

TEC OPOS CONTROL

Application User's Manual (APG1.2)

10/14/2004

TOSHIBA TEC CORPORATION

This specification describes the matters that require attention and the methods of Application Programming to utilize TEC OPOS Control.

It is assumed that the reader already possesses some knowledge of:

- General features of the POS peripherals.
- General features of TEC POS Terminal and TEC POS peripherals
- Terms and Architecture for the OLE Control and the OLE Automation.
- The OLE for Retail POS (abbr.OPOS) and the Application Programmer's Guide(abbr.APG)

Notes

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* Windows is short for Microsoft Windows Operating System.

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1. For your information

This specification "Application User Manual" is available both for the JP version and the US version of "OPOS Control Kits."

Some parts are supported only on the JP version of OPOS Control, but not on the US version.

The descriptions in this specification of the following items are only concerned with the JP version, not with the US version:

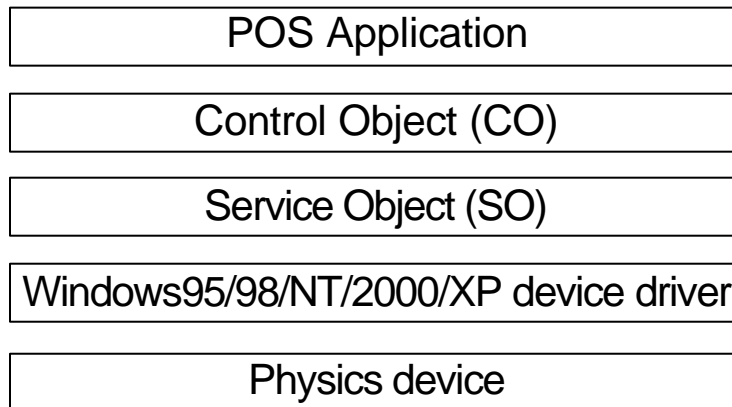
ST-88 POS terminal
DRWAP-80 Cash Drawer
OCIA scanner driver
RT-1 Coin Dispenser Control
VT-100 Cash Changer Control
TM3001 Scanner

The US version of OPOS Control currently supports the followings:

Windows XP ST-5500 / ST-6400 / ST-6500 / ST-60 / ST-6500N / ST-7000
Windows 2000 ST-5500 / ST-6400 / ST-6500 / ST-60 / ST-6500N / ST-7000
Windows NT4.0 ST-5500 / ST-6400 / ST-6500 / ST-60 / ST-90 / ST-6500N
Windows 95 ST-5500 / ST-6400 / ST-6500 / ST-5600 / ST-60
Windows 98 ST-60 / ST-6500N

2. General for TEC OPOS Control

2.1 General for the structure



Control Object (CO)	ActiveX Control
Service Object (SO)	OLE Automation Server
Device driver	Kernel mode/User mode Device driver

2.2 Device Driver

TEC OPOS Control can function on TEC POS Terminals, however, it requires some special Device Drivers depending on their models. TEC OPOS Control Kits provide 2 different kinds of disks, called "OPOS Control (CO,SO)" and "OPOS Driver", respectively.

The "OPOS Control (CO,SO)" provides the Service Object (abbr. SO) module and the Control Object (abbr. CO) module defined in the OPOS. The "OPOS Driver" is provided as the Device Driver for each POS Terminal and for each OS (Windows95/98/NT4.0 or Windows 2000 or Windows XP). Installation to the PC is not allowed because those disks are compiled for TEC POS Terminals.

Disk	Device driver
ST-5500/6400/6500/6500N OPOS Driver	PKBST-5x POS keyboard driver <i>DRWST cash drawer driver (*1)</i> <i>Simplified UPS driver (*1)</i>
ST-5600 OPOS Driver	PKBST-5x POS keyboard driver TEC serial port driver (*3) OCIA scanner driver (*3) Multi-interrupt driver (*3) <i>DRWST cash drawer driver (*1)</i> <i>Simplified UPS driver (*1)</i>
ST-88 OPOS Driver (*2) (*3)	PKBST-5x POS keyboard driver TEC serial port driver OCIA scanner driver Multi-interrupt driver
ST-90 OPOS Driver (*1)	PKBST-5x POS keyboard driver TEC serial port driver OCIA scanner driver (*3) Multi-interrupt driver <i>DRWST cash drawer driver (*1)</i> <i>Simplified UPS driver (*1)</i>

ST-60 OPOS Driver	PKBST-5x POS keyboard driver TEC serial port driver (*3) OCIA scanner driver (*3) Multi-interrupt driver (*3) <i>DRWST cash drawer driver (*1)</i> <i>Simplified UPS driver (*1)</i>
ST-70 OPOS Driver	PKBST-5x POS keyboard driver <i>DRWST cash drawer driver (*1)</i> <i>Simplified UPS driver (*1)</i>
ST-7000 OPOS Driver(*4)	PKBST-5x POS keyboard driver <i>DRWST cash drawer driver</i> <i>Simplified UPS driver</i>
TEC USB Driver	USB Driver for TEC USB devices (HS-530-UB)

(*1) Supports only Windows NT / 2000 / XP

(*2) Supports only Windows 95 / 98

(*3) Supports for domestic version

(*4) Supports only Windows 2000 / XP

Table 1 List of Device driver

2.3 OPOS Control (CO,SO)

The "OPOS Control (CO,SO)" provides the CO for the Device Class and the SO for the peripheral device. The SO is usually provided for the peripheral device, however, there are some exceptions. The following table describes all devices supported by. For example, the RS Scanner Control supports the Scanner Devices connected to the RS-232C. If this kind of Control is to be used, it needs to be setup in the Control Panel, etc. Also this kind of Controls cannot be connected with multiple devices (e.g.: HS-520-RS and LS-750-RS) simultaneously.

Device Class (CO)	TEC OPOS Control (SO)	POS peripheral device
Drawer	DRWST Cash Drawer Control	DRWST-50/51/52/53 DRWAP-80
Line display	LIUST51S Line Display Control	LIUST-51
	LIUST52S Line Display Control (*1)	LIUST-52
	LIUST51Ex Line Display Control	LIUST-51 (The additional display)
	LIUST53S Line Display Control	LIUST-53
Hard total		
Keylock	PKBST Keylock Control	PKBST-50/51/52/53, LKBST-56
Magnetic Stripe reader	MCRST MSR Control	MCRST-50/51, LKBST-56
POS Printer	TRJST52P POS Printer Control	TRJST-52-P
	TRJST52S POS Printer Control	TRJST-52-S
	TRST53P POS Printer Control	TRST-53-P
	TRST53S POS Printer Control	TRST-53-S
	TRST56P POS Printer Control	TRST-56-P
	TRST56S POS Printer Control	TRST-56-S
	DRJST50P POS Printer Control (*1)	DRJST-50-P
	DRJST50S POS Printer Control (*1)	DRJST-50-S
	DRJST51P POS Printer Control (*1)	DRJST-51-P
	DRJST51S POS Printer Control (*1)	DRJST-51-S
	ST-90 TPR158P POS Printer Control	ST-90 TPR158P

Scanner (Bar-code Scanner)	RS Scanner Control	HS-380-RS HS-520-RS LS-750-RS LS-770-RS LS-120-RS HS-R10-RS
	RS ScannerEx Control	HS-380-RS HS-520-RS LS-750-RS LS-770-RS LS-120-RS HS-R10-RS
	OCIA Scanner Control (*2)	HS-520-OC LS-750-OC
	USB Scanner Control	HS-530-UB
	USB ScannerEx Control	HS-530-UB
POS Keyboard		
Coin Dispenser	RT-1 Coin Dispenser Control (*2)	RT-1
MICR (Magnetic reader)	Ink	
Scale		
Signature capture		
Auto Cash Changer	VT100 Cash Changer Control (*2)	VT100
Tone Indicator	PC Speker Tone Indicator	PCSPKR
POS Power	PWMG Pos Power Control	
	PWMGREV2 Pos Power Control	POS Power for ST-7000

(*1) Supports for foreign version (*2) Supports for domestic version.

Table 2 All devices supported by TEC OPOS Control

3. TEC OPOS Control Kits

3.1 Kits Structure

TEC OPOS Control Kits provide the following disks:

Disk Name	Description
OPOSDOC	Self-depressed file, containing the documents to install TEC OPOS Control.
JAAXDIST(AXDIST)	DLL related to Java, made by Microsoft. Microsoft provides it as the distributable DLL using Visual C++. Any machines installing this DLL do not need to install this disk.
OPOS Control	Installer for the OPOS Control Object and the OPOS Service Object. It also installs Header file, Control Panel, Documents, etc., other than the CO and the SO. It is available both on Windows95/98/NT4.0 and Windows 2000.
OPOS Driver	Installer for the Device Driver used by the OPOS Control. This disk is provided for each POS Terminal and for each OS. Usually the OPOS Driver requires to be installed before implementing the installation.

Table 3 Summary of disks for TEC OPOS Control Kits

3.2 Installation

3.2.1 Installation Procedure

Follow this sequence to install the OPOS Control Kits:

- 1) AXDIST
- 2) OPOS Driver
- 3) OPOS Control

The AXDIST contains Microsoft's DLL. The AXDIST does not require to be installed in any machines with these environments.

If the OPOS Control is installed in the development environment, it is not necessary to install the OPOS Driver. The OPOS Driver should be installed in TEC POS Terminals. It may cause the PCs inoperable if installed in the normal PCs.

After having installed the OPOS Driver, shut down and start up the machine again.

The OPOS Control supports the installations in the development environment and the execution environment.

In the development environment, install the header file and the OPOS Control Object (*.ocx), which are required to compile a variety of documents and the APs. It is not possible to work the AP when it is installed in the development environment. (It causes an error at Opening.)

In the execution environment, no documents and header files are installed. The OPOS Control Object and the OPOS Service Object should be installed.

3.2.2 Installation Methods

The "OPOS Control" and the "OPOS Driver" provide 2 kinds of means to install:

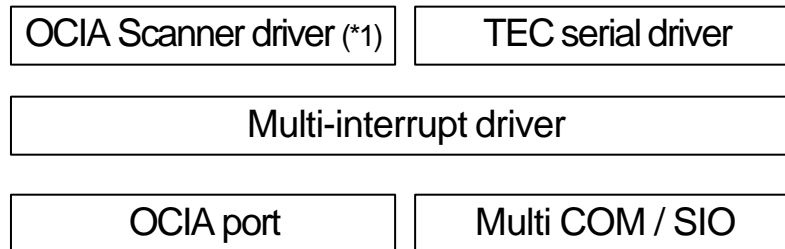
- Select the one to be installed with the interactive way and install it.
- Indicate the one to be installed in the initialization file (*.ini) and the configured value, and install it. (Silent Installation)

When the initialization file is used, the installation will be performed without users' operation. The same environment can be installed easily in many POS Terminals without configuration in the Control Panel after installing, because all configured values in the OPOS Control are described in the initialization file.

3.2.3 Interactive Installation

For the interactive installation, it is possible to select the OPOS Control and the Driver to be installed in the checkbox.

With the "OPOS Driver" disk, the Drivers described in 'Table 1 Device drivers' can be installed. If either of the OCIA scanner driver or TEC serial port driver is to be installed, the multi-interrupt driver needs to be installed, too, because these drivers require the multi-interrupt driver. The following shows the multi-interrupt driver, and the stack for the OCIA scanner driver and TEC serial port driver.



(*1) Supports for domestic Version

For Windows NT, the following will be installed other than the specified drivers:

- Control Panel and documents for the WindowsNT POS Driver

With the "OPOS Control (CO,SO)" disk the CO and the SO described in Table 2 All devices supported by TEC OPOS Control will be installed. The following methods of installation are supported:

Method of Installation	Description
Development environment	OPOS Control Object (CO) Installs the C/C++/Visual Basic Include file (*.h, *.bas) The OCX should be installed usually to compile the application. Used to develop the application on the normal PCs.
Execution environment.	OPOS Control Object (CO) OPOS Service Object (SO) TEC OPOS Control Panel Applet (TECOPOS.CPL) Installs the CheckHealth Application (Operation checking program). It can generate the environments for the application to work in and to perform the tests and to configure.
Both development and execution environments	OPOS Control Object (CO) OPOS Service Object (SO) TEC OPOS Control Panel Applet (TECOPOS.CPL) Installs the CheckHealth Application (Operation checking program) C/C++/Visual Basic Include file (*.h, *.bas). Possible to Work on POS Terminals and develop with operating debugger.

3.2.4 Silent Installation

User has to compile the initialization file (*.ini) in order to perform the silent installation.

Now, this procedure is not released yet.

4. Drawer

4.1 DRWST Cash Drawer Control ["DRWST"]

4.1.1 Models for support

ST-5500/6400/6500/6500N DRWST-50/DRWST-51
 ST-5600 DRWST-52/DRWST-53
 ST-88 DRWAP-80
 ST-90 DRWAP-80 / DRWST-5x
 ST-60 DRWST-5x
 ST-7000 DRWST-51/DRWST-56

4.1.2 Functions

Functions supported	Functions not supported
Drawer status report (*1)	

(*1) Not support (DRWAP-80)

Table 4 DRWST Cash Drawer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS Cash Drawer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription (*2)	"TEC OPOS Cash Drawer Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription (*2)	"DRWST-5x Cash Drawer"
DeviceName (*2)	"DRWST"
Special property	
CapStatus (*1)	TRUE

(*1) This function is FALSE, in order not to be supported with DRWAP-80

(*2) content is different with Device

Table 5 List of DRWST Cash Drawer Control Property value

4.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

Only open status of a drawer is checked. The result is stored on CheckHealthText property.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Internal HCheck:Opened!!"	Drawer is open
	"Internal HCheck:Closed!!"	Drawer is closed
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

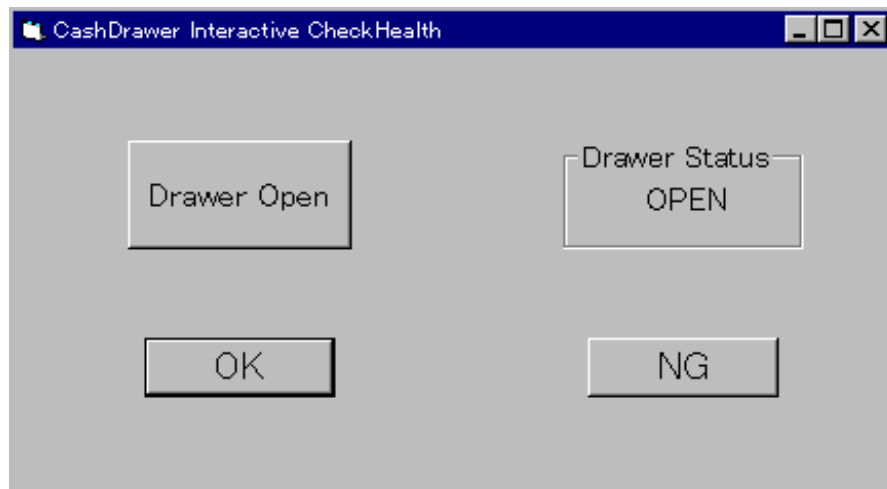
2) External Level (OPOS_CH_EXTERNAL)

Opens a drawer and store success on CheckHealthText property if the drawer status is open and store error on CheckHealthText property if the drawer status is not open.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Successful"	Drawer opened
OPOS_E_FAILURE	"External HCheck:Error"	Drawer did not open
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Display the following dialog box and confirm that the drawer opens and its status changes by clicking "OPEN" command button.
Select OK button or NG button by visually checking the result.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Error"	Error (NG button was clicked.)
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

4.1.4 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥CashDrawer

¥DRWST

Standard "TEC. DRAWER"

Service "C:¥OPOS¥TEC¥Drwso.dll"

Description "TEC DRWST Cash Drawer"

Version "1.2"

POSType "ST5500" | "ST5600" | "ST88" | "ST90"

DeviceName "DRWST50" | "DRWST52" | "DRWAP80"

Port "DRW1" | "DRW2"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
POSType	Drawer with a type of POS connected with, chooses it from ST5500 / ST5600 / ST88 / ST90. Possible set up with a control panel. (*2)
DeviceName	POS connected with a type of Drawer, with chooses it from DRWST50 / DRWST52 / DRWAP80. Possible set up with a control panel. (*1)
Port	POS connected with a Port of Drawer, with chooses it from DRW1 / DRW2. Possible set up with a control panel.

(*1) Set up for DRWST-51 with DRWST50. DRWST52 for DRWST-53.

(*2) Set up for ST6400/6500/6500N with ST5500.

Table 6 DRWST Cash Drawer Control Registry

4.1.5 Restrictions and precautions

- 1) ST-5500 / ST-5600 DRW Port
Though ST-5500 / ST-5600 supports two port of DRW1T and DRW2T, DRWST Cash Drawer Control does only one. Action with DRW1T port, no action with DRW2T.
- 2) About relation with Cash Drawer Driver
DRWST Cash Drawer Device Driver of Windows NT/2000 must be installed on Windows NT/2000.

4.2 DRWST Cash ControlEX ["DRWEX"]

In order to connect with it for Drawer 2units of extension DRWST Cash Drawer Control.

For a function quite similarly to as, DRWST Cash Drawer Control reference for DRWST Cash Drawer Control.

4.2.1 Models for support

As DRWST Cash Drawer Control similarly.

4.2.2 Functions

As DRWST Cash Drawer Control similarly.

4.2.3 CheckHealth Specification

As DRWST Cash Drawer Control similarly.

4.2.4 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥CashDrawer

¥DRWST

Standard	"TEC. DRAWER"
Service	"C:¥OPOS¥TEC¥Drwso.dll"
Description	"TEC DRWST Cash Drawer"
Version	"1.2"
POSType	"ST5500" "ST5600" "ST88" "ST90"
DeviceName	"DRWST50" "DRWST52" "DRWAP80"
Port	"DRW1" "DRW2"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
POSType	Drawer with a type of POS connected with, chooses it from ST5500 / ST5600 / ST88 / ST90. Possible set up with a control panel. (*2)
DeviceName	POS connected with a type of Drawer, with chooses it from DRWST50 / DRWST52 / DRWAP80. Possible set up with a control panel. (*1)
Port	POS connected with a Port of Drawer, with chooses it from DRW1 / DRW2. Possible set up with a control panel.

- (*1) Set up for DRWST-51 with DRWST50. DRWST52 for DRWST-53.
- (*2) Set up for ST6400/6500 with ST5500.

About a content similarly to DRWST Cash Drawer Control.

4.2.5 Precautions and restrictions

As DRWST Cash Drawer Control similarly.

5. Line Display

5.1 LIUST51 Line Display Control ["LIUST51"]

5.1.1 Models for support

LIUST-51

5.1.2 Functions

Functions supported	Functions not supported
Horizontal and Vertical marquee scroll Descriptor light on/off Device brightness control Display in teletype mode	Blinking per character/device and descriptor blinking

Table 7 LIUST51 Line Display Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS Line Display Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC OPOS Line Display Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"LIUST-51 Serial Line Display"
DeviceName	"TEC LIUST51"
Special property	
CapBlink	DISP_CB_NOBLINK
CapBrightness	TRUE
CapCharacterSet	DISP_CCS_KANA
CapDescriptors	TRUE
CapHMarquee	TRUE
CapICharWait	TRUE
CapVMarquee	TRUE
DeviceWindows	999
DeviceRows	2
DeviceColumns	20
DeviceDescriptors	20
CharacterSetList	"932"

Table 8 List of LIUST51 Line Display Control Property value

5.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Internal HCheck:Connected"	Successful
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

2) External Level (OPOS_CH_EXTERNAL)

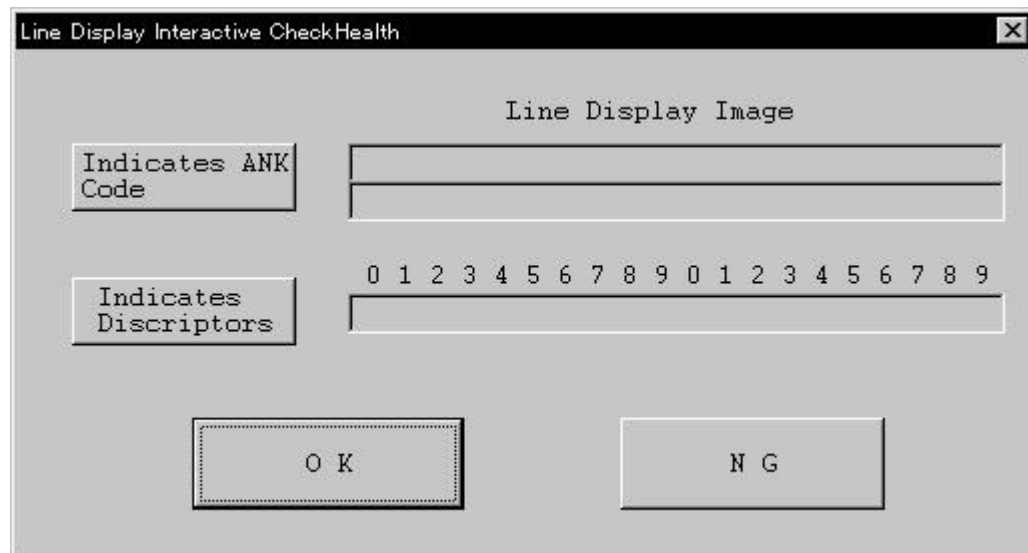
Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Complete"	Successful
OPOS_E_TIMEOUT	"External HCheck:Error"	Device busy
OPOS_E_NOTCLAIMED	"HCheck: Exclusive"	Exclusive error

3) Interactive Level (OPOS_CH_INTERACTIVE)

Displays the following dialog box and confirms that the check box will be successfully displayed by clicking each command button. Indicates ANK code button (20h-7Eh) display will be scrolled by one line.

Display for Indicates Discription button for Descriptor.

Select OK button or NG button by visually checking the result.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Error"	Error (NG button was clicked.)
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

5.1.4 DirectIO Specification

Extended specification using DirectIO method is supported.

1. ID reading

Command 100
 *pStringID character string read is returned. The string is 15 bytes string sent by the device.

Mandatory conditions are Open, Claim and DeviceEnabled.

2. Unconditional direct output

Command 101
 *pString Display character string

Mandatory conditions are Open, Claim and DeviceEnabled.

Direct output is produced unconditionally on the display regardless of running threads.

Use this output to perform special processing during teletype display or marquee scrolling.

3. Country code change

Command 103
 *pData Country code

Mandatory conditions are Open, Claim and DeviceEnabled.

Country codes are same as those specified by escape characters.

0	USA
1	France
2	Germany
3	Great Britain
4	Denmark 1
5	Sweden
6	Italy
7	Spain 1
8	Japan
9	Norway
10	Denmark 2
11	Spain 2
12	Latin America
13	East Europe
14	Iceland
15	Greek
16	Greek 2
17	Cyrillic
99	Japan 2

Country codes will be restored when exclusively controlled.

4. Extended DisplayText method

Command	104
*pData	Character attribute
*pString	Display character string

Functions as well as DisplayText method with extended character attribute. No contradiction arises even if it is used with other methods of OPOS specification.

Currently, the following can be specified for character attributes.

0 Reset (Normal character)

Mandatory conditions are Open, Claim and DeviceEnabled.

An error occurs according to OPOS specification during marquee scrolling. Functions the same way as the normal DisplayText method during teletype display.

5.1.5 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay

\LIUST51

Standard	"TEC LIUST-51.S"
Service	"C:\OPOS\TEC\LIust51.dll"
Description	"TEC LIUST-51 Serial Line Display"
Version	"1.2"
Port	"COM1" ~ "COM8"
BaudRate	"9600"
Country	"0" ~ "12" "99"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM1" ~ "COM8" Possible set up with a control panel.
BaudRate	BaudRate

	"9600"
Country	Country Code Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. Character sets for each country are defined. 0 USA 1 France 2 Germany 3 Great Britain 4 Denmark 1 5 Sweden 6 Italy 7 Spain 1 8 Japan 9 Norway 10 Denmark 2 11 Spain 2 12 Latin America 13 East Europe 14 Iceland 15 Greek 16 Greek 2 17 Cyrillic 99 Japan 2 Possible set up with a control panel.

Table 9 LIUST51 Line Display Control Registry

5.1.6 Precautions and restrictions

1) Descriptor

The system supports 20 descriptors. Number 0,1,2,• c..19 is assigned from left to right.

Lighting turning off light can control at Descriptor parameter of SetDescriptor method by this number. In case that DISP_SD_BLINK is specified at Attribute parameter :

OPOS_E_ILLEGAL error. (Descriptor's blink function is not supported)

2) percentage of the brightness and the brightness of physical device

DeviceBrightness property value n	Brightness of LIUST-51(physical device)
0	0%
1 ~ 20	20%
21 ~ 40	40%
41 ~ 60	60%
61 ~ 80	80%
81 ~ 100	100%

Table 10 Brightness of LIUST51 Line Display

3) Character sets for country code

Character sets for each country are defined in LIUST-51.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

5.2 LIUST51Ex Line Display Control ["LIUST51.EX"]

In order to connect with it for LIUST-51 Line Display 2units of extension LIUST51 Line Display Control. For a function quite similarly to as, LIUST51 Line Display Control reference for LIUST51 Line Display Control.

5.2.1 Models for support

As LIUST51 Line Display Control similarly.

5.2.2 Functions

As LIUST51 Line Display Control similarly.

5.2.3 CheckHealth Specification

As LIUST51 Line Display Control similarly.

5.2.4 DirectIO Specification

As LIUST51 Line Display Control similarly.

5.2.5 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay
 \LIUST51.EX (*1)

Standard	"TEC.LIUST51.EX.S"
Service	"C:\OPOS\TEC\Liust51Ex.dll"
Description	"TEC LIUST-51 Serial Line Display"
Version	"1.2"
Port	"COM1" ~ "COM8"
BaudRate	"9600"
Country	"0" ~ "12" "99"

(*1) At LIUST51 Line Display Control, though it is "LIUST51". Become "LIUST51.EX" case of an extension. Become a useful DeveceName at Open method this value.

