

**EPSON OPOS ADK for .NET Manual**

# **Application Development Guide**

## **POSPrinter (TM-L100)**

Version 1.14.22 Jan. 2022

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# Chapter 1 Introduction

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This manual includes explanations on how to use a POSPrinter with EPSON OPOS ADK for .NET, as well as related items and device-specific precautions.

For details on the POS for .NET API, refer to the "UnifiedPOS Retail Peripheral Architecture Version 1.14.1" specification and the MSDN "POS for .NET v1.14.1 SDK Documentation": Refer to the release notes for information on where to find the latest information.

## 1.1 Terminology

- "UnifiedPOS Retail Peripheral Architecture Version 1.14.1" may be abbreviated as "UPOS".
- "Microsoft POS for .NET" may be abbreviated as "POS.NET".
- "EPSON OPOS ADK for .NET Version 1.14.22" may be abbreviated as "OPOS.NET".
- "POSPrinter" and "printer" may be referred to as "device".
- "ServiceObject of POSPrinter provided by OPOS.NET" may be abbreviated as "ServiceObject".
- "ErrorCode properties of PosControlException" may be abbreviated as "ErrorCode".
- "ErrorCodeExtended properties of PosControlException" may be abbreviated as "ErrorCodeExtended".
- "JrnLineChars", "RecLineChars", "SlpLineChars" and other properties defined commonly for stations may appear as "**Stn**". For example, "**Stn**LineChars" character strings for indicating stations.
- "Exception" indicates "PosControlException".
- The EPSON original device constant used with this device is defined in "jp.co.epson.uposcommon.EpsonUPOSConst" and "jp.co.epson.uposcommon.EpsonPOSPrinterConst".
- Inch: 1 inch is 25.4 mm.
- "dpi" is the number of dots per inch.
- The language specification of the device may be indicated as follows.  
ANK specification: Device without multi-byte characters
- Wired LANs and wireless LANs may be referred to as networks.
- A "receipt", "journal", or "slip" indicates either a station or paper depending on the context.
- NVRAM indicates non-volatile random access memory.

## Chapter 2 Before Using POSPrinter

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This chapter includes explanations on how to set up a POSPrinter, as well as precautions and restrictions on use.

### 2.1 Device Setup

After checking the model and settings of the hardware, use the SetupPOS utility to select the correct device. For details on how to configure hardware, refer to “Hardware Settings” for each device in [“Appendix-C Hardware Settings”](#). For details on how to use the SetupPOS utility, refer to the User’s Reference Guide and [“Appendix-B SetupPOS Settings”](#).

### 2.2 Precautions and Restrictions

- Only DTR/DSR device flow control is supported.
- If you turn the device off and then on or open the cover during printing, unnecessary data may be printed.
- Wait at least five seconds after the device has been turned off before turning it back on.
- Using ESC|#E to send data may hinder the subsequent operations of the ServiceObject or cause an unexpected result because the sent data is not checked by ServiceObject.
- Sending a print control command is not recommended. Careful consideration is required before sending such a command.
- Not all Unicode characters can be printed even if PosCommon.CharacterSetUnicode is specified in the **CharacterSet** property. The assignment of Unicode characters to printable characters is limited to the characters installed on the device. The characters installed on a device vary depending on the device specification. Please refer to the product specification for your particular device.
- Any character code (Unicode) expressed in the string type is converted to a byte code based on the value set in the **CharacterSet** property. Be careful if you want to specify the extended ASCII code for byte code conversion.

- All properties and parameters of a method affected by the **MapMode** property are processed by “dot”. Therefore, when the **MapMode** property is other than MapMode.Dots, an error of  $\pm 1$  may be produced in the property and the parameter of the method affected by the **MapMode** property.
- Only a value described in the **StnLineCharsList** property can be set in the **StnLineChars** property. If a value other than a value described in the **StnLineCharsList** property is set, the value is set to the nearest value that is smaller in the **StnLineCharsList** property. However, an exception is thrown if a value larger than the largest value described in the **StnLineCharsList** property is set.
- If 254 or 255 is specified in the **CharacterSet** property and PTR\_DI\_NONE is the specification of the PTR\_DI\_BINARY\_CONVERSION command of the **DirectIO** method, the Unicode encoding name becomes the system default encoding name.
- When NVRAM is used by the **SetBitmap** method, no consideration is given to other applications saving images to NVRAM.
- The device has a limit for the number of times the write to NVRAM operation can be performed. Try your utmost to avoid programming that involves using the **SetBitmap** method and **DirectIO** method for repeated saving and deleting because the write to NVRAM operation is performed when saving and deleting an image.
- A partial cut leaving one point uncut or full cut is performed with the **CutPaper** method. However, this switch does not take place at the ServiceObject. Shifting the cutter position of device facilitates the switch.
- A column compatible function can be set. The column compatible function has the following modes.
  - 48 characters per line
  - 42 characters per line
  - 35 characters per line
  - 23 characters per line

After initialization, the printer works with the device settings, so these settings will be ignored if they differ from the device settings.

The column compatible function will be mapped as indicated below.

- When 42 column mode is enabled, the function is mapped to 42 characters per line of 80mm.

- About Paper Removal Standby

TM-L100 has a model equipped with a "Paper Removal Standby".

If you execute the printing method without removing the paper after executing the paper cut, the following exception will be notified.

ResultCode: E\_ILLEGAL

ResultCodeExtended: EPTR\_LABEL\_REMOVAL

The error status is cleared by removing the paper.

Note the following points.

- The following peripheral devices may stop operating until the paper is removed after the paper is cut.
  - Customer display
  - Buzzer(Internal, Option)

Remove the paper and it will resume working.

When using the buzzer, the buzzer can be sounded while waiting for paper removal by changing the "Buzzer Sound(Removal Standby)".

- If you cut the paper multiple times in one transaction, printing will not be performed after the cut until the paper is removed.

If you want to print continuously, disable this function.

The one transaction is as follows.

- Executing the escape sequence for the cut multiple times in the **PrintNormal** or **PrintImmediate** method.
- Executing the **CutPaper** method multiple times within the **TransactionPrint** method.

- It is recommended to run the autocutter operation after a minimum of 10 lines or 35 mm {1.38"} of printing or paper feeding. (This is to prevent small pieces of cut paper from dropping into the autocutter to cause paper jams. Also, when using the paper removal standby setting, it is difficult to remove paper after it is ejected.)

## Chapter 3 Properties, Methods, and Events

---

### 3.1 Properties

The properties listed below differ from functions described in UPOS.

#### 3.1.1 CapPowerReporting Property

##### Description

Identifies the reporting capabilities of the device.

One of the following values is set.

Value	Meaning
PowerReporting.Standard	The value set when a serial or Bluetooth connection is established. ServiceObject can determine and report two of the power states: OFF_OFFLINE (the device is off or offline) and ONLINE.
PowerReporting.Advanced	The value set when a parallel, USB and network connection is established. ServiceObject can determine and report three of the power states: OFF, OFFLINE, and ONLINE.

#### 3.1.2 CapCharacterSet Property

##### Description

This property is initialized by the **Open** method according to the “Multi Byte Character Type” setting of SetupPOS. However, after the **Claim** method is executed, the value may be changed depending on the actual language of the device.

One of the following values is set.

Value	Meaning
CharacterSetCapability.Unicode	Able to print the equivalent to a Unicode character, within the limits of the printable characters of the device.



### 3.1.3 CapRecMarkFeed Property

#### Description

This property is set in **PrinterMarkFeeds.None** by the Open method.  
After executing the Claim method, it may be changed according to the paper settings and loading functions of the actual device.

