

TOSHIBA

Windows POS Terminal

ST-C10 Printer

**POS Printer OPOS Application
Programmer's Guide for TRST-C10BI**

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TOSHIBA TEC CORPORATION

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1. ST-C10 Built-in POS Printer

1.1. TRST-C10BI POS Printer Control

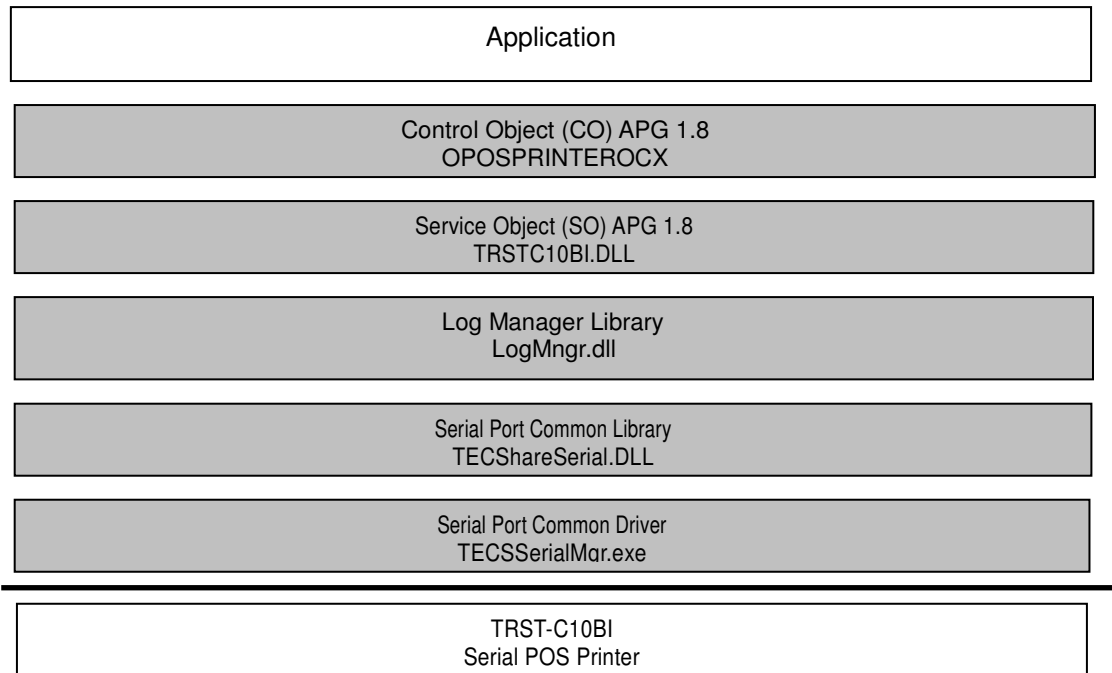
1.1.1. Applicable Models and Operating Systems

Model	Interface	Device Name (*1)
TRST-C10BI Serial POS Printer (Single)	Serial	"TRST-C10BI"
Operating System		
Windows XP Professional		
Windows Embedded for Point of Service 1.1 (WEPOS 1.1)		
Windows Embedded POSReady 2009		
Windows 7 Professional		
Windows Embedded POSReady 7		

(*1) Device names are used by the Open method.

1.1.2. Software Structure

The software structure of this Control is as shown below.



TRST-C10BI POS Printer Control – Software Structure

1.1.3. Functions

Printers supported	Printers not supported
Receipt printer	Journal printer Slip printer
Functions supported	Functions not supported
Synchronous/Asynchronous print Batch transaction Font type selection Bold print/Reversed character print Underline print Double width & height character print Center aligned/Right aligned Logo print Multiple line feed/Unit feed Partial paper cut Left90/Right90/180 rotation print Forward feed/180 rotation bar code print Forward feed/180 rotation bitmap print Cover open notification (*1) No paper notification Paper near end notification (*1) Two color print (red/black or blue/black) (*2) Red character print (*2)	Collection and submission of statistics Statistics reset Statistics change Simultaneous print to two kinds of printers Character set mapping Control of paper with mark Full paper cut Custom color print Color (full color) print Stamp print Shaded character print Reverse feed Cartridge status notification Cover open notification by stations Italic print Subscript/Superscript print Right90/Left90 rotation bar code print Right90/Left90 rotation bitmap print Embedded data transmission
Extended functions (DirectIO)	
Direct output to printer device Bitmap registration to flash ROM	

(*1) Available only when "PAPER LOW SENSOR" is set to "Enable" in the printer configuration setting of the OPOS printer.

(*2) Red or blue is selected depending on the paper used. Color Paper should be selected in the printer configuration setting of the OPOS printer.

TRST-C10BI POS Printer Control – Functions

TRSTC10BI properties (Items only defined by the device are listed.)

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	1008XXX (*1)
ServiceObjectDescription	"TEC TRST-C10 Built In Serial POS Printer Service Object."
ServiceObjectVersion	1008XXX (*1)
DeviceDescription	"ST-C10 Built In Serial POS Printer"
DeviceName	"TEC TRST-C10BI"
CapPowerReporting	OPOS_PR_NONE
CapStatisticsReporting	FALSE
CapUpdateStatistics	FALSE
Exclusive property	Value
CapCharacterSet	PTR_CCS_ASCII
CapConcurrentJrnRec	FALSE
CapConcurrentJrnSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSensor	TRUE
CapMapCharacterSet	FALSE
CapTransaction	TRUE
CapJrnPresent	FALSE
CapJrn2Color	FALSE
CapJrnBold	FALSE
CapJrnDhigh	FALSE
CapJrnDwide	FALSE
CapJrnDwideDhigh	FALSE
CapJrnEmptySenser	FALSE
CapJrnItalic	FALSE
CapJrnNerEndSensor	FALSE
CapJrnUnderline	FALSE
CapJrnCartridgeSensor	0
CapJrnColor	0
CapRecPresent	TRUE
CapRec2Color	TRUE
CapRecBarCode	TRUE
CapRecBitmap	TRUE
CapRecBold	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySenser	TRUE
CapRecItalic	FALSE
CapRecLeft90	TRUE
CapRecNearEndSensor	TRUE (*2)
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapRecCartridgeSensor	0
CapRecColor	OPOS_PR_NONE
CapRecMarkFeed	FALSE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE

CapSlp2Color	FALSE	
CapSlpBarCode	FALSE	
CapSlpBitmap	FALSE	
CapSlpBold	FALSE	
CapSlpDhigh	FALSE	
CapSlpDwide	FALSE	
CapSlpDwideDhigh	FALSE	
CapSlpEmptySenser	FALSE	
CapSlpItalic	FALSE	
CapSlpLeft90	FALSE	
CapSlpNerEndSenser	FALSE	
CapSlpRight90	FALSE	
CapSlpRotate180	FALSE	
CapSlpUnderline	FALSE	
CapSlpBothSidesPrint	FALSE	
CapSlpCartridgeSensor	0	
CapSlpColor	0	
CharacterSet	“437” (*3)	
CharacterSetList	“437,850,852,857,858,860,863,865,866,1252,1253,1254,1256,949,54936” (*4)	
FontTypefaceList (*5)	“FontA ,FontB”	
JrnLineChars	0	
JrnLineCharsList	0	
JrnLineHeight	0	
JrnLineSpacing	0	
JrnLineWidth	0	
RecLineChars (*6)	42	30
RecLineCharsList (*6)	“ 42,56”	“ 30,40”
RecLineHeight	28	
RecLineSpacing	34 (*7)	
RecLineWidth (*6)	546	416
RecSidewaysMaxLines (*6)	16 (*8)	12 (*8)
RecSidewaysMaxChars (*9)	166	222
RecLinesToPaperCut	6 (*10)	
RecBarCodeRotationList	“0,180”	
RecBitmapRotationList	“0,180”	
SlpLineChars	0	
SlpLineCharsList	“”	
SlpLineHeght	0	
SlpLineSpacing	0	
SlpLineWidth	0	
SlpSidewaysMaxChars	0	
SlpSidewayMaxLines	0	
SlpMaxLines	0	
SlpLinesNearEndToEnd	0	
SlpBarCodeRotationList	“”	
SlpBitmapRotationList	“”	

(*1) Build version is indicated as "XXX" because this document may not be revised every time the module is updated.

(*2) CapRecNearEndSensor is always set to TRUE and available only when "PAPER LOW SENSOR" of the printer configuration setting of the OPOS printer is set to "Enable".

(*3) The default value of CharacterSet changes depending on the country setting of the Control Panel. When "China" is selected, Code Page 54936 is selected, and when "Korea", Code Page 949 is selected.

- (*4) Some code pages in CharacterSetList cannot be used depending on a printer model used.
- (*5) Neither Code Page 949 nor Code Page 54936 supports Font B.
- (*6) Changes depending on the printer's paper width. The given values are used when the printer's paper width is 80 mm and 58 mm.
- (*7) The minimum value of RecLineSpacing is 24 which is equal to the value of RecLineHeight. Even when the value of RecLineSpacing is set to less than 24, it changes to 24.
- (*8) Changes depending on the value of RecLineSpacing. The given values are used when the value of RecLineSpacing is 27. When it is 24, the printer can print up to 24 lines/18 lines.

- (*9) The value of RecSidewaysMaxChars changes depending on the font used. It is 166 for Font A and 222 for Font B.
- (*10) Changes depending on the value of RecLineSpacing. The given values are used when the value of RecLineSpacing is 27.

TRSTC10BI POS Printer Control – Property Values (in part)

Escape sequence operable only when specified

Name	Data	Description
Paper cut	ESC #P	Operable The character “#” signifies the percentage cut desired. 0 : No cut 1-100 : Partial cut
Feed and Paper cut	ESC #fP	Operable The character “#” signifies the percentage cut. 0 : No cut 1-100 : Partial cut Paper is fed by the RecLinesToPaperCut lines.
Feed & Paper cut & Stamp print	ESC #sP	Not operable Only Feed and Paper cut are executed and Stamp Print is ignored.
Bitmap print	ESC #B	Operable The character “#” signifies the bitmap number specified by the SetBitmap method. Bit numbers “1” to “10” can be specified. These bitmaps (bitmap numbers 1 to 10) are saved using the SetBitmap method. 1-3 : A bitmap is saved in the RAM. 4-10 : A bitmap is saved in the flash ROM. The extended function of DirectIO is used to save a bitmap in the flash ROM.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable Ignored
Multiple line feed	ESC #fF	Operable The character “#” signifies the number of lines to be fed.
Unit feed	ESC #uF	Operable The character “#” signifies the number of lines to be fed by MapMode units.
Reverse feed	ESC #rF	Not operable Ignored
Embedded data transmission	ESC #E	Not operable Ignored

Escape sequence operable during printing

Name	Data	Description
Font type selection	ESC #fT	Operable The character “#” signifies a value that specifies a font type. 1: Font A 2: Font B

Escape sequence operable while printing characters

Name	Data	Description
Bold	ESC bC	Operable
Underline	ESC #uC	Operable The character “#” signifies the underline thickness. 0: No underline 1: Thin underline 2: Thick underline
Italic	ESC iC	Not operable Ignored
Custom color	ESC #rC	Not operable Ignored
Red character	ESC rC	Operable (*1)
Reversed character	ESC rvC	Operable
Shaded character	ESC #sC	Not operable Ignored
Single width & height character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal scale	ESC #hC	Operable The character “#” signifies a horizontal scale. 0 – 150: x1 151 – 250: x2 251 – 350: x3 351 – 450: x4 451 – 550: x5 551 – 650: x6 651 – 750: x7 751 - : x8
Vertical scale	ESC #vC	Operable The character “#” signifies a vertical scale. 0 – 150: x1 151 – 250: x2 251 – 350: x3 351 – 450: x4 451 – 550: x5 551 – 650: x6 651 – 750: x7 751 - : x8
Color selection	ESC #fC	Not operable Ignored
Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable
Subscript	ESC tbC	Not operable Ignored

Superscript	ESC tpC	Not operable Ignored
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(*1) Blue character is selected depending on the paper used.

