

EPSON OPOS ADK MANUAL

**APPLICATION DEVELOPMENT
GUIDE**

POSPrinter (TM-H6000IV)

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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-H6000IV 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-H6000IV	TM-H6000IVP	TM-H6000IVU	TM-H6000IVE

Before reading the manual, see the following explanation about the characteristic of the TM-H6000IV models.

- Station: Receipt (Line Thermal 180dpi X 180dpi)
 - Slip (Serial impact dot matrix 80dpi X 72dpi)
 - Slip endorsement side (Serial impact dot matrix)
 - 40CPL mode enabled: 127dpi X 72dpi ^{*1}
 - 40CPL mode disabled: 160dpi X 72dpi ^{*1}
 - Validation (Serial impact dot matrix 80dpi X 72dpi)

^{*1} Not available with multilingual character models and validation models. If the device comes with the endorsement printing function, CapSlpBothSidePrint Property is true.

Note:

The setting of 40CPL mode is settable by “Endorse Multi Font” check box of “Slip” tab in “Device Specific Settings” dialog box of the SetupPOS utility.

Throughout the manual, the various model names will be referred to as TM-H6000IV.

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-H6000IV printers.

2.1 References of Firmware Versions

Please refer to the release notes (SupportedDevicesList.txt).

2.2 Settings of DIP Switches

Confirm that the following settings have been made correctly.

1) Serial port

DIP-SW1

No.	Setting	
1	OFF	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Settable
6	OFF	Settable
7	ON	Settable
8	OFF	Settable

DIP-SW2

No.	Setting	
1	OFF	Settable
2	OFF	Settable
3	OFF	Settable
4	OFF	Settable
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Fixed at OFF

It is possible to change the settings of DIP-SW1-1 and DIP-SW1-2, but it is recommended to leave them OFF.

Set DIP-SW1-3 (Handshake) to DTR/DSR.

Set DIP-SW1-4 (Bit length) to 8 bits.

Set DIP-SW1-5 to DIP-SW1-8 accordance with the port information.

The described set values are the default values. For the details, please refer to the product manual of the POSPrinter. Also, if these settings are changed, make sure to change the port information using the SetupPOS utility.

Set DIP-SW2-2 in accordance with whether or not a customer display is connected.

If connected, set to ON. If not, set to OFF.

Set DIP-SW2-3 and DIP-SW2-4 to match the environment of use.

Make other settings in accordance with the settings described above.

2) Parallel Port

DIP-SW1

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

Recommended

Recommended

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

DIP-SW2

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	ON

Settable

Fixed at OFF

Settable

Settable

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at ON

It is possible to change the settings of DIP-SW1-1 and DIP-SW1-2, but it is recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 to match the environment of use.

Do not change the current settings of DIP-SW2-5 to DIP-SW2-8.

Make other settings in accordance with the settings described above.

When parallel I/F is used with Windows 2000, Windows XP or Windows Vista, please set Busy Condition of DIP-SW2-1 to ON (Buffer full).

3) USB Port

DIP-SW1

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

Recommended

Recommended

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at OFF

DIP-SW2

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	ON

Settable

Fixed at OFF

Settable

Settable

Fixed at OFF

Fixed at OFF

Fixed at OFF

Fixed at ON

It is possible to change the settings of DIP-SW1-1 and DIP-SW1-2, but it is

recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 to match the environment of use.

Do not change the current settings of DIP-SW2-5 to DIP-SW2-8.

Make other settings in accordance with the settings described above.

4) Ethernet Port

DIP-SW1

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

Recommended
Recommended
Fixed at OFF
Fixed at OFF
Fixed at OFF
Fixed at OFF
Fixed at OFF
Fixed at OFF

DIP-SW2

No.	Setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	ON

Settable
Fixed at OFF
Settable
Settable
Fixed at OFF
Fixed at OFF
Fixed at OFF
Fixed at ON

It is possible to change the settings of DIP-SW1-1 and DIP-SW1-2, but it is recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 to match the environment of use.

Do not change the current settings of DIP-SW2-5 to DIP-SW2-8.

Make other settings in accordance with the settings described above.

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
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]	19200
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

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

Item	Setting range
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
Output buffer length [byte]	1024
Output interval time [ms]	2500

3) Port information when using USB port

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

Item	Setting range
Output interval time [ms]	0 to 9999

The default setting is as shown in the following table.

Item	Setting range
Output interval time [ms]	2500

4) Port information when using Ethernet port

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

Item	Setting range
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
Output buffer length [byte]	1024
Output interval time [ms]	2500

2.4 Device Settings

The following explanation is about the settings for TM-H6000IV.