About a content similarly to LIUST51 Line Display Control.

5.2.6 Precautions and restrictions

As LIUST51 Line Display Control similarly.

5.3 LIUST52 Line Display Control ["LIUST52"]

5.3.1 Models for support

LIUST-52

5.3.2 Functions

Functions supported	Functions not supported
Horizontal and vertical marquee scroll Device brightness control Display in teletype mode Display time delay Blinking per character/device	Descriptor

Screen Mode 2x 20 / 4x 20 / 5x 20	
-----------------------------------	--

Table 11 LIUST52 Line Display Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS Line Display Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC LIUST-52 Serial Line Display Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"LIUST-52 Serial Line Display"
DeviceName	"TEC LIUST-52"
Special property	
CapBlink	DISP_CB_BLINKEACH
CapBrightness	TRUE
CapCharacterSet	DISP_CCS_KANJI
CapDescriptors	FALSE
CapHMarquee	TRUE
CapICharWait	TRUE
CapVMarquee	TRUE
DeviceWindows	999
DeviceRows	2,4 or 5 (*1)
DeviceColumns	20 (*1)
DeviceDescriptors	0
CharacterSetList	"850", "932", "999"

(*1) The value of DeviceRows and DeviceColumns vary depending on the screen mode.

Table 12 List of LIUST52 Line Display Control Property value

5.3.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Internal HCheck:Connected"	Successful
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

2) External Level (OPOS_CH_EXTERNAL)

For a current DeviceRows -1 of a Line Display for the string sink from the right side.

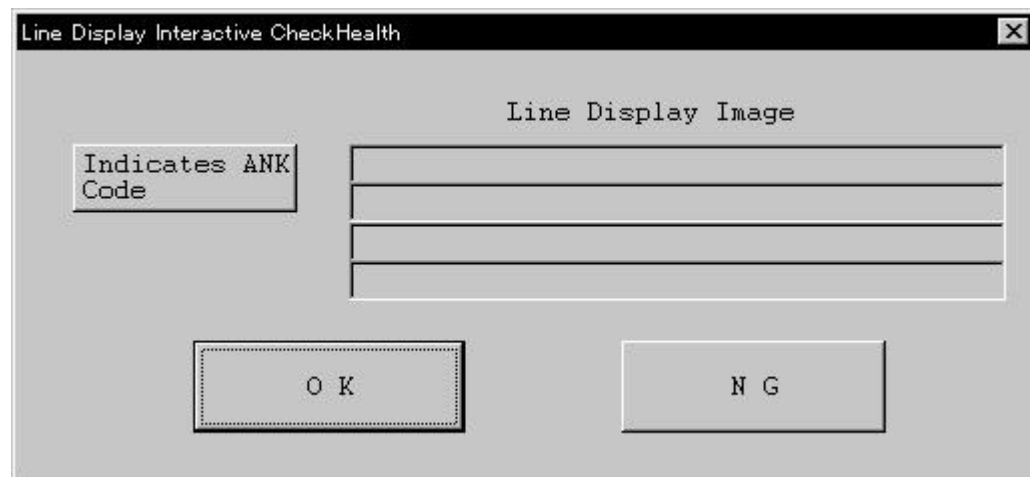
"TEC Line Display LIUST-5X OPOS CheckHealth:External"

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Complete"	Successful
OPOS_E_TIMEOUT	"External HCheck:Error"	Device busy
OPOS_E_NOTCLAIMED	"HCheck: Exclusive"	Exclusive error

3) Interactive Level (OPOS_CH_INTERACTIVE)

Displays the following dialog box and confirms that the check box will be successfully displayed by clicking each command button. Indicates ANK code button (20h-7Eh) display will be scrolled by one line.

Select OK button or NG button by visually checking the result.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Error"	Error (NG button was clicked.)
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

5.3.4 DirectIO Specification

Extended specification using DirectIO method is supported.

1. ID reading

Command 100

*pStringID character string read is returned. The string is 15 bytes string sent by the device.

Mandatory conditions are Open, Claim and DeviceEnabled.

2. Unconditional direct output

Command 101

*pString Display character string

Mandatory conditions are Open, Claim and DeviceEnabled.

Direct output is produced unconditionally on the display regardless of running threads.

Use this output to perform special processing during teletype display or marquee scrolling.

3. Screen mode change

Command 102

*pData Screen mode number

Change the screen mode of display line and column dynamically.

The following are the screen modes selectable for LIUST-52.

6 5 x 6 font 4 columns x 20 character display

7 5 x 6 font 5 columns x 20 character display

8 8 x 16 font 2 columns x 20 character display

OPOS_E_ILLEGAL error occurs during teletype display or marquee scrolling.

- 1.) Open is the only mandatory condition.
- 2.) Old windows are all deleted when restructured.
- 3.) Window No. 0 becomes void.
- 4.) Brightness and country codes will be kept.
- 5.) Old screen is cleared and the new device screen is redisplayed.

4. Country code change

Command 103

*pData Country code

Mandatory conditions are Open, Claim and DeviceEnabled.

Country codes are same as those specified by escape characters.

0	USA
1	France
2	Germany
3	Great Britain
4	Denmark 1
5	Sweden
6	Italy
7	Spain 1
8	Japan
9	Norway
10	Denmark 2
11	Spain 2
12	Latin America
13	East Europe
14	Iceland
99	Japan 2
100	Japan Shift-JIS

Country codes will be restored when exclusively controlled.

5. Extended DisplayText method

Command 104

*pData Character attribute

*pString Display character string

Functions as well as DisplayText method with extended character attribute. No contradiction arises even if it is used with other methods of OPOS specification.

Currently, the following can be specified for character attributes.

- 0 Reset (Normal character)
- 1 Blink
- 2 Reverse

Mandatory conditions are Open, Claim and DeviceEnabled.

An error occurs according to OPOS specification during marquee scrolling. Functions the same way as the normal DisplayText method during teletype display.

5.3.5 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay

\LIUST52

Standard	"TEC.LIUST52.S"
Service	"C:\OPOS\TEC\Liust52.dll"
Description	"LIUST-52 Line Display"
Version	"1.2"
Port	"COM1" ~ "COM8"
BaudRate	"9600"
Country	"0" ~ "14" "99" "100"
ScreenMode	"6", "7", "8"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM1" ~ "COM8" Possible set up with a control panel.
BaudRate	BaudRate "9600"
Country	Country Code Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. Character sets for each country are defined. 0 USA 1 France 2 Germany 3 Great Britain 4 Denmark 1 5 Sweden 6 Italy 7 Spain 1 8 Japan 9 Norway 10 Denmark 2 11 Spain 2 12 Latin America 13 East Europe 14 IceLand 99 Japan 2 100 Japan Shift-JIS Possible set up with a control panel.
Screen mode	Change the screen mode of display line and column. 6 4 columns x 20 5 x 6 font character display 7 5 columns x 20 5 x 6 font character display 8 2 columns x 20 8 x 16 font character display Possible set up with a control panel.

Table 13 LIUST52 Line Display Control Registry

5.3.6 Precautions and restrictions

- 1) percentage of the brightness and the brightness of physical device

DeviceBrightness property value n	Brightness of LIUST-52(physical device)
0	0%

1 ~ 36	35.7%
37 ~ 43	42.9%
44 ~ 57	57.1%
58 ~ 79	78.6%
80 ~ 100	100%

Table 14 Brightness of LIUST52 Line Display

2) Character sets for country code

Character sets for each country are defined in LIUST-52.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters, 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

3) ScreenMode

LIUST-52 allows three kinds of screen mode selection.

Property value of each screen mode is as follows.

Screen mode	DeviceRows	DeviceColumns	Font
6	4	20	5 x 6
7	5	20	5 x 6
8	2	20	8 x 16

Table 15 Screen mode of LIUST52 Line Display

5.4 LIUST53 Line Display Control ["LIUST53"]

5.4.1 Models for support

LIUST-53

5.4.2 Functions

Functions supported	Functions not supported
Horizontal and vertical marquee scroll Device brightness control Display in teletype mode Display time delay Blinking per character/device Screen Mode 2x 20 / 3x 32 / 4x 32 / 8x 42	Descriptor

Table 16 LIUST53 Line Display Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS Line Display Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC LIUST-53 Serial Line Display Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"LIUST-53 Serial Line Display"
DeviceName	"TEC LIUST-53"
Special property	
CapBlink	DISP_CB_BLINKEACH
CapBrightness	TRUE
CapCharacterSet	DISP_CCS_KANJI
CapDescriptors	FALSE
CapHMarquee	TRUE
CapCharWait	TRUE
CapVMarquee	TRUE
DeviceWindows	999
DeviceRows	2, 3, 4 or 8 (*1)
DeviceColumns	20, 32 or 42 (*1)
DeviceDescriptors	0
CharacterSetList	"850", "932", "999"

(*1) The value of DeviceRows and DeviceColumns vary depending on the screen mode.

Table 17 List of LIUST53 Line Display Control Property value

5.4.3 CheckHealth pecification

1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Internal HCheck:Connected"	Successful
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

2) External Level (OPOS_CH_EXTERNAL)

For a current DeviceRows -1 of a Line Display for the string sink from the right side.
"TEC Line Display LIUST-5X OPOS CheckHealth:External"

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Complete"	Successful
OPOS_E_TIMEOUT	"External HCheck:Error"	Device busy

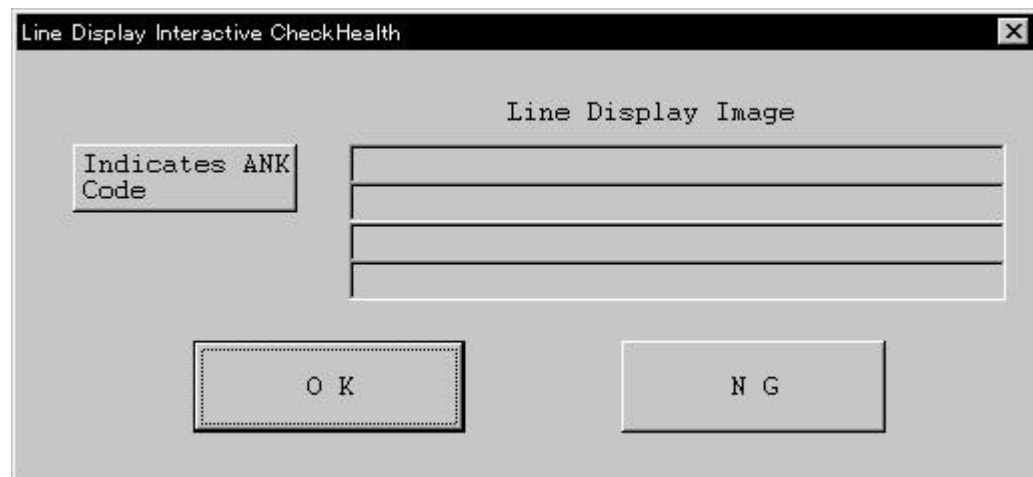
OPOS_E_NOTCLAIMED "HCheck: Exclusive"

Exclusive error

3) Interactive Level (OPOS_CH_INTERACTIVE)

Displays the following dialog box and confirms that the check box will be successfully displayed by clicking each command button. Indicates ANK code button (20h-7Eh) display will be scrolled by one line.

Select OK button or NG button by visually checking the result.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Error"	Error (NG button was clicked.)
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

5.4.4 DirectIO Specification

Extended specification using DirectIO method is supported.

1. ID reading

Command 100

*pStringID character string read is returned. The string is 15 bytes string sent by the device.

Mandatory conditions are Open, Claim and DeviceEnabled.

2. Unconditional direct output

Command 101

*pString Display character string

Mandatory conditions are Open, Claim and DeviceEnabled.

Direct output is produced unconditionally on the display regardless of running threads.

Use this output to perform special processing during teletype display or marquee scrolling.

3. Screen mode change

Command 102

*pData Screen mode number

Change the screen mode of display line and column dynamically.

The following are the screen modes selectable for LIUST-53.

1	5 x 7 font	8 columns x 42 character display
2	8 x 16 font	3 columns x 32 character display

3	12 x 24 font	2 columns x 20 character display
5	8 x 16 font	4 columns x 32 character display

OPOS_E_ILLEGAL error occurs during teletype display or marquee scrolling.

- 1.) Open is the only mandatory condition.
- 2.) Old windows are all deleted when restructured.
- 3.) Window No. 0 becomes void.
- 4.) Brightness and country codes will be kept.
- 5.) Old screen is cleared and the new device screen is redisplayed.

4. Country code change

Command 103

*pData Country code

Mandatory conditions are Open, Claim and DeviceEnabled.

Country codes are same as those specified by escape characters.

0	USA
1	France
2	Germany
3	Great Britain
4	Denmark 1
5	Sweden
6	Italy
7	Spain 1
8	Japan
9	Norway
10	Denmark 2
11	Spain 2
12	Latin America
13	East Europe
14	Iceland
99	Japan 2
100	Japan Shift-JIS

Country codes will be restored when exclusively controlled.

5. Extended DisplayText method

Command 104

*pData Character attribute

*pString Display character string

Functions as well as DisplayText method with extended character attribute. No contradiction arises even if it is used with other methods of OPOS specification.

Currently, the following can be specified for character attributes.

- 0 Reset (Normal character)
- 1 Blink
- 2 Reverse

Mandatory conditions are Open, Claim and DeviceEnabled.

An error occurs according to OPOS specification during marquee scrolling. Functions the same way as the normal DisplayText method during teletype display.

5.4.5 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay
 \LIUST53
 Standard "TEC.LIUST53.S"
 Service "C:\OPOS\TEC\Liust53.dll"
 Description "LIUST-53 Line Display"
 Version "1.2"
 Port "COM1" ~ "COM8"
 BaudRate "9600"
 Country "0" ~ "14" | "99" | "100"
 ScreenMode "1", "2", "3", "5"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM1" ~ "COM8" Possible set up with a control panel.
BaudRate	BaudRate "9600"
Country	Country Code Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. Character sets for each country are defined. 0 USA 1 France 2 Germany 3 Great Britain 4 Denmark 1 5 Sweden 6 Italy 7 Spain 1 8 Japan 9 Norway 10 Denmark 2 11 Spain 2 12 Latin America 13 East Europe 14 IceLand 99 Japan 2 100 Japan Shift-JIS Possible set up with a control panel.
Screen mode	Change the screen mode of display line and column. 1 5 x 7 font 8 columns x 42 character display 2 8 x 16 font 3 columns x 32 character display 3 12 x 24 font 2 columns x 20 character display 5 8 x 16 font 4 columns x 32 character display Possible set up with a control panel.

Table 18 LIUST53 Line Display Control Registry

5.4.6 Precautions and restrictions

- percentage of the brightness and the brightness of physical device

DeviceBrightness property value n	Brightness of LIUST-52(physical device)
0	0%
1 ~ 32	31.6%
33 ~ 45	45.0%

46 ~ 59	58.8%
60 ~ 80	79.4%
81 ~ 100	100%

Table 19 Brightness of LIUST53 Line Display

2) Character sets for country code

Character sets for each country are defined in LIUST-52.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters, 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

3) ScreenMode

LIUST-53 allows fourth of screen mode selection.

Property value of each screen mode is as follows.

Screen mode	DeviceRows	DeviceColumns	Font
1	8	42	5 x 7
2	3	32	8 x 16
3	2	20	12 x 24
5	4	32	8 x 16

Table 20 Screen mode of LIUST53 Line Display

6. Keylock

6.1 PKBST Keylock Control ["PKBST"]

6.1.1 Models for support

PKBST-50 / PKBST-51 / LKBST-56

6.1.2 Functions

Common property	Value
ControlObjectDescription	"TEC OPOS Keylock Control Object"
ControlObjectVersion	"1011000"
ServiceObjectDescription	"TEC OPOS Keylock Service Object"
ServiceObjectVersion	"1011000"
DeviceDescription	"Keylock on PKBST-5x POS Keyboard"
DeviceName	"PKBST"
Special property	
PositionCount	9

Table 21 List of PKBST Keylock Control Property value

6.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not support

2) External Level (OPOS_CH_EXTERNAL)

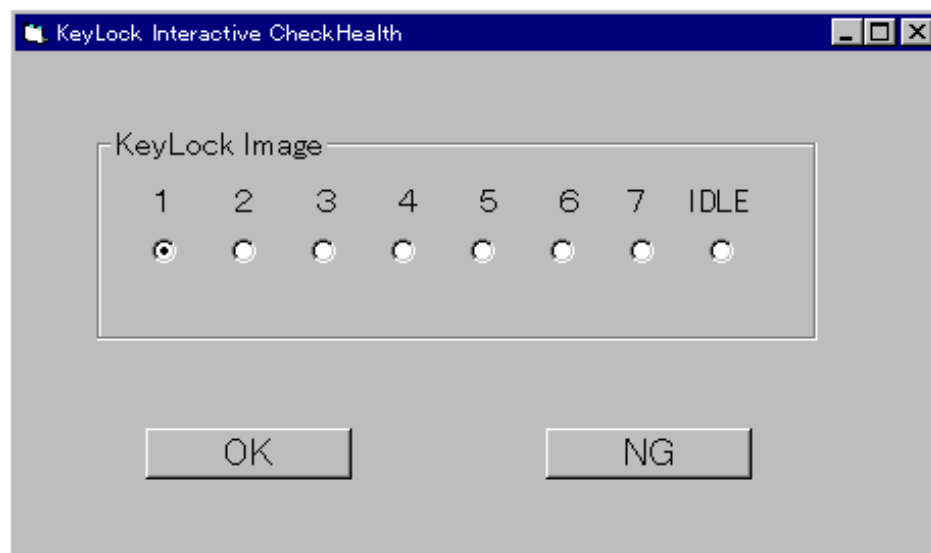
Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"External HCheck:Data Error"	Keylock Data error
OPOS_E_NOHARDWARE	"External HCheck :Not Support"	Not support
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck :Disabled"	Device is disabled

3) Interactive Level (OPOS_CH_INTERACTIVE)

Displays the following dialog box and confirms that the check box will be successfully displayed by turning keylock.

Select OK button or NG button by visually checking the result.

The dialog box will not be displayed when the device is operating.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Data Error"	Error (NG button was clicked.)
OPOS_E_DISABLED	"HCheck :Not Enabled"	Device is disabled

Note

You need to close all other applications to run CheckHealth, as keylock events will affect them.

6.1.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\Keylock	
\PKBST	
Standard	"TEC.PKBST"
Service	"C:\OPOS\TEC\Pkbst.dll"
Description	"TEC Keylock on PKBST-5x POS Keyboard"
Version	"1.2"

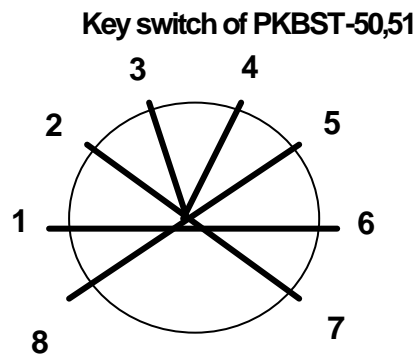
Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object

Table 22 PKBST Keylock Control Registry

6.1.5 Precautions and restrictions

1) Riezon of KeyPosition property and Device.

There are 9 Keylock's allocated altogether. The physical position and the value of KeyPosition property are as follows. (Constants used by KeyPosition property are the same value used in WaitForKeylockChange method and StatusUpdateEvent event.)



Key position of PKBST-50,51	OPOS control constant (KeyPosition property)	
1	LOCK_KP_LOCK	1
2	LOCK_KP_NORM	2
3	LOCK_KP_SUPR +1	4
4	LOCK_KP_SUPR +2	5
5	LOCK_KP_SUPR +3	6
6	LOCK_KP_SUPR +4	7
7	LOCK_KP_SUPR	3
8	LOCK_KP_SUPR +5	8
Idle(Middle position)	LOCK_KP_SUPR +6	9

OPOS defines the value of KeyPosition shaded.

Table 23 KeyPosition of PKBST Keylock Control

2) About the relation with POS keyboard driver

Keylock OPOS control can operate on the keyboard driver of PKBST-5x POS.

Therefore, PKBST-5x POS keyboard for Windows95/98 must have been installed on Windows95/98 and PKBST-5x POS keyboard for Windows NT must have been installed on Windows NT.

7. Magnetic Stripe Reader

7.1 MCRST MSR Control ["MCRST"]

7.1.1 Models for support

PKBST-50 / PKBST-51 / LKB-ST-56

7.1.2 Functions

Functions supported	Functions not supported
ISO card reading JIS Type-II card reading	JIS Type-I card reading

Table 24 MCRST MSR Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS MSR Control Object"
ControlObjectVersion	"1002002"
ServiceObjectDescription	"TEC OPOS MSR Service Object"
ServiceObjectVersion	"1002002"
DeviceDescription	"MSR on PKBST-5x POS Keyboard"
DeviceName	"MCRST"
Special property	
CapISO	TRUE
CapJISOne	FALSE
CapJISTwo	TRUE

Table 25 List of MCRST MSR Control Property value

7.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

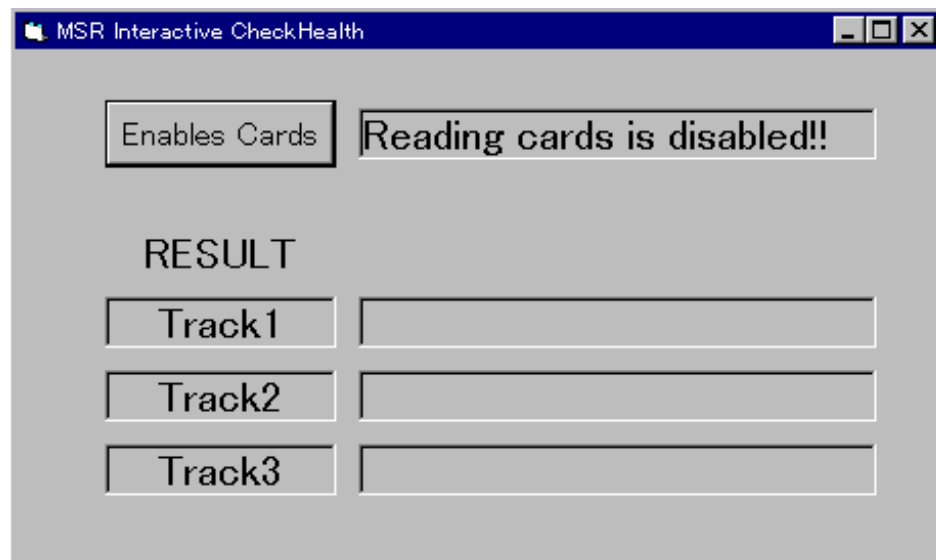
Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not support

2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Successful"	Successful completion
OPOS_E_NOHARDWARE	"External HCheck :Not Support"	Not support
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box. Clicking "Enables Cards" button will start reading cards which then will be checked and its result will be stored to CheckHealthText. As the card reader becomes disabled for every input, Clicking "Enables Cards" button is required to continue reading. The dialog box will not be displayed when the device is operating.

**Enable MSR message description**

String	Description
Reading card is disabled!!	Reading card is disabled by default. Reading card becomes disabled for every input.
Read Card !!	Reading card is enabled.
Missed enabling reading card!!	Failed to enable reading card.

Track Result message description

String	Description
Normal End	Data reading crowded success.
Start Error	Reading crowded failure. (Start Error)
LRC Error	Reading crowded failure. (LRC Error)
No Data	No data.

Return value and ResultCode property

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Successful completion (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck:Data Error"	Error : Start / LRC Error (NG button was clicked.)
OPOS_E_NOHARDWARE	"HCheck :Not Support"	Not Support
OPOS_E_NOTCLAIMED	"HCheck : Exclusive"	Exclusive error

Note

The last input is always valid for CheckHealthText.

7.1.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥MSR

¥MCRST

Standard "TECST5500.MSR"

Service "C:¥OPOS¥TEC¥St55msr.dll"

Description "TEC MSR on PKBST-5x POS Keyboard"

Version "1.2"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object

Table 26 MCRST MSR Control Registry

7.1.5 Precautions and restrictions

1) About JIS Type-II card

Data of the JIS Type-II card read will be processed as data of track-1.

Data of ISO track-1 will also be stored to the same property. Decoding and field split will be automatically decided and processed. PKBST-50,51 has two kinds of card reading heads which never operate at the same time.

2) About the relation with POS keyboard driver

MSR OPOS control can operate on the keyboard driver of PKBST-5x POS.

Therefore, PKBST-5x POS keyboard for Windows95/98 must have been installed on Windows95/98 and PKBST-5x POS keyboard for WindowsNT/2000/XP must have been installed on WindowsNT/2000/XP

8. POS Printer

8.1 TRJST52P POS Printer Control ["TRJST52P"]

8.1.1 Models for support

TRJST-52-P (Parallel printer)

8.1.2 Functions

Printers supported	Printers not supported
Journal printer Receipt printer	Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed Center aligned/Right aligned Bold/Double width & height character Inverted print Left and right rotational print Synchronous/Asynchronous print Error report Escape sequence c	Two color print Italic print Reversed character Shaded character Left/right rotation print

Left and right rotational print is possible only when the firmware supports page mode.

