

NOTICE

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (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

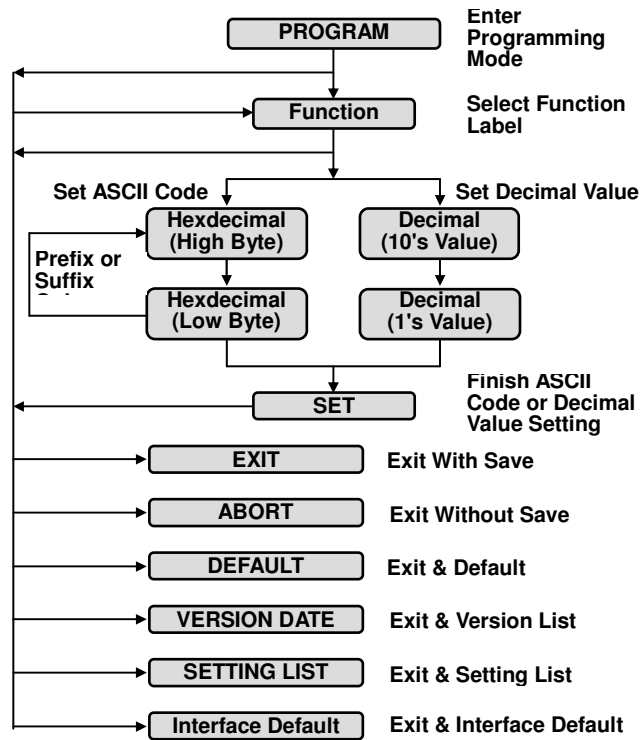
When the required settings have been configured, all settings are stored in non volatile memory of scanner after reading **EXIT** label. There are recommended steps as follows.

- 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, and suffix for your application in Chapter 5.

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

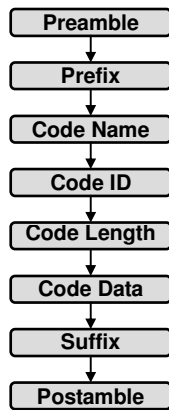
☛ If still not work properly. Please contact with dealer.

Configuration Flowchart



1 Introduction

String Output Flowchart



Default Setting

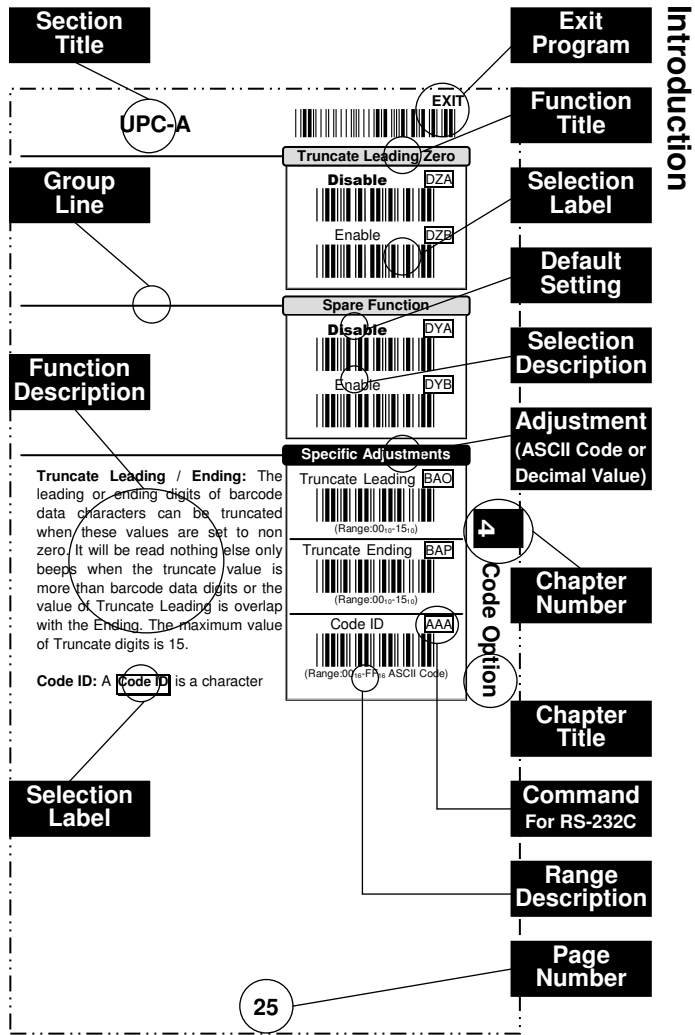
Code Type	Read Enable	Length		Truncate		Code ID
		Min.	Max.	Leading	Ending	
UPC-A	✓	-	-	0	0	A
UPC-E	✓	-	-	0	0	E
EAN-13	✓	-	-	0	0	F
EAN-8	✓	-	-	0	0	FF
Code-39	✓	0	0	0	0	M
Interleaved 2 of 5		6	0	0	0	I
Industrial 2 of 5		4	0	0	0	H
Matrix 2 of 5		4	0	0	0	G
Codabar/NW7	✓	4	0	0	0	N
Code-128	✓	0	0	0	0	K
Code-93		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
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>
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.

