

**EPSON OPOS ADK MANUAL**

**APPLICATION DEVELOPMENT  
GUIDE**

**POSPrinter (TM-L100)**

Version 3.00 Nov. 2021

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# Section 1. Introduction

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This manual describes the method of use and related items, as well as machine-specific precautions, when the EPSON TM-L100 Series POS Printers are used with the EPSON OPOS ADK program.

This manual applies to the following devices.

Device List

| Serial  | USB      | Ethernet | Bluetooth |
|---------|----------|----------|-----------|
| TM-L100 | TM-L100U | TM-L100E | TM-L100B  |

Before reading the manual, see the following explanation about the characteristic of the TM-L100 models.

- Station: Receipt (Line Thermal 203 dpi X 203 dpi)

Throughout the manual, the various model names will be referred to as TM-L100.

## Compatibility mode

The compatibility mode for upward compatibility was added in OPOS Ver2.60.

For the details of the compatibility mode, please refer to “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE Compatibility Mode”.

## Section 2. Details on Settings

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This section describes connection configurations and how to make the settings for the TM-L100 printers.

### 2.1 References of Firmware Versions

Refer to the release notes (Relnote.txt).

### 2.2 Setting of DIP Switches

Not applicable.

### 2.3 Port Information

#### 1) Port information when serial port is used

The port information that can be set with the SetupPOS utility is as follows.

| Item             | Setting range                             |
|------------------|---|
| Baud rate [bps]  | 2400,4800,9600,19200,38400 ,57600 ,115200 |
| Bit length [bit] | 8   |
| Parity           | NONE, ODD, EVEN                           |
| Stop bit [bit]   | 1   |
| Handshake        | DTR/DSR                                   |

\*1 These Baud rate require setting via Memory Switch.

The default settings are as shown in the following table.

| Item             | Setting range |
|------------------|---------------|
| Baud rate [bps]  | 115200        |
| Bit length [bit] | 8             |
| Parity           | NONE          |
| Stop bit [bit]   | 1             |
| Handshake        | DTR/DSR       |

The baud rate setting of devices is set using the TM-L100 Utility. For details, please refer to the "TM-L100 Utility User's Manual".

**2) Port information when using USB port**

Not applicable

**3) Port information when using Ethernet port**

Not applicable

**4) Port information when using Bluetooth port**

Not applicable

**2.4 Device Settings**

The following explanation is about the settings for TM-L100.

**2.4.1 Usable Device Specific Settings**

For the TM-L100, the following device specific settings are settable by the SetupPOS utility. For the detail, please refer to the Section 2 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”.

| Tab                 | Settings   |
|---------------------|--|
| General             | Disable panel buttons                            |
|                     | Assume print complete when data output finishes  |
|                     | Homogenize Error Codes                           |
|                     | Ignore firmware version check                    |
|                     | Output complete timeout                          |
| Paper               | Paper Type                                       |
|                     | Paper Width [mm]: LineWidth [dot]: LineCharsList |
| Bitmap              | TMFlogo...                                       |
|                     | NVRAM  |
| Color Bitmap        | Halftone: Method                                 |
|                     | Halftone: Brightness                             |
|                     | Color: Primary                                   |
| Status Log          | ERROR  |
|                     | OFFLINE  |
|                     | Log file name (include full path)                |
|                     | Maximum file size [KB]                           |
| Printing Properties | Receipt Characters per Line                      |
|                     | Receipt Line Spacing [dots]                      |
|                     | CharacterSet [CodePage Number]                   |

## Section 3. Function Details

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This section describes the functions of the TM-L100 printers in details. Supplementary explanation of the parts not described in detail in the "UPOS" is also given here.

### 3.1 Property Set Values and Default Values

The following explanation is about the property set values and the default values.