Table 27 TRJST52P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-52 Parallel POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRJST-52 Parallel POS Printer"
DeviceName	"TEC TRJST-52P"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	TRUE
CapJmDhigh	TRUE
CapJmDwide	TRUE
CapJmDwideDhigh	TRUE
CapJmEmptySenser	TRUE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	TRUE
CapRecPresent	TRUE

CapRec2Color	FALSE
CapRecBarCode	TRUE
CapRecBitmap	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySensor	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"932"
CharacterSetList	"850,932,999"
FontTypefaceList	"FontA,Condense,FontB"
JmLineChars	32 by default
JmLineCharsList	"32,41,46"
JmLineHeight	24 by default
JmLineSpacing	30 by default
JmLineWidth	416 by default
RecLineChars	32 by default
RecLineCharsList	"32,41,46"
RecLineHeight	24 by default
RecLineSpacing	30 by default
RecLinesToPaperCut	9 by default
RecLineWidth	416 by default
RecSidewaysMaxChars	320
RecSidewaysMaxLines	16
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0

SlpLineSpacing	0
SlpLineWidth	0
SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 28 List of TRJST52P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. 0-100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #IF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,Condense,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification

Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 29 TRJST52P POS Printer Control Escape sequence

8.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

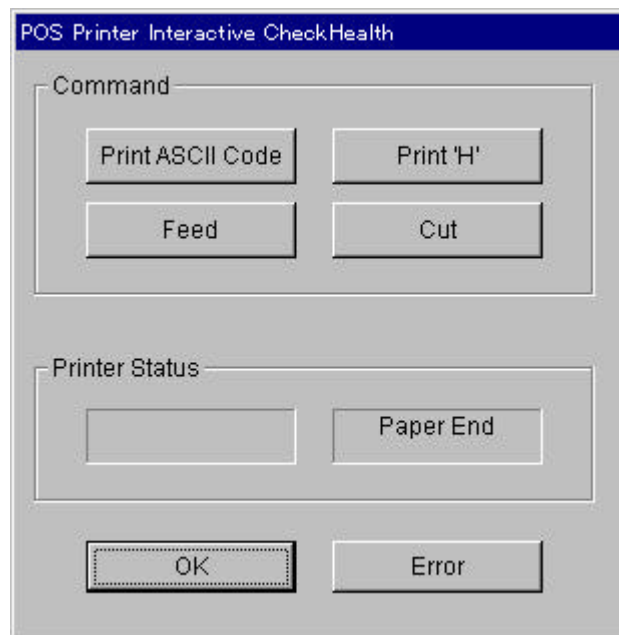
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck:Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.1.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter
¥TRJST52P

Standard	"TEC.TRJST52.P"
Service	"C:\¥OPOS¥TEC¥TRJST52P95.dll"
Description	"TEC TRJST-52 Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
DeviceName	"TRJST52P"
Override	"Off" "On"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "TRJST52P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 30 TRJST52P POS Printer Control Registry

8.1.5 Precautions and restrictions

1) Properties linked with fonts

Three kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence. Changes will be reflected on both the receipt & the journal.

MapMode = PTR_MM_DOTS(Dot width)

	xxxLineHeight	xxxLineChars
FontA	24	32
Condense(A)	24	41
Font B	16	46

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

	xxxLineHeight	xxxLineChars
FontA	170	32
Condense(A)	170	41
Font B	113	46

MapMode = PTR_MM_ENGLISH(0.0001 inch)

	xxxLineHeight	xxxLineChars
FontA	118	32
Condense(A)	118	41
Font B	78	46

MapMode = PTR_MM_METRIC(0.01 mm)

	xxxLineHeight	xxxLineChars
FontA	300	32
Condense(A)	300	41
Font B	200	46

Table 31 TRJST52P : Properties linked with fonts

2) Writable properties that affect fonts

xxxLineChars change will affect the font.

The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. Font change will also affect xxxLineHeight value.

Change of xxxLineHeight will affect the font.

If xxxLineHeight is less than 24, FontB will be effective and otherwise FontA will be effective.

3) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.

The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1 / 2 of paper width	Small
Less than 3 / 4 of paper width	Medium
More	Big

Table 32 TRJST52P : Character size of Width parameter

Please print the UPC-E barcode with the check-digits.

Not with the leading character '0' for adjustment of transmission digits.

UPC-E BARCODE0X₁X₂X₃X₄X₅X₆ C/D

PRINT DATA X₁X₂X₃X₄X₅X₆ C/D

Specify the print data as above. It should be 7 digits.

4) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.

Though SetBitmap allows two bit maps to be set by specification, this control allows only one.

As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened.

5) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment

with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.

6) On print method operation

TRJST-52 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

7) About one-way printing and two-way printing

TRJST-52 supports only one-way printing.

Therefore, JrnLetterQuality and RecLetterQuality are always set to TRUE.

8) Restrictions on left and right rotational print

1. Restrictions against escape sequence

Escape sequences that do not function in left and right rotation mode.

- Italic (ignored)
- Red character (ignored)
- Reversed character (ignored)
- Shaded character (ignored)
- Form cut (ignored)
- Stamp print (ignored)

- Reverse feed (ignored)

Escape sequences whose operation is not assured

Font type specification

Multi-line feed, Centering, Right alignment, Top logo print, Bottom logo print, Feed and paper cut, Feed and cut and stamp print, Unit feed, Bit map print

Available escape sequences

- Single width
 - Double horizontal width
 - Double vertical width
 - Double horizontal and vertical width
 - Vertical scale
 - Horizontal scale
 - Normal
 - Bold
2. Font and limit restriction against left and right rotational print
Condensed print with font A causes malfunction in left and right rotational print mode. Either font A or font B must be specified before printing in the left and right rotational print mode. Font cannot be changed while printing.

Special limit restriction is applied to the left and right rotational printing.
Single character limit shown below must be observed for proper printing.

Font A	No splitting on the 32nd (*n) single character
Font B	No splitting on the 46th (*n) single character

32,64,96....will be the limit characters for font A.

For example, 32nd and 33rd could be one double width character which violates the restriction and causes malfunction. The above restriction must be taken into consideration for print design.

3. Firmware
The firmware which does not support page mode may malfunction.

9) On events

On Windows95/98, StatusUpdateEvent occurs corresponding to "cover open/no paper" of TRST-52. It also reports that it has been resumed to normal status.

On Windows NT, StatusUpdateEvent occurs in response to "no paper" status of TRJST-52 and does not occur for "cover open". Nor does CoverOpen property change.

When ResultCode of ErrorEvent is OPOS_OPOS_EXTENDED the following value will be set to ResultCodeExtended.

OPOS_EPTR_COVER_OPEN

OPOS_EPTR_REC_EMPTY

As TRJST-52 parallel printer cannot decide whether "no paper" has occurred on the receipt or the journal, in the case of "no paper", it generates StatusUpdateEvent and changes relevant properties for both the receipt and the journal. In the case ErrorEvent, receipt error is assumed.

10) Variety of character sets for countries and the registry

Character sets for each country are defined in TRJST-52.

The registry Country can accommodate the variety of character sets for each country. Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23, 0x24, 0x40, 0x5B to 0x5E, 0x60, 0x7B to 0x7E.

8.2 TRJST52S POS Printer Control ["TRJST52S"]

8.2.1 Models for support

TRJST-52-S (Serial printer)

8.2.2 Functions

Printers supported	Printers not supported
Journal printer Receipt printer	Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed Center aligned/Right aligned Bold/Double width & height character Inverted print Left and right rotational print Synchronous/Asynchronous print Error report Escape sequence c	Two color print Italic print Reversed character Shaded character Left/right rotation print

Left and right rotational print is possible only when the firmware supports page mode.

Table 33 TRJST52S POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-52 Serial POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRJST-52 Serial POS Printer"
DeviceName	"TEC TRJST-52S"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	TRUE
CapJmDhigh	TRUE
CapJmDwide	TRUE
CapJmDwideDhigh	TRUE
CapJmEmptySenser	TRUE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	TRUE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE

CapRecBitmap	TRUE
CapRecBold	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySensor	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"932"
CharacterSetList	"850,932,999"
FontTypefaceList	"FontA,Condense,FontB"
JmLineChars	32 by default
JmLineCharsList	"32,41,46"
JmLineHeight	24 by default
JmLineSpacing	30 by default
JmLineWidth	416 by default
RecLineChars	32 by default
RecLineCharsList	"32,41,46"
RecLineHeight	24 by default
RecLineSpacing	30 by default
RecLinesToPaperCut	9 by default
RecLineWidth	416 by default
RecSidewaysMaxChars	320
RecSidewaysMaxLines	16
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0

SlpLineWidth	0
SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 34 List of TRJST52S POS Printer Control Property Value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut
Feed and form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut RedLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #F	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #F	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,Condense,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 :No underline 1 :Thin underline 2- :Thick underline
Italic	ESC iC	Not operable
Red	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification

Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 35 TRJST52S POS Printer Control Escape sequence

8.2.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

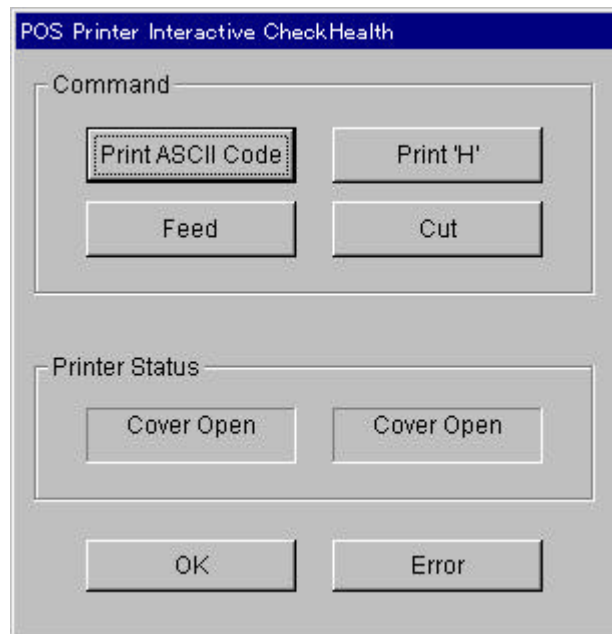
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.2.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥POSPrinter
¥TRJST52S

Standard	"TEC.TRJST52.S"
Service	"C:¥OPOS¥TEC¥TRJST52S.dll"
Description	"TEC TRJST-52 Serial POS Printer"
Version	"1.2"
Port	"COM2"
BaudRate	"9600"
Override	"Off" "On"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM2" Possible set up with a control panel.
BaudRate	Baud rate "9600" Possible set up with a control panel.
Country	Country Code 0 US 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 36 TRJST52S POS Printer Control Registry

8.2.5 Precautions and restrictions

1) Properties linked with fonts

Three kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence. Changes will be reflected on both the receipt & the journal.

MapMode = PTR_MM_DOTS(Dot width)

	xxxLineHeight	xxxLineChars
FontA	24	32
Condense(A)	24	41
Font B	16	46

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

	xxxLineHeight	xxxLineChars
FontA	170	32
Condense(A)	170	41
Font B	113	46

MapMode = PTR_MM_ENGLISH(0.0001 inch)

	xxxLineHeight	xxxLineChars
FontA	118	32
Condense(A)	118	41
Font B	78	46

MapMode = PTR_MM_METRIC(0.01 mm)

	xxxLineHeight	xxxLineChars
FontA	300	32
Condense(A)	300	41

Font B	200	46
--------	-----	----

Table 37 TRJST52S : Properties linked with fonts

- 2) Writable properties that affect fonts
 xxxLineChars change will affect the font.
 The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. Font change will also affect xxxLineHeight value.
 Change of xxxLineHeight will affect the font.
 If xxxLineHeight is less than 24, FontB will be effective and otherwise FontA will be effective.

- 3) About PrintBarCode method
 When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.
 The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1 / 2 of paper width	Small
Less than 3 / 4 of paper width	Medium
More	Big

Table 38 TRJST52S : Character size of Width parameter

Please print the UPC-E barcode with the check-digits.
 Not with the leading character'0' for adjustment of transmission digits.
 UPC-E BARCODE0X₁X₂X₃X₄X₅X₆ C/D
 PRINT DATA X₁X₂X₃X₄X₅X₆ C/D
 Specify the print data as above. It should be 7 digits.

- 4) Bit map related methods and bit map print escape sequence
 SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.
 Though SetBitmap allows two bit maps to be set by specification, this control allows only one.
 As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened.
- 5) Notes on escape sequence
 Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.
- 6) On print method operation
 TRJST-52 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).
- 7) About one-way printing and two-way printing
 TRJST-52 supports only one-way printing.
 Therefore, JrnLetterQuality and RecLetterQuality are always set to TRUE.
- 8) Restrictions on left and right rotational print
1. Restrictions against escape sequence
Escape sequences that do not function in left and right rotation mode.
 - Italic (ignored)
 - Red character (ignored)

- Reversed character (ignored)
- Shaded character (ignored)
- Form cut (ignored)
- Stamp print (ignored)
- Reverse feed (ignored)

Escape sequences whose operation is not assured

Font type specification

Multi-line feed, Centering, Right alignment, Top logo print, Bottom logo print, Feed and paper cut, Feed and cut and stamp print, Unit feed, Bit map print

Available escape sequences

- Single width
 - Double horizontal width
 - Double vertical width
 - Double horizontal and vertical width
 - Vertical scale
 - Horizontal scale
 - Normal
 - Bold
2. Font and limit restriction against left and right rotational print
- Condensed print with font A causes malfunction in left and right rotational print mode. Either font A or font B must be specified before printing in the left and right rotational print mode. Font cannot be changed while printing.

Special limit restriction is applied to the left and right rotational printing.
Single character limit shown below must be observed for proper printing.

Font A No splitting on the 32nd (*n) single character

Font B No splitting on the 46th (*n) single character

32,64,96....will be the limit characters for font A.

For example, 32nd and 33rd could be one double width character which violates the restriction and causes malfunction. The above restriction must be taken into consideration for print design.

3. Firmware

The firmware which does not support page mode may malfunction.

- 9) On events
StatusUpdateEvent occurs corresponding to “cover open/no paper” of TRST-52. It also reports that it has been resumed to normal status.
- 10) Variety of character sets for countries and the registry
Character sets for each country are defined in TRJST-52.
The registry Country can accommodate the variety of character sets for each country. Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

8.3 TRST53P POS Printer Control ["TRST53P"]

8.3.1 Models for support

TRST-53-P (Parallel printer)

8.3.2 Functions

Printers supported	Printers not supported
Receipt printer	Journal printer Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed(1/203inch) Center aligned/Right aligned Bold/Double width & height character Inverted print Synchronous/Asynchronous print Error report (End and NearEnd of receipt form) Escape sequence• c	Two color print Italic print Reversed character Shaded character Left/right rotation print Left and right rotational print

Table 39 TRST53P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-53 Parallel POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRST-53 Parallel POS Printer"
DeviceName	"TEC TRJST-53P"
Special property	
CapConcurrentJmRec	FALSE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	FALSE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	FALSE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE
CapRecBitmap	TRUE

CapRecBold	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySensor	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"932"
CharacterSetList	"850,932,999"
FontTypefaceList	"FontA,FontB"
JmLineChars	0
JmLineCharsList	"0"
JmLineHeight	0
JmLineSpacing	0
JmLineWidth	0
RecLineChars	48 by default
RecLineCharsList	"48,64"
RecLineHeight	24 by default
RecLineSpacing	34 by default
RecLinesToPaperCut	3 by default
RecLineWidth	576 by default
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0
SlpLineWidth	0

SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 40 List of TRST53P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #fF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Operable

		# signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 41 TRST53P POS Printer Control Escape sequence

8.3.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

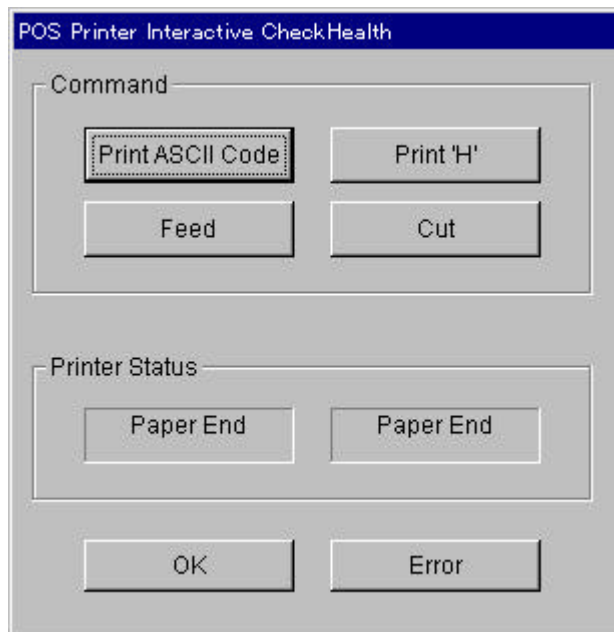
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.3.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\Service\OPOS\POSPrinter

\ TRST53P

Standard	"TEC.TRST53.P"
Service	"C:\OPOS\TEC\TRJST53P95.dll"
Description	"TEC TRST-53 Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
TimeoutConstant	"0"
TimeoutMultiplier	"0"
DeviceName	"TRST53P"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
Description	Brief explanation of the service object

Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "TRST53P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 42 TRST53P POS Printer Control Registry

8.3.5 Precautions and restrictions

1) Properties linked with fonts or MapMode

Two kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence.

MapMode = PTR_MM_DOTS(Dot width)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	34	576	24	48
Font B	34	576	17	64

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	240	4082	170	48
Font B	240	4082	113	64

MapMode = PTR_MM_ENGLISH(0.0001 inch)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	167	2834	118	48
Font B	167	2834	78	64

MapMode = PTR_MM_METRIC(0.01 mm)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	425	7200	300	48
Font B	425	7200	200	64

Table 43 TRST53P : Properties linked with fonts or MapMode

2) About the property to change font and Mapmode

< Write enabled >

xxxLineSpacing is not affected by font, but is affected by MapMode and changes.

The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. Font change will also affect xxxLineHeight value. Change of xxxLineHeight will affect the font.

If xxxLineHeight is less than 24, FontB will be effective and otherwise FontA will be effective.

< Read only >

xxxLineWidth is not affected by font, but is affected by MapMode and changes.

3) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.

The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1/2 of paper width	Small
Less than 3/4 of paper width	Medium
More	Big

Table 44 TRST53P : Character size of Width parameter

Set the print data as shown below for UPC-E bar code print.

UPC-E bar code 0 X₁ X₂ X₃ X₄ X₅ X₆ C/D

Value of X ₆	Print data
X ₆ = 0 to 2	0 X ₁ X ₂ X ₃ 0 0 0 0 X ₄ X ₅
X ₆ = 3	0 X ₁ X ₂ X ₃ 0 0 0 0 0 X ₄ X ₅
X ₆ = 4	0 X ₁ X ₂ X ₃ X ₄ 0 0 0 0 0 X ₅
X ₆ = 5 to 9	0 X ₁ X ₂ X ₃ X ₄ X ₅ 0 0 0 0 0 X ₆

Print data format must be set as shown above with X₆ value.

Print data consists of eleven digits.

Table 45 TRST53P : Print data of UPC-E bar code

4) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.

Though SetBitmap allows two bit maps to be set by specification, this control allows only one.

As this bit map is cached in the printer itself and is printed by bit map print escape

sequence, the bit map set by a process will be shared by all other processes opened.

In some cases, printing a line may not complete if interrupted by ClearOutput during bit map printing. Considering that, it is recommended that Line feed(10) of feed escape sequence be sent if interrupted by ClearOutput.

5) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.

6) On print method operation

TRST-53 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

7) Difference between Windows95/98 and Windows NT

Service objects provided for Windows95/98 and Windows NT are different. The following are the files.

Windows NT TRJST53P.dll

Windows95/98 TRJST53P95.dll

8) On events

On Windows95/98, StatusUpdateEvent occurs corresponding to "cover open/no paper" of TRST-53. It also reports that it has been resumed to normal status.

On WindowsNT, StatusUpdateEvent occurs in response to "no paper" status of TRST-53 and does not occur for "cover open". Nor does CoverOpen property change.

When ResultCode of ErrorEvent is OPOS_OPOS_EXTENDED on both Windows95/98 and WindowsNT, the following value will be set to ResultCodeExtended.

OPOS_EPTR_COVER_OPEN

OPOS_EPTR_REC_EMPTY

9) Variety of character sets for countries and the registry

Character sets for each country are defined in TRST-53.

The registry Country can accommodate the variety of character sets for each country.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See TRST-53 H/W Reference Manual for detail(RAA-00442).

8.4 TRST53S POS Printer Control ["TRST53S"]

8.4.1 Models for support

TRST-53-S (Serial printer)

8.4.2 Functions

Printers supported	Printers not supported
Receipt printer	Journal printer Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed(1/203inch) Center aligned/Right aligned Bold/Double width & height character Inverted print Synchronous/Asynchronous print Error report (End and NearEnd of receipt form) Escape sequence• c	Two color print Italic print Reversed character Shaded character Left/right rotation print Left and right rotational print

Table 46 TRST53S POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-53 Serial POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRST-53 Serial POS Printer"
DeviceName	"TEC TRJST-53S"
Special property	
CapConcurrentJmRec	FALSE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	FALSE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	FALSE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	FALSE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE
CapRecBitmap	TRUE
CapRecBold	TRUE

CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySenser	FALSE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
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
CharacterSet	"932"
CharacterSetList	"850,932,999"
FontTypefaceList	"FontA,FontB"
JmLineChars	0
JmLineCharsList	"0"
JmLineHeight	0
JmLineSpacing	0
JmLineWidth	0
RecLineChars	48 by default
RecLineCharsList	"48,64"
RecLineHeight	24 by default
RecLineSpacing	34 by default
RecLinesToPaperCut	3 by default
RecLineWidth	576 by default
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0
SlpLineWidth	0
SlpMaxLines	0

SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 47 List of TRST53S POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #lF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Operable

		# signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 48 TRST53S POS Printer Control Escape sequence

8.4.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

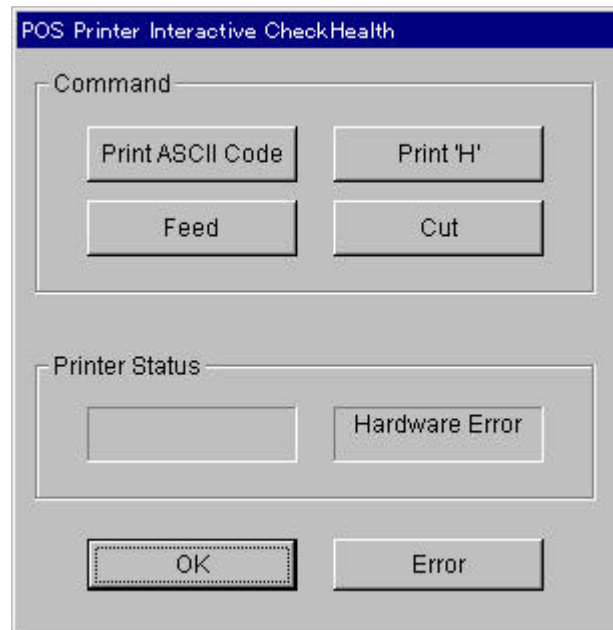
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.4.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥POSPrinter

¥TRST53S

Standard	"TEC.TRJST53.S"
Service	"C:¥OPOS¥TEC¥TRJST53S.dll"
Description	"TEC TRST-53 Serial POS Printer"
Version	"1.2"
Port	"COM2"
BaudRate	"9600"
TimeoutConstant	"0"
TimeoutMultiplier	"0"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
Description	Brief explanation of the service object

Version	version of the service object
Port	Communication port "COM2" Possible set up with a control panel.
BaudRate	Baud rate "9600" Possible set up with a control panel.
Country	Country Code 0 US 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 49 TRST53S POS Printer Control Registry

8.4.5 Precautions and restrictions

1) Properties linked with fonts

Two kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence.

MapMode = PTR_MM_DOTS(Dot width)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	34	576	24	48
Font B	34	576	17	64

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	240	4082	170	48
Font B	240	4082	113	64

MapMode = PTR_MM_ENGLISH(0.0001 inch)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	167	2834	118	48
Font B	167	2834	78	64

MapMode = PTR_MM_METRIC(0.01 mm)

	xxxLineSpacing	xxxLineWidth	xxxLineHeight	xxxLineChars
FontA	425	7200	300	48
Font B	425	7200	200	64

Table 50 TRST53S : Properties linked with fonts

2) About the property to change font and Mapmode

< Write enabled >

xxxLineSpacing is not affected by font, but is affected by MapMode and changes.

The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. Font change will also affect xxxLineHeight value.

Change of xxxLineHeight will affect the font.

If xxxLineHeight is less than 24, FontB will be effective and otherwise FontA will be effective.

< Read only >

xxxLineWidth is not affected by font, but is affected by MapMode and changes.

3) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.

The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1/2 of paper width	Small
Less than 3/4 of paper width	Medium
More	Big

Table 51 TRST53S : Character size of Width parameter

Set the print data as shown below for UPC-E bar code print.

UPC-E bar code 0 X₁ X₂ X₃ X₄ X₅ X₆ C/D

Value of X ₆	Print data
X ₆ = 0 to 2	0 X ₁ X ₂ X ₆ 0 0 0 0 X ₃ X ₄ X ₅
X ₆ = 3	0 X ₁ X ₂ X ₃ 0 0 0 0 0 X ₄ X ₅
X ₆ = 4	0 X ₁ X ₂ X ₃ X ₄ 0 0 0 0 0 X ₅
X ₆ = 5 to 9	0 X ₁ X ₂ X ₃ X ₄ X ₅ 0 0 0 0 X ₆

Print data format must be set as shown above with X₆ value.

Print data consists of eleven digits.

Table 52 TRST53S Print data of UPC-E bar code

4) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.

Though SetBitmap allows two bit maps to be set by specification, this control allows only one.

As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened. In some cases, printing a line may not complete if interrupted by ClearOutput during bit map printing. Considering that, it is recommended that Line feed(10) of feed escape sequence be sent if interrupted by ClearOutput.

5) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.

6) On print method operation

TRST-53 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

7) About SutatusUpdate event of recoverable error

This does not occur on TRST-53-S.

8) Variety of character sets for countries and the registry

Character sets for each country are defined in TRST-53.

