CCD BAR-CODE SCANNER

PROGRAMMING MANUAL

Warranty Term

Partner Technology Ltd. Warrants that it's products will be free from defects in materials and workmanship, and will be manufactured in conformity with specifications furnished to us by purchaser, as of the date of shipment. Partner Tech will repair or replace, at its option, discretion and expense, all parts that are or become defective, except defects resulting from Purchaser's misuse of Products or negligence. Partner's obligations are limited to repair or replace at its option, any parts, excluding perishable items, witching one (1) year, beginning from the date of shipment to the original purchaser. At purchaser's request, Partner may consider to service its products at the purchaser's site, within the warranty period, at its expense, but excluding travel time and other expenses, which purchaser hereby agrees to pay upon written notice from Partner.

This warranty term is exclusive of all other warranties, express or implied as to the suitability of any of its products for any particular user as to the merchant ability of any such products. No representative of Partner's or any other person is authorized to assume for Partner for any other liability in connection with the sales of its products.

Liability under this warranty terms is limited to the extent provided above. Partner will in no case be responsible for special, incidental or consequential damages or damages due to loss of business or any other obligation or liability with respect to its products.

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.

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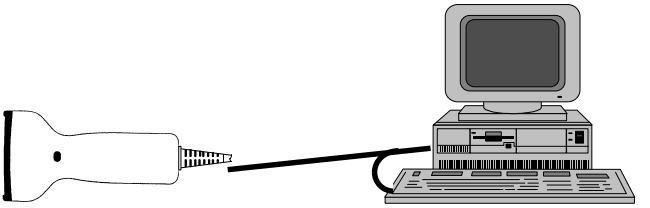
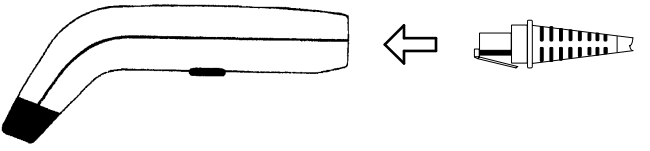
Installation

Example: Scanner Of Keyboard Wedge Type

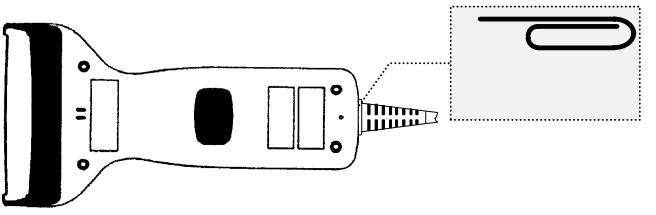
1) Take the keyboard connector off from terminal and connect with the “Y” cable of scanner, afterward, connect back to keyboard port of terminal, then, turn the terminal power on.



2) The phone-jack design connector is available for plug-in easily with different kind of cable.

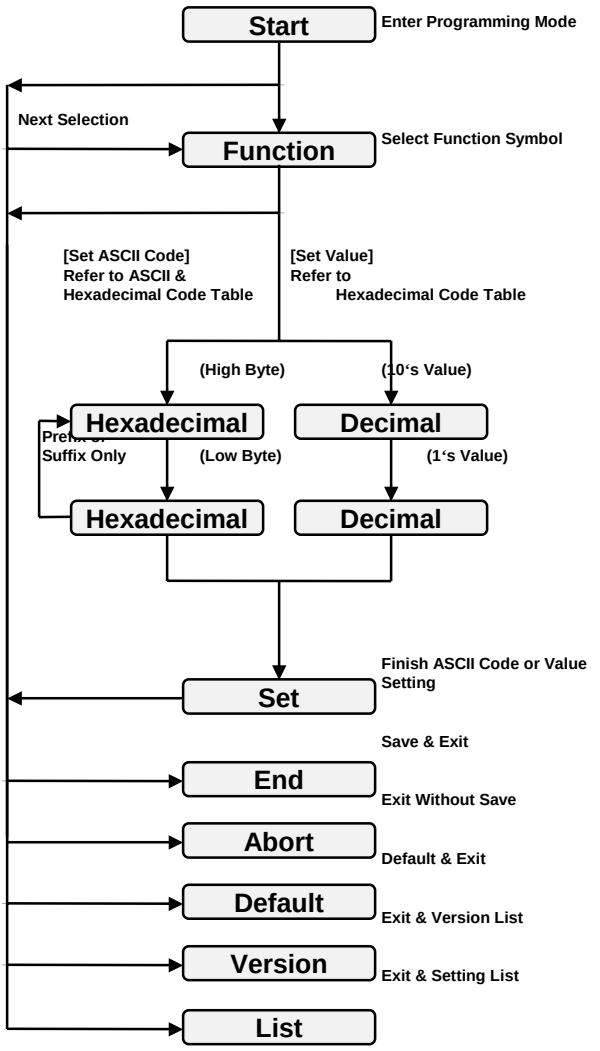


3) The phone-jack plug can be easily to be separated from the scanner, by way of inserting a pin or needle into the tiny hold, which locate at the rear side of scanner.