1



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 **□54**, 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 **□20** 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 **□59**.

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 56.

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



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 □56.

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 maintainance.

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

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.

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 □54 and Refer to ASCII table □59 at grey area. You'll find function-keys with ASCII codes.

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

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

Example Barcode "ABCdef"

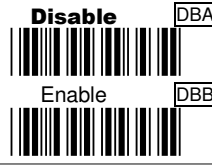
Status Selection	Caps Lock On	Caps Lock Off
Uppercase	ABCdef	abcDEF
Lowercase	abcDEF	ABCdef
Alt+Keypad	ABCdef	ABCdef



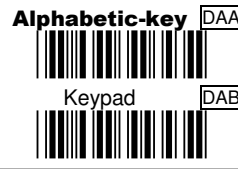
Keyboard Speed



Function Key Simulation



Numeric Key Position



Caps Lock



2
Interface

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:00₁₀-99₁₀ Unit:1ms)

BAM Transmit Delay
(Range:00₁₀-99₁₀ 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** = **02** **SET** → 2ms Inter-char. Delay
02*1ms(Unit)=2ms
- 3) **Transmit Delay** = **01** **SET** → 10ms Transmit Delay
01*10ms(Unit)=10ms
- 4) **EXIT** → Exit Programming


Output

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

Keyboard Wedge

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.

EXIT



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	日本語
DGN	Spare2

2
Interface

PROGRAM



RS-232C

Handshaking Protocol	
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

- 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.

RS-232C

EXIT



Baud Rate

DHC 115200 Bps



DHH 57600 Bps



DHA 38400 Bps



DHB 19200 Bps



DHC **9600 Bps**



DHD 4800 Bps



DHE 2400 Bps



DHF 1200 Bps



2

Interface

Data Parity

DKA **None**



DKC Even



DKD Odd



DKE Space



DKF Mark



PROGRAM



RS-232C

Data Bits

7 Bits DJA

8 Bits DJB

Stop Bits

One Bit DIA

Two Bits DIB

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 from 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.

Wand Emulation

EXIT

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).

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).

This setting is same as serial transmission baud rate, and it must be appropriated 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

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.

Active Level

DMA **Bar Hi/Space Lo**

DMB Bar Lo/Space Hi

Normal Level

DNA **Low**

DNB High

Output Speed

DOA Low

DOB **Medium**

DOC High

DOD Turbo

Narrow/Wide Ratio

DQA **1:2**

DQB 1:2.5

DQC 1:3

DQD 1:3.5

2

Interface

PROGRAM



Wand Emulation

Inter-char. Gap

Narrow DPA

Wide DPB

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.

Code-39 Simulation

Disable DRA

Enable DRB

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.

Specific Adjustments

Margin Delay BAL
(Range:00₁₀-99₁₀ Unit:10ms)

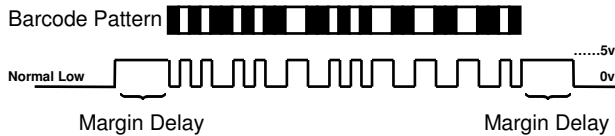
Transmit Delay BAM
(Range:00₁₀-99₁₀ Unit:10ms)

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



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 CBB



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 22.

