



SW2500

WIRELESS SCANNER

Programming Manual



NOTICE

This device complies with part 15 of the FCC Rules. Operation is subject to the following two condition: (1) This device may not cause harmful interface, and (2) This device must accept any interface received, including Interface that may cause undesired operation.

This equipment has been tested and found comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interface when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interface to radio communications. Operation of this equipment in a residential area is likely to cause harmful interface in which case the user will be required to correct the interface at his own expense.

- ☛ All brand and trademark are belonged to their respective owner.
- ☛ Specifications are subject change without notice.

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Installation

- 1) First of all, you must make sure that the power is disconnected from your equipment before connecting the scanner. Besides, you also have to check the cable connector of the scanner match your equipment interface correctly.
 - 2) Boot up your computer after connecting the scanner with your equipment, the scanner will make a long music and light the LED, above scanner to indicate a successful power on. Trigger the button, the scan line in front of scanner will active. Now you can start to set programming optimal usage.
- ☛ If any of the above operation is not right, turn off the power immediately and check any improper connections. Go through all above steps again.

Recommended Steps

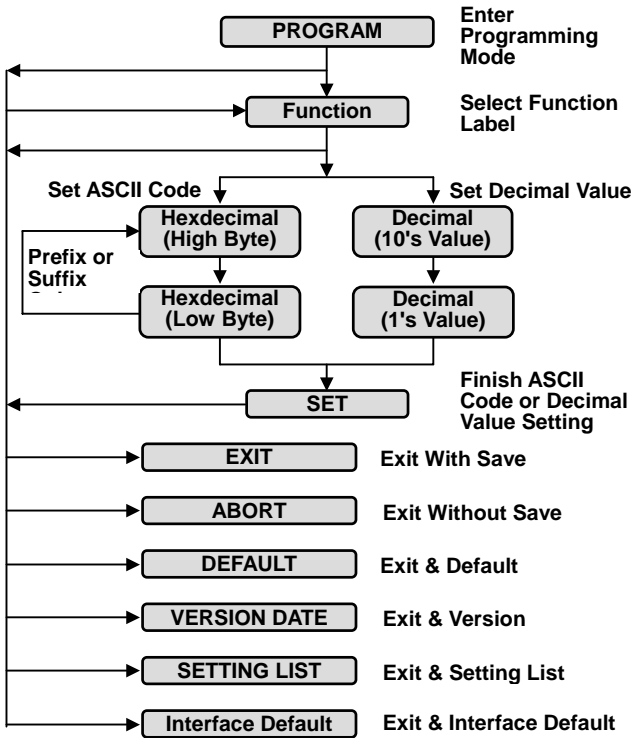
When the required settings have been configured, all settings are stored in non volatile memory of scanner after reading **EXIT** label. There are recommended steps as follows.

- 1) Set right host interface for your scanner at  10.
(The scanner is in factory default as bold label)
- 2) Set interface to optimize protocol of scanner with your host in Chapter 2.
- 3) Set system control of scanner, such as specific adjustments double confirm, power saving, indicator and scanning mode which you prefer usage in Chapter 3.
- 4) Set code option of scanner for your usage in Chapter 4. You must make sure to enable the symbology first, then Min./Max. code length, code ID checksum and truncate digits are also covered.
- 5) Set string format of the scanner, such as preamble, postamble, prefix, suffix, code ID and code name transmission for your application in Chapter 5.

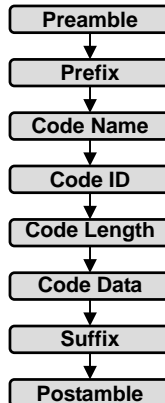
☛ If any of the error step is processing, scanner will generate a 5 warning beeps to indicate an invalid setting. You have to take care this matter and set correctly again.

☛ If still not work properly. Please contact with dealer.

Configuration Flowchart



String Output Flowchart



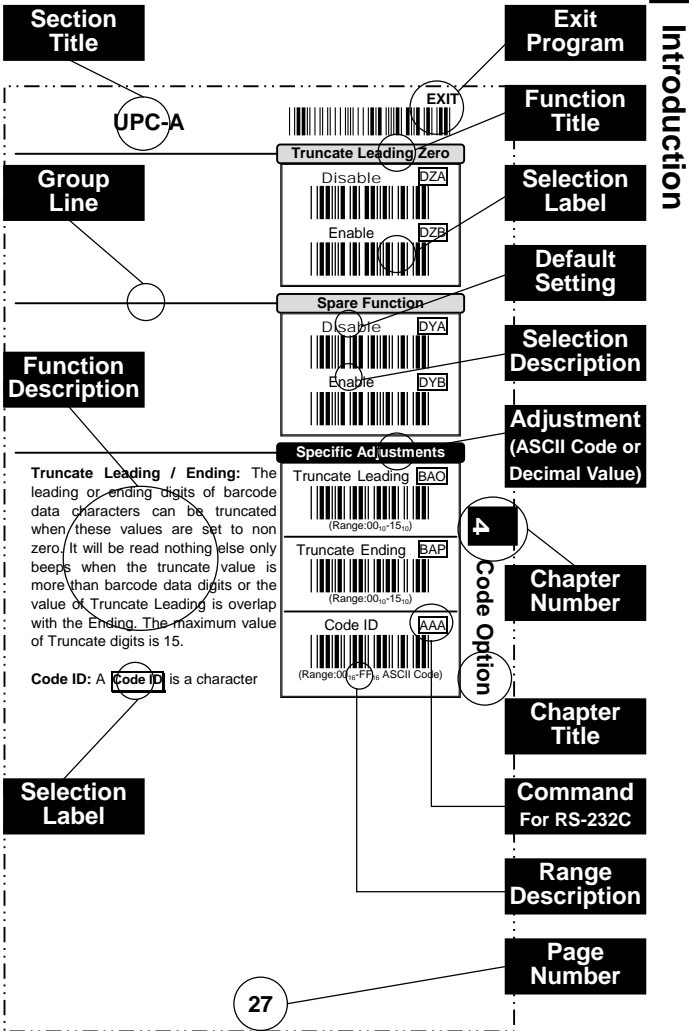
Default Setting

Code Type	Read Enable	Length		Truncate		Code ID
		Min.	Max.	Leading	Ending	
UPC-A	✓	-	-	0	0	A
UPC-E	✓	-	-	0	0	E
EAN-13	✓	-	-	0	0	F
EAN-8	✓	-	-	0	0	FF
Code-39	✓	0	0	0	0	M
Interleaved 2 of 5		6	0	0	0	I
Industrial 2 of 5		4	0	0	0	H
Matrix 2 of 5		4	0	0	0	G
China Post 2 of 5		11	11	0	0	J
Codabar/NW7	✓	4	0	0	0	N
Code-128	✓	0	0	0	0	K
Code-93		4	0	0	0	L
Code-11		4	0	0	0	O
MSI/Plessey		4	0	0	0	P
UK/Plessey		4	0	0	0	R
Telegen		4	0	0	0	S
IATA		4	0	0	0	Q

Adjustment	Value	Result
Beep Loudness	05	Level 5
Beep Tone	24	2.4 KHz
Beep Duration	06	60 mSec
Beep Tone1	12	1.2 KHz
Beep Duration1	06	60 mSec
Stand-by Time	15	15 Sec
Active Time	20	200 mSec
Sleep Time	20	200 mSec
Good-read Delay	50	500 mSec
Double Confirm Times	01	Once
Inter-char. Delay	01	1 mSec
Transmit Delay	00	0 mSec
Response Delay	30	3 Sec
Add-on Wait Time	50	500 mSec
Margin Delay	10	100 mSec
Preamble Data1	00 ₁₆	<NULL>
Preamble Data2	00 ₁₆	<NULL>
Postamble Data1	0D ₁₆	<CR>
Postamble Data2	0A ₁₆	<LF>
Prefix Data (All Datas)	00 ₁₆	<NULL>
Suffix Data (All Datas)	00 ₁₆	<NULL>
Add-on Insertion (All Datas)	00 ₁₆	<NULL>
Insertion1-4 (Position & All Datas)	00 ₁₆	<NULL>
Concatenation Data	29 ₁₆	<GS>

Manual Label Layout

The scanner must be set by reading the barcode labels in manual. The description of label is as follows.



