

# **TOSHIBA**

TOSHIBA Bar Code Printer

## **B-EV4 Series**

## **ZPL II/EPL II Emulation Specification**

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**TOSHIBA TEC CORPORATION**

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## 1. LED and Key Functions

### 1.1. LED Indication

LED status	Description
Lights up in green	Online
Flashes in green	Receiving data or in a pause state.
Lights up in orange	Clearing data.
Lights up in red	The top cover is opened or a cutter error occurred.
Flashes in red	An error occurred while printing (The top cover is opened, no paper, paper jam, no ribbon, memory error, etc.)

### 1.2. Function of FEED button

#### 1) Feed function

In online mode, pressing this button causes a media feed.

#### 2) Pause function

While printing, pressing this button temporarily stops printing and causes the LED to flash in green.

When this button is pressed again, the printer resumes printing.

### 1.3. System mode

The printer starts in the system mode when the power is turned on with the FEED button held down.

There are six menus in the system mode. A menu to access depends on the timing when the FEED button is released.

System mode	Order of the LED status (from left to right)						
LED Color Menu	Lights up in orange	Red (flashes 5 times)	Orange (flashes 5 times)	Green (flashes 5 times)	Green/Orange (flashes 5 times)	Red/Orange (flashes 5 times)	Lights up in green
Calibration of the ribbon sensor and media sensor		Release					
Media sensor calibration, Self print test, and dump mode			Release				
Initialization of the printer				Release			
Selection and calibration of the reflective sensor					Release		
Selection and calibration of the transmissive sensor						Release	
Reserved							Release

### 1.3.1. Adjustment of the ribbon sensor and media sensor

In the following cases, the media sensor (transmissive sensor or reflective sensor) needs to be calibrated.

1. After unpacking
2. After a media type is changed
3. After an initialization of the printer

Perform a sensor calibration using the following procedure.

1. Turn off the printer.
2. While holding down the FEED button, turn on the printer.
3. Release the FEED button when the LED flashes in red 5 times.

NOTE: The transmissive sensor or the reflective sensor should be selected in advance using the setting tool.

### 1.3.2. Sensor Calibration, Self print test, and dump mode

The printer measures the media pitch during a media sensor calibration, performs a self print test, then enters the dump mode. In this case, the last specified media sensor type is activated.

1. Turn off the printer.
2. While holding down the FEED button, turn on the printer.
3. Release the FEED button while the LED flashes in orange 5 times.
4. The printer measures the media pitch during a media sensor calibration, performs a self print test, then enters the dump mode.

#### Self test

```
PRINTER INFO.
*****
BEV4 Version: 1.00 EZ
MILAGE(m): 127
CHECKSUM: 060772E3
SERIAL PORT: 9600,N,8,1
CODE PAGE: 850
COUNTRY CODE: 001
SPEED: 5 INCH
DENSITY: 8.0
SIZE: 4.00 , 6.90
GAP: 0.00 , 0.00
TRANSPARENCY: 16
MAC ADDRESS: 00-1B-82-FF-52-2F
DHCP ENABLED: YES
IP ADDRESS: 0.0.0.0
SUBNET MASK: 0.0.0.0
DEFAULT GATEWAY: 0.0.0.0
*****
FILE LIST:
DRAM FILE:          0 FILE(S)
FLASH FILE:         0 FILE(S)
*****
PHYSICAL DRAM:      8192 KBYTES
AVAILABLE DRAM:     256 KBYTES FREE
PHYSICAL FLASH:     4096 KBYTES
AVAILABLE FLASH:    3136 KBYTES FREE
END OF FILE LIST
*****
```

Model name & Firmware version  
Running distance  
Checksum  
Serial interface setting  
Code page  
Country code  
Print speed  
Print tone  
Media size (Width and length)  
Gap size (Length, offset)  
Sensor value

### 1.3.3. Initialization of the printer

The printer performs a RAM clear and initializes the printer settings to the factory default.

1. Turn off the printer.
2. While holding down the FEED button, turn on the printer.
3. Release the FEED button while the LED flashes in green 5 times.