#### 3.1.1 Capability Set Values

The following values are the Capability set values.

| Capability Name       | Set Value       |
|-----------------------|-----------------|
| CapTransaction        | TRUE            |
| CapCoverSensor        | TRUE            |
| CapConcurrentRecSlp   | FALSE           |
| CapConcurrentJrnSlp   | FALSE           |
| CapConcurrentJrnRec   | FALSE           |
| CapConcurrentPageMode | FALSE           |
| CapCharacterSet       | PTR_CCS_UNICODE |
| CapMapCharacterSet    | TRUE            |
| CapJrnUnderline       | FALSE           |
| CapJrnNearEndSensor   | FALSE           |
| CapJrnItalic          | FALSE           |
| CapJrnEmptySensor     | FALSE           |
| CapJrnDwideDhigh      | FALSE           |
| CapJrnDwide           | FALSE           |
| CapJrnDhigh           | FALSE           |
| CapJrnColor           | 0               |
| CapJrnCartridgeSensor | 0               |
| CapJrnBold            | FALSE           |
| CapJrn2Color          | FALSE           |
| CapJrnPresent         | FALSE           |
| CapRecPageMode        | TRUE            |
| CapRecUnderline       | TRUE            |
| CapRecStamp           | FALSE           |
| CapRecRotate180       | TRUE            |
| CapRecRight90         | TRUE            |
| CapRecPapercut        | TRUE            |

|                       |                          |
|-----------------------|--------------------------|
| CapRecNearEndSensor   | FALSE                    |
| CapRecMarkFeed        | 0 or PTR_MF_TO_CUTTER *1 |
| CapRecLeft90          | TRUE                     |
| CapRecItalic          | FALSE                    |
| CapRecEmptySensor     | TRUE                     |
| CapRecDwideDhigh      | TRUE                     |
| CapRecDwide           | TRUE                     |
| CapRecDhigh           | TRUE                     |
| CapRecColor           | PTR_COLOR_PRIMARY        |
| CapRecCartridgeSensor | 0                        |
| CapRecBold            | TRUE                     |
| CapRecBitmap          | TRUE                     |
| CapRecBarCode         | TRUE                     |
| CapRec2Color          | FALSE                    |
| CapRecPresent         | TRUE                     |
| CapRecRuledLine       | FALSE                    |
| CapSlpUnderline       | FALSE                    |
| CapSlpRotate180       | FALSE                    |
| CapSlpRight90         | FALSE                    |
| CapSlpNearEndSensor   | FALSE                    |
| CapSlpLeft90          | FALSE                    |
| CapSlpItalic          | FALSE                    |
| CapSlpEmptySensor     | FALSE                    |
| CapSlpDwideDhigh      | FALSE                    |
| CapSlpDwide           | FALSE                    |
| CapSlpDhigh           | FALSE                    |
| CapSlpColor           | 0                        |
| CapSlpCartridgeSensor | 0                        |
| CapSlpBothSidesPrint  | FALSE                    |
| CapSlpBold            | FALSE                    |
| CapSlpBitmap          | FALSE                    |
| CapSlpBarCode         | FALSE                    |
| CapSlp2Color          | FALSE                    |
| CapSlpFullslip        | FALSE                    |
| CapSlpPresent         | FALSE                    |
| CapSlpPageMode        | FALSE                    |
| CapSlpRuledLine       | FALSE                    |

\*1. This value changes depending on the “Paper Layout” setting that can be set with the “TM-L100 Utility”.

For details on “Paper Layout” settings, refer to the “TM-L100 Utility” manual.

### 3.1.2 List Properties

The List Properties are explained in the following.

| List Property          | Settings  |
|------------------------|---|
| 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" |
| JrnLineCharsList       | ""  |
| RecLineCharsList       | 80mm 48column mode : 48, 64<br>80mm 42column mode : 44, 55<br>58mm : 35, 46<br>40mm : 23, 31  |
| SlpLineCharsList       | ""  |
| RecBarCodeRotationList | "0,R90, L90, 180"   |
| RecBitmapRotationList  | "0,R90, L90, 180"   |
| SlpBarCodeRotationList | ""  |
| SlpBitmapRotationList  | ""  |
| FontTypefaceList       | ""  |

### 3.1.3 Width and Height Properties

The width and height properties are explained in the following.