### 3.1.4 CharacterSet Property

#### Description

Only a value in the **CharacterSetList** property can be set.  
If the value of the property is set to 932, the print character for the ASCII code 0x5C is changed to the yen mark (¥).  
The property is initialized to one of the following values.

Value	Meaning
CharacterSetUnicode(997)	Print an equivalent Unicode character, within the limits of the printable characters of the device.

### 3.1.5 MapMode Property

#### Description

All properties and parameters of a method affected by the **MapMode** property are processed by “dot”.  
When the **MapMode** property is other than MapMode.Dots, an error of  $\pm 1$  may be produced in the property and the parameter of the method affected by the **MapMode** property.

### 3.1.6 RecLineChars Property

#### Description

After the **Claim** method is executed, the value may be changed according to the specification of the device.  
Only a value in the **RecLineCharsList** property can be set.

### 3.1.7 RecLineCharsList Property

#### Description

After the **Claim** method is executed, the value may be changed according to the specification of the device.

**3.1.8 RecLineSpacing Property****Description**

A value smaller than the **RecLineHeight** property can also be set.  
 If a value smaller than the **RecLineHeight** property is set, it is changed to the value of the **RecLineHeight** property for operation. Character strings in the first and second lines do not overlap when printed.

**3.1.9 RecLineWidth Property****Description**

After the **Claim** method is executed, the value may be changed according to the specification of the device.

**3.1.10 RecLetterQuality Property****Description**

When this property is changed, other properties, such as printing resolution and control method of the head are changed.  
 They vary depending on the head type of the station.  
 However, changing the printing resolution does not change the values of properties such as **RecLineWidth** and **RecLineSpacing**.

Station	Description of Change
Receipt	Setting/canceling of smoothing of double height/width characters. Changing of printing resolution.

**3.1.11 RecSidewaysMaxLines Property****Description**

After the **Claim** method is executed, the value may be changed according to the specification of the device.

### 3.1.12 DeviceEnabled Property

#### Description

When the **DeviceEnabled** property is set to TRUE first after the **Claim** method is executed, device initialization is performed.

In the following states, device initialization cannot be done:

- Offline (e.g. Cover open, out of paper, etc.)
- Error (e.g. Paper jam)

When the **DeviceEnabled** property is set to TRUE, the printer state is notified via a **StatusUpdateEvent**.

If the **StatusUpdateEvent** for the printer stat is not defined in UPOS, however, the **StatusUpdateEvent** cannot be notified. In this case, the printer status can be found by examining the exception that is notified when the method is executed.

If the device initialization cannot be done when the **DeviceEnabled** property is set to TRUE, a device status is checked at an interval of 1 second, and it is repeated until the device initialization is performed completely.

The device initialization status can be found by enabling the **PowerNotify** property.

When StatusPowerOnline is notified by a **StatusUpdateEvent**, the initialization process is complete.

In addition, the initialization process may take several seconds depending on the connection speed and the image registration status.

## **3.2 Methods**

The methods listed below differ from functions described in UPOS.

### **3.2.1 Claim Method**

#### **Description**

The device connection state is confirmed. If the device is not connected, or if the power is OFF, an exception is thrown. In the case of a Serial connection, the device connection state cannot be confirmed. In this case, Success is always returned. In the case of a USB connection where the "Port Name Type" is set to "Device Name", if the printer is in an error state, an exception is thrown.

### **3.2.2 Release Method**

#### **Description**

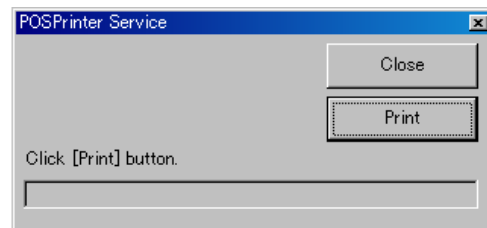
The connection is disconnected at the port where the device is connected.

### 3.2.3 CheckHealth Method

#### Description

All functions of the **CheckHealth** method are supported.

Level	Outline of Function
HealthCheckLevel.Internal	The state of the device is checked based on the information held in the current ServiceObject (no action is taken on the device).
HealthCheckLevel.External	A test print of the following character strings is performed on the station selected currently. External HCheck !! EPSON UPOS ADK ServiceVersion=version of the ServiceObject DeviceName=device name
HealthCheckLevel.Interactive	The following dialog box appears.



Press the Print button to perform the test.

A test print of the following character strings is performed on the station currently selected.

- Interactive HCheck !!
- EPSON UPOS ADK
- ServiceVersion=version of the ServiceObject
- DeviceName=device name

Press the Close button to end the test.

The results are stored in the **CheckHealthText** property.  
And besides, the following value is retrieved as the returned value of method.

level	Value	Meaning
HealthCheckLevel.Internal	Internal HCheck: Successful	The <b>CheckHealth</b> method finished normally.
	Internal HCheck: Error-<Message>	The <b>CheckHealth</b> method finished with an error. The Message contains error information.
HealthCheckLevel.External	External HCheck: Successful	The <b>CheckHealth</b> method finished normally.
	External HCheck: Error-<Message>	The <b>CheckHealth</b> method finished with an error. The Message contains error information.
HealthCheckLevel.Interactive	Interactive HCheck: Canceled	The <b>CheckHealth</b> method finished without doing anything.
	Interactive HCheck: Complete	After the last operation ended normally, the <b>CheckHealth</b> method finished.
	Interactive HCheck: Error-<Message>	After the last operation finished with an error, the <b>CheckHealth</b> method finished. The Message contains error information.

### 3.2.4 ClearOutput Method

#### Description

In asynchronous mode, only output data that is non-transmitted transaction data is deleted. Therefore, data in the current transmission and data sent to the device but not printed is not deleted.

### 3.2.5 DirectIO Method

#### Description

This method can be used when the **DeviceEnabled** property is true. The **DirectIO** method supports the following functions.

command	Outline of Function
PTR_DI_OUTPUT_NORMAL	Sends the specified code to the device using flow control.
PTR_DI_OUTPUT_REALTIME	Sends the specified code to the device without using flow control.
PTR_DI_PANEL_SWITCH	Enables/disables the panel switch.
PTR_DI_RECOVER_ERROR	Recovers from a recoverable error.
PTR_DI_DELETE_NVIMAGE	Deletes the bitmap saved to NVRAM.
PTR_DI_CODE128_TYPE	Specifies the default code for Code128.
PTR_DI_BINARY_CONVERSION	Specifies the character string format specified in the parameter of the string type.
PTR_DI_GET_SUPPORT_FUNCTION	Returns the functions supported by the device currently connected.
PTR_DI_CUT_AND_FEED_TOF	Cuts the paper and then feeds the paper to the top of form.
PTR_DI_RING_BUZZER_WITH_TIME	Executes buzzer control.
PTR_DI_SOUND_MELODY	Play melody

- **PTR\_DI\_OUTPUT\_NORMAL Command**

**Parameter**


---

<i>command</i>	PTR_DI_OUTPUT_NORMAL
<i>data</i>	Not used
<i>object</i> (byte[]type)	Transmission data

**Description**

Sends data specified by the *object* parameter to the device directly using flow control.

Use this command only when sending an ESC/POS command to the device.

The ServiceObject does not check data sent by this command.

Do not send ESC/POS commands that change the line feed amount or font size, since doing so will hinder the subsequent operations of the ServiceObject.

- **PTR\_DI\_OUTPUT\_REALTIME Command**

**Parameter**


---

<i>command</i>	PTR_DI_OUTPUT_REALTIME
<i>data</i>	Not used
<i>object</i> (byte[]type)	Transmission data

**Description**

Sends data specified by the *object* parameter to the device directly without using flow control.