Good-read Beep

Disable CEA



Enable CEB



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 23)

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

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.

Code Name Transmission

<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.

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 □22 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 □22 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



Specific Adjustments

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.

Addon-Waiting Time



(Range:01₁₀-99₁₀ Unit:10ms)

Double Confirm Times



(Range:01₁₀-99₁₀)

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.

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 23 for good reading of Add-on.

Check Digit Transmission

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



Specific Adjustments

Truncate Leading BAC



(Range:00₁₀-15₁₀)

Truncate Ending BAP



(Range:00₁₀-15₁₀)

Code ID AAA



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 BDC



(Range:00₁₀-15₁₀)

Insert Data 0 ABL



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 BDD



(Range:00₁₀-15₁₀)

Insert Data 1 ABM



(Range:00₁₆-FF₁₆ ASCII Code)

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 20.

Insert Position & Data: There is an insert function if you need to add one or two characters among the barcode data. You must make sure insert position is not greater than the barcode data length, or the insert data won't effect. You can add an Insert Data 0 at Insert Position 0.

4

Code Option

PROGRAM



UPC-E

Read

ECA Disable

ECB **Enable**

Format

Leading	Data Digits	Check
Zero	(6 Digits)	Digit

Add-on

EDA **Disable**

EDB Add-on 2 Only

EDC Add-on 5 Only

EDD Add-on 2 or 5

Format

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

Waiting Add-on

EEA **Disable**

EEB Enable

Refer to 24.

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 "001236000057"

UPC-E

EXIT



Refer to 24.

Check Digit Transmission

Disable EIA



Enable EIB



Refer to 25.

Truncate Leading Zero

Disable EHA



Enable EHB



Refer to 25.

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)

Insert Position 0 BDE



(Range:00₁₀-15₁₀)

Insert Data 0 ABN



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 BDF



(Range:00₁₀-15₁₀)

Insert Data 1 ABO



(Range:00₁₆-FF₁₆ ASCII Code)

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 24.

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 24.

Check Digit Transmission

Disable EQA

Enable EQB

Refer to 25.

Truncate Leading Zero

Disable EPA

Enable EPB

Refer to 25.

Specific Adjustments

Truncate Leading BAS

(Range:00₁₀-15₁₀)

Truncate Ending BAT

(Range:00₁₀-15₁₀)

Code ID AAD

(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 BDG

(Range:00₁₀-15₁₀)

Insert Data 0 ABP

(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 BDH

(Range:00₁₀-15₁₀)

Insert Data 1 ABQ

(Range:00₁₆-FF₁₆ ASCII Code)

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 24.

Expansion

EVA **Disable**

EVB Enable

Refer to 26.

EAN-8

EXIT



Refer to 24.

Check Digit Transmission

Disable EYA

Enable EYB

Refer to 25

Truncate Leading Zero

Disable EXA

Enable EXB

Refer to 25.

Specific Adjustments

Truncate Leading BAJ
(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)

Insert Position 0 BDI
(Range:00₁₀-15₁₀)

Insert Data 0 ABR
(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 BDJ
(Range:00₁₀-15₁₀)

Insert Data 1 ABS
(Range:00₁₆-FF₁₆ ASCII Code)

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.

Refer to 25.

Specific Adjustments	
Truncate Leading	BAJ
	(Range:00-15 ₁₀)
Truncate Ending	BAZ
	(Range:00-15 ₁₀)
Min. Code Length	BAW
	(Range:01 ₁₀ -56 ₁₀)
Max. Code Length	BAX
	(Range:01 ₁₀ -56 ₁₀)
Code ID	AAG
	(Range:00 ₁₆ -FF ₁₆ ASCII Code)
Code-32 ID	ABH
	(Range:00 ₁₆ -FF ₁₆ ASCII Code)

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 32.


Spare Function

FMA Disable

FMB Enable

Interleaved 2 of 5

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  25,  32.