☛ The factory default settings are indicated by bold symbols.

Frequent Question

Q: Why scanner block the keyboard operation?

A: Check the cable connection with your equipment, then turn power on again.

Q: If scanner has a good read beep but nothing transferring after read a label.

A: Using the **SETTING LIST** at **□10** to show what current setting of scanner is, or reset to Default, (or select right Interface default if scanner to be change another interface used), then re-program scanner again.

Q: If scanner dosen't need an Enter character addition after each barcode label transmission.

A: Refer to postamble transmission at **□60**, then set **Disable**.

Q: If scanner needs to read single digit code.

A: Refer to Min. code length of code option use "01" in Chapter 4 for single code readable.

Q: If scanner isn't able to discriminate an unknown label, but read manual very well.

A: Refer to code name at **□64** to set **Enable**, read a barcode label, then you will know what symbology is read. Beside, it maybe need to verify checksum. Refer to verify checksum of code option in Chapter 4, and set **Enable**.

Q: If scanner transfers character very slow or loses some characters on screen in keyboard interface after reading a label.

A: You may set caps lock to be **Alt+Keypad** at **□11**. Otherwise, it maybe mis-match of transmission rate, therefore, you can adjust an appropriate **Inter-char. Delay** to match your equipment. See **□11**.

Q: If scanner want to read a label as function key for your apprication.

A: Refer to function key simulation at **□11** and set **Enable**, then scanner can transmit a code as function key. It is used for keyboard interface only. Beside, you must make sure that a label is encoded as function key, and its ASCII code is from 00₁₆ to 1F₁₆. You can refer to ASCII code table at **□71**.

Q: Could I change scanner into different type interface directly?

A: You can change factory interface default for other type interface.

By plug different cable, program scanner and set right interface to exit, then the scanner will be change to another interface. However, you must make sure what cable you need. Refer Cable Type to □66, 67.

Q: How to configure scanner via RS-232C?

A: Next to the selection description, you will find a frame command, such as AAB. These commands can be sent to scanner with RS-232C interface. You must make sure that scanner is the same protocol as your equipment of RS-232C, and light source of scanner has been activated by pressing button.

Example Beep Loudness Level "10", Good-read Beep "Enable"

To configure the required commands proceed as follows:

Send as: <ESC>(1B₁₆) ⇒ Command(s) ⇒ <CR>(0D₁₆)

Send <ESC>⇒ BAC ⇒ %01 ⇒ %00 ⇒ %OK ⇒ CEB ⇒ <CR>
 Beep 1 0 SET Good-read
 Loudness Level Beep Enable

☛ Call to the dealer if scanner dose not work properly.

PROGRAM



Host Interface

Interface Default

Keyboard Wedge



RS-232C



WAND EMULATION



OCIA



Spare Interface



You can change factory interface default for other type interface. By plug different cable, program scanner and set right interface to exit, then the scanner will be change to another interface. However, you must make sure what cable you need. Refer Cable Type to 66, 67.

Miscellany

DEFAULT (without Interface)



VERSION DATE



SETTING LIST



ABORT



DEFAULT: All settings are reset as bold label, but exclude interface setting.

VERSION DATE: You can get the software date of decoder on screen. It is important for maintainace.

SETTING LIST: First it is recommended that you need to excute a text editor program (such as PE2 and Word) for keyboard interface, or excute a terminal program (such as Hyper Terminal) for

RS-232. Then scanner will transmit current settings on screen.

ABORT: If you have a mis-setting or want to skip this current configuration during you are programming, using this function, all front settings are aborted before you set **EXIT** to finish programming.

☛ Programming will be finished while each label of miscellany is read.

Keyboard Wedge

EXIT

By selecting, you can change output speed of scanner to advance or match with host computer. Generally, set **High** or **Turbo** in working high performance. If some output characters of barcode have been lost or shown on screen slowly, you may need to set **Medium** or **Low** to match your host keyboard speed.

Keyboard Speed

Low CZA

Medium CZB

High CZC

Turbo CZD

Set **Enable** scanner can output code as pressing function-key in your application program while the barcode datas contain ASCII value between 01₁₆ to 1F₁₆. See □60 and Refer to ASCII table □71 at grey area. You'll find function-keys with ASCII codes.

Function Key Simulation

Disable DBA

Enable DBB

The **Keypad** have to select if your application program is only keypad numeric code acceptable. So, scanner will output code as press numeric keypad when it read numeric digit. (The keypad is in the right side of keyboard, and Num Lock control key is also on.)

Numeric Key Position

Alphabetic-key DAA

Keypad DAB

By selecting **Uppercase** or **Lowercase**, scanner can get Caps Lock status. If **Alt+Keypad** is selected, Caps Lock and output will be independent.

Caps Lock

Uppercase DDA

Lowercase ddb

Alt+Keypad DDD

Example Barcode "ABCdef"

Status \ Selection	Caps Lock On	Caps Lock Off
Uppercase	ABCdef	abcDEF
Lowercase	abcDEF	ABCdef
Alt+Keypad	ABCdef	ABCdef

PROGRAM



Keyboard Wedge

Keyboard Simulation

DCA	Disable
DCB	Enable

All of the PCs check the keyboard status during power-on selftest. It is recommended to **Enable** the function if you are working without keyboard installation. It simulates keyboard timing and pass keyboard present status to the PC during power-on.

Spare Function

DEA	Disable
DEB	Enable

Specific Adjustments

BAL	Inter-char. Delay
(Range:00 ₁₀ -99 ₁₀ Unit:1ms)	
BAM	Transmit Delay
(Range:00 ₁₀ -99 ₁₀ Unit:10ms)	

Inter-char. Delay: This delay is inserted after each data characters transmitted. If the transmission speed is too high, the system may not be able to receive all characters. Adjust it and try out suited delay to make system work properly.

Transmit Delay: It is a delay timer between barcode data output. The feature is used to transfer continually with shorter barcode data or multi-field scanning.

Example Barcode Data: "ABCD"

Inter-char. Delay: **2ms**
Transmit Delay: **10ms**

- 1) **PROGRAM** → Entry Programming
- 2) **Inter-char. Delay** → **0** → **2** → **SET** → 2ms Inter-char. Delay
02*1ms(Unit)=2ms
- 3) **Transmit Delay** → **0** → **1** → **SET** → 10ms Transmit Delay
01*10ms(Unit)=10ms
- 4) **EXIT** → Exit Programming


Output














A	2ms	B	2ms	C	2ms	D	2ms	10ms
---	-----	---	-----	---	-----	---	-----	------

Keyboard Wedge

Select keyboard type connector of your host computer. Scanner must be selected to the appropriate host interface cable converter. Refer to Cable Type at 66.

