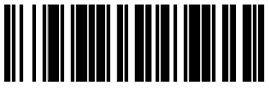
Sets the image grayscale level and data compression method.
16-level grayscale image output data is faster than 256-level grayscale image output data.

256-level grayscale
(Non-Compression)



16-level grayscale

16-level grayscale
(RLE Compression)



16-level grayscale
(AVE Compression,
Tohken Original
Compression)

16-level grayscale
(AVERLE Compression)

Save of Setting
(Write Flash ROM)

6. Setting Reference

The status of Preset data is output.

Satus1

Transmit Status 1

Output Example

```
******** STATUS ******** THIR-XXXX
 SHUTT=2          (0:1/30     1:1/60     2:1/125     3:1/250 )
                  (4:1/500    5:1/2000 6:1/4000)
 AGC=200     ( 0-255)       AGC_ENABLE:1 (0:disable 1:enable)
 LIGHT=0    (0,2:OFF 1,3:ON)    LABELTX=0    (0:through 1:[HEX])
 SYMBOLTX=0 (0:only data 1:add symbol information to data)
 keep decoding:0 (0:normal decode    1:keep decoding mode)
 contintvl=1 (interval time[s] for keep decoding mode)
 GOUTMODE=0    (0:not use 1:XMODEM(sum128) 2:XMODEM(crc16))
 GOUTSIZE=0    (0:644x494 1:320x247 2:160x123)
 HEAD=0 (0:non 1:[SX] 2:[EC])
 TERM=3 (0:non 1:[EX] 2:[EX][CR] 3:[CR][LF] 4:[CR])
          (5:[CR][TAB]    6:[TAB][CR])
 FRAME=4    (0:7O1 1:7O2 2:7E1 3:7E2 4:8N1)
          (5:8N2 6:8O1 7:8O2 8:8E1 9:8E2)
 BAUD=9600     (1200,2400,4800,9600,19200,38400,57600,115200)
********* END ********** THIR-XXXX
```

Description of Status 1

SHUTT=_ Shutter speed (Second)
0:1/30 1:1/60 2:1/125 3:1/250
4:1/500 5:1/2000 6:1/4000

AGC=___ Transmitted AGC value to camera 0 – 255 200

AGC_ENABLE:_ Setting enable or disable Valuable AGC
1 Auto Control AGC Value
0 Fixed AGC Value

LIGHT=_ Illumination Setting
0:Auto Flash (After First Time Off, then AUTO)
1: Auto Flash (After First Time On, then Auto)
2:Always Off 3:Flash Every Reading

LABELTX=_ Transmit Control Code
0:Transmit
1:Convert ASCII Code

SYMBOLTX=_ Prefixed Symbol Information
0:Not Add Prefix Symbol Information
1: Add Prefix Symbol Information

keep decoding:_ Continuous Reading Mode
0 Dark on Light Mode
1 Continuous Reading Mode

contintvl=_ Continuous Reading Interval Mode (Second)
0 - 9 : 0 Second－9 Second 1 Second

GOUTMODE=_ Image Output Mode
0:Disable Image output
1:Enable Image output, Protocol: XMODEM(SUM128)
2: Enable Image output, Protocol: XMODEM(CRC16)

GOUTSIZE=_ Image Size
0:644 pixel×494 pixel(Full image)
1:320 pixel×247 pixel(1/4 image)
2:160 pixel×123 pixel(1/16 image)

HEAD=_ Header
0:Non parity 1:[SX] 2:[EC]

TERM=_ Terminator
0:Non parity 1:[EX] 2:[EX][CR]
3:[CR][LF] 4:[CR]
5:[CR][TAB] 6:[TAB][CR]

FRAME=_ Frame Format (bits, parity, stop bit)
0:701 1:7O2 2:7E1 3:7E2 4:8N1
5:8N2 6:8O1 7:8O2 8:8E1 9:8E2

BAUD=____ Baud rate[bps]
1200 2400 4800 9600
19200 38400 57600 115200

Status 2

Transmit Status 2

Output Example

```
******** STATUS ******** THIR-XXXX
 RSCS=1     (0:OFF 1:ON)      C39SS=0 (0:not trans. 1:trans.)
 CODASS=1 (0:not trans. 1:trans.)    CODACS=1 (0:small 1:capital)
 SEPA=2     (0:non    1:&    2:,    3:[FS]    4:[GS]    5:[SP])
 UPCTX=0    (0:12-digit    1:13-digit)
 E128GS=1 (0:non    1:[GS])
 << SYMBOLOGIES MODE >>
Symbology      mode     min      max    start    length
Code39            1        1      2047        1      2047
Code128           1        1      2047        1      2047
DataMatrix        1        1      2047        1      2047
JAN/UPC           1        1      2047        1      2047
Codabar           1        1      2047        1      2047
ITF               1        6      2047        1      2047
PDF417            1        1      2047        1      2047
MaxiCode          3F       1      2047        1      2047
QR-Code           1        1      2047        1      2047
EAN-128           1        1      2047        1      2047
********* END ********** THIR-XXXX
```

Description of Status 2

RSCS= _ RS/CS Control
0:RS/CS Control Not carries out
1:RS/CS Control carries out.

