



SII POS for .NET Service Object for SLP RT Series Application Programmer's Guide

Rev.03

[Products]

SLP720RT Series

SLP721RT Series

Seiko Instruments Inc.

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Introduction

This manual describes "SII POS for .NET Service Object for SLP RT Series" (hereinafter referred to as the "software") provided by Seiko Instruments Inc. (hereinafter referred to as "SII").

Target Products

The products supported by this manual are listed below.

Printer	Control	Device Name	Description in This Manual
SLP720RT Series SLP721RT Series*1	PosPrinter	SLP720RT POS Printer	Printer
SLP721RT Series*1	CashDrawer	SLP720RT Cash Drawer	Drawer

*1: The sales destination is Japan only.

Also see "UnifiedPOS Retail Peripheral Architecture Version 1.12" (hereinafter "UPOS V1.12") and "Microsoft Point of Service for .NET - POS for .NET v1.12 SDK Documentation" when using the software.

Supported Paper and Names in This Manual

The supported paper by the software and their names in this manual are listed below.

All Type	By type	By function	Abbreviation	Support
Paper	Receipt	Receipt	Receipt	✓
	Linerless label	Linerless label	Label	✓
		Marked linerless label	Marked paper	✓
	SLP Label	SLP Label	Label	-

Notation in This Manual

The notation in this manual is described.

Operation and Display

In principle, this manual is written on the basis of the following conditions:

- Screenshots and display layouts of Windows 10
- Operating instructions with a mouse and a keyboard

Operating System Abbreviations

The operating system abbreviations used in this manual are listed below.

Operating System	Abbreviation
General Microsoft® Windows®	Windows
Microsoft® Windows® 11	Windows 11
Microsoft® Windows® 11 IoT Enterprise	
Microsoft® Windows® 10	Windows 10
Microsoft® Windows® 10 IoT Enterprise	

Terms

The terms used in this manual are defined as below.

Term	Description
Configuration program	The program that executes addition and setting change of devices for PosPrinter and CashDrawer provided by the software. When installing the software, it will be installed as [SII POS for .NET Utility for SLP RT Series] on the computer.
Default	The value immediately after satisfying the availability condition.
Line spacing	The height of each print line (total value of the printed line height and the whitespace between each pair of lines).
Technical Reference	Technical Reference shown as follows: • SLP720RT SERIES THERMAL PRINTER TECHNICAL REFERENCE
User's Guide	User's Guide shown as follows: • SLP720RT SERIES Thermal Printer USER'S GUIDE
Printer command	Command for controlling the printer described in "Technical Reference".

Symbols

The symbols used in this manual are described below.

Caution

- ◆ Notes and limitations are described.

Reference

- Supplemental information and related matters are described.

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Exceptions

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Statistics

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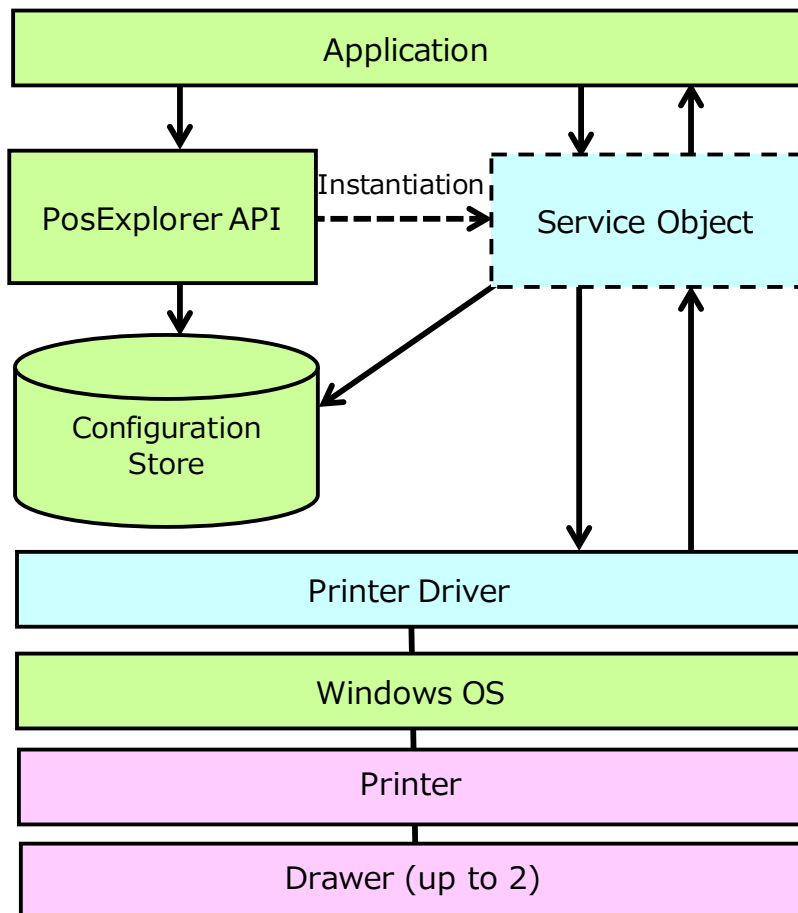
Chapter 1 Overview

This chapter describes the overview of the software.

1.1 Configuration

1.1.1 Structural Diagram

The structure of the software is as follows, and the scope of this manual is indicated by dashed lines.



1.2 Operating Environment

1.2.1 System Environment

The system environment of the software is shown below.

Item	Specifications
Operating System	Microsoft® Windows® 11 (64 bits) Microsoft® Windows® 11 IoT Enterprise (64 bits) Microsoft® Windows® 10 (32 bits and 64 bits) Microsoft® Windows® 10 IoT Enterprise (32 bits and 64 bits)
.NET Framework* ¹	.NET Framework 4.0 or .NET Framework 3.5
Microsoft POS for .NET SDK* ¹	POS for .NET 1.14 or POS for .NET 1.12
Printer driver	"SII Printer Driver for Windows" for SLP720RT/SLP721RT series

*1: Before installing the software, it is required to install .NET Framework 4.0 or later, Microsoft POS for .NET 1.14 or .NET Framework 3.5 and Microsoft POS for .NET 1.12 and in advance.

1.3 Printer Settings

The memory switches of the printer are set to [Value] in the following table when using the software.
See "User's Guide" for details about the memory switches.

For PosPrinter, the following values are set forcibly by executing **Claim**.

For CashDrawer, the following values are set forcibly by executing **Claim** or setting **DeviceEnabled** to *true*.

MS	Function	Value	Note
1-3	Mark Mode Selection (Mark Mode)	0 : Enable* ¹ 1 : Disable* ²	Either one [Value] on the left is set forcibly in [Mark Mode] in the configuration program.
4-4	Paper Width Selection (Paper Width)	0 : 40 mm 1 : 58 mm	Either one [Value] on the left is set forcibly in [Number of Effective Dots(dots)] in the configuration program.
4-7 to 4-8	Maximum Print Speed Selection (Print Speed)	01B : Middle 11B : High	Either one [Value] on the left is set forcibly in [Print Speed] in the configuration program.
5-1	Automatic Status Response Selection (Auto Status Back)	0 : Enable	-
5-2	Initialized Response Selection (Init. Response)	0 : Enable	
5-3	Data Discard Selection When Error Occurs (Error Through)	1 : Disable	
13-3	Realtime Command Selection (Realtime Command)	1 : Enable	

*1: When using **MarkFeed**, select "Enable" in [Mark Mode] in the configuration program. In addition, one of the following settings is necessary.

- To automatically detect paper, set the memory switch MS 4-6 (Paper Auto Detection Selection) of the printer to "Enable".
- To specify the paper, set MS 4-6 (Paper Auto Detection Selection) to "Disable" and set MS 7 (Thermal Paper Selection) to "Linerless label".

*2: When using the receipt (other than the marked paper) or the linerless label (other than the marked paper), select "Disable" in [Mark Mode] in the configuration program. Then, set the memory switch MS 4-6 (Paper Auto Detection Selection) of the printer to "Disable" and select the paper to be used in MS 7 (Thermal Paper Selection).

Caution

- ◆ When printing continuously on linerless label, set the memory switch MS 1-2 (Taken Mode Selection) of the printer to "Enable".
- ◆ Set the memory switch MS 1-2 (Taken Mode Selection) of the printer to "Disable" in the following cases.
 - When performing partial cut in multiple pages printing
 - When printing continuously on receipt
- ◆ Connect to the drawer kick connector of the printer when using the cash drawer.

1.4 Limitations

The limitations of the software are described.

1.4.1 General

When using 1 printer simultaneously from multiple computers via TCP/IP connections, use **TransactionPrint** to prevent print data from other computers from interrupting.

1.4.2 PosPrinter

The software is based on UnifiedPOS Specification Version 1.12, and all interfaces of PosPrinter device are provided with the following limitations.

- (a) The method and property settings related to journal and slip printing are not supported.
- (b) The following functions are not supported.
 - Feed, Paper cut and Stamp
 - Stamp
 - Feed reverse
 - Font typeface selection
 - Italic
 - Alternate color (Custom)
 - Red color
 - Shading
 - RBG Color
 - Sub Script
 - Super Script
 - Strike-through
- (c) All the following methods always return *ErrorCode.Illegal* after they are enabled.
 - **BeginInsertion**
 - **BeginRemoval**
 - **ChangePrintSide**
 - **EndInsertion**
 - **EndRemoval**
 - **PrintTwoNormal**
- (d) **DirectIOEvent** (device-specific event) is not supported.
- (e) When [Process Completion Timing] is set as "Data printing" in the configuration program, the printer command "Execution Response Request" is used inside the software for controlling the print operation. Therefore, an unexpected behavior may occur when sending "Execution Response Request" by the "Pass through embedded data" escape sequence (ESC|#E).

- (f) When an error occurs, the printer command "Hardware Reset" is sent from PosPrinter to cancel printing in the printer; however, printing may be performed a bit before PosPrinter stops printing in the printer.

1.4.3 CashDrawer

All interfaces of CashDrawer device are provided, with the following limitations.

- (a) The following method always returns *ErrorCode.Illegal* after it is enabled.
 - **DirectIO**
- (b) The **DirectIOEvent** (device-specific event) is not supported.

Chapter 2 Installation

This chapter describes installation/uninstallation of the software.

It is necessary to install the printer driver before installing the software.

For the installation procedure of the printer driver, see the installation part of "SII Printer Driver for Windows User's Guide" for SLP720RT/SLP721RT series.

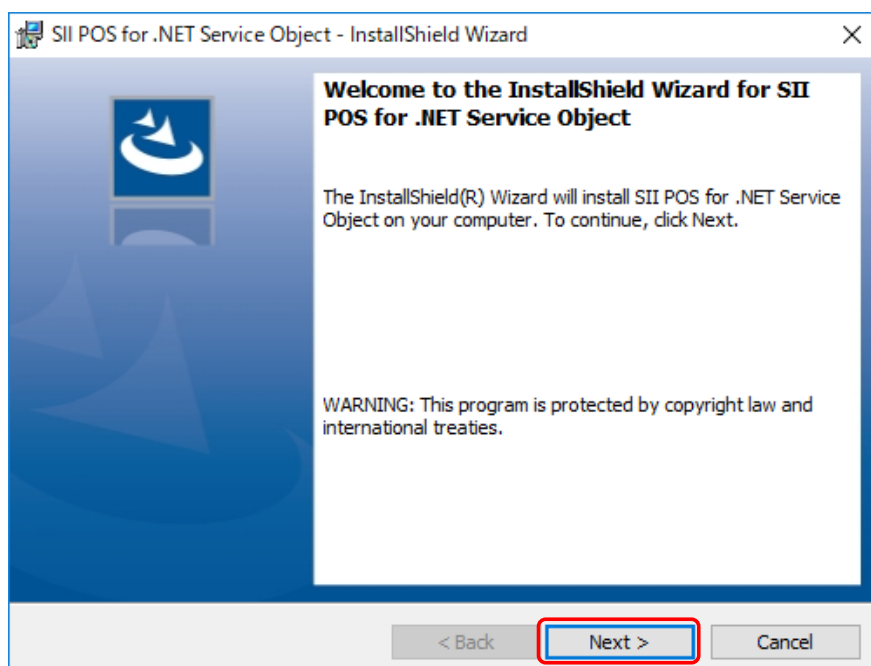
Caution

- ◆ This installation requires logon to the computer with administrator privileges.

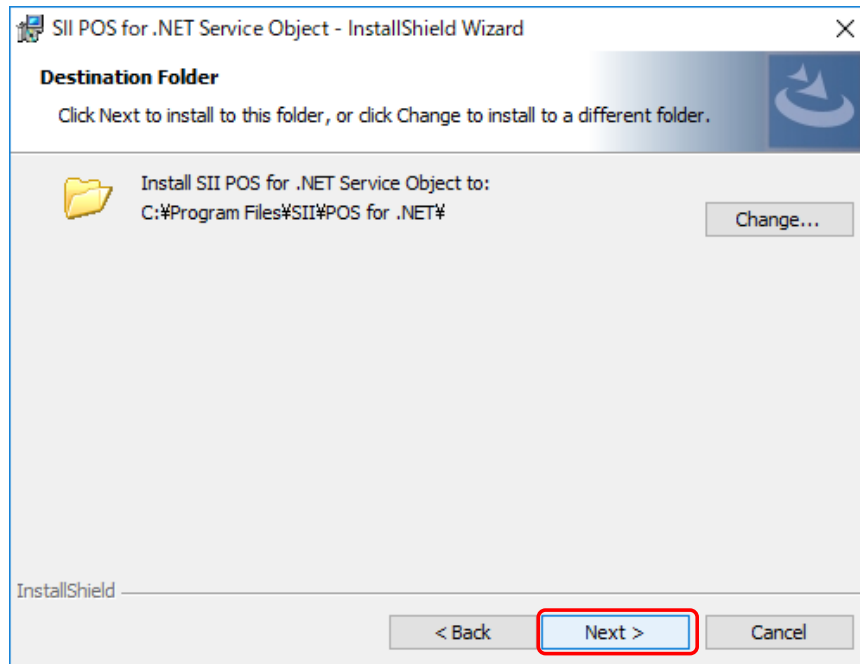
2.1 Installation

The installation procedure of the software is described below.

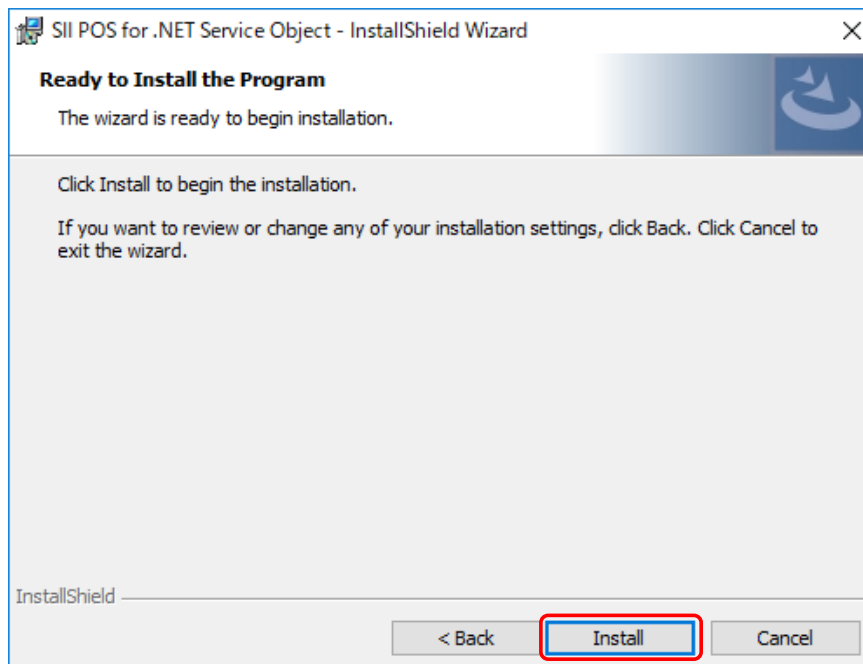
- (1) Start the setup program.
For 32-bit OS : SetupPosNet.exe
For 64-bit OS : SetupPosNet64.exe
- (2) When the installer starts up, click the [Next >] button.



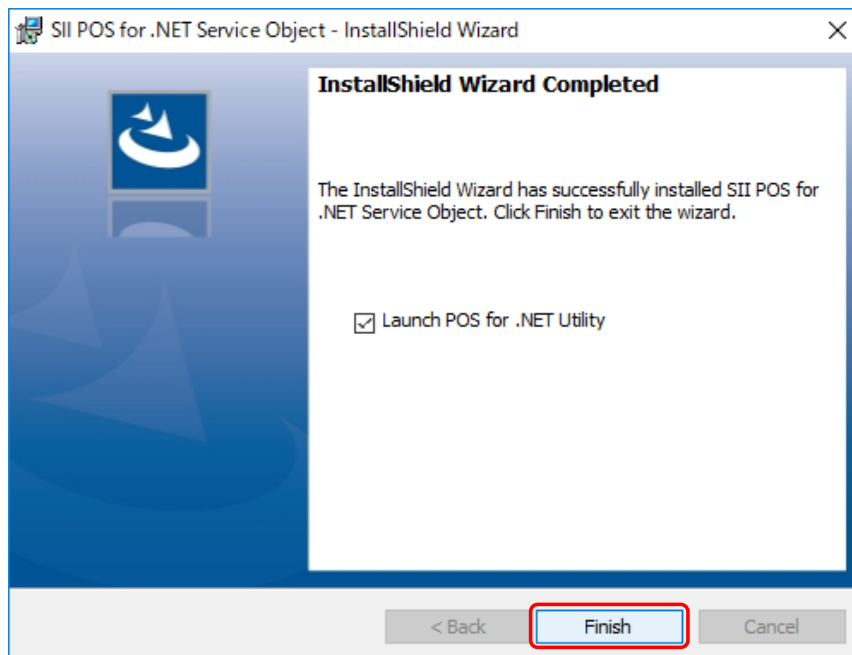
(3) Specify the destination folder and click the [Next >] button.



(4) Click the [Install] button.



- (5) Click the [Finish] button. When clicking the [Finish] button with the "Launch POS for .NET Utility" checkbox on, the setup program ends and the configuration program (POS for .NET Utility) starts up.



2.2 Uninstallation

When the software is no longer used, click "Uninstall a program" in [Programs and Features] in the Control Panel. When the [Uninstall or change a program] window is displayed, select POS for .NET Utility, and click the [Uninstall] button.

Chapter 3 How to Operate Configuration Program

This chapter describes the configuration program provided by the software.

3.1 Startup

The startup procedure of the configuration program is described.

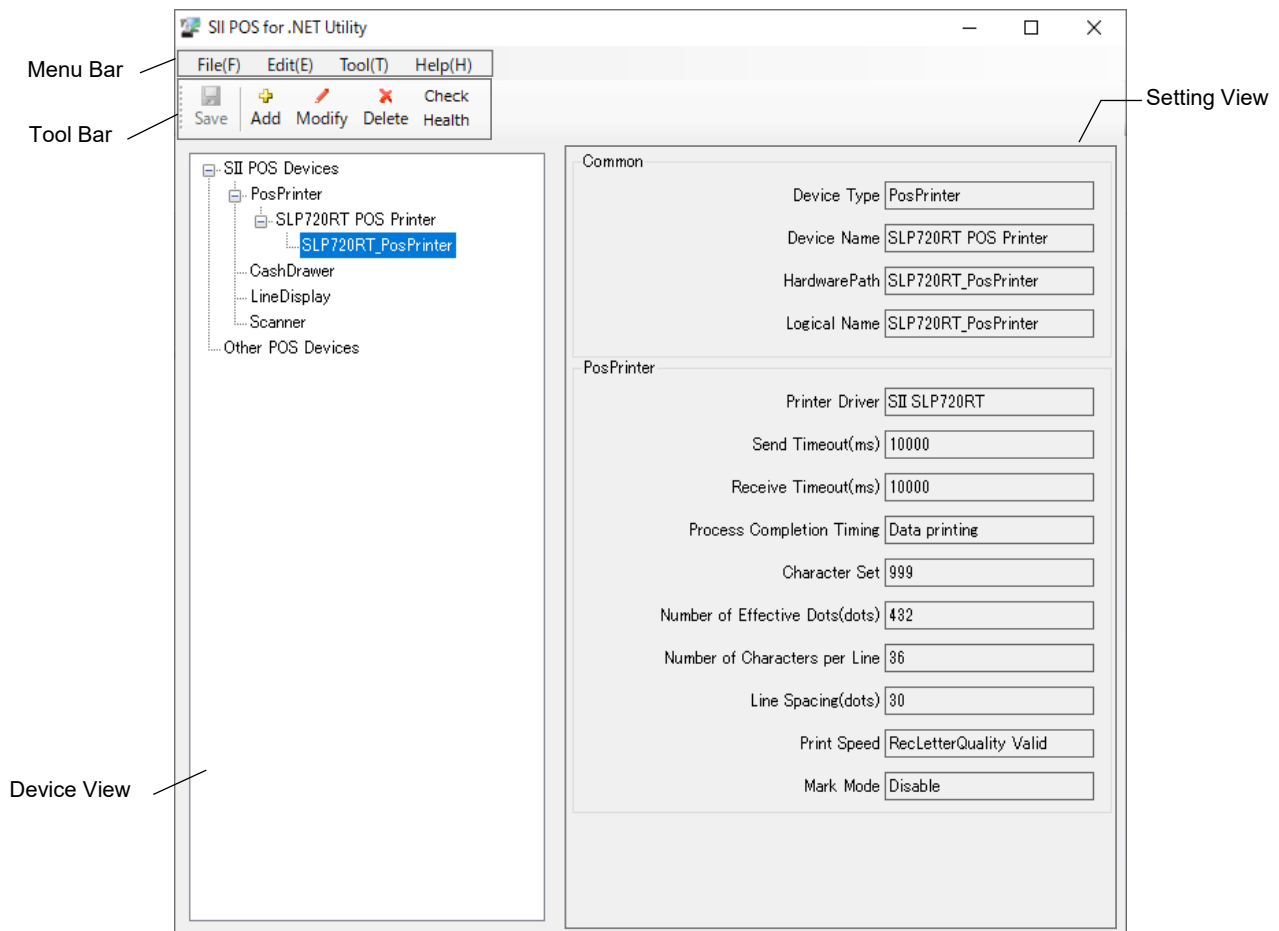
- For Windows 11:
Select [All apps] - [POS for .NET Utility] from the Start menu, and then the configuration program starts up.
- For Windows 10:
Select [SII POS for .NET] - [POS for .NET Utility] from the Start menu, and then the configuration program starts up.

Caution

- ◆ The software operates using a printer driver. The printer driver is required to be installed on the computer for using the software.
- ◆ Using the software requires logon to the computer with administrator privileges.

3.2 Screen Layout

The screen layout of the configuration program is described.