Initial setting

Parameter	Initial setting
Print speed	203dpi: 127mm/sec(5ips) 300dpi: 76mm/sec(3ips)
Print tone	8
Media width (Backing paper width)	101.5mm(4")
Label width	101.5mm(4")
Sensor type	Transmissive sensor
Gap length	3.0mm(0.12")
Printing direction	0
Tear-off mode	ON
Peel-off mode	OFF
Cut mode	OFF
Serial interface setting	9,600bps, none parity, 8 data bits, 1 stop bit
Code page	850
Country code	001
IP address	DHCP

### 1.3.4. Selection and calibration of the reflective sensor

The reflective sensor is selected and calibrated using the following procedure.

1. Turn off the printer.
2. While holding down the FEED button, turn on the printer.
3. Release the FEED button while the LED flashes in green and orange 5 times.

### 1.3.5. Selection and calibration of the transmissive sensor

The transmissive sensor is selected and calibrated using the following procedure.

1. Turn off the printer.
2. While holding down the FEED button, turn on the printer.
3. Release the FEED button while the LED flashes in red and orange 5 times.

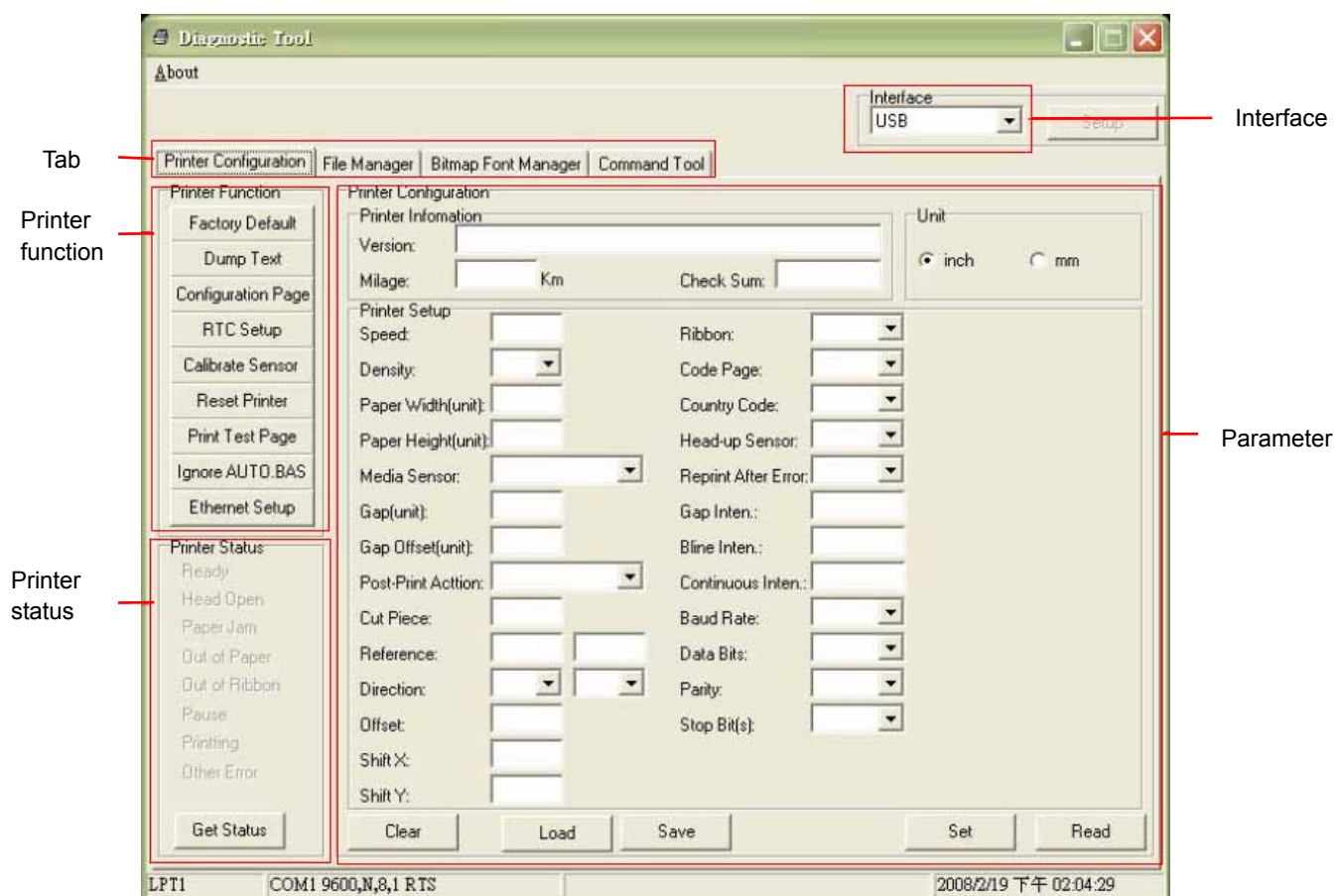
## 1.4. Status

LED status	Printer status	Description
OFF	No response	The printer is not turned on.
Lights up in green	Online	The printer is ready.
Flashes in green	Pause	The printer is in pause state.
Flashes in red	Error	No paper, no ribbon, or improper printer setting (sensor type, communication settings, etc.)

## 2. Diagnostic Tool

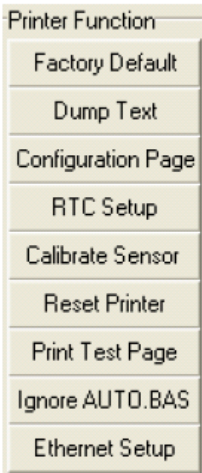
### 2.1. How to use

- 1) Double-click on the Diagnostic tool icon, and the following screen appears.
- 2) The Diagnostic tool has four tabs: Printer Configuration, File Manager, Bitmap Font Manager, and Command Tool.



## 2.2. Printer Configuration (Calibration, LAN settings, etc.)

- 1) Choose an interface between the PC and the printer.