EXIT



Keyboard Type	
IBM AT, PS/2	DF A
	
IBM XT	DF B
	
Macintosh ADB.	DF C
	
IBM PS/2 25,30	DF D
	
NEC 9801	DF E
	
IBM PS/2 55	DF F
	
IBM 5550	DF G
	
KT 106	DF H
	
IBM 5576	DF I
	
Spare1	DF J
	
Spare2	DF K
	
Spare3	DF L
	
Spare4	DF M
	

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Interface

PROGRAM



Keyboard Wedge

Keyboard Layout

DGA	USA (US)
DGB	Belgium (BE)
DGC	Danish (DK)
DGD	France(FR)
DGE	Germany (GR)
DGF	Italian (IT)
DGG	Portuguese (PO)
DGH	Spanish (SP)
DGI	Swedish (SV)
DGJ	Switzerland (SF)
DGK	UK (UK)
DGL	Latin American (LA)
DGM	Japan
DGN	Spare2

The selecting of keyboard layout supports many country languages other than USA keyboard layout. First you need to confirm country language that you desire. In DOS, using command "Keyb" to selecte the desirable keyboard layout or in WINDOWS entry "Control" then pop "Keyboard" to selecte country at "language" item. For details, please refer to your DOS or WINDOWS user's manual.

RS-232C

EXIT



Handshaking Protocol

- CTS:** Clear To Send (Hardware Signal)
- RTS:** Request To Send (Hardware Signal)
- STX:** Start Of Text (ASCII Code 02₁₆)
- ETX:** End Of Text (ASCII Code 03₁₆)
- Xon:** Transmit On (ASCII Code 13₁₆)
- Xoff:** Transmit Off (ASCII Code 11₁₆)

Disable: The communication only uses TxD and RxD signals without regard for any hardware or software handshaking protocol.

RTS/CTS (CTS/RTS): If the scanner wants to send the barcode data to host computer, it will issue the RTS (CTS) signal first, wait for the CTS (RTS) signal from the host computer, and then perform the normal data communication. If there is no replied CTS (RTS) signal from the host computer after the timeout (Response Delay) duration, the scanner will issue a 5 warning beeps.

Scanner Ready: The scanner will active the RTS signal after power-on, and will transmit data upon receiving active CTS signals.

Data Ready: The scanner will active the RTS signal to indicate a successful decoding and will transmit data upon receiving CTS signals.

STX/ETX: The STX and ETX are used to pack barcode together in the normal data transmission.

Xon/Xoff: When the host computer is unable to accept data, it sends an Xoff code to inform the scanner to suspend data transmission, and Xon to continue.

CTS Trigger: This operation enabled an external device to control scanning. The CTS trigger is controlled by applying an external trigger signal to the CTS input. When active, this signal causes scanning to begin as if the scanner's trigger was depressed. In the event of decoding, the trigger signal must be deactivated for a minimum of 50ms before another scan can be attempted.

Disable DLA



RTS/CTS DLB



CTS/RTS DLC



Scanner Ready DLD



Data Ready DLE



Xon/Xoff DLF



STX/ETX DLG



CTS Trigger DLH



Spare DLI



2

Interface

PROGRAM



RS-232C

Baud Rate

DHA 38400 Bps



DHB 19200 Bps



DHC 9600 Bps



DHD 4800 Bps



DHE 2400 Bps



DHF 1200 Bps



DHG 600 Bps



DHH 300 Bps



Data Parity

DKA None



DKC Even



DKD Odd



DKE Space



DKF Mark


RS-232C

EXIT




Data Bits

7 Bits DJA




8 Bits DJB




Stop Bits

One Bit DIA



Two Bits DIB




2

Interface


Specific Adjustments

Inter-char. Delay BAL




(Range:00₁₀-99₁₀ Unit:1ms)

Transmit Delay BAM



(Range:00₁₀-99₁₀ Unit:10ms)

Response Delay BAN



(Range:01₁₀-99₁₀ Unit:100ms)

Inter-char. Delay: It is delay time between data character's output. It is same as Inter-char. Delay of keyboard wedge, see □ 12.

Transmit Delay: It is a delay time between barcode data output. It is also same as Transmit Delay of Keyboard wedge, see □ 12.

Response Delay: This delay is used for serial communication of the scanner to waiting for handshaking acknowledgment from the host computer. If scanner doesn't get any acknowledgments form host after the timeout occurs, it will issue 5 warning beeps. You may check handshaking mode or adjust a longer delay timer. The feature is particularly useful for some applications that the host computer takes a longer time to respond.

PROGRAM



Wand Emulation

Active Level

DMA Bar Hi/Space Lo



DMB Bar Lo/Space Hi



Bar Hi/Space Lo: Black will be transmitted as a high voltage level (+5V) and space as low level (0V).

Bar Lo/Space Hi: Black will be transmitted as a low voltage level (0V) and space as high level (+5V).

Normal Level

DNA Low



DNB High



You must make sure what is Normal Level of your wand decoder device in stand-by (idle). So, initial signal state as a **High** voltage level (+5V) or **Low** voltage level (0V).

Output Speed

DOA Low



DOB Medium



DOC High



DOD Turbo



This setting is same as serial transmission baud rate, and it must be approbated your wand decoder resolution. The unit of speed is a width of minimum narrow bar.

Output Speed	Bps (bits per second)
Low	1200
Medium	2400
High	4800
Turbo	9600

Narrow/Wide Ratio

DQA 1:2



DQB 1:2.5



DQC 1:3



DQD 1:3.5



The setting is applied two kinds of ratio barcode symbologies with narrow and wide only, such as Code-39, Interleaved 2 of 5, Codabar, Plessey and IATA...etc. So, it will be ignored if some kinds of barcode symbologies, such as EAN, UPC, and Code-128, are read. This setting is able to adjust appropriate signal width during transmitting the bar image. The ratio allows to adjust from **1:2** to **1:3.5**, but upon your wand decoder device.

Wand Emulation

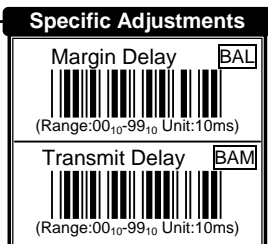
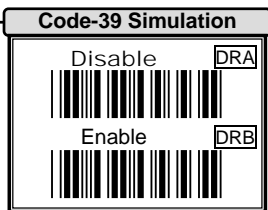
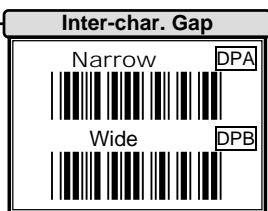
Discrete codes such as Code-39 and Codabar are featured an Inter-Char. Gap between two characters of barcode. It makes them suitable for printing in the Narrow or Wide gap by mechanical numbering system. You can choice one suit your decoder.

Generally, wand emulation Output signals same as symbology when it read a barcode. By setting, the scanner can read many kinds of barcode symbologies, but transmitted as code-39 full ASCII format, even your decoder device no support them.

Margin Delay: It is a timer of zone like space zone of barcode label margin. The width of margin time will be added before and after in each barcode data automatically when it is transmitted.

Transmit Delay: It is a delay time between barcode data output. It is the same as **Transmit Delay** of keyboard wedge, see □12.

Example Normal Level: Low, Bar Lo/Space Hi



2

Interface

PROGRAM



OCIA

Protocol Type	
<input type="checkbox"/> DSA	NCR
<input type="checkbox"/> DSB	DTS
<input type="checkbox"/> DSC	NCR+ASCII
<input type="checkbox"/> DSD	DTS+ASCII
<input type="checkbox"/> DSE	ASCII

Data Parity	
<input type="checkbox"/> DTA	Even
<input type="checkbox"/> DTB	Odd
<input type="checkbox"/> DTC	Space
<input type="checkbox"/> DTD	Mark

Spare Function	
<input type="checkbox"/> DUA	Disable
<input type="checkbox"/> DUB	Enable

Specific Adjustments	
<input type="checkbox"/> BAM	Transmit Delay (Range:00 ₁₀ -99 ₁₀ Unit:10ms)

Transmit Delay: It is a delay time between barcode data output. It is also the same as Transmit Delay of keyboard wedge, see 12.