Item	Description
Menu Bar	The menu bar of the configuration program. See "3.2.1 Menu Bar" for items in the menu bar.
Tool Bar	The tool bar of the configuration program. See "3.2.2 Tool Bar" for items in the tool bar.
Device View	The type, the name, and the logical name of the device registered in the system are displayed in a tree.
Setting View	Displays setting contents of the device selected in "Device View". See "3.2.4(1) PosPrinter setting items" or "3.2.4(2) CashDrawer setting items" for items of each device.

3.2.1 Menu Bar

Item		Description
File(F)	Save(S)	Saves the data being edited in configuration.xml.
	Restore(R)	Discards the data being edited and re-reads the data saved in configuration.xml.
	End(E)	Ends the configuration program.
Edit(E)	Add(A)	Adds a new device.
	Modify(M)	Changes the setting contents for the device being selected.
	Delete(D)	Deletes the device being selected.
Tool(T)	CheckHealth	Executes an interactive test on the device being selected.
	LogSetting	Performs common log settings for all devices. See "3.3.5 Log Setting" for details of log settings.
Help(H)	About SII POS for .NET Utility(A)	Displays the version information of the configuration program.
	Language Mode(L)	Japanese(J) Displays the configuration program in Japanese. English(E) Displays the configuration program in English.

3.2.2 Tool Bar

Item	Description
Save	Performs the same process as Menu Bar - [File(F)] - [Save(S)].
Add	Performs the same process as Menu Bar - [Edit(E)] - [Add(A)].
Modify	Performs the same process as Menu Bar - [Edit(E)] - [Modify(M)].
Delete	Performs the same process as Menu Bar - [Edit(E)] - [Delete(D)].
CheckHealth	Performs the same process as Menu Bar - [Tool(T)] - [CheckHealth].

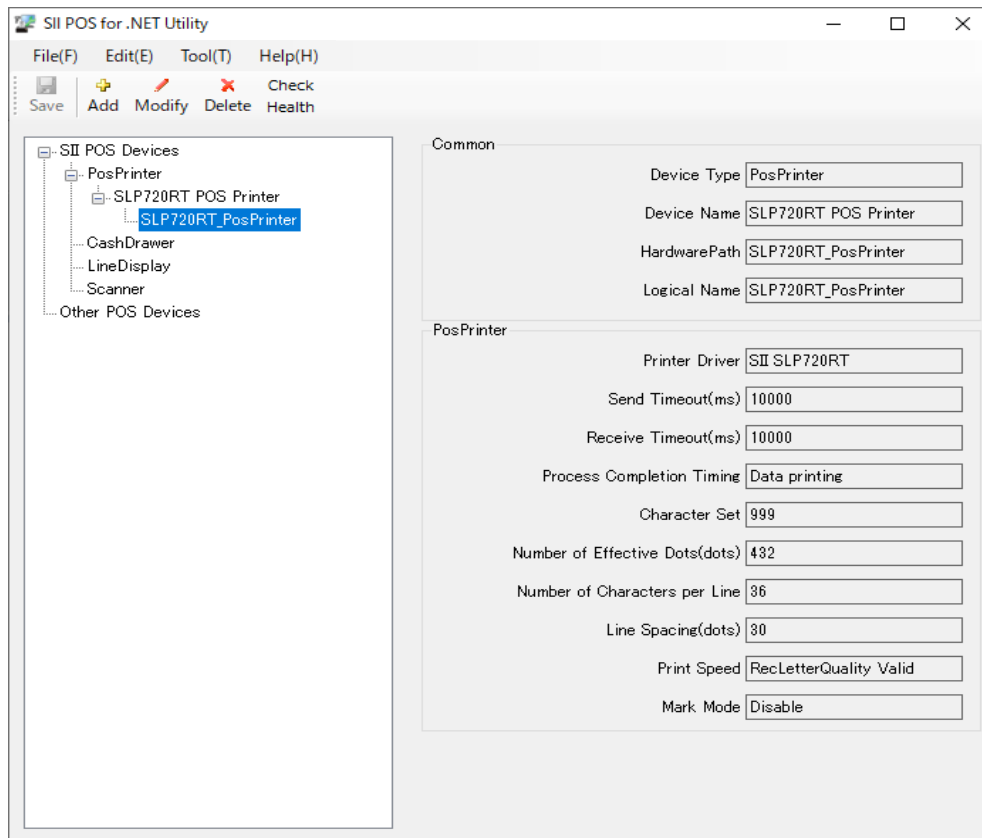
3.2.3 Device View

Name	Description
SII POS Devices	Displays SII devices. When the logical name is selected in "Device View", setting contents of the device can be changed or deleted.
Other POS Devices	Displays devices other than SII devices. Device settings cannot be changed or deleted.

3.2.4 Setting View

(1) PosPrinter setting items

The items displayed in "Setting View" are described below.



Item	Description	Setting Content (" " : Default)
Common		
Device Type	Device type	[PosPrinter]
Device Name	Device name	SLP720RT POS Printer
HardwarePath	Set automatically. It cannot be changed.	-
Logical Name	Any logical name entered	-
PosPrinter		
Printer Driver	Printer driver used for communication with the printer	-
Send Timeout (ms)	Send timeout value in communication with the printer (milliseconds)	3000 to 60000 (10000)
Receive Timeout (ms)	Receive timeout value in communication with the printer (milliseconds)	3000 to 60000 (10000)
Process Completion Timing	Timing of method completion	Data transmission Data printing

Item	Description	Setting Content (" " : Default)
Character Set	Character set type CharacterSet is initialized with this value. See CharacterSet for details.	437 737 850 852 855 857 858 860 863 865 866 932*1 999*2 1250 1251 1252 1253 1254
Number of Effective Dots (dots)	Number of effective dots per line RecLineWidth is initialized with this value.	288 432
Number of Characters per Line	Number of 1-byte characters per line RecLineChars is initialized with this value.	Effective dots / Characters per line 288 dots / 18,20,22,24,28,32,36 432 dots / 27,30,33,36,43,48,54
Line Spacing (dots)	Line spacing per line (dot) Settable range: The settable range differs depending on the selected print font. RecLineSpacing is initialized with this value.	Settable range: 24 to 255 (30) Effective dots / Characters per line 288 dots / 18,20,22,24 432 dots / 27,30,33,36
		Settable range: 16 to 255 Effective dots / Characters per line 288 dots / 28,32,36 432 dots / 43,48,54
Print Speed	Print speed of the printer It is determined by RecLetterQuality when selecting RecLetterQuality Valid.	RecLetterQuality Valid High*3 Middle*3
Mark Mode	Mark detection mode Selects whether to enable or disable mark detection.	Disable: Mark detection is disabled Enable: Mark detection is enabled

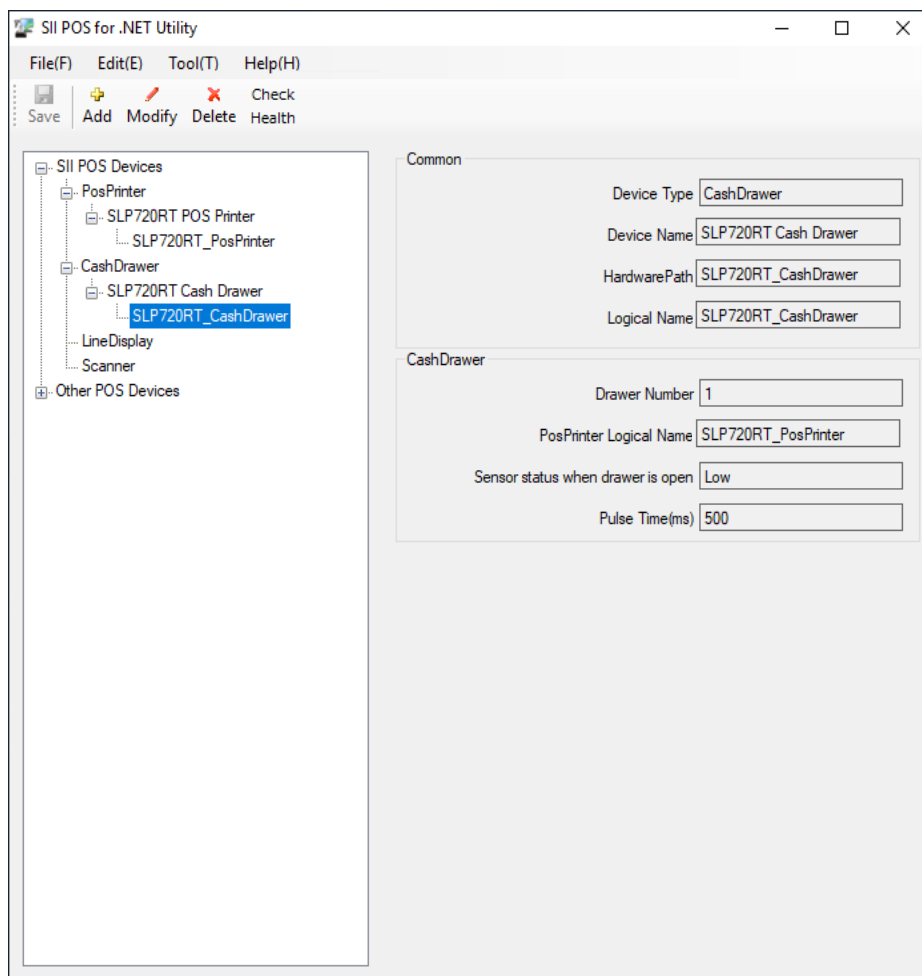
*1: Default for Japanese

*2: Default for English

*3: See "User's Guide" for details of the print speed.

(2) CashDrawer setting items

The items displayed in "Setting View" are described below.



Item	Description	Setting Content (" " : Default)
Common		
Device Type	Device type	[CashDrawer]
Device Name	Device name	SLP720RT Cash Drawer
HardwarePath	Set automatically. It cannot be changed.	-
Logical Name	Any logical name entered	-
CashDrawer		
Drawer Number	Drawer number connected to the printer	1 2
PosPrinter Logical Name	Logical name of the printer to which the drawer is connected	-
Sensor status when drawer is open	-	Low High
Pulse Time (ms)	Pulse time of the drawer signal (milliseconds) Specifies ON/OFF time of the pulse. The same time is specified for the ON time and the OFF time.	100 to 800 (500)

3.3 Functions

The functions of the configuration program are described.

3.3.1 Addition of Device

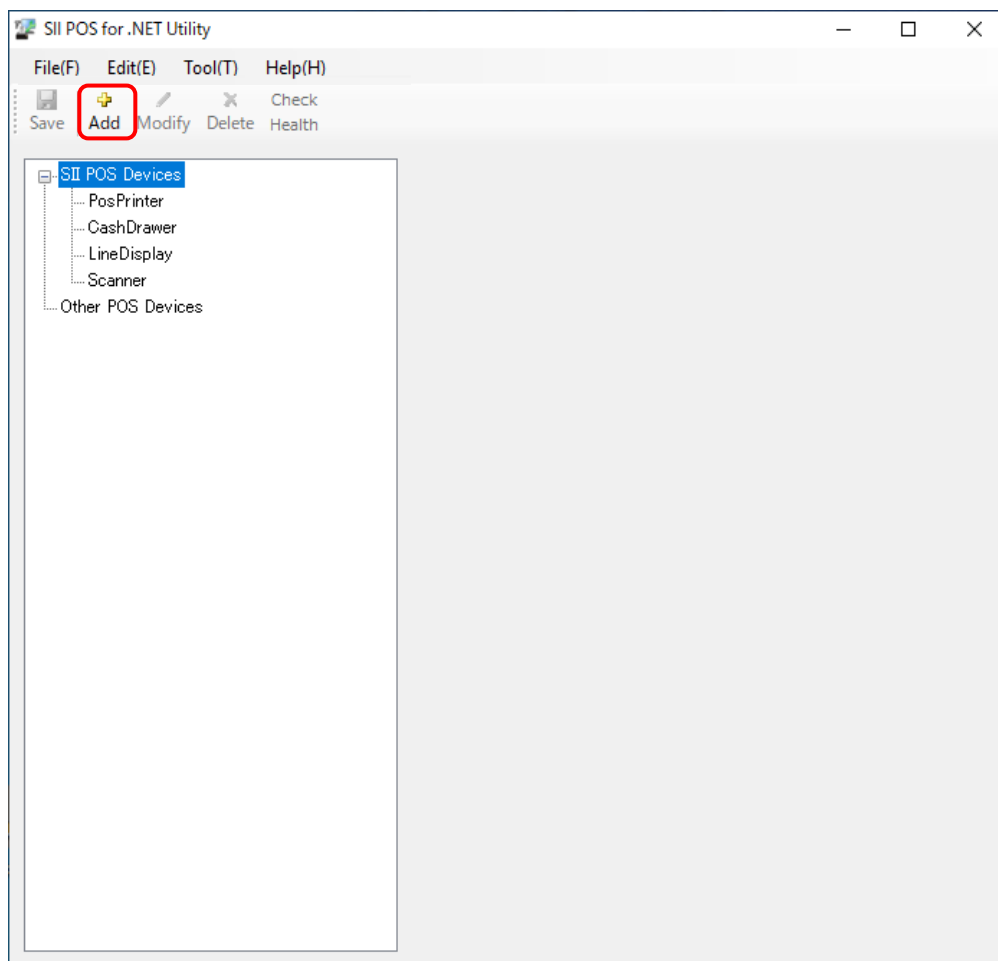
The procedure for adding a device is described.

When the configuration program is started up immediately after installing the software, a device needs to be added since no device has been added.

When adding a new PosPrinter, it is necessary to install the printer driver for the communication port to be used in advance. See "SII Printer Driver for Windows User's Guide" for SLP720RT/SLP721RT series for installation of the printer driver.

(1) Addition of PosPrinter

(a) When the configuration program starts, the following window is displayed. Click the [Add] button.



- (b) Select "PosPrinter" for [Device Type] and "SLP720RT POS Printer" for [Device Name], then click the [Next] button.

The screenshot shows a dialog box titled "Add PosDevice" with a close button (X) in the top right corner. The main area is labeled "Select Device". It contains two dropdown menus: "Device Type" with "PosPrinter" selected, and "Device Name" with "SLP720RT POS Printer" selected. At the bottom right, there are two buttons: "Next" and "Cancel". The "Next" button is highlighted with a red rectangular border.

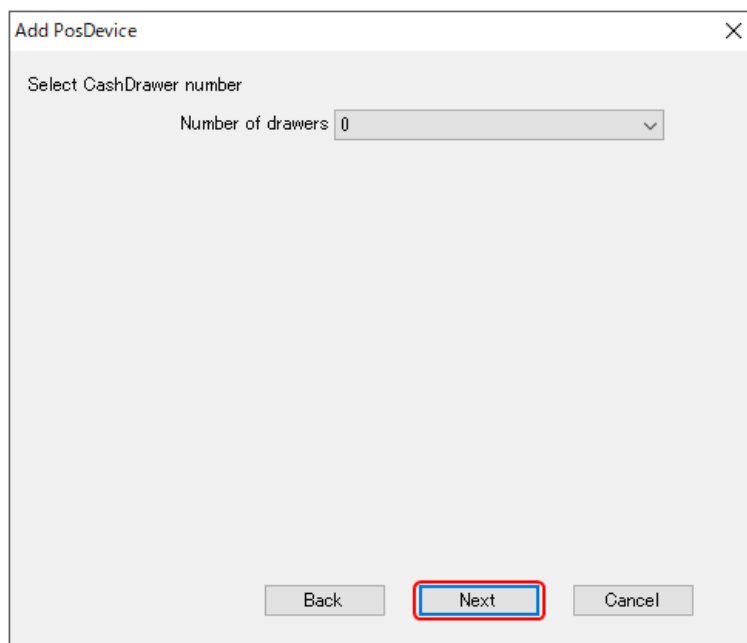
- (c) Enter or select settings of the printer, and then click the [Next] button.

The screenshot shows the same "Add PosDevice" dialog box, but now it is titled "Set PosPrinter properties". It contains several input fields and dropdown menus for configuring the printer. The fields are: "Logical Name" (text box with "SLP720RT_PosPrinter"), "Printer Driver" (dropdown with "SII SLP720RT"), "Send Timeout(ms)" (text box with "10000"), "Receive Timeout(ms)" (text box with "10000"), "Process Completion Timing" (dropdown with "Data printing"), "Character Set" (dropdown with "999"), "Number of Effective Dots(dots)" (dropdown with "432"), "Number of Characters per Line" (dropdown with "36"), "Line Spacing(dots)" (text box with "30"), "Print Speed" (dropdown with "RecLetterQuality Valid"), and "Mark Mode" (dropdown with "Disable"). At the bottom, there are three buttons: "Back", "Next", and "Cancel". The "Next" button is highlighted with a red rectangular border.

Caution

- ◆ The same logical name cannot be set for multiple service objects.

- (d) Select the number of CashDrawers to connect to PosPrinter from [Number of drawers].
- When adding PosPrinter only:
Select "0" for [Number of drawers], and click the [Next] button.
 - When adding the drawer in addition to the printer:
Select the number of drawers to add for [Number of drawers], and click the [Next] button.
See the description (d) in "3.3.1(2) Addition of CashDrawer" for the subsequent setting.



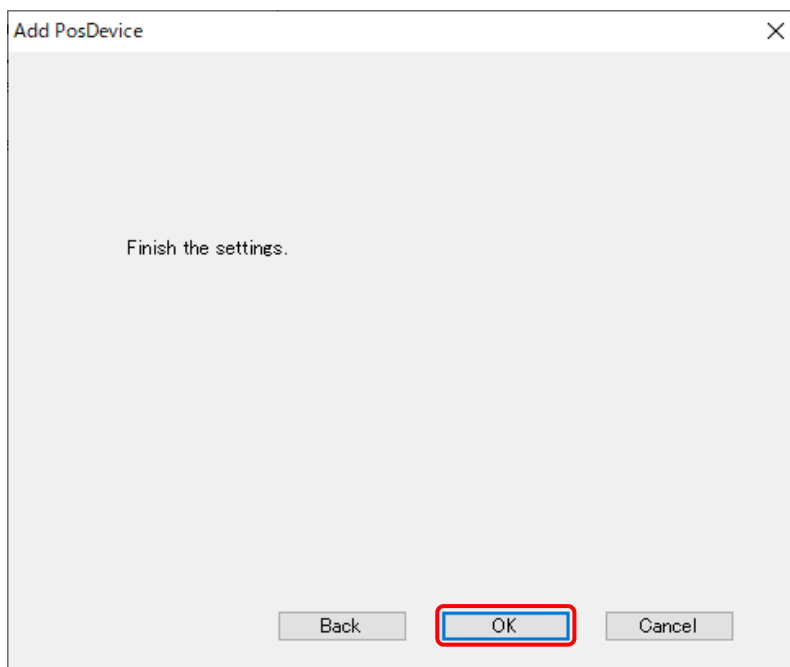
Add PosDevice

Select CashDrawer number

Number of drawers 0

Back Next Cancel

- (e) Click the [OK] button.

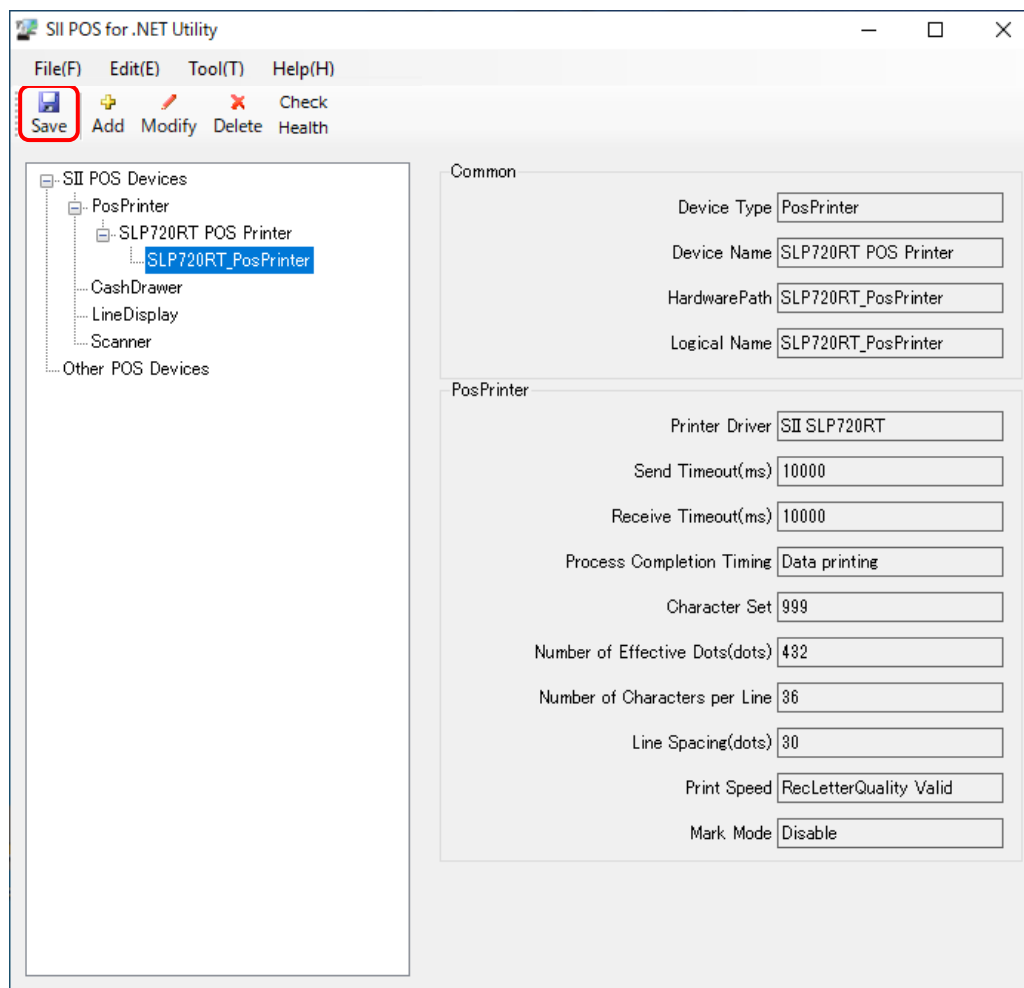


Add PosDevice

Finish the settings.

Back OK Cancel

- (f) Confirm the contents in "Setting View", and click the [Save] button.