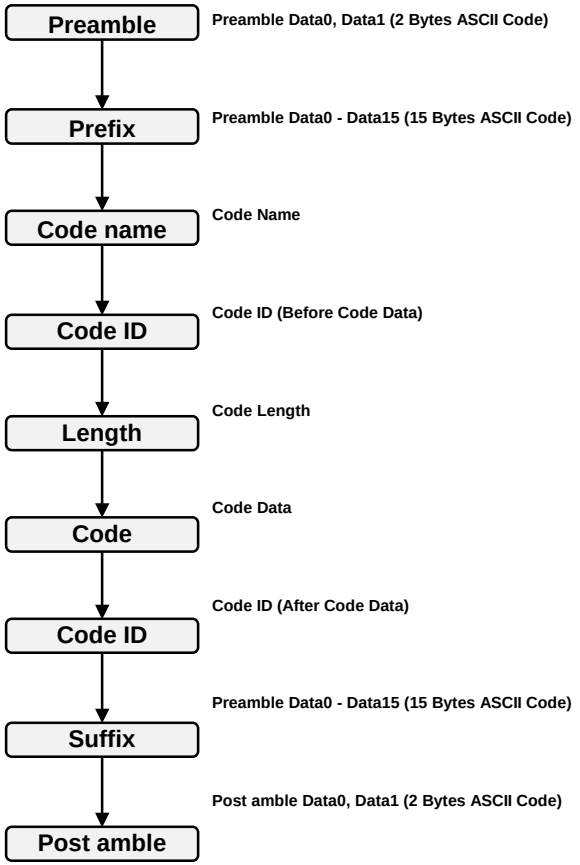
2 Configuration Flowchart

Configuration Flowchart



These factory default settings are indicated by '■'

Data Transmission Flowchart



Output Interface

Output Interface

Keyboard Wedge

RS-232C

Wand Emulation

OCIA

Spare0

Spare1

Spare2

Spare3

The interface is set in manufacturing according to the model type.

START

Keyboard Wedge

Keyboard Speed

Low

Medium

High ■

Turbo

Numeric Key Position

Alphabetic-key ■

Keypad

Function Key Emulation

Disable ■

Enable

Keyboard Simulation

Disable ■

Enable

Caps Lock

Uppercase ■

Lowercase

Auto

Spare

Disable ■

Enable

END

Keyboard Wedge

Keyboard Type

IBM AT, PS/2 ■

Macintosh ADB.

NEC 9801

IBM 5500

IBM 5576

Spare1

Spare3

IBM XT

IBM PS/2 25,30

IBM PS/2 55

KT-106

Spare0

Spare2

START

Keyboard wedge

Keyboard Language

USA (US) ■

Belgium (BE)

Danish (DK)

France (FR)

Germany (GR)

Italian (IT)

Portuguese (PO)

Spanish (SP)

Swedish (SV)

Switzerland (SF)

UK (UK)

Latin American (LA)

Spare0

Spare1

Specific Adjustments

Inter-Character Delay Timer (Range: 00_{10}-99_{10}, Unit: 1ms) [Set Value]

Transmit Delay Timer (Range:00_{10}-99_{10}, Unit: 10ms) [Set Value]

END

RS-232C

Baud Rate

38400 BPS

19200 BPS

9600 BPS ■

4800 BPS

2400 BPS

1200 BPS

600 BPS

300 BPS

Data Parity

None ■

Even

Odd

Space

Mark

Data Bits

7 Bits

8 Bits ■

Stop Bits

1 Bit ■

2 Bits

START

RS-232C

Handshaking

Disable ■

CTS/RTS

Data Ready

STX/ETX

Spare0

RTS/CTS

Scanner Ready

XON/XOFF

CTS Trigger

Spare1

Specific Adjustments

Inter-Character Timer (Range: 00_{10}-99_{10}, Unit: 1ms) [Set Value]

Transmit Delay Timer (Range: 00_{10}-99_{10}, Unit: 10ms) [Set Value]

Response Delay Timer (Range: 00_{10}-99_{10}, Unit: 100ms) [Set Value]