TRST-C10BI POS Printer Control – Escape Sequence

1.1.4. CheckHealth Method Specifications

1) Internal Level (OPOS_CH_INTERNAL)

This only checks a connection status of the device.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Internal Hcheck: Successful"	Connected
OPOS_E_FAILURE	"Internal Hcheck: Error"	Not connected
OPOS_E_NOTCLAIMED	"Hcheck: Exclusive"	Exclusive error
OPOS_E_DISABLED	"Hcheck: Disabled"	Disabled

2) External Level (OPOS_CH_EXTERNAL)

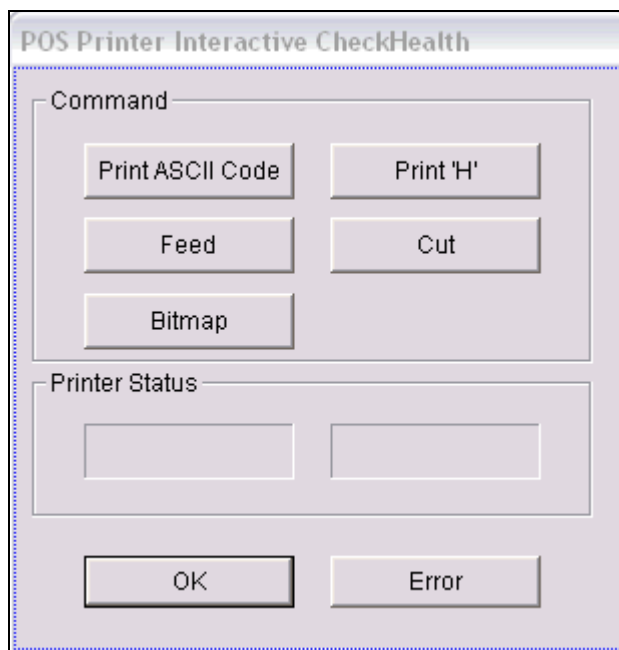
This checks a device status by printing a fixed character string given below.

"TEC POS Printer OPOS CheckHealth:External"

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External Hcheck: Successful"	Completed successfully
OPOS_E_FAILURE	"External Hcheck: Error"	Completed abnormally
OPOS_E_BUSY	"External Hcheck: Busy"	Device busy
OPOS_E_NOTCLAIMED	"Hcheck: Exclusive"	Exclusive error
OPOS_E_DISABLED	"Hcheck: Disabled"	Disabled

3) Interactive Level (OPOS_CH_INTERACTIVE)

This displays the following dialog box. Clicking each command button starts the corresponding operation of the POS printer and shows a printer status in the two "Printer Status" boxes.



Each command does the following:

- [Print ASCII Code]: Prints one line with alphanumeric characters.
- [Print 'H']: Prints one line with the character "H".
- [Feed]: Performs a paper feed.
- [Cut]: Performs a paper cut.
- [Bitmap]: Prints a bitmap image (192-dot height x full print width).

Each of the two "Printer Status" boxes shows a printer status. The right box shows a printer status in idle mode (when the printer is not in operation), and the left box shows a printer status when a command process is completed.

After visually checking the print result, press "OK" or "Error".

The dialog box shows no printer statuses in either of the right or left box while the command is being processed.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Completed successfully (with the OK button clicked)
OPOS_E_FAILURE	"Interactive Hcheck: Error"	Completed abnormally (with the Error button clicked)
OPOS_E_BUSY	"Interactive HCheck: Busy"	Device busy
OPOS_E_NOTCLAIMED	"HCheck: Exclusive"	Exclusive error
OPOS_E_DISABLED	"HCheck: Disabled"	Disabled

LONG TransactionPrint (LONG Station, LONG Control);Parameter Description*Station* The POS printer to be used. PTR_S_JOURNAL, PTR_S_RECEIPT, or PTR_S_SLIP.*Control* Batch transaction. Vales are as follows:Value Meaning

PTR_TP_TRANSACTION Starts Batch Transaction in Single Side Print mode.

PTR_TP_NORMAL Prints the buffered data and ends Batch Transaction.

Remarks This method is called to enter or exit from Batch Transaction mode. If *Control* is PTR_TP_NORMAL, Batch Transaction is performed and Batch Transaction mode is exited**LONG PrintNormal (LONG Station, BSTR Data);****PrintBarCode (LONG Station, BSTR Data, LONG Symbology, LONG Height, LONG Width, LONG Alignment, LONG TextPosition);****LONG PrintBitmap (LONG Station, BSTR FileName, LONG Width, LONG Alignment);****LONG RotatePrint (LONG Station, LONG Rotation);**Parameter Description*Station* The POS printer to be used. PTR_S_JOURNAL, PTR_S_RECEIPT, or PTR_S_SLIP.**LONG SetLogo (LONG Location, BSTR Data);**Parameter Description*Location* The logo to be set.
PTR_L_TOP or PTR_L_BOTTOM.*Data* The characters used for producing the logo.

<i>Location</i>	<i>Usable Data</i>
PTR_L_TOP PTR_L_BOTTOM	Printable characters, escape sequences, carriage returns, newline/line feed

1.1.5. DirectIO Method Specifications/DirectIOEvent Specifications

This Control supports the following extended functions using the DirectIO method.

Command	Function
TPTR_CMD_DIRECT_OUTPUT	Direct output to printer device
TPTR_CMD_FILE_OUTPUT	File data output
TPTR_CMD_SETBITMAP_FLASH_START	Start of bitmap registration to flash ROM
TPTR_CMD_SETBITMAP_FLASH_END	End of bitmap registration to flash ROM

TRST-C10BI POS Printer Control – DirectIO Methods

1) Direct Output To Printer Device

Function Directly sends a character string specified by pString to the printer device. The OPOS Control directly sends the character string without processing it. Some escape sequences, specific to the printer to which the character string is to be output, may affect the OPOS properties and performance of methods.

Format	Parameter	Description
	Command	TPTR_CMD_DIRECT_OUTPUT
	pData	Not used (Set "0" (zero).)
	pString	Specifies character string to be sent to the printer with escape sequence specific to the printer.

2) File Data Output

Function Outputs data in a specified file.
Directly sends a specified character string in a file to the printer device. The OPOS Control directly sends the character string without processing it. Some escape sequences, specific to the printer to which the character string is to be output, may affect the OPOS properties and performance of methods.

Format	Parameter	Description
	Command	TPTR_CMD_FILE_OUTPUT
	pData	Not used (Set "0" (zero).)
	pString	Specifies a name of file with full path, which stores the data to be output to the printer.

3) Start of BitmapRegistration to Flash ROM

Function Requests to start Bitmap Registration to Flash ROM of the printer device. This clears all bitmap data stored in the flash ROM. By using this method and SetBitmap method, bitmaps of Bitmap No. 4 to 10 can be registered, which can be retained even after the printer power is turned off.

Format	Parameter	Description
	Command	TPTR_CMD_SETBITMAP_FLASH_START
	pData	Not used (Set "0" (zero).)
	pString	Not used (Set null ("").)

4) End of Bitmap Registration to Flash ROM

Function Requests to end Bitmap Registration to Flash ROM of the printer device. After this method is completed, bitmaps of Bitmap No. 4 to 10 cannot be registered.

Format	Parameter	Description
	Command	TPTR_CMD_SETBITMAP_FLASH_END
	pData	Not used (Set "0" (zero).)
	pString	Not used (Set null ("").)

1.1.6. OPOS Registry

TRSTC10BI contains the following configuration information:

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter\TRSTC10BI

General	"TEC.TRSTC10BI"
Service	"C:\OPOS\TEC\TRSTC10BI.dll"
Description	"TEC TRSTC10 Built In Serial POS Printer"
Version	"1.8"
DeviceName	"TRSTC10BI"
Port (*2)	"COM4"
BaudRate (*2)	"115200"
TimeoutConstant (*2)	"0" –
TimeoutMultiplier (*2)	"0" –
Override	"Off" "On"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2" "Spain 2" "Latin " "Korea" "China"
PaperWidthMode	"0" "1"
FontSize	"2"
FontType	"1" "2"
BitmapAspect	"0" "1"
PrintBarcodeMode	"TEC" "Standard" "Option1"
WatchEndedThreadTimeout	"0" –
DebugLogLevel	"0" "1" "2"
DebugLogFile	"C:\TEC\OPOS\LOG\TRSTA10BI.LOG"
DBCSMode	"0" "1"
PrinterType	"TRST-C10BI"
CodePage	"437"
S3Support	"0"
S3atEnable	"0"
LowPowerSupport	"Yes"

(*2) Only for the serial devices

TRST-C10BI POS Printer Control – Registries

Registries for Printer

Service	Filename of Service Object
Description	Brief explanation of Service Object
Version	Version number of Service Object
DeviceName	Connected device
Port (*1)	Name of communication port Can be set from the Control Panel. Fixed value for TRST-C10BI
BaudRate	Communication speed Can be set from the Control Panel. Should be consistent with the baud rate setting of the device.
Override	For Left90/Right90 Rotation Print, specifies whether or not standard characters are to be printed on two lines which are used for printing double height characters. Off: Not printed On: Printed Can be set from the Control Panel.
Country	Country code Can be set from the Control Panel.
PaperWidthMode	Type of paper by paper width 0: 80 mm 1: 58 mm Can be set from the Control Panel. Should be consistent with the paper width setting of the device.
FontSize	Font size setting 1: FontSize1 2: FontSize2 Can be set from the Control Panel. Should be consistent with the paper width setting of the device.
FontType	Font type setting "1" : FontA "2" : FontB Specifies a font type to be typically used on the application. Can be set from the control panel. (For details, refer to the section "Limitations and Precautions" in this chapter.)
BitmapAspect	Bitmap aspect ratio setting 0: Not supported 1: Fixed
PrintBarCodeMode	Specifies the print mode for bar code printing. When "TEC" is specified, the print width of bar code is determined based on the ratio of width specified by the Width parameter to the paper width. When "Standard" is selected, the print width of bar code is determined by comparing the print width specified by the Width parameter to the width of bar code to be printed. (For details, refer to the section "Limitations and Precautions" in this chapter.)
WatchEndedThreadTimeout	Timeout for forced thread termination
UnKownRetryCount	Specifies whether or not a retry process is to be performed when a

	<p>connection with the device fails due to Unknow. When this item is not contained in the registry list, no values are given, or something other than a numeric value is specified, zero (0) is selected as a default.</p> <p>0: Retry process is not executed for Unknown (Default)</p> <p>Other than 0: Retry process is executed for UnKnown</p>
UnKownRetryTimeout	<p>Effective only when a value other than zero (0) is set for UnKnownRetryCount. To identify UnKnown from device not connected (Power OFF) for retries, a time is set in milliseconds.</p> <p>This module resets the device hardware to recover from UnKnown and identifies UnKnown from device not connected (Power OFF) depending on whether or not the device can be connected within a specified time of period. When this item is not contained in the registry list, no values are given, or something other than a numeric value is specified, 4000 (4 sec.) is selected as a default.</p>
DebugLogLevel	<p>Specifies a level for recording a log in a file specified by DebugLogFile.</p> <p>0: Log is not output.</p> <p>1: Level where a log is recorded mainly at a time of error</p> <p>2: Level where OPOS operations can be traced using a log.</p>
DebugLogFile	<p>Specifies a log file with path which records OPOS operations. If a folder does not exist, no log is kept.</p>
DBCMode	<p>When "Korea" is selected for Country, specifies whether or not the printer commands only used for DBCS (Double Byte Character Set) are to be used.</p> <p>The value should be the same as the DBCMode setting of the printer device.</p> <p>0: The commands only used for DBCS are not used.</p> <p>1: The commands only used for DBCS are used.</p> <p>Can be set from the Control Panel.</p>
ConnectTimeout	<p>Specifies maximum waiting time in the unit of msec until a connection is established with the printer. ConnectTimeout will default to "10000" if no value is specified or if anything other than a numeric value is specified.</p>
WriteTimeout	<p>Specifies maximum waiting time in the unit of msec until writing into the printer is completed successfully. WriteTimeout will default to "3000" if no value is specified or if anything other than a numeric value is specified.</p>
ReadTimeout	<p>Specifies maximum waiting time in the unit of msec until reading from the printer is completed successfully. ReadTimeout will default to "3000" if no value is specified or if anything other than a numeric value is specified.</p>
SendBufferSize	<p>Specifies the size of the send buffer in bytes. As the buffer size is more extended, the application will be restricted by data transmission for a shorter period of time. However, the risk of data loss will become higher in the event of a communication failure. SendBufferSize will default to "8000" if no value is specified or if anything other than a numeric value is specified.</p>
PrinterType	<p>This item is used only in Control Panel.</p> <p>The Control Panel sets minimum setting of each printer model based on a specified value collectively. This item recommends that I set it to a used printer model.</p> <p>PrinterType will default to "TRST-C10BI" if no value is specified or if anything other than a numeric value is specified.</p>