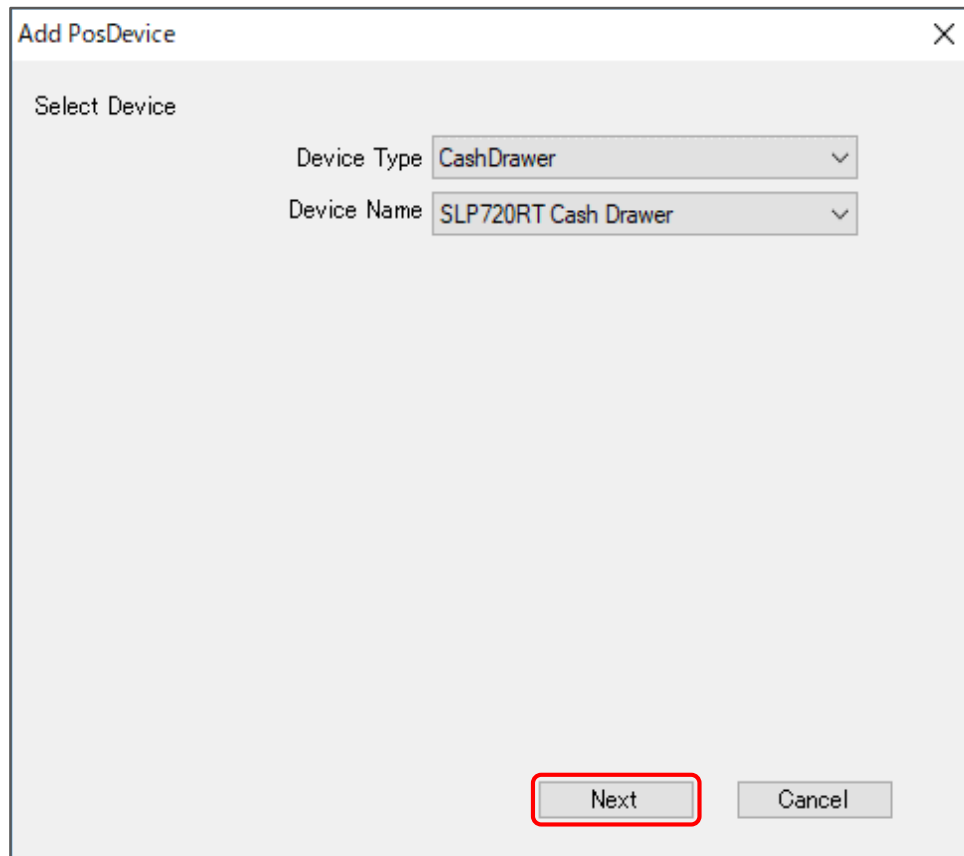


(2) Addition of CashDrawer

- (a) Start the configuration program, and click the [Add] button in "Tool Bar".



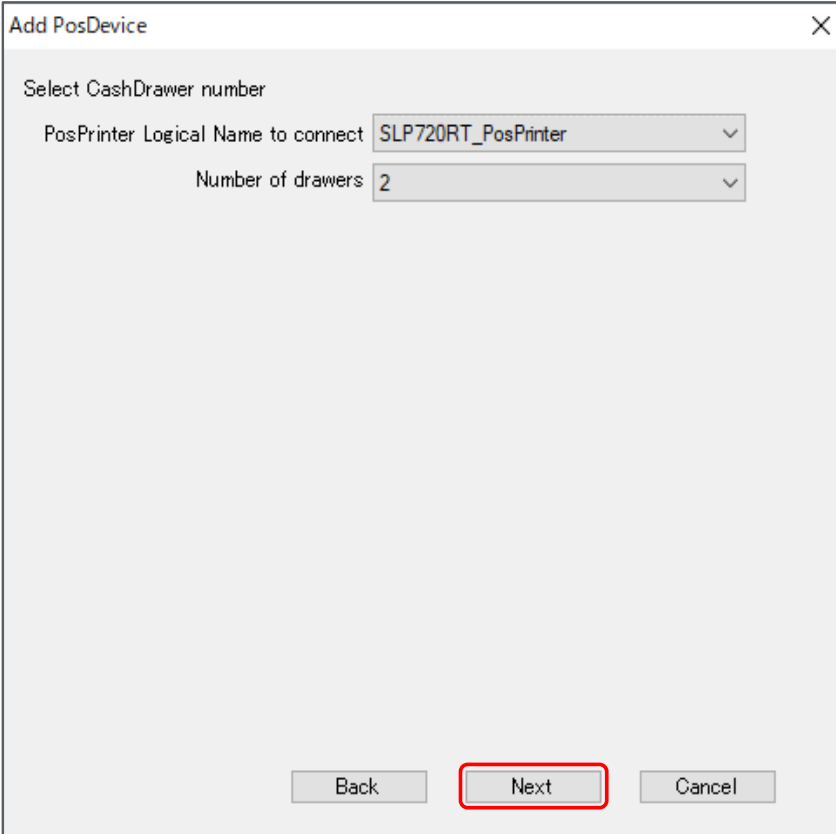
- (b) Select "CashDrawer" for [Device Type] and "SLP720RT Cash Drawer" for [Device Name], and click the [Next] button.



The dialog box is titled "Add PosDevice" and contains the following elements:

- Select Device**: A label for the selection area.
- Device Type**: A dropdown menu with "CashDrawer" selected.
- Device Name**: A dropdown menu with "SLP720RT Cash Drawer" selected.
- Next**: A button at the bottom right, highlighted with a red rectangle.
- Cancel**: A button next to the "Next" button.

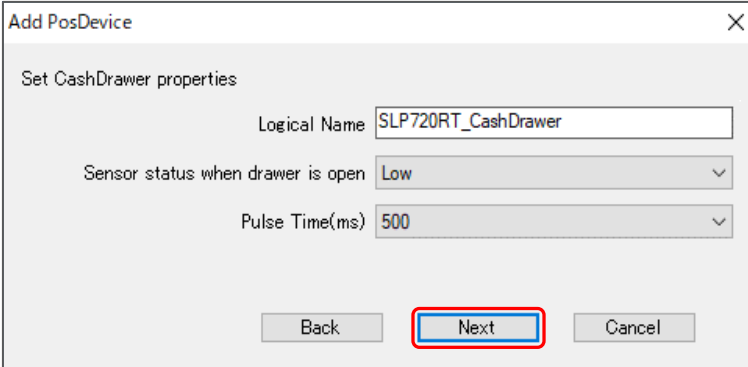
- (c) Select the logical name of the printer to which the drawer is connected from [PosPrinter Logical Name to connect].



Reference

- Up to 2 CashDrawers can be set for 1 printer logical name.

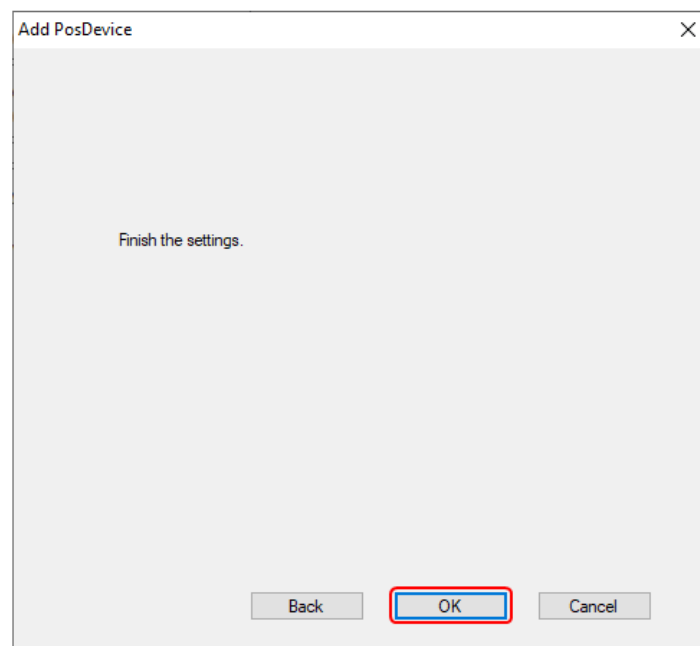
- (d) Enter or select the settings of the first drawer, and click the [Next >] button.
When selecting "2" in [The number of drawers] of the description (c), enter or select the settings of the second drawer, and click the [Next (N) >] button.



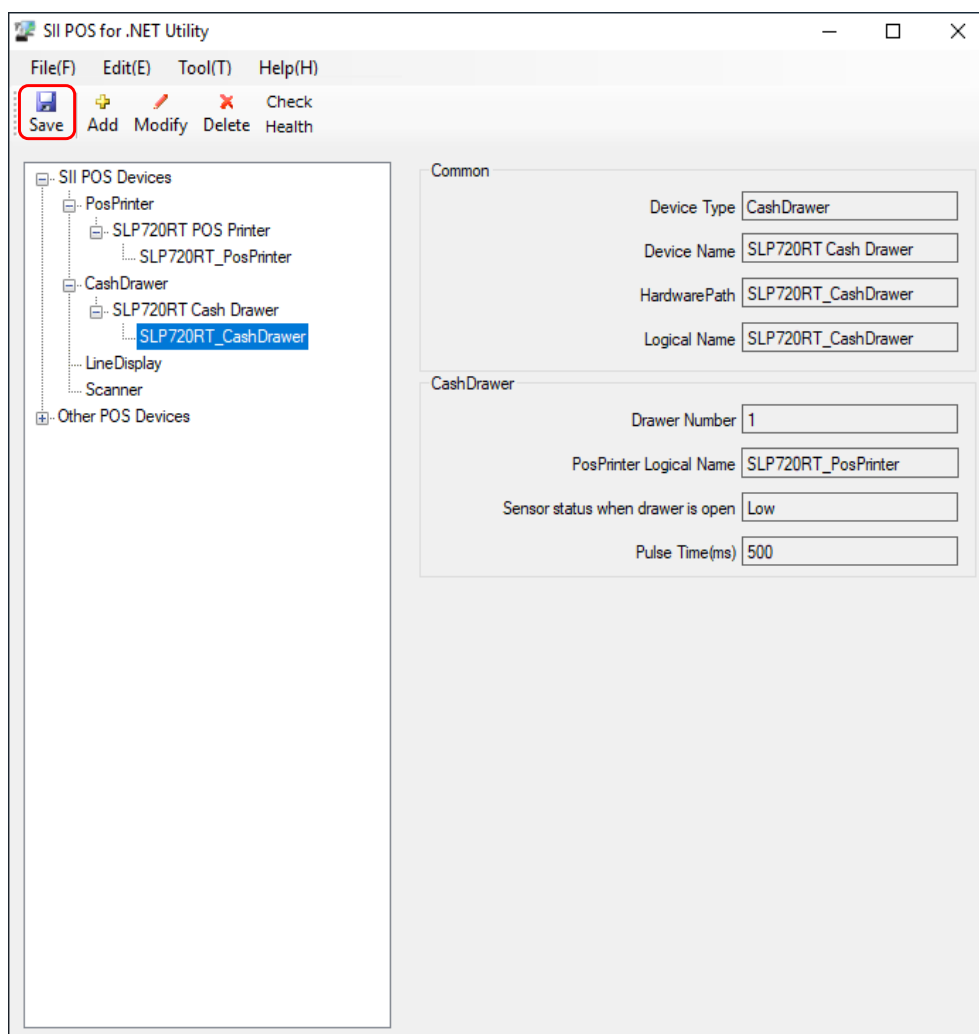
Caution

- ◆ The same logical name cannot be set for multiple service objects.

(e) Click the [OK] button.



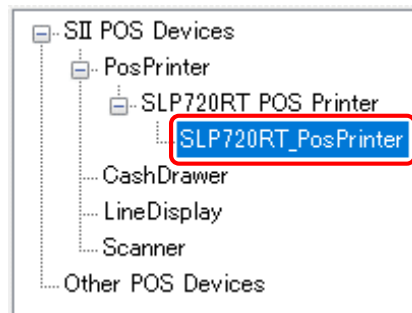
(f) Confirm the contents in "Setting View", and click the [Save] button.



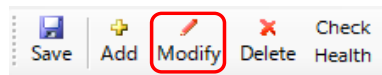
3.3.2 Changing Device Settings

The settings of the added device can be changed with the [Modify] button.

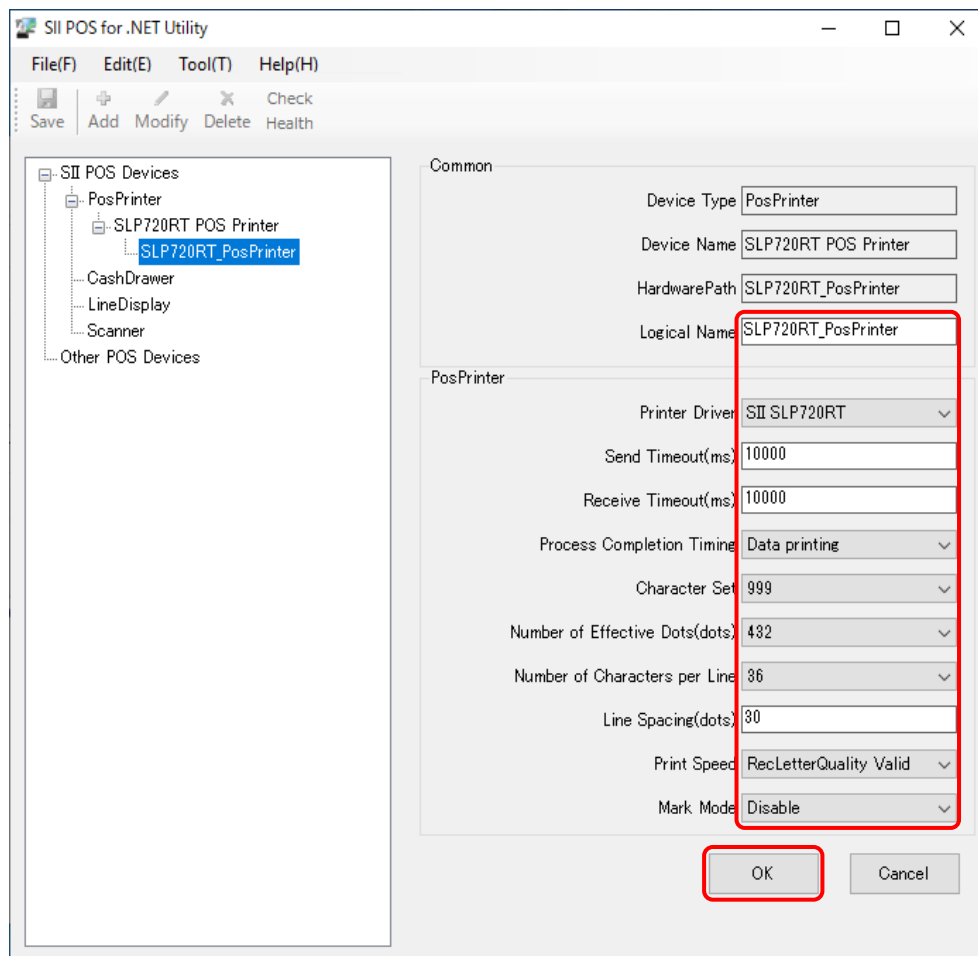
- (a) Select the logical name of the device to change from "Device View".



- (b) Click the [Modify] button in "Tool Bar".



- (c) "Setting View" is displayed in editable state. Click the [OK] button after changing the contents.



- (d) Click the [Save] button in "Tool Bar".

3.3.3 Deletion of Device

The added device can be deleted by clicking the [Delete] button.
Select the target logical name, and click the [Delete] button.

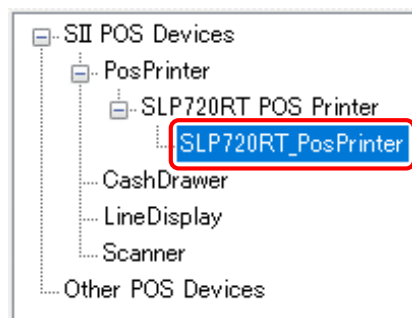
Caution

- ◆ When a PosPrinter device is selected, the selected PosPrinter device and the device connected to PosPrinter are deleted.
When a CashDrawer device is selected, only the selected CashDrawer device is deleted.

3.3.4 Device Interactive Test

In the configuration program, an interactive test can be performed on the device selected in "Device View".
The procedure of the interactive test is described below.

- (a) Select the logical name of the device for interactive test from "Device View".



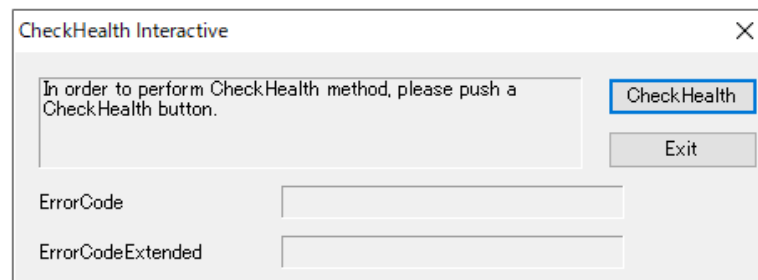
- (b) Click the [CheckHealth] button in "Tool Bar".



- (c) The preparation for the interactive test is started.

[When the preparation for the interactive test succeeded]

(d) The dialogue to perform the interactive test is displayed.

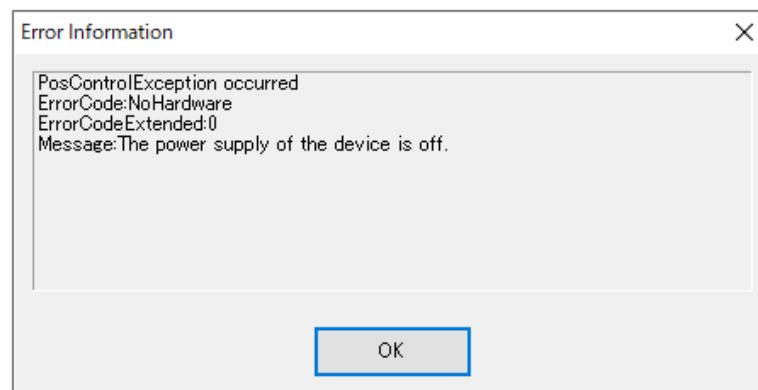


To start the interactive test, click the [CheckHealth] button.

To exit the interactive test, click the [Exit] button.

[When the preparation for the interactive test failed]

(d) The Error Information dialogue is displayed.



Confirm ErrorCode displayed in the dialogue. See "Appendix A Exceptions" for ErrorCode.
Click the [OK] button after confirming ErrorCode.

3.3.5 Log Setting

In the configuration program, common log settings can be made for all devices.

Select [Tool] – [LogSetting] from "Menu Bar" to display the following window.

The image shows a 'Log Setting' dialog box with a title bar and a close button. It contains three settings: 'Log Level' set to 'None', 'Log File Retention Period' set to '1 day', and 'Output Directory (Unchangeable)' set to 'C:\ProgramData\SII\Logs\PosForNet'. There are 'OK' and 'Cancel' buttons at the bottom right.

The level of the log and the contents to be output are as follows.

Item	Description (" " : Default)	
Log Level	None	No logs are output.
	Error	The following logs are output. • Error at execution
	Info	The following logs are output. • Error at execution • Highlighted event at execution
	Debug	The following logs are output. • Error at execution • Highlighted event at execution • More detailed information for debugging
Log File Retention Period	<p>Select the retention period for log files.</p> <ul style="list-style-type: none"> • 1 day • 3 days • 10 days • 30 days • 90 days <p>Log files past the retention period are deleted when logs are output. The actual retention period may be longer by 1 day at maximum.</p> <p>The maximum size of a log file is 32 MB. When the log file exceeds the maximum size, a new log file is created and stored up to the retention period.</p>	
Output Directory (Unchangeable)	<p>Log output directory.</p> <p>The log output directory and file name are as follows.</p> <p>Output Directory: <System Drive>\ProgramData\SII\Logs\PosForNet</p> <p>The output directory cannot be changed.</p> <p>File Name: <yyyyMMdd>.log</p> <p>However, when the log file exceeds the maximum size, the file name is changed to <yyyyMMdd_hhmmssfff>.log, and a new <yyyyMMdd>.log is created.*1</p>	

*1: Meanings of the symbols used for the file name are as follows. Each value comes from System Clock of Windows.

yyyy : Year
MM : Month
dd : Day
hh : Hour
mm : Minute
ss : Second
fff : Millisecond

(1) Log setting procedure

The log setting procedure is described below.

- (a) Select [Tool] – [LogSetting] from "Menu Bar".
- (b) Select the log level to output from [Log Level].
- (c) Select the log file retention period from [Log File Retention Period], and click the [OK] button.
- (d) Click the [Save] button in the main screen. The log settings will be applied from the next **Open**.

Chapter 4 Properties, Methods, and Events

This chapter describes properties, methods, and events implemented in the software.

4.1 PosPrinter

4.1.1 Summary

(1) Common Properties

Property Name	Type	Access	Availability Condition	Default
CapCompareFirmwareVersion	bool	R	Open	<i>false</i>
CapPowerReporting	PowerReporting	R	Open	<i>Standard</i>
CapStatisticsReporting	bool	R	Open	<i>true</i>
CapUpdateFirmware	bool	R	Open	<i>false</i>
CapUpdateStatistics	bool	R	Open	<i>true</i>
CheckHealthText	string	R	Open	<i>""</i>
Claimed	bool	R	Open	<i>false</i>
DeviceDescription	string	R	Open	"SII SLP720RT/SLP721RT POS Printer"
DeviceEnabled	bool	R/W	Open & Claim	<i>false</i>
DeviceName	string	R	Open	"SLP720RT/SLP721RT POS Printer"
FreezeEvents	bool	R/W	Open & Claim	<i>false</i>
OutputId	int	R	Open	0
PowerNotify	PowerNotification	R/W	Open	<i>Disabled</i>
PowerState	PowerState	R	Open	<i>Unknown</i>
ServiceObjectDescription	string	R	Open	"SII SLP720RT/SLP721RT POS Printer Service Object, Copyright(C) 20xx Seiko Instruments Inc."
ServiceObjectVersion	Version	R	Open	1.12.x.x
State	ControlState	R	-	<i>Idle</i>
SynchronizingObject	System.ComponentModel. ISynchronizeInvoke	R/W	Open	Depends on the application.

