

EPSON OPOS ADK MANUAL

APPLICATION DEVELOPMENT GUIDE

POSPrinter (TM-J7200/ TM-J7700)

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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-J7200, TM-J7700 Series POS Printers are used with the EPSON OPOS ADK program.

This manual applies to the following devices.

Device List

USB	Ethernet
TM-J7200U	TM-J7200E
TM-J7700U	TM-J7700E

Before reading the manual, see the following explanation about the characteristic of the TM-J7200, TM-J7700 models.

- Station:

Receipt: (Serial Ink Jet 180 dpi X 180 dpi)

Slip: (Serial Ink Jet 180 dpi X 180 dpi)

Hereafter, regardless of I/F, the above models are referred to as TM-J7200, TM-J7700. The generic term for TM-J7200, TM-J7700 are also referred to as TM-J7x00.

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-J7x00 printers.

2.1 References of Firmware Versions

Refer to the release notes (Relnote.txt).

2.2 Settings of DIP Switches

Not applicable

2.3 Port Information

1) Port information when using USB port

Not applicable

2) Port information when using Ethernet port

Not applicable

2.4 Device Settings

The following explanation is about the settings for TM-J7x00.

2.4.1. Usable Device Specific Settings

For the TM-J7x00, 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
	Ignore firmware version check
	Homogenize Error Codes
	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]
Default Value	Slip font size type
	Receipt font size type
Printing Properties	Receipt Characters per Line
	Receipt Line Spacing [dots]
	Slip Characters per Line
	Slip Line Spacing [dots]
	CharacterSet [CodePage Number]

2.4.2. Paper Width Setting

The models support the following paper width. After adding the TM-J7200, TM-J7700 by the SetupPOS utility, open the “Device Specific Settings” dialog box. In the “Paper” tab the paper width could be selected.

The settable paper widths are as follows:

- 76.0 mm [480 dots]
- 82.5 mm [512 dots]
- 69.5 mm [432 dots]
- 57.5 mm [360 dots]

The default paper width is set to 76.0 mm.

Section 3. Function Details

This section describes the functions of the 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
	Receipt / Slip
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	TRUE
CapRecMarkFeed	0
CapRecLeft90	TRUE
CapRecItalic	FALSE
CapRecEmptySensor	TRUE
CapRecDwideDhigh	TRUE

CapRecDwide	TRUE
CapRecDhigh	TRUE
CapRecColor	PTR_COLOR_PRIMARY
CapRecCartridgeSensor	PTR_CART_REMOVED PTR_CART_EMPTY PTR_CART_NEAREND PTR_CART_CLEANING
CapRecBold	TRUE
CapRecBitmap	TRUE
CapRecBarCode	TRUE
CapRec2Color	FALSE
CapRecPresent	TRUE
CapSlpUnderline	TRUE
CapSlpRotate180	TRUE
CapSlpRight90	TRUE
CapSlpNearEndSensor	TRUE
CapSlpLeft90	TRUE
CapSlpItalic	FALSE
CapSlpEmptySensor	TRUE
CapSlpDwideDhigh	TRUE
CapSlpDwide	TRUE
CapSlpDhigh	TRUE
CapSlpColor	PTR_COLOR_PRIMARY
CapSlpCartridgeSensor	PTR_CART_REMOVED PTR_CART_EMPTY PTR_CART_NEAREND PTR_CART_CLEANING
CapSlpBothSidesPrint	FALSE
CapSlpBold	TRUE
CapSlpBitmap	TRUE
CapSlpBarCode	TRUE
CapSlp2Color	FALSE
CapSlpFullslip	TRUE
CapSlpPresent	TRUE
CapSlpPageMode	TRUE

3.1.2. List Properties

The List Properties are explained in the following.

List Property	Settings
CharacterSetList	"997"
JrnLineCharsList	" "
RecLineCharsList (When 82.5 mm is set)	"42,56" / "46,64" *1
RecLineCharsList (When 76 mm is set)	"40,53" / "43,60" *1
RecLineCharsList (When 70 mm is set)	"36,48" / "39,54" *1
RecLineCharsList (When 58 mm is set)	"30,40" / "32,45" *1
SlpLineCharsList	(TM-J7200)"48,64" / "52,72" *2 (TM-J7700)"80,106"/"87,120" *2
RecBarcodeRotationList	"0,R90, L90, 180"
RecBitmapRotationList	"0,R90, L90, 180"
SlpBarcodeRotationList	"0,180"
SlpBitmapRotationList	"0,R90, L90, 180"
FontTypefaceList	"OCR-B"

*1 Memory SW8-7 is set to ON.