Use this command only when sending a real-time ESC/POS command to the device.

As this command is sent without using flow control, garbled printing may occur if there is any unsent data in the ServiceObject.



## ● PTR\_DI\_PANEL\_SWITCH Command

### Parameter

---

<i>command</i>	PTR_DI_PANEL_SWITCH
<i>data</i>	Specify ON/OFF (0 is OFF and 1 is ON)
<i>object</i>	Not used

### Description

Enables/disables the panel switch.

The panel switch is enabled if *data* is set to ON (1) and disabled if *data* is set to OFF (0).

Depending on the type of device, there may be exceptions such as the following.

- During switch standby when a macro is being executed, the switch is enabled regardless of the setting.
- When the cover is open, the switch is disabled regardless of the setting.

## ● PTR\_DI\_RECOVER\_ERROR Command

### Parameter

---

<i>command</i>	PTR_DI_RECOVER_ERROR
<i>data</i>	Not used
<i>object</i>	Not used

### Description

Recovers from a recoverable error.

This command sends the error recovery command to the device without using flow control.

Do not use this command when the device is in a non-recoverable error state.

## ● PTR\_DI\_DELETE\_NVIMAGE Command

### Parameter

---

<i>command</i>	PTR_DI_DELETE_NVIMAGE
<i>data</i>	Specify the key code to delete
<i>object</i>	Not used

### Description

Deletes the image of the key code specified for the *data* parameter from NVRAM.

Use the key code reported by the **DirectIOEvent** event when **SetBitmap** is executed.

If the key code is specified by PTR\_DI\_DELETE\_ALL, all the images saved to NVRAM are deleted.

If an image saved to NVRAM is deleted, the following information is also deleted.

- The image information of NVRAM on the PC.
- The registration information of the **SetBitmap** method associated with the key code to be deleted.

## ● PTR\_DI\_CODE128\_TYPE Command

### Parameter

---

<i>command</i>	PTR_DI_CODE128_TYPE
<i>data</i>	Specify one of the following. <ul style="list-style-type: none"> <li>• PTR_DI_CODE_A</li> <li>• PTR_DI_CODE_B</li> <li>• PTR_DI_CODE_C</li> </ul>
<i>object</i>	Not used

### Description

Specifies the default code for the CODE128 barcode.

To print the CODE128 barcode, codes A, B, and C need to be specified at the beginning of the printing data. If they are not specified at the beginning of the printing data of the **PrintBarCode** method, use the code specified with this command to print the CODE128 barcode.

The default setting is PTR\_DI\_CODE\_A.

- **PTR\_DI\_BINARY\_CONVERSION Command**

**Parameter**


---

<i>command</i>	PTR_DI_BINARY_CONVERSION
<i>data</i>	Specify one of the following. <ul style="list-style-type: none"> <li>• PTR_DI_BC_NONE</li> <li>• PTR_DI_BC_NIBBLE</li> <li>• PTR_DI_BC_DECIMAL</li> </ul>
<i>object</i>	Not used

**Description**

Specifies the character string format specified in the parameter of the string type.

The specification is the same as that of the **BinaryConversion** property of OPOS.

Use this command for the printing of two-dimensional codes and for a **CharacterSet** property for which Unicode specification is not possible.

The setting of this command is valid for the following methods.

- **PrintBarCode** method
- **PrintNormal** method (only when the **CharacterSet** property is a blank page [254, 255])
- **PrintImmediate** method (only when the **CharacterSet** property is a blank page [254, 255])

- **PTR\_DI\_GET\_SUPPORT\_FUNCTION Command**

**Parameter**


---

<i>command</i>	PTR_DI_GET_SUPPORT_FUNCTION
<i>data</i>	Not used
<i>object</i>	Not used

**Description**

Indicates the functions supported by the currently connected device with the logical OR of the function flag, and stores the returned value in the Data property of DirectIOData.

The value 0 is always stored in the Data property.

- **PTR\_DI\_CUT\_AND\_FEED\_TOF Command**

**Parameter**


---

<i>command</i>	PTR_DI_CUT_AND_FEED_TOF
<i>data</i>	Cut rate
<i>object</i>	Not used

**Description**

Cuts the paper and then feeds the paper to the top of form.

When this command is executed, the printer first feeds the paper to the cut position. The paper is then cut using the specified cut rate and fed to the top of form.

Feeding the paper to the top of form after cutting allows for a reduction in blank space at the top of the paper, thus enabling efficient use of the paper. Furthermore, use of this command is possible irrespective of paper type because it can also be used with the receipt paper setting.

Though the cutting rate can be specified using the *data* parameter of **DirectIO**, for this device, the cutting rate does not change according to the value of *data* parameter, because the cutting rate depends on the installed position of the auto cutter unit. However, when values other than 0 to 100 are specified with the *data* parameter, an exception is thrown.

- **PTR\_DI\_RING\_BUZZER\_WITH\_TIME Command**

Parameter	
<i>command</i>	PTR_DI_RING_BUZZER_WITH_TIME
<i>data</i>	Specifies the buzzer operating time (milliseconds).
<i>object</i>	Not used

#### Description

Sounds the buzzer for the time specified with the *data* parameter. The settable buzzer operating time is 0 to 510 milliseconds. This command can only be executed when the device is used with a network connection. If other connections are used, an exception is thrown.

- **PTR\_DI\_SOUND\_MELODY Command**

Parameter	
<i>command</i>	PTR_DI_SOUND_MELODY
<i>data</i>	Constant corresponding to the sound pattern
<i>object</i>	Specifies the number of repetitions for the sound, and the sound interval

#### Description

Plays the specified melody.  
 An exception is thrown if the **AsyncMode** property is set to TRUE.  
 Constant values that can be specified to the *data* parameter are as follows:  
 If an invalid value is specified, an exception will be thrown.

<b><i>data</i></b>	<b>Meaning</b>
PTR_DI_SOUND_PATTERN_1	Pattern A
PTR_DI_SOUND_PATTERN_2	Pattern B
PTR_DI_SOUND_PATTERN_3	Pattern C
PTR_DI_SOUND_PATTERN_4	Pattern D
PTR_DI_SOUND_PATTERN_5	Pattern E
PTR_DI_SOUND_PATTERN_ERROR	Pattern when an error occurs
PTR_DI_SOUND_PATTERN_NOPAPER	Pattern when paper out

The number of repetitions and the sound interval in the *object* parameter are separated by a comma as follows. (The format is: "repetitions, sound interval")

The sound interval is in milliseconds.

e.g. "5,1000" = 5 repetitions and a sound interval of 1 second

The valid range of the number of repetitions and the sound interval are as follows:

Number of repetitions: 1 ~ 255

Sound Interval: 100 ~ 60000 (Rounded off to the nearest 100ms)

If an invalid format or value is set, an exception will be thrown. If there is a space before and/or after the comma between the number of repetitions and the sound interval, it will be deemed as an invalid format and an exception will be thrown.

Specification of the sound interval is not available for all devices.

If a value is specified for the sound interval, it will be reset to 0.

(The specified pattern is repeated for the specified number of repetitions without any interval).

### 3.2.6 ResetStatistics Method

- **Parameter type: *Microsoft.PointOfService.StatisticCategories***

#### Parameter

---

*Microsoft.PointOfService.StatisticCategories*

Specify one of the following.

- *StatisticCategories.Upos*
- *StatisticCategories.Manufacturer*
- *StatisticCategories.All*

#### Description

Of the items included in the specified category, only the items for which O appeared for the permission reset in "[Appendix-F DeviceStatistics](#)" are reset.

