

CCD

Bar Code Scanner

User's Manual

Version 1.3

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Introduction:

Bar code technology enables efficient data collection in various businesses including both commercial office and industrial automation. Importantly, bar code technology also ensures the accuracy of captured data. The bar code readers described in this manual have been developed for maximum efficiency, accuracy and ease of use in various process scenarios.

The Bar code scanners are high performance, and ideal for the use of shop control, factory automation, material handling, medical, Bank, leisure....etc.

And the bar code scanners are designed for any customer application or interface, including PC, IBM AT/XT, IBM PS2, RS232c, Wand Emulation, Notebook and more for request.

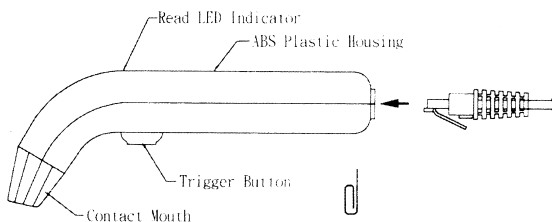
Chapter 1. Technical Data

Main Technical FEATURES

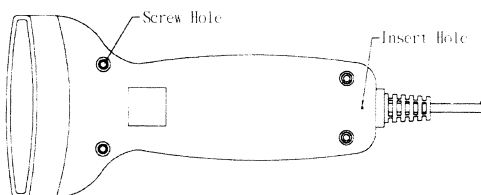
- ★ Width of window : 80mm
- ★ Scanning width : 90mm (PCS Value 0.9)
- ★ Depth of reading : 0 to 30mm
- ★ Scan rate : 50/100 scans/sec
- ★ CCD resolution : 2160 Pixels Image sensor.
- ★ Image Sensor : High resolution Charge Coupled Devices(CCD)
- ★ Light Source : Red LED array 660nm
- ★ PCS Value : More than 0.3
- ★ Resolution : More than 0.1mm(4mils)
- ★ Interface : Keyboard Wedge / RS232
WAND Emulation/USB Connection
- ★ Voltage : DC5V $\pm$ 5%
- ★ Working Current : 90ma
(Decoder Built-in)
- ★ Stand-by Current : 35ma
(Decoder Built-in)
- ★ Working Environment : 0~50°C, 10~90% RH
- ★ Storage Environment : -10~60°C, 5~95% RH
- ★ Net Weight : 145g/Decoder Built-in(Without Cable)
- ★ Connector : PC AT/XT, PS/2 25, 30,
50,60,70,80,Acer 7300
IBM5550, NEC, Notebook.
- ★ Reading Angle : 0 to 90 degree
- ★ Bar code selections : Code11, Code39, Code93, Code32,
Code128, Coda Bar, UPC-A
,UPC-E, EAN-8, EAN-13, JAN.
EAN/UPC Add-on2/5
MSI/Plessey, Telepen,
China Postal Code, Interleaved
2 of 5, Industrial 2 of 5,Matrix
2 of 5, more for Request
- ★ Keyboard nationality : US, French, German, Spanish,
Italian, UK, Swiss, Belgium,
Netherlands, Sweden, Norway
Denmark, Portugal, Finland,
Slovakia,Hungary,
Japan,Greece,Yugoslavia,
Yugoslavia Cyrillic
- ★ Drop Durability : 1.5m drop onto concrete surface
- ★ EMI:CE,FCC Class A Approved.

Chapter 2. How to install your Bar Code Reader

Side View:



Rear View:



Installation:

- Step 1. Turn off the power on your terminal device.
- Step 2. Connect the bar code reader to the appropriate outlet on the technical device depending on the model / interface cable that you have, e.g. RS232, PS2,.....
- Step 3. Turn on the terminal device , you will hear the initial welcome music.
- Step 4. The reader is now in stand-by mode.