2.4.1 Usable Device Specific Settings

For the TM-H6000IV, 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 [s]
Paper	Paper Type
	Paper Width [mm]: LineWidth [dot]: LineCharsList
Slip	Reverse feed removal
	Blink LED with BeginInsertion
	Endorse Multi Font
Bitmap	TMFlogo...
	NVRAM
Color Bitmap	Halftone: Method
	Halftone: Brightness
	Color: Primary
	Gradation: Method
Status Log	ERROR
	OFFLINE
	Log file name (include full path)
	Maximum file size [KB]
Default Value	Endorsement installation
Printing Properties	Receipt Characters per Line
	Receipt Line Spacing [dots]
	Slip Characters per Line
	Slip Line Spacing [dots]
	CharacterSet [CodePage Number]

^{*1} The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

2.4.2 Paper Width Setting

The TM-H6000IV supports the following paper width. After adding the TM-H6000IV by the SetupPOS utility, open the “Device Specific Settings” dialog box. In the “Paper” tab the paper width could be selected.

The settable paper width is as follows:

- 79.5 mm [512 dots]
- 57.5 mm [360 dots]

The default paper width is set to 79.5 mm.

Section 3. Function Details

This section describes the functions of the TM-H6000IV 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	Slip Endorsement
CapTransaction	TRUE	
CapCoverSensor	TRUE	
CapConcurrentRecSlp	FALSE	
CapConcurrentJrnSlp	FALSE	
CapConcurrentJrnRec	FALSE	
CapConcurrentPage Mode	FALSE	
CapCharacterSet	PTR_CCS_UNICODE ^{*3}	
CapMapCharacterSet	TRUE ^{*2}	
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	TRUE	(40CPL mode enabled): FALSE (40CPL mode disabled): TRUE
CapSlpRotate180	TRUE	
CapSlpRight90	TRUE	FALSE
CapSlpNearEndSensor	TRUE	
CapSlpLeft90	TRUE	FALSE
CapSlpItalic	FALSE	
CapSlpEmptySensor	TRUE	
CapSlpDwideDhigh	TRUE	(40CPL mode enabled): FALSE (40CPL mode disabled): TRUE
CapSlpDwide	TRUE	(40CPL mode enabled): FALSE (40CPL mode disabled): TRUE
CapSlpDhigh	TRUE	(40CPL mode enabled): FALSE (40CPL mode disabled): TRUE
CapSlpColor	PTR_COLOR_PRIMARY	
CapSlpCartridgeSensor	0	
CapSlpBothSidesPrint	TRUE/ FALSE *1	
CapSlpBold	TRUE	(40CPL mode enabled): FALSE (40CPL mode disabled): TRUE
CapSlpBitmap	TRUE	
CapSlpRuledLine	FALSE	
CapSlpBarCode	TRUE	FALSE
CapSlp2Color	FALSE	

CapSlpFullslip	TRUE ^{*1}	
CapSlpPresent	TRUE	
CapSlpPageMode	TRUE ^{*2}	FALSE

^{*1} FALSE when operating with validation mode. Please refer to corresponding subsection of this section for validation printing.

^{*2} If Multilingual character model, "FALSE" is set.

^{*3} If CHINA GB18030 character model or TAIWAN BIG-5 character model or Thai 1 Pass character model, "PTR_CCS_KANJI" is set.

3.1.2 List Properties

The List Properties are explained in the following.

List Property	Settings
CharacterSetList	"254, 255, 437, 850, 852, 858, 860, 863, 865, 866, 998, 999, 1252" ^{*1*2}
JrnLineCharsList	""
RecLineCharsList (79.5 mm)	"42, 56"
RecLineCharsList (57.5 mm)	"30, 40"
SlpLineCharsList	"45, 60"
SlpLineCharsList (Validation)	"45, 60"
SlpLineCharsList (Endorsement)	(40CPL mode enabled): "40" (40CPL mode disabled): "25, 33"
RecBarCodeRotationList	"0, R90, L90, 180"
RecBitmapRotationList	"0, R90, L90, 180"
SlpBarCodeRotationList	"0, 180"
SlpBitmapRotationList	"0, R90, L90, 180"
SlpBarCodeRotationList (Validation)	"0, 180"
SlpBitmapRotationList (Validation)	"0, R90, L90, 180"
SlpBitmapRotationList (Endorsement)	"0, 180"
FontTypefaceList	""

^{*1} If Multilingual character model, "936" or "950" is added to the list.

^{*2} When the CapCharacterSet property is set to "PTR_CCS_UNICODE," "997" is added to the list. When CharacterSet is set to "997," all characters loaded in the device are allocated to Unicode for printing. However, the BinaryConversion property should be set to "OPOS_BC_NONE" when printing with Unicode.