All the statistics supported by the ServiceObject are defined in UPOS. If "StatisticCategories.Manufacturer" is specified, nothing is reset.

- **Parameter type: *String[]***

#### Parameter

---

*String[]*

An array of the item names to reset

#### Description

Of the items included in the specified category, only the items for which O appears for the reset permission in "[Appendix-F DeviceStatistics](#)" are reset when "U\_", "M\_", or an empty string is specified for item names.

If an illegal item name or non-resettable item name is included, this method reports an error. When this happens, correctly specified items are also not reset.

All the statistics supported by the ServiceObject are defined in UPOS. If "M\_" is specified, nothing is reset.

### 3.2.7 ResetStatistic Method

#### Description

Of the items included in the specified category, only the items for which O appears for the reset permission in "[Appendix-F DeviceStatistics](#)" are reset when "U\_", "M\_", or an empty string is specified for item names. If an illegal item name or non-resettable item name is specified, this method reports an error.

All the statistics supported by the ServiceObject are defined in UPOS. If "M\_" is specified, nothing is reset.

### 3.2.8 RetrieveStatistics Method

- **Parameter type:** *Microsoft.PointOfService.StatisticCategories*

#### Parameter

---

*Microsoft.PointOfService.StatisticCategories*

Specify one of the following.

- *StatisticCategories.Upos*
- *StatisticCategories.Manufacturer*
- *StatisticCategories.All*

#### Description

The Statistics supported by ServiceObject are all defined in UPOS. If "StatisticCategories.Manufacturer" is specified, the minimum information specified by UPOS (the 4 items; UPOS version, manufacturer name, device name, and device category) is acquired.



- **Parameter type: *String[]***

Parameter
<i>String[]</i>

**Description**

If an illegal item name is included, this method reports an error.

The Statistics supported by ServiceObject are all defined in UPOS. If "M\_" is specified, the minimum information specified by UPOS (the 4 items; UPOS version, manufacturer name, device name, and device category) is acquired.

- **Parameter type: None**

**Description**

The information of all defined items is retrieved.

**3.2.9 RetrieveStatistic Method****Description**

If an illegal item name is included, this method reports an error.

If multiple item names separated by commas are specified (UPOS Specification), an error is reported.

The Statistics supported by ServiceObject are all defined in UPOS. If "M\_" is specified, the minimum information specified by UPOS (the 4 items; UPOS version, manufacturer name, device name, and device category) is acquired.

### 3.2.10 UpdateStatistics Method

- Parameter type: *Microsoft.PointOfService.Statistic[]*

#### Parameter

---

*Microsoft.PointOfService.Statistic[]*

Specifies *Microsoft.PointOfService.Statistic* array for which item names and new values have been set.

#### Description

Of the items included in the specified category, only the items for which O appears for the update permission in "[Appendix-F DeviceStatistics](#)" are updated when "U\_", "M\_", or an empty string is specified for item names.

If an illegal item name or non-updatable item name is included, this method reports an error. In this case, correctly specified items are also not updated.

The Statistics supported by ServiceObject are all defined by UPOS. If "M\_" is specified, nothing is updated.

- **Parameter type:** *Microsoft.PointOfService.StatisticCategories*

#### Parameter

---

*Microsoft.PointOfService.StatisticCategories*

Specify one of the following.

- *StatisticCategories.Upos*
- *StatisticCategories.Manufacturer*
- *StatisticCategories.All*

*Object*

Specify the new value after updating.

#### Description

Of the items included in the specified category, only the items for which O appeared for the update permission in "[Appendix-F DeviceStatistics](#)" are updated.

All the statistics supported by the ServiceObject are defined in UPOS. If "StatisticCategories.Manufacturer" is specified, nothing is update.

### 3.2.11 UpdateStatistic Method

#### Description

Of the items included in the specified category, only the items for which O appears for the update permission in "[Appendix-F DeviceStatistics](#)" are updated when "U\_", "M\_", or an empty string is specified for item names.

If an illegal item name or non-updatable item name is specified, this method reports an error.

The Statistics supported by ServiceObject are all defined by UPOS. If "M\_" is specified, nothing is updated.

### 3.2.12 BeginInsertion Method

#### Description

This device the exception is thrown because there is not a slip station.

### 3.2.13 BeginRemoval Method

#### Description

This device the exception is thrown because there is not a slip station.

### 3.2.14 ChangePrintSide Method

#### Description

This device the exception is thrown because there is not a slip station.

### 3.2.15 MarkFeed Method

#### Description

**CapRecMarkFeed** property is PrinterMarkFeeds.None the exception of "there is no function" is thrown.

### 3.2.16 EndInsertion Method

#### Description

This device the exception is thrown because there is not a slip station.

### 3.2.17 EndRemoval Method

#### Description

This device the exception is thrown because there is not a slip station.

### 3.2.18 CutPaper Method

#### Description

If the *percentage* parameter is 0, the method process ends without sending the command.

If the *percentage* parameter is from 1 to 100, activate the cutter to perform a partial cut leaving one point uncut or full cut.

### 3.2.19 PrintNormal Method

#### Description

Although the UPOS specification is such that an error is generated during synchronous printing if there is no line feed code, printing is successful when this method is executed even if a character string contains no line feed code.

See the table "[Appendix-E Escape Sequences](#)" for escape sequences supported by this device.

### 3.2.20 PrintImmediate Method

#### Description

Although "this method tries to print its data immediately – that is, as the very next printer operation" is written in the UPOS, with ServiceObject, the data of multiple transactions may be sent to the device during asynchronous printing. Therefore, data of the **PrintImmediate** method may not be printed immediately.

Although the UPOS specification is such that an error is generated during synchronous printing if there is no line feed code, printing is successful when this method is executed even if a character string contains no line feed code.

See the table "[Appendix-E Escape Sequences](#)" for escape sequences supported by this device.

### 3.2.21 PrintTwoNormal Method

#### Description

This device has only one station, the exception is thrown.

### 3.2.22 RotatePrint Method

#### Description

An exception is thrown for each of the following conditions, so the following method cannot be used.

Rotation	Methods	Mode
PrintRotation.Right90	<b>CutPaper</b>	Rotated 90-degree print
PrintRotation.Left90	Same as above	Same as above

When ESC|#B is used to print an image, rotated printing takes places regardless of the PrintRotation.Bitmap specification of the *rotation* parameter.

In the case of rotated 90-degree print mode, the following escape sequences are ignored even if the device supports the functions.

- ESC | P
- ESC | fP
- ESC | sP
- ESC | sL
- ESC | #rF
- ESC | cA
- ESC | rA

The *alignment* parameter of each of the **SetBitmap** method, **PrintBitmap** method, **PrintMemoryBitmap** method, and **PrintBarCode** method is also ignored.

If the current print mode is PageMode print, it is not possible to switch to rotated 90-degree print mode or rotated 180-degree print mode.

If an exception is thrown when this method is called, the rotated print mode is not switched.

In the case of rotated 90-degree print mode, buffering data saved to the ServiceObject is not cleared.

### 3.2.23 PrintBarCode Method

#### Description

Although both of the following affect rotated printing, settings made with the **RotatePrint** method take priority.

In other words, the **RotateSpecial** property setting is ignored when rotated printing of barcodes is specified with the **RotatePrint** method.

- **RotatePrint** method (specify PrintRotation.Barcode for the *rotation* parameter)
- **RotateSpecial** property

In the case of rotated 90-degree printing, operation differs depending on whether data buffering is performed. For details, refer to UPOS.

The following types of barcode can be printed using the **PrintBarCode** method.