C39SS=_ Transmit Code39 ST/SP Code
0:Not Transmit 1:Transmit

CODASS=_ Transmit Codabar ST/SP Code
0:Not Transmit 1:Transmit

CODACS=_ Codabar ST/SP Character
0:Lower Case Letter 1:Upper Case Letter

SEPA=_ Separator Setting

UPCTX=_ Output Digits of UPC Code
0:12 digits 1:13 digits

E128GS=_ Transmit Control Character [GS]
0:Not Transmit 1:Transmit

mode Reading Mode
min Reading Minimum Digits (1-2047)
ma Reading Maximum Digits (1-2047)
start Start Edit Digits (1-2047)
length Transmit Edit Digits (1-2047)

Code39:_ Reading Code39 (mode)
0 Disable
1 Read, DISABLE C/D CHECK
2 Read, ENABLE C/D CHECK, C/D Transmit
3 Read, ENABLE C/D CHECK, C/D Not Transmit
4 Read, DISABLE C/D CHECK, FULL ASCII On
5 Read, ENABLE C/D CHECK, C/D Transmit、FULL ASCII On
6 Read, ENABLE C/D CHECK, C/D Not Transmit、FULL ASCII On
Code128:_ Read Code128 (mode)
0 Disable
1 Read, ENABLE C/D CHECK, C/D Transmit
DataMatrix:_ Read DataMatrix (mode)
0 Disable
1 Read, Square, Dark on Light label
2 Read, Square, Light on Dark label
3 Read, Square, Dark on Light & Light on Dark label
5 Read, Square & Rectangle, Dark on Light label
6 Read, Square & Rectangle, Light on Dark label
7 Read, Square & Rectangle, Dark on Light & Light on Dark label
JAN/UPC:_ Read JAN/EAN/UPC (mode)
0 Disable
1 Read, ENABLE C/D CHECK,
CODABAR:_ Read Codabar (mode)
0 Disable
1 Read, DISABLE C/D CHECK
2 Read, ENABLE C/D CHECK, C/D Transmit
3 Read, ENABLE C/D CHECK, C/D Not Transmit
ITF:_ Read ITF (mode)
0 Disable
1 Read, DISABLE C/D CHECK
2 Read, ENABLE C/D CHECK, C/D Transmit
3 Read, ENABLE C/D CHECK, C/D Not Transmit
PDF417:_ Read PDF417 (mode)
0 Disable
1 Read,
MaxiCode:_ Read MaxiCode (mode)
Display Mode Base on 16 bit format, and Bit 0 through Bit 5 indicate Mode 0 through
5.
(1: Enable, 0:Disable)
3F(Read All Mode)
QR-Code:_ Read QR Code (mode)
0 Disable
1 Read, Dark on Light label
2 Read, Light on Dark label
3 Read, Dark on Light & Light on Dark label
EAN-128:_ Read EAN128 (mode)
0 Disable
1 Read

Status3

Transmit Status 3

Output Example

```
******** STATUS ******** THIR-XXXX
LABELS=1    (1-4:labels)
OUTFORM=0 (0:no check 1:digit 2:chara 3:symbol)
CheckNo.   digit   chara1 chara2   symbol
check[1] :      0       3F       3F         ?
check[2] :      0       3F       3F         ?
check[3] :      0       3F       3F         ?
check[4] :      0       3F       3F         ?
XYTX=0 (0:non 1:add(x,y))
TXWAIT=1000    (1000-2500,step10)
********* END ********** THIR-XXXX
```

Description of Status 3

LABELS=	Numbers of Label
OUTFORM=	Output Data Order Sequence
check[1]	Setting Label No.1
check[2]	Setting Label No.2
check[3]	Setting Label No.3
check[4]	Setting Label No.4
digit	Setting Label No. n Digits
chara1	Compare Setting Label No. n Character (1st Byte)
chara2	Compare Setting Label No. n Character (2nd Byte)
symbol	Setting Symbol Label No. n