| Property                          | Settings  |                        |                        |
|-----------------------------------|---|------------------------|------------------------|
|                                   | Default Value   | Maximum value<br>[dot] | Minimum value<br>[dot] |
| RecLineSpacing                    | 30 <sup>*4</sup>  | 127 <sup>*5</sup>      | 24 <sup>*1</sup>       |
| JrnLineSpacing                    | X   | X                      | X                      |
| SlpLineSpacing                    | X   | X                      | X                      |
| SlpLineHeight [dot]               | X   |                        |                        |
| RecLineHeight <sup>*6</sup> [dot] | 24,17   |                        |                        |
| JrnLineHeight [dot]               | X   |                        |                        |
| SlpLineWidth [dot]                | X   |                        |                        |
| RecLineWidth [dot]                | 80mm 48column mode : 576<br>80mm 42column mode : 552<br>58mm : 420<br>40mm : 280                        |                        |                        |
| JrnLineWidth [dot]                | X   |                        |                        |
| RecSidewaysMaxLines <sup>*3</sup> | RecLineWidth/RecLineSpacing   |                        |                        |
| RecSidewaysMaxChars               | 80mm 42column mode :<br>FontA : 184<br>FontB : 240<br>Other paper width :<br>FontA : 200<br>FontB : 266 |                        |                        |
| RecLinesToPaperCut                | 6 <sup>*2</sup>   |                        |                        |
| SlpSidewaysMaxLines               | X   |                        |                        |
| SlpSidewaysMaxChars               | X   |                        |                        |
| SlpMaxLines                       | X   |                        |                        |

X: No settings

<sup>\*1</sup> In the case of a line thermal station, the Line Spacing setting is identical with the height of the characters which means that it can be set at up to 17 when Font B is selected.

<sup>\*2</sup> It can be changed by the settings of the RecLineSpacing or the character height.

<sup>\*3</sup> It can be changed by the settings of the RecLineSpacing or the RecLineHeight.  
The value differs accordance with the selected paper width.

### 3.1.4 Common Property Strings

The Device information properties are described below.

| I/F | Device Name | Device Description         |
|-----|-------------|----------------------------|
| S   | TM-L100     | EPSON TM-L100 POS Printer  |
| U   | TM-L100U    | EPSON TM-L100U POS Printer |
| E   | TM-L100E    | EPSON TM-L100E POS Printer |
| B   | TM-L100B    | EPSON TM-L100B POS Printer |

I/F indicate the connected interface.

The following is the list of the four connecting interfaces.

S: Serial

U: USB

E: Ethernet

B: Bluetooth

### 3.1.5 PageMode Print Properties

The Device information properties are described below.

| Property                         | Station <sup>*2</sup> |  |      |
|----------------------------------|-----------------------|--|------|
|                                  | Journal               | Receipt  | Slip |
| PageModeArea                     |                       | 80mm 48column mode :<br>"576, 2400"<br>80mm 42column mode :<br>"552, 2400"<br>58mm :<br>"420, 2400"<br>40mm :<br>"280, 2400" |      |
| PageModeDescriptor <sup>*1</sup> | -                     | BM/BC/BMR/BCR  | -    |

<sup>\*1</sup> Following setting values are used for the PageModeDescriptor property.

BM : Bitmap printing is available.

BC : Barcode printing is available.

BMR : Rotated printing of bitmap is available.

BCR : Rotated printing of barcode is available.

### 3.2 Methods

The following explanation is about supported/unsupported Methods, and the detailed information.

| Method            | Supported/Unsupported  | Compatibility with the PageMode printing |
|-------------------|--|--|
| PrintNormal       | O  | O  |
| PrintTwoNormal    | X  | X  |
| PrintImmediate    | O  | O <sup>*1</sup>                          |
| PrintBarCode      | O  | O <sup>*2</sup>                          |
| PrintBitmap       | O  | O <sup>*3</sup>                          |
| PrintMemoryBitmap | O  | O <sup>*3</sup>                          |
| CutPaper          | O<br>(1~100: Cutting with one point of the bottom left corner uncut) | X  |
| MarkFeed          | X <sup>*4</sup>  | X  |
| ChangePrintSide   | X  | X  |
| ValidateData      | O  | O  |
| TransactionPrint  | O  | O  |
| SetLogo           | O  | O  |
| SetBitmap         | O  | O  |
| RotatePrint       | O  | X  |
| EndRemoval        | X  | X  |
| BeginRemoval      | X  | X  |
| EndInsertion      | X  | X  |
| BeginInsertion    | X  | X  |
| ClearPrintArea    | O  | O  |
| PageModePrint     | O  | O  |
| DrawRuledLine     | X  | X  |

O: Supported

X : Unsupported

<sup>\*1</sup> If the specified Station is ready to print, the printing data shall not be stored in the PageMode printing buffer but, instead, go straight to printing. If the Station is not ready to print, an error is returned.