(2) Specific Properties

(When RecLineWidth=432, RecLineChars=36, RecLineSpacing=30, CharacterSet=999)

Property Name	Type	Access	Availability Condition	Default
AsyncMode	bool	R/W	Open	false
CapCharacterSet	CharacterSetCapability	R	Open	Kanji
CapCoverSensor	bool	R	Open	true
CapMapCharacterSet	bool	R	Open	false
CapRec2Color	bool	R	Open	false
CapRecBarCode	bool	R	Open	true
CapRecBitmap	bool	R	Open	true
CapRecBold	bool	R	Open	true
CapRecCartridgeSensor	PrinterCartridgeSensors	R	Open	None
CapRecColor	PrinterColors	R	Open	Primary
CapRecDHigh	bool	R	Open	true
CapRecDWide	bool	R	Open	true
CapRecDWideDHigh	bool	R	Open	true
CapRecEmptySensor	bool	R	Open	true
CapRecItalic	bool	R	Open	false
CapRecLeft90	bool	R	Open	false
CapRecMarkFeed	PrinterMarkFeeds	R	Open	None ^{*1}
CapRecNearEndSensor	bool	R	Open	false
CapRecPageMode	bool	R	Open	false
CapRecPaperCut	bool	R	Open	true
CapRecPresent	bool	R	Open	true
CapRecRight90	bool	R	Open	false
CapRecRotate180	bool	R	Open	true
CapRecStamp	bool	R	Open	false
CapRecUnderline	bool	R	Open	true
CapTransaction	bool	R	Open	true
CartridgeNotify	PrinterCartridgeNotify	R/W ^{*2}	Open	Disabled
CharacterSet	int	R/W	Open, Claim, & Enable	999 ^{*1}
CharacterSetList	int[]	R	Open	{437, 737, 850, 852, 855, 857, 858, 860, 863, 865, 866, 932, 999, 1250, 1251, 1252, 1253, 1254}
CoverOpen	bool	R	Open, Claim, & Enable	Depends on printer status.
ErrorLevel	PrinterErrorLevel	R	Open	None
ErrorStation	PrinterStation	R	Open	None
ErrorString	string	R	Open	""
FlagWhenIdle	bool	R/W	Open	false

Property Name	Type	Access	Availability Condition	Default
FontTypefaceList	string[]	R	Open	[0]
MapCharacterSet	bool	R/W ^{*2}	Open	<i>false</i>
MapMode	MapMode	R/W	Open	<i>Dots</i>
PageModeArea	System.Drawing.Point	R	Open	{0, 0}
PageModeDescriptor	PageModeDescriptors	R	Open	<i>None</i>
PageModeHorizontalPosition	int	R/W	Open	0
PageModePrintArea	System.Drawing.Rectangle	R/W	Open	{0, 0, 0, 0}
PageModePrintDirection	PageModePrintDirection	R/W	Open	<i>None</i>
PageModeStation	PrinterStation	R/W	Open	<i>None</i>
PageModeVerticalPosition	int	R/W	Open	0
RecBarCodeRotationList	Rotation[]	R	Open	{ <i>Normal, Rotate180</i> }
RecBitmapRotationList	Rotation[]	R	Open	{ <i>Normal, Rotate180</i> }
RecCartridgeState	PrinterCartridgeStates	R	Open, Claim, & Enable	<i>Unknown</i>
RecCurrentCartridge	PrinterColors	R/W ^{*2}	Open, Claim, & Enable	<i>Primary</i>
RecEmpty	bool	R	Open, Claim, & Enable	Depends on printer status.
RecLetterQuality	bool	R/W ^{*2}	Open, Claim, & Enable	<i>false</i>
RecLineChars	int	R/W	Open, Claim, & Enable	36 ^{*2}
RecLineCharsList	int[]	R	Open	{27, 30, 33, 36, 43, 48, 54} ^{*3}
RecLineHeight	int	R/W	Open, Claim, & Enable	24 ^{*3}
RecLineSpacing	int	R/W	Open, Claim, & Enable	30 ^{*1}
RecLinesToPaperCut	int	R	Open, Claim, & Enable	3 ^{*3}
RecLineWidth	int	R	Open, Claim, & Enable	432
RecNearEnd	bool	R	Open, Claim, & Enable	<i>false</i>
RecSidewaysMaxChars	int	R	Open, Claim, & Enable	0
RecSidewaysMaxLines	int	R	Open, Claim, & Enable	0
RotateSpecial	Rotation	R/W	Open	<i>Normal</i>

*1: Can be modified in the configuration program.

*2: Cannot be rewritten.

*3: Automatically modified in the configuration program.

The following specific properties are provided but the operation is not supported.

Property Name	Type	Access	Availability Condition	Default
CapConcurrentJrnRec	bool	R	Open	false
CapConcurrentJrnSlp	bool	R	Open	false
CapConcurrentPageMode	bool	R	Open	false
CapConcurrentRecSlp	bool	R	Open	false
CapJrn2Color	bool	R	Open	false
CapJrnBold	bool	R	Open	false
CapJrnCartridgeSensor	PrinterCartridgeSensors	R	Open	None
CapJrnColor	PrinterColors	R	Open	None
CapJrnDHigh	bool	R	Open	false
CapJrnDWide	bool	R	Open	false
CapJrnDWideDHigh	bool	R	Open	false
CapJrnEmptySensor	bool	R	Open	false
CapJrnItalic	bool	R	Open	false
CapJrnNearEndSensor	bool	R	Open	false
CapJrnPresent	bool	R	Open	false
CapJrnUnderline	bool	R	Open	false
CapSlp2Color	bool	R	Open	false
CapSlpBarCode	bool	R	Open	false
CapSlpBitmap	bool	R	Open	false
CapSlpBold	bool	R	Open	false
CapSlpBothSidesPrint	bool	R	Open	false
CapSlpCartridgeSensor	PrinterCartridgeSensors	R	Open	None
CapSlpColor	PrinterColors	R	Open	None
CapSlpDHigh	bool	R	Open	false
CapSlpDWide	bool	R	Open	false
CapSlpDWideDHigh	bool	R	Open	false
CapSlpEmptySensor	bool	R	Open	false
CapSlpFullSlip	bool	R	Open	false
CapSlpItalic	bool	R	Open	false
CapSlpLeft90	bool	R	Open	false
CapSlpNearEndSensor	bool	R	Open	false
CapSlpPageMode	bool	R	Open	false
CapSlpPresent	bool	R	Open	false
CapSlpRight90	bool	R	Open	false
CapSlpRotate180	bool	R	Open	false
CapSlpUnderline	bool	R	Open	false
JrnCartridgeState	PrinterCartridgeStates	R	Open, Claim, & Enable	Unknown
JrnCurrentCartridge	PrinterColors	R/W	Open, Claim, & Enable	None

Property Name	Type	Access	Availability Condition	Default
JrnEmpty	bool	R	Open, Claim, & Enable	<i>false</i>
JrnLetterQuality	bool	R/W	Open, Claim, & Enable	<i>false</i>
JrnLineChars	int	R/W	Open, Claim, & Enable	0
JrnLineCharsList	int[]	R	Open	[0]
JrnLineHeight	int	R/W	Open, Claim, & Enable	0
JrnLineSpacing	int	R/W	Open, Claim, & Enable	0
JrnLineWidth	int	R	Open, Claim, & Enable	0
JrnNearEnd	bool	R	Open, Claim, & Enable	<i>false</i>
SlpBarCodeRotationList	Rotation[]	R	Open	[0]
SlpBitmapRotationList	Rotation[]	R	Open	[0]
SlpCartridgeState	PrinterCartridgeStates	R	Open, Claim, & Enable	<i>Unknown</i>
SlpCurrentCartridge	PrinterColors	R/W	Open, Claim, & Enable	<i>None</i>
SlpEmpty	bool	R	Open, Claim, & Enable	<i>false</i>
SlpLetterQuality	bool	R/W	Open, Claim, & Enable	<i>false</i>
SlpLineChars	int	R/W	Open, Claim, & Enable	0
SlpLineCharsList	int[]	R	Open	[0]
SlpLineHeight	int	R/W	Open, Claim, & Enable	0
SlpLinesNearEndToEnd	int	R	Open, Claim, & Enable	0
SlpLineSpacing	int	R/W	Open, Claim, & Enable	0
SlpLineWidth	int	R	Open, Claim, & Enable	0
SlpMaxLines	int	R	Open, Claim, & Enable	0
SlpNearEnd	bool	R	Open, Claim, & Enable	<i>false</i>
SlpPrintSide	PrinterSide	R	Open, Claim, & Enable	<i>Unknown</i>
SlpSidewaysMaxChars	int	R	Open, Claim, & Enable	0
SlpSidewaysMaxLines	int	R	Open, Claim, & Enable	0

(3) Common Methods

Method Name	Availability Condition
CheckHealth	Open, Claim, & Enable
Claim	Open
ClearOutput	Open & Claim
Close	Open
CompareFirmwareVersion	Open, Claim, & Enable
DirectIO	Open, Claim, & Enable
Open	-
Release	Open & Claim
ResetStatistic(string)	Open, Claim, & Enable
ResetStatistics()	Open, Claim, & Enable
ResetStatistics(StatisticCategories)	Open, Claim, & Enable
ResetStatistics(string[])	Open, Claim, & Enable
RetrieveStatistic(string)	Open, Claim, & Enable
RetrieveStatistics()	Open, Claim, & Enable
RetrieveStatistics(StatisticCategories)	Open, Claim, & Enable
RetrieveStatistics(string[])	Open, Claim, & Enable
UpdateFirmware	Open, Claim, & Enable
UpdateStatistic	Open, Claim, & Enable
UpdateStatistics(Statistic[])	Open, Claim, & Enable
UpdateStatistics(StatisticCategories, Object)	Open, Claim, & Enable

(4) Specific Methods

Method Name	Availability Condition
BeginInsertion	Open, Claim, & Enable
BeginRemoval	Open, Claim, & Enable
ChangePrintSide	Open, Claim, & Enable
ClearPrintArea	Open, Claim, & Enable
CutPaper	Open, Claim, & Enable
EndInsertion	Open, Claim, & Enable
EndRemoval	Open, Claim, & Enable
MarkFeed	Open, Claim, & Enable
PageModePrint	Open, Claim, & Enable
PrintBarCode	Open, Claim, & Enable
PrintBitmap	Open, Claim, & Enable
PrintImmediate	Open, Claim, & Enable
PrintMemoryBitmap	Open, Claim, & Enable
PrintNormal	Open, Claim, & Enable
PrintTwoNormal	Open, Claim, & Enable
RotatePrint	Open, Claim, & Enable
SetBitmap	Open, Claim, & Enable
SetLogo	Open, Claim, & Enable
TransactionPrint	Open, Claim, & Enable
ValidateData	Open, Claim, & Enable

(5) Events

Event Name	Availability Condition
DirectIOEvent	Open, Claim, & Enable ^{*1}
ErrorEvent	Open, Claim, & Enable
OutputCompleteEvent	Open, Claim, & Enable
StatusUpdateEvent	Open, Claim, & Enable

*1: The availability condition differs from that of UPOS V 1.12.

4.1.2 Data Characters and Escape Sequences

(1) Escape Sequence operated when specified

Name	Data	Remarks
Paper cut	ESC [#]P	<ul style="list-style-type: none"> Cuts paper. The placeholder '#' is replaced by an ASCII decimal string indicating the cut percentage. If a value greater than 100 is specified for '#', then a full cut is executed. If a value from 1 to 99 is specified, a partial cut is executed. If 0 is specified for '#', no cut is executed. If '#' is omitted, a full cut is executed.
Feed and Paper cut	ESC [#]fP	<ul style="list-style-type: none"> Cuts paper after feeding the paper RecLinesToPaperCut lines. The placeholder '#' is defined by "Paper cut" escape sequence (ESC [#]P).
Feed, Paper cut, and Stamp	ESC [#]sP	Not supported.
Print bitmap	ESC #B	<ul style="list-style-type: none"> Prints the pre-stored bitmap. The placeholder '#' is replaced by the bitmap number. A value from 1 to 20 can be specified for '#'. If values other than 1 to 20 are specified for '#', they are ignored. If the character '#' is omitted, the data is regarded as print data instead of an escape sequence.
Print top logo	ESC tL	<ul style="list-style-type: none"> Prints the pre-stored top logo.
Print bottom logo	ESC bL	<ul style="list-style-type: none"> Prints the pre-stored bottom logo.
Fire stamp	ESC sL	Not supported.
Feed lines ^{*1}	ESC [#]lF	<ul style="list-style-type: none"> Feeds the paper forward by lines. The placeholder '#' is replaced by an ASCII decimal string indicating the number of lines to be fed. A value from 0 to 255 can be specified for '#'. If '#' exceeds this range, the maximum supported number of 255 lines are fed. If '#' is omitted, then one line is fed.
Feed units ^{*1}	ESC [#]uF	<ul style="list-style-type: none"> Feeds the paper forward by units in MapMode. If MapMode is set to <i>MapMode.Dots</i>, a value from 1 to 255 can be specified for '#'. The placeholder '#' is replaced by an ASCII decimal string indicating the number of units to be fed. If '#' is omitted, then one unit is fed. If '#' exceeds this range, the maximum supported number of 255 units is fed.
Feed reverse	ESC [#]rF	Not supported.

Name	Data	Remarks
Pass through embedded data	ESC #E	<ul style="list-style-type: none"> Sends the characters following "#E" through to the printer without modifying any of them. The placeholder '#' is replaced by an ASCII decimal string indicating the number of bytes following the escape sequence that should be passed through as-is to the printer. A value from 1 to 65535 can be specified for '#'. If '#' exceeds this range, transmission of embedded data is not executed. If the print data of the number of bytes specified by '#' is not set after the escape sequence is specified, only the transmittable print data is sent. (Example: If ESC 2Ea is specified, only "a" is sent since only one byte is set for the character string.) If '#' is omitted, the data is regarded as print data instead of an escape sequence.
Print in-line barcode	ESC #R	<ul style="list-style-type: none"> Prints a barcode. The placeholder '#' is replaced by an ASCII decimal string indicating the number of characters of the string following R (definition of the barcode characteristics). If '#' is omitted, the data is regarded as print data instead of an escape sequence. If the number of characters specified by '#' does not match the number of bytes following R, all the data within the range specified by '#' is discarded.

*1: The line spacing is reduced according to the setting value of the printer function setting "Paper Saving Setting (Paper Saving)". Therefore, the following printing processes are changed.

- The amount of feed specified by the "Feed lines" escape sequence (ESC|[#]lF) is smaller than the setting value of **RecLineSpacing**.
 - The amount of feed specified by the "Feed units" escape sequence (ESC|[#]uF) is processed on the basis of the setting value of the printer function setting "Paper Saving Setting (Paper Saving)" (When Mode1 is selected, paper is not fed at all).
- However, the line spacing from last print line to paper cut position is not reduced because paper is cut after executing the paper feed for saved dot lines.

The cut operations in which the paper feed for saved dot lines is executed are "Paper cut" escape sequence (ESC|[#]P), "Feed and Paper cut" escape sequence (ESC|[#]fP), and **CutPaper**.

• In-Line Barcode Printing

The application can print barcodes along with other print data by using the "Print in-line barcode" escape sequence (ESC|#R). The placeholder '#' is replaced by the number of characters of the string (definition of the barcode characteristics) following R.

The string following R specifies the barcode characteristics using lowercase alphabet letters and numbers. The available numbers are the constant values defined for **PrintBarCode**.

The characters indicating the attributes are as follows:

- s: symbology (barcode type)
- h: height (barcode height)
- w: width (barcode width)
- a: alignment (position of barcode)
- t: text position (position of HRI string)
- d: start of data (start position of barcode data)
- e: end of data (end position of barcode data)

Attributes must be written in the above order.

Every attribute is mandatory. If one of these two conditions is not obeyed or a value outside of the range is specified for the number following each attribute, it may cause unpredictable print results.

Below is an example of printing UPC-A under the condition of center, HRI string printed below the barcode, 200 dots height, and 400 dots width.

ESC|33Rs101h200w400a-2t-13d123456789012e

For the barcode quiet zone, see the description of **PrintBarCode**.

(2) Escape Sequence valid until changed

Name	Data	Remarks
Font typeface	ESC #T	Not supported.

(3) Escape Sequence reset by end of print method or "Normal" escape sequence

Name	Data	Remarks
Bold	ESC ! bC	<ul style="list-style-type: none"> Prints in bold. If '!' is specified, bold is disabled.
Underline	ESC ! # uC	<ul style="list-style-type: none"> Prints with underline. The placeholder '#' is replaced by an ASCII decimal string indicating the thickness of the underline in printer dot units. The available thickness is from 0 to 2. If '#' is 3 or larger, then a thickness of 2 is used for the underline. If '#' is omitted, then a thickness of 1 is used. If '!' is specified, underline is disabled.
Italic	ESC ! iC	Not supported.
Alternate color (Custom)	ESC ! # rC	Not supported.
Red color	ESC rC	Not supported.
Reverse video	ESC ! rvC	<ul style="list-style-type: none"> Prints in a reverse video format. If '!' is specified, reverse video is disabled.
Shading	ESC ! # sC	Not supported.
Single high and wide	ESC 1C	<ul style="list-style-type: none"> Prints normal size.
Double wide	ESC 2C	<ul style="list-style-type: none"> Prints double-wide characters.
Double high	ESC 3C	<ul style="list-style-type: none"> Prints double-high characters.
Double high and wide	ESC 4C	<ul style="list-style-type: none"> Prints double-high / double-wide characters.
Scale horizontally	ESC # hC	<ul style="list-style-type: none"> A supported value for the placeholder '#' is 1 to 8. If a value less than 1 is specified for '#', print in 1 scale. If a value greater than 8 is specified for '#', print in 8 scale. If '#' is omitted, the data is regarded as print data instead of an escape sequence.
Scale vertically	ESC # vC	<ul style="list-style-type: none"> A supported value for the placeholder '#' is 1 to 8. If a value less than 1 is specified for '#', print in 1 scale. If a value greater than 8 is specified for '#', print in 8 scale. If '#' is omitted, the data is regarded as print data instead of an escape sequence.
RGB Color	ESC ! # fC	Not supported.

Name	Data	Remarks
Center	ESC cA	<ul style="list-style-type: none"> Aligns the text after ESC cA in the center. This must be specified at the head of the line. If not, this is invalid. Also, if there is a linefeed on the print data, the center is valid after linefeed.
Right justify	ESC rA	<ul style="list-style-type: none"> Aligns the text after ESC rA to the right. This must be specified at the head of the line. If not, this is invalid. Also, if there is a linefeed on the print data, the right justify is valid after linefeed.
Left justify	ESC lA	<ul style="list-style-type: none"> Aligns the text after ESC lA to the left. This must be specified at the head of the line. If not, this is invalid. Also, if there is a linefeed on the print data, the left justify is valid after linefeed.
Normal	ESC N	<ul style="list-style-type: none"> Restores printer characteristics to normal condition.
SubScript	ESC []tbC	Not supported.
SuperScript	ESC []tpC	Not supported.
Strike-through	ESC [][#]stC	Not supported.

4.1.3 Common Properties

This section describes the details of the common properties for PosPrinter.
For details of the thrown exception errors, see "Appendix A Exceptions".

CapCompareFirmwareVersion Property

Type **bool**

Description Indicates whether the version of the firmware can be compared.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	The function that compares firmware versions is not supported.

This property is initialized to *false* by **Open**.

CapPowerReporting Property

Type **PowerReporting**

Description Identifies the reporting capabilities of the device.
The following table shows the valid property value.

Value	Meaning
<i>PowerReporting.Standard</i>	The following 2 types of power states can be determined and reported. <ul style="list-style-type: none">• <i>PowerState.OffOffline</i> (power off or offline)• <i>PowerState.Online</i>

This property is initialized to *PowerReporting.Standard* by **Open**.

CapStatisticsReporting Property

Type **bool**

Description Indicates the statistics accumulation function of the device.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The device accumulates and can provide various statistics regarding usage. The information accumulated and reported is device specific, and is retrieved using RetrieveStatistic(s) .

This property is initialized to *true* by **Open**.

CapUpdateFirmware Property

Type **bool**

Description Indicates whether the device supports firmware updating.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	Firmware update is not supported.

This property is initialized to *false* by **Open**.

CapUpdateStatistics Property

Type **bool**

Description Indicates the function that some or all the device statistics can be reset.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The device statistics, or some of the statistics, can be reset to 0 using ResetStatistic(s) .

This property is initialized to *true* by **Open**.

CheckHealthText Property

Type **string**

Description Holds the results of the most recent call to **CheckHealth**.
The results of diagnosis are as follows.

Method Parameter	Method Result	CheckHealthText
<i>HealthCheckLevel.External</i>	Success	"External HCheck: Successful"
	Fail	"External HCheck: Failure"
<i>HealthCheckLevel.Interactive</i> ^{*1}	Success	"Interactive HCheck: Successful"
	Fail	"Interactive HCheck: Failure"
<i>HealthCheckLevel.Internal</i>	Success	"Internal HCheck: Successful"
	Fail	"Internal HCheck: Failure"

^{*1}: In the case of *HealthCheckLevel.Interactive*, if the dialog box is closed without testing after execution, "Interactive HCheck: Canceled" is set.

This property is initialized to empty string by **Open**.

Claimed Property

Type **bool**

Description Indicates whether the device is claimed for exclusive access.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The device is released for sharing with other applications.
<i>true</i>	The exclusive access to the device is obtained.

This property is initialized to *false* by **Open**.

DeviceDescription Property

Type **string**

Description Identifies the device and any pertinent information about it.
This property depends on **DeviceName**.
This property is initialized to the following value by **Open**.

DeviceName	Value
"SLP720RT/SLP721RT POS Printer"	"SII SLP720RT/SLP721RT POS Printer"

DeviceEnabled Property R/W

Type **bool**

Description Indicates whether the device has been placed in an operational state.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The device has been disabled. If changed to <i>false</i> , then the device is disabled.
<i>true</i>	The device has been placed in an operational state. If changed to <i>true</i> , then the device is brought to an operational state.

The application must set this property to *true* before using the device.

If **State** is other than *ControlState.Idle*, **DeviceEnabled** cannot be changed from *true* to *false*.

This property is initialized to *false* by **Open**.

DeviceName Property

Type **string**

Description Identifies the device and any pertinent information about it.
This property is initialized to the following value by **Open**.

Printer	Value
SLP720RT/SLP721RT	"SLP720RT/SLP721RT POS Printer"

FreezeEvents Property R/W

Type **bool**

Description Selects whether to notify events.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The application allows events to be delivered. If some events have been held while events were frozen and all other conditions are correct for delivering the events, changing FreezeEvents to <i>false</i> will allow these events to be delivered.
<i>true</i>	The application has requested that the Service Object not deliver events. Events will be enqueued by the Service Object but not delivered until the application changes FreezeEvents to <i>false</i> .

An application may choose to freeze events for a specific sequence of code where interruption by an event is not desirable.

If an error occurs while a print method such as **PrintNormal** is operated under **AsyncMode** is *true*, **ErrorEvent** is frozen and **State** turns to *ControlState.Busy*. In this case, discard the frozen event by **ClearOutput** or set **FreezeEvents** to *false* to cause **ErrorEvent**, and then execute **Close**, since the Service Object cannot be closed under this circumstance.

This property is initialized to *false* by **Open**.

OutputId Property

Type **int**

Description Holds the identifier of the most recently started asynchronous output (call to an asynchronous method when **AsyncMode** is set to *true*).

When a method successfully initiates an asynchronous output, the Service Object assigns an identifier to the request. When the output completes, the Control will fire an **OutputCompleteEvent** passing this output ID as a parameter.

OutputId is allocated automatically within the range of **int**.

This property is initialized to 0 by **Open**.