END

Wand Emulation

Active Level

Bar High/Space Low

Bar Low/Space High ■

Normal Level

Low ■

High

Inter-Character Gap

Narrow ■

Wide

Output Speed

Low

Medium ■

High

Turbo

Code-39 Output Emulation

Disable ■

Enable

Narrow/Wide Ratio

1:2 ■

1:2.5

1:3

1:3.5

Specific Adjustments

Margins Timer (Range: 00_{10}-99_{10}, Unit: 10ms) [Set Value]

START

OCIA

Interface Type

NCR-6Bits

Spectra Physics-6Bits ■

ASCII-7Bits

ASCII+NCR-6Bits

ASCII Spectra Physics-6Bits

Date Parity

Even

Odd ■

Mark

Space

Spare

Disable ■

Enable

END

System Control

Power-On Music

Disable

Enable ■

Power-On Auto Trigger

Disable ■

Enable

Good-Read LED

Disable

Enable ■

Good-Read Beep

Disable

Enable ■

Power Saving

Disable ■

Enable

Force Case

Disable ■

Uppercase

Lowercase

START

System Control

Field Control

One Field ■

Multi Field

Double Confirm

Disable ■

Enable

Inter-Character Gap

Narrow ■

Wide

Spare0

Disable ■

Enable

END

Scanning Mode

Scanning Modes

Trigger Mode0 **(Trigger On & Good-Read Off)**

Trigger Mode1 **(Trigger On/Release Off)**

Trigger Mode2 **(Trigger On/Off)**

Trigger Mode3 ■ **(Trigger On/Time-Out Off)**

Trigger Mode4 **(Trigger On/Time-Out Flash)**

Trigger Mode5 **(Trigger On/Continue On)**

Trigger Mode6 **(Test Only)**

Spare0

Spare1

START

UPC-A

Read

Disable

Enable ■

Add-On

Disable ■

Add-On 2

Add-On 5

Add-On 2+5

Add-On Lock

Disable ■

Enable

Truncate Leading Zeros

Disable ■

Enable

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code ID

ID **(Range: 00_{16}-FF_{16}) [Set ASCII Code]**

END

UPC-E

Read

Disable

Enable ■

Add-On

Disable ■

Add-On 2

Add-On 5

Add-On 2+5

Add-On Lock

Disable ■

Enable

Expansion

Disable ■

Enable

Truncate Leading Zeros

Disable ■

Enable

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

START

UPC-E

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code ID

ID0 (Range: 00_{16}-FF_{16}) [Set ASCII Code]

ID1

END

EAN-13

Read

Disable

Enable ■

Add-On

Disable ■

Add-On 2

Add-On 5

Add-On 2+5

Add-On Lock

Disable ■

Enable

ISBN/ISSN Translation

Disable ■

Enable

Truncate Leading Zeros

Disable ■

Enable

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

START

EAN-13

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

EAN-8

Read

Disable

Enable ■

Add-On

Disable ■

Add-On 2

Add-On 5

Add-On 2+5

Add-On Lock

Disable ■

Enable

Expansion

Disable ■

Enable

Truncate Leading Zeros

Disable ■

Enable

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

START

EAN-8

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code ID

ID0 (Range: 00_{16}-FF_{16}) [Set ASCII Code]

ID1

END

Code-39

Read

Disable

Enable ■

Format

Standard ■

Full ASCII

Code-32 (Italian Pharmac.) Translation

Disable ■

Enable

Code-32 Leading 'A' Transmission

Disable ■

Enable

Append Function

Disable ■

Enable

Start/End Transmission

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

START

Code-39

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Interleaved 2 of 5

Read

Disable ■

Enable

Format

Standard ■

Odd Scode

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

START

Industrial 2 of 5

Read

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Matrix 2 of 5

Read

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

START

China Post 2 of 5

Read

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Codebar / NW7

Read

Disable

Enable ■

Start/End Symbol Types

ABCD/ABCD ■

abcd / abcd

ABCD/TN*E

abcd / tn*t

Start/End Transmission

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

START

Codebar / NW7

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Code-128

Read

Disable

Enable ■

Format

Standard ■

UCC/EAN-128

Append Function

Disable ■

Enable

Checksum Verification

Disable

Enable ■

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

START

Code-128

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Code-93

Read

Disable ■

Enable

Append Function

Disable ■

Enable

Checksum Verification

Disable

One

Two ■

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

START

Code-11

Read

Disable ■

Enable

Checksum Verification

Disable

One

Two ■

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

MSI / Plessey

Read

Disable ■

Enable

Checksum Verification

Disable

Mod 10 ■

Mod 10/10

Mod 11/10

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

START

UK / Plessey

Read

Disable ■

Enable

Checksum Verification

Disable

Enable ■

Checksum Transmission

Disable

Enable ■

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

IATA

Read

Disable ■

Enable

Checksum Verification

Disable ■

Enable

Checksum Transmission

Disable ■

Enable

Spare0

Disable ■

Enable

Spare1

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID **(Range: 00_{16}-FF_{16}) [Set ASCII Code]**