- 2) Click on the Printer Function buttons.
- 3) See the following table for the function of each button.

 Printer Function Factory Default Dump Text Configuration Page RTC Setup Calibrate Sensor Reset Printer Print Test Page Ignore AUTO.BAS Ethernet Setup	Button	Function
	Factory Default	Initializes the printer settings to the factory default status.
	Dump Text	Places the printer in the dump mode.
	Configuration Page	Prints the printer configurations.
	RTC Setup	No function
	Calibrate Sensor	Performs a calibration of the specified sensor.
	Reset Printer	Reboots the printer.
	Print Test Page	Prints a print test pattern.
	Ignore AUTO.BAS	No function
	Ethernet Setup	Enables LAN settings.



### 3. Supported Command

#### 3.1. ZPL II Command List

Command	Support	Function	Remarks
^A	Yes	Scalable/Bitmapped Font	
^A@	Yes	Use Font Name to Call Font	
^B1	Yes	Code 11 Bar Code	
^B2	Yes	Interleaved 2 of 5 Bar Code	
^B3	Yes	Code 39 Bar Code	
^B4	No	Code 49 Bar Code	
^B5	No	Planet Code bar code	
^B7	Yes	PDF417 Bar Code	
^B8	Yes	EAN-8 Bar Code	
^B9	Yes	UPC-E Bar Code	
^BA	Yes	Code 93 Bar Code	
^BB	No	CODABLOCK Bar Code	
^BC	Yes	Code 128 Bar Code (Subsets A, B, and C)	
^BD	Yes	UPS Maxicode Bar Code	
^BE	Yes	EAN-13 Bar Code	
^BF	No	Micro PDF417 Bar Code	
^BI	No	Industrial 2 of 5 Bar Codes	
^BJ	No	Standard 2 of 5 Bar Code	
^BK	Yes	ANSI Codabar Bar Code	
^BL	No	LOGMARS Bar Code	
^BM	Yes	MSI Bar Code	
^BP	Yes	Plessey Bar Code	
^BQ	Yes	QR Code Bar Code	
^BR	Yes	RSS Bar Code	
^BS	Yes	UPC/EAN Extensions	
^BT	No	TLC39 bar code	
^BU	Yes	UPC-A Bar Code	
^BX	Yes	Data Matrix Bar Code	
^BY	Yes	Bar Code Field Default	
^BZ	Yes	POSTNET Bar Code	
^CC	Yes	Change Carets	
^CD	Yes	Change Delimiter	
^CF	Yes	Change Alphanumeric Default Font	
^CI	Yes	Change International Font	
^CM	Yes	Change Memory Letter Designation	
^CO	No	Cache On	