System Control

EXIT



After power-on the scanner will generate music to indicate the successful selftest. You can inhibit the music by setting **Disable**.

Power-on Music	
Disable	CBA
Enable	CBA

By setting **Enable**, the scanner will activate the light source after the power-on without trigger button.

Power-on Auto Trigger	
Disable	CCA
Enable	CCB

After each successful reading, the scanner will light Good-read LED above scanner to indicate a good barcode reading.

Good-read LED	
Disable	CDA
Enable	CDB

After each successful reading, the scanner will beep buzzer to indicate a good barcode reading, and its **Loudness**, **Tone** and **Duration** are adjustable by setting of Specific Adjustment at 24.

Good-read Beep	
Disable	CEA
Enable	CEB

The scanner will operate in Power Saving mode as this function is **Enabled**. Current will be reduced to less than 20 mA, but sensibility is also become slowly. You will find the light source of CCD scanner to be flashed and motor of laser scanner to be stopped as it read a code or timeout.

Power Saving	
Disable	CJA
Enable	CJB

3

System Control

PROGRAM



System Control

Double Confirm

<input type="checkbox"/> CSA	Disable
<input type="checkbox"/> CSB	Enable

The scanner will require many times of successful decoding to confirm the barcode data, and the more confirm times the more inhibitive mis-reading code. (Refer to setting of **Double Confirm Times** at 25)

Case Conversion

<input type="checkbox"/> CTA	Disable
<input type="checkbox"/> CTC	Uppercase
<input type="checkbox"/> CTD	Lowercase

It converses all output characters to be same printing-case, even they have two kinds of case within a barcode data.

Example Barcode "BarCode",

Uppercase	BARCODE
Lowercase	barcode

Field Control

<input type="checkbox"/> CRA	One Field
<input type="checkbox"/> CRB	Multi Field

The scanner can read many sets of barcode data on the same scanning line at the same time, even they are different kinds of barcode symbology. The direction of read-out is form left to right. Refer to Codabar/NW7 of Test Chart at 69.

Inter-char. Gap

<input type="checkbox"/> CGA	Narrow
<input type="checkbox"/> CGB	Wide

Discrete codes such as Code-39 and Codabar are featured with an Inter-char. Gap between two characters of barcode. You may set **Wide** as the Inter-char. Gap of barcode table is wider.

Spare Function

<input type="checkbox"/> CPA	Disable
<input type="checkbox"/> CPB	Enable

System Control

EXIT



Good-read Off: The trigger button must be pressed to active scanning. The light source of scanner stops scanning when there is a successful reading or no code is decoded after the **Stand-by Timer** □24 duration elapsed. (Laser Model Default)

Momentary: The trigger button acts as a switch. Press button to active scanning and release button stop scanning.

Alternate: The trigger button acts as a toggle switch. Press button to active or stop scanning.

Timeout Off: The trigger button must be pressed to active scanning, and scanner stops scanning when no code is decoded after the **Stand-by Timer** □24 duration elapsed.(CCD Model Default)

Timeout Flash: The trigger button must be pressed to keep scanning. The scanner flashes the light source when no code is decoded after the **Stand-by Timer** □24 duration elapsed.

This mode can save the power resource and extend the operation life of the light source. The scanner can be waked up when there is a successful reading or trigger button to be pressed.

Continue: The scanner always keeps reading, and no matter when trigger button is pressed or duration is elapsed.

Test Only: The scanner always keeps reading continuously and same label reading is allowed without double confirm. The feature can test the performance of scanner for reading speed and sensitive. (Diagnostic mode)

Object Detect: Wake up automatically without trigger switch, if an object in the front of scanner is detected.(Some Laser Model Only)

☛ For saving power and longer lift of laser component, all scanning mode, the laser beam and motor will stop when no code is decoded.

Scanning Mode

Good-read Off	CAB
Momentary	CAC
Alternate	CAD
Timeout Off	CAE
Timeout Flash	CAF
Continue	CAG
Test Only	CAA
Object Detect	CAI
Spare	CAJ

3

System Control

PROGRAM



System Control

Specific Adjustments

BAC Beep Loudness



(Range:01₁₀-10₁₀ Unit:Level)

BAD Beep Tone



(Range:05₁₀-50₁₀ Unit:100Hz)

BAE Beep Duration



(Range:01₁₀-99₁₀ Unit:10ms)

BDA Beep Tone1



(Range:05₁₀-50₁₀ Unit:100Hz)

BDB Beep Duration1



(Range:00₁₀-99₁₀ Unit:10ms)

BAF Stand-by Time



(Range:01₁₀-99₁₀ Unit:1s)

BAG Active Time



(Range:10₁₀-99₁₀ Unit:10ms)

BAH Sleep Time



(Range:10₁₀-99₁₀ Unit:10ms)

BAI Good-read Delay



(Range:10₁₀-99₁₀ Unit:10ms)

Beep Adjustments: You can adjust Beep Loudness, Beep Tone and Beep Duration of good reading upon your favorite usage.

Stand-by Time: A timeout duration of 1 to 99 seconds can be adjusted. The Stand-by Time that is valid scanning duration. It is only effective when the scanning mode of CCD is operated in Good-read Off, Timeout Off or Timeout Flash mode. Beside, if laser scanner no code to read during Stand-by Time, the laser beam and motor will be shutdown to saving life time of laser diode.

Active/Sleep Time: There are two durations that are used when the scanner operated in Timeout Flash scanning mode. The scanner entries flash operation when no code is read until Stand-by Time timeout. The Action Time is lighting duration and the Sleep Time is blanking duration while light source flashing. The barcode can also be read during flashing of light source and then waked up the scanner automatically.

Good-read Delay: This feature is a limit duration during the same barcode data to be read continuously, except operated in Good-read Off and Test mode. The timer will be reset when

different barcode data reading.

System Control

EXIT



Add-on Waiting Time: This setting is only used for reading WPC symbologies with Add-on, such as EAN and UPC. The WPC must be decoded first, then Add-on. But Add-on may not decode very well during it read. Therefore, scanner offer a waiting time for reading Add-on confirmation and transmits WPC with Add-on at the same time.

Double Confirm Times: If it is enabled, the scanner will require many times successful decoding to confirm the barcode data. More confirm times more inhibitive miss-reading code. This feature should be depended on the symbology and quality of barcodes reading. Selecting a higher value will reduce read-out speed.

Public Min. / Max. Length: Public Minimum and Maximum length can be set to qualify data entry. They are effect all symbologies if their Min./Max. Code Length is zero. The length is defined to the actual barcode data length sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or all the labels of the symbology will not be read. In particular, you can set the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded. The values of setting are no effect in some fixed length symbolologies (i.e. UPC and EAN call WPC).

Specific Adjustments

Addon-Waiting Time **BAK**



(Range:01₁₀-99₁₀ Unit:10ms)

Double Confirm Times **BAJ**



(Range:01₁₀-99₁₀)

Public Min. Length **BAJ**



(Range:01₁₀-56₁₀)

Public Max. Length **BAJ**



(Range:04₁₀-56₁₀)

3

System Control

PROGRAM**UPC-A**

Read

DVA Disable

DVB Enable

Format

Leading	Data Digits	Check
Zero	(11 Digits)	Digit

Add-on

DWA Disable

DWB Add-on 2 Only

DWC Add-on 5 Only

DWD Add-on 2 or 5

The Add-on barcode is the supplemental 2 or 5 characters for WPC code.