PowerNotify Property R/W

Type **PowerNotification**

Description Contains the type of power notification selection made by the application.
The following table shows the valid property values.

Value	Meaning
<i>PowerNotification.Disabled</i>	The Service Object will not provide any power notifications to the application. StatusUpdateEvents will be fired, and PowerState will not be set.
<i>PowerNotification.Enabled</i>	The Service Object will fire power notification StatusUpdateEvents and updates PowerState beginning when DeviceEnabled is set to <i>true</i> . The level of functionality depends upon CapPowerReporting .

PowerNotify may only be set while the device is disabled; that is, while **DeviceEnabled** is *false*.

This property is initialized to *PowerNotification.Disabled* by **Open**.

PowerState Property

Type **PowerState**

Description Identifies the current power condition of the device.
The following table shows the valid property values.

Value	Meaning
<i>PowerState.Offline</i>	The device is powered off or offline.
<i>PowerState.Online</i>	The device is powered on and ready for use.
<i>PowerState.Unknown</i>	Cannot determine the device's power state, for one of the following reasons: • PowerNotify = <i>PowerNotification.Disabled</i> . • DeviceEnabled = <i>false</i>

This property is initialized to *PowerState.Unknown* by **Open**.

ServiceObjectDescription Property

Type **string**

Description A character string that identifies the Service Object is set to this property.
This property is initialized to the following value by **Open**.

DeviceName	Value
"SLP720RT/SLP721RT POS Printer"	"SII SLP720RT/SLP721RT POS Printer Service Object, Copyright (C) 20xx Seiko Instruments Inc."

ServiceObjectVersion Property

Type	Version
Description	<p>Holds the Service Object version number.</p> <p>Version numbers consist of four integers; Major, Minor, Build, and Revision.</p> <p>The Major and Minor version numbers correspond to the UPOS version that the Service Object implements.</p> <p>When Build version is A, Revision version is B, this property is initialized to 1.12.A.B by Open.</p>

State Property

Type	ControlState
Description	<p>Contains the current state of the device.</p> <p>The following table shows the valid property values.</p>

Value	Meaning
<i>ControlState.Busy</i>	The device is in a normal state and is busy executing output.
<i>ControlState.Closed</i>	The device is closed.
<i>ControlState.Error</i>	An error has been reported, and the application must recover the Control to a normal state before normal I/O can resume. This state is only possible inside the ErrorEvent event handler.
<i>ControlState.Idle</i>	The device is in a good state and is not busy.

This property is always readable.

This property is initialized to *ControlState.Idle* by **Open**.

SynchronizingObject Property

Type	System.ComponentModel.ISynchronizeInvoke
Description	<p>Contains an instance of the ISynchronizeInvoke class. Applications can use this property to specify the thread events that are to be delivered on.</p> <p>If SynchronizingObject is set to null, events are delivered on an internal thread owned by the Service Object.</p> <p>Applications using Windows Forms should set SynchronizationObject to the <i>this</i> pointer of the main Form class so that events are delivered on the main application thread as required by the Form class.</p>

4.1.4 Specific Properties

This section describes the details of the specific properties for PosPrinter.
For exception errors of specific properties that are not supported, see "Appendix A Exceptions".

AsyncMode Property R/W

Type **bool**

Description Indicates whether certain print methods will be performed asynchronously.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	PrintNormal , CutPaper , PrintBarCode , PrintBitmap , PrintMemoryBitmap , MarkFeed , RotatePrint , and TransactionPrint print methods are executed synchronously.
<i>true</i>	The above methods are executed asynchronously.

This property is initialized to *false* by **Open**.

CapCharacterSet Property

Type **CharacterSetCapability**

Description Holds the printable character setting of the printer.
The following table shows the valid property value.

Value	Meaning
<i>CharacterSetCapability.Kanji</i>	The character setting supports Code Page932, including ASCII characters 0x20 through 0x7F and the one-byte katakana characters 0xA1 through 0xDF. It also includes the Shift-JIS code characters defined in JIS 1st and 2nd levels.

This property is initialized to *CharacterSetCapability.Kanji* by **Open**.

CapCoverSensor Property

Type **bool**

Description Indicates whether the printer has a "cover open" sensor.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer has a "cover open" sensor.

This property is initialized to *true* by **Open**.

CapMapCharacterSet Property

Type **bool**

Description Indicates that the Service Object is able to map the characters of the application to a character set.

The following table shows the valid property value.

Value	Meaning
<i>false</i>	The Service Object cannot exactly map the characters to the character sets defined in CharacterSetList .

This property is initialized to *false* by **Open**.

CapRec2Color Property

Type **bool**

Description Indicates dark plus an alternate color capability.

The following table shows the valid property value.

Value	Meaning
<i>false</i>	Dark plus an alternate color is not supported.

This property is initialized to *false* by **Open**.

CapRecBarCode Property

Type **bool**

Description Indicates barcode printing capability.

The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer has barcode printing capability.

This property is initialized to *true* by **Open**.

CapRecBitmap Property

Type **bool**

Description Indicates print bitmaps capability.

The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print bitmaps.

This property is initialized to *true* by **Open**.

CapRecBold Property

Type **bool**

Description Indicates bold characters capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print bold characters.

This property is initialized to *true* by **Open**.

CapRecCartridgeSensor Property

Type **PrinterCartridgeSensors**

Description Indicates the presence of cartridge monitoring sensors.
The following table shows the valid property value.

Value	Meaning
<i>PrinterCartridgeSensors.None</i>	Cartridge monitoring sensors are not supported.

This property is initialized to *PrinterCartridgeSensors.None* by **Open**.

CapRecColor Property

Type **PrinterColors**

Description Indicates availability of color cartridges.
The following table shows the valid property value.

Value	Meaning
<i>PrinterColors.Primary</i>	The printer supports primary color (Black).

This property is initialized to *PrinterColors.Primary* by **Open**.

CapRecDHigh Property

Type **bool**

Description Indicates double high characters capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print double high characters.

This property is initialized to *true* by **Open**.

CapRecDWide Property

Type **bool**

Description Indicates double wide characters capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print double wide characters.

This property is initialized to *true* by **Open**.

CapRecDWideDHigh Property

Type **bool**

Description Indicates double high / double wide characters capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print double high / double wide characters.

This property is initialized to *true* by **Open**.

CapRecEmptySensor Property

Type **bool**

Description Indicates an "out-of-paper" sensor capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer has an out-of-paper sensor.

This property is initialized to *true* by **Open**.

CapRecItalic Property

Type **bool**

Description Indicates italic characters capability.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	The printer cannot print Italic characters.

This property is initialized to *false* by **Open**.

CapRecLeft90 Property

Type **bool**

Description Indicates rotated 90° left mode capability.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	Rotated 90° left mode is not supported.

This property is initialized to *false* by **Open**.

CapRecMarkFeed Property

Type **PrinterMarkFeeds**

Description Indicates the type of mark paper handling available.
A logical OR of either of the following values is set for this property.

Value	Meaning
<i>PrinterMarkFeeds.None</i>	Control function for marked paper is disabled.
<i>PrinterMarkFeeds.Takeup</i>	After detecting the mark, feeds the marked paper to the paper take-up position.
<i>PrinterMarkFeeds.Cutter</i>	After detecting the mark, feeds the marked paper to the cutting position. (Feeds the marked paper to the same position as <i>PrinterMarkFeeds.Takeup</i> .)
<i>PrinterMarkFeeds.CurrentTof</i>	Feeds backward the marked paper to the printing position.
<i>PrinterMarkFeeds.NextTof</i>	After detecting the next mark, feeds the marked paper to the printing position.

The default of this property can be changed at the setting in the configuration program.
This property is initialized to *PrinterMarkFeeds.None* by **Open**.

CapRecNearEndSensor Property

Type **bool**

Description Indicates a low paper sensor capability.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	A low paper sensor is not supported.

This property is initialized to *false* by **Open**.

CapRecPageMode Property

Type **bool**

Description Indicates Page Mode printing capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	Page Mode printing is not supported.

This property is initialized to *true* by **Open**.

CapRecPaperCut Property

Type **bool**

Description Indicates paper cuts capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can perform paper cuts.

This property is initialized to *true* by **Open**.

CapRecPresent Property

Type **bool**

Description Indicates whether the receipt print station is present.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The receipt print station is present.

This property is initialized to *true* by **Open**.

CapRecRight90 Property

Type **bool**

Description Indicates rotated 90° right mode capability.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	Rotated 90° right mode is not supported.

This property is initialized to *false* by **Open**.

CapRecRotate180 Property

Type **bool**

Description Indicates rotated upside down mode capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print in a rotated upside down mode.

This property is initialized to *true* by **Open**.

CapRecStamp Property

Type **bool**

Description Indicates stamp printing capability.
The following table shows the valid property value.

Value	Meaning
<i>false</i>	The printer does not have a stamp printing capability.

This property is initialized to *false* by **Open**.

CapRecUnderline Property

Type **bool**

Description Indicates underlined characters capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer can print underlined characters.

This property is initialized to *true* by **Open**.

CapTransaction Property

Type **bool**

Description Indicates printer transactions capability.
The following table shows the valid property value.

Value	Meaning
<i>true</i>	The printer transactions are supported by each station.

This property is initialized to *true* by **Open**.

CartridgeNotify Property R/W

Type **PrinterCartridgeNotify**

Description Contains the type of cartridge state notification selected by the application.
The following table shows the valid property value.

Value	Meaning
<i>PrinterCartridgeNotify.Disabled</i>	Cartridge state notification is not provided.

This property cannot be rewritten.

This property is initialized to *PrinterCartridgeNotify.Disabled* by **Open**.

CharacterSet Property R/W

Type **int**

Description Holds the character set for printing characters.
One of the following values is set to this property:

Value	Meaning
437	Selects Code Page437 character set.
737	Selects Code Page737 character set.
850	Selects Code Page850 character set.
852	Selects Code Page852 character set.
855	Selects Code Page855 character set.
857	Selects Code Page857 character set.
858	Selects Code Page858 character set.
860	Selects Code Page860 character set.
863	Selects Code Page863 character set.
865	Selects Code Page865 character set.
866	Selects Code Page866 character set.
932	Selects Katakana as Code Page932 character set (Shift-JIS Code).
999	Selects Windows ANSI character set.*1
1250	Selects Code Page1250 character set.
1251	Selects Code Page1251 character set.
1252	Selects Code Page1252 character set.*1
1253	Selects Code Page1253 character set.
1254	Selects Code Page1254 character set.

*1: Windows ANSI character set is equal to Code Page1252 character set.

For this property, the default can be changed by setting of the configuration program.
This property is initialized to the value of character set which is set in [Character Set] of the configuration program by **Open**.

CharacterSetList Property

Type **int[]**

Description Holds the character set numbers.
This property is initialized to {437, 737, 850, 852, 855, 857, 858, 860, 863, 865, 866, 932, 999, 1250, 1251, 1252, 1253, 1254} by **Open**.

CoverOpen Property

Type **bool**

Description Indicates whether the printer cover is open.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The printer cover is closed.
<i>true</i>	The printer cover is open.

This property is initialized while the device is enabled and keeps the current state.

ErrorLevel Property

Type **PrinterErrorLevel**

Description Holds the severity of the error condition.
The following table shows the valid property values.

Value	Meaning
<i>PrinterErrorLevel.Fatal</i>	A non-recoverable error has occurred.
<i>PrinterErrorLevel.None</i>	No error condition is present.
<i>PrinterErrorLevel.Recoverable</i>	A recoverable error has occurred.

This property is set by the Service Object just before the notification of **ErrorEvent**.

When the error is cleared, then the property is changed to *PrinterErrorLevel.None*.

This property is initialized to *PrinterErrorLevel.None* by **Open**.

ErrorStation Property

Type **PrinterStation**

Description Holds the station that was printing when an error was detected.
The following table shows the valid property values.

Value	Meaning
<i>PrinterStation.None</i>	The error was not detected.
<i>PrinterStation.Receipt</i>	The error was detected at the receipt station.

This property is set by the Service Object just before the notification of **ErrorEvent**.
When the error is cleared, then the property is changed to *PrinterStation.None*.
This property is initialized to *PrinterStation.None* by **Open**.

ErrorString Property

Type **string**

Description Holds a vendor-supplied description of the current error.
The following table shows the valid property values.

Setting Priority	ErrorCode	ErrorCodeExtended	String
1	<i>ErrorCode.NoHardware</i>		The power supply of the device is off.
2	<i>ErrorCode.Extended</i>	<i>ExtendedErrorFatal</i> (1010)	Unrecoverable error occurred.
3	<i>ErrorCode.Extended</i>	<i>ExtendedErrorVpPower</i> (1001)	Vp power error occurred.
4	<i>ErrorCode.Extended</i>	<i>ExtendedErrorCutterError</i> (1002)	Cutter error.
5	<i>ErrorCode.Extended</i>	<i>ExtendedErrorCoverOpen</i> (201)	The cover is open.
6	<i>ErrorCode.Extended</i>	<i>ExtendedErrorReceiptEmpty</i> (203)	Out of receipt form.
7	<i>ErrorCode.Extended</i>	<i>ExtendedErrorHeadTemp</i> (1005)	Head temperature error.
8	<i>ErrorCode.Extended</i>	<i>ExtendedErrorMarkPaperJam</i> (1014)	Mark paper jam error occurred.
9	<i>ErrorCode.Failure</i>		Communication error occurred.
			Windows system error occurred.
			Time out.

The values in the above table are described in descending order of priority. When multiple errors occur simultaneously, the higher-priority value is set.
This property is set by the Service Object just before the notification of **ErrorEvent**.
When the error is cleared, this property is changed to an empty string.
This property is initialized to empty string by **Open**.

FlagWhenIdle Property R/W

Type **bool**

Description Indicates whether or not to notify that **StatusUpdateEvent**.
One of the following values is set to this property:

Value	Meaning
<i>false</i>	StatusUpdateEvent is not notified.
<i>true</i>	StatusUpdateEvent will be sent when State is <i>ControlState.Idle</i> .

FlagWhenIdle is automatically reset to *false* when **StatusUpdateEvent** is notified after **FlagWhenIdle** is set to *true*.

By using **FlagWhenIdle** and **StatusUpdateEvent**, the application can know when all outstanding asynchronous outputs have been processed. The event will be notified if the outputs were completed successfully or if they were cleared by **ClearOutput** or the event handler that receives **ErrorEvent**.

If **State** is already set to *ControlState.Idle* when **FlagWhenIdle** is set to *true*, then a **StatusUpdateEvent** is notified immediately. The application can therefore depend on the event with no race condition between the starting of its last asynchronous output and the setting of this flag.

This property is initialized to *false* by **Open**.

FontTypefaceList Property

Type	string[]
Description	Holds the fonts and/or typefaces that are supported by the printer. An empty array indicates that only the default font is supported. This property is initialized to an empty string array by Open .

MapCharacterSet Property R/W

Type	bool
Description	Indicates whether character mapping is supported or not. The following table shows the valid property value.

Value	Meaning
<i>false</i>	No mapping is supported.

This property cannot be rewritten.

This property is initialized to *false* by **Open**.

MapMode Property R/W

Type **MapMode**

Description Holds the mapping mode of the printer.
The mapping mode defines the unit of measure used for other properties, such as line heights and line spacings.

The following mapping modes are supported.

The values in the brackets indicate the value converted into dot.

Parameter	Meaning
<i>MapMode.Dots</i>	Printer's dot width 0.125 mm (1 dot)
<i>MapMode.English</i>	0.001 inch (0.203 dots)
<i>MapMode.Metric</i>	0.01 mm (0.08 dots)
<i>MapMode.Twips</i>	1/1440 of an inch (0.1411 dots)

For each mapping mode, the unit is converted using one of the following calculation formula.

Parameter	Conversion
<i>MapMode.Dots</i>	No conversion
<i>MapMode.English</i>	$k = 1/1000$ ■ <i>MapMode.Dots</i> to <i>MapMode.English</i> conversion $\text{english} = \text{dot} / (\text{dpi} \times k)$ ■ <i>MapMode.English</i> to <i>MapMode.Dots</i> conversion $\text{dot} = \text{english} \times \text{dpi} \times k$
<i>MapMode.Metric</i>	$k = 1/100$, $\text{mmpi} = 25.4$ ■ <i>MapMode.Dots</i> to <i>MapMode.Metric</i> conversion $\text{metric} = (\text{mmpi} \times \text{dot}) / (\text{dpi} \times k)$ ■ <i>MapMode.Metric</i> to <i>MapMode.Dots</i> conversion $\text{dot} = (\text{metric} \times \text{dpi} \times k) / \text{mmpi}$
<i>MapMode.Twips</i>	$k = 1/1440$ ■ <i>MapMode.Dots</i> to <i>MapMode.Twips</i> conversion $\text{twips} = \text{dot} / (\text{dpi} \times k)$ ■ <i>MapMode.Twips</i> to <i>MapMode.Dots</i> conversion $\text{dot} = \text{twips} \times \text{dpi} \times k$

MapMode only changes the unit of each property for display, and all internal processings are executed in dot regardless of **MapMode**.

Therefore, the rounding errors of values do not accumulate.

When converting a dot value to a map mode value, the value is rounded up to an integer. When converting from a map mode value to a dot value, the decimal part is truncated.

Setting **MapMode** may also change **RecLineSpacing** and **RecLineHeight**.

This property is initialized to *MapMode.Dots* when the device is first enabled following **Open**.

PageModeArea Property

Type	System.Drawing.Point
Description	This property is not supported. This property is initialized to {0, 0} by Open .

PageModeDescriptor Property

Type	PageModeDescriptors
Description	This property is not supported. This property is initialized to <i>PageModeDescriptors.None</i> by Open .

PageModeHorizontalPosition Property R/W

Type	int
Description	This property is not supported. This property is initialized to 0 by Open .

PageModePrintArea Property R/W

Type	System.Drawing.Rectangle
Description	This property is not supported. This property is initialized to {0, 0, 0, 0} by Open .

PageModePrintDirection Property R/W

Type	PageModePrintDirection
Description	This property is not supported. This property is initialized to <i>PageModePrintDirection.None</i> by Open .

PageModeStation Property R/W

Type	PrinterStation
Description	This property is not supported. This property is initialized to <i>PrinterStation.None</i> by Open .

PageModeVerticalPosition Property R/W

Type **int**

Description This property is not supported.

This property is initialized to 0 by **Open**.

RecBarcodeRotationList Property

Type **Rotation[]**

Description Holds the rotation orientation for barcode.
The following table shows the valid property values.

Value	Meaning
<i>Rotation.Left90</i>	Not supported.
<i>Rotation.Normal</i>	Barcode may be printed in the normal orientation.
<i>Rotation.Right90</i>	Not supported.
<i>Rotation.Rotate180</i>	Barcode may be rotated 180°- upside down.

This property is initialized to {*Rotation.Normal*, *Rotation.Rotate180*} by **Open**.

RecBitmapRotationList Property

Type **Rotation[]**

Description Holds the rotation orientation for bitmap.
The following table shows the valid property values.

Value	Meaning
<i>Rotation.Left90</i>	Not supported.
<i>Rotation.Normal</i>	Bitmap may be printed in the normal orientation.
<i>Rotation.Right90</i>	Not supported.
<i>Rotation.Rotate180</i>	Bitmap may be rotated 180°- upside down.

This property is initialized to {*Rotation.Normal*, *Rotation.Rotate180*} by **Open**.

RecCartridgeState Property

Type **PrinterCartridgeStates**

Description Contains the status of the currently selected station cartridge.
The following table shows the valid property values.

Value	Meaning
<i>PrinterCartridgeStates.Unknown</i>	Device does not support cartridge state reporting.

This property is initialized to *PrinterCartridgeStates.Unknown* when the device is first enabled following the **Open** call.

RecCurrentCartridge Property R/W

Type **PrinterColors**

Description Specifies the currently selected station cartridge.
The following table shows the valid property values.

Value	Meaning
<i>PrinterColors.Primary</i>	Supports primary color.

This property cannot be rewritten.

This property is initialized to *PrinterColors.Primary* when the device is first enabled following the **Open** call.

RecEmpty Property

Type **bool**

Description Indicates whether the paper is out of paper.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The paper is present.
<i>true</i>	The paper is out of paper.

This property is initialized while the device is enabled and keeps the current state.
When **CoverOpen** is *true*, **RecEmpty** is not updated.

RecLetterQuality Property R/W

Type **bool**

Description Indicates whether the printer prints in high-quality mode.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	Prints in high speed mode.
<i>true</i>	Prints in middle speed mode.

If [Print Speed] in the configuration program is [RecLetterQuality Valid], this property is enabled and determines the print speed of the printer according to print mode. For print speed settings in the configuration program other than that, see "Technical Reference".

This property is initialized to *false* when the device is enabled.

RecLineChars Property R/W

Type **int**

Description Holds the number of characters that may be printed on a paper line.
This property is set to one of the values which **RecLineCharsList** has.
Depending on the specified number of characters, the printer prints in the following print font.

When **RecLineWidth** is 288:

Value	RecLineChars	Print Font (H × W)	Character Space	RecLineHeight
1 to 18	18	24 dots × 12 dots	4 dots	24
19 to 20	20		2 dots	
21 to 22	22		1 dot	
23 to 24	24		0 dots	
25 to 28	28	16 dots × 8 dots	2 dots	16
29 to 32	32		1 dot	
33 to 36	36		0 dots	

When **RecLineWidth** is 432:

Value	RecLineChars	Print Font (H × W)	Character Space	RecLineHeight
1 to 27	27	24 dots × 12 dots	4 dots	24
28 to 30	30		2 dots	
31 to 33	33		1 dot	
34 to 36	36 (default)		0 dots	
37 to 43	43	16 dots × 8 dots	2 dots	16
44 to 48	48		1 dot	
49 to 54	54		0 dots	

If changed to a line character width that is less than or equal to the maximum value allowed for the printer, then the width is set to the specified value. If the exact width cannot be supported, then subsequent lines will be printed with a character size that most closely supports the specified characters per line. (For example, if 41 is set in **RecLineChars** when **RecLineWidth** is 432, then the Service Object selects a **RecLineChars** = 43.)

If the character width is not supported, then an error is returned. (For example, if 60 is set in **RecLineChars** when **RecLineWidth** is 432, then an error occurs.)

Setting **RecLineChars** may also update **RecLineHeight**, **RecLineSpacing**, **RecSidewaysMaxChars**, and **RecSidewaysMaxLines**.

For this property, the default can be changed by setting of the configuration program.
This property is initialized to the value set in [Number of Characters per Line] of the configuration program when the device is enabled.

RecLineCharsList Property

Type **int[]**

Description Gets a collection of the line widths (characters per line) supported by the paper.

RecLineWidth	Value
288	18,20,22,24,28,32,36
432	27,30,33,36,43,48,54

This property is initialized to one of the values shown above by **Open**, depending on the value set in [Number of Characters per Line] of the configuration program.