- CODE128
- CODE128 Parsed
- CODE93
- CODABAR
- ITF
- CODE39
- JAN13 (EAN13)
- JAN8 (EAN8)
- EAN128
- UPC-E
- UPC-A
- PDF417
- AztecCode
- DataMatrixCode
- QRCode
- OTHER + 3
- OTHER + 4
- GS1-DataBar
- GS1-DataBar 128
- GS1-DataBar Expanded
- GS1-DataBar Stacked Omnidirectional
- GS1-DataBar Expanded Stacked
- OTHER + 3 (QR Code model1)
- OTHER + 4 (QR Code model2)
- OTHER + 5 (GS1-Data Truncated)

- OTHER + 6 (GS1-Data Limited)
- OTHER + 7 (GS1-Data Stacked)
- OTHER + 8 (GS1-Data Stacked Omnidirectional)
- OTHER + 9 (GS1-Data Expanded Stacked)
- 13172839 (PDF417, EAN-8)
- 13172840 (PDF417, EAN-13)
- 13172837 (PDF417, UPC-A)
- 13172838 (PDF417, UPC-E)
- 13172867 (PDF417, GS1-DataBar)
- 13173242 (PDF417, GS1-DataBar Truncated)
- 13173244 (PDF417, GS1-DataBar Stacked)
- 13173245 (PDF417, GS1-DataBar Stacked Omnidirectional)
- 13172869 (PDF417, GS1-DataBar Stacked Omnidirectional)
- 13173243 (PDF417, GS1-DataBar Limited)
- 13172868 (PDF417, GS1-DataBar Expanded)
- 13173246 (PDF417, GS1-DataBar Expanded Stacked)
- 13172870 (PDF417, GS1-DataBar Expanded Stacked)
- 13172856 (PDF417, GS1-DataBar 128)

Supplementary information on CODE128 and CODE128 Parsed:

If the data does not contain a special character ("{"), size optimization will be performed.

In this case, the check of the Width parameter before printing is ignored.

As a result, if the barcode has too much data and exceeds the paper width, it may be fed without printing anything.

An example is shown below.

<b>Data (example)</b>	<b>Size optimization</b>	<b>Width check</b>
1234567890	O	x
{C1234567890	x	O

O: Applicable

x: Not applicable



**3.2.24 PrintBitmap Method****Description**

This method enables a jpeg file, gif file, or Windows bmp file to be specified.

The resolutions for printing images are as follows.

Station	Landscape	Portrait
Receipt	203 dpi	203 dpi

**3.2.25 PrintMemoryBitmap Method****Description**

Only bitmaps created from jpeg files, gif files, or Windows bmp files are supported. The resolutions for printing images are as follows.

Station	Landscape	Portrait
Receipt	203 dpi	203 dpi

**3.2.26 SetBitmap Method****Description**

This method enables a jpeg file, gif file, and bmp file to be specified.

For the resolutions for printing images, refer to the **PrintBitmap** method.

This device can download images to non-volatile memory and volatile memory.

Use SetupPOS to set whether to download to non-volatile memory.

Only one image per station can be downloaded and saved to volatile memory. However, this method cannot be used when there are two print colors.

The upper size limits for images that can be downloaded to the device are shown below. The following values are the upper limits for the command specification. Paper width or other factors may result in an exception being thrown even when an upper limit is not reached.

**Volatile Memory:**

Station	Number of Dots Wide	Number of Dots High	Total ((Number of Dots Wide ÷ 8) × (Number of Dots High ÷ 8))
Receipt	2040 dots	368 dots	1536 dots

**Non-volatile Memory:**

Downloading can be performed until there is no longer any non-volatile memory available for storing images (memory capacity differs depending on the device settings).

The size of memory used to store one image can be calculated as follows.

$$\text{Size} = ((\text{number of dots wide} + 7) \div 8) \times \text{number of dots high} + 8 + (\text{number of colors} - 1)$$

### 3.2.27 SetLogo Method

#### Description

The following escape sequences cannot be specified in data saved using this method. If they are specified, an exception is thrown.

- ESC | tL
- ESC | bL

### 3.2.28 TransactionPrint Method

#### Description

If the current rotated print mode is rotated 90-degree print mode, the mode cannot be switched to transaction mode.

When switching out of transaction mode, any buffering data saved to the ServiceObject in rotated 90-degree print mode is printed and rotated 90-degree print mode is maintained.

If an exception is thrown when this method is called, the transaction mode is not switched. Furthermore, buffering data saved to the ServiceObject while in transaction mode is not cleared.

### 3.2.29 PageModePrint Method

#### Description

Since an exception is thrown with the following conditions, the methods below cannot be used.

<b>control</b>	<b>Methods</b>	<b>Mode</b>
PageModePrintControl.PageMode	<b>CutPaper</b> <b>RotatePrint</b>	PageModePrint

With PageMode printing, the following escape sequences are ignored even if the device supports the function.

- ESC | P
- ESC | fP
- ESC | sP
- ESC | sL
- ESC | #rF
- ESC | #E

If the current rotation print mode is rotated 90-degree print mode or rotated 180-degree print mode, it is not possible to switch to PageMode printing.

If, while in the transaction printing mode, either of the **PageModePrint** methods, PageModePrintControl.Normal or PageModePrintControl.PrintSave are executed, the PageMode printing data is buffered into the transaction printing buffer.

Properties related PageMode is initialized with following values only when it calls with DeviceEnabled=true for the first time.

- PageModePrintArea(0,0,0,0)

The values saved in this property is set when the page mode is started by PageModePrint method. Also, It is not initialized even if page mode printing is terminated by the PageModePrint method.

When this method is invoked and an exception is thrown, the PageMode printing mode is not switched. In addition, with PageMode printing, data buffered in ServiceObject is not cleared.

### 3.3 Events

#### 3.3.1 DirectIOEvent

The properties listed below differ from functions described in UPOS.

- **PTR\_DIE\_RESPONSE Event Number**

##### Property

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<i>EventNumber</i>	PTR_DIE_RESPONSE
<i>Data</i>	0 (not used)
<i>Object</i>	Stores the response from the printer

##### Description

When the PTR\_DI\_OUTPUT\_NORMAL or PTR\_DI\_OUTPUT\_REALTIME command of the **DirectIO** method or the **PrintNormal** method/ **PrintImmediate** method involving ESC|#E results in the sending of an ESC/POS command that has a response from the device, the response is stored in the *Object* property and reported. The ESC/POS commands capable of notification as a response are as follows.

- ESC u
- ESC v
- GS I (printer ID of 1 byte)
- GS r
- DLE EOT
- GS ( C
- GS ( L
- GS 8 L
- GS ( G

- **PTR\_DIE\_SET\_BITMAP\_MODE Event Number**

**Property**


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<i>EventNumber</i>	PTR_DIE_SET_BITMAP_MODE
<i>Data</i>	Image save method
<i>Object</i>	Stores the key code

**Description**

Notifies of the save method used when the **SetBitmap** method saved an image.

One of the following values is set to the *Data* property.

<b>Data</b>	<b>Meaning</b>
PTR_DIE_MEMORY	Stored in the ServiceObject
PTR_DIE_VRAM	Stored in volatile memory of the printer
PTR_DIE_NVRAM	Stored in NVRAM of the printer

If the image saved by the **SetBitmap** method uses NVRAM, the key code used when saving to the *Object* property is stored.

### 3.3.2 ErrorEvent

#### Description

If the **DeviceEnabled** property becomes false while there is an **ErrorEvent** event queued state, the ServiceObject assumes that the *ErrorResponse* property has been set to ErrorResponse.Retry and performs the corresponding processing. Therefore, asynchronous output data is output again when the **DeviceEnabled** property becomes true. To prevent this data from being output again, execute the **ClearOutput** method.