	"TRST-C10"
CodePage	This parameter is used for setting up the default codepage of the driver. The default value for this property is CodePage 437.
S3Support	<p>This parameter is used to enable or disable driver support for S3 suspend mode.</p> <p>Value "0" means S3 Support enabled.</p> <p>Value other than "0" means S3 Support disabled.</p> <p>If S3 Support is enabled, when driver detect suspend mode, it will create three files (if necessary),</p> <ol style="list-style-type: none"> 1. [physical device description] S3BMP.CVS to save the setBitmap parameters 2. [physical device description] S3TRANS.CVS to save transaction data 3. [physical device description] S3PREDEF.CVS to save predefine data (not supported in TRST-C10BI) <p>If S3Support is enabled, and if a transaction is still not complete (PTR_TP_NORMAL is not called yet) when the system goes into suspend mode driver will create the S3Trans.cvs file. At the time the driver wakes up from suspend mode, driver will end transaction print (Calling transaction print with PTR_TP_NORMAL), and perform feed-cut, before continuing with wake up sequence, and resend the methods in the transaction.</p>
S3atEnable	<p>This parameter is used to enable or disable driver support for sending S3 BMP data to printer when "SetDeviceEnable(true)" is called. This parameter is only working if S3Support is enabled, otherwise this parameter will be ignored.</p> <p>Value "0" means S3atEnable enabled.</p> <p>Value other than "0" means S3atEnable disabled.</p> <p>If S3atEnable is enabled means that then user set "DeviceEnabled" to TRUE, driver will resend the saved S3 parameter (BMP, and predefine) data to the printer.</p>
LowPowerSupport	<p>This parameter is used to enable or disable driver feature to set the printer to low power mode when ST-C10 terminal is powered by battery.</p> <p>Value "Yes" means low power mode is enabled</p> <p>Value "No" means low power mode is disabled.</p> <p>Default value for this setting is "Yes"</p>

(*1) Used by the TRST-C10BI

TRST-C10BI POS Printer Control –Registries for Printer

1.1.7. Limitations and Precautions

1) Font size and font type

For this device, font specifications are determined under the concept of font size and font type. Font sizes are FontSize1 and FontSize2 and font types are FontA and FontB. The font specifications are as follows.

Font Size	Font Type	Font Size of 1-byte Character (width x height)	Default Line Spacing
FontSize1	FontA	12 x 24[dot]	27[dot]
	FontB	9 x 24[dot]	
FontSize2	FontA	13 x 28[dot]	34[dot]
	FontB	10 x 28[dot]	

RST-C10BI POSPrinter OPOS - Font Specifications

This device can use 80-mm wide and 58-mm wide papers and depending on the paper being used, the number of printable characters per line varies. The value of **RecLineChars**, **RecLineCharsList**, **RecSidewaysMaxLines**, and **RecSidewaysMaxChars** properties is determined based on a paper width in addition to the above-mentioned font size and font type. The table below gives the values of each property.

Font Size	Paper Width	Font Type	RecLine Chars Property	RecLine CharsList Property	RecSideways MaxLines Property	RecSideways MaxChars Property
FontSize1	80mm	FontA	48	"48,64"	21	166
		FontB	64		21	222
	58mm	FontA	36	"36,48"	16	166
		FontB	48		16	222
FontSize2	80mm	FontA	42	"42,56"	16	153
		FontB	56		16	200
	58mm	FontA	32	"32,42"	12	153
		FontB	42		12	200

TRST-C10BI POSPrinter OPOS – Paper-width-dependent Properties

Because the value of **RecLineHeight**, **RecLineSpacing**, and **RecLineWidth** properties should be set in the unit specified by the **MapMode** property, the value of these properties is determined based on the **MapMode** property value as well as the above-mentioned font size, font type, and paper width. The table below gives the values of each property.

MapMode Property	Font Size	Paper Width	Font Type	RecLine Height Property	RecLine Spacing Property	RecLine Width Property
PTR_MM_DOTS (Dot width)	FontSize1	80mm	FontA	24	27	576
			FontB			576
		58mm	FontA			432
			FontB			432
	FontSize2	80mm	FontA	28	34	546
			FontB			560
		58mm	FontA			416
			FontB			420
PTR_MM_TWIPS (1/1440 of 1 inch)	FontSize1	80mm	FontA	170	191	4082
			FontB			4082
		58mm	FontA			3061
			FontB			3061
	FontSize2	80mm	FontA	198	240	3869
			FontB			3968
		58mm	FontA			2948
			FontB			2976
PTR_MM_ENGLISH (0.001 inch)	FontSize1	80mm	FontA	118	132	2834
			FontB			2834
		58mm	FontA			2125
			FontB			2125
	FontSize2	80mm	FontA	137	167	2686
			FontB			2755
		58mm	FontA			2047
			FontB			2066
PTR_MM_METRIC (0.01 mm)	FontSize1	80mm	FontA	300	337	7200
			FontB			7200
		58mm	FontA			5400
			FontB			5400
	FontSize2	80mm	FontA	350	425	6825
			FontB			7000
		58mm	FontA			5200
			FontB			5250

TRST-C10BI POSPrinter OPOS – MapMode-dependent Properties

2) Writable property that can change font

A font changes in accordance with the change of a RecLineChars value.

The RecLineChars value is changed to the value larger than and as close as a specified value, and accordingly the font is changed.

3) Bar code print

This POS printer can print the following bar codes:

Barcode Type	Number of digits	Available Characters
UPC-A	11,12	Numeric characters 0 to 9
UPC-E	11,12	Numeric characters 0 to 9
JAN8(EAN8)	7,8	Numeric characters 0 to 9
JAN13(EAN13)	12,13	Numeric characters 0 to 9
ITF	Variable length(*1) Even digits	Numeric characters 0 to 9
Codabar(NW7)	Variable length(*1)	Numeric characters 0 to 9, "A" to "D", "\$", "+", "-", ".", "/", "
Code 39	Variable length(*1)	Numeric characters 0 to 9, uppercase alphabet characters A to Z, space (" "), "\$", "%", "*", "+", "-", ".", "/", "
Code 93	Variable length(*1)	0 – 127
Code 128	Variable length(*1)	Start code: 103 – 105 Data TypeA: 0 – 95 TypeB: 32 – 127 TypeC: "0" – "9"
PDF417	Variable length(*1)	0 – 255

TRST-C10BI POS Printer Control – Printable Bar Codes

*1: The number of printable digits varies depending on paper width, existence of text, and font used for text.

When there is any text, the OPOS method completes successfully, but bar code is not printed, if print width for the text is larger than paper width.

For some bar code types, care must be taken when setting bar code data to the *Data* parameter of the PrintBarcode method.

Such bar code types and precautions are given in the table below:

Barcode Type	Precautions
Codabar(NW7)	Start code, "A", "B", "C", or "D" and stop code, "A", "B", "C", or "D" should be affixed. Even when neither of start code nor stop code is affixed, the OPOS method completes successfully, but bar code is not printed.
Code 39	If neither of start code "*" nor stop code "*" is affixed, the POS printer automatically affixes a start code and a stop code to print bar code.
Code 128	A start code, {A, {B, or {C should be affixed. When a start code is not affixed, the OPOS method performed as {A.
Code 128 with parsed	A start code, {A, {B, or {C should be affixed. Even when a start code is not affixed, the return value of OPOS method becomes OPOS_E_ILLEGAL.

TRST-C10BI POS Printer Control – Precautions for Setting Data Parameter

When a PrintBarcodeMode registry value is "Standard", bar code printing is performed in accordance with the specifications described in the APG.

By comparing the width specified by the Width parameter of the PrintBarcode method to that of the bar code to be printed, the bar code width is selected among the six levels of width, which is as close as the width of bar code to be printed and less than that specified by the Width parameter.

The module width changes depending on barcode type and width, and data as shown below. If all bar code digits cannot be printed on the printer, an error will result by the PrintBarcode method.

Barcode Type	Barcode Width (dots)	Module Width (dots)
UPC-A	95	1
	190	2
	285	3
	380	4
	475	5
	570	6
UPC-E	51	1
	102	2
	153	3
	204	4
	255	5
	306	6
JAN8(EAN8)	67	1
	134	2
	201	3
	268	4
	335	5
	402	6
JAN13(EAN13)	95	1
	190	2
	285	3
	380	4
	475	5
	570	6
ITF (Interleaved 2 of 5)	7 x number of characters + 8	1
	14 x number of characters + 16	2
	21 x number of characters + 24	3
	28 x number of characters + 32	4
	35 x number of characters + 40	5
	42 x number of characters + 48	6
Codabar(NW7)	10 x number of characters + 1 x number of the following characters (;, /, ., +, A, B, C, D)	1
	20 x number of characters + 2 x number of the following characters (;, /, ., +, A, B, C, D)	2
	30 x number of characters + 3 x number of the following characters (;, /, ., +, A, B, C, D)	3

	40 x number of characters + 4 x number of the following characters (;, /, ., +, A, B, C, D)	4
	50 x number of characters + 5 x number of the following characters (;, /, ., +, A, B, C, D)	5
	60 x number of characters + 6 x number of the following characters (;, /, ., +, A, B, C, D)	6
Code 39	13 x number of characters (other than start and stop codes) +25	1
	26 x number of characters (other than start and stop codes) +50	2
	39 x number of characters (other than start and stop codes) +75	3
	52 x number of characters (other than start and stop codes) +100	4
	65 x number of characters (other than start and stop codes) +125	5
	78 x number of characters (other than start and stop codes) +150	6
Code 93	9 x (number of characters + 4)	1
	18 x (number of characters + 4)	2
	27 x (number of characters + 4)	3
	36 x (number of characters + 4)	4
	45 x (number of characters + 4)	5
	54 x (number of characters + 4)	6
Code 128	5.5 x number of digits in Code Set C + 11 x number of characters in code sets other than Code Set C + 35 When counting the number of digits in Code Set C, one character equals to 2 digits.	1
	11 x number of digits in Code Set C + 22 x number of characters in code sets other than Code Set C + 70 When counting the number of digits in Code Set C, one character equals to 2 digits.	2
	16.5 x number of digits in Code Set C + 33 x number of characters in code sets other than Code Set C + 105 When counting the number of digits in Code Set C, one character equals to 2 digits.	3
	22 x number of digits in Code Set C + 44 x number of characters in code sets other than Code Set C + 140 When counting the number of digits in Code Set C, one character equals to 2 digits.	4

	27.5 x number of digits in Code Set C + 55 x number of characters in code sets other than Code Set C + 175 When counting the number of digits in Code Set C, one character equals to 2 digits.	5
	33 x number of digits in Code Set C + 66 x number of characters in code sets other than Code Set C + 210 When counting the number of digits in Code Set C, one character equals to 2 digits.	6
PDF417	Less than 1/6 of paper width	1
	1/6 or more, but less than 2/6 of paper width	2
	2/6 or more, but less than 3/6 of paper width	3
	3/6 or more, but less than 4/6 of paper width	4
	4/6 or more, but less than 5/6 of paper width	5
	5/6 or more, but less than paper width	6

TRST-C10BI POS Printer Control – Width of Bar Code to be Printed

When a PrintBarcodeMode registry value is “TEC”, the module width of bar code data is determined based on the *Width* parameter value of the PrintBarcode method. The narrower the module width is, the more numbers of the bar code digits can be printed. For the 58-mm and 80-mm wide paper, module width is as shown in the table below. This mode is supported for this Control to have compatibility with the Toshiba TEC's existing OPOS Control.