Chapter 3. Pin Assignment

This bar code reader is designed to be connected via various cable connections, the pin assignments are listed as below:

1. IBM XT/AT

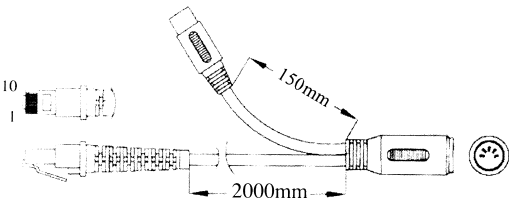


Diagram illustrating the cable connection for IBM XT/AT. The cable length is 2000mm. The connector on the bar code reader side is a 5 Pin IBM AT/XT Connector. The connector on the phone side is a 10-pin connector. The cable is shown with a 150mm bend radius.

CONNECTIONS TABLE

Phone Connector Pin		Male	Fernale
2	CLK IN		1
3	DATA IN		2
4	GND	4	4
7	VCC+5V	5	5
8	CLK OUT	1	
9	DATA OUT	2	
		3	3

5 Pin IBM AT/XT Connectors



Male Fernale

2. IBM PS2

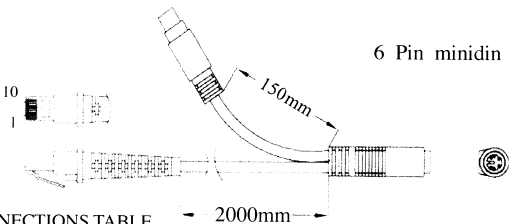
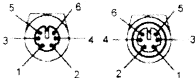


Diagram illustrating the cable connection for IBM PS2. The cable length is 2000mm. The connector on the bar code reader side is a 6 Pin minidin. The connector on the phone side is a 10-pin connector. The cable is shown with a 150mm bend radius.

CONNECTIONS TABLE

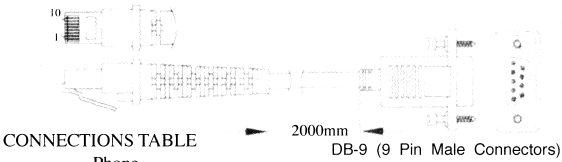
Phone Connector Pin		Male	Fernale
2	CLK IN		5
3	DATA IN		1
4	GND	3	3
7	VCC+5V	4	4
8	CLK OUT	5	
9	DATA OUT	1	
		2	2

6 Pin minidin



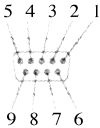
Male Fernale

3. Wand Emulation

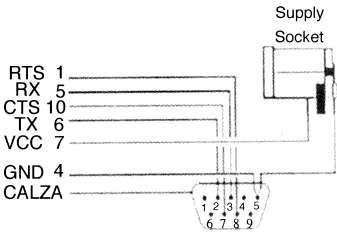
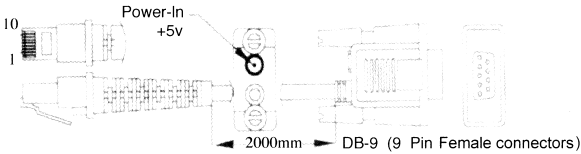


CONNECTIONS TABLE

Phone Connector Pin		DB-9 Male
6	(PEN-OUT)	7
4	(GND)	4
7	VCC+5V	1
		9 (shield)



4. RS-232-9P Female

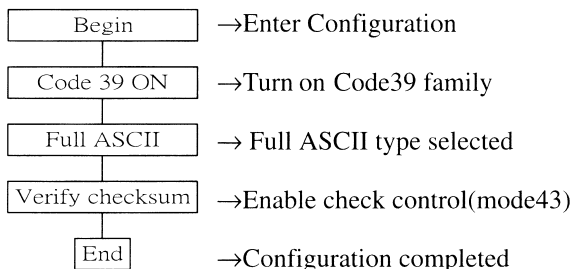


Phone Connector Pin		DB-9 Female	DC JACK
1	RTS	8	
4	GND	5	-
5	RX	3	
6	TX	2	
7	VCC+5V	9	+ Center
10	CTS	7	

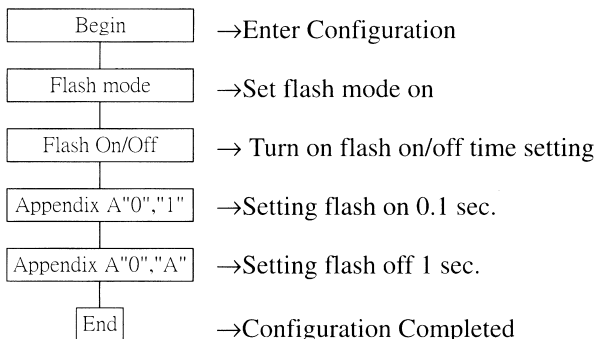
Chapter 4. Set Up Configuration

1. In order to setup the program for the bar code reader, you must be familiar with the setup procedure. Two examples are given below.