The registry Country can accommodate the variety of character sets for each country. Characters ranging from 0x20 to 0x7F are used and part of them are allocated to

graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See TRST-53 H/W Reference Manual for detail(RAA-00442).

8.5 TRST56P POS Printer Control ["TRST56P"]

8.5.1 Models for support

TRST-56-P (Parallel printer)

8.5.2 Functions

Printers supported	Printers not supported
Receipt printer	Journal printer Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed(1/203inch) Center aligned/Right aligned Bold/Double width & height character Inverted print Reversed character Synchronous/Asynchronous print Error report (End and NearEnd of receipt form) Escape sequence c	Two color print Italic print Shaded character Left/right rotation print Left and right rotational print

Table 53 TRST56P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-56 Parallel POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRST-56 Parallel POS Printer"
DeviceName	"TEC TRJST-56P"
Special property	
CapConcurrentJmRec	FALSE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	FALSE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	FALSE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE

CapRecBitmap	TRUE
CapRecBold	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySensor	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"437"
CharacterSetList	"437,932,850,860,863,865,852,866,857,999"
FontTypefaceList	"FontA,FontB"
JmLineChars	0
JmLineCharsList	"0"
JmLineHeight	0
JmLineSpacing	0
JmLineWidth	0
RecLineChars	48 by default
RecLineCharsList	"48,64"
RecLineHeight	24 by default
RecLineSpacing	34 by default
RecLinesToPaperCut	4 by default
RecLineWidth	576 by default
RecSidewaysMaxChars	320
RecSidewaysMaxLines	16
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0

SlpLineWidth	0
SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 54 List of TRST56P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #fF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-250: Double magnification 251-350: 3 magnification

		351-450: 4 magnification 451-550: 5 magnification 551-650: 6 magnification 651-750: 7 magnification 751-800: 8 magnification
Vertical magnification	ESC #vC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-250: Double magnification 251-350: 3 magnification 351-450: 4 magnification 451-550: 5 magnification 551-650: 6 magnification 651-750: 7 magnification 751-800: 8 magnification
Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 55 TRST56P POS Printer Control Escape sequence

8.5.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

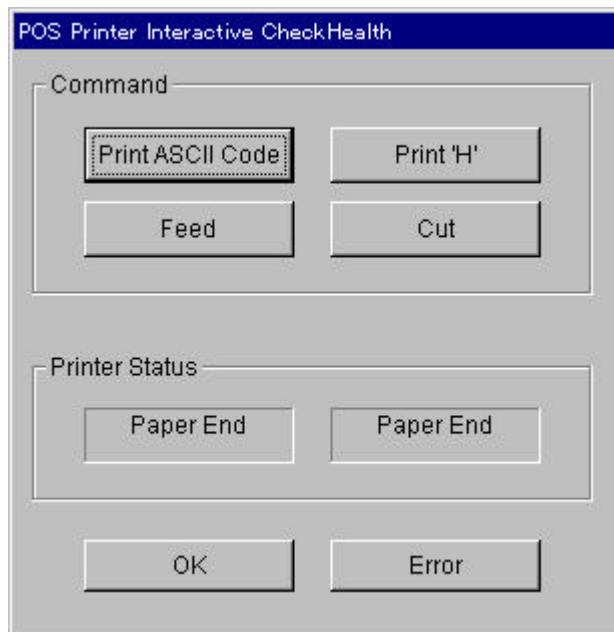
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.5.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\Service\OPOS\POSPrinter

¥ TRST56P

Standard	"TEC.TRST56.P"
Service	"C:\OPOS\TEC\TRJST56P95.dll"
Description	"TEC TRST-56 Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
TimeoutConstant	"0"
TimeoutMultiplier	"0"
DeviceName	"TRST56P"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2" "Spain 2" "Latin" "Korea"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "TRST56P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 11 Spain 2 12 Latin 13 Korea Possible set up with a control panel.
PaperWidthMode	0 80mm paper 1 58mm paper Possible set up with a control panel.
LineSizeMode	0 48(PaperWidthMode=0)/36(PaperWidthMode=1) 1 42(PaperWidthMode=0)/30(PaperWidthMode=1) Possible set up with a control panel.

Table 56 TRST56P POS Printer Control Registry

8.5.5 Precautions and restrictions

1) Properties linked with fonts or MapMode

Two kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence.

PaperWidthMode=0

	LineSizeMode	xxxLineChars
FontA	0	48
	1	42
Font B	0	64
	1	56

PaperWidthMode=1

	LineSizeMode	xxxLineChars
FontA	0	36
	1	30
Font B	0	48

	1	40
--	---	----

Table 57 TRST56P : Properties linked with fonts or MapMode

- 1) About the property to change font and Mapmode
 - < Write enabled >

xxxLineSpacing is not affected by font, but is affected by MapMode and changes.
The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. xxxLineHeight is not affected by font.
 - < Read only >

xxxLineWidth is not affected by font, but is affected by MapMode and changes.
- 2) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.
The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1/5 of paper width	very small
Less than 2/5 of paper width	Small
Less than 3/5 of paper width	Medium
Less than 4/5 of paper width	Big
More	very Big

Table 58 TRST56P : Character size of Width parameter

Set the print data as shown below for UPC-E bar code print.

UPC-E bar code 0 X₁ X₂ X₃ X₄ X₅ X₆ C/D

Value of X ₆	Print data
X ₆ = 0 to 2	0 X ₁ X ₂ X ₆ 0 0 0 0 X ₃ X ₄ X ₅
X ₆ = 3	0 X ₁ X ₂ X ₃ 0 0 0 0 0 X ₄ X ₅
X ₆ = 4	0 X ₁ X ₂ X ₃ X ₄ 0 0 0 0 0 X ₅
X ₆ = 5 to 9	0 X ₁ X ₂ X ₃ X ₄ X ₅ 0 0 0 0 X ₆

Print data format must be set as shown above with X₆ value.

Print data consists of eleven digits.

Table 59 TRST56P : Print data of UPC-E bar code

- 1) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.
Though SetBitmap allows two bit maps to be set by specification, this control allows only one.
As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened.
In some cases, printing a line may not complete if interrupted by ClearOutput during bit map printing. Considering that, it is recommended that Line feed(10) of feed escape sequence be sent if interrupted by ClearOutput.
- 2) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.
- 3) On print method operation

TRST-56 does not start print operation until print data for one line is determined. Not all

data will be printed unless print method ends with Line Feed(10).

- 4) Difference between Windows95/98 and Windows NT
Service objects provided for Windows95/98 and Windows NT are different.
The following are the files.
Windows NT TRJST56P.dll
Windows95/98 TRJST56P95.dll
- 5) On events
On Windows95/98, StatusUpdateEvent occurs corresponding to "cover open/no paper" of TRST-56. It also reports that it has been resumed to normal status.
On WindowsNT, StatusUpdateEvent occurs in response to "no paper" status of TRST-56 and does not occur for "cover open". Nor does CoverOpen property change.

When ResultCode of ErrorEvent is OPOS_OPOS_EXTENDED on both Windows95/98 and WindowsNT, the following value will be set to ResultCodeExtended.

OPOS_EPTR_COVER_OPEN
OPOS_EPTR_REC_EMPTY

- 6) Variety of character sets for countries and the registry
Character sets for each country are defined in TRST-56.
The registry Country can accommodate the variety of character sets for each country.
Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

- 7) Restrictions on left and right rotational print

1. Restrictions against escape sequence

Escape sequences that do not function in left and right rotation mode.

- Italic (ignored)
- Red character (ignored)
- Shaded character (ignored)
- Form cut (ignored)
- Stamp print (ignored)
- Reverse feed (ignored)

Escape sequences whose operation is not assured

Font type specification

Multi-line feed, Centering, Right alignment, Top logo print, Bottom logo print, Feed and paper cut, Feed and cut and stamp print, Unit feed, Bit map print

Available escape sequences

- Single width
- Double horizontal width
- Double vertical width
- Double horizontal and vertical width
- Vertical scale
- Horizontal scale
- Normal
- Bold
- Reversed character

1. Font and limit restriction against left and right rotational print

Either font A or font B must be specified before

printing in the left and right rotational print mode. Font cannot be

changed while printing.

Special limit restriction is applied to the left and right rotational printing.
Single character limit shown below must be observed for proper printing.

Font A No splitting on the 78th (*n) single character

Font B No splitting on the 104th (*n) single character

78,156,234....will be the limit characters for font A.

For example, 78th and 79th could be one double width character which violates the restriction and causes malfunction. The above restriction must be taken into consideration for print design.

8.6 TRST56S POS Printer Control ["TRST56S"]

8.6.1 Models for support

TRST-56-S (Serial printer)

8.6.2 Functions

Printers supported	Printers not supported
Receipt printer	Journal printer Slip printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed(1/203inch) Center aligned/Right aligned Bold/Double width & height character Inverted print Reversed character Synchronous/Asynchronous print Error report (End and NearEnd of receipt form) Escape sequence• c	Two color print Italic print Shaded character Left/right rotation print Left and right rotational print

Table 60 TRST56S POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TRJST-56 Serial POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TRST-56 Serial POS Printer"
DeviceName	"TEC TRJST-56S"
Special property	
CapConcurrentJmRec	FALSE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	FALSE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	FALSE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE
CapRecBitmap	TRUE

CapRecBold	TRUE
CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySenser	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySenser	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"437"
CharacterSetList	"437,932,850,860,863,865,852,866,857,999"
FontTypefaceList	"FontA,FontB"
JmLineChars	0
JmLineCharsList	"0"
JmLineHeight	0
JmLineSpacing	0
JmLineWidth	0
RecLineChars	48 by default
RecLineCharsList	"48,64"
RecLineHeight	24 by default
RecLineSpacing	34 by default
RecLinesToPaperCut	4 by default
RecLineWidth	576 by default
RecSidewaysMaxChars	320
RecSidewaysMaxLines	16
SlpBarCodeRotationList	{0}
SlpLineChars	0
SlpLineCharsList	{0}
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0
SlpLineWidth	0

SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 61 List of TRST56S POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #fF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-250: Double magnification 251-350: 3 magnification

		351-450: 4 magnification 451-550: 5 magnification 551-650: 6 magnification 651-750: 7 magnification 751-800: 8 magnification
Vertical magnification	ESC #vC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-250: Double magnification 251-350: 3 magnification 351-450: 4 magnification 451-550: 5 magnification 551-650: 6 magnification 651-750: 7 magnification 751-800: 8 magnification
Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 62 TRST56S POS Printer Control Escape sequence

8.6.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

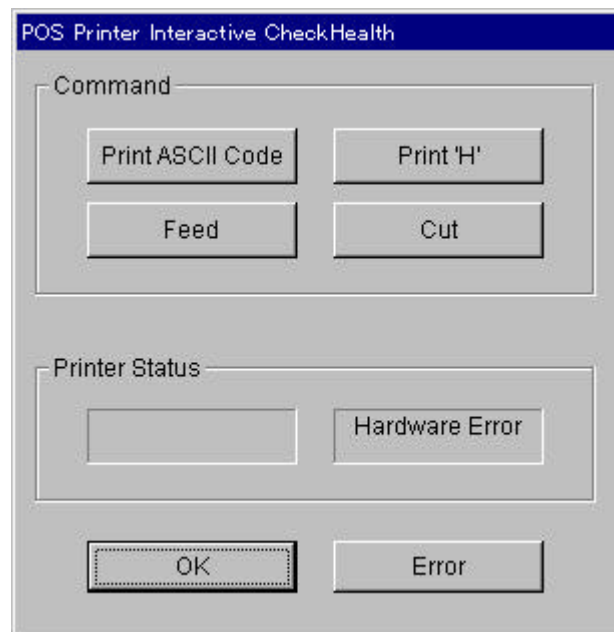
1) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

1) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.6.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥POSPrinter

¥TRST56S

Standard	"TEC.TRJST56.S"
Service	"C:¥OPOS¥TEC¥TRJST56S.dll"
Description	"TEC TRST-56 Serial POS Printer"
Version	"1.2"
Port	"COM2"
BaudRate	"9600"
TimeoutConstant	"0"
TimeoutMultiplier	"0"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2" "Spain 2" "Latin" "Korea"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM2" Possible set up with a control panel.
BaudRate	Baud rate "9600" Possible set up with a control panel.
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 11 Spain 2 12 Latin 13 Korea Possible set up with a control panel.

Table 63 TRST56S POS Printer Control Registry

8.6.5 Precautions and restrictions

1) Properties linked with fonts

Two kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence.

PaperWidthMode=0

	LineSizeMode	xxxLineChars
FontA	0	48
	1	42
Font B	0	64
	1	56

PaperWidthMode=1

	LineSizeMode	xxxLineChars
FontA	0	36
	1	30
Font B	0	48
	1	40

Table 64 TRST56S : Properties linked with fonts

1) About the property to change font and Mapmode

< Write enabled >

xxxLineSpacing is not affected by font, but is affected by MapMode and changes.
 The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. xxxLineHeight is not affected by font.

< Read only >

xxxLineWidth is not affected by font, but is affected by MapMode and changes.

2) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.

The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1/5 of paper width	very small
Less than 2/5 of paper width	Small
Less than 3/5 of paper width	Medium
Less than 4/5 of paper width	Big
More	very Big

Table 65 TRST56S : Character size of Width parameter

Set the print data as shown below for UPC-E bar code print.

UPC-E bar code 0 X₁ X₂ X₃ X₄ X₅ X₆ C/D

Value of X ₆	Print data
X ₆ = 0 to 2	0 X ₁ X ₂ X ₆ 0 0 0 0 X ₃ X ₄ X ₅
X ₆ = 3	0 X ₁ X ₂ X ₃ 0 0 0 0 0 X ₄ X ₅
X ₆ = 4	0 X ₁ X ₂ X ₃ X ₄ 0 0 0 0 0 X ₅
X ₆ = 5 to 9	0 X ₁ X ₂ X ₃ X ₄ X ₅ 0 0 0 0 X ₆

Print data format must be set as shown above with X₆ value.

Print data consists of eleven digits.

Table 66 TRST56S Print data of UPC-E bar code

1) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.

Though SetBitmap allows two bit maps to be set by specification, this control allows only one.

As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened. In some cases, printing a line may not complete if interrupted by ClearOutput during bit map printing. Considering that, it is recommended that Line feed(10) of feed escape sequence be sent if interrupted by ClearOutput.

2) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.

3) On print method operation

TRST-56 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

4) About SutatusUpdate event of recoverable error

StatusUpdateEvent occurs corresponding to "cover open/no paper" of TRST-56. It also reports that it has been resumed to normal status.

5) Variety of character sets for countries and the registry

Character sets for each country are defined in TRST-56.

The registry Country can accommodate the variety of character sets for each country.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

6) Restrictions on left and right rotational print

1. Restrictions against escape sequence

Escape sequences that do not function in left and right rotation mode.

- Italic (ignored)
- Red character (ignored)
- Shaded character (ignored)
- Form cut (ignored)
- Stamp print (ignored)
- Reverse feed (ignored)

Escape sequences whose operation is not assured

Font type specification

Multi-line feed, Centering, Right alignment, Top logo print, Bottom logo print, Feed and paper cut, Feed and cut and stamp print, Unit feed, Bit map print

Available escape sequences

- Single width
- Double horizontal width
- Double vertical width
- Double horizontal and vertical width
- Vertical scale
- Horizontal scale
- Normal
- Bold
- Reversed character

1. Font and limit restriction against left and right rotational print

Either font A or font B must be specified before

printing in the left and right rotational print mode. Font cannot be changed while printing.

Special limit restriction is applied to the left and right rotational printing.

Single character limit shown below must be observed for proper printing.

Font A No splitting on the 78th (*n) single character

Font B No splitting on the 104th (*n) single character

78,156,234....will be the limit characters for font A.

For example, 78th and 79th could be one double width character which violates the restriction and causes malfunction. The above restriction must be taken into consideration for print design.

8.7 DRJST50P POS Printer Control ["DRJST50P"]

8.7.1 Models for support

DRJST-50-P (Parallel printer)

8.7.2 Functions

Printers supported	Printers not supported
Receipt printer Journal printer Slip printer	
Functions supported	Functions not supported
Batch processing/ Logo print Form cut Multiple line feed/Single line feed Double width character Inverted print Synchronous/Asynchronous print Bitmap print(Slip only) Stamp Escape sequence• c	Center aligned/Right aligned Bar code print/Bitmap print Bold/Underline Double height character Two color print Italic print Reversed character Shaded character Left and right rotational print

Table 67 DRJST50P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object."
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC DRJST-50 Parallel POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"DRJST-50 Parallel POS Printer."
DeviceName	"TEC DRJST-50P"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	FALSE
CapCharacterSet	PTR_CCS_KANA (10)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	TRUE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	TRUE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	FALSE
CapRecBitmap	FALSE
CapRecBold	FALSE

CapRecDhigh	FALSE
CapRecDwide	TRUE
CapRecDwideDhigh	FALSE
CapRecEmptySenser	FALSE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	TRUE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	TRUE
CapRecUnderline	FALSE
CapSlpPresent	TRUE
CapSlpFullslip	TRUE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	TRUE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	TRUE
CapSlpDwideDhigh	FALSE
CapSlpEmptySenser	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	TRUE
CapSlpUnderline	FALSE
CharacterSet	"190"
CharacterSetList	"190,191,192,193,194,195"
FontTypefaceList	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5"
JmLineChars	33
JmLineCharsList	"33"
JmLineHeight	9
JmLineSpacing	12
JmLineWidth	297
RecLineChars	33
RecLineCharsList	"33"
RecLineHeight	9
RecLineSpacing	12
RecLinesToPaperCut	13
RecLineWidth	297
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	77
SlpLineCharsList	"77"
SlpLineHeght	9
SlpLinesNearEndToEnd	4
SlpLineSpacing	12
SlpLineWidth	693
SlpMaxLines	0

SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 68 List of DRJST50P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RedLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Bit map print	ESC #B	Not operable
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Operable
Multiple line feed	ESC #F	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Not operable
Underline	ESC #uC	Not operable
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double eight character	ESC 3C	Not operable Print as a normal character
Double width&height character	ESC 4C	Not operable Print as a double width character
Horizontal magnification	ESC #hC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Not operable
Center aligned	ESC cA	Not operable
Right aligned	ESC rA	Not operable
Normal	ESC N	Operable

Table 69 DRJST50P POS Printer Control Escape sequence

8.7.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

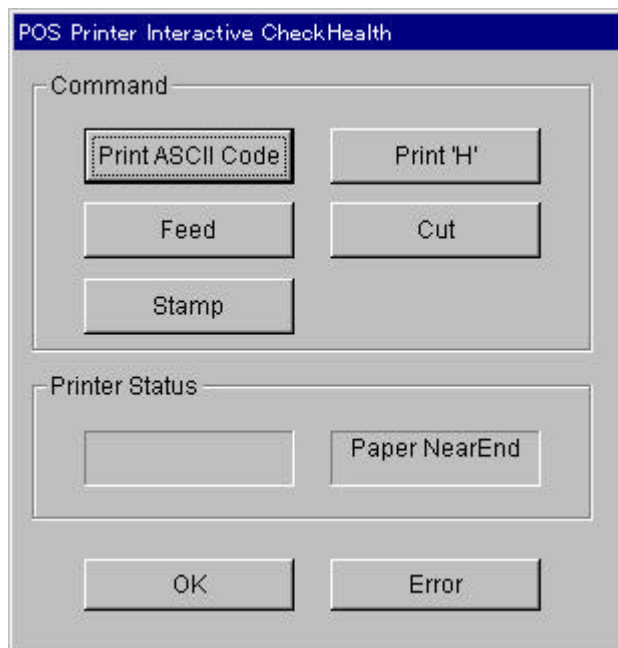
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.7.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetailService\OPOS\POSPrinter

¥DRJST50P

Standard	"TEC.DRJST50.P"
Service	"C:\¥OPOS¥TEC¥DRJST50P95.dll"
Description	"TEC DRJST-50-P Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
DeviceName	"DRJST50P"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "DRJST50P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 70 DRJST50P POS Printer Control Registry

8.7.5 Precautions and restrictions

1) Properties linked with MapMode

As MapMode change affects the unit of length, properties will be changed accordingly.
All the properties are constants and not to be changed.

MapMode = PTR_MM_DOTS(Dot width)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
12	693	297	9

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
239	6219	2665	179

MapMode = PTR_MM_ENGLISH(0.0001 inch)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
166	4318	1850	124

MapMode = PTR_MM_METRIC(0.01 mm)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
422	10970	4701	317

Table 71 DRJST50P : Properties linked with MapMode

2) Notes on escape sequence

The escape sequence of form cut only works after feed if it is set in the print method.
Therefore, it must be set after feed escape sequence or Line Feed(10) to properly operate.

Double height and double width escape sequence will be processed as double width sequence because the double height attribute is not supported.

Double height escape sequence is processed as a normal character because double

height attribute is not supported.

- 3) On print method operation
DRJST-50 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).
- 4) On events
StatusUpdate event caused by DRJST-50 parallel printer varies depending on whether the system is Windows95/98 or WindowsNT. StatusUpdate event for "cover open" will not occur on WindowsNT.
- 5) Variety of character sets for countries and the registry
Character sets for each country are defined in DRST-50.
The registry Country can accommodate the variety of character sets for each country.
Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See DRST-50 HWW Reference Manual for detail(RAA-00401).
- 6) On CharacterSet and CharacterSetList property
DRJST-50 printer has 6 pages of character code table ranging from 0x00 to 0xFF.
Standard character set is defined for codes ranging from 0x00 to 07F with the same characters for 6 pages and specific character set for DRJST-50 is defined for codes ranging from 0x80 to 0xFF.
For example, symbol characters, Katakana and Hiragana are defined in this range. See DRJST-50 HWW reference manual(RAA-00401) for detail.
Switching of these six pages of character codes is realized by changing CharacterSet.
CharacterSetList property shows that numbers from 190 to 195 can be specified.
The relation between CharacterSet and the page is as follows.

CharacterSet property value	Page No.
190	Page 0
191	Page 1
192	Page 2
193	Page 3
194	Page 4
195	Page 5

Page setting is also available in font type setting.

Table 72 DRJST50P CharacterSet Property value

7) Action of slip printer

1. BeginInsertion method

Open the orifice for slip form if it is not open. Time-out value is not effective for monitoring the slip form insertion. Therefore, OPOS_SUCCESS will be immediately returned.

After the slip form is inserted, never forget to call EndInsertion method.

2. EndInsertion method

OPOS_SUCCESS is immediately returned. Never forget to execute EndInsertion method after issuing BeginInsertion method. Sheet(Slip and Journal/Receipt) check of the print method will be enabled. If print method is issued to a receipt without issuing this method, the device malfunctions. BeginInsertion After the method, printing to a receipt without the slip sheet inserted fails. If the slip form is inserted after this, the slip form is fed forward and the data sent to the receipt will be printed. Printing data to a receipt with the slip sheet inserted succeeds after feeding the slip form forward. To avoid such operation, BeginInsertion and EndInsertion are to be used in pairs. With EndInsertion. An error is issued by print method even if the different sheet is inserted.

3. BeginRemoval method

After feeding the slip form backward, OPOS_SUCCESS is returned. Issuing the method alone makes the mode feed mode and the device waits until the slip form is inserted. Follow the correct procedure to issue the method.

Use the method with EndRemoval method.

4. EndRemoval method

No visual action is performed. OPOS_SUCCESS will be immediately returned. OPOS_EPTR_FORM will not be returned as the device does not support form detection.

5. Closing the form orifice

The orifice does not close by issuing slip related methods.

It is automatically closed by issuing print method to a receipt or journal after the slip feed process is completed.

As stated above, be careful to use the slip printer methods, because they must be issued in the predetermined sequence.