START

Telepen

Read

Disable ■

Enable

Format

Numeric Mode ■

ASCII Mode

Auto Mode

Checksum Verification

Disable

Enable ■

Checksum Transmission

Disable ■

Enable

Spare

Disable ■

Enable

Truncate Digits

Leading Digits (Range: 00_{10}-15_{10}) [Set Value]

Ending Digits

Code Length

Min. Code Length (Range: 00_{10}-48_{10}) [Set Value]

Max. Code Length

Code ID

ID (Range: 00_{16}-FF_{16}) [Set ASCII Code]

END

Output Control

Preamble Transmission

Disable ■

Enable

Data0 <'NULL'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Data1 <'NULL'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Post amble Transmission

Disable

Enable ■

Data0 <'CR'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Data1 <'LF'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Add-On Preamble Transmission

Disable ■

Enable

Data_0 <'CR'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Data1 <'LF'> **(Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Spare0

Disable ■

Enable

Spare1

Disable ■

Enable

START

Output Control

Prefix Transmission

Disable ■

Enable

Clear Prefix Data

Data <'NULL'> **(15 Bytes, Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Suffix Transmission

Disable ■

Enable

Clear Suffix Data

Data <'NULL'> **(15 Bytes, Range: 00_{16}-FF_{16})** **[Set ASCII Code]**

Code ID Transmission

Disable ■

Enable

Code ID Position

Before Code ■

After Code

Code Name Transmission

Disable ■

Enable

Code Length Transmission

Disable ■

Enable

END

Specific Adjustment

Specific Adjustment

Beep Loudness **(Range: 01_{10}-10_{10}, Unit: Level) [Set Value]**

Beep Tone **(Range: 10_{10}-50_{10}, Unit: 100Hz) [Set Value]**

Beep Duration **(Range: 01_{10}-99_{10}, Unit: 10ms) [Set Value]**

Stand-By Timer **(Range: 01_{10}-99_{10}, Unit: 1s) [Set Value]**

Active Timer **(Range: 01_{10}-99_{10}, Unit: 10ms) [Set Value]**

Sleep Timer **(Range: 01_{10}-99_{10}, Unit: 10ms) [Set Value]**

Good-Read Delay Timer(Range: 01_{10}-99_{10}, Unit: 10ms) [Set Value]

Double Confirm Times (Range: 01_{10}-10_{10}) [Set Value]

Global Min. Code Length (Range: 01_{10}-99_{10}) [Set Value]

Global Max. Code Length (Range: 04_{10}-48_{10}) [Set Value]

Spare0

Spare1

START

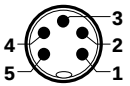
Appendix

END

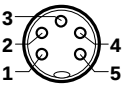
42 Cable

Cable Type

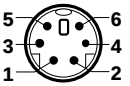
IBM PC, XT, AT & PS/2				
Function	**5p Din (M)**	**5p Din (F)**	**6p Mini Din (M)**	**6p Mini Din (F)**
Clock (Host)	1	---	1	---
Data (Host)	2	---	5	---
Clock (KBD.)	---	1	---	1
Data (KBD.)	---	2	---	5
GND	4	4	3	3
GND Shield	4	4	3	3
VCC (+5V)	5	5	4	4



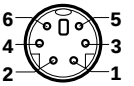
5p Din (M)



5p Din (F)

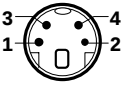


5p Mini Din (M)

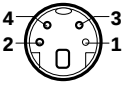


6p Mini Din (F)

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

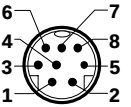


4p Mini Din (M)

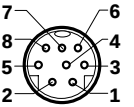


4p Mini Din (F)

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
GND	2	2
GND Shield	2	2
VCC (+5V)	8	8



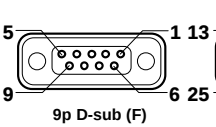
8p Mini Din (M)



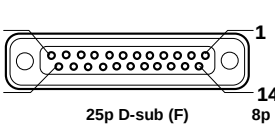
8p Mini Din (F)

Cable Type

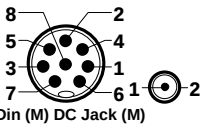
RS-232C				
Function	**9p D-sub (F)**	**25p D-sub (F)**	**8p Din (M)**	**DC Jack (M)**
TXD	**2**	**3**	**1**	**---**
RXD	**3**	**2**	**2**	**---**
RTS	**8**	**5**	**3**	**---**
CTS	**7**	**4**	**4**	**---**
Shorted	**4,6**	**6,20**	**---**	**---**
GND	**5**	**7**	**7**	**2**
GND Shield	**5**	**7**	**7**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