PrintBarcode Width Parameter	Module Width (dots)
Less than 1/2 of paper width	2
1/2 or more, but less than 3/4 paper width	3
3/4 or more, but less than paper width	4

TRST-C10BI POS Printer Control – Width of Bar Code Printed in TEC Mode (58 mm paper wide)

PrintBarcode Width Parameter	Module Width (dots)
Less than 1/2 of paper width	2
1/2 more, but less than 3/4 paper width	4
3/4 or more, but less than paper width	6

TRST-C10BI POS Printer Control – Width of Bar Code Printed in TEC Mode (80 mm paper wide)

When a PrintBarcodeMode registry value is “Option1”, the bar code module width is determined depending on the values input into the **printBarcode** method's symbology parameter and data parameter. For the bar code size to be actually printed, please refer to “Table 16 TRST-C10BI POS Printer Control – Width of Bar Code Printed in Option1 Mode”.

For example, when Code93 bar code is to be printed by 28 digits, the bar code is printed with bar code module width 1.

The following table gives module width for each bar code to be printed.

Bar Code Symbology	Module Width (dots) Specification.						Remarks
	1	2	3	4	5	6	
UPC-A	Not use	Printing	Not use	Not use	Not use	Not use	
UPC-E	Not use	Printing	Not use	Not use	Not use	Not use	
EAN-13	Not use	Printing	Not use	Not use	Not use	Not use	
EAN-8	Not use	Printing	Not use	Not use	Not use	Not use	
Code 39	21–42 digits	1–20 digits	Not use	Not use	Not use	Not use	
ITF	41-48 digits	1–40 digits	Not use	Not use	Not use	Not use	
Codabar (NW-7)	29-42 digits	1–28 digits	Not use	Not use	Not use	Not use	Including START/STOP codes
Code 93	28-44 digits	1–27 digits	Not use	Not use	Not use	Not use	
Code 128	24-48 digits	1–23 digits	Not use	Not use	Not use	Not use	
PDF417	Not use	Not use	Not use	Printing	Not use	Not use	

TRST-C10BI POS Printer Control – Width of Bar Code Printed in Option1 Mode

4) Bitmap print

- Bitmap files processed by the SetBitmap and PrintBitmap methods are printed only in black and white.
- Bitmaps are registered in the printer by the SetBitmap method and printed by the Bitmap Print escape sequence (ESC|#B). A bitmap set by a process is shared by all processes opened.
- Using SetBitmap, bitmaps can be registered in the RAM or flash ROM of the POS printer: in the RAM for Bitmap Nos. 1 to 3, and in the flash ROM for Bitmap Nos. 4 to 10. To register a bitmap in the flash ROM, a Start of Bitmap Registration to Flash ROM request and an End of Bitmap Registration to Flash ROM request of the DirectIO method should be called. All bitmaps saved in the RAM will disappear when the printer power is turned off, but those saved in the flash ROM will be retained even after the printer power is turned off.
- All bitmaps saved in the flash ROM will disappear, when the printer firmware setting such as FontSize is changed. That is why, as for this case, all bitmaps should be re-defined again.
- All bitmaps should be collectively saved in the flash ROM. When a bitmap is re-defined, all bitmaps should be re-defined again because they are deleted. It is recommended to use a tool to write bitmaps into the flash ROM which is provided together with the POS printer Control.
- SetBitmap limits the size of a bitmap to be saved in the flash ROM. The maximum width and height are as follows: Bitmaps can be clearly printed if the width and height are multiples of 8 dots.

In the case of FontSize1

	Width (Max.)	Height (Max.)
80-mm wide paper	576 (72*8)	512 (64*8)
58-mm wide paper	432 (54*8)	512 (64*8)

In the case of FontSize2

	Width (Max.)	Height (Max.)
80-mm wide paper	512 (64*8)	512 (64*8)
58-mm wide paper	360 (45*8)	512 (64*8)

In the case of FontSize2, the application should consider that bitmap image is printed after the font width is multiplied by 1.17 due to firmware specifications. For example, for the 512-dot wide bitmap, font width is $512 \times 1.17 \neq 597$ [Dots].

TRST-C10BI POS Printer Control – Max. Size of Bitmap Which Can be Saved Using SetBitmap

5) Notes for escape sequence

Operations, when an escape sequence is not specified at the head of line, but specified in the middle of character string, are as follows:

For example

When an escape sequence is specified after printing and without performing carriage returns as in the case with PrintNormal (Station, "111"):

Escape Sequence	Operation when Escape Sequence is not Specified at the Head of Line
Paper cut	Automatically performs carriage returns and cut a paper after printing a print data.
Barcode print	Automatically performs carriage returns and prints bar code data after printing a print data.
Bitmap print	Automatically performs carriage returns and prints bitmap data after printing a print data.
Center aligned	Whole line is center aligned including the character before an escape sequence. The last Center Aligned or Right Aligned escape sequence specified is effective.
Right aligned	Whole line is right aligned including the character before an escape sequence. The last Center Aligned or Right Aligned escape sequence specified is effective.

TRST-C10BI POS Printer Control – Notes for Escape Sequence

6) Unidirectional print and bi-directional print

This printer only supports unidirectional print.

Therefore, RecLetterQuality is always set to TRUE.

7) Difference in character set by countries and registry

This printer defines different characters for each country.

The Country registry specifies a character set for each country. Characters used only for certain countries and graphic characters for business use are assigned to the 12 characters: 0x23, 0x24, 0x40, 0x5B to 0x5E, 0x60, 0x7B to 0x7E.

This character set function is independent from the character setting by the CharacterSet property.

8) Timing of reporting the end of print method

This Control does not report the completion of printing when printing on a paper is completed, but reports when transmission of print data to the printer is completed. For this reason, a timing of such report may not be consistent with that when the printing is completed. Especially please note this when the amount of remaining printable area becomes low. There may be the cases that No Paper will occur after the application finishes sending all print data. It is recommended to replace a paper when a red mark, that indicates the amount of remaining printable area is low, appears. Or, it is recommended that the application can resume printing when the POS printer performed an abnormal printing.

9) Operation at a time of TransactionPrint Method error

This Control resumes printing from the beginning of a print transaction when an error occurs during an asynchronous print initiated by the TransactionPrint method and the application sets a value of pErrorResponse from the ErrorEvent handler to OPOS_ER_RETRY. A receipt can be output properly by manually cutting a paper before a retry is performed by the ErrorEvent handler. If printing is performed in synchronization mode, printing cannot be retried through this control. Therefore, a retry must be performed starting with registration of the transaction data. The same procedure must be used in the event of an occurrence of an error while the transaction data is being accumulated.

10) Notes for using the ClearOutput method

When printing is terminated by the ClearOutput method, printing may stop before all data for the line being printed is printed. It is recommended to output a feed escape sequence or LineFeed(10) when there is a need to stop printing by ClearOutput. Also, it is preferable that a line feed value of RecLineSpacing is reset to the default (27 dots) just in case the value has been changed to 24. It would be better to implement these solutions also for error recovery processes.

11) Paper cut

This printer only supports Partial Paper Cut due to its mechanical structure. When Paper Cut is performed by the CutPaper method or the escape sequence, Partial Cut is performed regardless of the percentage specified. Please note the method does not cause an error.

12) Power status notification

None of the following printers supports the power status notification function: TRSTA1S (Serial POS Printer), TRSTA1P (Parallel POS Printer), and TRSTA1L (LAN POSPrinter).

TRSTA1U (USB POS Printer) supports this function in accordance with the specifications described in the OPOS's APG.

TRSTA1U monitors and issues the two kinds of power status notifications: "Online" and "OFF or Offline". When the Claim (ClaimDevice) method is executed, a power-off status is not issued or an error is not caused due to a disconnection of USB cable. However, OPOS_E_ILLEGAL error will result when a power-off status is returned or a USB cable is disconnected if DeviceEnabled property is set to TRUE.

13) Process at power recovery

When the power is turned off and on again, the TRSTA1U (USB POS Printer) tries to restore the status just before the power was shut off.

This Control initializes the device based on the current property value, but does not reset the user settings such as direct output of printer escape sequence using the DirectIO method which includes time-consuming processes such as registration of bitmap and writable characters using the SetBitmap method. For such user settings, the user should monitor the power status and perform an initialization.

14) Cover status notification for each station

This device has only one cover. Therefore, PTR_SUE_REC_COVER_OPEN and PTR_SUE_REC_COVER_OK events are not issued. Only the PTR_SUE_COVER_OPEN and PTR_SUE_COVER_OK events are issued as a cover open status as in a conventional way

15) Left90/Right90 rotation print

- This Control supports neither of Left90/Right90 Rotation Bitmap print (PrintBitmap method) nor Left90/Right90 Rotation Barcode print (PrintBarcode method). Even though Bitmap Print escape sequence (ESC|#B) can be used with Left90/Right90 Rotation Print, a line feed is automatically performed and bitmap is printed as described in "Notes for escape sequence" above.
- This Control supports both Left90 and Right 90 Rotation Print, but there are limitations for escape sequences.

Escape sequence not operable (ignored)
Embedded data transmission
Subscript print
Superscript print
Italic print
Custom color print
Shaded character print
Paper cut
Reverse feed
Font type selection
Stamp print
Escape sequence whose operation is not guaranteed
Feed and Paper cut
Feed and Paper cut and Stamp cut
Available escape sequence
Bitmap print
Single width & height character print
Double width print
Double height print
Double width & height character print
Horizontal scale
Vertical scale
Color selection
Center aligned
Right aligned
Normal print
Bold print
Underline print
Red character print
Reversed character print
Multiple line feed
Unit feed
Top logo print
Bottom logo print

TRST-C10BI POS Printer Control – Print Escape Sequence for Left/Right Rotation

17) Code Page 949 (Korea)

The TRST-A1x-xx-QM-R supports Code Page 949. Although Code Page 54936 is shown in the CodePageList property, it is not supported by the TRST-A1x-xx-QM-R.

In addition, although FontA and FontB are shown in the FontTypefaceList property, Code Page 949 does not support FontB.

To use Code Page 949, necessary settings should be made to the printer configuration and the Control Panel of the OPOS. For details of the settings, please refer to "3.3 DBSC (Double Byte Character Set) – Setting to Print Chinese/Korean". The default value of the CodePage property is "949". When the application selects a code page other than "949" from the code pages except for "54936", a printer operation would be as follows depending on the printer configuration setting.

Setting where a code page change does not take effect:

Printer Configuration	Printer Configuration Value	OPOS Country	OPOS DBCS Mode
Software Options Set DBCS & Font Size	DBCS:INVALID/Font:Size1	Korea	0 (without check)
Software Options SET Printer Mode ANK to DBCS?	VALID		

Setting where a code page change takes effect:

Printer Configuration	Printer Configuration Value	OPOS Country	OPOS DBCS Mode
Software Options Set DBCS & Font Size	DBCS:INVALID/Font:Size1	Korea	1 (with check)
Software Options SET Printer Mode ANK to DBCS?	VALID		

18) Code Page 54936 (Chinese)

The TRST-A1x-xx-CN-R supports Code Page 54936. Although Code Page 949 is shown in the CodePageList property, it is not supported by the TRST-A1x-xx-CN-R.

