

EPSON OPOS ADK MANUAL

**APPLICATION DEVELOPMENT
GUIDE**

POSPrinter (TM-U330x)

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Section 1. Introduction

This manual describes the method of use and related items, as well as machine-specific precautions, when the EPSON TM-U330x Series POS Printers are used with the EPSON OPOS ADK program.

This manual applies to the following devices.

Device List

| Serial | Parallel | USB | Ethernet |
|--------------|---------------|---------------|---------------|
| TM-U330BM | TM-U330BPM | TM-U330BMU | TM-U330BME |
| TM-U330BM_BM | TM-U330BPM_BM | TM-U330BM_BMU | TM-U330BM_BME |
| TM-U330DM | TM-U330DPM | TM-U330DMU | TM-U330DME |
| TM-U330DM_BM | TM-U330DPM_BM | TM-U330DM_BMU | TM-U330DM_BME |

Before reading the manual, see the following explanation about the characteristic of the TM-U330x models.

- Station: Receipt (24-pin Serial impact dot matrix)
- 2-Color Printing
- Black Mark paper

Throughout the manual, the various model names will be referred to as TM-U330x. TM-U330x represents TM-U330BM, TM-U330BM_BM, TM-U330DM and TM-U330DM_BM.

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

This section describes connection configurations and how to make the settings for the TM-U330x Series printers.

2.1. References of Firmware Versions

Refer to the release notes (Relnote.txt).

2.2. 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] | 1200,2400,4800,9600,19200,38400,57600,115200 |
| Bit length [bit] | 8 |
| Parity | NONE, ODD, EVEN |
| Stop bit [bit] | 1 |
| Handshake | DTR/DSR |
| Output buffer length [byte] | 32 to 1024 |
| Output interval time [ms] | 0 to 9999 |

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 |
| Output buffer length [byte] | 1024 |
| Output interval time [ms] | 2500 |

2) Port information when using parallel port

Not applicable

3) Port information when using USB port

Not applicable

4) Port information when using Ethernet port

Not applicable

2.3. Device Settings

The following explanation is about the settings for TM-U330x.

2.3.1. Usable Device Specific Settings

For the TM-U330x, 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 ^{*1} |
| | Ignore firmware version check |
| | Output complete timeout |
| Paper | Paper Type |
| | Paper Width [mm]: LineWidth [dot]: LineCharsList |
| Bitmap | TMFlogo... |
| Color Bitmap | Halftone: Method |
| | Halftone: Brightness |
| | Color: Primary |
| Status Log | ERROR |
| | OFFLINE |
| | Log file name (full path name) |
| | Maximum file size [KB] |
| Options | NearEndSensor |
| Printing Properties | Receipt Characters per Line |
| | Receipt Line Spacing [dots] |
| | CharacterSet [CodePage Number] |

^{*1} The settings can be changed when using a connection other than serial.

2.3.2. Options

“NearEndSensor” check box

For the models, which are supported NearEndSensor function as an option, marking the check box could set NearEndSensor function.

Section 3. Function Details

This section describes the functions of the TM-U330x 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_KANJI |
| CapMapCharacterSet | FALSE |
| 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 | FALSE |
| CapRecUnderline | TRUE |
| CapRecStamp | FALSE |
| CapRecRotate180 | TRUE |
| CapRecRight90 | FALSE |
| CapRecPapercut | TRUE (TM- U330BM) FALSE (TM-U330DM) |

| | |
|-----------------------|---|
| CapRecNearEndSensor | FALSE ^{*1} |
| CapRecMarkFeed | 0 PTR_MF_TO_CUTTER ^{*2} PTR_MF_TO_TAKEUP ^{*3} |
| CapRecLeft90 | FALSE |
| CapRecItalic | FALSE |
| CapRecEmptySensor | TRUE |
| CapRecDwideDhigh | TRUE |
| CapRecDwide | TRUE |
| CapRecDhigh | TRUE |
| CapRecColor | PTR_COLOR_PRIMARY PTR_COLOR_CUSTOM1 |
| CapRecCartridgeSensor | 0 |
| CapRecBold | TRUE |
| CapRecBitmap | TRUE |
| CapRecBarCode | TRUE ^{*4} |
| CapRec2Color | TRUE |
| 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} NearEndSensor is an option. When the mark the "NearEndSensor" check box at SetupPOS utility, this function is effective.

^{*2} This setting is valid only when TM-U330BM_BM is used.

^{*3} This setting is valid only when TM-U330DM_BM is used.

^{*4} If Firmware Version is 1.01 or later version, the following barcode types are supported for TM-U330.