Indicates status for optional feature Multi-Label Read Option

XYTX=_ Output Read label coordinate

0: Disable
1: Output Geometric Center Coordinate
2: Output 4 Corner Coordinate
3: Output Geometric Center Coordinate and 4 Corner Coordinate

TXWAIT=_ Transmit Read Data Timeout

1000ms

Status 4

Transmit Status 4

Output Example

```
******** STATUS ******** THIR-XXXX
   MODE=0    0:normal 1:image-out 2:swift
   TEST=0 (0:normal 1:test mode for THIR-3000)
   DECODELIM=2000    100-6000 step10
   DTTX=0    0:non 1:add(****ms)
   MIRROR=0    0:normal 1:mirror
   BBC=0      0:256 1:16 2:RLE 3:AVE 4:AVERLE
   PREM=0    0:normal 1:power on 2:saved
   JPOST=0    0:fuzzy 1:perfect
   UPCE=0      0:UPC-A form 1:UPC-E form
   UPCANS=0 UPCENS=0    0:output number system 1:strip
   UASUM=0 UESUM=0       0:output UPC chksum 1:strip
   JE13SUM=0 JE8SUM=0 0:output EAN/JAN chksum 1:strip
   MAXIPS=0    0:prim. or prim.+sec. 1:prim.+sec.
   POSTALD=0 typ:3500-7000
 ********* END ********** THIR-XXXX
```

Description of Status 4

MODE=_ Buzzer Setup
0:Buzzer Beeps
2:Buzzer Not Beeps

TEST=_ Test Mode
0:Read Dark on Light

DECODELIM=_ Setting Decode Timeout
2000ms

DTTX=_ Decoding Time
0:Not output 1:Output

MIRROR=_ Mirror Image
0: Read, Dark on Light
1: Read, Mirror Image

BCC=_ Image Data Compression
0:256-level grayscale Image Output 1:16-level grayscale Image Output
2:16-level grayscale(RLE Compression) 3:16-level grayscale(AVE Compression)
4:16-level grayscale(AVERLE Compression)

PREM=_ Preset Mode Setting
0: Dark on Light Mode 1: Preset Mode 1
2: Preset Mode 2

O= JPOST=_ Read Japan Post Code
1:Read Incomplete label 2：Read Perfect label

UPCE=_ UPC-E Format Convert
0:Convert UPC-A Format
1:Not Convert

UPCANS=_ Transmit UPC-A Number System

0:Transmit 1:Not Transmit
UPCENS=_ Transmit UPC-E Number System
0:Transmit 1:Not Transmit
UASUM=_ Transmit UPC-A C/D
0:Transmit 1:Not Transmit
UESUM=_ Transmit UPC-E C/D
0:Transmit 1:Not Transmit
JE13SUM=_ Transmit JAN/EAN Standard C/D
0:Transmit 1:Not Transmit
JE8SUM=_ Transmit JAN/EAN Shortened C/D
0:Transmit 1:Not Transmit
MAXIPS=_ Transmit Maxi Code Primary
0:Transmit 1:Not Transmit

Status “LF” (for Auto Detection mode)

List of setting regarding Auto Detection Mode

Transmit Status LF

(e.g.)
******** STATUS ******** THIR-XXXX
LFMODE=0 (0:OFF 1:ON)
LFMOVELIM=2 (0:100ms 1:300ms 2:500ms 3:1000ms
4:1500ms 5:2000ms 6:2500ms 7:3000ms)
LFDECLIM=2(x500mS 1-20)
LFPOINTER=1 (0:OFF 1:ON)
VSENS=2 (0-4)
LFVERIFY=1 (0:OFF 1:ON) LFVWAIT=6(x500mS 1-20)
********* END ********** THIR-XXXX

Explanations of status “LF”

Command	Description	Value
LFMODE=_	Choosing Auto Detection mode	0: ON 1:OFF
LFMOVELIM=_	Detection ignored time (ms)	0:50 1:100 2:200 3:500 4:1000 5:2000 6:3000 7:5000
LFDECLIM=_	Time for LFMOVELIM (within this time the scanner ignores the detection of an object) (s)	1～40 : 0.5 (s)～10 (s) [Step: 0.5(s)]
LFPOINTER=_	Aiming beam during auto detection mode	0: Off 1: Blink
VSENS=_	Sensitivity against change of image	0: Highest 1:2nd highest 2: Normal (Default) 3: 2nd lowest 4: Lowest
LFVERIFY=_	Don’t want to read same data?	0: No 1: Yes
LFVERIFYLIM=_	Time for LFVERIFY (within this time the scanner doesn’t read same data continuously)	1～20 : 0.5 (s)～10 (s) [Step: 0.5(s)]