<sup>\*2</sup> If other than "LEFT" is specified for the printing position of barcode, the printing shall be done, regardless of the PageModeHorizontalPosition property setting, based on the PageModePrintArea property setting in the horizontal direction.

<sup>\*3</sup> If other than "LEFT" is specified for the printing position of bitmap, the printing shall be done, regardless of the PageModeHorizontalPosition property setting, based on the PageModePrintArea property setting in the horizontal direction.

<sup>\*4</sup> This value changes depending on the "Paper Layout" setting that can be set with the "TM-L100 Utility".

For details on "Paper Layout" settings, refer to the "TM-L100 Utility" manual.

### 3.3 Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

| Escape Sequence       | Supported/Unsupported | Compatibility with the PageMode printing |
|-----------------------|-----------------------|--|
| #P                    | 0~100                 | X  |
| #fP                   | 0~100                 | X  |
| #sP                   | X                     | X  |
| sL                    | X                     | X  |
| #B                    | O                     | O  |
| tL                    | O                     | O  |
| bL                    | O                     | O  |
| [*]#R                 | O                     | O  |
| #fF                   | 0~9999                | O  |
| #uF Base Pitch [inch] | 0~ equiv. 50 cm       | O  |
| #rF Maximum [inch]    | X                     | X  |
| [*]#E                 | 0~65535               | X  |
| #fT                   | X                     | X  |
| [!] <b>b</b> C        | O                     | O  |
| [!] <b>[#]</b> uC     | 1~2                   | 1~2                                      |
| [!] <b>i</b> C        | X                     | X  |
| #rC                   | 1                     | O  |
| [!] <b>rv</b> C       | O                     | O  |
| #sC                   | X                     | X  |
| #fC                   | X                     | X  |
| [!] <b>tb</b> C       | X                     | X  |
| [!] <b>tp</b> C       | X                     | X  |
| 1C                    | O                     | O  |
| 2C                    | O                     | O  |
| 3C                    | O                     | O  |
| 4C                    | O                     | O  |
| #hC                   | 1~8                   | O  |
| #vC                   | 1~8                   | O  |
| cA                    | O                     | O <sup>*1</sup>                          |
| rA                    | O                     | O <sup>*1</sup>                          |
| lA                    | O                     | O  |
| [!] <b>[#]</b> stC    | X                     | X  |
| *#dL                  | X                     | X  |
| N                     | O                     | O  |

O: Supported

X : Unsupported

Numbers: Settable range

<sup>\*1</sup> Regardless of the PageModeHorizontalPosition property setting, center or right adjust what is to be printed based on the PageModePrintArea property setting in the horizontal direction.

### 3.4 Printable Barcode Type

The TM-L100 models allow the following barcode types.

- Code 128
- Code 128 Parsed
- Code 93
- Codabar
- ITF
- Code 39
- JAN 13 (EAN 13)
- JAN 8 (EAN 8)
- UPC-E
- UPC-A
- PDF417
- QRCODE
- MAXI CODE
- GS1-Data
- GS1-Data Expanded
- GS1-128
- GS1-Data Truncated
- GS1-Data Limited
- GS1-Data Stacked
- GS1-Data Stacked Omnidirectional
- GS1-Data Expanded Stacked
- Composite
- AztecCode
- DataMatrixCode

### 3.5 Code128/ Code128 Parsed Printing

When printing Code128 or Code128\_Parsed symbol, special characters of Code128 are treated as ASCII character.

### 3.6 MAXI CODE Printing

When printing MAXI CODE, set the Symbology parameter to one of the following values.

- PTR\_BCS\_MAXICODE : Print using MAXI mode 2.
- PTR\_BCS\_OTHER + 0 : Print using MAXI mode 3.
- PTR\_BCS\_OTHER + 1 : Print using MAXI mode 4 or 5. The mode is set to 4 or 5 automatically depending on the length of the Data parameter. (If the data is long, then the data correction level is lowered for printing.)
- PTR\_BCS\_OTHER + 2 : Print using MAXI mode 6.