Command	Support	Function	Remarks
^CT	Yes	Change Tilde	
^CV	No	Code Validation	
^CW	Yes	Font Identifier	
^DF	Yes	Download Format	
^EF	Yes	Erase Stored Formats	
^EG	Yes	Erase Download Graphics	
^FA	Yes	Field Allocate	
^FB	Yes	Field Block	Part
^FC	No	Field Clock (for Real-Time Clock)	
^FD	Yes	Field Data	
^FH	Yes	Field Hexadecimal Indicator	
^FM	No	Multiple Field Origin Locations	
^FN	Yes	Field Number	
^FO	Yes	Field Origin	
^FP	No	Field Parameter	
^FR	Yes	Field Reverse Print	
^FS	Yes	Field Separator	
^FT	Yes	Field Typeset	
^FV	Yes	Field Variable	
^FW	Yes	Field Orientation	
^FX	Yes	Comment	
^GB	Yes	Graphic Box	
^GC	Yes	Graphic Circle	
^GD	Yes	Graphic Diagonal Line	
^GE	No	Graphic Ellipse	
^GF	Yes	Graphic Field	
^GS	Yes	Graphic Symbol	
^HF	Yes	Host Format	
^HG	Yes	Host Graphic	
^HH	Yes	Configuration Label Return	
^HW	Yes	Host Directory List	
^HY	No	Upload Graphics	
^HZ	No	Display Description Information	
^ID	Yes	Object Delete	
^IL	Yes	Image Load	
^IM	Yes	Image Move	
^IS	Yes	Image Save	
^JB	Yes	Initialize Flash Memory	

Command	Support	Function	Remarks
^JI	No	Start ZBI (Zebra BASIC Interpreter)	
^JJ	No	Set Auxiliary Port	
^JM	No	Set Dot per Millimeter	
^JS	No	Change Backfeed Sequence	
^JT	No	Head Test Interval	
^JU	Yes	Configuration Update	
^JW	No	Set Ribbon Tension	
^JZ	No	Reprint After Error	
^KD	No	Select Date and Time Format (for Real Time Clock)	
^KL	No	Define Language	
^KN	No	Define Printer Name	
^KP	No	Define Password	
^LH	Yes	Label Home	
^LL	Yes	Label Length	
^LR	Yes	Label Reverse Print	
^LS	Yes	Label Shift	
^LT	Yes	Label Top	
^MC	Yes	Map Clear	
^MD	Yes	Media Darkness	
^MF	Yes	Media Feed	
^ML	Yes	Maximum Label Length	
^MM	Yes	Print Mode	
^MN	Yes	Media Tracking	
^MP	No	Mode Protection	
^MT	Yes	Media Type	
^MU	No	Set Units of Measurement	
^NW	No	Modify Heading Warning	
^NI	No	Network ID Number	
^NS	No	Change Networking Settings	
^PF	No	Slew Given Number of Dot Rows	
^PH	Yes	Slew to Home Position	
^PM	Yes	Printing Mirror Image of Label	
^PO	Yes	Print Orientation	
^PP	Yes	Programmable Pause	
^PQ	Yes	Print Quantity	
^PR	Yes	Print Rate	
^PW	Yes	Print Width	
^SC	Yes	Set Serial Communications	