Save of Setting
(Write Flash ROM)

Status “IMG” (for image cropping and High Density mode

See setting of image cropping and High Density mode

Transmit Status IMG

(e.g.)

```
******** STATUS ******** THIR-XXXX
 BBC=0   0:256 1:16 2:RLE 3:AVE 4:AVERLE
 IMODE=0   PX=0   PY=0   WX=1280   WY=1024
 CAPX=0 ( 0:100%, 1:75%, 2:50%, 3:25% )
 CAPY=0 ( 0:100%, 1:75%, 2:50%, 3:25% )
 IMGTYPE=2 ( 1:HD type   2:Normal type )
********* END ********** THIR-XXXX
```

(Explanation for status IMG)

IMGTYPE=_ H

1 : HD mode 2 : Normal

Command	Description	Value
BBC=_	Image compression	0:256steps 1:16steps 2:RLE 3:AVE 4:AVE+RLE
IMODE=_	Enable/Disable image cropping	0: Disable (Full size) 1: Enable
PX=____, PY=____	The coordination of image where to start capturing.	0 to 1280
WX=____, WY=____	The coordination of image where to end capturing	0 to 1280
CAPX=_	Prefixed cropping (Horizontal)	0: 100% 1: 75% 2: 50% 3: 25%
CAPY=_	Prefixed cropping (Vertical)	0: 100% 1: 75% 2: 50% 3: 25%
IMGTYPE=_	Chose high density mode or normal mode	1: HD mode 2: Normal

Save of Setting
(Write Flash ROM)

7. Setting for HID Type Only

Setting of special function for HID type(Human Interface Device) , describe at below.

Data Transmit ion Interval

Setting for transmit data interval.

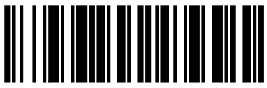
Follow the following procedures:

a) Read “Data Transmit Interval” barcode.
b) And then read “Save of Setting” barcode.
c) After next power on, the setting will be effective.

Note that the data transitions interval depends on interface timing of host computer.

Transmit Interval 10ms

Transmit Interval20ms



Transmit Interval 30ms

Keyboard Selection

Select Japanese or English keyboard.

- Read “Select Japanese Keyboard or Select English Keyboard” barcode.
- Then read “Save of Setting” barcode.

After next power ion, the setting will be effective.

Select Japanese Keyboard

Select English Keyboard

Save of Setting
(Write Flash ROM)

8. Setup for RF Type

This section includes description of special RF type function setup.

Setup Operation Mode

This is used to enable Reading both symbol and RF Tag read/write.

Even if the device was set to read RF Tags only, the scanner will read configuration barcodes.

Symbol Only

Symbol and RF Tag

Tag Only

Symbol and RF Tag
（With ID Header）

RF Status

The command output status of RF function.

Transmit Status

Reference for Example of output, please see RF type manual.

9. Setup for Bluetooth Type

This section includes description of special Bluetooth functions.

9.1 Setup of Wireless communication and Communication Protocol

Communication Protocol

When the reader is carried away from its communication range, the reader will be disconnected. Once Bluetooth detects disconnection, it has 20 seconds delay from actual disconnection. During the communication disconnection, data will be lost and invalid.

Therefore, Thoken reader is capable to avoid lost data by using communication protocol that surveys the send data correctly to the host computer.
When communication protocol setup enabled, host computer must transmit reader "ACK "code after transmitting data received. If reader does not received "ACK" code within communication time out, beeper beeps.

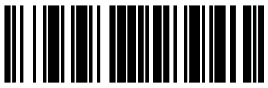
Add ACK Code 0x06

NOTE: We recommend to operate communication protocol.

Setup Communication Protocol

It can be set read the below barcode.

Enable Protocol



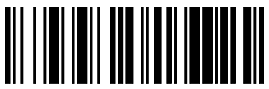
Disable Protocol
（Factory Default）

9.2 Setup for Auto Power Off

If a disconnection between the unit and host computer occurs for more than a definite period of time, the unit will automatically power off. This configuration setup sets the timeout for automatic power off.
During charging periods and host connection, auto power off will disabled.

Setup for Timeout

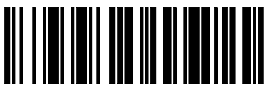
Disable Timeout



30 second

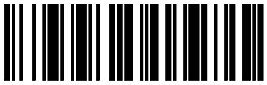
120 second

300 second



600 second

Increments 30second



Decrements 30second

9.3 Save Connection Authentication Data

About Authentication Data and PIN code

When starting the connection of Bluetooth, it requires an input PIN code for personal computer to connect with reader and a Bluetooth adaptor. Then connection authentication data will be generated at reader.