## Chapter 4 MultiFont Printing

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### 4.1 Overview

This function enables multilingual printing.

### 4.2 Supported Methods

- **PrintNormal**
- **PrintImmediate**
- **SetLogo**

### 4.3 Supported Languages

- ANK
- Japanese
- Korean
- Simple Chinese
- Traditional Chinese
- Thai

## 4.4 Details of function

### 4.4.1 Priority Font

TM-L100 searches the print character code points in the following priority order.

The following is the default analysis priority of the language font of TM-L100.

Language Font	Analysis priority
ANK Font	1: priority : High
Japanese Font	2:
Korean Font	3:
Traditional Chinese Font	4:
Simple Chinese Font	5: priority : Low

Thai is treated the same as ANK font.

Therefore, even if the code point is the same, the typeface for each language may differ as shown below.

CodePoint	Japanese	Simple Chinese	Traditional Chinese	Korean
U+9AA8	骨	骨	骨	骨

As a result, depending on the analysis priority of the language font, printing may be performed in a typeface different from the typeface assumed by the application developer.

To avoid this, change the CharacterSet property in your application. Priority Font can be set as follows.

	<b>932</b> Japanese	<b>936</b> Simple Chinese	<b>949</b> Korean	<b>950</b> Traditional Chinese	<b>Other</b>
First priority Font	Japanese Font	Simple Chinese Font	Korean Font	Traditional Chinese Font	ANK Font
Second priority Font	ANK Font	ANK Font	ANK Font	ANK Font	Japanese Font



#### 4.4.2 Precautions and Restrictions

- When using the following functions, set the same value as the character code value specified in SetupPOS to the CharacterSet property.
  - RotatePrint
  - PageModePrint
  - Specify a character string that combines multiple ESC | IA, ESC | cA, and ESC | rA in one PrintNormal method.

If the settings are incorrect, the following phenomena will occur.

- The margin on the right edge becomes wider
  - Line breaks at unintended positions
- Strikethrough function of escape sequence (ESC | #stC) is not supported.
- If you want to use "U + 005C" as a half-width yen sign instead of a backslash, set the printer's international character set to "Japan" with the utility.
- The "Print using multiple interfaces" function cannot be used.

## **Appendix-A Revision history**

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### **A.1 EPSON OPOS ADK for .NET 1.14.22**

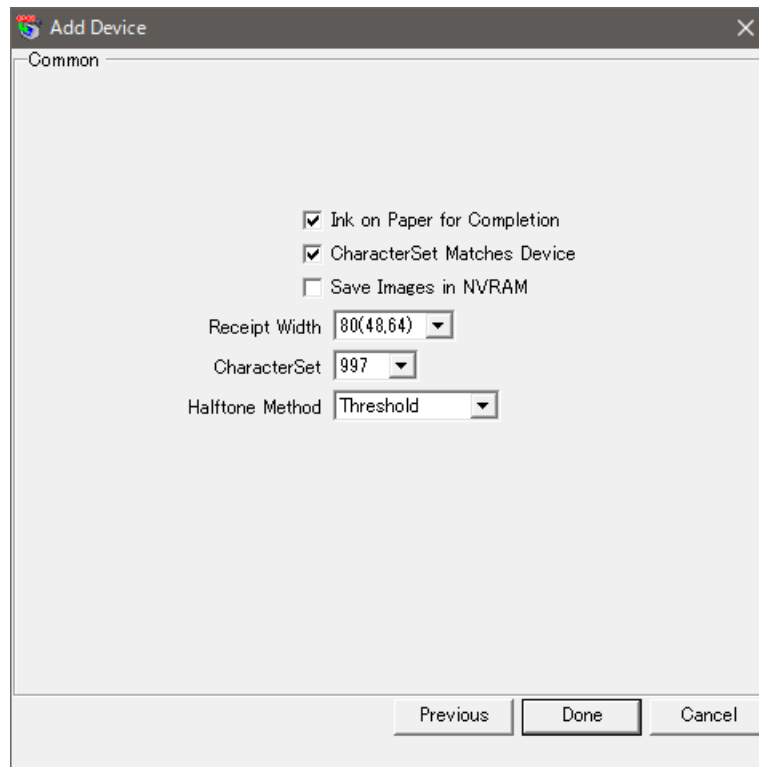
(1) Revised the explanation of PrintBarCode.

### **A.2 EPSON OPOS ADK for .NET 1.14.21**

(1) TM-L100 is supported.

## Appendix-B SetupPOS Settings

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### B.1 Verbose Error Codes Check Box

#### Description

Sets the error code type for during output.

State	Meaning
Checkmark added	Sets the timeout to ErrorCodeExtended for an error that occurs during output.
No checkmark added	Sets the printer state as is to ErrorCode or ErrorCodeExtended, regardless of whether the error occurred during output.

**Default:** no checkmark added

For some devices, this setting is only possible when there is either a parallel or a network connection.

## B.2 CharacterSet Matches Device Check Box

### Description

Sets whether the setting for the international character set is changed automatically to match the value of the **CharacterSet** property.

State	Meaning
Checkmark added	Sets the international character set to match the value of the <b>CharacterSet</b> property.
No checkmark added	Sets the international character set of America in the <b>CharacterSet</b> property.

**Default:** checkmark added

## B.3 Ink on Paper for Completion Check Box

### Description

Sets whether to check that printing operation is complete.

State	Meaning
Checkmark added	Judges the printing method to be complete when the device completes printing.
No checkmark added	Judges the printing method to be complete when data output is complete.

- **When set to judge method output to be complete when the device completes printing**

Printing on the device and the printing method are not completely synchronized. The method can be completed quickly.

If the value of the **AsyncMode** property is set to true, the completion of printing is reported before the device actually completes printing because the **OutputCompleteEvent** event considers the printing method to be complete when the data output is complete.

Printing is judged to be successful if method output completes even when an error was generated on the device during printing.

**Default:** checkmark added

## B.4 Save Images in NVRAM Check Box

### Description

Sets whether the image specified when executing the **SetBitmap** method is saved to NVRAM of the device.

State	Meaning
Checkmark added	Saves the image to NVRAM of the device.
No checkmark added	Does not save the image to NVRAM of the device.

- **When set to save the image to NVRAM of the device**

The saved image can even be printed if the application is restarted.

The key code saved to the *Object* property of the **DirectIOEvent** event is set.

**Default:** no checkmark added

## B.5 Receipt Width Combo Box

### Description

Sets the receipt paper width.

Item	Meaning
40(23, 31)	The receipt width is 40 mm.
58(35, 46)	The receipt width is 58 mm.
80(42, 55)	The receipt width is 80 mm. When 42 column mode is selected.
80(48, 64)	The receipt width is 80 mm.

**Default:** 80(48, 64)

## B.6 Halftone Method Combo Box

### Description

Sets the halftone method type used during image printing (execution of **PrintBitmap** method).

Item	Meaning
Threshold	Uses the threshold method (monochrome conversion) on the specified image file, and then outputs it to the device.
Error Diffusion	Performs error diffusion processing on the specified image file, and then outputs it to the device.
Dithering	Performs dithering processing on the specified image file, and then outputs it to the device.

**Default:** Threshold

## B.7 CharacterSet Combo Box

### Description

Set the initial value of the **CharacterSet** property. Select from a Character Set list depending on the setting of the **CharacterSetList** property.  
Selectable values change depending on the Device Font Type Combo Box setting.