8.8 DRJST50S POS Printer Control ["DRJST50S"]

8.8.1 Models for support

DRJST-50-S (Serial printer)

8.8.2 Functions

Printers supported	Printers not supported
Receipt printer Journal printer Slip printer	
Functions supported	Functions not supported
Batch processing/ Logo print Form cut Multiple line feed/Single line feed Double width character Inverted print Synchronous/Asynchronous print Bitmap print(Slip only) Stamp Escape sequence• c	Center aligned/Right aligned Bar code print/Bitmap print Bold/Underline Double height character Two color print Italic print Reversed character Shaded character Left and right rotational print

Table 73 DRJST50S POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object."
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC DRJST-50 Serial POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"DRJST-50 Serial POS Printer."
DeviceName	"TEC DRJST-50S"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANA (10)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	TRUE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	TRUE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	FALSE
CapRecBitmap	FALSE
CapRecBold	FALSE

CapRecDhigh	FALSE
CapRecDwide	TRUE
CapRecDwideDhigh	FALSE
CapRecEmptySenser	FALSE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	TRUE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	TRUE
CapRecUnderline	FALSE
CapSlpPresent	TRUE
CapSlpFullslip	TRUE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	TRUE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	TRUE
CapSlpDwideDhigh	FALSE
CapSlpEmptySenser	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	TRUE
CapSlpUnderline	FALSE
CharacterSet	"190"
CharacterSetList	"190,191,192,193,194,195"
FontTypefaceList	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5"
JmLineChars	33
JmLineCharsList	"33"
JmLineHeight	9
JmLineSpacing	12
JmLineWidth	297
RecLineChars	33
RecLineCharsList	"33"
RecLineHeight	9
RecLineSpacing	12
RecLinesToPaperCut	13
RecLineWidth	297
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	77
SlpLineCharsList	"77"
SlpLineHeght	9
SlpLinesNearEndToEnd	4
SlpLineSpacing	12
SlpLineWidth	693

SlpMaxLines	0
SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 74 List of DRJST50S POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Feed and form cut	ESC #P	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Operable # signifies the percentage to be cut. Except 100 : Partial cut 100 : Full cut
Bit map print	ESC #B	Not operable
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Operable
Multiple line feed	ESC #F	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Not operable
Underline	ESC #uC	Not operable
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC vC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double eight character	ESC 3C	Not operable Print as a normal character
Double width&height character	ESC 4C	Not operable Print as a double width character
Horizontal magnification	ESC #hC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Not operable
Center aligned	ESC cA	Not operable
Right aligned	ESC rA	Not operable
Normal	ESC N	Operable

Table 75 DRJST50S POS Printer Control Escape sequence

8.8.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

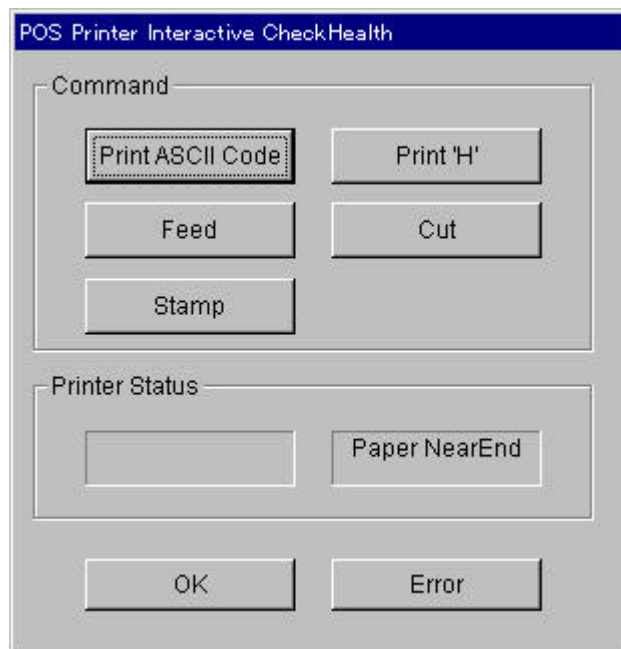
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.8.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter
¥DRJST50S

Standard	"TEC.DRJST50.S"
Service	"C:\¥OPOS¥TEC¥DRJST50S.dll"
Description	"TEC DRJST-50-S Serial POS Printer"
Version	"1.2"
Port	"COM1" "COM2"-"COM8"
BaudRate	"9600"
DeviceName	"DRJST50S"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden"

"Italy" | "Spain" | "Japan" | "Norway" | "Denmark 2"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM1" "COM2"-"COM8" Possible set up with a control panel.
BaudRate	Baud rate "9600" Possible set up with a control panel.
DeviceName	Connection Device "DRJST50S"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 76 DRJST50S POS Printer Control Registry

8.8.5 Precautions and restrictions

1) Properties linked with MapMode

As MapMode change affects the unit of length, properties will be changed accordingly. All the properties are constants and not to be changed.

MapMode = PTR_MM_DOTS(Dot width)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
12	693	297	9

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
239	6219	2665	179

MapMode = PTR_MM_ENGLISH(0.0001 inch)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
166	4318	1850	124

MapMode = PTR_MM_METRIC(0.01 mm)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
422	10970	4701	317

Table 77 DRJST50S Properties linked with MapMode

2) Notes on escape sequence

The escape sequence of form cut only works after feed if it is set in the print method.

Therefore, it must be set after feed escape sequence or Line Feed(10) to properly operate.

Double height and double width escape sequence will be processed as double width sequence because the double height attribute is not supported.

Double height escape sequence is processed as a normal character because double height attribute is not supported.

3) On print method operation

DRJST-50 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

4) On events

StatusUpdateEvent occurs corresponding to "cover open/near end" of TRJST-50. It also reports that it has been resumed to normal status. The action differs from that of TRJST-50-P.

5) Variety of character sets for countries and the registry

Character sets for each country are defined in DRST-50.

The registry Country can accommodate the variety of character sets for each country.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See DRST-50 HWW Reference Manual for detail(RAA-00401).

6) On CharacterSet and CharacterSetList property

DRJST-50 printer has 6 pages of character code table ranging from 0x00 to 0xFF.

Standard character set is defined for codes ranging from 0x00 to 07F with the same characters for 6 pages and specific character set for DRJST-50 is defined for codes ranging from 0x80 to 0xFF.

For example, symbol characters, Katakana and Hiragana are defined in this range. See DRJST-50 HWW reference manual(RAA-00401) for detail.

Switching of these six pages of character codes is realized by changing CharacterSet.

CharacterSetList property shows that numbers from 190 to 195 can be specified.

The relation between CharacterSet and the page is as follows.

CharcterSet property value	Page No.
190	Page 0
191	Page 1
192	Page 2
193	Page 3
194	Page 4
195	Page 5

Page setting is also available in font type setting.

Table 78 DRJST50S CharacterSet Property value

7) Action of slip printer

1. BeginInsertion method

Prepares to receive slip forms. Timeout value can be specified in a minute.

Open the insertion opening for slip forms if it is not.

Due to the insertion monitoring for slip forms, the control will not be returned until the form is inserted or timeout occurs. OPOS_SUCCESS will be returned if the slip form is inserted within the specified time.

2. EndInsertion method

OPOS_SUCCESS is immediately returned. Never forget to execute EndInsertion method after issuing BeginInsertion method. Sheet(Slip and Journal/Receipt) check of the print method will be enabled.

If print method is issued to a receipt without issuing this method, the device malfunctions.

After this method is issued, printing to receipt/journal ends up with an error.

3. BeginRemoval method

OPOS_SUCCESS is returned by monitoring no slip forms after feeding forms in reverse direction. Timeout value can be specified in a minute.

4. EndRemoval method

No visual action is performed. OPOS_SUCCESS will be immediately returned.

OPOS_E_EXTENDED is returned if the form is detected and

OPOS_EPTR_SLP_FORM is set to ResultCodeExtended. If no form is detected, OPOS_SUCCESS is returned. Issue this method after executing BeginRemoval method.

5. Closing the form orifice

The orifice does not close by issuing slip related methods.

It is automatically closed by issuing print method to a receipt or journal after the slip feed process is completed.

As stated above, be careful to use the slip printer methods, because they must be issued in the predetermined sequence.

8.9 DRJST51P POS Printer Control ["DRJST51P"]

8.9.1 Models for support

DRJST-51-P (Parallel printer)

8.9.2 Functions

Printers supported	Printers not supported
Journal printer Receipt printer Slip printer(as validation)	
Functions supported	Functions not supported
Batch processing/Logo print Stamp Form cut Multiple line feed/Single line feed Double width character Inverted print Synchronous/Asynchronous print Error report Escape sequence• c	Two color print Italic print Reversed character Shaded character Left/right rotation print Bar code print/Bitmap print Center aligned/Right aligned Bold/Double height character/Double width & height character

Table 79 DRJST51P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC DRJST-51 Parallel POS Printer Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"DRJST-51 Parallel POS Printer"
DeviceName	"TEC DRJST-51P"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	FALSE
CapCharacterSet	PTR_CCS_KANA (10)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	TRUE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	TRUE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	FALSE
CapRecBitmap	FALSE
CapRecDhigh	FALSE

CapRecDwide	TRUE
CapRecDwideDhigh	FALSE
CapRecEmptySensor	FALSE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	TRUE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	TRUE
CapRecUnderline	FALSE
CapSlpPresent	TRUE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	TRUE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	TRUE
CapSlpUnderline	FALSE
CharacterSet	"190"
CharacterSetList	"190,191,192,193,194,195,196,197,198"
FontTypefaceList	"PAGE0,PAGE1,PAGE2,PAGE3,PAGE4,PAGE5,PAGE6,PAGE7,PAGE8"
JmLineChars	40
JmLineCharsList	"40"
JmLineHeight	9
JmLineSpacing	12
JmLineWidth	360
RecLineChars	40
RecLineCharsList	"40"
RecLineHeight	9
RecLineSpacing	12
RecLinesToPaperCut	8
RecLineWidth	360
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	88
SlpLineCharsList	88
SlpLineHeght	9
SlpLinesNearEndToEnd	0
SlpLineSpacing	12
SlpLineWidth	792
SlpMaxLines	11

SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 80 List of DRJST51P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut
Feed and form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Operable # signifies the percentage to be cut. 0-100 : Full cut Paper is fed so that the stamp and printing data do not overlap. And the cut position is adjusted between printing data and the stamp.
Bit map print	ESC#B	Not operable
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Operable
Multiple line print	ESC#F	Operable # signifies the lines to be fed.
Single line feed	ESC#uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC#rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5, PAGE6, PAGE7, PAGE8"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Not operable
Underline	ESC#uC	Not operable
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC vC	Not operable
Shaded character	ESC#sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Not operable
Double width & height character	ESC 4C	Not operable
Horizontal magnification	ESC#hC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC#vC	Not operable
Center aligned	ESC cA	Not operable
Right aligned	ESC rA	Not operable
Normal	ESC N	Operable

Table 81 DRJST51P POS Printer Control Escape sequence

8.9.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

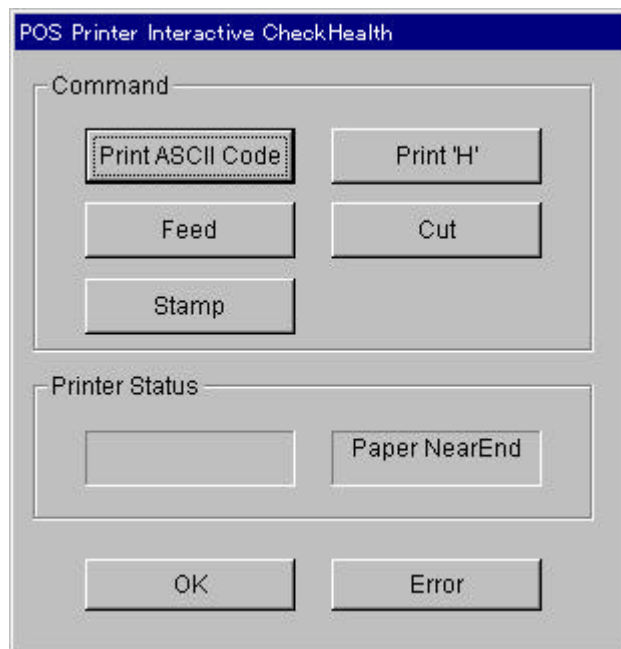
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.9.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter
¥DRJST51P

Standard	"TEC.DRJST51.P"
Service	"C:\¥OPOS¥TEC¥DRJST51P95.dll"
Description	"TEC DRJST-51 Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
DeviceName	"DRJST51P"
Override	"Off" "On"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "DRJST51P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 82 DRJST51P POS Printer Control Registry

8.9.5 Precautions and restrictions

1) Properties linked with MapMode

As MapMode change affects the unit of length, properties will be changed accordingly. All the properties are constants and not to be changed.

MapMode = PTR_MM_DOTS(Dot width)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
12	792	360	9

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
240	6088	2767	180

MapMode = PTR_MM_ENGLISH(0.0001 inch)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
166	4228	1921	125

MapMode = PTR_MM_METRIC(0.01 mm)

XxxLineSpacing	SlpLineWidth	(R/J)LineWidth	XxxLineHeight
423	10739	4881	317

Table 83 DRJST51P Properties linked with MapMode

2) Notes on escape sequence

The escape sequence of form cut and stamp only works after feed if it is set in the print method. Therefore, it must be set after feed escape sequence or Line Feed(10) to properly operate.

Double height and double width escape sequence will be processed as double width sequence because the double height attribute is not supported.

Double height escape sequence is processed as a normal character because double height attribute is not supported.

- 3) On print method operation
DRJST-51 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).
- 4) On events
StatusUpdateEvent occurs corresponding to "close to no paper". It also reports that it has been resumed to normal status. The event for "cover open" does not occur.
As DRJST-51 parallel printer cannot decide whether "no paper" has occurred on the receipt or the journal, in the case of "no paper", it generates StatusUpdateEvent and changes relevant properties for both the receipt and the journal. In the case ErrorEvent, receipt error is assumed.
- 5) Variety of character sets for countries and the registry
Character sets for each country are defined in DRJST-51.
The registry Country can accommodate the variety of character sets for each country.
Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See DRJST-51 H/W reference manual for detail(RAA-00440).
- 6) On CharacterSet and CharacterSetList property
DRJST-51 printer has 9 pages of character code table ranging from 0x00 to 0xFF.
Standard character set is defined for codes ranging from 0x00 to 0x7F with the same characters for 9 pages and specific character set for DRJST-50 is defined for codes ranging from 0x80 to 0xFF.
For example, symbol characters, Katakana and Hiragana are defined in this range.
See DRJST-51 H/W reference manual(RAA-00440) for detail.
Switching of these nine pages of character codes is realized by changing CharacterSet.
CharacterSetList property shows that numbers from 190 to 198 can be specified.
The relation between CharacterSet and the page is as follows.

CharcterSet property value	Page No.
190	Page 0
191	Page 1
192	Page 2
193	Page 3
194	Page 4
195	Page 5
196	Page 6
197	Page 7
198	Page 8

Page setting is also available in font type setting.

Table 84 DRJST51P CharacterSet Property value

- 7) Action of slip printer
 1. BeginInsertion method
Open the orifice for slip form if it is not open. Time-out value is not effective for monitoring the slip form insertion. Therefore, OPOS_SUCCESS will be immediately returned. After the slip form is inserted, never forget to call EndInsertion method.

2. EndInsertion method

OPOS_SUCCESS is immediately returned. Never forget to execute EndInsertion method after issuing BeginInsertion method. Sheet(Slip and Journal/Receipt) check of the print method will be enabled. If print method is issued to a receipt without issuing this method, the device malfunctions. After BeginInsertion method, printing to a receipt without the slip sheet inserted fails. If the slip form is inserted after this, the slip form is fed and the data sent to the receipt will be printed. Printing data to a receipt with the slip sheet inserted succeeds after feeding the slip form. To avoid such operation, BeginInsertion and EndInsertion are to be used in pairs. With EndInsertion. An error is issued by print method even if the different sheet is inserted.

3. BeginRemoval method

After feeding the slip form backward, OPOS_SUCCESS is returned. Issuing the method alone makes the mode feed mode and the device waits until the slip form is inserted. Follow the correct procedure to issue the method.
Use the method with EndRemoval method.

4. EndRemoval method

No visual action is performed. OPOS_SUCCESS will be immediately returned. OPOS_EPTR_FORM will not be returned as the device does not support form detection.

5. Closing the form orifice

The orifice does not close by issuing slip related methods.
It is automatically closed by issuing print method to a receipt or journal after the slip feed process is completed.

As stated above, be careful to use the slip printer methods, because they must be issued in the predetermined sequence.

8.10 DRJST51S POS Printer Control ["DRJST51S"]

8.10.1 Models for support

DRJST-51-S (Serial printer)

8.10.2 Functions

Printers supported	Printers not supported
Journal printer Receipt printer Slip printer(as validation)	
Functions supported	Functions not supported
Batch processing/Logo print Stamp Form cut Multiple line feed/Single line feed Double width character Inverted print Synchronous/Asynchronous print Error report Escape sequence• c	Two color print Italic print Reversed character Shaded character Left/right rotation print Bar code print/Bitmap print Center aligned/Right aligned Bold/Double height character/Double width & height character

Table 85 DRJST51S POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC DRJST-51 Serial POS Printer Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"DRJST-51 Serial POS Printer"
DeviceName	"TEC DRJST-51S"
Special property	
CapConcurrentJmRec	TRUE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	TRUE
CapCharacterSet	PTR_CCS_KANA (10)
CapTransaction	TRUE
CapJmPresent	TRUE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	TRUE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	TRUE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	FALSE
CapRecBitmap	FALSE
CapRecDhigh	FALSE

CapRecDwide	TRUE
CapRecDwideDhigh	FALSE
CapRecEmptySensor	FALSE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	TRUE
CapRecPapercut	TRUE
CapRecRight90	FALSE
CapRecRotate180	TRUE
CapRecStamp	TRUE
CapRecUnderline	FALSE
CapSlpPresent	TRUE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	TRUE
CapSlpDwideDhigh	FALSE
CapSlpEmptySensor	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	TRUE
CapSlpUnderline	FALSE
CharacterSet	"190"
CharacterSetList	"190,191,192,193,194,195,196,197,198"
FontTypefaceList	"PAGE0,PAGE1,PAGE2,PAGE3,PAGE4,PAGE5, PAGE6,PAGE7,PAGE8"
JmLineChars	40
JmLineCharsList	"40"
JmLineHeight	9
JmLineSpacing	12
JmLineWidth	360
RecLineChars	40
RecLineCharsList	"40"
RecLineHeight	9
RecLineSpacing	12
RecLinesToPaperCut	8
RecLineWidth	360
RecSidewaysMaxChars	0
RecSidewaysMaxLines	0
SlpBarCodeRotationList	"0"
SlpLineChars	88
SlpLineCharsList	88
SlpLineHeght	9
SlpLinesNearEndToEnd	0
SlpLineSpacing	12
SlpLineWidth	792
SlpMaxLines	11

SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 86 List of DRJST51S POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut
Feed and form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Operable # signifies the percentage to be cut. 0-100 : Full cut Paper is fed so that the stamp and printing data do not overlap. And the cut position is adjusted between printing data and the stamp.
Bit map print	ESC#B	Not operable
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Operable
Multiple line print	ESC#F	Operable # signifies the lines to be fed.
Single line feed	ESC#uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC#rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"PAGE0, PAGE1, PAGE2, PAGE3, PAGE4, PAGE5, PAGE6, PAGE7, PAGE8"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Not operable
Underline	ESC#uC	Not operable
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC vC	Not operable
Shaded character	ESC#sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Not operable
Double width & height character	ESC 4C	Not operable
Horizontal magnification	ESC#hC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC#vC	Not operable
Center aligned	ESC cA	Not operable
Right aligned	ESC rA	Not operable
Normal	ESC N	Operable

Table 87 DRJST51S POS Printer Control Escape sequence

8.10.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

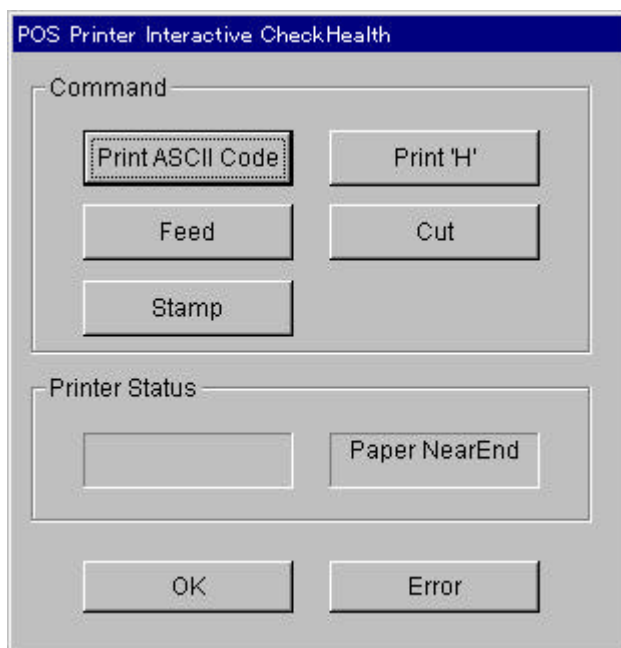
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.10.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥POSPrinter
¥DRJST51S

Standard	"TEC.DRJST51.S"
Service	"C:¥OPOS¥TEC¥DRJST51S.dll"
Description	"TEC DRJST-51 Serial POS Printer"
Version	"1.2"
Port	"COM2"
BaudRate	"9600"
DeviceName	"DRJST51S"
Override	"Off" "On"
OnLineSW	"Off" "On"
TimeoutConstant	"0"-
TimeoutMultiplier	"0"-
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM2" Possible set up with a control panel.
BaudRate	Baud rate "9600" Possible set up with a control panel.
DeviceName	Connection Device "DRJST51S"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 88 DRJST51S POS Printer Control Registry

8.10.5 Precautions and restrictions

1) Properties linked with MapMode

As MapMode change affects the unit of length, properties will be changed accordingly. All the properties are constants and not to be changed.

MapMode = PTR_MM_DOTS(Dot width)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
12	792	360	9

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
240	6088	2767	180

MapMode = PTR_MM_ENGLISH(0.0001 inch)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
166	4228	1921	125

MapMode = PTR_MM_METRIC(0.01 mm)

XxxLineSpacing	SplLineWidth	(R/J)LineWidth	XxxLineHeight
423	10739	4881	317

Table 89 DRJST51S Properties linked with MapMode

2) Notes on escape sequence

The escape sequence of form cut and stamp only works after feed if it is set in the print method. Therefore, it must be set after feed escape sequence or Line Feed(10) to

properly operate.

Double height and double width escape sequence will be processed as double width sequence because the double height attribute is not supported.

Double height escape sequence is processed as a normal character because double height attribute is not supported.

3) On print method operation

DRJST-51 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

4) On events

StatusUpdateEvent occurs corresponding to "cover open/close to no paper" of DRJST-51. It also reports that it has been resumed to normal status.

5) Variety of character sets for countries and the registry

Character sets for each country are defined in DRJST-51.

The registry Country can accommodate the variety of character sets for each country.

Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E. See DRJST-51 H/W reference manual for detail(RAA-00440).

6) On CharacterSet and CharacterSetList property

DRJST-51 printer has 9 pages of character code table ranging from 0x00 to 0xFF.

Standard character set is defined for codes ranging from 0x00 to 0x7F with the same characters for 9 pages and specific character set for DRJST-50 is defined for codes ranging from 0x80 to 0xFF.

For example, symbol characters, Katakana and Hiragana are defined in this range.

See DRJST-51 H/W reference manual(RAA-00440) for detail.

Switching of these nine pages of character codes is realized by changing CharacterSet.

CharacterSetList property shows that numbers from 190 to 198 can be specified.

The relation between CharacterSet and the page is as follows.

CharcterSet property value	Page No.
190	Page 0
191	Page 1
192	Page 2
193	Page 3
194	Page 4
195	Page 5
196	Page 6
197	Page 7
198	Page 8

Page setting is also available in font type setting.

Table 90 DRJST51S CharacterSet Property value

7) Action of slip printer

1. BeginInsertion method

Prepares to receive slip forms. Timeout value can be specified in a minute.

Open the insertion opening for slip forms if it is not.

Due to the insertion monitoring for slip forms, the control will not be returned until the form is inserted or timeout occurs. OPOS_SUCCESS will be returned if the slip form is inserted within the specified time.

2. EndInsertion method
OPOS_SUCCESS is immediately returned. Never forget to execute EndInsertion method after issuing BeginInsertion method. Sheet(Slip and Journal/Receipt) check of the print method will be enabled.
If print method is issued to a receipt without issuing this method, the device malfunctions.
After this method is issued, printing to receipt/journal ends up with an error.
3. BeginRemoval method
OPOS_SUCCESS is returned by monitoring no slip forms after feeding forms in reverse direction. Timeout value can be specified in a minute.
4. EndRemoval method
No visual action is performed. OPOS_SUCCESS will be immediately returned.
OPOS_E_EXTENDED is returned if the form is detected and
OPOS_EPTR_SLP_FORM is set to ResultCodeExtended. If no form is detected, OPOS_SUCCESS is returned. Issue this method after executing BeginRemoval method.
5. Closing the form orifice
The orifice does not close by issuing slip related methods.
It is automatically closed by issuing print method to a receipt or journal after the slip feed process is completed.

As stated above, be careful to use the slip printer methods, because they must be issued in the predetermined sequence.

8.11 ST-90 TPR158P POS Printer Control ["TPR158P"]

8.11.1 Models for support

ST-90 TPR158P

8.11.2 Functions

Printers supported	Printers not supported
Receipt printer	Slip printer Journal printer
Functions supported	Functions not supported
Batch processing/Logo print Bar code print/bitmap print Form cut Multiple line feed/Single line feed Center aligned/Right aligned Bold/Double width & height character Inverted print Left and right rotational print Synchronous/Asynchronous print Error report Escape sequence• c	Two color print Italic print Reversed character Shaded character Left/right rotation print

Left and right rotational print is possible only when the firmware supports page mode.