In addition, although FontA and FontB are shown in the FontTypefaceList property, Code Page 54936 does not support FontB.

To use Code Page 54936, necessary settings should be made to the OPOS Control Panel. For details of the settings, please refer to "3.3 DBSC (Double Byte Character Set) – Setting to Print Chinese/Korean". The default value of the CodePage property is "54936". When the application selects a code page other than "54936" from the code pages except for "949", the code page should be changed.

20) Error while printing is being performed

If the connection goes down for a long period of time (It changes by quantity and the transmission of a message interval of transmission of a message data, but the aim is around 10 seconds) while printing is being performed on the TRSTA1Lx (connected over a LAN), it may take the OPOS control at least 2 minutes to recover automatically after the connection is recovered. Power the printer off and on again in order to make the OPOS control recover within 2 minutes. However, please remember that the attribute information (e.g. data or fonts) that was sent before the error will be reset after the power-off and on of the printer.

2. Header File for the Toshiba TEC Printers

TecPtr.h

```

////////////////////////////////////
//
// TecPtr.h
//
// Nibble POS Printer header file for OPOS Applications.
//
// Modification history
// -----
// 98-01-07 OPOS Release 1.0                                TEC
// 98-02-17 Add "DirectIO Method Command Constants"        TEC
// 98-02-17 Change "JAM ERROR" Status                      TEC
// 98-03-10 Add Printer Complete Status                   TEC
// 98-03-23 Add Error Continue Mode                      TEC
// 98-03-24 Add File Output Command                      TEC
// 98-04-16 Add Icon Bitmap Printing                     TEC
// 98-05-14 Add High Speed Image Print Interface         TEC
// 98-06-23 Add Color Print Command                      TEC
// 98-08-08 Add Printer Information Command              TEC
// 98-08-12 Add Thermal Head Dot Broken Event           TEC
// 98-08-18 Add PageMode management command             TEC
// 98-08-26 Add Printer Reset Interface                 TEC
// 1999-04-07 Add DR209 Slip detail information          TEC
// 2000-01-11 Add High speed & ReverseBitmap             TEC
// 2000-03-03 Add Set Print Position in PageMode         TEC
// 2000-03-15 Add Get Printer Hardware Status           TEC
// 2000-03-17 Del Set Print Position in PageMode        TEC
// 2000-03-17 Add Set horizontal position(X2)           TEC
// 2000-03-17 Add Set vertical position(X2)             TEC
// 2000-03-17 Add Set create new area's horizontal position TEC
// 2000-03-17 Add Set create new area's vertical position TEC
// 2000-03-17 Add Set create new area's width           TEC
// 2000-03-17 Add Set create new area's height          TEC
// 2000-03-17 Add Set create new area's direction      TEC
// 2000-03-17 Add Create new print area                 TEC
// 2000-03-21 Add Check Now Printer's Mode              TEC
// 2000-03-22 Change Get Printer Hardware Status        TEC
// 2000-04-21 Add CutPaper Command                     TEC
// 2000-05-16 ADD Cancel no rotate PageMode data        TEC
// 2000-05-24 Add Invalid Paper Event                   TEC
// 2000-09-07 Add New Reset Printer(No Up Reset Event)  TEC
// 2000-12-05 Add TRST56 parallel printer multiple image TEC
// 2001-03-06 Add Nibble Timeout Event                  TEC
// 2004-08-23 Add TPTR_StatusUpdate                    TEC
// 2006-11-30 Add dual side printing definition for TRST-A1x
////////////////////////////////////

////////////////////////////////////
// DirectIOEvent EventNumber Constants
////////////////////////////////////
const LONG TPTR_StatusUpdate          = 1;
const LONG TPTR_EventNumber_Nibble    = 1;
const LONG TPTR_EventNumber_DRS209    = 100;

////////////////////////////////////
// "DirectIOEvent" Event: "Data" Parameter Constants
////////////////////////////////////

const LONG TPTR_DIE_DRAWER_LOW        = 0x1200;

```

```

const LONG TPTR_DIE_DRAWER_HIGH          = 0x1204;

const LONG TPTR_DIE_ONLINE                = 0x1300;
const LONG TPTR_DIE_OFFLINE              = 0x1308;

const LONG TPTR_DIE_FEEDSW_OFF           = 0x1600;
const LONG TPTR_DIE_FEEDSW_ON            = 0x1640;

const LONG TPTR_DIE_RESET_OFF            = 0x2000;
const LONG TPTR_DIE_RESET_ON             = 0x2001;

const LONG TPTR_DIE_JRN_JAM_OK           = 0x2202;
const LONG TPTR_DIE_JRN_JAM_ERROR        = 0x2206;

const LONG TPTR_DIE_REC_JAM_OK           = 0x2200;
const LONG TPTR_DIE_REC_JAM_ERROR        = 0x2204;

const LONG TPTR_DIE_CUTTER_OK            = 0x2300;
const LONG TPTR_DIE_CUTTER_ERROR         = 0x2308;

const LONG TPTR_DIE_24VPOWER_OK          = 0x2500;
const LONG TPTR_DIE_24VPOWER_DOWN        = 0x2520;

const LONG TPTR_DIE_IDLE                  = 0x2600;
const LONG TPTR_DIE_EXECUTE              = 0x2640;

const LONG TPTR_DIE_COMPLETE_ERR         = 0x3660;
const LONG TPTR_DIE_COMPLETE_OK          = 0x3640;

const LONG TPTR_DIE_HEAD_BROKEN          = 0x4001;
const LONG TPTR_DIE_HEAD_OK              = 0x4000;

const LONG TPTR_DIE_INVALID_PAPER        = 0x4501;

const LONG TPTR_DIE_NIBBLE_TIMEOUT        = 0x5001;
const LONG TPTR_DIE_NIBBLE_OK            = 0x5000;

//SLIP Printer Only
const LONG TPTR_DIE_SLIP_BOF_EMPTY       = 1001;
const LONG TPTR_DIE_SLIP_BOF_PAPEROK     = 1002;
const LONG TPTR_DIE_SLIP_TOF_EMPTY       = 1003;
const LONG TPTR_DIE_SLIP_TOF_PAPEROK     = 1004;
const LONG TPTR_DIE_SLIP_GAP_OPEN        = 1005;
const LONG TPTR_DIE_SLIP_GAP_CLOSE       = 1006;
const LONG TPTR_DIE_SLP_JAM_OK           = 0x2208;
const LONG TPTR_DIE_SLP_JAM_ERROR        = 0x2210;

////////////////////////////////////////////////////
// DirectIO Method Command Constants
////////////////////////////////////////////////////
const LONG TPTR_CMD_DIRECT_OUTPUT        = 1;      // Direct Output
const LONG TPTR_CMD_SET_WRITETHREAD      = 2;      // Set Async Write Thread Status
const LONG TPTR_CMD_GET_WRITETHREAD      = 3;      // Get Async Write Thread Status
const LONG TPTR_CMD_SET_PTRREQUEST       = 4;      // Set Printer Request
const LONG TPTR_CMD_FILE_OUTPUT          = 5;      // Direct Output From File
const LONG TPTR_CMD_SET_ICONBMPNAME      = 6;      // Set/Clear icon bitmap name
const LONG TPTR_CMD_GET_ICONBMPNUMBER    = 7;      // Get icon bitmap number from name
const LONG TPTR_CMD_GET_ICONBMPNAME      = 8;      // Get icon bitmap name from number
const LONG TPTR_CMD_GET_ICONBMPCOUNTER   = 9;      // Get number of registered icon bitmap
const LONG TPTR_CMD_PRINT_TEXT_WITHICONBMP = 10;    // Print text with icon bitmap
const LONG TPTR_CMD_BEGIN_MIXDATA_PAGE    = 11;    // Begin Image/Text Mixed Page
const LONG TPTR_CMD_END_MIXDATA_PAGE      = 12;    // End Image/Text Mixed Page
const LONG TPTR_CMD_ADD_ICONBMP_TO_PAGE  = 13;    // Add Image data into Mixed Page
const LONG TPTR_CMD_ADD_TEXT_TO_PAGE      = 14;    // Add Text data into Mixed Page
const LONG TPTR_CMD_SET_BITMAP_WIDTH     = 15;    // Set Preset Bitmap Width

```

```

const LONG TPTR_CMD_GET_BITMAP_WIDTH           = 16;      // Get Preset Bitmap Width
const LONG TPTR_CMD_SET_BITMAP_ALIGNMENT        = 17;      // Set Preset Bitmap Alignment
const LONG TPTR_CMD_GET_BITMAP_ALIGNMENT        = 18;      // Get Preset Bitmap Alignment
const LONG TPTR_CMD_SETBITMAP                  = 19;      // Set Preset Image(High speed)
const LONG TPTR_CMD_PRINTBITMAP                = 20;      // Print Preset Image
const LONG TPTR_CMD_DEFINE_IMAGE_SLOT          = 21;      // Define Image Slot Size for Preset Bitmap
const LONG TPTR_CMD_PAPER_KIND                 = 22;      // Set Paper Kind to Normal or Color
const LONG TPTR_CMD_DATA_COLOR                 = 23;      // Set Data Color to default or red(blue)
const LONG TPTR_CMD_GET_PRINTERINFORMATION     = 24;      // Get Printer Hardware Information
const LONG TPTR_CMD_BEGIN_PAGEMODE             = 25;      // Begin no rotate PageMode data
const LONG TPTR_CMD_END_PAGEMODE               = 26;      // End no rotate PageMode data
const LONG TPTR_CMD_RESET_PRINTER              = 27;      // Reset Printer
const LONG TPTR_CMD_SETBITMAPEX                = 28;      // Set Preset Image(High speed & ReverseBitmap)
const LONG TPTR_CMD_CHECK_PRINTERSTATUS        = 29;      // Get Printer Hardware Status
const LONG TPTR_CMD_SET_HORIZONTAL_ABS         = 30;      // Set horizontal position at absolute coordinate.(PageMode only)
const LONG TPTR_CMD_SET_VERTICAL_ABS           = 31;      // Set vertical position at absolute coordinate.(PageMode only)
const LONG TPTR_CMD_SET_HORIZONTAL_REL         = 32;      // Set horizontal Position at relative coordinate.(PageMode only)
const LONG TPTR_CMD_SET_VERTICAL_REL           = 33;      // Set Vertical Position at relative coordinate.(PageMode only)
const LONG TPTR_CMD_SET_CHILDPG_HORIZONTAL     = 34;      // Set create new area's horizontal position at absolute coordinate.(PageMode only)
const LONG TPTR_CMD_SET_CHILDPG_VERTICAL       = 35;      // Set create new area's vertical position at absolute coordinate.(PageMode only)
const LONG TPTR_CMD_SET_CHILDPG_WIDTH         = 36;      // Set create new area's width.(PageMode only)
const LONG TPTR_CMD_SET_CHILDPG_HEIGHT        = 37;      // Set create new area's height.(PageMode only)
const LONG TPTR_CMD_SET_CHILDPG_DIRECTION     = 38;      // Set create new area's direction.(PageMode only)
const LONG TPTR_CMD_CREATE_CHILDPG            = 39;      // Create new print area.(PageMode only)
const LONG TPTR_CMD_CHECK_INPAGEMODE           = 40;      // Check Now Printer's Mode.(PageMode or StandardMode)
const LONG TPTR_CMD_CUT_PAPER                  = 41;      // CutPaper Command
const LONG TPTR_CMD_CANCEL_PAGEMODE            = 42;      // Cancel no rotate PageMode data
const LONG TPTR_CMD_RESET_PRINTER2             = 43;      // Reset Printer 2 (No Up Reset Event)

// dual side printing definition
const LONG TPTR_2STCMD_SET_PRINTINGMODE        = 101;
const LONG TPTR_2STCMD_SET_PRINTINGSIDE        = 102;
const LONG TPTR_2STCMD_SET_UPSIDEDOWN          = 103;
const LONG TPTR_2STCMD_SET_SWAPPRINTINGSIDE    = 104;
const LONG TPTR_2STCMD_PREDEFINE               = 105;
const LONG TPTR_CMD_DRAWER_OPEN                = 111;
const LONG TPTR_CMD_DRAWER_STATUS              = 112;
const LONG TPTR_CMD_SETBITMAP_FLASH_START      = 115;
const LONG TPTR_CMD_SETBITMAP_FLASH_END        = 116;

//for slip
const LONG TPTR_CMD_GET_SLIP_SPACE_BEFORE_TOF  = 101;      // Available space before TOF on slip
const LONG TPTR_CMD_GET_SLIP_SPACE_AFTER_BOF   = 102;      // Available space after BOF on slip

//for TSRT56 Printer
const LONG TPTR_CMD_SETBITMAP_MULTI            = 201;      // Multiple image setup function
const LONG TPTR_CMD_PRINT_BITMAP_MULTI         = 202;      // Multiple image printing function
const LONG TPTR_CMD_ALIGNMENT_BITMAP_MULTI     = 203;      // Multiple image execute alignment

//DirectIO Method "TPTR_CMD_SET_WRITETHREAD" Command Parameter Definition
const LONG TPTR_WT_SUSPEND                     = 1;        // Set to seupend
const LONG TPTR_WT_RESUME_AND_RETRY             = 2;        // Set to resume and retry write data
const LONG TPTR_WT_CLEAR_AND_RESUME             = 3;        // Clear queued data and resume
const LONG TPTR_WT_CLEAR_AND_RESET              = 4;        // Clear queued data and reset printer device

//DirectIO Method "TPTR_CMD_GET_WRITETHREAD" Command Result Definition
const LONG TPTR_WT_STATE_SUSPEND                = 1;        //Async write thread is suspended
const LONG TPTR_WT_STATE_RUN                    = 2;        //Async write thread is running

//DiretIO Methjod "TPTR_CMD_SET_PTRREQUEST" Command Parameter Definition
const LONG TPTR_PR_REPORT_COMPLETE              = 1;        //Report when printer is idle
const LONG TPTR_PR_SKIP_WHEN_ERROR              = 2;        //Skip print data after error occurred
const LONG TPTR_PR_CONTINUE_WHEN_ERROR          = 3;        //Continue print data after error occurred

//DirectIO Method "TPTR_CMD_END_MIXDATA_PAGE" Command Parameter Definition
const LONG TPTR_EMP_PRINT_DATA                  = 1;        //Print Buffered Data
const LONG TPTR_EMP_PURGE_DATA                  = 2;        //Purge Buffered Data