Format

Leading	Data Digits	Check	Add-on
Zero	(11 Digits)	Digit	2 or 5

Waiting Add-on

DXA Disable

DXB Enable

It is recommended to set **Enable** if the WPC with Add-on code must be read together. You have to enable it first and refer to **Add-on Waiting Time** at 24 for good reading of Add-on.

Check Digit

EAA Disable

EAB Enable

By setting **Enable**, checks digit will be transmitted.

UPC-A

EXIT



The leading "0" digits of barcode data characters can be truncated when the function is enabled.

Example Barcode "00054321"

Output "54321"

Truncate Leading Zero

Disable DZA



Enable DZB



Spare Function

Disable DYA



Enable DYB



Specific Adjustments

Truncate Leading BAO



(Range:00₁₀-15₁₀)

Truncate Ending BAP



(Range:00₁₀-15₁₀)

Code ID AAA



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDC



(Range:00₁₀-99₁₀)

Truncate Leading / Ending: The leading or ending digits of barcode data characters can be truncated when these values are set to non zero. It will be read nothing else only beeps when the truncate value is more than barcode data digits or the value of Truncate Leading is overlap with the Ending. The maximum value of Truncate digits is 15.

Code ID: A Code ID is a character which used to represent the symbology upon succeeding reading. A Code ID is prefixed to the data begin or tail transmitted if the feature is selected. There are some symbologies (i.e. UPC-E and EAN-8) include 2 Code IDs. If your application want to transmit Code ID, you must set Code ID Transmission to Enable first. Refer to Code ID Transmission at 64.

Insertion Group: The scanner offer one or two insertion groups for own symbology. By setting one or two digits to indicate which insertion group you want to insert. You may refer to Character Insertion at 63.

4

Code Option

PROGRAM



UPC-E

Read

ECA Disable

ECB Enable

Format

Leading Zero	Data Digits (6 Digits)	Check Digit
--------------	------------------------	-------------

Add-on

EDA Disable

EDB Add-on 2 Only

EDC Add-on 5 Only

EDD Add-on 2 or 5

Format

Leading Zero	Data Digits (6 Digits)	Check Digit	Add-on 2 or 5
--------------	------------------------	-------------	---------------

Waiting Add-on

EEA Disable

EEB Enable

Refer to 26.

Expansion

EFA Disable

EFB Enable

The expansion function is used only for UPC-E and EAN-8 code reading. It extends to 13-digits with "0" digits when the feature is enabled.

Example Barcode "01236547"

Output "0012360000057"

UPC-E

EXIT



Refer to 26.

Check Digit

Disable EIA

Enable EIB

Refer to 27.

Truncate Leading Zero

Disable EHA

Enable EHB

Spare Function

Disable EGA

Enable EGB

Refer to 27.

Specific Adjustments

Truncate Leading BAQ

(Range:00₁₀-15₁₀)

Truncate Ending BAR

(Range:00₁₀-15₁₀)

Code ID1 AAB

(Range:00₁₆-FF₁₆ ASCII Code)

Code ID2 AAC

(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDD

(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



EAN-13

Read

EKA	Disable	
EKB	Enable	

Format

Data Digits (12 Digits)	Check Digit
----------------------------	----------------

Add-on

ELA	Disable	
ELB	Add-on 2 Only	
ELC	Add-on 5 Only	
ELD	Add-on 2 or 5	

Format

Data Digits (12 Digits)	Check Digit	Add-on 2 or 5
----------------------------	----------------	------------------

Waiting Add-on

EMA	Disable	
EMB	Enable	

Refer to 26.

ISBN/ISSN Conversion

ENA	Disable	
ENB	Enable	

The ISBN (International Standard Book Number) and ISSN (International Standard Serial Number) are two kinds of barcode for book and magazine. The ISBN is 10 digits with leading "978" and the ISSN is 8 digits with leading "977" of the "EAN-13" symbolology.

Example Barcode "9879572222720"

Output "9572222724"

Example Barcode "9771019248004"

Output "10192484"

EAN-13

EXIT



Refer to 26.

Check Digit

Disable EQA

Enable EQB

Refer to 27.

Truncate Leading Zero

Disable EPA

Enable EPB

Spare Function

Disable EOA

Enable EOB

Refer to 27.

Specific Adjustments

Truncate Leading BAS

(Range:00₁₀-15₁₀)

Truncate Ending BAT

(Range:00₁₀-15₁₀)

Code ID AAD

(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDE

(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



EAN-8

Read

ESA	Disable	
ESB	Enable	

Format

Data Digits (7 Digits)	Check Digit
---------------------------	----------------

Add-on

ETA	Disable	
ETB	Add-on 2 Only	
ETC	Add-on 5 Only	
ETD	Add-on 2 or 5	

Format

Data Digits (7 Digits)	Check Digit	Add-on 2 or 5
---------------------------	----------------	------------------

Waiting Add-on

EUA	Disable	
EUB	Enable	

Refer to 26.

Expansion

EVA	Disable	
EVB	Enable	

Refer to 28.

EAN-8

EXIT



Refer to 26.

Check Digit

Disable EYA

Enable EYB

Refer to 27

Truncate Leading Zero

Disable EXA

Enable EXB

Spare Function

Disable EWA

Enable EWB

Refer to 27.

Specific Adjustments

Truncate Leading BAU

(Range:00₁₀-15₁₀)

Truncate Ending BAV

(Range:00₁₀-15₁₀)

Code ID1 AAE

(Range:00₁₆-FF₁₆ ASCII Code)

Code ID2 AAF

(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDF

(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM**CODE-39**

Read	
FAA	Disable
FAB	Enable

Format

Start	Data Digits	Checksum	End
" , "	(Variable)	(Optional)	" , "

Format	
FBA	Standard
FBB	Full ASCII

The **Full ASCII** Code-39 is an enhanced set of Code-39 that is the data with total of 128 characters to represent **Full ASCII** code. It is combined one of the digits +, %, \$ and / with one of the alpha digits (A to Z).

Code-32 Translation	
FCA	Disable
FCC	Without Leading 'A'
FCD	With Leading 'A'

The Code-32 symbology (Italian Pharmaceutical) is another version of Code-39 which is a 10 digits of barcode data from digit 0 to 9. The leading A is an optional character that can be set to transmit or not.

Start/End Transmission	
FFA	Disable
FFB	Enable

The Start and End characters of Code-39 are " , ". You can transmit all data digits including two " , " .

Append	
FEA	Disable
FEB	Enable

This function which allows several symbols to be concatenated and be treated as one single data entry. The scanner will not transmit the embedded appending code (space for Code-39), If **Enable** and other symbols with the appended code were

read again, then codes will be transmitted without Code ID, Preamble and Prefix. When a symbol was decoded without the appended code, the data will be transmitted without Code ID and Prefix but the Postamble and Suffix codes are appended.

CODE-39

EXIT



The checksum of Code-39 is optional and made as the sum module 43 of the numerical value of the data digits.

Checksum Verification

Disable FGA

Enable FGB

By setting **Enable**, checksum and will be transmitted.

Checksum Transmission

Disable FHA

Enable FHB

Min. / Max. Code Length: Each symbology has own Min./Max. Code Length. They can be set to qualify data entry. If their Min./Max. Code Length is zero, the Public Min./Max. Code Length are effect. The length is defined to the actual barcode data length sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or all the labels of the symbology will not be read. In particular, you can set the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded.

Specific Adjustments

Truncate Leading BAY

(Range:00₁₀-15₁₀)

Truncate Ending BAZ

(Range:00₁₀-15₁₀)

Min. Code Length BAW

(Range:01₁₀-56₁₀)

Max. Code Length BAX

(Range:01₁₀-56₁₀)

Code ID AAG

(Range:00₁₆-FF₁₆ ASCII Code)

Code-32 ID ABH

(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDG

(Range:00₁₀-99₁₀)

Refer to □27.