Item	Meaning
932, 936, 949, 950, 997	All the printable characters installed on device can be assigned to Unicode and printed.
437, 720, 737, 775, 850, 851, 852, 853, 855, 857, 858, 860, 861, 862, 863, 864, 865, 866, 869, 998, 999, 1098, 1125, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258	Printed with the standard code page.
120, 121, 126, 130, 131, 150, 151, 152, 153, 154, 155	Printed with the Device-specific Character CodePage.

**Default:** 997

## Appendix-C Hardware Settings

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- **DIP Switch Settings**

This device has no DIP Switch.

- **Memory Switch Settings**

For details on the memory switch, refer to the TM-L100 product manual.



## Appendix-D Default Values of Properties

### ● Common Settings

Property	Setting Value/Default Value	Range of Settings
CapCompareFirmwareVersion	false	—
CapPowerReporting	(Serial or Bluetooth connection) PowerReporting.Standard (Other connection) PowerReporting.Advanced	—
CapStatisticsReporting	true	—
CapUpdateFirmware	false	—
CapUpdateStatistics	true	—
CheckHealthText	""	—
Claimed	false	—
DeviceEnabled	false	true, false
OutputID	0	—
PowerNotify	PowerNotification.Disabled	PowerNotification.Disabled, PowerNotification.Enabled
PowerState	PowerState.Unknown	—
DeviceDescription	"EPSON TM-L100 Printer"	—
DeviceName	"TM-L100"	—
State	ControlState.Idle	—
AsyncMode	false	true, false
CapCharacterSet	CharacterSetCapability.Unicode	—
CapConcurrentJrnRec	false	—
CapConcurrentJrnSlp	false	—
CapConcurrentRecSlp	false	—
CapConcurrentPageMode	false	—
CapCoverSensor	true	—
CapMapCharacterSet	false	—
CapTransaction	true	—
CartridgeNotify	PrinterCartridgeNotify.Disabled	—
CharacterSet	Refer to "Settings Affecting Changing of Language".	Refer to "Settings Affecting Changing of Language".
CharacterSetList	"120, 121, 126, 130, 131, 150, 151, 152, 153, 154, 155, 437, 720, 737, 775, 850, 851, 852, 853, 855, 857, 858, 860, 861, 862, 863, 864, 865, 866, 869, 932, 936, 949, 950, 997, 998, 999, 1098, 1125, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258"	—
ErrorLevel	PrinterErrorLevel.None	—
ErrorStation	PrinterStation.None	—
ErrorString	""	—
FlagWhenIdle	false	true, false
FontTypefaceList	""	—
MapCharacterSet	false	—
MapMode	MapMode.Dots	MapMode.Dots, MapMode.Twips, MapMode.English, MapMode.Metric
PageModeArea	Refer to "Settings Related to PageMode".	—
PageModeDescriptor	Refer to "Settings Related to PageMode".	—
PageModeHorizontalPosition	Refer to "Settings Related to PageMode".	Refer to "Settings Related to PageMode".
PageModePrintArea	Refer to "Settings Related to PageMode".	Refer to "Settings Related to PageMode".

PageModePrintDirection	Refer to "Settings Related to PageMode".	Refer to "Settings Related to PageMode".
PageModeStation	PrinterStation.None	PrinterStation.Receipt
PageModeVerticalPosition	Refer to "Settings Related to PageMode".	Refer to "Settings Related to PageMode".
RotateSpecial	PrintRotation.Normal	PrintRotation.Normal, PrintRotation.Right90, PrintRotation.Left90, PrintRotation.Rotate180
CoverOpen	false	—

### ● Settings Related to Receipts

Property	Setting Value/Default Value	Range of Settings
CapRec2Color	false.	—
CapRecBarCode	true	—
CapRecBitmap	true	—
CapRecBold	true	—
CapRecCartridgeSensor	PrinterCartridgeSensors.Unknown	—
CapRecColor	PrinterColors.Primary.	—
CapRecDhigh	true	—
CapRecDwide	true	—
CapRecDwideDhigh	true	—
CapRecEmptySensor	true	—
CapRecItalic	false	—
CapRecLeft90	true	—
CapRecMarkFeed	PrinterMarkFeeds.None/ PrinterMarkFeeds.Cutter	—
CapRecNearEndSensor	true	—
CapRecPageMode	true	—
CapRecPapercut	true	—
CapRecPresent	true	—
CapRecRight90	true	—
CapRecRotate180	true	—
CapRecStamp	false	—
CapRecUnderline	true	—
RecBarCodeRotationList	PrintRotation.Normal, PrintRotation.Right90, PrintRotation.Left90, PrintRotation.Rotate180	—
RecBitmapRotationList	PrintRotation.Normal, PrintRotation.Right90, PrintRotation.Left90, PrintRotation.Rotate180	—
RecCurrentCartridge	PrinterColors.Primary	—
RecCartridgeState	PrinterCartridgeStates.Unknown	—
RecEmpty	false	—
RecLetterQuality	false	true, false
RecLineChars	Refer to "Settings Affecting Changing of Paper Width".	Refer to "Settings Affecting Changing of Paper Width".
RecLineCharsList	Refer to "Settings Affecting Changing of Paper Width".	—
RecLineHeight	24	Refer to "Settings Affecting Changing of Paper Width".
RecLineSpacing	30	1 to 255.
RecLinesToPaperCut	6	—
RecLineWidth	Refer to "Settings Affecting Changing of Paper Width".	Refer to "Settings Affecting Changing of Paper Width".
RecNearEnd	false	—
RecSidewaysMaxChars	Refer to "Settings Affecting Changing of Paper Width".	—
RecSidewaysMaxLines	Refer to "Settings Affecting Changing of Paper Width".	—

● **Settings Affecting Changing of Paper Width**

Paper Width	Characters Per Line Mode	Property	Setting Value/Default Value	Range of Settings
80 mm	48 Characters Per Line Mode	RecLineChars	48	1 to 64 Numbers described in RecLineCharsList can be set. For any other value, if the set value is smaller than the maximum value supported by the printer, the value is set to the nearest value that is larger than the specified value in RecLineCharsList properties.
		RecLineCharsList	48, 64	—
		RecLineHeight	24	The font height is adjusted to that of FontA or FontB specified in RecLineChars.
		RecLineSpacing	30	1 to 255
		RecLinesToPaperCut	6	—
		RecLineWidth	576	—
		RecSidewaysMaxChars	200 (Font A) 266 (Font B)	—
		RecSidewaysMaxLines	19 The value resulting from the following calculation is set (after rounding it down to the nearest whole number). $((\text{Value of RecLineWidth} - 21 \text{ dots}) \div (\text{the largest value of RecLineSpacing and RecLineHeight})) + 1.$	—
	42 Characters Per Line Mode	RecLineChars	42	1 to 55 Numbers described in RecLineCharsList can be set. For any other value, if the set value is smaller than the maximum value supported by the printer, the value is set to the nearest value that is larger than the specified value in RecLineCharsList properties.
		RecLineCharsList	42, 55	—
		RecLineHeight	24	The font height is adjusted to that of FontA or FontB specified in RecLineChars.
		RecLineSpacing	30	1 to 255
		RecLinesToPaperCut	6	—
		RecLineWidth	552	—
		RecSidewaysMaxChars	184 (Font A) 240 (Font B)	—
		RecSidewaysMaxLines	19 The value resulting from the following calculation is set (after rounding it down to the nearest whole number). $((\text{Value of RecLineWidth} - 21 \text{ dots}) \div (\text{the largest value of RecLineSpacing and RecLineHeight})) + 1.$	—