### 3.7 QR CODE Printing

When printing QR CODE, set the Symbology parameter to one of the following values

- PTR\_BCS\_QRCODE : Print using QR CODE model 2.
- PTR\_BCS\_OTHER + 3 : Print using QR CODE model 1 (old specification, used for maintaining compatibility).
- PTR\_BCS\_OTHER + 4 : Print using QR CODE model 2.

#### 3.7.1 Error Correction Level

Error correction level is fixed at 7%.

### 3.8 GS1 DataBar Printing

When printing GS1 DataBar, set the Symbology parameter to one of the following values.

- PTR\_BCS\_GS1DATABAR : Print using GS1 DataBar Omnidirectional
- PTR\_BCS\_GS1DATABAR\_S : Print using GS1 DataBar Stacked Omnidirectional
- PTR\_BCS\_GS1DATABAR\_E : Print using GS1 DataBar Expanded
- PTR\_BCS\_GS1DATABAR\_E\_S : Print using GS1 DataBar Expanded Stacked
- PTR\_BCS\_OTHER + 7 : Print using GS1 DataBar Stacked.
- PTR\_BCS\_OTHER + 8 : Print using GS1 DataBar Stacked Omnidirectional.
- PTR\_BCS\_OTHER + 9 : Print using GS1 DataBar Expanded Stacked.

### 3.9 COMPOSITE Printing

When printing COMPOSITE, set the Symbology parameter to the following value.

HIWORD : The constant value of PDF417

LOWORD : The constant value of the barcode that will combine the value of PDF417.

#### 3.9.1 Combinable Barcode

The settable barcode in the ROWORD is as follows.

- UPC-A
- UPC-E (Compressed format)
- UPC-E
- EAN 8
- EAN 13
- GS1 DataBar
- GS1 DataBar Truncated
- GS1 DataBar Stacked
- GS1 DataBar Stacked Omnidirectional
- GS1 DataBar Limited
- GS1 DataBar Expanded
- GS1 DataBar Expanded Stacked
- GS1 DataBar 128

### 3.10 Synchronous Processing

The TM-L100 use Process ID to determine output completion.

Use of the Process ID allows multiple print commands to be queued to the printer simultaneously. For this reason, Asynchronous output (AsyncMode = TRUE) gives a performance improvement.

### 3.11 Electronic Logo Function (NVRAM)

The TM-L100 feature an electronic logo function (NVRAM).

There are two ways of using NVRAM explained as follows:

#### 1. Using TMFlogo Utility

Startup TMFlogo utility from “Device Specific Settings” dialog box of SetupPOS utility and register image files (BMP style) with NVRAM in advance. For the details of the registration, please refer to the “Help” of “TMFlogo utility” and/ or “EPSON OPOS ADK MANUAL User’s Manual TMFlogo Utility”.

To print image files registered with NVRAM, please use the either of the following DirectIO:

```
PTR_DI_FLASH_BITMAP
PTR_DI_FLASH_BITMAP2
```

Please refer to the Section 4 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)” for detail.

#### 2. Using SetBitmap Method

Checking “NVRAM” check box on “Bitmap” tab in “Device Specific Settings” dialog box of SetupPOS utility enable to register image files with NVRAM using SetBitmap method.

Regarding the details of image files registration with NVRAM using SetBitmap method, please refer to the Section 8 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”

The available size of NVRAM are as follows:

```
TM-L100      : 384KB
```

### 3.12 About paper removal waiting mechanism and operation.

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 error is returned.

ResultCode:OPOS\_E\_EXTENDED

ResultCodeExtended:OPOS\_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.

## Section 4. MultiFont Printing

---

### 4.1 Overview

This function enables multilingual printing. The function is enabled by selecting “TM-L100” with SetupPOS.

### 4.2 Supported Methods

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

### 4.3 Supported Languages

- Alphanumeric
- Japanese
- Simple Chinese
- Traditional Chinese
- Korean
- 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><br>Japanese | <b>936</b><br>Simple Chinese | <b>949</b><br>Korean | <b>950</b><br>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.

## Section 5. Warnings

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This section describes precautions in use of TM-L100.

- When the power is turned on or off while using a Bluetooth connection, the recovery process might take time to complete.