However, connection authentication data of the reader will clear after power off. For this reason, it requires input PIN code in the personal computer side again.

After you saved connection authentication data of the reader, it won't be able to search another Bluetooth adaptor. If you would like to connect to another Bluetooth adaptor, once you need to clear the saved connection authentication data first.

NOTE: For installation, we recommend to save connection authentication data.

How to Save Authentication data

- Read "SAVE PSKEY" barcode menu.

- "SAVE PSKEY START" data will send. LED turn to green blink every 0.5 second.

- Setup disconnect on host computer. LED turn to Orange blinks.

-Then connect on host computer. Then input PIN code again. (LED blink stops.)

If the reader saved authentication data correctly, "Save OK" data will transmit to host computer then beeper beeps once.

In case the unit failed to save the data. Then before try to save data, read "Clear Saved Data" barcode menu. Then try to read "SAVE PSKEY" barcode menu again.

When reader has authentication data, then read "SAVE PSKEY" barcode menu, "ALREADY SAVED" data will transmit and beeper beeps.

Save Authentication Data

Read below barcode menu, starting save authentication data then, transmit “SAVE KEY START”.

SAVE KEY START

Clear Save Authentication Data

Read below barcode menu, starting clear authentication data then, transmit “CLEAR KEY”.

CLEAR KEY

9.4 Bluetooth Status

Setup data of Bluetooth function

Output Bluetooth Status

Output Example

```
******** STATUS ******** THIR-XXXX
  PROT=1 ( 0: no response    1: ACK response )
  PWROFFTIM=120[s] ( 0: infinity, 30-600s)
  Link Key Saved
  S/N( 001 )
********* END ********** THIR-XXXX
System version = K48C-Vx.xx
Decode version = K48A-Vx.xx
```

NOTE: This is an example, in case of saved authentication data.
In case of cleared, no display of ”Link Key Saved”.

Description of Status

PROT= Setup for Communication Protocol
0 : Disable Communication Protocol 1 : Enable Communication Protocol

PWROFFTIM= Setup for Power OFF Time
Duration 0 ～ 600s

Link Key Saved Status of save
Link Key Saved Display : Saved Correctly
No Display : Cleared

S/N(aaa) Serial Number
aaa : Last Three digits of serial number

10. Changing THIR-6000's interface

THIR-6000U can be used as a Human Interface device. The configuration barcodes are prepared to change THIR-6000U's interface from USB to HID and vice versa. Human Interface Device function can send data to application software same as keyboard input.

[Types of interface]

THIR-6000U	: USB imager
THIR-6000U as a HID	: USB imager as a Human Interface Device

[Procedure of changing the interface]
Please use the configuration barcodes on the next page.

1). Read "Start Changing" barcode
2). Choose "THIR-6000U" or "THIR-6000U as a HID"
3). Read "Write to flash memory"
4). When THIR-6000U is changed to a HID
   - Close the application which is communicating with THIR-6000U via virtual COM port.
   - In Windows task bar, click "Remove external device" icon and then remove "TOHKEN USB virtual COM port"
   - Remove THIR-6000U from the USB port of PC
   - Connect THIR-6000U to USB port of PC

   When THIR-6000U as a HID is changed to THIR-6000U
   - Remove THIR-6000U from the USB port of PC
   - Connect THIR-6000U to USB port of PC

The process 4) is necessary to complete the change or THIR-6000's interface.
Please be sure to implement this process.

The configuration barcodes for changing THIR-6000's interface

1. Start changing

2. Choose

THIR-6000U

THIR-6000U as a HID

3. Write to flash memory

TOHKEN CO., LTD

Head quarters

2-7-1 Nishi-Shinjuku, Shinjuku-ku, Tokyo Japan 163-0710

Sales	03-5325-4311 to 4315
Sales Promotion	03-5325-4322

Nagoya office

4-2-12 Meieki, Nakamura-ku, Nagoya Japan 450-0002

Sales	052-565-9091

Osaka office

2-9-1 Higashi-Tenman, Kita-ku, Osaka Japan 530-0044

Sales	06-6353-5476

Fukuoka office

8-36 Hakata-eki Chuogai, Hakata-ku, Fukuoka Japan 812-0012

Sales	092-441-3638

Hitachi office

2-1-10 Hashikabe, Hitachinaka, Ibaragi Japan 312-054

Sales	029-276-9555

Field support department (Technical Center 3)

1-43-2 Tamagawa, Chofu, Tokyo Japan 182-0025

Field support	042-484-5190