Table 91 TPR158P POS Printer Control functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Printer Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC TPR-158 Parallel POS Printer Service Object."
ServiceObjectVersion	"1002000"
DeviceDescription	"TPR-158 Parallel POS Printer"
DeviceName	"TEC TPR-158P"
Special property	
CapConcurrentJmRec	FALSE
CapConcurrentJmSlp	FALSE
CapConcurrentRecSlp	FALSE
CapCoverSenser	FALSE
CapCharacterSet	PTR_CCS_KANJI (11)
CapTransaction	TRUE
CapJmPresent	FALSE
CapJm2Color	FALSE
CapJmBold	FALSE
CapJmDhigh	FALSE
CapJmDwide	FALSE
CapJmDwideDhigh	FALSE
CapJmEmptySenser	FALSE
CapJmItalic	FALSE
CapJmNerEndSensor	FALSE
CapJmUnderline	FALSE
CapRecPresent	TRUE
CapRec2Color	FALSE
CapRecBarCode	TRUE
CapRecBitmap	TRUE

CapRecDhigh	TRUE
CapRecDwide	TRUE
CapRecDwideDhigh	TRUE
CapRecEmptySenser	TRUE
CapRecItalic	FALSE
CapRecLeft90	FALSE
CapRecNearEndSensor	FALSE
CapRecPapercut	TRUE
CapRecRight90	TRUE
CapRecRotate180	TRUE
CapRecStamp	FALSE
CapRecUnderline	TRUE
CapSlpPresent	FALSE
CapSlpFullslip	FALSE
CapSlp2Color	FALSE
CapSlpBarCode	FALSE
CapSlpBitmap	FALSE
CapSlpBold	FALSE
CapSlpDhigh	FALSE
CapSlpDwide	FALSE
CapSlpDwideDhigh	FALSE
CapSlpEmptySenser	FALSE
CapSlpItalic	FALSE
CapSlpLeft90	FALSE
CapSlpNerEndSensor	FALSE
CapSlpRight90	FALSE
CapSlpRotate180	FALSE
CapSlpUnderline	FALSE
CharacterSet	"932"
CharacterSetList	"850,932,999"
FontTypefaceList	"FontA,Condense,FontB"
JmLineChars	0
JmLineCharsList	0
JmLineHeight	0
JmLineSpacing	0
JmLineWidth	0
RecLineChars	32 by default
RecLineCharsList	"32,41,46"
RecLineHeight	24 by default
RecLineSpacing	30 by default
RecLinesToPaperCut	8 by default
RecLineWidth	416 by default
RecSidewaysMaxChars	320
RecSidewaysMaxLines	16
SlpBarCodeRotationList	"0"
SlpLineChars	0
SlpLineCharsList	"0"
SlpLineHeght	0
SlpLinesNearEndToEnd	0
SlpLineSpacing	0
SlpLineWidth	0
SlpMaxLines	0

SlpSidewaysMaxChars	0
SlpSidewayMaxLines	0

Table 92 List of TPR158P POS Printer Control Property value

Escape sequence operable only when specified

Name	Data	
Form cut	ESC #P	Operable # signifies the percentage to be cut. 0-100 : Full cut
Feed and form cut	ESC #fP	Operable # signifies the percentage to be cut. 0-100 : Full cut RecLinesToPaperCut property shows the number of lines to be fed. Therefore, the paper will be cut at the next line from the line printed.
Feed & form cut & stamp print	ESC #sP	Not operable
Bit map print	ESC #B	Operable # signifies the bit map number. 1 can be specified. The bit map can be registered by SetBitmap method.
Top logo print	ESC tL	Operable
Bottom logo print	ESC bL	Operable
Stamp print	ESC sL	Not operable
Multiple line print	ESC #IF	Operable # signifies the lines to be fed.
Single line feed	ESC #uF	Operable # signifies the number specified by MapMode.
Reverse feed print	ESC #rF	Not operable

Escape sequence operable during printing

Name	Data	
Font type specification	ESC fT	"FontA,Condense,FontB"

Escape sequence operable when printing

Name	Data	
Bold	ESC bC	Operable
Underline	ESC #uC	Operable # signifies the underline width. 0 : No underline 1 : Thin underline 2- : Thick underline
Italic	ESC iC	Not operable
Red character	ESC rC	Not operable
Reversed character	ESC rvC	Not operable
Shaded character	ESC #sC	Not operable
Single width character	ESC 1C	Operable
Double width character	ESC 2C	Operable
Double height character	ESC 3C	Operable
Double width & height character	ESC 4C	Operable
Horizontal magnification	ESC #hC	Operable # signifies the horizontal magnification. 0-150: Single magnification 151-: Double magnification
Vertical magnification	ESC #vC	Operable # signifies the vertical magnification. 0-150: Single magnification 151-: Double magnification

Center aligned	ESC cA	Operable
Right aligned	ESC rA	Operable
Normal	ESC N	Operable

Table 93 TPR158P POS Printer Control Escape sequence

8.11.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

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

Note

When the other device than a POS printer is connected to the specified port, "Internal: Successful" may be stored in CheckHealthText because only READY signal is checked.

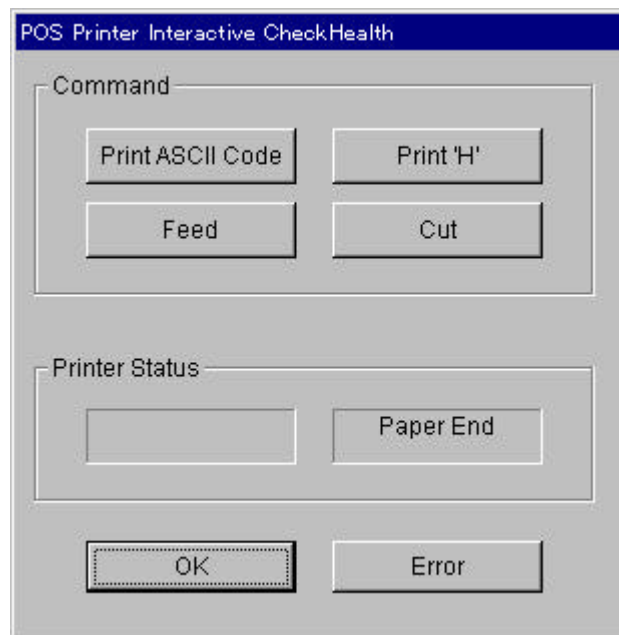
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	Successful completion
OPOS_E_FAILURE	"External HCheck: Error"	Printer error
OPOS_E_BUSY	"External HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

3) Interactive Level(OPOS_CH_INTERACTIVE)

Displays the following dialog box to confirm successful printing to the POS printer by clicking each command button.

Select OK button or NG button by visually checking the result.



The dialog box will not be displayed when the device is operating.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (OK button was clicked.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (NG button was clicked.)
OPOS_E_BUSY	"Interactive HCheck :Busy"	Device busy
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error

8.11.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetailService\OPOS\TPR158P

Standard	"TEC. TPR158.P"
Service	"C:\OPOS\TEC\TPR158P.dll"
Description	"TEC TPR-158 Parallel POS Printer"
Version	"1.2"
Port	"LPT1" "LPT2"
DeviceName	"TPR158P"
Override	"Off" "On"
OnLineSW	"Off" "On"
TimeoutConstant	"0"
TimeoutMultiplier	"0"
Country	"US" "France" "Germany" "UK" "Denmark 1" "Sweden" "Italy" "Spain" "Japan" "Norway" "Denmark 2"

Service	File name of the service object
---------	---------------------------------

Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "LPT1" "LPT2" Possible set up with a control panel.
DeviceName	Connection Device "TPR158P"
Country	Country Code 0 USA 1 France 2 Germany 3 UK 4 Denmark 1 5 Sweden 6 Italy 7 Spain 8 Japan 9 Norway 10 Denmark 2 Possible set up with a control panel.

Table 94 TPR158P POS Printer Control Registry

8.11.5 Precautions and restrictions

1) Properties linked with fonts

Three kinds of fonts are supported. Font related property will be changed to the following by sending font change escape sequence. Changes will be reflected on both the receipt & the journal.

MapMode = PTR_MM_DOTS(Dot width)

	xxxLineHeight	xxxLineChars
FontA	24	32
Condense(A)	24	41
Font B	16	46

MapMode = PTR_MM_TWIPS(1/1440 of 1 inch)

	xxxLineHeight	xxxLineChars
FontA	170	32
Condense(A)	170	41
Font B	113	46

MapMode = PTR_MM_ENGLISH(0.0001 inch)

	xxxLineHeight	xxxLineChars
FontA	118	32
Condense(A)	118	41
Font B	78	46

MapMode = PTR_MM_METRIC(0.01 mm)

	xxxLineHeight	xxxLineChars
FontA	300	32
Condense(A)	300	41

Font B	200	46
--------	-----	----

Table 95 TPR158P Properties linked with fonts

2) Writable properties that affect fonts

xxxLineChars change will affect the font.

The value set on xxxLineChars will be adjusted to the nearest and greater value than the value specified and affect the font. Font change will also affect xxxLineHeight value.

Change of xxxLineHeight will affect the font.

If xxxLineHeight is less than 24, FontB will be effective and otherwise FontA will be effective.

3) About PrintBarCode method

When the absolute position is specified by Alignment parameter of PrintBarCode method, right alignment print is assumed due to the restriction of the printer itself.

The value specified by Width parameter will be converted into three varieties as shown below.

Width parameter	Character size
Less than 1 / 2 of paper width	Small
Less than 3 / 4 of paper width	Medium
More	Big

Table 96 TPR158P Character size of Width parameter

Please print the UPC-E barcode with the check-digits.

Not with the leading character'0' for adjustment of transmission digits.

UPC-E BARCODE0X₁X₂X₃X₄X₅X₆ C/D

PRINT DATA X₁X₂X₃X₄X₅X₆ C/D

Specify the print data as above. It should be 7 digits.

4) Bit map related methods and bit map print escape sequence

SetBitmap which handles bit maps and bit map files handled by PrintBitmap have the restriction to handle only the monochrome.

Though SetBitmap allows two bit maps to be set by specification, this control allows only one.

As this bit map is cached in the printer itself and is printed by bit map print escape sequence, the bit map set by a process will be shared by all other processes opened.

5) Notes on escape sequence

Escape sequences of form cut, bit map print, center alignment and right alignment with print methods are only effective after form feed. Therefore, they must be placed after feed escape sequence or Line Feed(10) to function properly.

6) On print method operation

TPR-158 does not start print operation until print data for one line is determined. Not all data will be printed unless print method ends with Line Feed(10).

7) About one-way printing and two-way printing

TPR-158 supports only one-way printing.

Therefore, JrnLetterQuality and RecLetterQuality are always set to TRUE.

8) Restrictions on left and right rotational print

1. Restrictions against escape sequence

Escape sequences that do not function in left and right rotation mode.

- Italic (ignored)
- Red character (ignored)

- Reversed character (ignored)
- Shaded character (ignored)
- Form cut (ignored)
- Stamp print (ignored)
- Reverse feed (ignored)

Escape sequences whose operation is not assured

Font type specification

Multi-line feed, Centering, Right alignment, Top logo print, Bottom logo print, Feed and paper cut, Feed and cut and stamp print, Unit feed, Bit map print

Available escape sequences

- Single width
 - Double horizontal width
 - Double vertical width
 - Double horizontal and vertical width
 - Vertical scale
 - Horizontal scale
 - Normal
 - Bold
2. Font and limit restriction against left and right rotational print
Condensed print with font A causes malfunction in left and right rotational print mode. Either font A or font B must be specified before printing in the left and right rotational print mode. Font cannot be changed while printing.

Special limit restriction is applied to the left and right rotational printing.
Single character limit shown below must be observed for proper printing.

Font A No splitting on the 32nd (*n) single character

Font B No splitting on the 46th (*n) single character

32,64,96....will be the limit characters for font A.

For example, 32nd and 33rd could be one double width character which violates the restriction and causes malfunction. The above restriction must be taken into consideration for print design.

3. Firmware
The firmware which does not support page mode may malfunction.

9) On events

On Windows95/98, StatusUpdateEvent occurs corresponding to "cover open/no paper" of TPR158. It also reports that it has been resumed to normal status.

On Windows NT, StatusUpdateEvent occurs in response to "no paper" status of TPR158 and does not occur for "cover open". Nor does CoverOpen property change.

When ResultCode of ErrorEvent is OPOS_OPOS_EXTENDED the following value will be set to ResultCodeExtended.

OPOS_EPTR_COVER_OPEN

OPOS_EPTR_REC_EMPTY

10) Variety of character sets for countries and the registry

Character sets for each country are defined in TPR158.

The registry Country can accommodate the variety of character sets for each country. Characters ranging from 0x20 to 0x7F are used and part of them are allocated to graphic characters for each country and application. The allocated area is the following twelve characters. 0x23,0x24,0x40,0x5B to 0x5E,0x60,0x7B to 0x7E.

9. Scanner Control (Bar code reader)

9.1 RS Scanner Control ["RSSCANNER"]

9.1.1 Models for support

HS-380-RS / HS-520-RS / HS-R10-RS
LS-750-RS / LS-770-RS / LS-120-RS
TM3001

9.1.2 Functions

Common property	Value
ControlObjectDescription	"TEC OPOS Scanner Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC Serial Scanner"
ServiceObjectVersion	"1002000"
DeviceDescription	"HS-520 Serial Scanner" (*1)
DeviceName	"RSSCANNER"

(*1) DeviceDescription may differ depending on the model connected.

Table 97 List of RS Scanner Control Property value

9.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

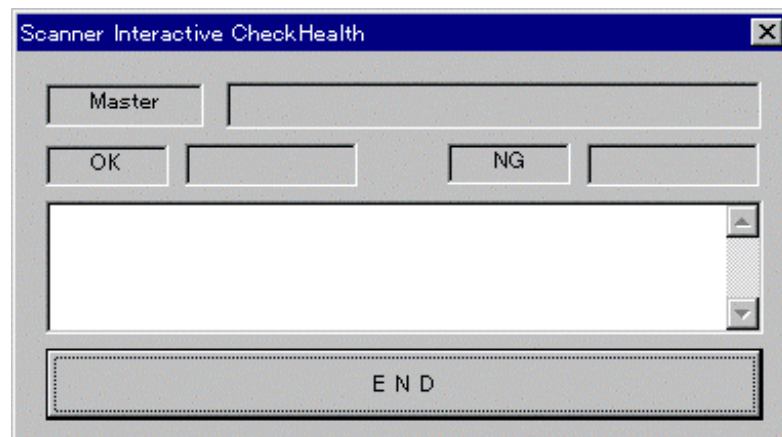
Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not support

2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"External HCheck:Illegal"	Not support

3) Interactive Level(OPOS_CH_INTERACTIVE)

The following dialog box will be displayed and the bar code first scanned shall be the Master. Bar codes scanned afterwards will be compared and counted up into OK or NG. Dialog box will not be displayed when the scanner is operating.



Value (ResultCode)	CheckHealthText	Meaning
--------------------	-----------------	---------

OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (End at OK count.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (End at NG count.)
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled

9.1.4 OPOS Registry

keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥Scanner
¥RSSCANNER

Standard	"TEC.RSSCANNER"
Service	"C:¥OPOS¥TEC¥RSscanSO.dll"
Description	"TEC Serial Scanner"
Version	"1.2"
Port	"COM1" ~ "COM8"
BaudRate (*1)	"1200" "2400" "4800" "9600" "19200"
Character (*1)	"7" "8"
Parity (*1)	"None" "Odd" "Even"
Stopbit (*1)	"1" "1.5" "2"
DataFormat (*1)	"0" "1" "2" "3"
DeviceName	"HS520RS" "LS750RS" "LS120RS" "TM3001RS"
DeviceDescription	"HS-520 Serial Scanner"
ScannerWriteBusyCheck(*1)	"No" "DSR"
ScannerReadBusyCheck(*1)	"No" "CTS"

(*1) Necessity of that these are as a set up of device to a similar value.

Service	File name of the service object
Description	Brief explanation of the service object
Version	version of the service object
Port	Communication port "COM1" ~ "COM8" Possible set up with a control panel.
BaudRate	Baud rate "1200" "2400" "4800" "9600" "19200" Possible set up with a control panel.
Character	Character size (bits per character) "7" "8" Possible set up with a control panel.
Parity	Number of parity bits "None" "Odd" "Even" Possible set up with a control panel.
Stopbit	Number of stop bits "1" "1.5" "2" Possible set up with a control panel.
DataFormat	Bar code data format 0 Anything not add to send receive data. 1 Add CR lastly of send receive data. 2 Add ETX lastly ,STX firstly of send receive data. 3 Anything not add to send data. Add CR to receive data. Possible set up with a control panel.

DeviceName	Connection Device HS520RS HS-380-RS / HS-520-RS / HS-R10-RS LS750RS LS-750-RS / LS-770-RS LS120RS LS-120-RS TM3001RS TM3001 Possible set up with a control panel.
DeviceDescription	Brief explanation of the device
ScannerWriteBusyCheck	Busy check method at scanner control No Not Flow control DSR Flow control depending on DSR Possible set up with a control panel.
ScannerReadBusyCheck	Busy check method at scanner read No Not Flow control CTS Flow control depending on CTS Possible set up with a control panel.

Table 98 RS Scanner Control Registry

Similarly to a set up of device as a value of BaudRate, Character, Parity, Stopbit, DataFormat, ScannerWriteBusyCheck, ScannerReadCusyCheck is careful it not to change. For a control panel usefully, from DeviceName value for the following default value automatic set up. Default Value of each device lists it hereinafter.

HS520RS

BaudRate="9600" Character="7" Parity="Even" Stopbit="2" DataFormat="2"
ScannerWriteBusyCheck="No" ScannerReadBusyCheck="CTS"

LS750RS

BaudRate="9600" Character="7" Parity="Even" Stopbit="2" DataFormat="2"
ScannerWriteBusyCheck="DSR" ScannerReadBusyCheck="No"

LS120RS

BaudRate="9600" Character="7" Parity="Even" Stopbit="2" DataFormat="3"
ScannerWriteBusyCheck="DSR" ScannerReadBusyCheck="CTS"

TM300`RS

BaudRate="9600" Character="7" Parity="Even" Stopbit="2" DataFormat="2"
ScannerWriteBusyCheck="No" ScannerReadBusyCheck="No"

9.1.5 Precautions and restrictions**1) Relation of ScanData property and device**

Data read from the scanner will be set to ScanData property. Header information like STX character and terminator characters like EXT and CR will be eliminated. All other data will be stored to the ScanData property.

Other data includes the following.

- Symbol characters signifying bar code system
- Number of digits of bar code data

ScanData has the following information and structure.

Symbol character	Digits	Bar code data
------------------	--------	---------------

Symbolic characters are used to identify bar code system and consist of one or two characters. The following is the list showing the relation between bar code system and symbolic characters.

Bar code system	HS520RS	LS750RS	LS120RS	TM3001RS
UPC-A	'A'	'A'	'A'	'A'
UPC-E	'E'	'E'	'E'	'C'
EAN-13	'F'	'F'	'F'	'A'

EAN-8	'FF'	'FF'	'FF'	'B' (*1)
JAN-8	'FF'	'FF'	'FF'	'A' (*1)
UPC-D1		'D1'	'D1'	
UPC-D2		'D2'	'D2'	
UPC-D3	'D3'	'D3'	'D3'	
UPC-D4		'D4'	'D4'	
UPC-D5			'D5'	
2 of 5 Standard	'H'	'H'		
2 of 5 Interleaved	'I'	'I'	'I'	
CODABAR(NW-7)	'N'	'N'	'%'	
CODE39	'M'	'M'	'*'	
CODE93	'L'	'L'	'&'	
CODE128	'K'	'K'	'#'	
ISBN CODE(OCR-B)				'N4'
Common magazine code (OCR-B)				As it is

(*1) TM3001 Scanner device distinguishes EAN-8 and JAN-8. 49 Flag number character treat it as a case JAN.

Table 99 ScanData Property Symbol character and Device

For digit number, Two digits(bytes) are used to show the length of bar code data.
Note that the digit information is omitted for UPC and EAN. A digit number omits ISBN, case of a common magazine code also.

For bar code data, indicate for data of a that oneself.

Differ for format of Bar code data at HS520, LS750RS, LS120RS system device and TM3001 system device.

Not Control to do a compilation in data format. As following data format as define at device, In case that change a set up of device, Not format of the next table and become it. Object that the following format acts at default value of device.

Bar code system	Bar code data
UPC- A	$SX_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}C/D$ 12 Digit C/D
UPC- E	$0X_1X_2X_3X_4X_5X_6$ 7 Digit C/D
EAN-13	$Y_1Y_2X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}C/D$ 13 Digit C/D
EAN- 8	$Y_1Y_2X_1X_2X_3X_4X_5C/D$ 8 Digit C/D
UPC/EAN with SPPLEMENTAL CODE	$SX_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}C/DX_aX_bX_cX_dX_e$
UPC- Dx	$X_1X_2X_3X_4X_5.....$
2of5Standard	$X_1X_2X_3X_4X_5.....$ No start/stop codes
2of5Interleaved	$X_1X_2X_3X_4X_5.....$ No start/stop codes
CODABAR (NW-7)	$A X_1X_2.....A$ start/stop codes (a/b/c/d)
CODE39	$X_1X_2X_3X_4X_5.....$ No start code/stop code
CODE93	$X_1X_2X_3X_4X_5.....$ No start code/stop code No FNC code/C/D
CODE128	$X_1X_2X_3X_4X_5.....$ No start code/stop code No FNC code/C/D

S : Number system character O: Leading character for transfer digit control

C/D : Check digit Y_n : Flag number character A : start/stop codes

Table 100 Bar code data format (Default value) of HS520, LS750, LS120 system

Bar code system	Bar code data
UPC- A (*1)	0 S X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ C/D 13 Digit C/D
UPC- E (*2)	0 X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ X ₁₁ C/D 13 Digit C/D
EAN-13	Y ₁ Y ₂ X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ C/D 13 Digit C/D
EAN- 8 JAN-8	Y ₁ Y ₂ X ₁ X ₂ X ₃ X ₄ X ₅ C/D 8 Digit C/D
ISBN CODE	ISBN4 afterward character
Common magazine code	As it is of character

S : Number system character O: Leading character for transfer digit control

C/D : Check digit Y_n: Flag number character A : start/stop codes

(*1) Addition for '0' for digit control regulations use.

(*2) Conversion to UPC-A (version A), Addition for '0' for digit control regulations use.

Table 101 Bar code data format (Default value) of TM3001 system

2) TM3001

Reading step 2 code possible, but once occurrence for event at data event.

Following reference for property

Symbol character	2 nd step bar code data	Symbol character	1 st step bar code data
------------------	------------------------------------	------------------	------------------------------------

As Read a UPC/EAN with SPPLEMENTAL CODE, read at format that there aren't data of SPPLEMENTAL CODE.

A function of DeviceEnabled=TRUE/FALSE doesn't give an influence to a physical device. Scanner is readable, even though it does to DeviceEnabled=FALSE, but don't occur event. Data around DeviceEnabled=FALSE are thrown away by a control.

3) About decode of a bar code

Property can divide it to the case of TRUE, data ScanData Type property and ScanDataLabel Property that at input from scanner. For this function, premise of that scanner is a factory release set up state. Case of a state except this, aforesaid 2 property can't set up correct data.

9.2 RS ScannerEx Control ["RSSCANNER.EX"]

In order to connect with it for RS Scanner 2 units of extension RS Scanner Control.

For a function quite similarly to as, RS Scanner Control reference for RS Scanner Control.

9.2.1 Models for support

As RS Scanner Control similarly.

9.2.2 Functions

As RS Scanner Control similarly.

9.2.3 CheckHealth Specification

As RS Scanner Control similarly.

9.2.4 OPOS Registry

Keeps configuration information as follows.

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥Scanner
¥RSSCANNER.EX

Standard	"TEC.RSSCANNER.EX"
Service	"C:¥OPOS¥TEC¥RSscanEX.dll"
Description	"TEC Serial Scanner"
Version	"1.2"
Port	"COM1" ~ "COM8"
BaudRate (*1)	"1200" "2400" "4800" "9600" "19200"
Character (*1)	"7" "8"
Parity (*1)	"None" "Odd" "Even"
Stopbit (*1)	"1" "1.5" "2"
DataFormat (*1)	"0" "1" "2" "3"
DeviceName	"HS520RS" "LS750RS" "LS120RS" "TM3001RS"
DeviceDescription	"HS-520 Serial Scanner"
ScannerWriteBusyCheck(*1)	"No" "DSR"
ScannerReadBusyCheck(*1)	"No" "CTS"

(*1) Necessity of that these are as a set up of device to a similar value.

About a content similarly to RS Scanner Control.

9.2.5 Precautions and restrictions

As RS Scanner Control similarly.

9.3 USB Scanner Control ["USBSCANNER"]

9.3.1 Models for support

HS-530-UB

9.3.2 Functions

Common property	Value
ControlObjectDescription	"TEC OPOS Scanner Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC USB Scanner OPOS Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"HS-530-UB USB Scanner" (*1)
DeviceName	"HS530UB"(*2)

(*1) DeviceDescription may vary depending on the models to be connected.

(*2) DeviceName may vary depending on the models to be connected.

Table 107 USB Scanner Control Property Value List

9.3.2 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

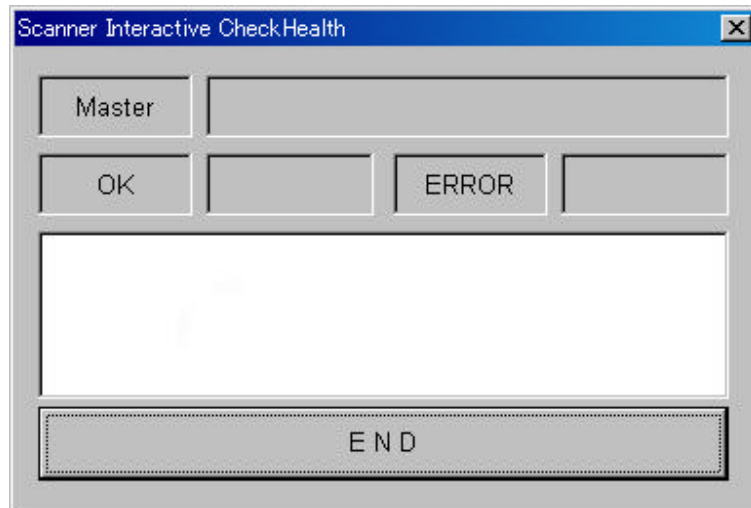
Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not support

2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"External HCheck:Illegal"	Not support

3) Interactive Level(OPOS_CH_INTERACTIVE)

The following dialog box appears. A bar code initially scanned becomes a master bar code. Bar codes subsequently scanned are shown in the list box at the center. These bar codes are compared with the master bar code, and OKs and NGs are counted up.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck: Successful"	Successful (End at OK count.)
OPOS_E_FAILURE	"Interactive HCheck: Error"	Error (End at NG count.)
OPOS_E_NOTCLAIMED	"HCheck :Exclusive"	Exclusive error
OPOS_E_DISABLED	"HCheck : Disabled"	Device is disabled

9.3.4 OPOS Registry

The following configuration information is retained:

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\Scanner
 \USBSCANNER

Standard	"TEC.USBSCANNER"
Service	"C:\OPOS\TEC\USBSCNSO.DLL"
Description	"TEC USB Scanner"
Version	"1.2"
DisconnectErrorDelayTime	"5000"
ProductID	"1" "6" (Usually omitted)
VendorID	"2214" (Usually omitted)
DataFormat (*1)	"1" "2" "3"
DeviceName	"HS530UB"
DeviceDescription	"HS-530-UB USB Scanner"
DeviceFileName	""

(*1) These values need to be set as same as the device setting values.