- QR Code
- Code39
- Code128
- Code128 parsed

3.1.2. List Properties

The List Properties are explained in the following.

| List Property | Settings |
|---|--------------------------------|
| CharacterSetList | "254,255,437, 936" |
| JrnLineCharsList | "0" |
| RecLineCharsList (When 76.0 mm is set) | (Font A) "33" (Font B) "42" |
| RecLineCharsList (When 69.5 mm is set) ^{*1} | (Font A) "30" (Font B) "38" |
| RecLineCharsList (When 57.5 mm is set) | (Font A) "25" (Font B) "32" |
| SlpLineCharsList | "0" |
| RecBarCodeRotationList | "0,180" |
| RecBitmapRotationList | "0,180" |
| SlpBarCodeRotationList | "0" |
| SlpBitmapRotationList | "0" |
| FontTypefaceList | "0" |

^{*1} The set values are valid only when width setting of TM-U330BM and TM-U330DM are 69.5mm.

3.1.3. Width and Height Properties

The width and height properties are described below.

| Property | Settings | | |
|--|---------------|---------------------|---------------------|
| | Default Value | Maximum value [dot] | Minimum value [dot] |
| RecLineSpacing | 30 | 127 | 0 |
| JrnLineSpacing | X | X | X |
| SlpLineSpacing | X | X | X |
| SlpLineHeight [dot] | X | | |
| RecLineHeight [dot] | 24 | | |
| JrnLineHeight [dot] | X | | |
| SlpLineWidth [dot] | X | | |
| RecLineWidth [dot] (When 76.0 mm is set) | 450 | | |
| RecLineWidth [dot] (When 69.5 mm is set) *1 | 405 | | |
| RecLineWidth [dot] (When 57.5 mm is set) | 337 | | |
| JrnLineWidth [dot] | X | | |
| RecSidewaysMaxLines | 0 | | |
| RecSidewaysMaxChars | 0 | | |
| RecLinesToPaperCut *2 | TM-U330B | TM-U330D | |
| | 8 | 7 | |
| SlpSidewaysMaxLines | X | | |
| SlpSidewaysMaxChars | X | | |
| SlpMaxLines | X | | |

X : No settings

^{*1} the set value is valid only when width setting of TM-U330BM and TM-U330DM are 69.5mm.

^{*2} It can be changed by the settings of the RecLineSpacing or the character height.

- When the RecLineSpacing is 0, the RecLinesToPaperCut is -1.

3.1.4. Common Property Strings

The Device information properties are described below.

- TM-U330BM

| I/F | DeviceName | DeviceDescription |
|-----|------------|------------------------------|
| S | TM-U330BM | EPSON TM-U330BM POS Printer |
| P | TM-U330BPM | EPSON TM-U330BPM POS Printer |
| U | TM-U330BMU | EPSON TM-U330BMU POS Printer |
| E | TM-U330BME | EPSON TM-U330BME POS Printer |

- TM-U330BM_BM

| I/F | DeviceName | DeviceDescription |
|-----|---------------|---------------------------------|
| S | TM-U330BM_BM | EPSON TM-U330BM_BM POS Printer |
| P | TM-U330BPM_BM | EPSON TM-U330BPM_BM POS Printer |
| U | TM-U330BM_BMU | EPSON TM-U330BM_BMU POS Printer |
| E | TM-U330BM_BME | EPSON TM-U330BM_BME POS Printer |

- TM-U330DM

| I/F | DeviceName | DeviceDescription |
|-----|------------|------------------------------|
| S | TM-U330DM | EPSON TM-U330DM POS Printer |
| P | TM-U330DPM | EPSON TM-U330DPM POS Printer |
| U | TM-U330DMU | EPSON TM-U330DMU POS Printer |
| E | TM-U330DME | EPSON TM-U330DME POS Printer |

- TM-U330DM_BM

| I/F | DeviceName | DeviceDescription |
|-----|---------------|---------------------------------|
| S | TM-U330DM_BM | EPSON TM-U330DM_BM POS Printer |
| P | TM-U330DPM_BM | EPSON TM-U330DPM_BM POS Printer |
| U | TM-U330DM_BMU | EPSON TM-U330DM_BMU POS Printer |
| E | TM-U330DM_BME | EPSON TM-U330DM_BME POS Printer |

I/F indicates the connected interface.

The following is the list of the four connecting interfaces.

S: Serial

P: Parallel

U: USB

E: Ethernet

3.2. Methods

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

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

O: Supported

X : Unsupported

^{*1} If Firmware Version is 1.01 or later version, the following barcode types are supported for TM-U330.

- QR Code
- Code39
- Code128
- Code128 parsed

^{*2} The setting is available for the models other than TM-U330D.

^{*3} The MarkFeed method is supported by TM-U330BM_BM and TM-U330DM_BM only.