RecLineHeight Property R/W

Type **int**

Description Holds the paper line height.

This property is expressed in the unit specified for **MapMode**.

This property cannot be rewritten. The value is automatically set by **RecLineChars**.

The values in the following table are at the time of **MapMode** is *MapMode.Dots*.

RecLineWidth	RecLineChars	Value
288	18	24
	20	
	22	
	24	
	28	16
	32	
	36	
432	27	24
	30	
	33	
	36	
	43	16
	48	
	54	

This property is initialized to one of the values shown above depending on the values set in [Number of Characters per Line] of the configuration program, when the device is enabled.

RecLineSpacing Property R/W

Type **int**

Description Holds the spacing of each single-high print line. This includes both the printed line height and the whitespace between each pair of lines.

This property is expressed in the unit specified for **MapMode**.

The values in the following table are at the time of **MapMode** is *MapMode.Dots*.

The configurable range differs depending on the setting of **RecLineWidth** and **RecLineChars**.

The following table shows the valid configurable ranges. When a value out of the range is specified, *ErrorCode.Illegal* is thrown and the property is not set.

RecLineWidth	RecLineChars	Value
288	18	24 to 255
	20	
	22	
	24	
	28	16 to 255
	32	
	36	
432	27	24 to 255
	30	
	33	
	36	
	43	16 to 255
	48	
	54	

When the printer function setting "Paper Saving Setting (Paper Saving)" is enabled, the line spacing and the space between lines are printed with the specified value in the printer function setting "Paper Saving Setting (Paper Saving)". (The value specified in **RecLineSpacing** is ignored.)

For details about "Paper Saving Setting (Paper Saving)", see "Technical Reference".

For this property, the default can be changed by setting of the configuration program. This property is initialized to the value of line spacing set in [Line Spacing (dots)] of the configuration program, when the device is enabled.

RecLinesToPaperCut Property

Type **int**

Description Holds the number of lines that must be advanced before cutting the paper.
The value obtained by dividing the distance between the print head and the cutter of the printer by line spacing indicated by **RecLineSpacing** is set. Therefore, this property changes when **RecLineSpacing** is changed.

[Calculation formula]

RecLinesToPaperCut = 76 / **RecLineSpacing**

Example:

When **RecLineSpacing** is 30 (**MapMode**=*MapMode.Dots*)

RecLinesToPaperCut = 76 / 30 = 2.53... = 3

(The decimal part is rounded up.)

This property is initialized to the value based on the above calculation using [Line Spacing (dots)] of the configuration program by **Open**.

RecLineWidth Property

Type **int**

Description Holds the width of a line of **RecLineChars**.
This property is expressed in the unit specified for **MapMode**. The values in the following table are at the time of **MapMode** is *MapMode.Dots*.

Paper Width	Value
40 mm (288 dots)	288
58 mm (432 dots)	432

This property is initialized to one of the values shown above by the value set in [Number of Effective Dots(dots)] of the configuration program when the device is set to enabled.

RecNearEnd Property

Type **bool**

Description Notifies whether the paper is low.
This property always shows *false*.

RecSidewaysMaxChars Property

Type **int**

Description This property is not supported.

This property is initialized to 0 by **Open**.

RecSidewaysMaxLines Property

Type **int**

Description This property is not supported.

This property is initialized to 0 by **Open**.

RotateSpecial Property R/W

Type **Rotation**

Description Holds the rotation orientation for barcodes.

The following table shows the valid property values.

If *rotation* contains *PrintRotation.Barcode* in **RotatePrint**, the rotating direction of the *rotation* is selected.

Value	Meaning
<i>Rotation.Left90</i>	Not supported.
<i>Rotation.Normal</i>	Prints subsequent barcodes in normal orientation.
<i>Rotation.Right90</i>	Not supported.
<i>Rotation.Rotate180</i>	Rotates printing 180°, that is, prints upside-down.

This property is initialized to *Rotation.Normal* by **Open**.

4.1.5 Common Methods

This section describes the details of the common methods for PosPrinter.
For details of the thrown exception errors, see "Appendix A Exceptions".

CheckHealth Method

Syntax `string CheckHealth(HealthCheckLevel level);`

Parameter	Meaning
<i>level</i>	Specifies the type of health check to be executed on the device.

· Values of *level*

Value	Meaning
<i>HealthCheckLevel.External</i>	Executes a complete test using the device. ROM version ID of the printer, ServiceObjectVersion , and DeviceName are printed on the printer.
<i>HealthCheckLevel.Interactive</i>	Executes an interactive test of the device. Displays a modal dialog box to execute a complete test using the device and display results.
<i>HealthCheckLevel.Internal</i>	Execute a health check without using the device physically.

Description Tests the status of the device.
A text description of the results of this method is placed in **CheckHealthText**.
CheckHealth is always executed synchronously.

Claim Method

Syntax `void Claim(int timeout);`

Parameter	Meaning
<i>timeout</i>	Specifies the maximum waiting time (in milliseconds) for exclusive access. If it is 0, the method returns the result immediately even if exclusive access of the device cannot be obtained. If <i>WaitForever</i> (-1) is set, the method waits until exclusive access is obtained.

Description Requests exclusive access to the device.
The PosPrinter device cannot be used until the exclusive access is obtained.
When it is successful, **Claimed** is set to *true*.
When the power is OFF or the cable is not connected, **Claim** is not available.

ClearOutput Method

Syntax **void ClearOutput();**

Description Clears all device output that has been buffered.
Any output error events that are enqueued (usually waiting for **FreezeEvents** to be set to *false*) are also cleared.

Close Method

Syntax **void Close();**

Description Releases the device and its resources.
If **DeviceEnabled** is *true*, the device is first disabled.
If **Claimed** is *true*, exclusive access to the device is first released.
Do not execute this method while the event is in progress (or in the event handler).

CompareFirmwareVersion Method

This method is not supported. For the thrown exception errors, see "Appendix A Exceptions".

Syntax **CompareFirmwareResult CompareFirmwareVersion(string *firmwareFileName*);**

DirectIO Method

Syntax **DirectIOData DirectIO(int *command*, int *data*, object *obj*);**

Parameter	Meaning
<i>command</i>	Command number. Specific values assigned by the Service Object.
<i>data</i>	Additional numeric data. Specific values vary by <i>command</i> and Service Object.
<i>obj</i>	Additional data provided by the Service Object. Specific values vary by <i>command</i> and what the Service Object sends.

Description The following functions are supported:
· Remaining memory capacity response
· International character selection
· Status response
DirectIO is always executed synchronously.

- **Remaining memory capacity response**

Issues the printer command "Send NV Graphics Memory Remaining Capacity", and returns its response as a numeric value.

The response data is placed in *DirectIOData.data*.

Parameter	Description
<i>command</i>	3
<i>data</i>	<i>null</i>
<i>obj</i>	<i>null</i>

- **International character selection**

Selects the international character.

To change the international character, select the international character with this method after setting **CharacterSet**.

When changing **CharacterSet** to 932 after changing the international character, the international character is set to Japan.

When changing **CharacterSet** to other than 932 after changing the international character, the international character is set to USA.

Parameter	Description
<i>command</i>	201
<i>data</i>	International character number n $0 \leq n \leq 12$ Country names available for n are as follows: 0: USA 1: France 2: Germany 3: United Kingdom 4: Denmark I 5: Sweden 6: Italy 7: Spain I 8: Japan 9: Norway 10: Denmark II 11: Spain II 12: Latin America
<i>obj</i>	<i>null</i>

- **Status response**

Returns the paper sensor status in a numeric value.

"Taken sensor status response" is responded when the memory switch MS 1-2 (Taken Mode Selection) of the printer is "Enable".

Note that if the printing is executed by **PrintNormal** or **PrintImmediate** while the response data of the taken sensor is '1' (paper removal waiting), the method execution will time out.

Parameter	Description
<i>command</i>	501
<i>data</i>	Status type 1: Out-of-paper sensor status response 4: Taken sensor status response
<i>obj</i>	<i>null</i>

The response data is placed in *DirectIOData.data*.

Status Type	Value	State
Out-of-paper sensor	0	Paper is ready
	1	Out-of-paper
Taken sensor	0	Paper removed
	1	Paper removal waiting

Open Method

Syntax **void Open();**

Description Opens the device.
When **Open** is successful, the common properties and other class-specific properties are initialized.

Release Method

Syntax **void Release();**

Description Releases exclusive access to the device.
If **DeviceEnabled** is *true*, and the device is an exclusive-use device, then the device is first disabled.
Do not execute this method while the event is in progress (or in the event handler).

ResetStatistic(string) Method

Syntax **void ResetStatistic(string statistic);**

Description Resets the specified statistics to 0.
For the statistics that can be reset, see "Appendix B Statistics".
ResetStatistic is always executed synchronously.

ResetStatistics() Method

Syntax	void ResetStatistics();
Description	Resets all the statistics to 0. For the statistics that can be reset, see "Appendix B Statistics". ResetStatistics is always executed synchronously.

ResetStatistics(StatisticCategories) Method

Syntax	void ResetStatistics(StatisticCategories <i>statistics</i>);
Description	Resets all the statistics of the specified category to 0. For the statistics that can be reset, see "Appendix B Statistics". ResetStatistics is always executed synchronously.

ResetStatistics(string[]) Method

Syntax	void ResetStatistics(string[] <i>statistics</i>);
Description	Resets the specified statistics to 0. For the statistics that can be reset, see "Appendix B Statistics". ResetStatistics is always executed synchronously.

RetrieveStatistic(string) Method

Syntax	string RetrieveStatistic(string <i>statistic</i>);
Description	Retrieves the specified device statistics. For <i>statistic</i> , specify the statistics to retrieve. When it is successful, RetrieveStatistic returns the XML string of the statistics. For the statistics that are retrieved, see "Appendix B Statistics". RetrieveStatistic is always executed synchronously.

RetrieveStatistics() Method

Syntax	string RetrieveStatistics();
Description	Retrieves all the device statistics. When it is successful, RetrieveStatistics returns the XML string of the statistics. For the statistics that are retrieved, see "Appendix B Statistics". RetrieveStatistics is always executed synchronously.

RetrieveStatistics(StatisticCategories) Method

Syntax	string RetrieveStatistics(StatisticCategories <i>statistics</i>);
Description	Retrieves the statistics of the specified category. <i>statistics</i> stores the category of the statistics to be retrieved by the application. When it is successful, RetrieveStatistics returns the XML string of the statistics. For the statistics that are retrieved, see "Appendix B Statistics". RetrieveStatistics is always executed synchronously.

RetrieveStatistics(string[]) Method

Syntax	string RetrieveStatistics(string[] <i>statistics</i>);
Description	Retrieves the specified device statistics. For <i>statistic</i> , specify the statistics to retrieve. When it is successful, RetrieveStatistics returns the XML string of the statistics. For the statistics that are retrieved, see "Appendix B Statistics". RetrieveStatistics is always executed synchronously.

UpdateFirmware Method

This method is not supported. For the thrown exception errors, see "Appendix A Exceptions".

Syntax	void UpdateFirmware(string <i>firmwareFileName</i>);
--------	--

UpdateStatistic Method

This method is not supported. For the thrown exception errors, see "Appendix A Exceptions".

Syntax	void UpdateStatistic(string <i>name</i> , object <i>value</i>);
--------	--

UpdateStatistics(Statistic[]) Method

This method is not supported. For the thrown exception errors, see "Appendix A Exceptions".

Syntax	void UpdateStatistics(Statistic[] <i>statistics</i>);
--------	---

UpdateStatistics(StatisticCategories, Object) Method

This method is not supported. For the thrown exception errors, see "Appendix A Exceptions".

Syntax	void UpdateStatistics(StatisticCategories <i>statistics</i> , object <i>value</i>);
--------	--

4.1.6 Specific Methods

This section describes the details of the specific methods for PosPrinter.

For exception errors of specific methods that are not supported, see "Appendix A Exceptions".

ClearPrintArea Method

Syntax **void ClearPrintArea();**

Description This method is not supported.

CutPaper Method

Syntax **void CutPaper(int *percentage*);**

Parameter	Meaning
<i>percentage</i>	Specifies the percentage of the paper to be cut. 100 : Full cut 1 to 99 : Partial cut 0 : No paper cut

Description Cuts the paper.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

Paper cut can also be executed by using "Paper cut" escape sequence (ESC|[#]P) when calling **PrintNormal** or **PrintImmediate**.

If printing data remains in the printer buffer, paper cut is executed after all buffered data is printed.

Due to the positions of printer head and cutter, paper cut might be executed at the middle of printing data. To avoid this, call this method after feeding paper for the value of **RecLinesToPaperCut**.

When the printer function setting "Paper Saving Setting (Paper Saving)" is enabled, the value specified in the printer function setting "Paper Saving Setting (Paper Saving)" is applied to the line spacing when the carriage return (CR) or line feed (LF) is executed. (The value specified by **RecLineSpacing** is ignored.)

However, when the "Paper cut" escape sequence (ESC|[#]P), the "Feed and Paper cut" escape sequence (ESC|[#]fP), or **CutPaper** is executed after the paper is fed by the carriage return (CR) or line feed (LF), distance from the last print line to the cut position is not reduced because paper is cut after executing the paper feed for saved dot lines. See "Technical Reference" for details.

MarkFeed Method

Syntax **MarkFeed**(**MarkFeedType** *type*);

Parameter	Meaning
<i>type</i>	Indicates the control type of paper indicated mark.

· Values of *type*

Value	Meaning
<i>PrinterMarkFeeds.Takeup</i>	After detecting the mark, feeds the marked paper to the paper take-up position. The paper feed length is the length of the memory switches MS 8 to 9 (Mark Position Correction) of the printer. The default of the paper feed is 58 dots (7.25 mm).
<i>PrinterMarkFeeds.Cutter</i>	After detecting the mark, feeds the marked paper to the cutting position. (Feeds the marked paper to the same position as <i>PrinterMarkFeeds.Takeup</i>).
<i>PrinterMarkFeeds.CurrentTof</i>	Feeds the marked paper backward to the printing position. When feeding the marked paper to the cut position by <i>PrinterMarkFeeds.Cutter</i> and feeding backward by <i>PrinterMarkFeeds.CurrentTof</i> after cutting the marked paper, the top margin of the marked paper can be reduced for the next printing. The paper feed length is 63 dots (7.88 mm) backward from the current position.
<i>PrinterMarkFeeds.NextTof</i>	After detecting the next mark, feeds the marked paper to the printing position. The paper feed length is the length of the memory switches MS 8 to 9 (Mark Detection Print Position Correction) of the printer. The default of the paper feed is 58 dots (7.25 mm).

Description This method is used to utilize the paper that is available for the mark detection.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

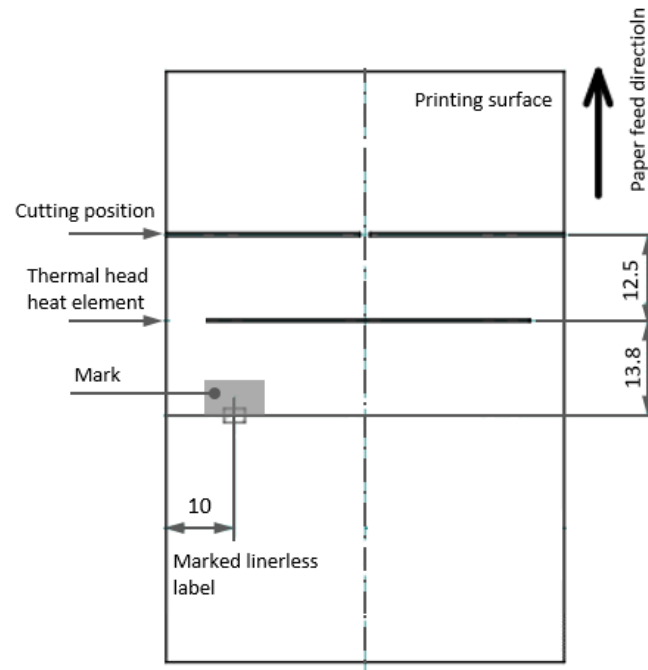
This method is available when the setting of [Mark Mode] in the configuration program is set to Enable.

See "User's Guide" for the details of the memory switch of the printer.

The memory switches of the printer can be changed in the "SII Printer Setting Utility for Windows" for SLP720RT/SLP721RT series that is to be expanded at the installation of "SII Printer Driver for Windows" for SLP720RT/SLP721RT series.

The relation between the cut position, heat element, and sensor position is shown in the following figure.

When the memory switch of the printer is set to the default, the feed position of *PrinterMarkFeeds.Takeup*, the cutting position of *PrinterMarkFeeds.Cutter* and the next printing position of *PrinterMarkFeeds.NextToF* is the same paper feed length.



Unit :

Note If this method is executed when the marked paper is at the mark feed position, *PrinterMarkFeeds.Takeup* or *PrinterMarkFeeds.Cutter* does not perform the paper feed.

PageModePrint Method

Syntax `PageModePrint(PageModePrintControl control);`

Description This method is not supported.

PrintBarCode Method

Syntax

```
void PrintBarCode(PrinterStation station,
                 string data,
                 BarCodeSymbology symbology,
                 int height,
                 int width,
                 int alignment,
                 BarCodeTextPosition textPosition);
```

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>data</i>	Specifies the string of the barcode.
<i>symbology</i>	Specifies the barcode type to be used. See values below.
<i>height</i>	Specifies the height of the barcode. Expressed in the unit specified for MapMode . When MapMode is <i>MapMode.Dots</i> , specify the height from 1 to 255. <i>height</i> of the following barcodes are ignored and set automatically by <i>width</i> , Specify from 1 to 255. <ul style="list-style-type: none"> • QR Code • GS1 Databar Omni-directional • GS1 Databar Expanded • GS1 Databar Expanded Stacked • GS1 Databar Limited • GS1 Databar Truncated <i>height</i> of the following barcodes are ignored and set with a fixed value. Specify from 1 to 255. <ul style="list-style-type: none"> • GS1 Databar Stacked Omni-directional • GS1 Databar Stacked
<i>width</i>	Specifies the width of the barcode. Expressed in the unit given by MapMode . The width of the barcode actually printed is the best fit within the width specified by <i>width</i> . When MapMode is <i>MapMode.Dots</i> , specify the width from 1 to RecLineWidth for upright position.
<i>alignment</i>	Specifies the position of the barcode. See values below.
<i>textPosition</i>	Specifies the position of the text printed in the barcode. See values below.

·Values of *symbology*

Value	Meaning
<i>BarCodeSymbology.Codabar</i>	Codabar (NW-7)
<i>BarCodeSymbology.Code128</i>	Code128
<i>BarCodeSymbology.Code128Parsed</i>	Code128 Parsed
<i>BarCodeSymbology.Code39</i>	Code39
<i>BarCodeSymbology.Code93</i>	Code93
<i>BarCodeSymbology.Ean13S</i>	EAN13 (JAN13) with supplemental barcode
<i>BarCodeSymbology.EanJan13</i>	EAN13 (JAN13)
<i>BarCodeSymbology.EanJan8</i>	EAN8 (JAN8)
<i>BarCodeSymbology.Gs1DataBar</i>	GS1 Databar Omni-directional
<i>BarCodeSymbology.Gs1DataBarExpanded</i>	GS1 Databar Expanded
<i>BarCodeSymbology.Gs1DataBarStackedOmniDirectional</i> or <i>BarCodeSymbology.Other + 8</i>	GS1 Databar Stacked Omni-directional
<i>BarCodeSymbology.Gs1DataBarExpandedStacked</i> or <i>BarCodeSymbology.Other + 9</i>	GS1 Databar Expanded Stacked
<i>BarCodeSymbology.Itf</i>	Interleaved 2 of 5
<i>BarCodeSymbology.Other + 5</i>	QR Code (Mixed mode)
<i>BarCodeSymbology.Other + 6</i>	GS1 Databar Limited
<i>BarCodeSymbology.Other + 7</i>	GS1 Databar Stacked
<i>BarCodeSymbology.Other + 10</i>	GS1 Databar Truncated
<i>BarCodeSymbology.Pdf417</i>	PDF417
<i>BarCodeSymbology.Upca</i>	UPC-A
<i>BarCodeSymbology.Upce</i>	UPC-E

·Values of *alignment*

Value	Meaning
<i>PrinterBarCodeCenter</i>	Printed with center.
<i>PrinterBarCodeLeft</i>	Printed with left justify.
<i>PrinterBarCodeRight</i>	Printed with right justify.
Other values	Printed with the left margin of the specified value. Expressed in the unit given by MapMode .

·Values of *textPosition*

Value	Meaning
<i>BarCodeTextPosition.Above</i>	Prints the text above the barcode.
<i>BarCodeTextPosition.Below</i>	Prints the text below the barcode.
<i>BarCodeTextPosition.None</i>	No text is printed.

Call this method when printing the barcode at the specified printer.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

If **RotateSpecial** indicates that the barcode is rotated, the barcode is printed in rotated mode. *height*, *width*, and *textPosition* are applied to the barcode before it is rotated. For example, when specifying *Rotation.Rotate180* for **RotateSpecial** and calling this method specifying *BarCodeTextPosition.Below* for *textPosition* of this method, the text is placed below the barcode, and the text and barcode are rotated 180° and printed.

The barcode quiet zone is not secured. Verify that the barcode can be read with your actual device beforehand.

However, the following barcode quiet zones are unnecessary or secured:

- GS1 Databar Omni-directional
- GS1 Databar Expanded
- GS1 Databar Stacked Omni-directional
- GS1 Databar Expanded Stacked
- GS1 Databar Limited
- GS1 Databar Stacked
- GS1 Databar Truncated

The limitations for each barcode are described below.

[Codabar (NW-7)]

Parameter	Limitation
<i>data</i>	The head and end of line must be one of 'A' to 'D'. Other data must be at least one of '0' to '9', '\$', '+', ':', '-', '.', and '/'.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = (((6 \times X) + (2 \times X \times N)) \times D) + ((X \times N - X) \times D') + (-1 \times X)$ $20 \times D + 2 \times D' - 2 \leq width \leq 72 \times D + 12 \times D' - 6$ D: the number of barcode characters D': the number of data characters (the number of 'A' to 'D', '+', ':', '-', '.' included in barcode data) X: fine element width $2 \leq X \leq 6$ N: ratio of wide element width to fine element width (Set to 2, 2.5, or 3) X and N are automatically set according to <i>width</i> .