```

```
//DirectIO Method "TPTR_CMD_PAPER_KIND" Command Parameter Definition
```

```
const LONG TPTR_PK_NORMAL          = 1;          //Select Normal Paper
const LONG TPTR_PK_COLOR           = 2;          //Select Color Paper
```

```
//DirectIO Method "TPTR_CMD_DATA_COLOR" Command Parameter Definition
```

```
const LONG TPTR_DC_DEFAULT         = 1;          //Default Color(Black)
const LONG TPTR_DC_OTHER           = 2;          //Other Color(Red / Blue)
```

```
//DirectIO Method "TPTR_CMD_GET_PRINTERINFORMATION" Command Parameter Definition
```

```
const LONG TPTR_GPI_ROM_VERSION    = 1;          //Get Printer ROM Version
```

```
//DirectIO Method "TPTR_CMD_CHECK_PRINTERSUATUS" Command Parameter Definition
```

```
const LONG TPTR_CS_NOWSTATUS       = 0;          // No Connect Check And Get Printer Status
const LONG TPTR_CS_CONNECTCHECK    = 1;          // Connect Check And Get Printer Status
```

```
//DirectIO Method "TPTR_CMD_SET_CHILDPG_DIRECTION" Command Parameter Definition
```

```
const LONG TPTR_PD_DIRECTION0      = 0;          // Create Page's Print Direction is Top To Bottom To Send Paper direction
const LONG TPTR_PD_DIRECTION1      = 1;          // Create Page's Print Direction is Left To Right To Send Paper direction
const LONG TPTR_PD_DIRECTION2      = 2;          // Create Page's Print Direction is Bottom To Top To Send Paper direction
const LONG TPTR_PD_DIRECTION3      = 3;          // Create Page's Print Direction is Right To Left To Send Paper direction
```

```
//DirectIO Method "TPTR_CMD_CUT_PAPER" Command Parameter Definition
```

```
const LONG TPTR_CP_NOMOVE_CUT      = 0;          // No Move And PaperCut
const LONG TPTR_CP_JUSTIFY_CUT     = 1;          // Move To Head And PaperCut
```

```
//DirectIO Method "TPTR_CMD_SETBITMAP_MULTI" Command Parameter Definition(TRST56 only)
```

```
const LONG TPTR_SBM_CREATE_MEMORY_IMAGE = 1;          //Create memory image
const LONG TPTR_SBM_SET_IMAGE_TO_PRINTER = 2;          //Setup image(s) to printer flash memory
const LONG TPTR_SBM_CANCEL_MEMORY_IMAGE = 3;          //Cancel All image(s) from memory(can not clear printer image)
```

```
////////////////////////////////////
```

```
// 2ST Printer Station Constant
```

```
////////////////////////////////////
```

```
const LONG PTR_S_RECEIPT2          = 0x800
```

```
////////////////////////////////////
```

```
// 2ST "TransactionPrint" Method: "Control" Parameter Constants
```

```
////////////////////////////////////
```

```
const LONG PTR_TP_TRANSACTION1     = 411
const LONG PTR_TP_TRANSACTION2     = 511
const LONG PTR_TP_TRANSACTION3     = 611
const LONG PTR_TP_PREDEFINE        = 711
```

```
////////////////////////////////////
```

```
// 2ST "SetLogo" Method: "Location" Parameter Constants
```

```
////////////////////////////////////
```

```
const LONG PTR_TP_2STL_TOP         = 401
const LONG PTR_TP_2STL_BOTTOM      = 402
const LONG PTR_TP_2STL_ERROR_TOP   = 403
```

3. Control Panel

This chapter describes the Control Panel which is installed by the installer. For the setup details, please refer to the section, "1.1.6 OPOS Registry".

3.1. Overview

You can easily make the common registry settings for the TRST-C10BI POS Printer OPOS Control by installing the OPOS in an execution environment. Available settings are as follows:

Value	Description
PrinterType	This item is used only in Control Panel. The Control Panel sets minimum setting of each printer model based on a specified value collectively. This item recommends that I set it to a used printer model. PrinterType will default to "TRST-C10BI" if no value is specified or if anything other than a numeric value is specified. "TRST-C10BI"
Port	A port, used to connect with the printer device, can be selected from the list box. TRST-C10BI integrated printer by default connect to COM4
BaudRate	A communication speed with the printer can be selected from the list box. The value should be the same as the baud rate setting of the printer device.
Country	A country code can be selected from the list box.
Paper Width	Printer paper width can be selected either from 80 mm or 58 mm. The value should be the same as the paper width setting of the printer device.
Use Override Mode	An operational mode of the RotatePrint method can be set to Override mode by checking this checkbox.
DBCMode (*2)	When "Korea" is selected for Country, a selection, whether or not the printer commands only used for DBCS (Double Byte Character Set) are to be used, can be made. The value should be the same as the DBCMode setting of the printer device. This setting is ignored when a country other than "Korea" is selected for Country.
Print Mode (*1)	A default print mode when using the OPOS can be selected from the front side mode (printing only on the front side) and the three back side print modes (printing only on the back side).
Swap Front Side and Back Side (*1)	A print side (front or back side) can be switched by checking this checkbox.
Upside Down (*1)	Upside Down Print on the front/back side is enabled by checking this checkbox
Minimum Receipt (*1)	A minimum receipt length for printing in Transaction1 mode can be specified in dots.
FontSize	Font size setting FontSize1 or FontSize2 are selectable. Should be consistent with the paper width setting of the device. (For details, refer to the section "Limitations and Precautions" in this chapter.)

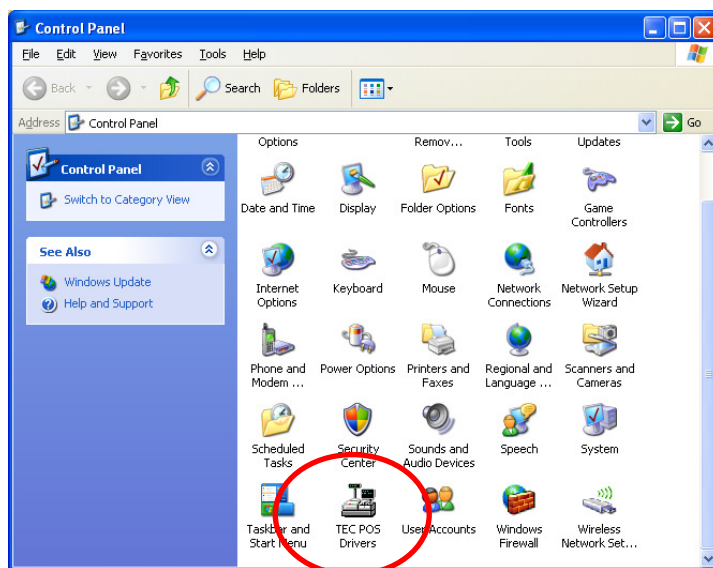
	Should be consistent with the paper width setting of the device. (For details, refer to the section "Limitations and Precautions" in this chapter.)
FontType	Font type setting FontA or FontB are selectable. Specifies a font type to be typically used on the application. (For details, refer to the section "Limitations and Precautions" in this chapter.)

- (*1) These values can be set using the printer device setting, but the OPOS Control ignores the printer device settings and enables the settings made from the Control Panel.
- (*2) For these values, the same value should be set for the printer device and the OPOS Control Panel.

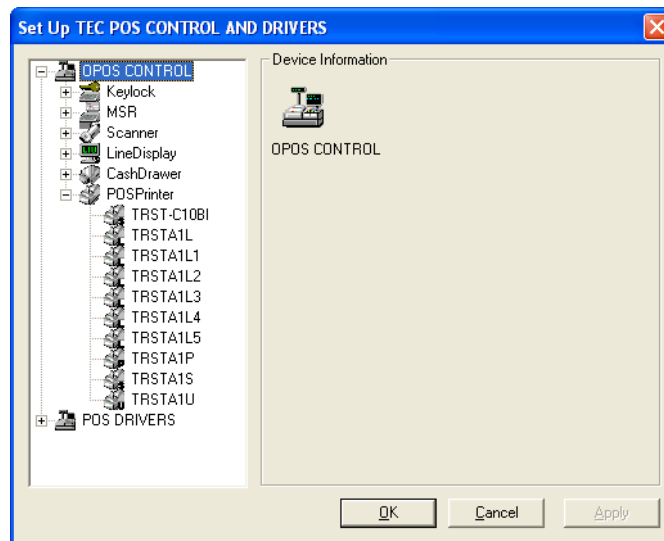
TRST-C10BI POS Printer Control – Available Settings from Control Panel

3.2. Startup and Operations

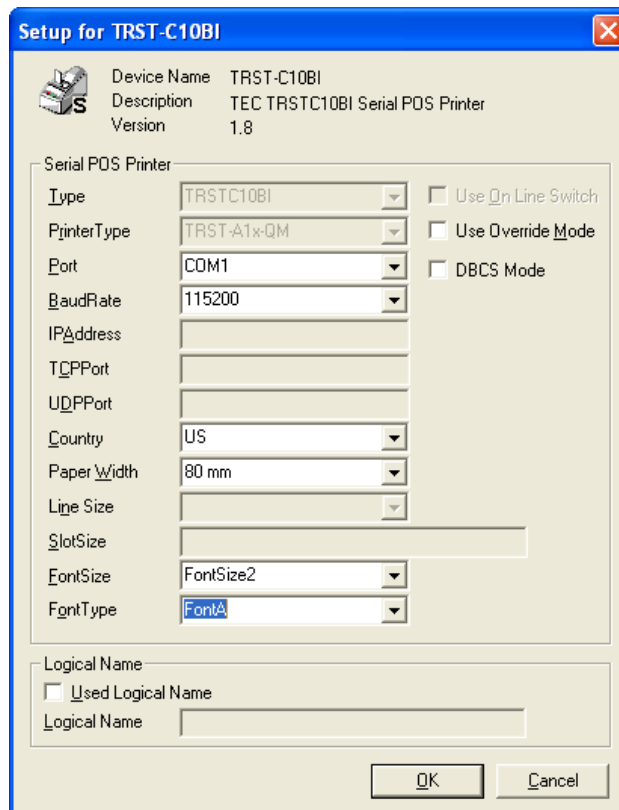
In order to make settings from the "Control Panel", open the "Control Panel" screen and double-click the "TEC POS Drivers" icon.



