

EPSON OPOS ADK MANUAL

APPLICATION DEVELOPMENT GUIDE

POSPrinter (TM-m50Series)

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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-m50Series POS Printers are used with the EPSON OPOS ADK program.

This manual applies to the following devices.

Device List

Serial	USB	Ethernet	Bluetooth
TM-m50	TM-m50U	TM-m50E	TM-m50B
TM-m50_MltFont	TM-m50_MltFontU	TM-m50_MltFontE	TM-m50_MltFontB
TM-m50II	TM-M50IIU	TM-m50IIE	TM-m50IIB
TM-m50II_MltFont	TM-M50II_MltFontU	TM-m50II_MltFontE	TM-m50II_MltFontB

Throughout the manual, the various model names will be referred to as TM-m50Series. Please see “SupportedDevicesList.txt” for more information.

Before reading the manual, see the following explanation about the characteristic of the TM-m50Series models.

Station: Receipt (Line Thermal 180 dpi X 180 dpi)

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”.

Column emulation mode

The column emulation mode is supported.

To use settings other than 42/30 characters mode with column emulation mode, you need to set with Utility and SetupPOS.

Section 2. Details on Settings

This section describes connection configurations and how to make the settings for the TM-m50Series Printers.

2.1 References of Firmware Versions

Refer to the release notes (Relnote.txt/SupportedDevicesList.txt).

2.2 Settings 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

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 Utility. For details, please refer to the "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-m50Series.

2.4.1 Registered name

The registered device name differs depending on the model and function.

If you use MultiFont printing, select the device of "MltFont" in SetupPOS.

e.g.:TM-m50

Use MultiFont printing:Select "TM-m50_MltFont"

Not use MultiFont printing:Select: Select "TM-m50"

To switch between the column emulation mode, use the "Paper Width" in the Paper tab of SetupPOS.

2.4.2 Usable Device Specific Settings

For the TM-m50Series, the following device specific settings are settable by the SetupPOS utility. For the detail, please refer to the corresponding part of 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 [s]
Paper	Paper Type
	Paper Width [mm]: LineWidth [dot]: LineCharsList
Bitmap	Utility
	NVRAM
Color Bitmap	Halftone: Method
	Halftone: Brightness
	Color: Primary
	Gradation: Method
Status Log	ERROR
	OFFLINE
	Log file name (full path name)
	Maximum file size [KB]
Default Value*1	Multilingual font
Printing Properties	Receipt Characters per Line
	Receipt Line Spacing [dots]
	CharacterSet [CodePage Number]

*1 Available only for the Multilingual character model.

Section 3. Function Details

This section describes the functions of the TM-m50Series printer 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	Setting 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	TRUE
CapRecMarkFeed	0
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

3.1.2 List Properties

The List Properties are explained in the following.

MultiFont registration:

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 (42/30 characters mode)	79.5mm: "42, 56" 57.5mm: "30, 40"
RecLineCharsList (48/36 characters mode)	79.5mm: "48, 53" 57.5mm: "36, 40"
RecBarCodeRotationList	"0, R90, L90, 180"
RecBitmapRotationList	"0, R90, L90, 180"
SlpBarCodeRotationList	{}"
SlpBitmapRotationList	{}"
FontTypefaceList	{}"

Without MultiFont registration:

List Property	Settings
CharacterSetList	"120, 121, 126, 130, 131, 150, 151, 152, 153, 154, 155, 255, 437, 720, 737, 775, 850, 851, 852, 853, 855, 857, 858, 860, 861, 862, 863, 864, 865, 866, 869, 997, 998, 999, 1098, 1125, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258"
JrnLineCharsList	{}"
RecLineCharsList (42/30 characters mode)	79.5mm: "42, 56" 57.5mm: "30, 40"
RecLineCharsList (48/36 characters mode)	79.5mm: "48, 53" 57.5mm: "36, 40"
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 described below.

42/30 characters mode

Property	Settings		
	Default Value	Maximum value [dot]	Minimum value [dot]
RecLineSpacing	30	127	24
JrnLineSpacing	X	X	X
SlpLineSpacing	X	X	X
SlpLineHeight [dot]	X		
RecLineHeight [dot]	(Font A) 24 (Font B) 17		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	X		
RecLineWidth [dot]	(79.5mm) 512 (57.5mm) 360		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines	(79.5mm) 17 ^{*1} (57.5mm) 12 ^{*1}		
RecSidewaysMaxChars	(Font A) 200 (Font B) 266		
RecLinesToPaperCut	4 ^{*2}		
SlpSidewaysMaxLines	X		
SlpSidewaysMaxChars	X		
SlpMaxLines	X		

48/36 characters mode

Property	Settings		
	Default Value	Maximum value [dot]	Minimum value [dot]
RecLineSpacing	30	127	24
JrnLineSpacing	X	X	X
SlpLineSpacing	X	X	X
SlpLineHeight [dot]	X		
RecLineHeight [dot]	(Font A) 24 (Font B) 17		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	X		
RecLineWidth [dot]	(79.5mm) 480 (57.5mm) 360		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines	(79.5mm) 16 ^{*1} (57.5mm) 12 ^{*1}		
RecSidewaysMaxChars	(Font A) 240 (Font B) 266		
RecLinesToPaperCut	4 ^{*2}		
SlpSidewaysMaxLines	X		
SlpSidewaysMaxChars	X		
SlpMaxLines	X		

X: No settings

^{*1} It can be changed by the settings of the RecLineSpacing or the RecLineHeight.