Paper Width	Property	Setting Value/Default Value	Range of Settings
58 mm	RecLineChars	35	1 to 46 Numbers described in RecLineCharsList can be set. For any other value, if the set value is smaller than the maximum value supported by the printer, the value is set to the nearest value that is larger than the specified value in RecLineCharsList properties.
	RecLineCharsList	35, 46	—
	RecLineHeight	24	The font height is adjusted to that of FontA or FontB specified in RecLineChars.
	RecLineSpacing	30	1 to 255
	RecLinesToPaperCut	6	—
	RecLineWidth	420	—
	RecSidewaysMaxChars	200 (Font A) 266 (Font B)	—
	RecSidewaysMaxLines	14 The value resulting from the following calculation is set (after rounding it down to the nearest whole number). $((\text{Value of RecLineWidth} - 21 \text{ dots}) \div (\text{the largest value of RecLineSpacing and RecLineHeight})) + 1.$	—
40 mm	RecLineChars	23	1 to 31 Numbers described in RecLineCharsList can be set. For any other value, if the set value is smaller than the maximum value supported by the printer, the value is set to the nearest value that is larger than the specified value in RecLineCharsList properties.
	RecLineCharsList	23, 31	—
	RecLineHeight	24	The font height is adjusted to that of FontA or FontB specified in RecLineChars.
	RecLineSpacing	30	1 to 255
	RecLinesToPaperCut	6	—
	RecLineWidth	280	—
	RecSidewaysMaxChars	200 (Font A) 266 (Font B)	—
	RecSidewaysMaxLines	9 The value resulting from the following calculation is set (after rounding it down to the nearest whole number). $((\text{Value of RecLineWidth} - 21 \text{ dots}) \div (\text{the largest value of RecLineSpacing and RecLineHeight})) + 1.$	—

● **Settings Related to PageMode**

PaperWidth (Characters Per Line Mode)	Property	Setting Value/Default Value	Range of Settings
80mm (48 Characters Per Line Mode)	PageModeArea	576,2400	
	PageModeDescriptor	PTR_PM_BITMAP, PTR_PM_BARCODE, PTR_PM_BM_ROTATE, PTR_PM_BC_ROTATE	—
	PageModeHorizontalPosition	0	0 or more
	PageModePrintArea	"0,0,0,0"	"X, Y, Width, Height" X + Width <= 576 Y + Height <= 2400
	PageModePrintDirection	0	PTR_PD_LEFT_TO_RIGHT, PTR_PD_BOTTOM_TO_TOP, PTR_PD_RIGHT_TO_LEFT, PTR_PD_TOP_TO_BOTTOM
	PageModeVerticalPosition	0	0 or more
80mm (42 Characters Per Line Mode)	PageModeArea	552,2400	
	PageModeDescriptor	PTR_PM_BITMAP, PTR_PM_BARCODE, PTR_PM_BM_ROTATE, PTR_PM_BC_ROTATE	—
	PageModeHorizontalPosition	0	0 or more
	PageModePrintArea	"0,0,0,0"	"X, Y, Width, Height" X + Width <= 552 Y + Height <= 2400
	PageModePrintDirection	0	PTR_PD_LEFT_TO_RIGHT, PTR_PD_BOTTOM_TO_TOP, PTR_PD_RIGHT_TO_LEFT, PTR_PD_TOP_TO_BOTTOM
	PageModeVerticalPosition	0	0 or more
58mm	PageModeArea	420,2400	
	PageModeDescriptor	PTR_PM_BITMAP, PTR_PM_BARCODE, PTR_PM_BM_ROTATE, PTR_PM_BC_ROTATE	—
	PageModeHorizontalPosition	0	0 or more
	PageModePrintArea	"0,0,0,0"	"X, Y, Width, Height" X + Width <= 420 Y + Height <= 2400
	PageModePrintDirection	0	PTR_PD_LEFT_TO_RIGHT, PTR_PD_BOTTOM_TO_TOP, PTR_PD_RIGHT_TO_LEFT, PTR_PD_TOP_TO_BOTTOM
	PageModeVerticalPosition	0	0 or more
40mm	PageModeArea	280,2400	—
	PageModeDescriptor	PTR_PM_BITMAP, PTR_PM_BARCODE, PTR_PM_BM_ROTATE, PTR_PM_BC_ROTATE	—
	PageModeHorizontalPosition	0	0 or more
	PageModePrintArea	"0,0,0,0"	"X, Y, Width, Height" X + Width <= 280 Y + Height <= 2400
	PageModePrintDirection	0	PTR_PD_LEFT_TO_RIGHT, PTR_PD_BOTTOM_TO_TOP, PTR_PD_RIGHT_TO_LEFT, PTR_PD_TOP_TO_BOTTOM
	PageModeVerticalPosition	0	0 or more

## Appendix-E Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

Device	Escape Sequence	Range of Settings
TM-L100	ESC #P	0 to 100 (100)
	ESC #P	0 to 100 (100)
	ESC #sP	—
	ESC sL	—
	ESC #B	1 to 20
	ESC tL	0
	ESC bL	0
	ESC #F	0 to 9999 (1)
	ESC #uF	0 to 9999 (1)
	ESC #rF	—
	ESC #*E	0 to 999 (1)
	ESC #*T	—
	ESC bC	0
	ESC #uC	0 to 2 (1)
	ESC iC	—
	ESC #C	1
	ESC rvC	0
	ESC #sC	—
	ESC 1C	0
	ESC 2C	0
	ESC 3C	0
	ESC 4C	0
	ESC #hC	1 to 8 (1)
	ESC #vC	1 to 8 (1)
	ESC tbC	—
	ESC tpC	—
	ESC cA	0
	ESC rA	0
	ESC lA	0
	ESC N	0
	ESC #*R	1 to 999999999
	ESC #stC	—
	ESC #dL	—

The number in ( ) is the value when # is omitted.  
O indicates the setting is possible.

## Appendix-F DeviceStatistics

XML Definition Name	Description	Reset Permission	Update Permission
UnifiedPOSVersion	UPOS version	x	x
DeviceCategory	Device category	x	x
ManufactureName	Manufacturer name	x	x
ModelName	Device name	x	x
SerialNumber	Serial number	x	x
ManufactureDate	Manufacture date	x	x
MechanicalRevision	Device revision	x	x
FirmwareRevision	Firmware version	x	x
Interface	Interface	x	x
InstallationDate	Installation date	x	x
HoursPoweredCount	Operation time	O	x
CommunicationErrorCount	Communication error count	O	O
BarcodePrintedCount	Barcode print count	O	O
FormInsertionCount	Slip insertion count	x	x
HomeErrorCount	Mechanical error count	O	O
JournalCharacterPrintedCount	Journal character print count	x	x
JournalLinePrintedCount	Journal line print count	x	x
MaximumTempReachedCount	Head temperature error count	O	O
NVRAMWriteCount	NVRAM setting count	O	O
PaperCutCount	Paper cut count	O	x
FailedPaperCutCount	Paper cut failure count	O	O
PrinterFaultCount	Unrecoverable error count	O	O
PrintSideChangeCount	Slip side change count	x	x
FailedPrintSideChangeCount	Slip side change failure count	x	x
ReceiptCharacterPrintedCount	Receipt print character count	O	O
ReceiptLinePrintedCount	Receipt print line count	O	O
ReceiptLineFeedCount	Receipt line feed count	O	x
ReceiptCoverOpenCount	Receipt cover open count	O	O
SlipCharacterPrintedCount	Slip print character count	x	x
SlipLinePrintedCount	Slip print line count	x	x
SlipLineFeedCount	Slip line feed count	x	x
SlipCoverOpenCount	Slip cover open count	x	x
StampFiredCount	Stamp print count	x	x

O: Permitted  
x: Not permitted