*2 Memory SW8-6 is set to ON.

3.1.3. Width and Height Properties

The width and height properties are explained in the following.

Property	Settings		
	Default Value	Maximum value [dot]	Minimum value [dot]
RecLineSpacing	30	255	0
JrnLineSpacing	X	X	X
SlpLineSpacing	30	255	0
SlpLineHeight [dot]	24,17		
RecLineHeight [dot]	24,17		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	(TM-J7200) 576 (TM-J7700) 960		
RecLineWidth [dot]	(82.5 mm is set) 512 (76 mm is set) 480 (70 mm is set) 432 (58 mm is set) 360		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines	(82.5 mm is set) 17 ^{*5} (76 mm is set) 16 ^{*5} (70 mm is set) 14 ^{*5} (58 mm is set) 12 ^{*5}		
RecSidewaysMaxChars (When 82.5 mm is set)	(Font A) 69, 75 ^{*1} (Font B) 92, 104 ^{*1}		
RecSidewaysMaxChars (When 76 mm is set)	(Font A) 73, 80 ^{*1} (Font B) 97, 110 ^{*1}		
RecSidewaysMaxChars (When 70 mm is set)	(Font A) 82, 89 ^{*1} (Font B) 109, 123 ^{*1}		
RecSidewaysMaxChars (When 58 mm is set)	(Font A) 98, 106 ^{*1} (Font B) 130, 147 ^{*1}		
RecLinesToPaperCut	7 ^{*3}		
SlpSidewaysMaxLines	(TM-J7200) 19 ^{*5} (TM-J7700) 32 ^{*5}		
SlpSidewaysMaxChars (When Font A is selected)	(TM-J7200) 61, 66 ^{*4} (TM-J7700) 36, 40 ^{*4}		
SlpSidewaysMaxChars (When Font B is selected)	(TM-J7200) 81, 92 ^{*4} (TM-J7700) 48, 55 ^{*4}		
SlpMaxLines	0		

X : No settings

^{*1} Memory SW8-7 is set to ON.

^{*2} Depends on PageMode in "Device Specific Settings" of the SetupPOS utility

^{*3} It can be changed by the settings of the RecLineSpacing or the character height.
When the RecLineSpacing is "0", the RecLinesToPaperCut is "-1".

^{*4} Memory SW8-6 is set to ON.

^{*5} It can be changed by the settings of the XxxLineSpacing or the XxxLineHeight. When the RecLineSpacing is 0, the RecLinesToPaperCut is -1.

3.1.4. Common Property Strings

The Device information properties are described below.

I/F	DeviceName	DeviceDescription
U	TM-J7200U	EPSON TM-J7200U POS Printer
	TM-J7700U	EPSON TM-J7700U POS Printer
E	TM-J7200E	EPSON TM-J7200E POS Printer
	TM-J7700E	EPSON TM-J7700E POS Printer

I/F indicate the connected interface.

The following is the list of the four connecting interfaces.

U: USB

E: Ethernet

3.1.5. PageMode Print Properties

The Device information properties are described below.

● TM-J7200

Property	Station ^{*2}	
	Receipt	Slip
PageModeArea	(82.5mm)"512", "832" (76.0mm)"480", "880" (69.5mm)"432", "984" (57.5mm)"360", "1176"	"576", "736"
PageModeDescriptor ^{*1}	BM/BC/BMR/BCR	BM/BC/BMR/BCR

● TM-J7700

Property	Station ^{*2}	
	Receipt	Slip
PageModeArea	(82.5mm)"512", "832" (76.0mm)"480", "880" (69.5mm)"432", "984" (57.5mm)"360", "1176"	"960", "440"
PageModeDescriptor ^{*1}	BM/BC/BMR/BCR	BM/BC/BMR/BCR

^{*1} 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.