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

3.1.4 Common Property Strings

The Device information properties are described below.

I/F	DeviceName	DeviceDescription
S	TM-m50	EPSON TM-m50 POS Printer
	TM-m50_MltFont	EPSON TM-m50_MltFont POS Printer
	TM-m50II	EPSON TM-m50II POS Printer
	TM-m50II_MltFont	EPSON TM-m50II_MltFont POS Printer
U	TM-m50U	EPSON TM-m50U POS Printer
	TM-m50_MltFontU	EPSON TM-m50_MltFontU POS Printer
	TM-m50IIU	EPSON TM-m50IIU POS Printer
	TM-m50II_MltFontU	EPSON TM-m50II_MltFontU POS Printer
E	TM-m50E	EPSON TM-m50E POS Printer
	TM-m50_MltFontE	EPSON TM-m50_MltFontE POS Printer
	TM-m50IIE	EPSON TM-m50IIE POS Printer
	TM-m50II_MltFontE	EPSON TM-m50II_MltFontE POS Printer
B	TM-m50B	EPSON TM-m50B POS Printer
	TM-m50_MltFontB	EPSON TM-m50_MltFontB POS Printer
	TM-m50IIB	EPSON TM-m50IIB POS Printer
	TM-m50II_MltFontB	EPSON TM-m50II_MltFontB POS Printer

I/F indicate the connected interface.

S: Serial, U: USB, E: Ethernet, B: Bluetooth

3.1.5 PageMode Print Properties

The Device information properties are described below.

Property	Station ^{*2}		
	Journal	Receipt	Slip
PageModeArea	-	(79.5mm) "512", "2400" (57.5mm) "360", "2400"	-
PageModeArea (Column Emulation Setting)	-	(79.5mm) "480", "2400" (57.5mm) "360", "2400"	-
PageModeDescriptor ^{*1}	-	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 property value is 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 ^{*4}	X
MarkFeed	X	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

- ^{*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.
- ^{*4} The cut rate varies depending on the model.

TM-m50

1~100: Cutting with one point.

TM-m50II

100: Full cut

1~99: Cutting with one point.

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 C	O	O
[!] [#] uC	O : (1~2)	O : (1~2)
[!] i C	X	X
#rC	1	O
[!] rv C	O	O
#sC	X	X
#fC	X	X
[!] tb C	X	X
[!] tp 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 ^{*1}
rA	O	O ^{*1}
lA	O	O
[!] [#] stC	0~1 ^{*2}	0~1 ^{*2}
*#dL	X	X
N	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.

^{*2} MultiFont registration: X, Without MultiFont registration: O (0~1)

3.4 Printable Barcode Type

The TM-m50Series 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

3.4.1 Code128/ Code128 Parsed Printing

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.

Data (example)	Size optimization	Width check
1234567890	O	X
{C1234567890	X	O

O: Applicable

X : Not applicable

3.5 Synchronous Processing

The TM-m50Series supports the 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.

3.6 Printing Positions

The TM-m50Series supports 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.

3.7 Electronic Logo Function (NVRAM)

The TM-m50Series models feature an electronic logo function (NVRAM). To use NVRAM, startup 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 “Utility User's Manual”.

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

DirectIO:

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-m50Series: 393216 bytes

3.8 Printable bitmap types and sizes

The TM-m50Series supports the following bitmap commands. For the detail, please refer to the corresponding part of 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		
	X (dot)	y (dot)	xy
NV bitmap	1~8192	1~2304	
Raster bitmap	1~19200	1~2400	

3.9 Maintenance Counter

The TM-m50Series models feature a maintenance counter function for retaining an operation log of the printer.

The following chart shows the available maintenance counters.

Counter number Hexadecimal	Counter	Unit	Max. Value	Counter Type
14	Paper feed in number of lines: Roll paper	Lines	143,165,576	Resettable
15	Number of times head timing pulse: Roll paper	Times	4,294,967,295	Resettable
32	Number of auto-cutter operations	Times	4,294,967,295	Resettable
46	Uptime of product	Hours	71,582,788	Resettable
94	Number of paper feed lines: Roll paper	Lines	143,165,576	Cumulative
95	Number of times head timing pulse: Roll paper	Times	4,294,967,295	Cumulative
B2	Number of auto-cutter operations	Times	4,294,967,295	Cumulative
C6	Uptime of product	Hours	71,582,788	Cumulative

3.10 Automatic Recovery Function

The TM-m50Series 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.

3.11 Output without Flow Control on the USB/Ethernet Interfaces

The TM-m50Series supports outputting without flow control on the USB/Ethernet interfaces. The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

Section 4. MultiFont Printing

This section describes the details of MultiFont Printing and how to use it.

4.1 Supported Methods

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

4.2 Supported Languages

- Alphanumeric
- Japanese
- Simple Chinese
- Traditional Chinese
- Korean
- Thai

4.3 Priority Font

Support models search the print character code points in the following priority order.

The following is the default analysis priority of the language font.

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.

	932 Japanese	936 Simple Chinese	949 Korean	950 Traditional Chinese	Other
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 Precautions and Restrictions

- Set the application build to "Unicode Build".
 - ✕For "Unicode Build", refer to the manual of the development tool you use.
- 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

This section describes precautions in use of TM-m50Series.

- When the power is turned on or off while using a Bluetooth connection, the recovery process might take time to complete.
- Thai1 Pass mode printing:
If print data remains in the printer buffer when printing is executed (i.e. The line feed for the print data was not completed), it is possible that the result will not be printed correctly.