As shown below, the “Set Up TEC OPOS CONTROL AND DRIVERS” screen appears. Under the “OPOS CONTROL” icon, device names are listed by device classes. Double-click a device name to make necessary settings.



For the TRST-C10BI POS Printer Control, the following screen appears. Items which should not be set or unsupported items are grayed out.



3.3. DBCS (Double Byte Character Set) – Setting to Print Chinese/Korean

For printing Chinese Code Page 54936 and Korean Code Page 949, necessary settings should be made to the OPOS Control Panel in accordance with the printer configuration settings of the printer model used.

Korean Code Page 949

The TRST-A1x-xx-QM-R supports the Korean Code Page 949. Please follow the procedure described below to print Korean characters.

1. Select "DBCS:VALID/Font:Size1" for "Set DBCS & Font Size" of the printer configuration.
2. Select "VALID" or "INVALID" for "SET Printer Mode ANK to DBCS?" of the printer configuration.
3. In accordance with the printer configuration settings above and the table below, select Country and DBCSMode for the OPOS.

Printer Configuration	Printer Configuration Value	OPOS Country	OPOS DBCS Mode
Software Options Set DBCS & Font Size	DBCS:VALID/Font:Size1	Korea	0 (without check)
Software Options SET Printer Mode ANK to DBCS?	VALID		

Printer Configuration	Printer Configuration Value	OPOS Country	OPOS DBCS Mode
Software Options Set DBCS & Font Size	DBCS:VALID/Font:Size1	Korea	1 (with check)
Software Options SET Printer Mode ANK to DBCS?	INVALID		

4. Tool

4.1. Bitmap Registration to Flash ROM (SetBitmapTool)

This tool saves a bitmap image file in the flash ROM of the printer device. The written bitmap image will not disappear even when the printer power is turned off and can be used without calling the SetBitmap method when the power is turned on again.

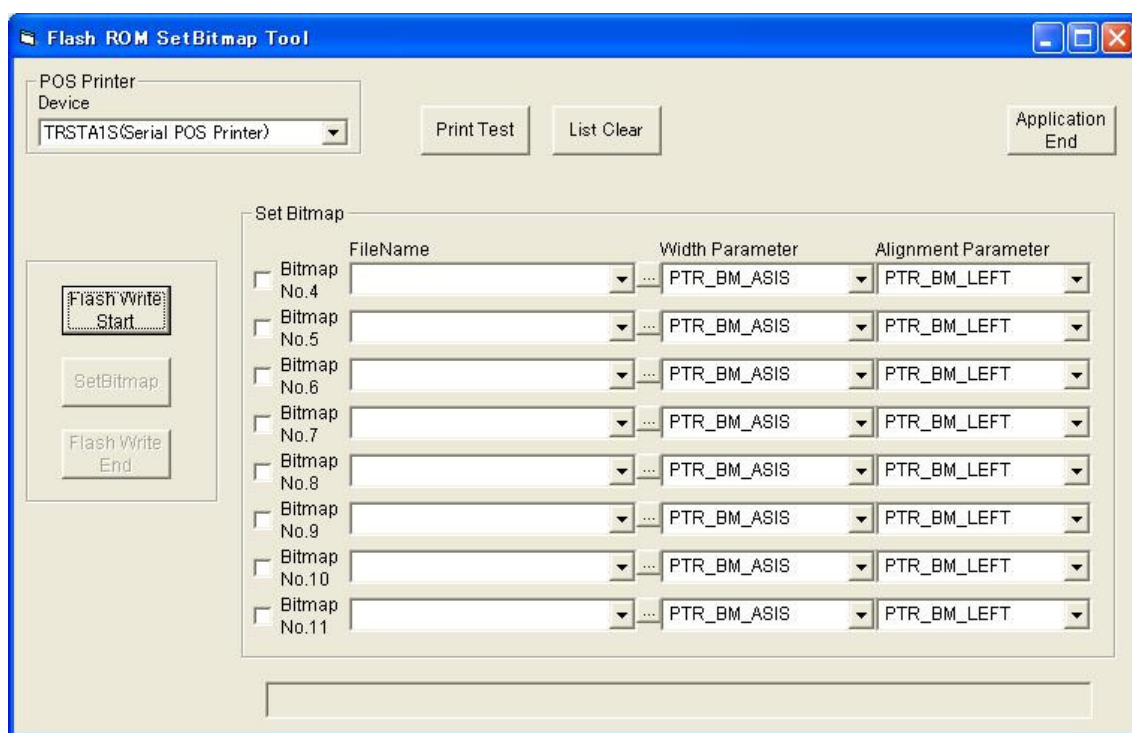
Bitmap images written into the flash ROM using this tool can be printed using the OPOS's bitmap print escape sequence [ESC|#B].

4.1.1. Operation Environment

This tool works as the application of the OPOS Control in the environment where the TRST-C10BI POS Printer OPOS Control works.

4.1.2. Setup and Operations

Double-click the "SetBitmap.exe" file in the default folder, "C:\OPOS\TEC\TEST", and the following screen appears.



1. Select a device name of the POS printer connected.
2. Clicking the Flash Write Start button starts preparing to write a bitmap into the flash ROM of a specified POS printer, erasing all bitmaps stored in it.
3. Select a value of FileName, Width Parameter, and Alignment Parameter for each bitmap number. Width Parameter sets the horizontal width of a bitmap in dots which automatically reduces or enlarges a bitmap. When "ASIS" is selected, no reduction or enlargement is performed (same size as the bitmap file).

A numeric character entered in the Alignment Parameter box indicates the number of dots from the left edge of receipt paper.

Only the bitmaps in black and white can be specified by FileName.

4. Clicking the SetBitmap button disables the Flash Write End button and all bitmaps of the bitmap number checked are saved in the flash ROM.
 5. When all selected bitmaps are saved, the SetBitmap button is disabled and the Flash Write End button is enabled.
 6. Clicking the Flash Write End button disables bitmap registration to the flash ROM, and ends the process.
-

4.2. Operation Check (CheckHealth Program)

This program (OPOSCHK.exe) checks that each installation or each setting has been successfully completed, so that the device can operate properly after the installation or settings from the Control Panel. Running the OPOSCHK.exe file calls an interactive mode of the OPOS CheckHealth method.

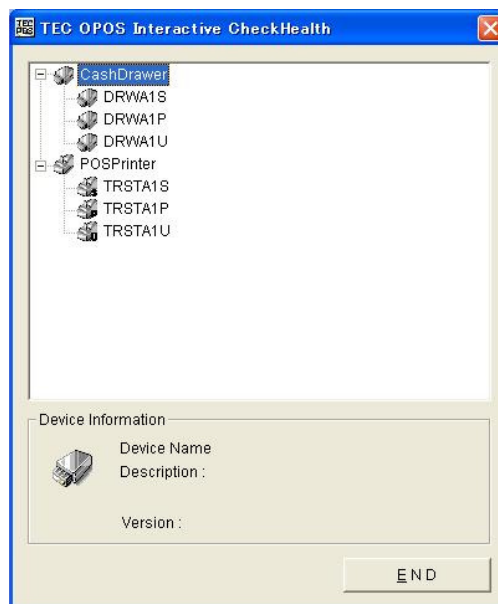
4.2.1. Operation Environment

This tool works as the application of the OPOS Control in the environment where the TRST-C10BI POS Printer OPOS Control works.

4.2.2. Setup and Operation

Double-click the "OPOSCHK.exe" file in the default folder, "C:\OPOS\TEC\TEST", and the following screen appears.

Names of the devices being installed are listed under the device class icon. Double-clicking a device you want to check will show the CheckHealth screen for that device.



For the details of the CheckHealth screen and the operation method, please refer to the section, "1.1.4 CheckHealth Method Specifications".

5. Appendix A: Error Code List

The OPOS Control notifies the user of a result when the method is executed and a property setting is performed. The following pages give you error code lists, their meanings, and error handling method in case an error occurs.

This Control returns values below as error codes.

ResultCode	Value
OPOS_SUCCESS	0
OPOS_E_CLOSED	101
OPOS_E_CLAIMED	102
OPOS_E_NOTCLAIMED	103
OPOS_E_NOSERVICE	104
OPOS_E_DISABLED	105
OPOS_E_ILLEGAL	106
OPOS_E_NOHARDWARE	107
OPOS_E_OFFLINE	108
OPOS_E_NOEXIST	109
OPOS_E_FAILURE	111
OPOS_E_TIMEOUT	112
OPOS_E_BUSY	113
OPOS_E_EXTENDED	114

ResultCodeExtended	Value
OPOS_EPTR_COVER_OPEN	201
OPOS_EPTR_JRN_EMPTY	202
OPOS_EPTR_REC_EMPTY	203
OPOS_EPTR_REC_EMPTY	204
OPOS_EPTR_TOOBIG	206
OPOS_EPTR_BADFORMAT	207

OpenResult	Value
OPOS_ORIS_CONFIG	403
OPOS_ORIS_BADCO	451
OPOS_ORIS_RESOURCEFAIL	452
OPOS_ORIS_ALREADYOPEN	453

1) Open Method

Notifies a result using a return value and OpenResult property. One of the values is placed in the ResultCode: OPOS_SUCCESS when the method completed successfully, the same value as the current if the device has been already opened, then OPOS_E_CLOSED for other cases.

Method	Value	OpenResult	Meaning	Error Handling
Open	OPOS_SUCCESS	OPOS_SUCCESS	Completed successfully	–
	OPOS_E_NOSERVICE	OPOS_OR_S_BADCO	CO is not supporting the required method.	Need investigation.
		OPOS_OR_S_RESOURCEFAIL	Failed to obtain the OS version.	Need investigation.
	OPOS_E_ILLEGAL	OPOS_OR_S_ALREADYOPEN	Already opened.	–
	OPOS_E_NOEXIST	OPOS_OR_S_CONFIG	Incorrect registry	Need investigation.
	OPOS_E_FAILURE	OPOS_OR_S_RESOURCEFAIL	Internal abnormality Failed to create system resource.	Restart the POS system. Need investigation if the same error repeats.

2) Close Method

Notifies a result using a return value and Result Code property.

Method	Value	ResultCode	Meaning	Error Handling
Close/CloseService	OPOS_SUCCESS	OPOS_E_CLOSED	Completed successfully	–
	OPOS_E_CLOSED	OPOS_E_CLOSED	Already closed.	–
	Value returned from Release/ReleaseDevice	ResultCode for Release/ReleaseDevice	Refer to the section, "Release/ReleaseDevice".	–

3) DirectIO Method

The DirectIO method is described for each command.