^{*2} If the Station's CapRecPageMode and/or CapSlpPageMode property values are FALSE, the PageModeArea property shall have "" and the PageModeDescriptor property shall have "0" respectively as a setting value.

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 ^{*1}
PrintBarCode	O	O ^{*2}
PrintBitmap	O	O ^{*3}
PrintMemoryBitmap	O	O ^{*3}
CutPaper	O (1~100: One point remains uncut)	X
MarkFeed	X	X
ChangePrintSide	X	X
ValidateData	O	O
TransactionPrint	O	O
SetLogo	O	O
SetBitmap	O	O
RotatePrint	O	X
EndRemoval	O	O
BeginRemoval	O	O
EndInsertion	O	O
BeginInsertion	O	O
ClearPrintArea	O	O
PageModePrint	O	O

O: Supported

X: Unsupported

^{*1} 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.

^{*2} 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.

^{*3} 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.

3.3 Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

Escape Sequence	TM-J7200		
	Receipt	Slip	Compatibility with the PageMode printing
#P	0~100	X	X
#fP	0~100	X	X
#sP	X	X	X
sL	X	X	X
#B	O	O	O
tL	O	O	O
bL	O	O	O
#R	O	O	O
#IF	0~9999	0~9999	O
#uF	0~ approx. 50 cm	0~ approx. 50 cm	O
#rF Maximum [inch]	X	423	X
#E	0~65535	0~65535	X
#fT	0~1	0~1	X
[!] b C	O	O	O
#u C	1~2	1~2	O
[!] i C	X	X	X
#r C	1	1	O
[!] r v C	O	O	O
#s C	X	X	X
#f C	X	X	X
[!] t b C	X	X	X
[!] t p C	X	X	X
1 C	O	O	O
2 C	O	O	O
3 C	O	O	O
4 C	O	O	O
#h C	1~8	1~8	O
#v C	1~8	1~8	O
c A	O	O	O ^{*1}
r A	O	O	O ^{*1}
l A	O	O	O
[!] [#] st C	X	X	X
*#d L	X	X	X
N	O	O	O

Escape Sequence	TM-J7700		
	Receipt	Slip	Compatibility with the PageMode printing
#P	0~100	X	X
#fP	0~100	X	X
#sP	X	X	X
sL	X	X	X
#B	O	O	O
tL	O	O	O
bL	O	O	O
#R	O	O	O
#IF	0~9999	0~9999	O
#uF	0~ approx. 50 cm	0~ approx. 50 cm	O
#rF Maximum [inch]	X	423	X
#E	0~65535	0~65535	X
#fT	0~1	0~1	X
[!] b C	O	O	O
#u C	1~2	1~2	O
[!] i C	X	X	X
#r C	1	1	O
[!] r v C	O	O	O
#s C	X	X	X
#f C	X	X	X
[!] t b C	X	X	X
[!] t p C	X	X	X
1 C	O	O	O
2 C	O	O	O
3 C	O	O	O
4 C	O	O	O
#h C	1~8	1~8	O
#v C	1~8	1~8	O
c A	O	O	O ^{*1}
r A	O	O	O ^{*1}
l A	O	O	O
[!] [#] st C	X	X	X
*#d L	X	X	X
N	O	O	O

O : Supported

X : Unsupported

Numbers: Settable range

^{*1} 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-J7x00 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

For the PDF 417 type, the maximum height is limited to 831 dots.

3.5 Power Condition Reports

The TM-J7x00 models support Power Condition Reports as follows.

Powered on reporting: Supported.

Powered off reporting: Unsupported.

3.6 Synchronous Processing

The TM-J7x00 models support the Process ID for the Synchronous Processing.

3.7 Printing Positions

The TM-J7x00 models support the function for setting printing position.

Function	Receipt
Left margin	O
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.

3.8 Electronic Logo Function (NVRAM)

TM-J7x00 models feature an electronic logo function (NVRAM). To use NVRAM, startup TM-J7200, TM-J7700 utility from “Device Specific Settings” of SetupPOS utility, and register image files (BMP style) with NVRAM in advance.

For the details of the registration, please refer to the “TM-J7200, TM-J7700 Utility User's Manual”.