4

Code Option

PROGRAM



Interleaved 2 of 5

Read

FKA Disable



FKB Enable



Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Format

FLA Standard



FLB Odd S-code



Generally, the Interleaved 2 of 5 symbology is a pair of digits in each barcode. Therefore, it contains an even digits. If the symbol is present an odd number as S-code, then **Odd S-code** have to select.

Checksum Verification

FNA Disable



FNB Enable



The checksum is made as the sum module 10 of the numerical values of all data digits.

Checksum Transmission

FOA Disable



FOB Enable



Refer to 35.

Spare Function

FMA Disable



FMB Enable



Interleaved 2 of 5

EXIT



Because, the start and end of interleaved 2 of 5 code is not only one pattern in symbol. In order to prevent partial reading, it is recommended to use the fixed code length for each 2 of 5 code barcode label. Setting the same Min./Max. Code Length, it is like a length filter, and only one length is accepted.

Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

S-Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Industrial 2 of 5

Read

FQA	Disable
FQB	Enable

Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Checksum Verification

FSB	Disable
FSA	Enable

The checksum is made as the sum module 10 of the numerical values of all data digits.

Checksum Transmission

FTB	Disable
FTA	Enable

Refer to 35.

Spare Function

FRA	Disable
FRB	Enable

Industrial 2 of 5

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Matrix 2 of 5

Read

FVA	Disable
FVB	Enable

Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Checksum Verification

FXA	Disable
FXB	Enable

The checksum is made as the sum module 10 of the numerical values of all data digits.

Checksum Transmission

FYA	Disable
FYB	Enable

Refer to □ 35.

Spare Function

FWA	Disable
FWB	Enable

Matrix 2 of 5

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



China Post 2 of 5

Read

GAA	Disable
GAB	Enable

Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Checksum Verification

GCA	Disable
GCB	Enable

The checksum is made as the sum module 10 of the numerical values of all data digits.

Checksum Transmission

GDA	Disable
GDB	Enable



Refer to 35.

Spare Function







GBA	Disable
GBB	Enable

China Post 2 of 5

The code length of Post 2 of 5 is always fixed at 11. Therefore, code length of Min. and Max. is also factory default is 11.

Refer to , .



Specific Adjustments	
Truncate Leading	<input type="text" value="BBQ"/>
 (Range:00 ₁₀ -15 ₁₀)	
Truncate Ending	<input type="text" value="BBP"/>
 (Range:00 ₁₀ -15 ₁₀)	
Min. Code Length	<input type="text" value="BBM"/>
 (Range:00 ₁₀ -56 ₁₀)	
Max. Code Length	<input type="text" value="BBN"/>
 (Range:00 ₁₀ -56 ₁₀)	
Code ID	<input type="text" value="AAK"/>
 (Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insertion Group	<input type="text" value="BDK"/>
 (Range:00 ₁₀ -99 ₁₀)	

4

Code Option

PROGRAM



Codabar/NW7

Read

GFA Disable



GFB Enable



Format

Start	Data Digits (Variable)	Cheksum (Optional)	End
-------	---------------------------	-----------------------	-----

Start/End Symbol Types

GGA ABCD/ABCD



GGB abcd/abcd



GGC ABCD/TN*E



GGD abcd/tn*e



The Codabar has four pairs of Start/End patten, you may choice one to match your application.

Same Start/End Pair

GHA Disable



GHB Enable



Sometime, the Codabar requires only same Start/End patten of barcode label to be decoded.

Start/End Transmission

GIA Disable



GIB Enable



Refer to  34.

Checksum Verification

GJA Disable



GJB Enable



The checksum is made as the sum module 16 of the numerical values of all data digits.

Codabar/NW7

EXIT



Refer to 35.

Checksum Transmission

Disable GKA



Enable GKB



Refer to 27, 35.

Specific Adjustments

Truncate Leading BBS



(Range:00₁₀-15₁₀)

Truncate Ending BBT



(Range:00₁₀-15₁₀)

Min. Code Length BBQ



(Range:00₁₀-56₁₀)

Max. Code Length BBR



(Range:00₁₀-56₁₀)

Code ID AAL



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDL



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Code-128

Read

GMA Disable

GMB Enable

Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Format

GNA Standard

GNB UCC/EAN-128

The Code-128 can be translated to UCC/EAN-128 format if it starts with FNC1 character. The first FNC1 will be translated to "J" and next to be a concatenation code as <GS>(7F₁₆).

J	C1	Datas	<GS>	Datas	Checksum
---	----	-------	------	-------	----------

Append

GOA Disable

GOB Enable

This function which allows several symbols to be concatenates and be treated as one single data entry.

Checksum Verification

GQA Disable

GQB Enable

The checksum is presented as the sum module 103 of all data digits.

Checksum Transmission

GRA Disable

GRB Enable

Refer to 35.

Code-128

EXIT



Spare Function	
Disable	GPA
Enable	GPB

Concatenation Data: This feature is only used for UCC/EAN-128 format. This **Concatenation Data** means you can re-assign second or after a FNC1 for your usage. The default of ASCII code is <GS>(1D₁₆).

Refer to □27, □35.

Specific Adjustments	
Truncate Leading	BBW
(Range:00 ₁₀ -15 ₁₀)	
Truncate Ending	BBX
(Range:00 ₁₀ -15 ₁₀)	
Min. Code Length	BBU
(Range:00 ₁₀ -56 ₁₀)	
Max. Code Length	BBV
(Range:00 ₁₀ -56 ₁₀)	
Code ID	AAW
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
UCC/EAN-128 ID	ABJ
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Concatenation Data	ABK
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insertion Group	BDM
(Range:00 ₁₀ -99 ₁₀)	

4

Code Option

PROGRAM**Code-93**

Read

GTA Disable

GTB Enable

Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Append

GVA Disable

GVB Enable

This function which allows several symbols to be concatenated and be treated as one single data entry.

Checksum Verification

GWA Disable

GWC One

GWD Two

The checksum is presented as the sum module 47 of all data digits.

Checksum Transmission

GXA Disable

GXB Enable

Refer to 35.

Spare Function

GUA Disable

GUB Enable

Code-93

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Code-11

Read

GZA Disable

GZB Enable

Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification

HBA Disable

HBC One

HBD Two

The checksum is presented as the sum module 11 of all data digits.

Checksum Transmission

HCA Disable

HCB Enable

By setting Enable, checksum1 and checksum2 will be transmitted upon your selected checksum verification method.

Spare Function

HAA Disable

HAB Enable

Code-11

EXIT



Refer to □27, □35.

Specific Adjustments

Truncate Leading BCF



(Range:00₁₀-15₁₀)

Truncate Ending BCF



(Range:00₁₀-15₁₀)

Min. Code Length BCC



(Range:00₁₀-56₁₀)

Max. Code Length BCD



(Range:00₁₀-56₁₀)

Code ID AAO



(Range:00₁₆-FF₁₆ Ascii Code)

Insertion Group BDO



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM**MSI/Plessey****Read**

HEA Disable



HEB Enable

**Format**

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification

HGA Disable



HGB Mod 10



HGC Mod 10/10



HGD Mod 11/10



The MSI/Plessey has one or two optional checksum digits. The checksum is presented 3 kinds of method Mod 10, Mod 10/10 and Mod 11/10. The checksum1 and checksum2 will be calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission

HHA Disable



HHB Enable



Refer to 50.