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	24 ^{*1}
JrnLineSpacing	X	X	X
SlpLineSpacing	12	127	0
SlpLineSpacing (Validation)	12	127	0
SlpLineSpacing (Endorsement)	(40CPL mode enabled)	(40CPL mode enabled)	(40CPL mode enabled)
	10	10	10
	(40CPL mode disabled)	(40CPL mode disabled)	(40CPL mode disabled)
	12	127	0
SlpLineHeight [dot]	9		
SlpLineHeight [dot] (Validation)	9		
SlpLineHeight [dot] (Endorsement)	(40CPL mode enabled): 7 (40CPL mode disabled): 9		
RecLineHeight [dot]	24, 17		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	270		
SlpLineWidth [dot] (Validation)	270		
SlpLineWidth [dot] (Endorsement)	(40CPL mode enabled): 240 (40CPL mode disabled): 150		
RecLineWidth [dot] (79.5 mm)	512		
RecLineWidth [dot] (57.5 mm)	360		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines (79.5 mm)	17 ^{*3}		
RecSidewaysMaxLines (57.5 mm)	12 ^{*3}		
RecSidewaysMaxChars (Font A is selected)	138 ^{*4}		
RecSidewaysMaxChars (Font B is selected)	184 ^{*4}		
RecLinesToPaperCut	4 ^{*2}		
SlpSidewaysMaxLines	22 ^{*3}		
SlpSidewaysMaxLines (Validation)	22 ^{*3}		

SlpSidewaysMaxLines (Endorsement)	0
SlpSidewaysMaxChars (Font A is set)	117 ^{*4}
SlpSidewaysMaxChars (Font B is set)	156 ^{*4}
SlpSidewaysMaxChars (Validation) (Font A is set)	15 ^{*4}
SlpSidewaysMaxChars (Validation) (Font B is set)	20 ^{*4}
SlpSidewaysMaxChars (Endorsement)	0
SlpMaxLines	0
SlpMaxLines (Validation)	8 ^{*3}

X : No settings

^{*1} 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.

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

^{*3} It can be changed by the settings of the XxxLineSpacing or the XxxLineHeight.
When the SlpLineSpacing is "0", the SlpSidewaysMaxLines is "-1".

^{*4} It can be changed by the settings of the font width.

3.1.4 Common Property Strings

The Device information properties are described below.

I/F	DeviceName	DeviceDescription
S	TM-H6000IV	EPSON TM-H6000IV POS Printer
P	TM-H6000IVP	EPSON TM-H6000IVP POS Printer
U	TM-H6000IVU	EPSON TM-H6000IVU POS Printer
E	TM-H6000IVE	EPSON TM-H6000IVE POS Printer

I/F indicate the connected interface.

The following is the list of the four connecting interfaces.

S: Serial

P: Parallel

U: USB

E: Ethernet

3.1.5 PageMode Print Properties

The Device information properties are described below.

Property	Station ^{*2}		
	Receipt	Slip	Slip (Validation) (Endorse)
PageModeArea	(monochrome) (79.5mm) "512", "1662" (57.5mm) "360", "1662"	(Normal dot) "270", "704" (Half dot) "270", "704"	(Validation) "270", "90" (Endorse) " "
PageModeDescriptor ^{*1}	BM/BC/BMR/BCR	BM/BMR	(Validation) BM/BMR (Endorse) 0

^{*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 ^{*2}
PrintBarCode	Receipt: O Slip / Validation: O Slip endorsement: X	O ^{*3}
PrintBitmap	O	O ^{*4}
PrintMemoryBitmap	O	O ^{*4}
CutPaper	O (1~100: One point remains uncut)	X
MarkFeed	X	X
ChangePrintSide	O/ X ^{*1}	X
ValidateData	O	O
TransactionPrint	O	O
SetLogo	O	O
SetBitmap	Receipt: O Slip / Validation: O Slip endorsement: X	O
RotatePrint	O	X
EndRemoval	O	O
BeginRemoval	O	O
EndInsertion	O	O
BeginInsertion	O	O
ClearPrintArea	Receipt: O Slip / Validation: O Slip endorsement: X	O
PageModePrint	Receipt: O Slip / Validation: O Slip endorsement: X	O
DrawRuledLine	X	X

O: Supported

X : Unsupported

^{*1} Not available with multilingual character models and validation models.

^{*2} 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.

^{*3} 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.