Service	Service Object file name
Description	Brief description of Service Object
Version	Service Object Version
DisconnectErrorDelayTime	Monitoring time from the detection of connector's disconnection to the notification of an error. When the status is recovered during the monitoring time, an error is not notified.
ProductID	USB Device Product ID (*2)
VendorID	USB Device Vendor ID (*2)
DataFormat	Bar code data format 1 CR is attached to the end of data sent and received. 2 STX is attached to the beginning of data sent and received while ETX is attached to the end. 3 Nothing is attached to data sent. CR is attached to data received.
DeviceName	Connection Device HS530UB HS-530-UB handy scanner
DeviceDescription	Brief description of Device
DeviceFileName	USB Device file name

(*2) These values are required when competitors' scanners are used under the TOSHIBA TEC's OPOS Control. However, these are usually neither specified nor guaranteed when competitors' scanners are being connected.

Table 108 USB Scanner Control Registry

Take note the values of DataFormat, DisconnectErrorDelayTime, ProduceID, VendorID and DeviceName must conform to the device setting values and must not be changed without reason. The default value of each device is as follows:

HS530UB

DeviceName="HS530UB"

DataFormat="2"

DisconnectErrorDelayTime="5000"

The value of DeviceFileName is used when two or more identical model scanners are connected. The value should be left blank or undefined under normal use.

9.3.5 Precautions and restrictions

1) Relation between ScanData property and device

Data scanned by the scanner are set in the ScanData property. Header information including STX characters, and terminator characters including ETX or CR characters are eliminated. All other data are stored in the ScanData property. Other data are as follows:

Symbolic characters that indicate bar code systems

Number of digits of bar code data

ScanData includes the above information and is set in the following format:

Symbolic character	Number of digits	Bar code data
--------------------	------------------	---------------

Symbolic characters are to identify bar code systems.

These characters are set in one or two digits and vary depending on the devices to be connected.

Bar code system	HS530UB	HS520RS	LS750RS
UPC-A	'A'	'A'	'A'
UPC-E	'E'	'E'	'E'
EAN-13	'F'	'F'	'F'
EAN-8	'FF'	'FF'	'FF'
JAN-8			
UPC-D1			'D1'
UPC-D2			'D2'
UPC-D3	'D3'	'D3'	'D3'
UPC-D4			'D4'
UPC-D5			
2 of 5 Standard	'H'	'H'	'H'
2 of 5 Interleaved	'I'	'I'	'I'
CODABAR (NW-7)	'N'	'N'	'N'
CODE39	'M'	'M'	'M'
CODE93	'L'	'L'	'L'
CODE128	'K'	'K'	'K'
ISBN code (OCR-B)			
Common Magazine Code (OCR-B)			

Table 109 ScanData Property Symbolic Character and Device

The number of digits indicates that of the bar code data in two digits. In case of the UPC and EAN bar codes, the number of digits is omitted.

Bar code data indicates the data of bar code itself.

The data format is never edited by the Control. As the data format complies to the definition by the device, if the device setting is changed, the current format will not apply to the table below. The following format is applied when operating in accordance with the device default values.

Bar code system	Bar code data
UPC-A	S X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ C/D 12 digits with C/D
UPC-E	0 X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ 7 digits without C/D
EAN-13	Y ₁ Y ₂ X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ C/D 13 digits with C/D
EAN-8	Y ₁ Y ₂ X ₁ X ₂ X ₃ X ₄ X ₅ C/D 8 digits with C/D
UPC/EAN with supplemental code	S X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ X ₉ X ₁₀ C/D X _a X _b X _c X _d X _e
UPC-Dx	X ₁ X ₂ X ₃ X ₄ X ₅
2 of 5 Standard	X ₁ X ₂ X ₃ X ₄ X ₅ Without start/stop code
2 of 5 Interleaved	X ₁ X ₂ X ₃ X ₄ X ₅ Without start/stop code
CODABAR(NW-7)	A X ₁ X ₂ A With start/stop code (a/b/c/d)
CODE39	X ₁ X ₂ X ₃ X ₄ X ₅ Without start/stop code
CODE93	X ₁ X ₂ X ₃ X ₄ X ₅ Without start/stop code Without FNC code without C/D
CODE128	X ₁ X ₂ X ₃ X ₄ X ₅ Without start/stop code Without FNC code without C/D

S: Number system character Y: Flag number character

0: Leading character for adjusting the number of digits to transfer

C/D: Check digit A: Start/stop code

Table 110 HS530 Series Bar Code Data Format (Default Value)

2) Decoding bar code

When the DecodeData property is TRUE, data inputted from the scanner can be divided into the ScanDataType property and ScanDataLabel property. This function is available, provided the scanner is at factory default settings. When the scanner is other than at factory default settings, proper data may not be set in the above two properties.

3)Automatic recognition of scanner connection port

Service Object automatically recognizes the scanner based on DeviceName specified in the registry. However, when two or more identical scanners are connected, Service Object cannot identify the scanners based only on DeviceName, and automatic recognition cannot be performed. In such case, refer to 4).

4)Multiple connection of USB scanner

Only when the system is either Windows2000 or WindowxXP, two identical USB scanners are connectable. However, the second scanner needs to use Service Object for the extension USB scanner. When identical USB scanners are connected, DeviceFileName character strings need to be described in the registry. This operation can be performed through the OPOS control panel.

5)Plug-and-play of USB scanner in operation

Avoid unplugging and plugging the scanner during operation though the USB scanner is a plug-and-play device. The scanner will become available again after being recognized through plug-and-play. However, if the USB scanner is plugged in the different USB port from the previous one, re-installation of a driver is required, which may cause confusion.

6)Relation with TOSHIBA TEC's general-purpose USB driver

The USB scanner OPOS Control has been designed to operate on the TOSHIBA TEC's general-purpose USB driver. If the TOSHIBA TEC's general-purpose USB driver has not been installed when the USB scanner is connected, the USB driver may not properly operate.

9.4 USB Scanner Extension Control ["USBSCANNER.EX"]

9.4.1 Models for support

As USB Scanner Control similarly.

9.4.2 Functions

Common property	Value
ControlObjectDescription	"TEC OPOS Scanner Control Object"
ControlObjectVersion	"1002000"
ServiceObjectDescription	"TEC USB Scanner OPOS Service Object"
ServiceObjectVersion	"1002000"
DeviceDescription	"HS-530-UB USB Scanner" (*1)
DeviceName	"HS530UB"(*2)

(*1) DeviceDescription may vary depending on the models to be connected.

(*2) DeviceName may vary depending on the models to be connected.

Table 107 USB Scanner Control Property Value List

9.4.3 CheckHealth Specification

As USB Scanner Control similarly.

9.4.4 OPOS Registry

The following configuration information is retained:

HKEY_LOCAL_MACHINE¥SOFTWARE¥OLEforRetail¥ServiceOPOS¥Scanner
¥USBSCANNER.EX

Standard	"TEC.USBSCANNER.EX"
Service	"C:¥OPOS¥TEC¥USBSCNEX.DLL"
Description	"TEC USB Scanner EX"
Version	"1.2"
DisconnectErrorDelayTime	"1000"
ProductID	"6" "1" (Usually omitted)
VendorID	"2214" (Usually omitted)
DataFormat (*1)	"1" "2" "3"
DeviceName	"HS530UB"
DeviceDescription	"HS-530-UB USB Scanner"
DeviceFileName	""

(*1) These values need to be set as same as the device setting values.

Omitted because the descriptions are the same as those for USB Scanner Control.

9.4.5 Precautions and restrictions

As USB Scanner Control similarly.

10. POS Power

10.1 POS Power Control ["PWMG"]

10.1.1 Models for support

10.1.2 Functions

Common property	Value
ControlObjectDescription	"TEC OPOS POS Power Control Object"
ControlObjectVersion	"1005000"
ServiceObjectDescription	"TEC OPOS POS Power Service Object"
ServiceObjectVersion	"1005000"
DeviceDescription	"POS PowerManagement"
DeviceName	"PWMG"
Special property	
CapFanAlarm	FALSE
CapHeatAlarm	FALSE
CapQuickCharg	FALSE
CapShutdownPOS	TRUE
CapUPSChargeState	PWR_UPS_FULL PWR_UPS_CRITICAL
EnforcedShutdownDelayTime	0
PowerFailDelayTime	1000
QuickChargeMode	FALSE
QuickChargeTime	0
UPSChargeState	PWR_UPS_FULL

Table 102 List of POS Power Control Properties and Values

10.1.3 CheckHealth Specification

1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not support

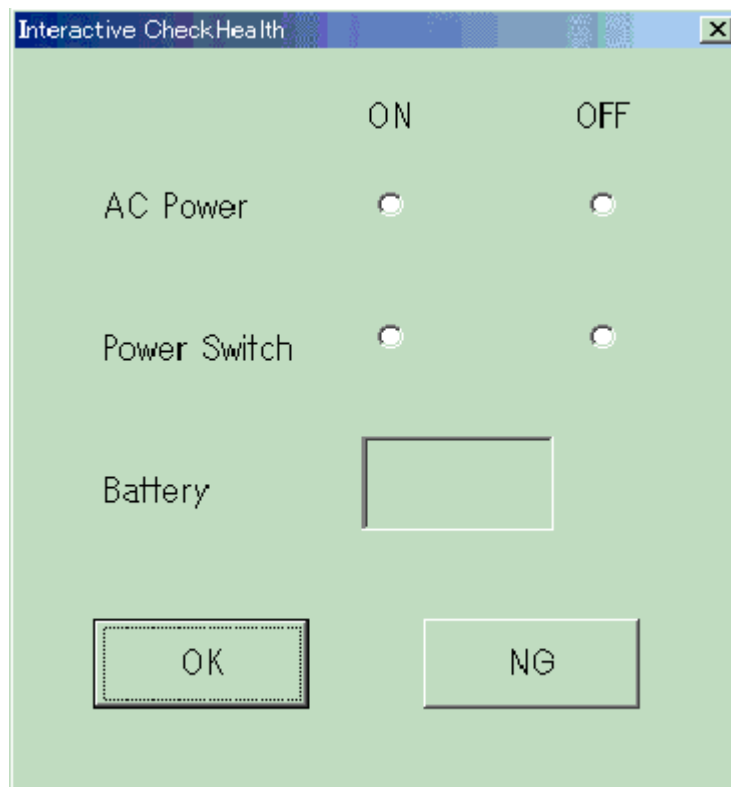
2) External Level (OPOS_CH_EXTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck:Successful"	Battery nearly full
OPOS_E_FAILURE	"External HCheck:Error"	Empty
OPOS_E_NOHARDWARE	"External HCheck :Not Enabled"	Disabled

3) Interactive Level (OPOS_CH_INTERACTIVE)

The dialog box below appears. Click the command buttons and check that printing is performed successfully to the POS printer.

Check the result visually and click either OK or NG.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive HCheck:Successful"	Completed using the OK button
OPOS_E_FAILURE	"Interactive HCheck:Data Error"	Completed using the NG button
OPOS_E_DISABLED	"HCheck :Not Enabled"	Disabled

10.1.4 OPOS Registry

The following configuration information is retained.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POS Power

\PWVG

Standard

"TEC.PWVG"

Service

"C:\OPOS\TEC\Pwmgso.dll"

Description

"TEC POS POWER MANAGEMENT"

Version

"1.5"

PowerFailDelayTime

0x000003e8(1000)

UPSLOWDelayTime

0x00000000(0)

ShutProc

"C:\OPOS\TEC\DRV\Service\POSShut.exe"

Service	File name of the service object
Description	Simple explanation of the service object
Version	Version number of the service object
PowerFailDelayTime	Instantaneous interruptions monitoring timer value
UPSLOWDelayTime	Time until UPS_LOW event occurrence from Offline value.
ShutProc	File name of the shutdown process

Table 103 PKBST Keylock Control Registry

10.1.5 Precautions and restrictions

Shutdown POS method

- Close all applications before calling this method. Otherwise, data may be corrupted
- Following this method, when the Close method is called, the OS starts shutting down. This is because all data of application that called this method is saved before the shutdown starts.

Shutdown process

- When the Shutdown POS method is executed, or when power is shut down, the automatic shutdown process is performed after a lapse of time specified in the Enforced Shutdown DelayTime property.
- When POS is shut down, the automatic shutdown functions is not provided,when power management is closed for the last application.

Enforced Shutdown Delay Time Property

- With the setting value non-zero, after a lapse of the specified time, the automatic shutdown is performed. But the auto-shutdown notification function is not supported.

Relationship with the UPS Driver

- On Windows NT/2000/XP, the UPS Device Driver for Windows NT/2000/XP must be installed.

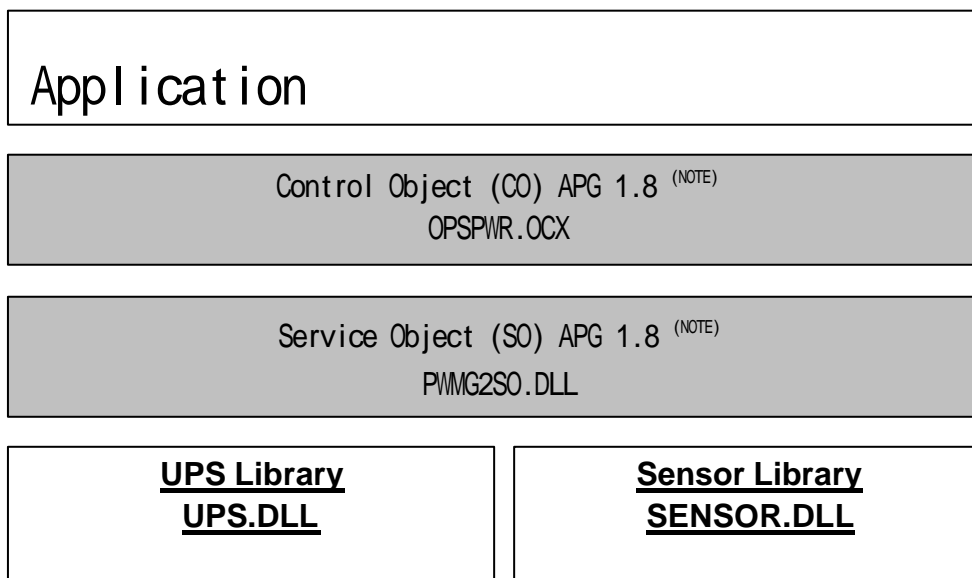
Relationship with the UPS Service

- On Windows NT/2000/XP the shutdownmonitoring service for Windows NT/2000/XP must be installed.

10.2 POS Power Control ["PWMGREV2"]

10.2.1 Models for support
M-7000 and ST-7000 POS Terminals

10.2.2 Software Configuration
This control consists of the following software.



NOTE: These are objects which comprise this control.

10.2.3 Functions

Functions supported	Functions not supported
Shutdown command Power failure notification UPS charge status notification CPU temperature warning CPU fan stop warning	Collection and submission of statistics Statistics reset Statistics change Quick battery charge mode Notification of an enforced shutdown by the OS Notification of start of shutdown
Extended functions (DirectIO)	
Switch status change notification Retrieving the CPU temperature and chip temperature Retrieving the rotation speed of the CPU fan, enclosure fan, and HDD fan Retrieving the CPU voltage Retrieving the actual voltage of +2.5V, +5V, +12V, and +1.5V lines	

Table 104 POS Power Control Functions

Properties (items only defined by the device are listed.)

Common properties	Value
ControlObjectDescription	"TEC OPOS POS Power Control Object"
ControlObjectVersion	"1008000"
ServiceObjectDescription	"TEC PWMGREV2 OPOS POS Power Service Object."
ServiceObjectVersion	"1008001"
DeviceDescription	"PWMGREV2 POS PowerManagement"
DeviceName	"PWMGREV2"
CapPowerReporting	OPOS_PR_STANDARD or OPOS_PR_NONE (*1)
CapStatisticsReporting	FALSE
CapUpdateStatistics	FALSE
Exclusive properties	Value
CapFanAlarm	TRUE or FALSE (*2)
CapHeatAlarm	TRUE or FALSE (*2)
CapQuickCharge	FALSE
CapShutdownPOS	TRUE or FALSE (*1)
CapUPSChargeState	PWR_UPS_FULL PWR_UPS_CRITICAL
EnforcedShutdownDelayTime	0
PowerFailDelayTime	0
QuickChargeMode	FALSE
QuickChargeTime	0

(*1): When the UPS function is not provided on the POS terminal, the value will be FALSE.

(*2): When the sensor function is not provided on the POS terminal, the value will be FALSE.

Table 105 POS Power Control Properties Values (in part)

10.2.4 CheckHealth Specification

1)Internal Level(OPOS_CH_INTERNAL)

This control does not support a health check of this level.

Return code ResultCode	CheckHealthText	Meaning	Resolution
OPOS_E_CLOSED	No change	Closed.	Open by the Open method.
OPOS_E_ILLEGAL	"Internal Hcheck: Illegal"	Not supported.	This function is not available.

2)External Level(OPOS_CH_EXTERNAL)

Checks the UPS battery status.

Return code ResultCode	CheckHealthText	Meaning	Resolution
OPOS_SUCCESS	"External Hcheck: Successful:"	Almost fully charged.	----
OPOS_SUCCESS	"External Hcheck: Error"	Battery is dead.	----
OPOS_E_ILLEGAL	"External Hcheck: Illegal:"	Failed in retrieving the status	An investigation is necessary.
OPOS_E_CLOSED	No change	Closed.	Open by the Open method.
OPOS_E_DISABLE D	"Hcheck: Not Enabled"	Disabled.	Change the value of the DeviceEnabled property to TRUE.
OPOS_E_FAILURE	"External HCheck: UPS No Support"	UPS function is not supported.	This function is not available.

3)Interactive Level(OPOS_CH_INTERACTIVE)

The following dialog box, which shows the statuses of the AC power supply, power switch, UPS battery, CPU temperature, CPU fan, enclosure fan, and HDD fan, is displayed.

Click on the [OK] or [NG] button depending on the result of a visual check.

Each status is added to the list by the following notation.

Status	Notation
AC power is on.	AC Power ON
AC Power is off.	AC Power OFF
Power switch is on.	Power Switch ON (*1)
Power switch is off.	Power Switch OFF (*1)
Battery is nearly full.	Battery FULL
Battery is dead.	Battery CRITICAL
CPU temperature is normal.	CPU TEMPERATURE OK
CPU temperature is high.	CPU TEMPERATURE HIGH
CPU fan is rotating.	CPU FAN RUNNING
CPU fan is not rotating.	CPU FAN STOPPED
Enclosure fan is rotating.	CHASSIS FAN RUNNING (*2)
Enclosure fan is not rotating.	CHASSIS FAN STOPPED (*2)
HDD fan is rotating.	HDD FAN RUNNING
HDD fan is not rotating.	HDD FAN STOPPED

(*1):The power switch turns to off state at a moment when the power switch is pressed, due to the specification of the hardware for the M-7000 and ST-7000.

(*2):Since an enclosure fan is not provided, these notations will not be displayed actually.

NOTE: When the UPS function is not provided on the POS terminal, "UPS not installed" is displayed on the list. The AC power status, power switch status, and the battery status are not notified.

When the sensor function is not provided on the POS terminal, "Sensor not installed" is displayed on the list. The CPU temperature, the rotation speeds of the CPU fan, enclosure fan, and HDD fan are not notified.

When clicking on the [Enquiry] button, the present temperature of the CPU and chip, the rotation speed of CPU fan, enclosure fan, and HDD fan, and the present voltages of the CPU, +1.5V, +2.5V, +5V, and +12V lines are displayed on the dialog box. The unit of measure is "C" for temperature, "rpm" for the rotation speed, and "mv" for the voltage, respectively.

Note that the enclosure fan is not provided, "Not Have" will be displayed.

When the sensor function is not provided, "Not Have" will be also displayed for the all items.

Return code ResultCode	CheckHealthText	Meaning	Resolution
OPOS_SUCCESS	"Interactive Hcheck:Successful"	Terminated by the OK button.	----
OPOS_E_FAILURE	"Interactive Hcheck: Error"	Terminated by the NG button.	----
OPOS_E_CLOSED	No change	Closed.	Open by the Open method.
OPOSE-E_DISABL ED	"Hcheck: Not Enabled"	Disabled.	Change the value of the DeviceEnabled property to TRUE.

10.2.5 DirectIO Method Specification/DirectIOEvent Event Specification

This control supports the following extended functions by using DirectIO method.

Command	Function
POWER_DIO_GET_HARDWA REINFO	Retrieves the hardware information

Table 106 POS Power Control DirectIO Method Command

This control supports the following extended notification by using DirectIOEvent event.

EventNumber	Function
POWER_EventNumber_Switch	Notifies the power switch status

Table 107 POS Power Control DirectIOEvent Event Number

The constant numbers used by DirectIO method and DirectIOEvent event in this control are defined in ***the TecPower.h*** provided by TOSHIBA TEC. This file may be revised when the module is updated. Therefore, it is recommended that you should always use the file in accordance with the module.

1) DirectIO Method Specification

(1) Retrieving the hardware information

Function: Retrieves the hardware information.

Format	Parameter	Description
	Command	POWER_DIO_GET_HARDWAREINFO
	PData	Information to be retrieved is specified by the ORed following values. POWER_DIO_GH_CPUTEMPERATURE: Temperature of the CPU POWER_DIO_GH_CHIPTEMPERATURE: Temperature of the chip POWER_DIO_GH_CPUFANREVS: The rotation speed of the CPU fan POWER_DIO_GH_CHASSISFANREVS: The rotation speed of the enclosure fan POWER_DIO_GH_HDDFANREVS: The rotation speed of the HDD fan POWER_DIO_GH_CPUVOLTAGE: CPU voltage POWER_DIO_GH_1500MV: +1.5V line voltage POWER_DIO_GH_2500MV: +2.5V line voltage POWER_DIO_GH_5000MV: +5V line voltage POWER_DIO_GH_12000MV: +12V line voltage POWER_DIO_GH_ALL: All retrievable information
	pString	Not used. Specify a null ("").

Explanation: Requirements are Open, DeviceEnabled=TRUE.

Hardware information is retrieved. Retrievable information is temperature of the CPU and the chip, the rotation speed of the CPU fan, enclosure fan, and HDD fan, voltages of the CPU, +1.5V, +2.5V, +5V, and +12V lines. Retrieved information is stored on the basis of the unit of measure as shown below.

Information type	Unit
Temperature	[°C]
Rotation speed	[rpm]
Voltage	[mV]

This command stores the retrieved values (refer to the explanation of pData parameter.) after logical OR is applied.

If a bit which is invalid for the pData parameter is specified, a parameter error results.

When the processing succeeds, that information is comma-delimited and stored into the pString parameter. Only the specified information among the temperature of the CPU, temperature of the chip, the rotation speed of the CPU fan, enclosure fan, and HDD fan, the voltages of the CPU +1.5V, +2.5V, +5V, and +12V lines, are stored in this order. (The unit of measure is not affixed.)

Note that the enclosure fan is not provided, so "-1" will be stored.

For example, to retrieve the temperature of the CPU, the rotation speed of the CPU fan, and the CPU voltage only, specify the logical OR of POWER_DIO_GH_CPUTEMPERATURE, POWER_DIO_GH_CPUFANREVS, and POWER_DIO_GH_CPUVOLTAGE for the pData parameter, and execute this command.

In case that the retrieved values of the temperature of the CPU, the rotation speed of the CPU fan, and the CPU voltage are 50[°C], 2000[rpm], and 2.25[V], respectively, "50,2000,2250" is stored into the pString parameter.

Return code Refer to Section 1.1.9 Error Code List.

Caution As the retrievable hardware information is updated at regular intervals, the same values are returned until the next update.

When the sensor function is not provided, retrieving will always result in an error.

Reference The StatusUpdateEvent event notifies whether the temperature of the CPU is high or normal. Also, the StatusUpdateEvent event notifies whether the fan is rotating or not. (For details, refer to Section 1.1.7 Limitations and Precautions.)

2) DirectIOEvent Specification

(1) Notification of the power switch status

Function Notifies the power switch status

Format	Parameter	Description
	EventNumber	POWER_EventNumber_Switch
	PData	Power switch status POWER_DIE_SWITCH_ON: Power switch is on. POWER_DIE_SWITCH_OFF: Power switch is off.
	PString	Power switch status "SWITCH ON": Power switch is on. "SWITCH OF": Power switch is off.

Explanation: Requirement is Open, PowerNotify=OPOS_PN_ENABLED, DeviceEnabled=TRUE.
The power switch status is notified.

Caution: When the UPS function is not provided, the power switch status is not notified.

Remarks: The data format of the pString parameter depends on the value of the BinaryConversion property. For details, refer to the BinaryConversion property described in *the Application Programmer's Guide*.

10.2.6 OPOS Registry

The following configuration information is stored in the registry.

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPower\PWMGREV2

Standard "TEC.PWMGREV2"
Service "C:\OPOS\TEC\PwmgRev2So.dll"
Description "TEC POS POWER MANAGEMENT"
Version "1.8"

Service	File name of the Service Object
Description	Brief explanation of the Service Object
Version	Version of the Service Object

Table 108 POS Power Control Registry

10.2.7 Limitations and Precautions

1) For properly using this control

To operate this control properly, either UPS function or sensor function is required.

The UPS function supports the shutdown command, notification of power break, notification of the switch status, and notification of the UPS charging status.

The sensor function supports the notification of the CPU temperature, notification of the CPU fan stop, retrieving the temperature of the CPU and chip, retrieving the rotation speed of the CPU fan, enclosure fan, and HDD fan, retrieving the CPU voltage, and retrieving the voltages of +2.5, +5V, +12V, and +1.5V lines.