Spare Function

HFA Disable



HFB Enable



MSI/Plessey

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



UK/Plessey

Read

HQA	Disable
HQB	Enable

Format

Data Digits (Variable)	Checksum1+2 (Optional)
---------------------------	---------------------------

Checksum Verification

HSA	Disable
HSB	Enable

Checksum Transmission

HTA	Disable
HTB	Enable

Refer to 35.

Spare Function

HRA	Disable
HRB	Enable

UK/Plessey

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



IATA

Read

HJA	Disable
HJB	Enable

IATA (International Air Transport Association)

Checksum Verification

HNA	Disable
HNB	Enable

The checksum is presented as sum module 7 of all data digits.

Checksum Transmission

HOA	Disable
HOB	Enable

Refer to 35.

Spare Function1

HKA	Disable
HKB	Enable

Spare Function2

HLA	Disable
HLB	Enable

IATA

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading BCL



(Range:00₁₀-15₁₀)

Truncate Ending BCN



(Range:00₁₀-15₁₀)

Min. Code Length BCK



(Range:00₁₀-56₁₀)

Max. Code Length BCL



(Range:00₁₀-56₁₀)

Code ID AAQ



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group BDR



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Telepen

Read	
HVA	Disable
HVB	Enable

Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Format	
HWA	Numeric Only
HWB	Full ASCII Only
HWC	Auto Switching

A Telepen can be transmitted with **Numeric** and **Full ASCII** format. Characters can be mixed both formats inside barcode label of Telepen. By setting **Auto Switching**, data can be converted between Numeric and Full ASCII by character <DLE>(7F₁₆) automatically.

Checksum Verification	
HYA	Disable
HYB	Enable

Checksum Transmission	
HZA	Disable
HZB	Enable

Refer to 35.

Spare Function	
HXA	Disable
HXB	Enable

Telepen

EXIT



Refer to 27, 35.

Specific Adjustments

Truncate Leading



(Range:00₁₀-15₁₀)

Truncate Ending



(Range:00₁₀-15₁₀)

Min. Code Length



(Range:00₁₀-56₁₀)

Max. Code Length



(Range:00₁₀-56₁₀)

Code ID



(Range:00₁₆-FF₁₆ ASCII Code)

Insertion Group



(Range:00₁₀-99₁₀)

4

Code Option

PROGRAM



Preamble/Postamble

Preamble Transmission

IEA	Disable
IEB	Enable

By setting **Enable**, Preamble will be appended before the data transmitted. Refer to String Output Flowchart at □5.

Preamble Data

AAZ	Data1
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
ABA	Data2
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

There are two control characters (**Data1** and **Data2**) can be programmed for both Preamble and Postamble datas. They are appended to the data automatically when each barcode is decoded.

Postamble Transmission

IFA	Disable
IFB	Enable

By setting **Enable**, Postamble will be appended after the data transmitted. Refer to String Output Flowchart at □5.

Postamble Data

ABB	Data1
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
ABC	Data2
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

Generally, your application need to append a carriage return character to finish data transmitted or you may set the Postamble Transmission to be **Disable** for your application without any control characters appended after data transmitted. The factory default of Postamble **Data1** and **Data2**

is <CR>(0D₁₆) and <LF>(0A₁₆).

Example Append the code "@+" after each barcode transmitted.

- 1) **PROGRAM** → Entry Programming
- 2) **Enable** → Enable Postamble Transmission
- 3) **Data1** → 4 → 0 → **Data2** → 2 → B → **SET** → Postamble Data
 "@+"

"@"	"+"
-----	-----
- 4) **END** → Exit Programming

Prefix/Suffix

Up to 15 characters can be programmed for Prefix data. The Prefix data of string will be placed after Preamble data and before the barcode data when it is **Enable**. Refer to String Output Flowchart at 5.



Prefix Transmission	
Disable	I GA
Enable	I GB
Clear All	I MA

Prefix Data	
Data	ABF
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

Up to 15 characters can be programmed for Suffix data. The Suffix data of string will be placed after Postamble data and after the barcode data when it is **Enable**. Refer to String Output Flowchart at 5.

Suffix Transmission	
Disable	I HA
Enable	I HB
Clear All	I NA

Suffix Data	
Data	ABG
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

Example Append a string "ABCD" after each barcode transmitted

- 1) **PROGRAM** → Entry Programming
- 2) **Enable** → Enable Suffix Transmission
- 3) **Data** → 4 → 1 → 4 → 2 → 4 → 3 → 4 → 4 → **SET** → Suffix Data "ABCD"

A	B	C	D
---	---	---	---
- 4) **EXIT** → Exit Programming

PROGRAM



Character Insertion

Add-on Insertion

<input type="checkbox"/> IIA	Disable
<input type="checkbox"/> IIB	Enable

The scanner offers 2 characters of insertion between WPC and add-on code.

Format

WPC	Add-on Insertion	Add-on
-----	------------------	--------

Add-on Insertion Data

<input type="checkbox"/> ABD	Data1
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
<input type="checkbox"/> ABE	Data2
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

Insertion1 Data

<input type="checkbox"/> BCW	Position1
(Range:01 ₁₀ -48 ₁₀)	
<input type="checkbox"/> ABL	Data1
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
<input type="checkbox"/> ABM	Data2
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

The scanner offers 4 positions and 8 characters to insert among the symbols. The position default value is "00" to indicate no character insertion. Besides, make sure insertion positions are not greater than the symbols, otherwise the insertion data is not effective.

Insertion2 Data

<input type="checkbox"/> BCX	Position2
(Range:01 ₁₀ -48 ₁₀)	
<input type="checkbox"/> ABN	Data1
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
<input type="checkbox"/> ABO	Data2
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

Character Insertion

EXIT



Insertion3 Data

Position3 BCY

(Range:00₁₀-15₁₀)

Data1 ABP

(Range:00₁₆-FF₁₆ ASCII Code)

Data2 ABQ

(Range:00₁₆-FF₁₆ ASCII Code)

Insertion4 Data

Position4 BCZ

(Range:00₁₀-15₁₀)

Data1 ABR

(Range:00₁₆-FF₁₆ ASCII Code)

Data2 ABS

(Range:00₁₆-FF₁₆ ASCII Code)

Example Barcode "1234567"

	Position	Data1	Data2
Insertion1	2	A	B
Insertion2	5	C	D

- 1) **PROGRAM** → Entry programming
- 2) **Position1** → 0 → 2 → **SET** Position1 "2"
- 2) **Data1** → 4 → 1 → **SET** → Insertion1
Data2 → 4 → 2 → **SET** → Data "AB"
- 4) **Position2** → 0 → 2 → **SET** Position2 "5"
- 5) **Data1** → 4 → 3 → **SET** → **Data2** → 4 → 4 → **SET** → Insertion2 Data "CD"
- 6) **Insert Group** → 1 → 2 → **SET** Insertion1 and Insertion2
 or **Insert Group** → 2 → 1 → **SET**

Output

12	AB	345	CD	67
----	----	-----	----	----

- 6) **Insert Group** → 0 → 1 → **SET** Insertion1 only
 or **Insert Group** → 1 → 0 → **SET**

Output

12	AB	34567
----	----	-------

- 6) **Insert Group** → 1 → 1 → **SET** Insertion1 outopt twice

Output

12	AB	AB	34567
----	----	----	-------

- 6) **Insert Group** → 0 → 0 → **SET** insertion off

Output

1234567

- 7) **EXIT** Exit Programming

5

String Format

PROGRAM



Other Control

Code ID Translation

<input type="checkbox"/> IBA	Disable
<input type="checkbox"/> IBB	Enable

If your application want to transmit Code ID, you must set this Enable.