Example 1: Setup Code 39



Example 2: Setup Flash on/off time



The default settings which are marked with “*” symbol will be overwritten when the bar code reader was programmed. The detailed set up parameters are given in the following programmed sections. All the programmed settings will be stored in the EEPROM which are retained all the time.

1. Set Default Configuration



Begin



Default

All programmed settings will be returned to the manufacture default setting after the scanning process.

Other available options



Show configuration



Show version



Abort setting

If any errors happened during the setting procedure, users may scan the “Abort setting” for return to the last step setting.



Start up code

If the scanner's light is on, but it can not read. Try to scan the “start up code”. The scanner may read again. and all the values will be returned to the manufacture default settings.

2. Interface Options



Begin



*Keyboard



RS-232



WAND



End

Read the interface selection code for your particular application.

Only one of above interfaces can be enabled, other interfaces will be disabled automatically, i.e., scan “Begin”→ “RS232”→“End”.



Mute

If you scan “Mute” , the initial welcome music will be on “Mute” mode when power on the terminal device

3. System Type



Begin



Apple Macintosh



PC XT



NEC 9800



*PC AT, PS/2 50 60 70 80



ACER 7300



IBM 5550



End

Other system type may be available upon request, please consult your supplier for details.

K/B Emulator



It is recommended to setting the "K/B Emulator" function if you are working without keyboard installation and then you can connect the CCD Scanner to Notebook.

4. Keyboard Wedge Setting



Begin



*On

Caps Lock



On



* Off

Number Keys



*Alphanum



Number lock

Caps Lock Auto Upper Case Control



* NO



YES

Caps Lock ALT+Number Auto Control



*NO



YES



End

5. Keyboard Nationality



Begin



***US**



UK



French



Germany



Belgium



Netherlands



Sweden



Norway



Denmark



Spanish



Italian



Swiss



Portugal



Finland



Hungary



Slovakia



Greece



Japan



Yugoslavia



Yugoslavia Cyrillic



End

6. RS-232 Setting



Begin



On

Baud Rate



1200



*9600



2400



19200



4800



38400

Data Bits



7 bit



*8 bit

Parity



*Disabled



Even



Odd

RS-232 Handshaking Protocol



*Disabled



Xon/Xoff RS232



RTS/CTS RS232

RTS Active Status



Inv. Data Ready
(RTS Low)



* Data Ready
(RTS High)



End

Date Ready: The scanner will activate RTS signal to indicate a good read, will transmit data when receiving CTS signal.

Inv. data ready: Same as scanner ready mentioned above but the RTS logic is reversed.

7. End of Text Message



Begin



None



***CR**



LF(for RS232 only)



CR/LF(for RS232 only)



Space



Tab



Esc



Ctrl-C



End

8. WAND Emulation Setting



Begin



On

Bar High / Low



*High



Low

Scan speed



Highest



*High



Low



Lowest



End

9. Scanning Control



Begin

Type

LED Light

Bar Code



Trigger pressed

On-with button pressed
Off-with button depressed

One bar code



*Trigger on

On-for 3 secnds
Off-any bar code scanned

One bar code



*Trigger on/off

On-with button pressed,
light on all the time
Off-with button pressed again

One bar code



LED on

On-all the time
Off-never off

One bar code



Trigger on 30 sec.

On-for 30 seconds
Off-automatically after 30
Seconds or button pressed
again

One bar code



Trigger for option

On-for your option
Off-automatically after your setting timeout.
or button pressed again

If you wish to define your own Trigger delay time,
you can use this function to define delay time from
3 to 255 seconds directly with Appendix A and Appendix B.