Specific Adjustments	
Truncate Leading	BBC
(Range:00 ₁₀ -15 ₁₀)	
Truncate Ending	BBD
(Range:00 ₁₀ -15 ₁₀)	
Min. Code Length	BBA
(Range:00 ₁₀ -56 ₁₀)	
Max. Code Length	BBB
(Range:00 ₁₀ -56 ₁₀)	
Code ID	AAH
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
S-Code ID	ABI
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 0	BDM
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 0	ABV
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 1	BDN
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 1	ABW
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

4

Code Option

PROGRAM



Industrial 2 of 5

Read

FQA **Disable**

FQB **Enable**

Format

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

Checksum Verification

FSA **Disable**

FSB **Enable**

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

Checksum Transmission

FTA **Disable**

FTB **Enable**

Refer to 32.

Spare Function

FRA **Disable**

FRB **Enable**

Industrial 2 of 5

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading	BBG
(Range:00 ₁₀ -15 ₁₀)	
Truncate Ending	BBH
(Range:00 ₁₀ -15 ₁₀)	
Min. Code Length	BBE
(Range:00 ₁₀ -56 ₁₀)	
Max. Code Length	BBF
(Range:00 ₁₀ -56 ₁₀)	
Code ID	AAI
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 0	BDC
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 0	ABX
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 1	BDP
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 1	ABY
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

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 32.

Spare Function

FWA	Disable
FWB	Enable

Matrix 2 of 5

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading **BBK**



(Range:00₁₀-15₁₀)

Truncate Ending **BBL**



(Range:00₁₀-15₁₀)

Min. Code Length **BBI**



(Range:00₁₀-56₁₀)

Max. Code Length **BBJ**



(Range:00₁₀-56₁₀)

Code ID **AAJ**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 **BDQ**



(Range:00₁₀-15₁₀)



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BDR**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACA**



(Range:00₁₆-FF₁₆ ASCII Code)

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 32.

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 32.

Checksum Transmission

Disable GKA



Enable GKB



Refer to 25, 32.

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)

Insert Position 0 BDS



(Range:00₁₀-15₁₀)

Insert Data 0 ACB



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 BDT



(Range:00₁₀-15₁₀)

Insert Data 1 ACC



(Range:00₁₆-FF₁₆ ASCII Code)

4

Code Option

PROGRAM



Code-128

Read

GMA Disable

GMB **Enable**

Format

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

Append

GQA **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 32.

Code-128

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading **BBW**



(Range:00₁₀-15₁₀)

Truncate Ending **BBX**



(Range:00₁₀-15₁₀)

Min. Code Length **BBU**



(Range:00₁₀-56₁₀)

Max. Code Length **BBV**



(Range:00₁₀-56₁₀)

Code ID **AAM**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 **BDU**



(Range:00₁₀-15₁₀)

Insert Data 0 **ACD**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BDV**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACE**



(Range:00₁₆-FF₁₆ ASCII Code)

4

Code Option

PROGRAM



Code-93

Read

GTA **Disable**

GVB Enable

Format

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

Append

GVA **Disable**

GVB Enable

This function which allows several symbols to be concatenates 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 32.

Spare Function

GUA **Disable**

GUB Enable

Code-93

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading **BCA**



(Range:00₁₀-15₁₀)

Truncate Ending **BCB**



(Range:00₁₀-15₁₀)

Min. Code Length **BBY**



(Range:00₁₀-56₁₀)

Max. Code Length **BBZ**



(Range:00₁₀-56₁₀)

Code ID **AAN**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 **BDW**



(Range:00₁₀-15₁₀)

Insert Data 0 **ACF**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BDX**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACG**



(Range:00₁₆-FF₁₆ ASCII Code)

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 25, 32.

Specific Adjustments

Truncate Leading **BCE**



(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)

Insert Position 0 **BDY**



(Range:00₁₀-15₁₀)

Insert Data 0 **ACH**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BDZ**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACI**



(Range:00₁₆-FF₁₆ ASCII Code)

4

Code Option

PROGRAM



MSI/Plessey

Read

HGA **Disable**

HGB **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 46.