Command	Support	Function	Remarks
^SE	Yes	Select Encoding	
^SF	No	Serialization Field (with a standard ^FD String)	
^SL	No	Set Mode and Language (for Real-Time Clock)	
^SN	Yes	Serialization Data	
^SO	No	Set Offset (for Real-Time Clock)	
^SP	No	Start Print	
^SQ	No	Halt ZebraNet Alert	
^SR	No	Set Printhead Resistance	
^SS	No	Set Media Sensors	
^ST	No	Set Date and Time (for Real-Time Clock)	
^SX	No	Set ZebraNet Alert	
^SZ	No	Set ZPL	
^TO	Yes	Transfer Object	
^WD	Yes	Print Directory Label	
^XA	Yes	Start Format	
^XB	Yes	Suppress Backfeed	
^XF	Yes	Recall Format	
^XG	Yes	Recall Graphic	
^XZ	Yes	End Format	
^ZZ	Yes	Printer Sleep	
~CC	Yes	Change Carets	
~CD	Yes	Change Delimiter	
~CT	Yes	Change Tilde	
~DB	Yes	Download Bitmap Font	
~DE	Yes	Download Encoding	
~DG	Yes	Download Graphic	
~DN	No	Abort Download Graphic	
~DS	No	Download Scalable Font	
~DT	No	Download TrueType Font	
~DU	Yes	Download Unbounded TrueType Font	
~DY	No	Download Graphic	
~EF	Yes	Erase Stored Formats	
~EG	Yes	Erase Download Graphics	
~HB	No	Battery Status	
~HD	No	Head Temperature Information	
~HI	Yes	Host Identification	
~HM	Yes	Host RAM Status	
~HS	Yes	Host Status Return	

Command	Support	Function	Remarks
~HU	No	Return ZebraNet Alert Configuration	
~JA	No	Cancel All	
~JB	No	Reset Optional Memory	
~JC	Yes	Set Media Sensor Calibration	
~JD	No	Enable Communications Diagnostics	
~JE	No	Disable Diagnostics	
~JF	No	Set Battery Condition	
~JG	No	Graphing Sensor Calibration	
~JI	No	Start ZBI (Zebra BASIC Interpreter)	
~JL	Yes	Set Label Length	
~JN	No	Head Test Fatal	
~JO	No	Head Test Non fatal	
~JP	No	Pause and Cancel Format	
~JQ	No	Terminate Zebra BASIC Interpreter	
~JR	Yes	Power On Reset	
~JS	Yes	Change Backfeed Sequence	Only ~JSO
~JX	No	Cancel Current Partially Input Format	
~KB	No	Kill Battery (Battery Discharge Mode)	
~NC	No	Network Connect	
~NR	No	Set All Network Printers Transparent	
~NT	No	Set Currently Connected Printer Transparent	
~PH	Yes	Slew to Home Position	
~PP	Yes	Programmable Pause	
~PR	No	Applicator Reprint	
~PS	Yes	Print Start	
~RO	Yes	Reset Advanced Counter	
~SD	Yes	Set Darkness	
~TA	Yes	Tear-off Adjust Position	
~WC	Yes	Print Configuration Label	

### 3.2. EPL II Command List

Command	Support	Function	Remarks
A	Yes	Print an ASCII string	
AUTOFR	Yes	Automatic Form Printing	
B	Yes	Prints 1D barcode	
3	Yes	Code 39 std. or extended	
3C	Yes	Code 39 with check digit	
9	Yes	Code 93	