Example:if you wish to Trigger on 15 seconds

Read "Begin" → "Trigger for option" → Appendix A
"0" → "F" → "SET" → "END"



Continuous reading

On-all the time

Same bar code

Off-never off or trigger
off

Continuous
read

Safety time Default Value is
1 Sec



Safety time setting

Scan "Begin"+ "Safety
time"+ "0"+ "6"+ "Set"
+ "End"

Safety time
0.6 Sec

Set value is 0.6 Sec.



Flash Mode

Default value are Flash On 0.4
Sec,Flash Off 0.2 Sec.



Flash on/off time

Scan "Begin"+ "Flash on/
off Time"+ "0"+ "A"+
"0"+ "6" + "Set"+ "End".
Set values are Flash on 1 Sec,
Flash off 0.6 Sec.

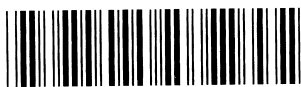
Flash on 1
Sec

Flash off
0.6 Sec.



End

10. Turn On Various Bar Code Format



Begin

OFF

ON



Code 39*



*Interleaved 2 of 5



*Industrial 2 of 5



*Matrix 2 of 5



Coda Bar*



EAN-13*/UPC-A*



EAN-8*



UPC-E*

OFF

ON



*EAN/UPC
Add-on 2/5



Code 128*



Code 11*



*MSI/Plessey



*China Postal Code



*Telepen



*Code 93



End

11. Code Identifier



Begin

AIM Identifier



*Off



On

User Definition



Code 39



Interleaved 2 of 5



Industrial 2 of 5



Matrix 2 of 5



Coda Bar



EAN-13/UPC-A



EAN-8



UPC-E



Code 11



MSI



Code 128



Code 93



Plessey



Telepen

Please refer the Appendix B-ASC II table for the ID character you need, for example: scan “5” “3” for S or scan “5” “0” for P, followed by “Set” to confirm the value. There is only one code identifier allowed on the specific type bar code.



End

Code Name Transmission



*NO



YES

This function is useful to show bar code name.

Example : Read "Begin" → "YES" → "END"

12. Code 39 Control



Begin



Off



*On

CIP 32 Control



*OFF



ON

CIP 39 Control



*OFF



ON



*Standard type



Full ASCII

Transmit start/stop character



*No



Yes

Verify checksum



*No



Yes

Transmit check character



No



*Yes



End

13. Interleaved 2 of 5 Control



Begin



*Off



On

Transmit check digit



No



*Yes

Verify check digit



*No



Yes



Define Length

You may set up to 3 fixed bar code lengths if necessary.
Please refer to the hexadecimal table in Appendix A, for
example : scan "0" "A"—10

scan "0" "C"—12

scan "0" "E"—14

Read"Set"to confirm the length value before read"End"

You will be able to read the Interleaved 2 of 5 code
length which is equal to 10,12,14,digits only.



End

14. Industrial 2 of 5 Control



Begin



*Off



On

Transmit check digit



No



*Yes

Verify check digit



*No



Yes



Define Length

You may set up to 3 fixed bar code lengths if necessary.
Please refer to the hexadecimal table in Appendix A, for
example : scan "0" "A"—10

scan "0" "C"—12

scan "0" "E"—14

Read "Set" to confirm the length value before read "End"

You will be able to read the Industrial 2 of 5 code length

Which is equal to 10,12,14,digits only.



End

15. Matrix 2 of 5 Control



Begin



***Off**



On

Transmit check digit



No



***Yes**

Verify check digit



***No**



Yes



Define Lenhgh

You may set up to 3 fixed bar code lengths if necessary.
Please refer to the hexadecimal table in Appendix A, for
example : scan "0" "A"—10
 scan "0" "C"—12
 scan "0" "E"—14

Read"Set"to confirm the length value before read "End".
You will be able to read the Matrix 2 of 5 code length
which is equal to 10, 12, 14, digits only.