9p D-sub (F)

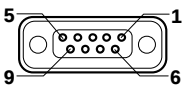


25p D-sub (F)

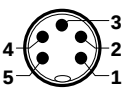


8p Din (M) DC Jack (M)

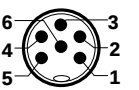
Wand Emulation			
Function	**9p D-sub (F)**	**5p Din (M)**	**6p Din (M)**
Data	**2**	**2**	**2**
GND	**7**	**3**	**3**
GND Shield	**8**	**3**	**3**
VCC (+5V)	**9**	**1**	**1**



9p D-sub (F)

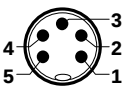


5p Din (M)

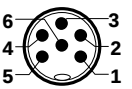


6p Din (M)

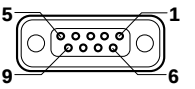
TTL (CMOS)			
Function	**5p Din (M)**	**6p Din (M)**	**9p D-sub (F)**
Start Of Scan	**---**	**6**	**1**
Data	**2**	**2**	**2**
Indicator	**---**	**---**	**3**
Trigger	**5**	**5**	**5**
Enable	**4**	**4**	**6**
GND	**3**	**3**	**7**
GND Shield	**3**	**3**	**8**
VCC (+5V)	**1**	**1**	**9**



5p Din (M)



6p Din (M)



9p D-sub (F)

OEM Cable Type

Introduction

- **Defaults for min/max length**

	Min. Length	Max. Length
Global	1	48

The min/max global length will be available while the individual min/max length will be set to be zero.

Code Type	Min. Length	Max. Length
Code 39	0	0
Interleaved 2 of 5	6	0
Industrial 2 of 5	4	0
Matrix 2 of 5	4	0
Chain post 2of 5	11	11
Codabar/NW7	4	0
Code 128	0	0
Code 93	4	0
Code 11	4	0
MSI/Plessey	4	0
UK/Plessey	4	0
IATA	4	0
Telepen	4	0

The factory defaults for individual min/max length are shown above.

- **Defaults for specific adjustment**

Adjustment Item	Default Setting	Default Value
Beep loudness	5	Level 5
Beep tone	28	2.8 KHz
Beep duration	10	100 ms
Stand-by timer	20	20 Sec
Active timer	20	200 ms
Sleep timer	20	200 ms
Good-read delay timer	50	500 ms
Double confirm times	1	1 Sec
Inter-character delay timer	0	No delay
Transmit delay timer	0	No delay
Response delay timer	30	3 Sec
Margins timer	10	100 ms

Introduction

- **Numeric Key Position**

This function is only available for IBM PC/AT, PS/2, IBM 5576 series personal computers and compatible machines. The case of Keypad selected enables numeric output as key pad (Num Lock On) output. The default setting is alphabetic-key.

- **Function Key Emulation**

This function is only available for IBM PC/AT, PS/2, IBM 5576 series personal computers and compatible machines. When the function is enabled, the ASCII code values that are between 01H to 1FH will be changed all characters (which can be used for the RS-232C communication protocol) to the Function Keys in the transmitted data. The conversion process includes Preamble, Post amble, Prefix and Suffix codes programmed.

- **Keyboard Simulation**

All of the PCs will check each device (including keyboard interface) by themselves while the host computers power on. If the feature is enabled, it can pass the keyboard installation checking by the host computer while powered on. It is recommended to enable the function without the keyboard installed.

- **Caps Lock**

When Upper case is select and "Caps Lock On" or Lower case is select and "Caps Lock Off" the output style accord with on the character case.

- **Force Case**

This function can force the output of all characters converted to the same case (upper or lower case).

- **Keyboard Type**

The keyboard type of host computer selected must be used the appropriate host interface cable converter.

- **Keyboard Language**

This setting has only effect when keyboard type is emulating IBM PC/AT. The selecting of keyboard language can support other than USA keyboard layout. The DOS command "KEYB" can be selected the desirable keyboard layout on IBM PC/AT. For its usage, please refer to your DOS user's manual.

- **Inter-Character Delay Timer (Set value)**

It is a time delay between data characters output. An Inter-Character Delay Timer ranges from 0 - 99 ms can be used to match various host computers or terminals response time. Adjust this timer and try out the shortest delay time that until works properly. The unit of range is 1 ms.