Command	Support	Function	Remarks
0	No	Code 128 UCC Serial Shipping Container Code	
1	Yes	Code 128 auto A, B, C modes	
1A	Yes	Code 128 mode A	
1B	Yes	Code 128 mode B	
1C	Yes	Code 128 mode C	
K	Yes	Codabar	
E80	Yes	EAN8	
E82	Yes	EAN8 2 digit add-on	
E85	Yes	EAN8 5 digit add-on	
E30	Yes	EAN13	
E32	Yes	EAN13 2 digit add-on	
E35	Yes	EAN13 5 digit add-on	
2G	No	German Post Code	
2	Yes	Interleaved 2 of 5	
2C	Yes	Interleaved 2 of 5 with mod 10 check digit	
2D	Yes	Interleaved 2 of 5 with mod 10 check digit	
P	Yes	Postnet 5, 9, 11 & 13 digit	
PL	No	Postnet 5, 9, 11 & 13 digit	
J	No	Japanese Postnet	
1E	Yes	UCC/EAN 128	
UA0	Yes	UPC A	
UA2	Yes	UPC A 2 digit add-on	
UA5	Yes	UPC A 5 digit add-on	
UE0	Yes	UPC E	
UE2	Yes	UPC E 2 digit add-on	
UE5	Yes	UPC E 5 digit add-on	
2U	No	UPC Interleaved 2 of 5	
L	Yes	Plessey (MSI-1) with mod 10 check digit	
M	Yes	MSI-3 with mode 10 check digit	
b	Yes	Prints 2D barcode	
D	Yes	Data Matrix	
M	Yes	Maxi Code	
P	Yes	PDF-417	
C	Yes	Counter	
C	Yes	CUT immediate	
D	Yes	Density	
dump	Yes	Enable Dump Mode	
eR	Yes	User Defined Error/Status Character	

Command	Support	Function	Remarks
EI	Yes	Print Soft Font Information	
EK	Yes	Delete Soft Font	
ES	Yes	Store Soft Font	
f	Yes	Cut position	
FE	Yes	End Form Store	
FI	Yes	Print Form Information	
FK	Yes	Delete Form	
FR	Yes	Retrieve Form	
FS	Yes	Store Form	
GG	Yes	Print Graphics	
GI	Yes	Print Graphics Information	
GK	Yes	Delete Graphics	
GM	Yes	Store Graphics	
GS	Yes	Direct Graphic Write	
I	Yes	Character Set Selection	
JB	Yes	Disable Top Of Form Backup	
JC	Yes	Disable Top Of Form Backup - All Cases	
JF	Yes	Enable Top Of Form Backup	
LE	Yes	Line Draw Exclusive OR	
LO	Yes	Line Draw Black	
LS	No	Line Draw Diagonal	
LW	Yes	Line Draw White	
M	No	Memory Allocation	
N	Yes	Clear Image Buffer	
o	Yes	Cancel Software Options	
oB	No	Cancel Auto Bar Code Optimization	
oE	No	Line Mode Font Substitution	
oH	No	Macro PDF Offset	
oM	Yes	Disable Initial Esc Sequence Feed	
oR	Yes	Character Substitution (Euro)	
oW	No	Customize Bar Code Parameters	
O	Yes	Hardware Option	
OP	Yes	PEEL MODE	
OC	Yes	CUTTER MODE	
OEPL1	No	Set Line Mode	
P	Yes	Print	
PA	Yes	Print Automatic	
q	Yes	Set Label Width	

Command	Support	Function	Remarks
Q	Yes	Set Form Length	
r	Yes	Set Double Buffer Mode	
R	Yes	Set Reference Point	
S	Yes	Speed Select	
TD	Yes	Date Recall & Formal Layout	
TS	Yes	Set Real Time Clock	
TT	Yes	Time Recall & Formal Layout	
U	Yes	Print Configuration (General)	
UA	Yes	Enable Clear Label Counter Mode	
UB	Yes	Reset Label Counter Mode	
UE	Yes	External Font Information Inquiry	
UF	Yes	Form Information Inquiry	
UG	Yes	Graphics Information Inquiry	
UI	Yes	Host Prompts/Codepage Inquiry	
UM	Yes	Codepage & Memory Inquiry	
UN	No	Disable Error Reporting	
UP	Yes	Codepage & Memory Inquiry/Print	
UQ	Yes	Configuration Inquiry	
US	No	Enable Error Reporting	
U%	No	Host Prompts/Motor Temperature	
U\$	No	Host Prompts/Battery Status	
V	Yes	Define Variable	
W	Yes	Windows Mode	
xa	Yes	AutoSense	
X	Yes	Box Draw	
Y	Yes	Serial Port Setup	
Z	Yes	Print Direction	
?	Yes	Download Variables	
^@	Yes	Reset Printer	
^default	Yes	Set Printer to Factory Defaults	
^ee	Yes	Error Report – Immediate	
;	Yes	Code Comment Line	