End

16. Coda Bar Control



Begin



Off



*On

Transmit Start/End



*No



Yes

Start/End Transmit type



ABCD/ABCD



ABCD/TN*e



*ABCD/abcd



ABCD/tn*e

Verify checksum



*No



Yes

Transmit check character



*No



Yes

CLSI Format (14 chars. start/stop no included)



*No



Yes



End

17. EAN-13 Control



Begin



Off



*On

Transmit check digit



No



*Yes



End

18 EAN-8 Control



Begin



Off



*On

Transmit check digit



No



*Yes

EAN8 To EAN13 Conversion



*Off



On



End

19. UPC-A Control



Begin



Off



*On

UPC-A TO EAN13
Truncate Leading "0"

UPC-A TO EAN13
Truncate Leading "0"



*NO



YES

UPC-A
Truncate Leading Digit

UPC-A
Truncate Leading Digit



*NO



YES

Transmit check digit



No



*Yes



End

20. UPC-E Control



Begin



Off



***On**

**UPC-E
Truncate Leading Digit**



***NO**

**UPC-E
Truncate Leading Digit**



YES

Transmit check digit



No



***Yes**

UPC-E To UPC-A Conversion



***Off**



On



End

Prefix “00000” to UPC-E



***OFF**



ON

21.French Caps Lock Control. ISBN Conversion Control



Begin

French Caps Lock



ISBN CONVERSION



* NO



YES



End

22. Code 11 Control



Begin



Off



*On

Number of check digit



1



*2

Verify check digit



No



*Yes



End

23. Telepen mode



Numeric



Alphanumeric

Note:

To read these commands the Telepen family MUST be enabled.

The default is Alphanumeric mode (at each power up of the reader).

24. China Postal Code Control



Begin



*Off



On

Transmit check digit



No



*Yes

Verify check digit



NO



*Yes



Define Length

You may set up to 3 fixed bar code lengths if necessary.
Please refer to the hexadecimal table in Appendix B, for
example : scan “0” “A”—10

scan “0” “C”—12

scan “0” “E”—14

Read “Set” to confirm the length value before to read
“End”. You will be able to read the China Postal code
length which is equal to 10, 12, 14, digits only.



End

25. Set Prefix or Suffix



Begin



Prefix



Suffix

Please refer to Appendix A regarding the prefix string or suffix string.

You may add up to 10 characters as suffix.



End

Example:

Set Prefix =STX and Suffix =CR+LF

Read "Begin"

Read "Prefix"+"0"+"2"+Set

Read "Suffix"+"0"+"D"+"0"+"A"+"Set"

Read "End"

Example:

Set "Enter" function

Read "Begin"

Read "Prefix"

Read "0"+"D"+"Set"

Read "End"

※Read "0"+"D"+"0"+"D", "Enter" 2 times.

26. Other Control



Begin

Buzzer Volume



*Highest



High



Medium



Lowest



Low

Buzzer duration



*0.1 Sec



0.3 Sec



1 Sec

Keystroke / Character



*Fastest



Fast



Medium



Slowest



Slow



End

27. Code128 Control



Begin

UCC128 / EAN128 Control



*Off



On

Transmit check digit



*Off



On

Set * GS * charactor



End

Appendix A: Hexadecimal / Decimal Table

0



9



1



A



2



B



3



C



4



D



5



E



6



F



7



SET



8



Appendix B: Hex and Numeric table

(To read the desired hex and numeric selections)

DEC	HEX	PC	ASC II	DEC	HEX	PC & ASC II
0	00	(Null)	NULL	37	25	%
1	01	☺	SOH	38	26	&
2	02	☹	STX	39	27	'
3	03	♥	ETX	40	28	(
4	04	♦	EOT	41	29	)
5	05	♣	ENQ	42	2A	*
6	06	♠	ACK	43	2B	+
7	07	●	BEL	44	2C	,
8	08	□	BS	45	2D	-
9	09	○	HT	46	2E	.
10	0A	■	LF	47	2F	/
11	0B	♂	VT	48	30	0
12	0C	♀	FF	49	31	1
13	0D	♪	CR	50	32	2
14	0E	♫	SO	51	33	3
15	0F	⊙	SI	52	34	4
16	10	▶	DLE	53	35	5
17	11	◀	DC1	54	36	6
18	12	↑	DC2	55	37	7
19	13	!!	DC3	56	38	8
20	14	¶	DC4	57	39	9
21	15	§	NAK	58	3A	:
22	16	-	SYN	59	3B	;
23	17	↓	ETB	60	3C	<
24	18	↑	CAN	61	3D	=
25	19	↓	EM	62	3E	>
26	1A	→	SUB	63	3F	?
27	1B	←	ESC	64	40	@
28	1C	└	FS	65	41	A
29	1D	↔	GS	66	42	B
30	1E	▲	RS	67	43	C
31	1F	▼	US	68	44	D
32	20	Space		69	45	E
33	21	!		70	46	F
34	22	"		71	47	G
35	23	#		72	48	H
36	24	\$		73	49	I