- **Transmit Delay Timer (Set value)**

It is a time delay between barcode data output. The feature will be used for shorter barcode data output or multi-field scanning. The unit of range is 10 ms.

Introduction

- **Handshaking**

  Protocol controls data flow between the scanner and a serial host computer.

  ■ ***Disable*:** The communication way only actives the TXD (transmit data) and RXD (receive data) without regard for any hardware (RTS/CTS) or software (XON/XOFF or ACK/NAK) handshaking protocol.

  ■ ***RTS/CTS (CTS/RTS)*:** When this option is selected the RTS (request to send) and CTS (clear to send) signal will be issued before normal data communication. For example, 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 time out duration (Response Delay Timer), the scanner will issue warning 5 beeps.

  ■ ***Scanner Ready**:* The scanner will active the RTS signal upon 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 (start of text) and ETX (end of text) are ASCII codes whose values are 02H and 03H, respectively, and can be preformed to pack together the normal data transmission.

  ■ ***XON/XOFF***: Controlled data flow is achieved between devices when the receiving device sends ASCII XON/OFF codes whose values are issued a Ctrl-S and Ctrl-Q to the transmitting device. In other words, when the receiving device is unable to accept data, it sends an XOFF code to inform the host to temporarily suspend data transmission.

  ■ ***ACK/NAK***: The ACK/NAK protocol provides a feedback to the serial host computer that is programming the scanner. The ACK/NAK protocol provides two vital functions. First, it provides the host with positive acknowledgment that its commands are begin accepted and acted upon. Second, and perhaps more important, it ensures that the host will not issue commands to the scanner more quickly than the scanner can process them. Whenever the scanner receives a correctly formatted command, it sends a confirmation message followed by an ACK (06H) code or receives an improperly formatted code; it sends a NAK (15H) code.

  ■ ***CTS Trigger***: This operation enabled an external device to control scanning. Applying an external trigger signal to the CTS input controls the CTS trigger (with external triggering enable). When active, this signal causes scanning to begin just as if the scanner's trigger were depressed. In the event of decoding, the trigger signal must be deactivated for a minimum of 50 milliseconds before another scan can be attempted.

Introduction

- **Baud Rate/Stop Bits/Data Bits/Parity Setting**

The selectable values of the Baud Rate, Stop Bits, Data Bits and Parity are listed below.

- ***Baud Rate***: 38400/19200/9600/4800/2400/1200/600/300 bps
- ***Stop Bits****:* 1 bit/2 bits
- ***Data Bits***: 7 bits/8 bits
- ***Parity****:* None/Even/Odd/Mark/Space

- **Response Delay Timer (Set Value)**

The time out is a pre-defined delay time for serial communication of scanner to wait for handshaking, acknowledgment or non-acknowledgment from the host computer. When the time-out occurs, the scanner will issue 5 warning beeps. The feature is particularly useful for some applications in which the host computer takes a longer time to respond with an equivalent signal.

- **Active Level**
  - ***Bar High/Space Low***: High level on Bar and Low level on Space. (High level: 5V, Low level: 0V)
  - ***Bar Low/Space High***: Low level on Bar and High level on Space. (High level: 5V, Low level: 0V)

- **Normal Level**

The initial signal state on High or Low level. (High level: 5V, Low level: 0V)

- **Inter-Character Gap**

The discrete codes (as Code-39, Codebar, MSI) feature an Inter-Character Gap, which makes them suitable for printing by mechanical numbering system, the Inter-character Gap allowing for the ratchet mechanism. The default setting is narrow.

- **Output Speed**

The Output Speed setting is same as serial transmission baud rate. The unit of bit is a width of Minimum Narrow Bar.

- ***Low/Medium/High/Turbo***: 1200/2400/4800/9600 bps (bit per second)

- **Narrow/Wide Ratio**

The setting specifies the narrow to wide ratio begin used when transmitting the bar image. The selectable ratio value allows adjusting from 1:2 to 1:3.5.

- **Margin Time (Set value)**

It is a quiet zone. The width of margin time will automatically be added, before and after the regular data is transmitted. The unit of width is 10 ms. It ranges from 0 - 990 ms.

- **Code-39 Emulation**

The feature is able to translate all barcode symbologies (as the scanner can support) as standard Code-39 Wand emulation output for your decoder device.