Code ID Position

<input type="checkbox"/> ICA	Before Code Data
<input type="checkbox"/> ICB	After Code Data

Upon your usage, the transmitting position of Code ID can be selected to place Before or After Code Data when it transmitted.

Length Transmission

<input type="checkbox"/> IKA	Disable
<input type="checkbox"/> IKB	Enable

A number of data digits can be transmitted before the code data when Enable is selected. The total length is a number of barcode datas except Truncate Leading/Ending Digits. And the length has two digits.

Code Name

<input type="checkbox"/> IJA	Disable
<input type="checkbox"/> IJB	Enable

This function is useful to show unknown barcode symbologies which include all readable symbologies of the scanner. When Enable is selected, Code Name will be transmitted before code data, then you will know what kind of barcode symbology is.

Spare Function

<input type="checkbox"/> IDA	Disable
<input type="checkbox"/> IDB	Enable

Other Control

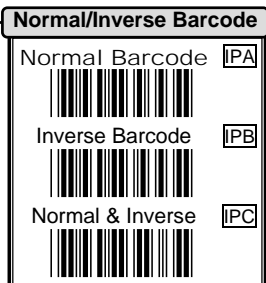
EXIT



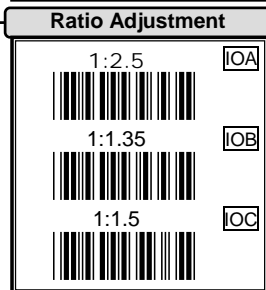
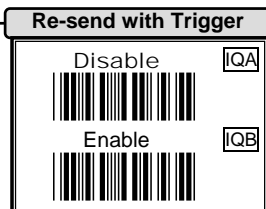
If scanner is operated in inverse barcode reading, use inverse **PROGRAM** to entry scanner programming.



Generally, the scanner can only read positive barcode signals which are printed black on white (call normal barcode). By setting **Inverse Barcode**, the scanner will read negative barcode which bars are printed with light color and spaces with dark color (call inverse barcode). This function is optional for some special models.



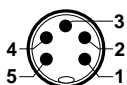
Last barcode data can re-send with trigger. It's only for Timeout Off, Timeout Flash and Continue scanning mode during the light source is on. In other way, if light is off, last barcode data will be clear and re-send invalid.



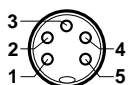
5
String Format

Cable Type

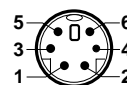
IBM PC, XT, AT & PS/2				
Function	5p Din(M)	5p Din(F)	6p Mini Din(M)	6p Mini Din(F)
Clock (Host)	1	---	5	---
Data (Host)	3	---	1	---
Clock (KBD.)	---	1	---	5
Data (KBD.)	---	3	---	1
Ground	2	2	3	3
GND Shield	2	2	3	3
VCC (+5V)	4	4	4	4



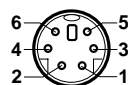
5p Din(M)



5p Din(F)

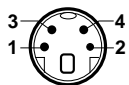


5p Mini Din(M)

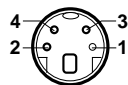


6p Mini Din(F)

Macintosh		
Function	4p Mini Din(M)	4p Mini Din(F)
RST (Host)	2	2
Data (Host)	1	1
Ground	4	4
GND Shield	4	4
VCC (+5V)	3	3

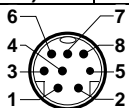


4p Mini Din(M)

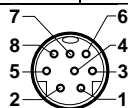


4p Mini Din(F)

NEC 9801		
Function	8p Mini Din(M)	8p Mini Din(F)
Ready (Host)	4	---
Data (Host)	3	---
Reset (Host)	1	1
Retry (Host)	5	5
Ready (KBD.)	---	4
Data (KBD.)	---	3
Ground	2	2
GND Shield	2	2
VCC (+5V)	8	8



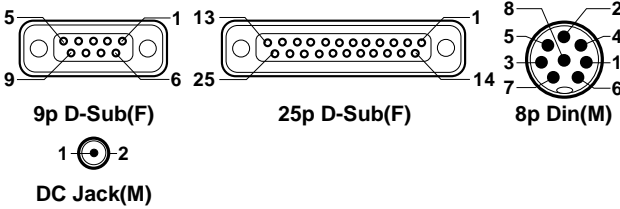
8p Mini Din(M)



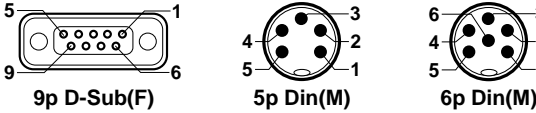
8p Mini Din(F)

Cable Type

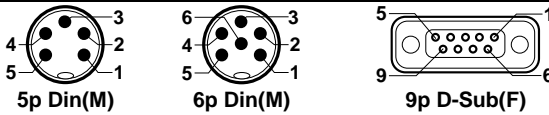
RS-232C				
Function	9p D-Sub(F)	25p D-Sub(F)	8p Din(M)	DC Jack(M)
TxD	2	3	1	---
RxD	3	2	2	---
RTS	8	5	3	---
CTS	7	4	4	---
Shorted	4,6	6,20	---	---
Ground	5	7	7	2
GND Shield	5	7	7	2
VCC (+5V)	9	16,25	8	1



Wand Emulation			
Function	9p D-Sub(F)	5p Din(M)	6p Din(M)
Data	2	2	2
Ground	7	3	3
GND Shield	8	3	3
VCC (+5V)	9	1	1



TTL (CMOS)			
Function	5p Din(M)	6p Din(M)	9p D-Sub(F)
Start Of Scan	---	6	1
Data	2	2	2
Indicator	---	---	3
Trigger	5	5	5
Enable	4	4	6
Ground	3	3	7
GND Shield	3	3	8
VCC (+5V)	1	1	9



Test Chart

UPC-A



EAN-13 (ISBN) with Add-on 5



Code-39 (Full ASCII Code)



Interleaved 2 of 5



Code-93



Code-128 (C Type)



Test Chart

Codabar/NW7



C98765D



D43210A

MSI/Plessey



1 0 5 5 8 3 0 2 5

CODE-11



8 8 6 2 6 4 7 7 7 9 7 3 3

UK/Plessey



1 6 5 2 0 0 0 3 5 4 6 1

Telepen



TELEPEN Test +
(Numeric: 57424942534251055774888916)

IATA



0 0 1 0 2 0 0 0 0 1 0 9 1 9 6

7


















Test Chart

ASCII Code Table

	L	H	0	1	0	1
0			Null		NUL	DLE
1			Up	F1	SOH	DC1
2			Down	F2	STX	DC2
3			Left	F3	ETX	DC3
4			Right	F4	EOT	DC4
5			PgUp	F5	ENQ	NAK
6			PgDn	F6	ACK	SYN
7				F7	BEL	ETB
8			Bs	F8	BS	CAN
9			Tab	F9	HT	EM
A				F10	LF	SUM
B			Home	Esc	VT	ESC
C			End	F11	FF	FS
D			Enter	F12	CR	GS
E			Insert	Ctrl+	SO	RS
F			Delete	Alt+	SI	US

3 ☺ For keyboard wedge only.

	L	H	2	3	4	5	6	7
0			SP	0	@	P	`	p
1			!	1	A	Q	a	q
2			“	2	B	R	b	r
3			#	3	C	S	c	s
4			\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			‘	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	[	k	{
C			,	<	L	\	l	|
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	DEL

0		%00
1		%01
2		%02
3		%03
4		%04
5		%05
6		%06
7		%07
8		%08
9		%09
A		%0A
B		%0B
C		%0C
D		%0D
E		%0E
F		%0F
SET		%OK