[Code128]

Parameter	Limitation
<i>data</i>	Specify any value consisting of decimal numbers from 0 to 105. Each numeric value is treated as the corresponding character shown in the table below. The first letter must be a decimal number 103, 104, or 105, and the barcode data of at least one letter must follow it.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = X \times (((D + 2) \times 11) + 2)$ $22 \times D + 48 \leq width \leq 66 \times D + 144$ D: the number of barcode characters (including start code) X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

· Character set of Code128

Number	Character			Number	Character		
	Code A	Code B	Code C		Code A	Code B	Code C
0	SPACE ^{*1}	SPACE ^{*1}	00	53	U	U	53
1	!	!	01	54	V	V	54
2	"	"	02	55	W	W	55
3	#	#	03	56	X	X	56
4	\$	\$	04	57	Y	Y	57
5	%	%	05	58	Z	Z	58
6	&	&	06	59	[[59
7	'	'	07	60	\	\	60
8	((08	61]]	61
9))	09	62	^	^	62
10	*	*	10	63	_	_	63
11	+	+	11	64	NULL	`	64
12	,	,	12	65	SOH	a	65
13	-	-	13	66	STX	b	66
14	.	.	14	67	ETX	c	67
15	/	/	15	68	EOT	d	68
16	0	0	16	69	ENG	e	69
17	1	1	17	70	ACK	f	70
18	2	2	18	71	BEL	g	71
19	3	3	19	72	BS	h	72
20	4	4	20	73	HT	i	73
21	5	5	21	74	LF	j	74
22	6	6	22	75	VT	k	75

Number	Character			Number	Character		
	Code A	Code B	Code C		Code A	Code B	Code C
23	7	7	23	76	FF	l	76
24	8	8	24	77	CR	m	77
25	9	9	25	78	SO	n	78
26	:	:	26	79	SI	o	79
27	;	;	27	80	DLE	p	80
28	<	<	28	81	DC1	q	81
29	=	=	29	82	DC2	r	82
30	>	>	30	83	DC3	s	83
31	?	?	31	84	DC4	t	84
32	@	@	32	85	NAK	u	85
33	A	A	33	86	SYN	v	86
34	B	B	34	87	ETB	w	87
35	C	C	35	88	CAN	x	88
36	D	D	36	89	EM	y	89
37	E	E	37	90	SUB	z	90
38	F	F	38	91	ESC	{	91
39	G	G	39	92	FS		92
40	H	H	40	93	GS	}	93
41	I	I	41	94	RS	~	94
42	J	J	42	95	US	DEL	95
43	K	K	43	96	FNC3	FNC3	96
44	L	L	44	97	FNC2	FNC2	97
45	M	M	45	98	SHIFT	SHIFT	98
46	N	N	46	99	CODE C	CODE C	99
47	O	O	47	100	CODE B	FNC4	CODE B
48	P	P	48	101	FNC4	CODE A	CODE A
49	Q	Q	49	102	FNC1	FNC1	FNC1
50	R	R	50	103	START(CODE A)		
51	S	S	51	104	START(CODE B)		
52	T	T	52	105	START(CODE C)		

*1: Input a space.

[Code128 Parsed]

Parameter	Limitation
<i>data</i>	<p>The head of line must be the special code (CODE A, CODE B, or CODE C) for the code set to use, and the barcode data of at least one letter must follow it. See "Code128 Special Code Table" for the special code. See "Input example of <i>data</i>" for input of <i>data</i>. The effective range of <i>data</i> differs by code set.</p> <ul style="list-style-type: none"> • Code A : 0x00 to 0x5f, FNC1, FNC2, FNC3, FNC4, SHIFT, CODE B, CODE C • Code B : 0x20 to 0x7f, FNC1, FNC2, FNC3, FNC4, SHIFT, CODE A, CODE C • Code C : 0x30 to 0x39, FNC1, CODE A, CODE B
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>: $width = X \times (((D + 2) \times 11) + 2)$ $1^{*1} \leq width \leq 66 \times D + 144$ D: the number of barcode characters (including start code) X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i>.</p>

*1: When 1 to $22 \times D + 48$ is set, *width* is set to $22 \times D + 48$.

• Code128 Special Code Table

<i>data</i>	Special Code
"{S"	SHIFT
"{A"	CODE A
"{B"	CODE B
"{C"	CODE C
"{1"	FNC1
"{2"	FNC2
"{3"	FNC3
"{4"	FNC4
"{"	'{'

Input example of *data*

data is comprised of ASCII characters, which the service maps to the corresponding value for the selected code set. In Code A and Code B, this will be a one to one mapping. In Code C, each pair of digits is converted to a single Code C data character in the range 0x00 through 0x63. (If the Code C data contains an odd number of digits, then a leading 0 digit is added by the service before conversion.) A sentinel character, the left curly bracket "{", followed by a certain value, is used to indicate a special character.

When creating a barcode of the barcode character "0123", the input of *data* is as follows according to the code set selected.

Selecting Code A : *data*="{A0123"

Selecting Code B : *data*="{B0123"

Selecting Code C : *data*="{C0123" or *data*="{C123"

[Code39]

Parameter	Limitation
<i>data</i>	At least one of '0' to '9', 'A' to 'Z', ' ', '\$', '%', '+', '-', '.', '/' must be specified.
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>:</p> $width = (((X \times 7) + (X \times N \times 3)) \times (D + 2)) + (-1 \times X)$ $26 \times D + 50 \leq width \leq 96 \times D + 186$ <p>D: the number of barcode characters X: fine element width $2 \leq X \leq 6$ N: ratio of wide element width to fine element width (Set to 2, 2.5, or 3) X and N are automatically set according to <i>width</i>.</p>

[Code93]

Parameter	Limitation
<i>data</i>	Specify any value consisting of decimal numbers from 0 to 46. Each numeric value is treated as the corresponding character shown in the table below.
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>:</p> $width = X \times ((D + 2 + 2) \times 9) + 1$ $18 \times D + 74 \leq width \leq 54 \times D + 222$ <p>D: the number of barcode characters X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i>.</p>

• Character set of Code93

Number	Character	Number	Character	Number	Character	Number	Character
0	0	12	C	24	O	36	-
1	1	13	D	25	P	37	.
2	2	14	E	26	Q	38	SPACE ^{*1}
3	3	15	F	27	R	39	\$
4	4	16	G	28	S	40	/
5	5	17	H	29	T	41	+
6	6	18	I	30	U	42	%
7	7	19	J	31	V	43	(\$)
8	8	20	K	32	W	44	(%)
9	9	21	L	33	X	45	(/)
10	A	22	M	34	Y	46	(+)
11	B	23	N	35	Z		

*1: Input a space.

[EAN13 (JAN13) with supplemental barcode]

Parameter	Limitation
<i>data</i>	Specify 14, 15, 17, or 18 letters consisting of '0' to '9'. When 15 letters or 18 letters are entered, the 13th character does not affect the printing data.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : <ul style="list-style-type: none"> When 14 or 15 letters are specified $width = 122 \times X$ $244 \leq width \leq 732$ When 17 or 18 letters are specified $width = 149 \times X$ $298 \leq width \leq 894$ X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

[EAN13 (JAN13)]

Parameter	Limitation
<i>data</i>	Specify 12 or 13 letters consisting of '0' to '9'. The 13th letter does not affect the barcode printing data.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = 95 \times X$ $190 \leq width \leq 570$ X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

[EAN8 (JAN8)]

Parameter	Limitation
<i>data</i>	Specify 7 or 8 letters consisting of '0' to '9'. The 8th letter does not affect the barcode printing data.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = 67 \times X$ $134 \leq width \leq 402$ X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

[GS1 Databar Omni-directional]

Parameter	Limitation
<i>data</i>	Specify 13 letters consisting of '0' to '9'.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = 96 \times X$ $1^{*1} \leq width \leq 576$ X: module width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

1*: When 1 to 287 is set, *width* is set to 192.

[GS1 Databar Expanded]

Parameter	Limitation
<i>data</i>	Specify '0' to '9', 'A' to 'Z', 'a' to 'z', space, '!', '"', '%', '&', '(', ')', '*', '+', ',', '-', '.', '/', ':', ';', '<', '>', '=', '?', '_' as 2 or more letters. Input "{1" for FNC1. Be sure to input the check digit since it is not automatically calculated by the printer.
<i>width</i>	Input the value other than 0.

[GS1 Databar Stacked Omni-directional]

Parameter	Limitation
<i>data</i>	Specify 13 letters consisting of '0' to '9'.
<i>height</i>	Input the value other than 0. The value is set as <i>height</i> = 138 regardless of the input value.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : Input the value other than 0. The value is set as <i>width</i> = 100 regardless of the input value.

Module width is fixed at 2.

[GS1 Databar Expanded Stacked]

Parameter	Limitation
<i>data</i>	Two or more letters of '0' to '9', 'A' to 'Z', 'a' to 'z', space, '!', '"', '%', '&', '(', ')', '*', '+', ',', '-', '.', '/', ':', ';', '<', '>', '=', '?', '_ ' must be specified. Input "{1" for FNC1. Be sure to input the check digit since it is not automatically calculated by the printer.
<i>width</i>	Input the value other than 0.

Module width is fixed at 2.

[Interleaved 2 of 5]

Parameter	Limitation
<i>data</i>	Specify any value consisting of '0' to '9'. Note that the number of specified letters must be an even number except for 0.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = ((D \times 2 + 1) \times X \times N) + ((D \times 3 + 6) \times X)$ $14 \times D + 16 \leq width \leq 54 \times D + 54$ D: the number of barcode characters X: fine element width $2 \leq X \leq 6$ N: ratio of wide element width to fine element width (Set to 2, 2.5, or 3) X and N are automatically set according to <i>width</i> .

[QR Code]

Parameter	Limitation
<i>data</i>	Specify characters of the following range: • ASCII characters • 8 bits Latin/Katakana characters based on JIS X 0201 • Shift-JIS code based on JIS X 0208
<i>width</i>	$width = (4V + 17) \times M$ $42 \leq width$ V: version of QR Code (1 to 18) M: module size (2 to 16) For version, the smallest value that input data can be converted to barcode is selected. For module size, the maximum size that does not exceed <i>width</i> is selected after the version is determined.

QR Code model is fixed at 2 and the error correction level is fixed at M. Printing size is based on *width*, and *height* is ignored since QR Code is a square.

If data other than the printable characters is specified, *ErrorCode.Illegal* is thrown.

[GS1 Databar Limited]

Parameter	Limitation
<i>data</i>	Specify 13 letters consisting of '0' to '9'.
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>: The effective range of <i>height</i> depends on <i>width</i>. $width = 79 \times X$ $1^{*1} \leq width \leq 474$ X: module width $2 \leq X \leq 6$ X is automatically set according to <i>width</i>.</p>

*1: When 1 to 236 is set, *width* is set to 158.

[GS1 Databar Stacked]

Parameter	Limitation
<i>data</i>	Specify 13 letters consisting of '0' to '9'.
<i>height</i>	<p>Input the value other than 0. The value is set as $height = 26$ regardless of the input value.</p>
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>: Input the value other than 0. The value is set as $width = 100$ regardless of the input value.</p>

Module width is fixed at 2.

[GS1 Databar Truncated]

Parameter	Limitation
<i>data</i>	Specify 13 letters consisting of '0' to '9'.
<i>width</i>	<p>When MapMode = <i>MapMode.Dots</i>: The effective range of <i>height</i> depends on <i>width</i>. $width = 96 \times X$ $1^{*1} \leq width \leq 576$ X: module width $2 \leq X \leq 6$ X is automatically set according to <i>width</i>.</p>

*1: When 1 to 287 is set, *width* is set to 192.

[PDF417]

Parameter	Limitation
<i>data</i>	It must be a character string in which 0x00 to 0x7F follow the ASCII code and 0x80 to 0xFF follow the extended character set of PC437 English list.
<i>width</i> <i>height</i>	$width = (17 \times C + 69) \times X$ $180 \leq width$ $height = R \times Y$ $14 \leq height \leq 255$ X: module width (2 to 4) Y: module height (2 to 127) C: the number of vertical columns (1 to 30) R: the number of rows (3 to 90) For the number of rows and the number of vertical columns, the smallest value that input data can be converted to barcode is selected. For module width and module height, the maximum size that does not exceed <i>width</i> and <i>height</i> is selected after the number of rows and the number of vertical columns are determined.

Print mode is the normal mode and the error correction level is fixed to 4.

[UPC-A]

Parameter	Limitation
<i>data</i>	Specify 11 or 12 letters consisting of '0' to '9'. The 12th letter does not affect the barcode printing data.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = 95 \times X$ $190 \leq width \leq 570$ X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

[UPC-E]

Parameter	Limitation
<i>data</i>	Specify 11 or 12 letters consisting of '0' to '9'. The 12th letter does not affect the barcode printing data.
<i>width</i>	When MapMode = <i>MapMode.Dots</i> : $width = 51 \times X$ $102 \leq width \leq 306$ X: fine element width $2 \leq X \leq 6$ X is automatically set according to <i>width</i> .

Additionally, the allowable character must follow the rules below.

1. The 1st letter is "0".
2. The UPC-A left code indicates the 2nd to the 6th characters, the UPC-A right code indicates the 7th to the 11th characters, and the code to be abbreviated is actually printed as UPC-E. If the specified UPC-A initial character is other than 0 or a character not included in the following list is specified, *ErrorCode.Illegal* is thrown.

Maker Code UPC-A Left Code					Item Code UPC-A Right Code					Abbreviated Code					
F1	F2	F3	F4	F5	A1	A2	A3	A4	A5	Z1	Z2	Z3	Z4	Z5	Z6
0-9	0-9	0	0	0	0	0	0-9	0-9	0-9	F1	F2	A3	A4	A5	0
0-9	0-9	1	0	0	0	0	0-9	0-9	0-9	F1	F2	A3	A4	A5	1
0-9	0-9	2	0	0	0	0	0-9	0-9	0-9	F1	F2	A3	A4	A5	2
0-9	0-9	3-9	0	0	0	0	0-9	0-9	0-9	F1	F2	F3	A4	A5	3
0-9	0-9	0-9	1-9	0	0	0	0	0	0-9	F1	F2	F3	F4	A5	4
0-9	0-9	0-9	0-9	1-9	0	0	0	0	5-9	F1	F2	F3	F4	F5	A5

PrintBitmap Method

Syntax

void PrintBitmap(PrinterStation station, string fileName, int width, int alignment);

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>fileName</i>	Specifies the name of bitmap file. For the supported image file, see below.
<i>width</i>	Specifies the print width of bitmap. See values below.
<i>alignment</i>	Specifies the print position of bitmap. See values below.

• Supported bitmap file

Item	Specifications
Extension	bmp
Format	Windows Bitmap
Color	1, 4, 8, 24, or 32 bits
Compression format	Uncompressed only

• Values of *width*

Value	Meaning
<i>PrinterBitmapAsIs(-11)</i>	Prints the bitmap with 1 pixel per printer dot.
Other values	Expresses the bitmap width in the unit specified for MapMode . If MapMode is <i>MapMode.Dots</i> , specify the value from 1 to RecLineWidth .

The value is rounded up to a multiple of 8 inside the Service Object.

·Values of *alignment*

Value	Meaning
<i>PrinterBitmapCenter</i>	Printed with center.
<i>PrinterBitmapLeft</i>	Printed with left justify.
<i>PrinterBitmapRight</i>	Printed with right justify.
Other values	Printed with the left margin of the specified value. Expressed in the unit given by MapMode .

Description Call this method when printing the bitmap on the specified station.
The highest performance cannot be achieved since the bitmap data is sent to the printer after **PrintBitmap** is called. It is recommended to print the bitmap data using **SetBitmap** and escape sequence.
If any character data is already sent but not yet printed, that character data is printed first, a linefeed is automatically added, and then the bitmap is printed on the next print line. Any character data sent after **PrintBitmap** is printed on the print line following the bitmap. This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.
width controls the transformation of bitmap data. If *width* is *PrinterBitmapAsIs*, then no transformation is executed. The bitmap is printed with 1 pixel per printer dot.
If *width* is not 0, then the bitmap will be transformed by stretching or compressing the bitmap such that its width is the specified width and the aspect ratio is unchanged.

PrintImmediate Method

Syntax `void PrintImmediate(PrinterStation station, string data);`

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>data</i>	Specifies the characters to be printed. Consists of printable characters, escape sequences, carriage returns (CR), and line feeds (LF).

Description This method is used for printing immediately during asynchronous output.
When this method is specified during asynchronous output, processing of this method is executed before the next asynchronous output, after asynchronous output currently being processed.
PrintImmediate is intended for use in exception conditions when asynchronous output is not resolved, for example, in an error event handler.
The print data that exceeds the maximum number of characters per line is printed on the next print line.
If there is data remaining unprinted in the printer buffer, printing is executed after all the buffered data is printed.

The values and meanings of special characters within *data* are as follows.

Symbol	Operation
LF	Prints data in the buffer, and feeds to the next line.
CR	Replaceable with the same operation as line feed (LF).
LF & CR	Carriage return (CR) is replaceable with the same operation as line feed (LF). Therefore, operation of line feed (LF) is executed twice.
CR & LF	Carriage return (CR) is ignored. Operation of line feed (LF) is executed once.

When the printer function setting "Paper Saving Setting (Paper Saving)" is enabled, the value specified in the printer function setting "Paper Saving Setting (Paper Saving)" is applied to the line spacing when the carriage return (CR) or line feed (LF) is executed. (The value specified by **RecLineSpacing** is ignored.)

However, when any of the "Paper cut" escape sequence (ESC[*#*]P), the "Feed and Paper cut" escape sequence (ESC[*#*]fP), or **CutPaper** is executed after the paper is fed by the carriage return (CR) or line feed (LF), distance from the last print line to the cut position is not reduced because paper is cut after executing the paper feed for saved dot lines.

See "Technical Reference" for details.

PrintMemoryBitmap Method

Syntax **void PrintMemoryBitmap(PrinterStation *station*,**
 Bitmap *data*,
 int *width*,
 int *alignment*);

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>data</i>	Specifies the byte array holding the bitmap data. For the supported image file, see PrintBitmap .
<i>width</i>	Specifies the print width of bitmap. See PrintBitmap for values.
<i>alignment</i>	Specifies the print position of bitmap. See PrintBitmap for values.

Description Call this method when printing the bitmap on the specified station.

For the operation specifications, see **PrintBitmap**.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

PrintNormal Method

Syntax

void PrintNormal(PrinterStation station, string data);

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>data</i>	Specifies the characters to be printed. Consists of printable characters, escape sequences, carriage returns (CR), and line feeds (LF).

Description

Call this method when printing *data* on the printer.

The print data that exceeds the maximum number of characters per line is printed on the next print line.

If unprinted data remains in the printer buffer, printing is executed after all the buffered data is printed.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

The values and meanings of special characters within *data* are as follows.

Symbol	Operation
LF	Prints data in the buffer, and feed to the next line.
CR	Replaceable with the same operation as line feed (LF).
LF & CR	Carriage return (CR) is replaceable with the same operation as line feed (LF). Therefore, operation of line feed (LF) is executed twice.
CR & LF	Carriage return (CR) is ignored. Operation of line feed (LF) is executed once.

When the printer function setting "Paper Saving Setting (Paper Saving)" is enabled, the value specified in the printer function setting "Paper Saving Setting (Paper Saving)" is applied to the line spacing when the carriage return (CR) or line feed (LF) is executed. (The value specified by **RecLineSpacing** is ignored.)

However, when any of the "Paper cut" escape sequence (ESC|[#]P), the "Feed and Paper cut" escape sequence (ESC|[#]fP), or **CutPaper** is executed after the paper is fed by the carriage return (CR) or line feed (LF), distance from the last print line to the cut position is not reduced because paper is cut after executing the paper feed for saved dot lines.

See "Technical Reference" for details.

RotatePrint Method

Syntax

void RotatePrint(PrinterStation station, PrintRotation rotation);

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>rotation</i>	Specifies the rotation direction. See values below.

· Values of *rotation*

Value	Meaning
<i>PrintRotation.Right90</i>	Not supported.
<i>PrintRotation.Left90</i>	Not supported.
<i>PrintRotation.Rotate180</i>	Starts rotated printing 180°, that is, prints upside-down.
<i>PrintRotation.Barcode</i>	Starts rotated barcode printing. This value is ORed with one of the above start rotated print values.
<i>PrintRotation.Bitmap</i>	Starts rotated bitmap printing. This value is ORed with one of the above start rotated print values.
<i>PrintRotation.Normal</i>	Ends rotated printing.

Description

Executes the rotated printing.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

When *rotation* contains *PrintRotation.Rotate180*, the upside-down print mode is started. Subsequent calls to **PrintNormal** or **PrintImmediate** will print the data upside-down until **RotatePrint** is called with *rotation* set to *PrintRotation.Normal*. Lines are printed in the order that they are sent to the Service Object, with the start of each line justified at the right margin of the printer. When *rotation* does not contain *PrintRotation.Barcode* or *PrintRotation.Bitmap*, only the print methods **PrintNormal** and **PrintImmediate** are used during the upside-down print mode.

When *rotation* contains *PrintRotation.Normal*, the rotated print mode is exited. If some data is buffered by **PrintNormal** while the sideways rotated print mode is in effect, the buffered data is printed. The whole block of rotated lines is treated as one message.

When *rotation* contains *PrintRotation.Barcode* or *PrintRotation.Bitmap*, all of barcodes (printed by **PrintBarCode** or the "Print in-line barcode" escape sequence (ESC|#R)) and bitmaps (printed by **PrintBitmap** or the "Print bitmap" escape sequence (ESC|#B)) can be printed in a rotated mode by **RotatePrint**. The rotation direction of barcodes and bitmaps are limited by **RecBarCodeRotationList** and **RecBitmapRotationList** respectively. When *rotation* contains *PrintRotation.Barcode*, the contents of **RotateSpecial** are ignored. Calling **ClearOutput** cancels the rotated print mode. Any buffered lines of sideways rotated print are also cleared.

SetBitmap Method

Syntax **void SetBitmap**(int *bitmapNumber*,
 PrinterStation *station*,
 string *fileName*,
 int *width*,
 int *alignment*);

Parameter	Meaning
<i>bitmapNumber</i>	Specifies the number to be assigned to this bitmap. The valid values are 1 to 20.
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>fileName</i>	Specifies the name of bitmap file. If an empty string is set, the bitmap setting is canceled. For the supported image file, see PrintBitmap .
<i>width</i>	Specifies the print width of bitmap. See PrintBitmap for values.
<i>alignment</i>	Specifies the print position of bitmap. See PrintBitmap for values.

Description Call this method to save the information about the bitmap to be printed.
The bitmap may then be printed by calling **PrintNormal** or **PrintImmediate** with the "Print Bitmap" escape sequence (ESC|#B) in the print data. The "Print Bitmap" escape sequence (ESC|#B) usually contains the character strings for printing the start and end process headers.

If any character data was sent before the "Print Bitmap" escape sequence (ESC|#B) and has not been printed, that character data is printed first, a linefeed is automatically placed, and then the bitmap is printed. Any character data sent after the "Print Bitmap" escape sequence (ESC|#B) is printed on the line next to the bitmap.