There are two types of commands: those that only operate synchronously and those that operate both synchronously and asynchronously. Regarding the latter commands, a notification method differs between when they operate synchronously and when they operate asynchronously. This document describes for both cases.

Commands that operate both synchronously and asynchronously are as follows:

TPTR_CMD_DIRECT_OUTPUT
TPTR_CMD_SET_PTRREQUEST
TPTR_CMD_FILE_OUTPUT
TPTR_CMD_PRINTBITMAP

- When the commands operate synchronously:

The table below describes the synchronous operations for the both types of commands.

Each method notifies a result using a return value, Result Code property, and ResultCodeExtended property.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_DIRECT_OUTPUT	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_DIRECT_OUTPUT	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
TPTR_CMD_FILE_OUTPUT	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_FILE_OUTPUT	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_NOEXIST	0	The file does not exist.	Specify a correct filename.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_SETBITMAP_ FLASH_START	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
TPTR_CMD_SETBITMAP_ FLASH_END	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

- When the commands operate asynchronously:

The table below describes the asynchronous operations of the commands that can operate both synchronously and asynchronously.

Each command notifies a result of process reservation using a return value and ResultCode property, and ResultCodeExtended property and a result of the process using the following events: OutputCompleteEvent when the process completed successfully and ErrorEvent when the process failed.

The ResultCode and ResultCodeExtended parameters indicate the reason of failure.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_DIRECT_ OUTPUT (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_DIRECT_ OUTPUT (Result of process reservation)	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
TPTR_CMD_FILE_ OUTPUT	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_FILE_OUTPUT	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_NOEXIST	0	The file does not exist.	Specify a correct filename.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_SETBITMAP_ FLASH_START	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.

Command	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TPTR_CMD_SETBITMAP_ FLASH_END	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.

Other Common Methods

Each method notifies a result using a return value, Result Code property, and ResultCodeExtended property.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
Claim / ClaimDevice	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_TIMEOUT	0	Other process has exclusive access to the device.	Wait until the exclusive access is released.
Release / ReleaseDevice	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	–
	OPOS_E_ILLEGAL	0	Does not have exclusive access to the device.	–
ClearOutput	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_EPTR_COVER_OPEN	0	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
	OPOS_EPTR_REC_EMPTY	0	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
ResetStatistcs	OPOS_E_ILLEGAL	0	Not supported	–
RetrieveStatistcs	OPOS_E_ILLEGAL	0	Not supported	–
UpdateStatistcs	OPOS_E_ILLEGAL	0	Not supported	–

4) Special Methods

There are two types of methods: those that only operate synchronously and those that operate both synchronously and asynchronously. Regarding the latter methods, a notification method differs between when they operate synchronously and when they operate asynchronously. This document describes for both cases.

Methods that operate both synchronously and asynchronously are as follows:

PrintNormal method
 PrintTwoNormal method
 CutPaper method
 RotatePrint method
 PrintBarCode method
 PrintBitmap method
 TransactionPrint method
 MarkFeed method

- When the methods operate synchronously:

The table below describes the synchronous operations for the both types of methods.

Each method notifies a result using a return value, Result Code property, and ResultCodeExtended property.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintNormal	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintNormal	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintTwoNormal	OPOS_E_ILLEGAL	0	Not supported	–
PrintImmediate	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
BeginInsertion	OPOS_E_ILLEGAL	0	Not supported	–
EndInsertion	OPOS_E_ILLEGAL	0	Not supported	–
BeginRemoval	OPOS_E_ILLEGAL	0	Not supported	–
EndRemoval	OPOS_E_ILLEGAL	0	Not supported	–
CutPaper	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
RotatePrint	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintBarCode	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintBitmap	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TransactionPrint	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
TransactionPrint	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_BUSY	0	An asynchronous printing is in process.	Execute this method again after the asynchronous printing is completed.
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
ValidateData	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the <i>Station</i> parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
			An escape sequence which specifies an unsupported value to “#” was detected. The value is rounded to the nearest supported value.	Check the escape sequence specified by the Data parameter.
	OPOS_E_FAILURE	0	Failure such as illegal escape sequence (format error) or unsupported escape sequence	Check the escape sequence specified by the Data parameter.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
SetBitmap	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
	OPOS_E_NOEXIST	0	The file does not exist.	Check the filename.
		OPOS_EPTR_BADFORMAT	The specified file is not a bitmap file.	Check the specified file.
SetLogo	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_EPTR_COVER_OPEN	0	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
	OPOS_EPTR_REC_EMPTY	0	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
ChangePrintSide	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_EPTR_COVER_OPEN	0	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
	OPOS_EPTR_REC_EMPTY	0	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
MarkFeed	OPOS_E_ILLEGAL	0	Not supported	–

- When the methods operate asynchronously:

The table below describes the asynchronous operations of the methods that can operate both synchronously and asynchronously. Each method notifies a result of process reservation using a return value and ResultCode property and ResultCodeExtended property and a result of the process using the following events: OutputCompleteEvent when the process completed successfully and ErrorEvent when the process failed. The ResultCode and ResultCodeExtended parameters indicate the reason of failure.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintNormal (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
	OPOS_E_ILLEGAL	0	Not supported	–

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
CutPaper (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	ResultCode Parameter	ResultCodeExtended Parameter	Meaning	Error Handling
RotatePrint (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	ResultCode Parameter	ResultCodeExtended Parameter	Meaning	Error Handling
PrintBarCode (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	Value ResultCode	ResultCodeExtended	Meaning	Error Handling
PrintBitmap (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.

Method	ResultCode Parameter	ResultCodeExtended Parameter	Meaning	Error Handling
TransactionPrint (Result of process reservation)	OPOS_SUCCESS	0	Process reservation accepted	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Illegal value	Check the parameter value.
			Failed to create system resource. (Failed to secure the memory area.)	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_NOHARDWARE	0	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
	OPOS_E_FAILURE	0	Failed due to the reason other than Cover Open and No Paper.	Check none of the following abnormalities exist. Need investigation if any such abnormality exists. Paper jam Cutter error
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
MarkFeed (Result of process reservation)	OPOS_E_ILLEGAL	0	Not supported	–

5) Property Setting

Each property notifies a result using a Result Code property and ResultCodeExtended property.

Property	ResultCode	ResultCodeExtended	Meaning	Error Handling
BinaryConversion	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_ILLEGAL	0	Invalid value	Check the value.
DeviceEnabled	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_EXTENDED	OPOS_E_NOHARDWARE	The printer power is not turned on or printer is not connected.	Check the printer power is turned on and the connection with the printer has been established. Need investigation if there are no problems with the power and connection statuses.
		OPOS_EPTR_COVER_OPEN	Cover Open (The printer cover is open.)	Execute this method again after closing the printer cover.
		OPOS_EPTR_REC_EMPTY	No Paper (The receipt paper has run out.)	Execute this method again after loading a new receipt paper.
		OPOS_E_FAILURE	Failed to initialize communication with the printer.	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_FAILURE	0	Failed to initialize communication with the printer.	Restart the POS system. Need investigation if the same error repeats.
	OPOS_E_BUSY	0	An enable request was made before the asynchronous output has not been completed.	Complete the asynchronous output or terminate it, then execute it again.
FreezeEvents	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.

Property	ResultCode	ResultCodeExtended	Meaning	Error Handling
PowerNotify	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_ILLEGAL	0	The device is enabled.	Set the DeviceEnable property to FALSE to disable the device.
			Invalid value	Check the value.
			Not supported	–
AsyncMode	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
CartridgeNotify	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_ILLEGAL	0	The device is enabled.	Set the DeviceEnable property to FALSE to disable the device.
			Invalid value	Check the value.
			Not supported	–
CharacterSet	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Invalid value	Check the value.
FlagWhenIdle	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
MapCharacterSet	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
MapMode	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_ILLEGAL	0	Invalid value	Check the value.
RotateSpecial	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Invalid value	Check the value.

Property	ResultCode	ResultCodeExtended	Meaning	Error Handling
JrnLineChars	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
JrnLineHeight	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
JrnLineSpacing	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
JrnLetterQuality	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–
JrnCurrentCartridge	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–

Property	ResultCode	ResultCodeExtended	Meaning	Error Handling
RecLineChars	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Invalid value	Check the value.
RecLineHeight	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
RecLineSpacing	OPOS_SUCCESS	0	Completed successfully	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
RecLetterQuality	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–
RecCurrentCartridge	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–

Property	ResultCode	ResultCodeExtended	Meaning	Error Handling
SlpLineChars	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
SlpLineHeight	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
SlpLineSpacing	OPOS_SUCCESS	0	Not supported	–
	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
SlpLetterQuality	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–
SlpCurrentCartridge	OPOS_E_CLOSED	0	The device is closed.	Open the device using the Open method.
	OPOS_E_NOTCLAIMED	0	Does not have exclusive access to the device.	Obtain the exclusive access using the Claim (ClaimDevice) method.
	OPOS_E_DISABLED	0	The device is disabled.	Set the DeviceEnabled property to TRUE to enable the device.
	OPOS_E_ILLEGAL	0	Not supported	–

6. Appendix B: OPOS Installation File List

Installation File	Filename	Directory	Installation Type
POS Printer OPOS Control Object	OPOSPrinter.ocx	C:\OPOS\TEC	Full, Development, Execute-Serial Pos Printer
TRST-C10 Serial POS Printer OPOS Service Object	TRSTC10BI.dll	C:\OPOS\TEC	Full, Execute-Serial Pos Printer
Serial Port Common Library	TECShareSerial.dll	C:\OPOS\TEC	Full, Execute-Serial Pos Printer
Serial Port Common Driver	TECSerialMgr.exe	C:\OPOS\TEC	Full, Execute-Serial Pos Printer
TEC POS Control Panel	tecpos.cpl	%Windows%\System32	Full, Execute-Serial Pos Printer
Bitmap Registration to Flash ROM (SetBitmapTool)	SetBitmapTool.exe	C:\OPOS\TEC\TEST	Full, Development, Execute-Serial Pos Printer
Operation Check (CheckHealth Program)	OPOSCHK.exe	C:\OPOS\TEC\TEST	Full, Execute-Serial Pos Printer
Header File for the Toshiba TEC Printers	TECPTR.BAS	C:\OPOS\TEC\V18Bas	Full, Development,
OPOS APG1.8 VB Header File	OposAll.bas	C:\OPOS\TEC\V18Bas	Full, Development,
Log Manager Library	LogMgr.dll	%Windows%\System32	Full, Execute-Serial Pos Printer

7. Appendix C: Port Common Manager/Driver

7.1. Registry

The port common manager / driver contains the following configuration information:

(1) RS-232C interface

HKEY_LOCAL_MACHINE\SYSTEM\TEC\POS DRIVERS \TECSSerialMgr

DebugLogLevel "0" | "1" | "2"
 DebugLogFile "C:\TEC\OPOS\LOG\ TECSSerialMgr.LOG"

HKEY_LOCAL_MACHINE\SYSTEM\TEC\TECShareSerial

DebugLogLevel "0" | "1" | "2"
 DebugLogFile "C:\TEC\OPOS\LOG\ TECShareSerial.LOG"
 MaxWaitTime "0" –

(2) Description

DebugLogLevel	Specifies a log level when keeping a log of the OPOS execution result in the file specified for DebugLogFile. "0" : No log output "1": Level that permits the logging mainly when an error occurs "2": Level that ensures traceability of the OPOS operation Log output affects the performance of the application. Therefore, specify "0" unless log output is really necessary.
DebugLogFile	Specifies a log file in which the execution result of OPOS is logged and a path to the log file. The result will not be logged without the folder.
MaxWaitTime	Specifies maximum waiting time in the unit of msec until a function performed on the printer is completed. MaxWaitTime will default to "60000" if no value is specified or if anything other than a numeric value is specified. The value is determined depending on the communication traffic volume and the line quality. If an inappropriate value is specified, the Hydra system will not function properly. Therefore, please specify an appropriate value if the current value needs to be changed.