Introduction

- **Scanning Modes**
  - ***Trigger Mode0***: Trigger button on the bottom of scanner must be pressed to enable scanning. The light source of scanner turns off and stops scanning when there is a successful reading or no code is decoded after the time-out duration elapsed.
  - ***Trigger Mode1***: The trigger button acts as a contact switch. Press the trigger button to active scanning and release the button stop scanning.
  - ***Trigger Mode2***: The trigger button acts as a toggle switch. Press the trigger button to active or stop scanning.(Toggle mode)
  - ***Trigger Mode3***: Trigger button on the bottom of scanner must be pressed to enable scanning. The scanner stops scanning when no code is decoded after the time-out duration elapsed. (Laser mode)
  - ***Trigger Mode4***: Trigger button on the bottom of scanner must be pressed to enable scanning. The scanner flashes the light source when no code is decoded after the time-out duration elapsed. In this mode can save the power resource and extend the operation life of the light source. The scanner can be woken up when there is a successful reading or the trigger button pressed. Flash time setting.
  - ***Trigger Mode5****:* The scanner always keeps operation no matter any duration time and trigger switch.
  - **T*rigger Mode6***: The scanner continuously reads and the same label readings are allowed without double confirm. The feature can test the performance of a scanner for reading speed and accuracy.

- **Power-On Music**

The scanner will be diagnosed by itself while starting power on. Activate start beep to indicate a successful self-test to wait the bottom be triggered. The feature can enable or disable the start beep.

- **Power-On Auto Trigger**

The feature can auto trigger the button of scanner to activate the light source after the successful start beep.

- **Good-Read LED/Beep**

After each successful reading the scanner will light green LED and beep buzzer to indicate the good barcode reading. The green LED and buzzer can be enabled or disabled active while each good reading. The beep tone of buzzer can be changed by Beep Tone Adjustment function.

- **Field Control**

The scanner can read-out many sets of barcode data on the same scanning line in the same time if Multi-Field of Field Control were selected. The direction of read-out code is form left to right even different type symbol code data.

- **Double Confirm (Redundancy)**

The feature should be dependant on the symbology and quality of barcodes read. If enabled, the scanner will require many successful scans to validate the barcode data. The value of confirm time can be set by *Double Confirm* times function at page 15, and the more confirm times the less miss-reading of codes. Therefore you can select a higher value rather then reducing read-out speed.

Introduction

- **Code Name Transmission**

The feature is useful to show unknown barcode symbologies that include the readable barcode symbol of scanner. When the enable is selected, the symbology code name will be shown before the code data. For the data location, see Data Transmission Flowchart.

- **Code ID Position**

The code ID can be transmitted before or after the code data by this selected when Code ID Transmit enabled. Normally, the position is before the code data.

- **Code Length Transmission**

The length of data characters can be transmitted before the code data when the enable is selected. The total length is a number of barcode data except Truncate Leading/Ending Digits. The Code Length has two digits.

- **Beep Loudness/Tone/Duration (Set value)**

These features can adjust the Good-Read Beep, Tone and Timer which user favor. The Beep Timer is the duration of beep while code is read successfully.

- **Stand-By Timer (Set value)**

Time-out duration of 1 to 99 seconds could be adjusted. The Stand-By Timer that is valid scanning duration will be effective only when the trigger mode is operated in Mode0, Mode3 or Mode4.

- **Action/Sleep Timer (Set value)**

There are two durations could be effective only when the scanner operated in Mode4. The scanner will be entry flash operation when no code is read until Stand-By Timer time-out. The Action Timer is lighting duration and Sleep timer is blanking duration while light source fleshes. The barcode image can be also read during flash of light source and then waked up the scanner automatically.

- **Good-Read Delay Timer (Set value)**

The feature is for limiting the duration during the same barcode data to be read continuously, except operated in Mode0 and Mode6. The timer will be reset when different barcode data is read.

- **Double Confirm Times (Set value)**

This feature should be selected according to the symbology and the quality if barcodes being read. The values of times are successful decoding to validate the barcode data times. When a higher value is set, the slower the reading speed and the higher data security.

- **Scan Rate Timer (Set value)**

The Scan Rate will affect the CCD (Charge Coupled Device) sensor of exposure time. The feature can adjust the CCD scan rate to improve the performance of scanner. When the less value of Scan Rate Timer is set, the faster scanning response.

Introduction

- **Min./Max. Code Length (Set value)**

A Minimum and Maximum length ranging from 1 to 48 can be set to qualify data entry. The length is defined to be 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 cannot effect in some fixed length labels of symbology (i.e. UPC/EAN/JAN call WPC).

- **Add-On Lock with WPC**

The Add-On barcode is the supplemental code and often presents the 2 or 5 supplement digits with WPC. The feature will force output the Add-On code together in reading WPC with Add-On symbology barcode if Add-On Lock is enabled. Therefore it cannot read the WPC barcode without Add-On. It is recommended to program the Add-On to be enabled while the Add-On code must be read out.