Service Object prepares for printing with downloading bitmap data to the NV graphics area of the printer. When bitmap print is specified by escape sequence, only command which conducts printing is transmitted to provide better performance.

SetLogo Method

Syntax **void SetLogo(PrinterLogoLocation *location*, string *data*);**

Parameter	Meaning
<i>location</i>	Specifies the logo to be set.
<i>data</i>	Specifies the characters that produce the logo. Consists of printable characters, escape sequences, carriage returns (CR), and line feeds (LF).

·Values of *location*

Value	Meaning
<i>PrinterLogoLocation.Bottom</i>	Produces a bottom logo.
<i>PrinterLogoLocation.Top</i>	Produces a top logo.

Description Saves a data string as the top or bottom logo.
The logo can be printed by calling **PrintNormal** or **PrintImmediate** with "Print Top Logo" escape sequence (ESC|tL) or "Print Bottom Logo" escape sequence (ESC|bL) in the print data.

TransactionPrint Method

Syntax **void TransactionPrint(PrinterStation *station*, PrinterTransactionControl *control*);**

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>control</i>	Specifies the type of the transaction. See below for values.

·Values of *control*

Value	Meaning
<i>PrinterTransactionControl.Normal</i>	Ends a transaction by printing the buffered data.
<i>PrinterTransactionControl.Transaction</i>	Starts a transaction.

Description Enters or exits transaction mode.
If *control* is *PrinterTransactionControl.Transaction*, then transaction mode is entered. Subsequent calls to **PrintNormal**, **RotatePrint**, **PrintBarCode**, or **PrintBitmap** will buffer the print data until **TransactionPrint** is called with *control* set to *PrinterTransactionControl.Normal*.
The value of **AsyncMode** does not affect the operation. In other words, no **OutputId** is assigned to the request and no **OutputCompleteEvent** is enqueued.

If *control* is *PrinterTransactionControl.Normal*, then transaction mode is exited. If some data was buffered by calls to **PrintNormal**, **RotatePrint**, **PrintBarCode**, or **PrintBitmap** then the buffered data is printed. The entire transaction is treated as one message.

This method is executed synchronously if **AsyncMode** is *false*, and asynchronously if **AsyncMode** is *true*.

Calling **ClearOutput** cancels transaction mode. Any buffered print lines are also cleared.

ValidateData Method

Syntax **void ValidateData(PrinterStation *station*, string *data*);**

Parameter	Meaning
<i>station</i>	Specifies the station to be used. Specify <i>PrinterStation.Receipt</i> .
<i>data</i>	Specifies the data to be validated. Consists of printable characters, escape sequences, carriage returns (CR), and line feeds (LF).

Description Before calling **PrintNormal** or **PrintImmediate**, call this method when determining whether a data sequence, possibly including one or more escape sequences, is valid for the specified station.

This method does not cause any printing but is used to determine the capability of the station.

When not valid, the exception error is thrown. For details about the thrown exception errors, see "Appendix A Exceptions".

4.1.7 Events

This section describes the details of PosPrinter events.

DirectIOEvent Event

This event is not supported.

Syntax **DirectIOEventHandler DirectIOEvent;**

ErrorEvent Event

Syntax **DeviceErrorEventHandler ErrorEvent;**

Description This event is notified when an error is detected and State of the Service Object transitions into the error state.

When *DeviceErrorEventArgs.ErrorCode* is *ErrorCode.Extended*,
DeviceErrorEventArgs.ErrorCodeExtended is set to one of the following values:

Value	Meaning
<i>ExtendedErrorCoverOpen</i> (201)	The printer cover is open.
<i>ExtendedErrorRecEmpty</i> (203)	The paper is out of paper.
<i>ExtendedErrorVpPower</i> (1001)	Vp voltage error has occurred.
<i>ExtendedErrorCutterError</i> (1002)	Cutter error has occurred.
<i>ExtendedErrorHeadTemp</i> (1005)	Head-temperature error has occurred.
<i>ExtendedErrorFatal</i> (1010)	A non-recoverable error has occurred.
<i>ExtendedErrorMarkPaperJam</i> (1014)	Paper jam error has occurred at the mark detection.

The *DeviceErrorEventArgs.ErrorResponse* can be set to either of the following values by the application. The default is *ErrorResponse.Retry*.

Value	Meaning
<i>ErrorResponse.Clear</i>	Exits the error state and clears the asynchronous output.
<i>ErrorResponse.Retry</i>	Exits the error state and retries the asynchronous output.

OutputCompleteEvent Event

Syntax **OutputCompleteEventHandler OutputCompleteEvent;**

Description This event is notified when the previously started asynchronous output request has completed successfully.

OutputId indicates the ID number of the completed asynchronous output request.

StatusUpdateEvent Event

Syntax **StatusUpdateEventHandler StatusUpdateEvent;**

Description This event is notified when an important state change has occurred in the device.
The Service Object notifies the first **StatusUpdateEvent** when the device is enabled.

StatusUpdateEventArgs.Status is set to one of the following values:

Value	Meaning
<i>StatusCoverOpen</i> (11)	The printer cover is open.
<i>StatusCoverOK</i> (12)	The printer cover is closed.
<i>StatusReceiptEmpty</i> (24)	The paper is out of paper.
<i>StatusReceiptPaperOK</i> (26)	The paper is ready.
<i>StatusIdle</i> (1001)	All the asynchronous outputs finished either successfully or by being cleared. State is now <i>ControlState.Idle</i> . FlagWhenIdle must be <i>true</i> for this event to be notified. And the Service Object automatically resets the property to <i>false</i> before the event is notified.
<i>StatusPowerOnline</i> (2001)* ¹	The device is powered on and ready.
<i>StatusPowerOffOffline</i> (2004)* ¹	The device is powered off or offline.

*1: Notified when **PowerNotify** = *PowerNotification.Enabled*.

4.2 CashDrawer

CashDrawer is supported only by SLP721RT.

4.2.1 Summary

(1) Common Properties

Property Name	Type	Access	Availability Condition	Default
CapCompareFirmwareVersion	bool	R	Open	false
CapPowerReporting	PowerReporting	R	Open	Standard
CapStatisticsReporting	bool	R	Open	false
CapUpdateFirmware	bool	R	Open	false
CapUpdateStatistics	bool	R	Open	false
CheckHealthText	string	R	Open	""
Claimed	bool	R	Open	false
DeviceDescription	string	R	Open	"SII SLP721RT Cash Drawer"
DeviceEnabled	bool	R/W	Open	false
DeviceName	string	R	Open	"SLP721RT Cash Drawer"
FreezeEvents	bool	R/W	Open	false
PowerNotify	PowerNotification	R/W	Open	Disabled
PowerState	PowerState	R	Open	Unknown
ServiceObjectDescription	string	R	Open	"SII SLP721RT Cash Drawer Service Object, Copyright(C) 20xx Seiko Instruments Inc."
ServiceObjectVersion	Version	R	Open	1.12.x.x
State	ControlState	R	Open	Idle
SynchronizingObject	System. ComponentModel. ISynchronizeInvoke	R/W	Open	Depends on application.

(2) Specific Properties

Property Name	Type	Access	Availability Condition	Default
CapStatus	bool	R	Open	true
CapStatusMultiDrawerDetect	bool	R	Open	false
DrawerOpened	bool	R	Open, & Enable	Depends on drawer

(3) Common Methods

Method Name	Availability Condition
CheckHealth	Open, & Enable
Claim	Open
Close	Open
CompareFirmwareVersion	Open, Claim, & Enable
DirectIO	Open, & Enable
Open	-
Release	Open & Claim
ResetStatistic(string)	Open, & Enable
ResetStatistics()	Open, & Enable
ResetStatistics(StatisticCategories)	Open, & Enable
ResetStatistics(string[])	Open, & Enable
RetrieveStatistic(string)	Open, & Enable
RetrieveStatistics()	Open, & Enable
RetrieveStatistics(StatisticCategories)	Open, & Enable
RetrieveStatistics(string[])	Open, & Enable
UpdateFirmware	Open, Claim, & Enable
UpdateStatistic	Open, & Enable
UpdateStatistics(Statistic[])	Open, & Enable
UpdateStatistics(StatisticCategories, Object)	Open, & Enable

(4) Specific Methods

Method Name	Availability Condition
OpenDrawer	Open, & Enable
WaitForDrawerClose	Open, & Enable

(5) Events

Event Name	Availability Condition
StatusUpdateEvent	Open, & Enable

4.2.2 Common Properties

This section describes the details of the common properties for CashDrawer.
For details of the thrown exception errors, see "Appendix A Exceptions".

CapCompareFirmwareVersion Property

Type **bool**

Description Indicates whether the version of the firmware can be compared.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The function that compares firmware versions is not supported.

This property is initialized to *false* by **Open**.

CapPowerReporting Property

Type **PowerReporting**

Description Identifies the reporting capabilities of the device.
The following table shows the valid property values.

Value	Meaning
<i>PowerReporting.Standard</i>	The following 2 types of power states can be determined and reported. <ul style="list-style-type: none">• <i>PowerState.OffOffline</i> (power off or offline)• <i>PowerState.Online</i>

This property is initialized to *PowerReporting.Standard* by **Open**.

CapStatisticsReporting Property

Type **bool**

Description Indicates the statistics accumulation function of the device.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	No statistical data regarding the device is available.

This property is initialized to *false* by **Open**.

CapUpdateFirmware Property

Type **bool**

Description Indicates whether the device supports firmware updating.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	Firmware update is not supported.

This property is initialized to *false* by **Open**.

CapUpdateStatistics Property

Type **bool**

Description Indicates the function that some or all the device statistics can be reset.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	None of the statistical data can be reset/updated.

This property is initialized to *false* by **Open**.

CheckHealthText Property

Type **string**

Description Holds the results of the most recent call to **CheckHealth**.
The results of diagnosis are as follows.

Method Parameter	Method Result	CheckHealthText
<i>HealthCheckLevel.External</i>	Success	"External HCheck: Successful"
	Fail	"External HCheck: Failure"
<i>HealthCheckLevel.Interactive</i> ^{*1}	Success	"Interactive HCheck: Successful"
	Fail	"Interactive HCheck: Failure"
<i>HealthCheckLevel.Internal</i>	Success	"Internal HCheck: Successful"
	Fail	"Internal HCheck: Failure"

^{*1}: In the case of *HealthCheckLevel.Interactive*, if the dialog box is closed without testing after execution, "Interactive HCheck: Canceled" is set.

This property is initialized to empty string by **Open**.

Claimed Property

Type **bool**

Description Indicates whether the device is claimed for exclusive access.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The device is released for sharing with other applications.
<i>true</i>	The exclusive access to the device is obtained.

This property is initialized to *false* by **Open**.

DeviceDescription Property

Type **string**

Description Identifies the device and any pertinent information about it.
This property depends on **DeviceName**.
This property is initialized to the following values by **Open**.

DeviceName	Value
"SLP721RT Cash Drawer"	"SII SLP721RT Cash Drawer"

DeviceEnabled Property R/W

Type **bool**

Description Indicates whether the device has been placed in an operational state.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The device has been disabled. If changed to <i>false</i> , then the device is disabled.
<i>true</i>	The device has been placed in an operational state. If changed to <i>true</i> , then the device is brought to an operational state.

The application must set this property to *true* before using the device.

If **State** is other than *ControlState.Idle*, **DeviceEnabled** cannot be changed from *true* to *false*.

This property is initialized to *false* by **Open**.

DeviceName Property

Type **string**

Description Identifies the device and any pertinent information about it.
This property is initialized to the following values by **Open**.

Printer to Which Cash Drawer is Connected	Value
SLP721RT	"SLP721RT Cash Drawer"

FreezeEvents Property R/W

Type **bool**

Description Selects whether to notify events.
The following table shows the valid property values.

Value	Meaning
<i>false</i>	The application allows events to be delivered. If some events have been held while events were frozen and all other conditions are correct for delivering the events, changing FreezeEvents to <i>false</i> will allow these events to be delivered.
<i>true</i>	The application has requested that the Service Object not deliver events. Events will be enqueued by the Service Object but not delivered until the application changes FreezeEvents to <i>false</i> .

An application may choose to freeze events for a specific sequence of code where interruption by an event is not desirable.

This property is initialized to *false* by **Open**.

PowerNotify Property R/W

Type **PowerNotification**

Description Contains the type of power notification selection made by the application.
The following table shows the valid property values.

Value	Meaning
<i>PowerNotification.Disabled</i>	The Service Object will not provide any power notifications to the application. No power notification StatusUpdateEvents will be fired, and PowerState will not be set.
<i>PowerNotification.Enabled</i>	The Service Object will fire the power notification StatusUpdateEvents and update PowerState beginning when DeviceEnabled is set to <i>true</i> . The level of functionality depends upon CapPowerReporting .

PowerNotify may only be set while the device is disabled; that is, while **DeviceEnabled** is *false*.

This property is initialized to *PowerNotification.Disabled* by **Open**.

PowerState Property

Type **PowerState**

Description Identifies the current power condition of the device.
The following table shows the valid property values.

Value	Meaning
<i>PowerState.OffOffline</i>	The device is powered off or offline.
<i>PowerState.Online</i>	The device is powered on and ready.
<i>PowerState.Unknown</i>	Cannot determine the device's power state for one of the following reasons: <ul style="list-style-type: none">• PowerNotify = <i>PowerNotification.Disabled</i>• DeviceEnabled = <i>false</i>

This property is initialized to *PowerState.Unknown* by **Open**.

ServiceObjectDescription Property

Type **string**

Description A character string that identifies the Service Object is set to this property.
This property is initialized to the following values by **Open**.

DeviceName	Value
"SLP721RT Cash Drawer"	"SII SLP721RT Cash Drawer Service Object, Copyright (C) 20xx Seiko Instruments Inc."

ServiceObjectVersion Property

Type **Version**

Description Holds the Service Object version number.
Version numbers consist of four integers, Major, Minor, Build, and Revision.
The Major and Minor version numbers should be set to the UPOS version that the Service Object implements.
For example, when Build version is A, Revision version is B, this property is initialized "1.12.A.B" by **Open**.

State Property

Type **ControlState**

Description Contains the current state of the device.
The following table shows the valid property values.

Value	Meaning
<i>ControlState.Busy</i>	The device is in a normal state and is busy executing output.
<i>ControlState.Closed</i>	The device is closed.
<i>ControlState.Error</i>	An error has been reported, and the application must recover the Control to a normal state before normal I/O can resume. This state is only possible inside the ErrorEvent event handler.
<i>ControlState.Idle</i>	The device is in a good state and is not busy.

This property is always readable.

This property is initialized to *ControlState.Idle* by **Open**.

SynchronizingObject Property

Type **System.ComponentModel.ISynchronizeInvoke**

Description Contains an instance of the **ISynchronizeInvoke** class. Applications can use this property to specify the thread events that are to be delivered on.
If **SynchronizingObject** is set to null, events are delivered on an internal thread owned by the Service Object.
Applications using Windows Forms should set **SynchronizationObject** to the *this* pointer of the main **Form** class so that events are delivered on the main application thread as required by the **Form** class.

Appendix A Exceptions

A.1 PosPrinter Exception Error List

(1) Property

ErrorCode	ErrorCode Extended	Meaning
Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
Illegal	0	This property is not supported. Parameter has an error.
NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.

(2) Method

Method	ErrorCode	ErrorCode Extended	Meaning
BeginInsertion BeginRemoval ChangePrintSide CompareFirmwareVersion EndInsertion EndRemoval PageModePrint PrintTwoNormal UpdateFirmware UpdateStatistic(s)	Illegal	0	This method is not supported.
CheckHealth	Busy	0	Cannot perform while output is in progress or an error occurs.
	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	Illegal	0	Parameter has an error.
	NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.

Method	ErrorCode	ErrorCode Extended	Meaning
Claim	Claimed	0	Attempt was made to access a device that is exclusively accessed by another process.
	Failure	0	Communication with the printer failed.
	Illegal	0	Parameter has an error.
	NoHardware	0	The printer is powered off or the cable is not connected.
	Timeout	0	Another application has exclusive access to the device and the <i>timeout</i> (in milliseconds) has elapsed before the device is released. Or the device did not become available even though the <i>timeout</i> (in milliseconds) has elapsed.
ClearOutput	NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.
ClearPrintArea	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.
Close	Busy	0	State is set to <i>ControlState.Busy</i> . This means that the device is busy and cannot be stopped.
	Closed	0	The device is already closed.
Open	Illegal	0	The device is already open.
CutPaper DirectIO MarkFeed PrintBarcode PrintBitmap PrintMemoryBitmap PrintNormal PrintImmediate RotatePrint SetBitmap TransactionPrint	Busy	0	Cannot perform while output is in progress or an error occurs.
	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	Extended	201	The printer cover is open.
	Extended	203	The paper is out of paper.
	Extended	1001	Vp voltage error has occurred.
	Extended	1002	Cutter error has occurred.
	Extended	1005	Head-temperature error has occurred.
	Extended	1010	A non-recoverable error has occurred.
	Extended	1014	Paper jam error occurred at the mark detection.
	Failure	0	Communication with the printer failed.
	Illegal	0	Parameter has an error.
	NoHardware	0	The printer is powered off or the cable is not connected.
	NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.
	Timeout	0	Data transmit timeout or data receive timeout has occurred.
Release	NotClaimed	0	The device is not exclusive.

Method	ErrorCode	ErrorCode Extended	Meaning
ValidateData	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	Failure	0	At least one of the escape sequences is not supported. No alternatives can be selected.
	Illegal	0	At least one of the escape sequences is out of the range. However, the Service Object can select valid alternatives. Also, this value is placed when the escape sequence is not supported by the Page Mode or rotated 90° left or right print mode.
	Illegal	0	Parameter has an error.
	NotClaimed	0	Exclusive access is not available. Call Claim to gain exclusive access.

ErrorCode.Illegal is thrown for **ValidateData** in the following cases:

Escape Sequence	Condition
Paper cut	Percentage '#' is not precisely supported.
Feed and Paper cut	Percentage '#' is not precisely supported.
Print bitmap	No printable bitmap exists.
Feed lines	The number of lines '#' is not correct.
Feed units	It is in either of the following states. <ul style="list-style-type: none"> • The amount of feed '#' is not precisely supported due to occurrence of rounding error of one dot depending on the setting of MapMode. • The amount of feed '#' is not correct.
Pass through embedded data	The number of bytes of embedded data '#' is not correct.
Print in-line barcode	The character string following ESC #R is not correct.
Underline	The thickness '#' is not correct.
Scale vertically	The scale factor '#' is not correct.
Scale horizontally	The scale factor '#' is not correct.
Left justify	-
Center	-
Right justify	-

ErrorCode.Failure is thrown for **ValidateData** in the following cases:

Escape Sequence	Condition
Feed, Paper cut, and Stamp	Not supported.
Print bitmap	The bitmap number '#' is not correct.
Print stamp	Not supported.
Feed reverse	Not supported.
Font typeface	Not supported.
Italic	Not supported.
Custom color	Not supported.
Red color	Not supported.
Shading character	Not supported.
Color option	Not supported.
SubScript	Not supported.
SuperScript	Not supported.
Strike-through	Not supported.

A.2 CashDrawer Exception Error List

(1) Property

ErrorCode	ErrorCode Extended	Meaning
Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
Illegal	0	This property is not supported. Parameter has an error.

(2) Method

Method	ErrorCode	ErrorCode Extended	Meaning
CompareFirmwareVersion UpdateFirmware UpdateStatistic(s) ResetStatistic(s) RetrieveStatistic(s)	Illegal	0	This method is not supported.
CheckHealth	Busy	0	Cannot perform while output is in progress or an error occurs.
	Claimed	0	Attempt was made to access a device that is exclusively accessed by another process.
	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	Failure	0	Could not confirm that the cash drawer was opened.
	Illegal	0	Parameter has an error.
Claim	Claimed	0	Attempt was made to access a device that is exclusively accessed by another process.
	Failure	0	Communication with the printer failed.
	Illegal	0	Parameter has an error.
	NoHardware	0	The printer is powered off or the cable is not connected.
	Timeout	0	Another application has exclusive access to the device and the <i>timeout</i> (in milliseconds) has elapsed before the device is released. Or the device did not become available even though the <i>timeout</i> (in milliseconds) has elapsed.
Close	Closed	0	The device is already closed.
Open	Illegal	0	The device is already open.
OpenDrawer	Claimed	0	Attempt was made to access a device that is exclusively accessed by another process.
	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .

Method	ErrorCode	ErrorCode Extended	Meaning
OpenDrawer	Failure	0	Communication with the printer failed.
	NoHardware	0	The printer is powered off or the cable is not connected.
	Timeout	0	Data transmit timeout or data receive timeout has occurred.
WaitForDrawerClose	Claimed	0	Attempt was made to access a device that is exclusively accessed by another process.
	Disabled	0	Not enabled. Call this after setting DeviceEnabled to <i>true</i> .
	NoHardware	0	The printer is powered off or the cable is not connected.
Release	NotClaimed	0	The device is not exclusive.

Appendix B Statistics

(1) StatisticCategories.Upos

XML Definition Name	Response	Can Be Reset
JournalCoverOpenCount	0	-
ReceiptLineFeedCount	Number of receipt line feeds performed (unit: 100 dot-line)	✓
PrintSideChangeCount	0	-
ReceiptCharacterPrintedCount	0	-
ReceiptCoverOpenCount	0	-
ManufactureDate	Unknown	-
PaperCutCount	Number of paper cuts	✓
UnifiedPOSVersion	1.12	-
SlipCoverOpenCount	0	-
HoursPoweredCount	Number of hours powered on (unit: hour)	✓
FirmwareRevision	Firmware version	-
SerialNumber	Unknown	-
ReceiptLinePrintedCount	0	-
InstallationDate	Unknown	-
MechanicalRevision	25	-
FailedPaperCutCount	0	-
StampFiredCount	0	-
FailedPrintSideChangeCount	0	-
JournalCharacterPrintedCount	0	-
SlipCharacterPrintedCount	0	-
ManufacturerName	Seiko Instruments Inc.	-
PrinterFaultCount	0	-
MaximumTempReachedCount	0	-

XML Definition Name	Response	Can Be Reset
ModelName	SLP720RT	-
CommunicationErrorCount	0	-
JournalLinePrintedCount	0	-
SlipLineFeedCount	0	-
HomeErrorCount	0	-
FormInsertionCount	0	-
Interface	Unknown	-
DeviceCategory	POSPrinter	-
BarcodePrintedCount	0	-
NVRAMWriteCount	0	-
SlipLinePrintedCount	0	-

(2) StatisticCategories.Manufacturer

XML Definition Name	Response	Can Be Reset
HoursPoweredCount_Accumulated	Number of hours powered on (unit: hour) (accumulated)	-
PaperCutCount_Accumulated	Number of paper cuts (accumulated)	-
ReceiptLineFeedCount_Accumulated	Number of receipt line feeds performed (unit: 100 dot-line) (accumulated)	-