Spare Function

HFA **Disable**

HFB **Enable**

MSI/Plessey

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading **BCI**



(Range:00₁₀-15₁₀)

Truncate Ending **BCJ**



(Range:00₁₀-15₁₀)

Min. Code Length **BCG**



(Range:00₁₀-56₁₀)

Max. Code Length **BCH**



(Range:00₁₀-56₁₀)

Code ID **AAP**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 **BEA**



(Range:00₁₀-15₁₀)

Insert Data 0 **ACJ**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BEB**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACK**



(Range:00₁₆-FF₁₆ ASCII Code)

4

Code Option

PROGRAM



UK/Plessey

Read

HQA **Disable**

HQB Enable

Format

Data Digits (Variable)	Checksum 1+2 (Optional)
---------------------------	----------------------------

Checksum Verification

HSA Disable

HSB **Enable**

Checksum Transmission

HTA **Disable**

HTB Enable

Refer to □32.

Spare Function

HRA **Disable**

HRB Enable

UK/Plessey

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading **BCQ**



(Range:00₁₀-15₁₀)

Truncate Ending **BCR**



(Range:00₁₀-15₁₀)

Min. Code Length **BCO**



(Range:00₁₀-56₁₀)

Max. Code Length **BCP**



(Range:00₁₀-56₁₀)

Code ID **AAR**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 0 **BEE**



(Range:00₁₀-15₁₀)

Insert Data 0 **ACN**



(Range:00₁₆-FF₁₆ ASCII Code)

Insert Position 1 **BEF**



(Range:00₁₀-15₁₀)

Insert Data 1 **ACQ**



(Range:00₁₆-FF₁₆ ASCII Code)

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 32.

Spare Function1

HKA	Disable
HKB	Enable

Spare Function2

HLA	Disable
HLB	Enable

IATA

EXIT



Refer to 25, 32.

Specific Adjustments

Truncate Leading	BCM
(Range:00 ₁₀ -15 ₁₀)	
Truncate Ending	BCN
(Range:00 ₁₀ -15 ₁₀)	
Min. Code Length	BCK
(Range:00 ₁₀ -56 ₁₀)	
Max. Code Length	BCL
(Range:00 ₁₀ -56 ₁₀)	
Code ID	AAQ
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 0	BEC
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 0	ACL
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	
Insert Position 1	BED
(Range:00 ₁₀ -15 ₁₀)	
Insert Data 1	ACM
(Range:00 ₁₆ -FF ₁₆ ASCII Code)	

4

Code Option



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 10 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.

Up to 10 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.

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

EXIT



Prefix Transmission

Disable GA



Enable GB



Clear All MA



Prefix Data

Data ABF



(Range:00₁₆-FF₁₆ ASCII Code)

Suffix Transmission

Disable HA



Enable HB



Clear All NA



Suffix Data

Data ABG

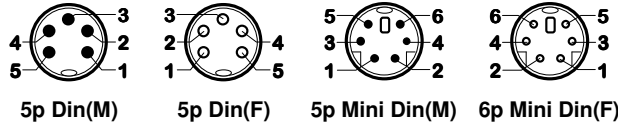


(Range:00₁₆-FF₁₆ ASCII Code)

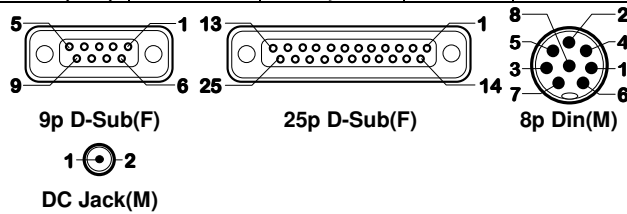
5 String Format

Cable Type

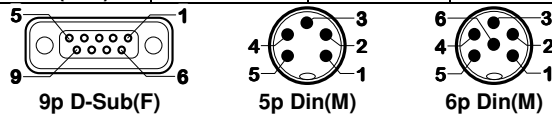
IBM PC AT & PS/2				
Function	5p Din(M)	5p Din(F)	6p Mini Din(M)	6p Mini Din(F)
Clock (Host)	1	---	5	---
Data (Host)	3	---	1	---
Clock (KBD.)	---	1	---	5
Data (KBD.)	---	3	---	1
Ground	2	2	3	3
GND Shield	2	2	3	3
VCC (+5V)	4	4	4	4



RS-232C			
Function	9p D-Sub(F)	25p D-Sub(F)	8p Din(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
GND Shield	5	7	7
VCC (+5V)	9	16,25	8



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



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)



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

☐ 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	