- **Expansion Function**

The expansion of function is used only for UPC-E and EAN-8 code reading, It can extend to 13-digit with leading "0" numeric system when the feature is enabled.

- **Truncate Leading Zeroes**

The leading "0" digits of barcode data characters can be truncated when the function is enabled. The feature is used only for WPC code reading.

- **ISBN/ISSN Translation**

The ISBN (International Standard Book Number and ISSN (International Standard Serial Number) are two kinds of barcode bookland label. The ISBN is a 10 digits with leading "978" and the ISSN is a 8 digits with leading "977" of the "EAN-13" symbology code.

- **Truncate Leading/Ending Digits (Set value)**

The leading or ending digits of barcode data characters can be truncated when the values of setting are not 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 (Set ASCII Code)**

A Code ID is a character that is used to represent the symbol begin decoded upon succeeding reading. The Code ID is prefixed to the data begin or tail transmitted if the feature is selected. There are some labels of symboolgy (i.e. UPC-E and EAN-8) include 2 Code IDs.

- **Full ASCII for Code-39 Format**

The full ASCII Code-39 symbology is an enhanced set of Code-39 that is the data with total of 128 characters to represent full ASCII code.

Introduction

- **Code-32 (Italian Pharmac) Format**

The Code-32 symbology is another version of Code-39 that is a barcode data from digit 0 to 9. The leading A is an optional character that can be allowed to transmit or not.

- **Append Function**

Several symbologies such as Code-39, Code-128 and Code-93 provide the append function which allows several symbols to be concatenates and be treated as one single data entry. The scanner will not transmit a symbol with the embedded appendant code (a leading space for Code-39 and Code-93, a "FNC2" character for Code-128) when this feature is enabled, and if other symbols with the appended code were read again, there codes will be transmitted without Code ID, Preamble and Prefix. When a symbol with no the appended code or other than codes (they are Code-39, Code-93 and Code-128) were decoded the data will be transmitted without Code ID and Prefix but the Post amble and Suffix codes are appended.

- **Preamble/Post amble Transmission (Set ASCII Code)**

There are two characters (Data0 and Data1) could be programmed for both Preamble and Post amble data (include the Function Key Emulation). They can be automatically appended to the data transmitted when each barcode is decoded.

- **Prefix/Suffix Transmission (Set ASCIII Code)**

Up to 15 characters could be programmed for both Prefix and Suffix data. The Prefix data programmed will be placed after Preamble data and before the barcode data, and the Suffix data programmed will be placed after the barcode data and before the Post amble data.

Test Chart

UPC-A

EAN-13 (ISBN) with Add-On 5

(ISBN: 9572216678)

Code-39 (Full ASCII Code)

(Full ASCII Code: *CODE39 Test*)

Interleaved 2 Of 5

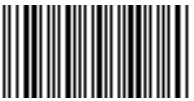
Code-93

Code-128 (C Type)

(UCC/EAN-128:]C10123456789e)

Test Chart

Codabar/NW7



C98765D D43210A

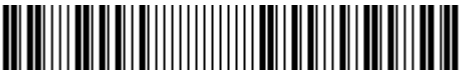
MSI/Plessey

10558302<u>5</u>

CODE-11

8862647779<u>33</u>

UK/Plessey



16520003546<u>1</u>

Telepen

TELEPEN Test<u>+</u>

(Numeric: 57424942534251055774888916)

IATA

001020000109196

ASCII Code Table

L \ H	0	1	0	1	2	3	4	5	6	7
0	Null		NUL	DLE	SP	0	@	P	‘	p
1	Up	F1	SOH	DC1	!	1	A	Q	a	q
2	Down	F2	STX	DC2	“	2	B	R	b	r
3	Left	F3	ETX	DC3	#	3	C	S	c	s
4	Right	F4	EOT	DC4	$	4	D	T	d	t
5	Pg Up	F5	ENQ	NAK	%	5	E	U	e	u
6	Pg Dn	F6	ACK	SYN	&	6	F	V	f	v
7	Home	F7	BEL	ETB	‘	7	G	W	g	w
8	End	F8	BS	CAN	(	8	H	X	h	x
9	Tab	F9	HT	EM	)	9	I	Y	i	y
A		F10	LF	SUM	*	:	J	Z	j	z
B	Ctrl-B	Esc	VT	ESC	+	;	K	[	k	{
C	Ctrl-C		FF	FS	,	<	L	\	l	|
D	Enter		CR	GS	-	=	M	]	m	}
E			SO	RS	.	>	N	^	n	~
F			SI	US	/	?	O	_	o	DEL

DEFAULT

ABORT

VERSION

LIST

START

Hexadecimal Code Table

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

SET

END