DEC	HEX	PC & ASC II	DEC	HEX	PC & ASC II
74	4A	J	113	71	q
75	4B	K	114	72	r
76	4C	L	115	73	s
77	4D	M	116	74	t
78	4E	N	117	75	u
79	4F	O	118	76	v
80	50	P	119	77	w
81	51	Q	120	78	x
82	52	R	121	79	y
83	53	S	122	7A	z
84	54	T	123	7B	{
85	55	U	124	7C	
86	56	V	125	7D	}
87	57	W	126	7E	~
88	58	X	127	7F	△
89	59	Y	128	80	Ç
90	5A	Z	129	81	ü
91	5B	[	130	82	é
92	5C	\	131	83	â
93	5D	]	132	84	ä
94	5E	^	133	85	à
95	5F	_	134	86	å
96	60	`	135	87	ç
97	61	a	136	88	ê
98	62	b	137	89	ë
99	63	c	138	8A	è
100	64	d	139	8B	ï
101	65	e	140	8C	î
102	66	f	141	8D	ì
103	67	g	142	8E	Ä
104	68	h	143	8F	Å
105	69	i	144	90	É
106	6A	j	145	91	æ
107	6B	k	146	92	Æ
108	6C	l	147	93	Ö
109	6D	m	148	94	ö
110	6E	n	149	95	Ò
111	6F	o	150	96	û
112	70	p	151	97	ù

DEC	HEX	PC & ASC II	DEC	HEX	PC & ASC II
152	98	ÿ	190	BE	┘
153	99	Ö	191	BF	┐
154	9A	Ü	192	C0	└
155	9B	¢	193	C1	┌
156	9C	£	194	C2	┐
157	9D	¥	195	C3	└
158	9E	Pts	196	C4	—
159	9F	f	197	C5	+
160	A0	á	198	C6	└
161	A1	í	199	C7	└
162	A2	ó	200	C8	└
163	A3	ú	201	C9	┐
164	A4	ñ	202	CA	┌
165	A5	Ñ	203	CB	┐
166	A6	ä	204	CC	└
167	A7	Q	205	CD	=
168	A8	¿	206	CE	+
169	A9	┐	207	CF	┌
170	AA	┐	208	D0	┌
171	AB	½	209	D1	┐
172	AC	¼	210	D2	┐
173	AD	¡	211	D3	└
174	AE	«	212	D4	└
175	AF	»	213	D5	┐
176	B0	░	214	D6	┐
177	B1	▒	215	D7	+
178	B2	▓	216	D8	+
179	B3		217	D9	┘
180	B4	└	218	DA	┐
181	B5	└	219	DB	▀
182	B6	└	220	DC	▀
183	B7	┐	221	DD	▀
184	B8	┐	222	DE	▀
185	B9	└	223	DF	▀
186	BA		224	E0	α
187	BB	┐	225	E1	β
188	BC	┘	226	E2	Γ
189	BD	┘	227	E3	π

DEC	HEX	PC & ASC II	DEC	HEX	PC & ASC II
228	E4	Σ			
229	E5	σ			
230	E6	μ			
231	E7	Υ			
232	E8	Φ			
233	E9	θ			
234	EA	Ω			
235	EB	δ			
236	EC	∞			
237	ED	ϕ			
238	EE	ε			
239	EF	$\cap$			
240	F0	$\equiv$			
241	F1	$\pm$			
242	F2	$\geq$			
243	F3	$\leq$			
244	F4	$\int$			
245	F5	$\int$			
246	F6	$\div$			
247	F7	$\approx$			
248	F8	$\bigcirc$			
249	F9	●			
250	FA	·			
251	FB	$\sqrt{\quad}$			
252	FC	η			
253	FD	2			
254	FE	■			
255	FF	(Bland)			