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 corresponding part of the Section 4 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)” for detail. The available NVRAM sizes are as follows:

TM-J7x00 :393216 bytes.

3.9 Printable Bitmap Types and Sizes

The TM-J7x00 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.

- TM-J7200 and TM-J7700

Bitmap command type	Allowance range		
	x	y	xy
NV bitmap	1~8192	1~2304	
Download bitmap	1~8192	1~2304	
Column Format bitmap	1~2048	1~64	

3.10 Maintenance Counter

The TM-J7x00 models feature a maintenance counter function for retaining an operation log of the printer. The following chart shows the available maintenance counters for the TM-J7x00.

Counter number Hexadecimal	Counter	Unit	Max. Value	Counter Type
1E	Number of line feeds	Lines	143,165,576	Resettable
21	Number of carriage operations	Times	4,294,967,295	Resettable
22	Number of pump operations	Times	4,294,967,295	Resettable
23	Paper feed in number of lines: Slip	Lines	178,956,970	Resettable
32	Number of auto-cutter operations	Times	4,294,967,295	Resettable
3C	Number of check paper readings	Times	4,294,967,295	Resettable
46	Uptime of product	Hours	71,582,788	Resettable
9E	Number of line feeds	Lines	143,165,576	Cumulative
A1	Number of carriage operations	Times	4,294,967,295	Cumulative
A2	Number of pump operations	Times	4,294,967,295	Cumulative
A3	Paper feed in number of lines: Slip	Lines	178,956,970	Cumulative
B2	Number of auto-cutter operations	Times	4,294,967,295	Cumulative
BC	Number of check paper readings	Times	4,294,967,295	Cumulative
C6	Uptime of product	Hours	71,582,788	Cumulative

3.11 Automatic Recovery Function

The TM-J7x00 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 turned off.

3.12 OCR-B Font Printing

The `FontTypefaceList` property is guaranteed correct after the device is claimed.

The TM-J7200, TM-J7700 can switch to the OCR-B font using the Escape sequence.

When printing the “OCR-B” font, use the Escape sequence (ESC|#fT) is used.

The # indicates the font number. If the font number is 0, then the font is the default font, and when the font number is 1, it switches to the “OCR-B” font if available. After switching to the “OCR-B” font, the values for the `XxxLineChars` property and `XxxLineHeight` property will not match the actual printing results.

Character	Code (HEX)
SP	20
+	2B
,	2C
—	2D
0	30
1	31
2	32
3	33
4	34
5	35
6	36
7	37
8	38
9	39
<	3C
>	3E

Any character codes in 20H~FFH which are other than the above are treated as spaces.

3.13 Output without Flow Control on the USB/Ethernet Interfaces

The TM-J7x00 models support outputting without flow control on the USB/Ethernet interfaces.

Section 4. Warnings

This section describes precautions in use of TM-J7200, TM-J7700.

- Due to hardware limitations and the position of the Slip, it is not possible to change the printing side and then search for the position where printing should start. In this case, OPOS_E_ILLEGAL (OPOS_EX_INVALIDMODE) is returned.
- Before switching the printing side, the Transaction data and the data for 90-degree rotated printing are printed on the current printing side, and Transaction is automatically set to PTR_TP_NORMAL and Rotate is set to PTR_RP_NORMAL.

This is because different functions are used for the two printing sides (the print head is different) and this factor may cause an improper result if the data is not printed on the printing side selected when the printing command is issued.

Because this processing is performed before the position of the Slip is checked in order to take the above mentioned restrictions into consideration, there may be instances where the above error is generated after the buffered data is printed, or the printing side may not be switched.

- In the SetBitmap method, a data set to print on the face side cannot be printed on the backside.
- The Memory SW value is checked at a claim. Therefore, if you use Memory SW8-7 and 8-6 set to ON, check the XXXLineCharsList property and the XXXSidewaysMaxChars property after the claim.
- Due to hardware specifications, it is not possible to smooth double height/width characters even where XXXLetterQuality property is set TRUE.
- After the BeginInsertion() method is executed, the device enters the Slip paper insertion standby state. In this state, you cannot perform any printing operation.
- Be sure to call the BeginInsertion() and EndInsertion() methods in pair when you insert the Slip paper.