3.3. Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

| Escape Sequence | Support |
|-----------------------|------------------|
| #P ^{*1} | 0~100 |
| #fP ^{*1} | 0~100 |
| #sP | X |
| sL | X |
| #B | O |
| tL | O |
| bL | O |
| [*]#R | O ^{*2} |
| #IF | 0~9999 |
| #uF Base Pitch [inch] | 0~ approx. 50 cm |
| #rF Maximum [inch] | 2 |
| [*]#E | 0~65535 |
| #fT | X |
| bC | O |
| !bC | O |
| #uC | 1 |
| iC | X |
| !iC | X |
| #rC | 1~2 |
| rvC | X |
| !rvC | X |
| #sC | X |
| #fC | X |
| tbC | X |
| !tbC | X |
| tpC | X |
| !tpC | X |
| 1C | O |
| 2C | O |
| 3C | O |
| 4C | O |
| #hC | 1~2 |
| #vC | 1~2 |
| cA | O |
| rA | O |
| !A | O |
| #stC | X |
| !stC | X |
| *#dL | X |
| N | O |

O: Supported

X : Unsupported

Numbers: Settable range

^{*1} TM-U330D is not supported. This is available only for the other models.

^{*2} If Firmware Version is 1.01 or later version, the following barcode types are supported

for TM-U330.

- QR Code
- Code39
- Code128
- Code128 parsed

3.4. Printable Barcode Type

The TM-U330x models allow the following barcode types.

- QR Code
- Code39
- Code128
- Code128 parsed

3.5. QR CODE Printing

3.5.1. QR CODE Printing

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

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.

3.5.2. Printing Size

Because the width and length of QR CODE are the same, printing is done to the inner part at a size closest to it by using the value specified by the Width parameter. Therefore, the height of print is not affected by the Height parameter. If the Height parameter is less than 0, an error occurs.

The print size is determined by the version of QR and the size of the module. Because the version of QR is determined by the data length and type, you can use the size of the module to adjust the print size. If the two dimensional barcode cannot fit into the print area (depending on the paper width, layout settings, etc.) then OPOS_E_ILLEGAL is returned and at this moment ResultCodeExtended becomes zero.

For QR, it differs from other two dimensional barcodes; if the encoded data result is not known, then the print width cannot be obtained. If the print width cannot be obtained, the page mode range for 90-degree rotated printing cannot be specified.

Therefore, within OPOS it calculates the number of code words of the encoded data. Because of this reason, data amount can be correctly verified.

3.5.3. Error Correction Level

Error correction level is fixed at 7%.

3.5.4. Printing Position

Like the one dimensional barcode, the print position of the two dimensional barcode is the specified position.

3.6. Power Condition Reports

The TM-U330x models support Power Condition Reports as follows.

Powered on reporting: Supported

Powered off reporting: Unsupported

3.7. Synchronous Processing

The TM-U330x models do not use Process ID to determine output completion.

3.8. Printing Positions

The TM-U330x models support the function for setting printing position.

| Function | Support |
|-------------------|---------|
| Left margin | X |
| Printing Position | O |

O: Supported

X : Unsupported

When the left margin setting function is supported, it is possible to specify the horizontal printing position of the bitmap or barcode by dots unit.

When the printing position settings are supported, it is possible to specify the horizontal printing position of the text, bitmap, or the barcode to the left, center, or the right side of the paper.

3.9. Electronic Logo Function (NVRAM)

The TM-U330x models feature a function for electronic logo. To use the electronic logo function (NVRAM), start "TMFlogo utility" from the "Device Specific Settings" of SetupPOS utility, and register image files (BMP style) at the function in

advance. For the details of the registration, please refer to the “TM-U330 Utility User's Manual”.

To print the registered image file, please use the following DirectIO.

PTR_DI_FLASH_BITMAP

For the details of the printing, please refer to Section 4 of “EPSON OPOS ADK APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”.

3.10. Printable Bitmap Types and Sizes

The TM-U330x models support the following bitmap commands. For the detail, please refer to the Section 3 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”. The allowance ranges for bitmaps are as follows.

| Bitmap command type | Allowance range |
|---------------------|------------------|
| One-line bitmap | No setting range |

3.11. Maintenance Counter

The TM-U330x models do not support the Maintenance Counter.

3.12. Automatic Recovery Function

The TM-U330x models feature a function for automatic recovery when the power is turned on again after an interruption of power. Recovery processing is performed automatically when the printer's power is turned on again after an interruption. The recovery processing restores the printer to the condition it was in before the power was interrupted.

The other models do not support this function.

3.13. Output without Flow Control on the USB/Ethernet Interfaces

The TM-U330x models do not support outputting without flow control on the USB/Ethernet interfaces.

Section 4. Warnings

This section describes precautions in use of TM-U330x.

There is no specific warning.