To use the UPS function, the UPS library, UPS driver, UPS manager, shutdown tool and shutdown monitor service in accordance with each OS must have been installed.

To use the sensor function, the sensor DLL and sensor driver must have been installed in accordance with each OS.

When not using these functions, an installation of the library driver is not recommended.

2) ShutdownPOS method

Be sure to terminate the all applications before calling this method. Failure to do this may destroy data.

When the Close method is called after this method, a shutdown of the OS is started in order to start a shutdown of the OS after saving the all data of the applications which call this method.

To use this function, the UPS function must have been installed.

3) Shutdown processing

A shutdown processing is executed when the Close method is called after performing the ShutdownPOS method.

During power break, a shutdown processing will be automatically started in the specific time set by the EnforcedShutdownDelayTime property.

The function that the POS terminal automatically shuts down when the last application's power management is closed during power break is not supported.

To use this function, the UPS function must have been installed.

4) EnforcedShutdownDelayTime property

Unless the setting value is 0 (zero), the POS terminal automatically shuts down in the specified time. But the automatic shutdown is not notified to the applications. Therefore, the specified time should be long enough to terminate the applications.

To use this function, the UPS function must have been installed.

5) Power status

This control distinguishes between "Online state" ^(NOTE 1) and "Off or offline state" ^(NOTE 2), and notifies the user by the PowerState property and StatusUpdateEvent event.

To use this function, the UPS function must have been installed.

NOTE 1: "Online state" indicates the condition that the OPOS_SUE_ONLINE is stored in the State parameter and the StatusUpdateEvent event occurs, and that the OPOS_PS_ONLINE is stored in the PowerState property.

NOTE 2: "Off or offline state" indicates the condition that the PWR_SUE_OFF_OFFLINE is stored in the State parameter and the StatusUpdateEvent event occurs, and that the OPOS_PS_OFF_OFFLINE is stored in the PowerState property.

6) Response to an instantaneous power failure

As operations at the time of power break is not guaranteed on this device, there is no measure against an instantaneous power failure. As soon as the power is cut off, the POS terminal turns to "Off or offline state" ^(NOTE).

To use this function, the UPS function must have been installed.

NOTE: "Off or offline state" indicates the condition that the PWR_SUE_OFF_OFFLINE is stored in the State parameter and the StatusUpdateEvent event occurs, and that the OPOS_PS_OFF_OFFLINE is stored in the PowerState property.

7) Battery status

This control is able to notify the two battery statuses: "The battery is dead" ^(NOTE 1) and "The battery has been charged" ^(NOTE 2). The status of "The battery is dead." indicates the condition that the no electricity remains in the battery and the power supply will stop in a short time without warning. When this is notified, any further processing should not be performed and the present processing should be stopped, if possible. To terminate the processing securely, shut down the POS terminal when it is in "Off or offline state" ^(NOTE 3).

To use this function, the UPS function must have been installed.

NOTE 1: "The battery is dead." indicates the condition that the PWR_SUE_UPS_CRITICAL is stored in the State parameter and the StatusUpdateEvent event occurs, and the PWR_UPS_CRITICAL is stored in the UPSCharge property.

NOTE 2: "The battery has been charged." indicates the condition that the "PWR_SUE_UPS_FULL" is stored in the State parameter and the StatusUpdateEvent event occurs, and the PWR_UPS_FULL is stored in the UPSCharge property.

NOTE 3: "Off or offline state" indicates the condition that the PWR_SUE_OFF_OFFLINE is stored in the State parameter and the StatusUpdateEvent event occurs, and that the OPOS_PS_OFF_OFFLINE is stored in the PowerState property.

8) Shutdown and automatic shutdown

After the POS terminal is in "Off or offline state" ^(NOTE), it automatically shuts down in the specified time set by the EnforcedShutdownDelaytime property even before the application uses the ShutdownPOS method.

To shut down the POS terminal without using the automatic shutdown, set 0 (zero) for the EnforcedShutdownDelayTime property or use the Shutdown POS method before the timeout.

To use this function, the UPS function must have been installed.

NOTE: "Off or offline state" indicates the condition that the PWR_SUE_OFF_OFFLINE is stored in the State parameter and the StatusUpdateEvent event occurs, and that the OPOS_PS_OFF_OFFLINE is stored in the PowerState property.

9) Criterion of the CPU temperature status

This control considers the CPU temperature at 68°C or above as High, and temperature less than 68°C as Normal. The CPU temperature status is stored in the Status parameter and notified by the StatusUpdateEvent event.

To use this function, the sensor function must have been installed.

Temperature	Status parameter
High	PWR_SUE_TEMPERATURE_HIGH
Normal	PWR_SUE_TEMPERATURE_OK

10) Criterion of the fan status

This control monitors the rotation speed of the 3 fans: CPU fan, enclosure fan, and HDD fan. However, the enclosure fan is not provided on the current model, it is not monitored actually.

This control considers the rotation speed of 0 [rpm] as "Not rotating", and more than 0 [rpm] as "Rotating". The fan status is stored in the Status parameter and it is notified by the StatusUpdateEvent event.

Notification of the status of the enclosure fan and the HDD fan is unique function.

This control notifies statuses of the enclosure fan and the HDD fan by extending the part of the StatusUpdateEvent event.

To use this function, the sensor function must have been installed.

Status of fan	Status parameter
CPU fan is rotating.	PWR_SUE_FAN_RUNNING
CPU fan is not rotating.	PWR_SUE_FAN_STOPPED
Enclosure fan is rotating. ^(NOTE)	POWER_SUE_CHASSISFAN_RUNNING
Enclosure fan is not rotating. ^(NOTE)	POWER_SUE_CHASSISFAN_STOPPED
HDD fan is rotating.	POWER_SUE_HDDFAN_RUNNING
HDD fan is not rotating.	POWER_SUE_HDDFAN_STOPPED

NOTE: As the enclosure fan is not provided on the POS terminal, this event will not be notified.

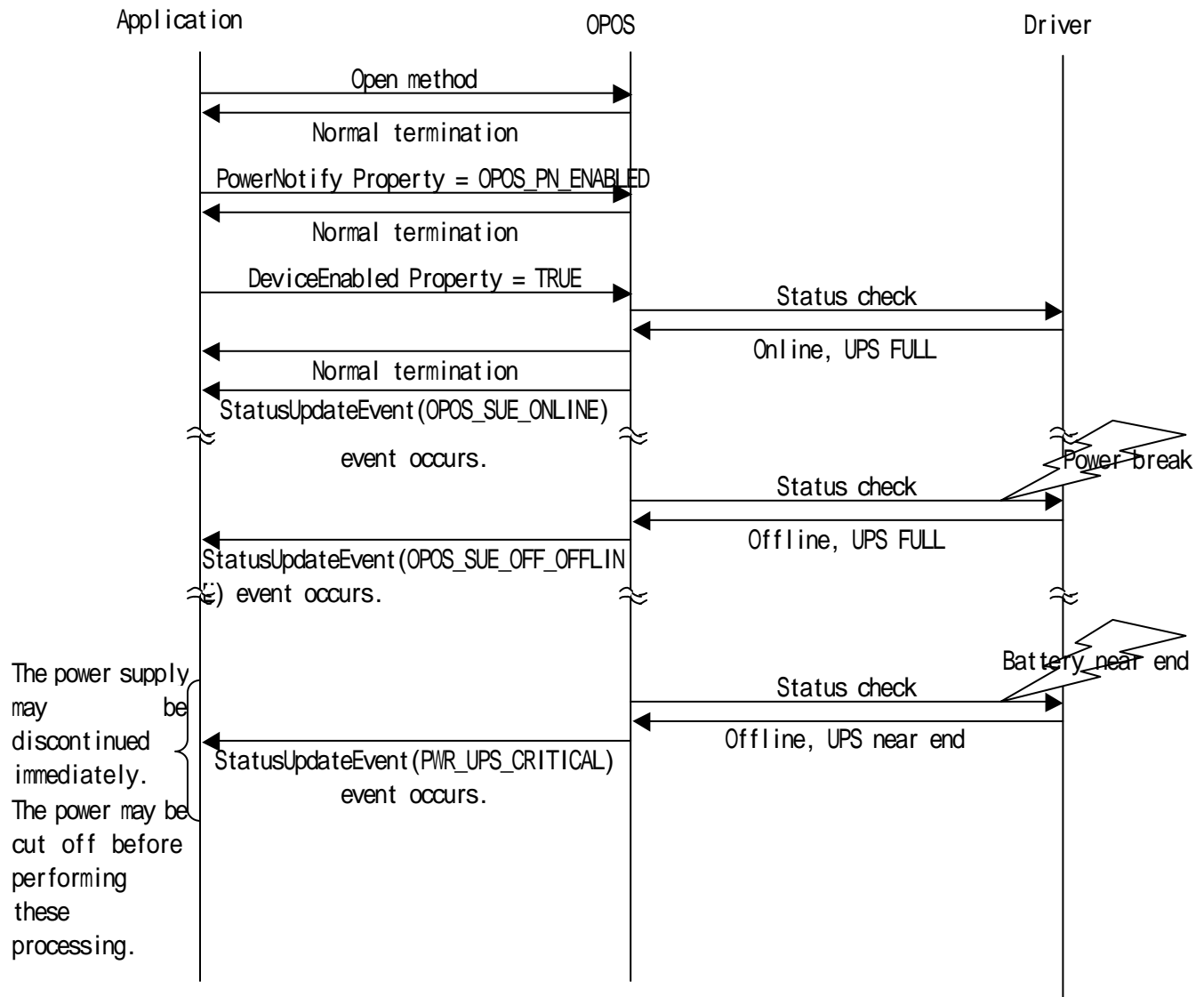
10.2.8 Usage example

1) How to monitor the hardware power status and UPS status notification

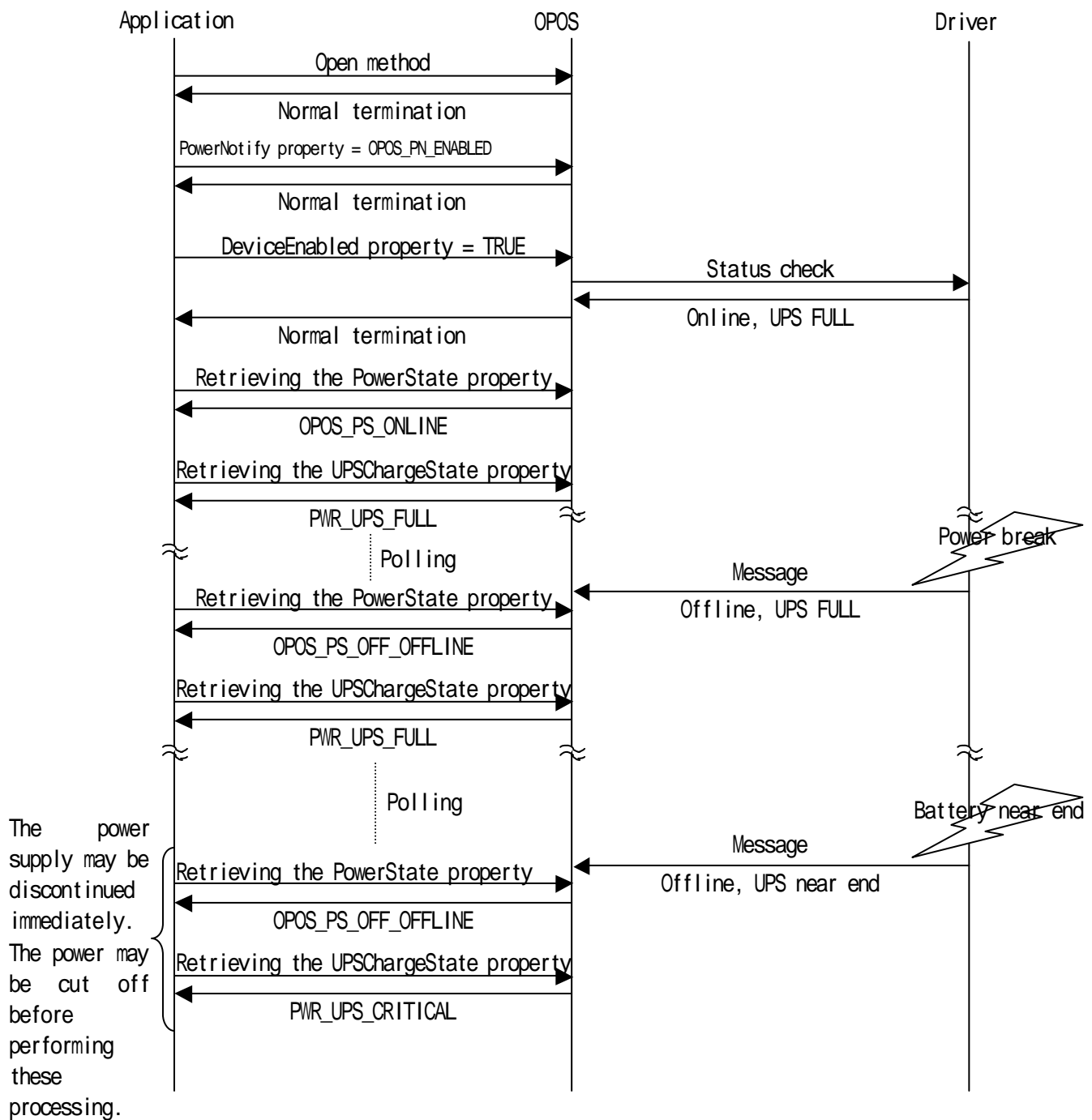
There are two methods for the application to perform the above functions by using this control:

Monitoring by the event of the OPOS, and monitoring by polling and retrieving the OPOS properties. The following diagrams show the sequence of each case.

<Monitoring by the event of the OPOS>



<Monitoring by polling and retrieving the OPOS properties>



10.2.9 Error Code List

The OPOS control notifies the user of the result of an execution of method or properties setting.

The following tables show the list of the error codes to be notified, each meaning, and a resolution if it needs to be corrected. Regarding the CheckHealth method, refer to Section 1.1.4 CheckHealth method specification.

Result codes and their corresponding values

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_EXISTS	110
OPOS_E_FAILUER	111
OPOS_E_TIMEOUT	112
OPOS_E_BUSY	113
OPOS_E_EXTENDED	114

OpenResult	Value
OPOS_OR_ALREADYOPEN	301
OPOS_OR_REGBADNAME	302
OPOS_OR_REGPROGID	303
OPOS_OR_CREATE	304
OPOS_OR_BADIF	305
OPOS_OR_FAILEDOPEN	306
OPOS_OR_BADVERSION	307
OPOS_OR_NOPORT	401
OPOS_OR_NOTSUPPORTED	402
OPOS_OR_CONFIG	403
OPOS_OR_SPECIFIC	450
OPOS_OR_BADCO	451
OPOS_OR_RESOURCEFAIL	452
OPOS_OR_ALREADYOPENED	453

1) Open method

The result of the processing is notified by using the return code and the OpenResult property. In case of "Normally terminated", OPOS_SUCCESS is returned to the ResultCode property. In case of "Already opened", the return code remains unchanged. In other cases, OPOS_E_CLOSED is returned.

Method	Return code	OpenResult	Meaning	Resolution
Open	OPOS_SUCCESS	OPOS_SUCCESS	Normally terminated.	—
	OPOS_E_ILLEGAL	OPOS_OR_ALREADYOPEN	Already opened.	—
	OPOS_E_NOEXIST	OPOS_OR_REGBADNAME	The registry corresponding to the open name is not found.	Confirm the open name.
		OPOS_OR_REGPROGID	SO or driver is not stored properly.	An investigation is necessary.
		OPOS_OR_CONFIG	The registry is not correct.	Confirm the registry.
	OPOS_E_NOSERVICE	OPOS_OR_REGPROGID	SO or driver is not stored properly.	An investigation is necessary.
		OPOS_OR_CREATE	SO or driver is not stored properly.	An investigation is necessary.
		OPOS_OR_CONFIG	The registry is not correct.	Confirm the registry.
		OPOS_OR_RESOURCEFAIL	Internal error Generation of the system resource failed	Restart the system.
	OPOS_E_NOSERVICE	OPOS_OR_BADIF	SO does not support the required method.	Reinstall the OPOS control kit.
	OPOS_E_NOSERVICE	OPOS_OR_BADCO	CO does not support the required method.	Reinstall the OPOS control kit.

2) Close method

The result of the processing is notified by using the return code and the ResultCode property.

Method	Return code	ResultCode	Meaning	Resolution
Close	OPOS_SUCCESS	OPOS_E_CLOSED	Normally terminated.	-----
	OPOS_E_CLOSED	OPOS_E_CLOSED	Closed.	-----

3) DirectIO method

The result of the processing is notified by using the return code, ResultCode property, and the ResultCodeExtended property.

The DirectIO method describes the processing result by command.

Command	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
POWER_DIO_GET _HARDWAREINFO	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	Open by the Open method.
	OPOS_E_DISABLED	0	Disabled.	Change the DeviceEnabled property to TRUE.
	OPOS_E_ILLEGAL	0	Invalid parameter is specified.	Specify an effective value for the pData parameter.
	OPOS_E_FAILURE	0	The sensor function has not been installed.	-----
			Processing failed.	An investigation is necessary.

4) Other methods

The result of the processing is notified by using the return code, ResultCode property, and ResultCodeExtended property.

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
Claim / ClaimDevice	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	Open by the Open method.
	OPOS_E_TIMEOUT	0	Other process	Wait until the exclusive access control is released.
	OPOS_E_ILLEGAL	0	Parameter is invalid.	Specify the correct parameter.
Release / ReleaseDevice	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	-----
	OPOS_E_ILLEGAL	0	Exclusive access control is not retained.	-----

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
ResetStatistics	OPOS_E_ILLEGAL	0	When the CapStatisticsReporting property or CapUpdateStatistics property is FALSE, this function is not supported.	This function is not available.

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
RetrieveStatistics	OPOS_E_ILLEGAL	0	When the CapStatisticsReporting property is FALSE, this function is not supported.	This function is not available.

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
UpdateStatistics	OPOS_E_ILLEGAL	0	When the CapStatisticsReporting property or CapUpdateStatistics property is FALSE, this function is not supported.	This function is not available.

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
ShutdownPOS	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	OPOS_E_CLOSED	Closed.	Open by the Open method.
	OPOS_E_DISABLED	OPOS_E_DISABLED	Disabled.	Change the DeviceEnabled property to TRUE.
	OPOS_E_ILLEGAL	OPOS_E_ILLEGAL	Not supported.	This function is not available.
	OPOS_E_TIMEOUT	OPOS_E_TIMEOUT	A shutdown could not be executed as other process retains the exclusive access control.	Release the exclusive access control by the Release(ReleaseDevice) method or Close method.
	OPOS_E_FAILURE	OPOS_E_FAILURE	An execution of a shutdown failed.	Install the driver and service required for this control.

- 5) Result of the processing at the properties setting
 Result of the processing is notified by using the ResultCode and ResultCodeExtended properties.

Method	Return code ResultCode	ResultCodeExtended	Meaning	Resolution
PowerNotify	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	Open by the Open method.
	OPOS_E_ILLEGAL	0	When the CapPowerReporting property is OPOS_PR_NONE, this function is not supported.	This function is not available.
			When the CapPowerReporting property is other than OPOS_PR_NONE, and the DeviceEnabled property is TRUE, an disable error occurred.	Change the DeviceEnabled property to FALSE.
DeviceEnabled	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	Open by the Open method.
	OPOS_E_ILLEGAL	0	Retrieving the initial status failed.	An investigation is necessary.
	OPOS_E_NOHARDWARE	0	Both of UPS and sensor functions have not been installed.	Install either of them.
Other properties	OPOS_SUCCESS	0	Normally terminated.	-----
	OPOS_E_CLOSED	0	Closed.	Open by the Open method.
	OPOS_E_ILLEGAL	0	Invalid value was specified.	Specify an effective value for the properties.

Appendix A. Problem of WindowsNT and POS Device

WindowsNT detects serial mouse at start. Therefore, there is a possibility that POS device to have COM port connected with wakes up an abnormal function. LIUST-5x Line Display displays a trash when starting WindowsNT. Also, HS-520-RS Scanner sounds a sound. It can avoid these phenomenon by changing BOOT.INI file.

Avoidance method

- 1) In case that not use serial mouse

[boot loader]

timeout=5

default=multi(0)disk(0)rdisk(0)partition(1)¥WINNT

[operating systems]

multi(0)disk(0)rdisk(0)partition¥WINNT="WindowsNT Workstation Version 4.00"

/NOSERIALMICE/NOSERIAL

multi(0)disk(0)rdisk(0)partition(1)¥WINNT="WindowsNT Workstation Version 4.00

[VGAmode]"/basevideo/sos

- 2) Case for serial mouse at COM1 of a use

[boot loader]

timeout=5

default=multi(0)disk(0)rdisk(0)partition(1)¥WINNT

[operating systems]

multi(0)disk(0)rdisk(0)partition¥WINNT="WindowsNT Workstation Version 4.00"

/NOSERIALMICE=COM2,3,4

multi(0)disk(0)rdisk(0)partition(1)¥WINNT="WindowsNT Workstation Version 4.00

[VGAmode]"/basevideo/sos

/NOSERIALMICE=[COM_x | COM_{x,y,z}• c..]

Prohibition of a detection of serial mouse to COM port specified. In case that COM port didn't specify it and specifies a /NOSERIAL switch, prohibition of all COM port detections.

Reference data :

System construction of BackOffice WindowsNT system management

Appendix B. List of OPOS Control File Name

Control Object

Device Class	File Name
Drawer	Oposdrw.ocx
Line Display	Oposdisp.ocx
Keylock	KEYLOCK.ocx
Magnetic Stripe Reader	MSR.ocx
POS Printer	OPOSPrinter.ocx
Scanner (Bar code reader)	Oposscan.ocx
Tone Indicator	OPOSTone.ocx
POS Power	OPOSTone.ocx

Service Object

Service Object Name	File Name
DRWST Cash Drawer	Drwso.dll
LIUST51 Line Display	LIUST51.dll
LIUST51Ex Line Display	Liu51ex.dll
LIUST52 Line Display	LIUST52.dll
LIUST53 Line Display	LIUST53.dll
PKBST Keylock	PKBST.dll
MCRST MSR	St55msr.dll
TRJST52P POS Printer	TRJST52P.dll (WindowsNT) TRJST52P95.dll (Windows95/98)
TRJST52S POS Printer	TRJST52S.dll
TRST53P POS Printer	TRJST53P.dll (WindowsNT) TRJST53P95.dll (Windows95/98)
TRST53S POS Printer	TRJST53S.dll
TRST56P POS Printer	TRJST56P.dll (WindowsNT) TRJST56P95.dll (Windows95/98)
TRST56S POS Printer	TRJST56.dll
DRJST50P POS Printer	Drjst50p.dll (WindowsNT) Drjst50p95.dll (Windows95/98)
DRJST50S POS Printer	Drjst50s.dll
DRJST51P POS Printer	Drjst51p.dll (WindowsNT) Drjst51p95.dll (Windows95/98)
DRJST51S POS Printer	Drjst51s.dll
ST-90 TPR158P POS Printer	Tpr158p.dll (WindowsNT)
RS Scanner	RSSCANSO.dll
RS ScannerEx	RsscanEX.dll
PC Speaker	Pcspkr.dll (WindowsNT)
POS Power	Pwmgso.dll

The others

Control Pannel Applet	Tecopos.cpl
Program for a function check	OposChk.exe

Appendix C. List of OPOS Driver (POS Device Driver) File Name

Windows95/98 OPOS Driver

Device Driver	File Name
PKBST-5x POS Keyboard driver	Kbdjp.drv (Kvdus.drv)(*1), Posesc.dll, Posesc32.dll
TEC serial port driver	Tserial.vxd
MULTI ISR driver	Vmultid.vxd

(*1) Kbdjp.drv (Kvdus.drv) is installed as POS Keyboard Driver and changed it to use drv at System.ini file.

[boot]

Keyboard.drv=c:\OPOS\TEC\DRV\KBDJP.DRV

WindowsNT4.0 OPOS Driver

Device Driver	File Name
PKBST-5x POS Keyboard driver	i8042prt.sys(*1), kbdclass.sys(*1), Posedc32.dll, mkmgr.exe
DRWST cash drawer driver	DRVDRW.sys
Simplified UPS driver	DRVUPS.sys, UPS.dll, UPSWatch.exe
UPS Service	pfupssvc.exe

(*1) i8042prt.sys, kbdclass.sys renewal a standard driver of WindowsNT4.0/2000/XP.

A file name changes it for POS Driver use, it is same as a standard, but.

Windows2000 OPOS Driver

Device Driver	File Name
PKBST-5x POS Keyboard driver	ti8042prt.sys, tkbdclass.sys, Posedc32.dll, mkmgr.exe
DRWST cash drawer driver	DRVDRW.sys
Simplified UPS driver	DRVUPS.sys, UPS.dll, UPSWatch.exe
UPS Service	pfupssvc.exe

WindowsXP OPOS Driver

Device Driver	File Name
PKBST-5x POS Keyboard driver	ti8042prt.sys, tkbdclass.sys, Posedc32.dll, mkmgr.exe
DRWST cash drawer driver	DRVDRW.sys
Simplified UPS driver	DRVUPS.sys, UPS.dll, UPSWatch.exe
UPS Service	pfupssvc.exe

The others

WindowsNT4.0 OPOS Driver Control Pannel Applet	Tecpos.cpl
WindowsNT4.0 OPOS Driver Control Pannel Tool	Cptool.exe(*1)

(*1) Installation for WindowsNt4.0/2000/XP Service Pack, then renewal for Keyboard driver and serial Port driver. Cptool.exe rewrites i8042prt.sys, kbdclass.sys, serial.sys file for POS Driver use. Return to driver for POS use at cptool.exe, in case that install Service Pack, after installing OPOS Driver.