^{*4} 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	Receipt	Slip	Slip (Endorsement)	Compatibility with the PageMode printing
#P	0~100 ^{*2}	X	X	X
#fP	0~100 ^{*2}	X	X	X
#sP	X	X	X	X
sL	X	X	X	X
#B	O	O	X	O
tL	O	O	O	O
bL	O	O	O	O
[*]#R	O	O	X	O
#fF	0~9999	0~9999	0~9999	O
#uF Base Pitch [inch]	0~approx . 50 cm	0~approx . 50 cm	0~approx . 50 cm	O
#rF Maximum [inch]	X	327	327	X
[*]#E	0~65535	0~65535	0~65535	X
#fT	X	X	X	X
bC	O	O ^{*2}	(40CPL mode enabled): X (40CPL mode disabled): O	Receipt: O Slip: X
!bC	O	O ^{*2}	(40CPL mode enabled): X (40CPL mode disabled): O	Receipt: O Slip: X
#uC	1~2	1	(40CPL mode enabled): X (40CPL mode disabled): 1	O
iC	X	X	X	X
!iC	X	X	X	X
rC	1	1	1	O
rvC	O	X	X	Receipt: O Slip: X
!rvC	O	X	X	Receipt: O Slip: X
#sC	X	X	X	X
#fC	X	X	X	X
tbC	X	X	X	X
!tbC	X	X	X	X
tpC	X	X	X	X
!tpC	X	X	X	X
1C	O	O	O	O
2C	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O

3C	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O
4C	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O
#hC	1~8	1~2	(40CPL mode enabled): 1 (40CPL mode disabled): 1~2	O
#vC	1~8	1~2	(40CPL mode enabled): 1 (40CPL mode disabled): 1~2	O
cA	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O ^{*1}
rA	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O ^{*1}
lA	O	O	(40CPL mode enabled): X (40CPL mode disabled): O	O
#stC	1	1	1	1
!stC	O	O	O	O
*#dL	X	X	X	X
N	O	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.

^{*2} This Escape Sequence is not supported when 90-degree rotated print mode.

3.4 Printable Barcode Type

The TM-H6000IV 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
- PDF 417
- GS1-Data
- GS1-Data Expanded

- GS1-128
- GS1-Data Truncated
- GS1-Data Limited
- GS1-Data Stacked
- GS1-Data Stacked Omnidirectional
- GS1-Data Expanded Stacked
- MAXI CODE
- QR CODE
- COMPOSITE

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

3.5 Power Condition Reports

The TM-H6000IV support Power Condition Reports as follows.

Powered on reporting: Supported

Powered off reporting: Unsupported

3.6 Synchronous Processing

The TM-H6000IV supports the Process ID for the Synchronous Processing.

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.

3.7 Printing Positions

The TM-H6000IV supports the function for setting printing position.

Function	Receipt	Slip	Slip (Endorsement)
Left margin	O	O	X
Printing Position	O	O	X

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-H6000IV models feature an electronic logo function (NVRAM). There are two ways of using NVRAM explained as follows:

1. Using TMFlogo Utility

Start up 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-H6000IV	393216 bytes
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3.9 Printable bitmap types and sizes

The TM-H6000IV 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		
	x (x x 8 dots)	y (y x 8 dots)	xy
Download bitmap	1~2040	1~2040	Receipt: ≤ 32768
Raster bitmap	1~1024	1~4095	
Color bitmap	1~1024	1~207	
NV bitmap	1~8192	1~2304	

- When printing endorsement on the backside of a slip, the download bitmap cannot be specified.
- A bitmap registered to print on the face cannot be printed on the other side of the slip.
- Even if meet with the limitation described above, a bitmap that extend the paper width cannot be printed.
- When a height of the raster bitmap expands the value described above, the SO (Service Object) will automatically separate the bitmap data into multiple bitmaps, then print the multiple bitmaps data as one connected bitmap.

3.10 Maintenance Counter

The TM-H6000IV 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-H6000IV.

Counter number Hexadecimal	Counter	Unit	Max. Value	Counter Type
0A	Paper feed in number of lines: Slip	Lines	178,956,970	Resettable
0B	Number of printed characters: Slip (front side)	Characters	715,827,882	Resettable
0C	Number of carriage drive: Slip (front side)	Times	4,294,967,295	Resettable
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
28	Number of carriage drive: Slip (back side)	Times	4,294,967,295	Resettable
29	Number of printed characters: Slip (back side)	Characters	4,294,967,295	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
3E	Number of platen/roller opening/closing mechanism driving	Times	4,294,967,295	Resettable
46	Uptime of product	Hours	71,582,788	Resettable
8A	Paper feed in number of lines: Slip	Lines	178,956,970	Cumulative
8B	Number of printed characters: Slip (front side)	Characters	715,827,882	Cumulative
8C	Number of carriage drive: Slip (front side)	Times	4,294,967,295	Cumulative
94	Paper feed in number of lines: Roll paper	Lines	143,165,576	Cumulative
95	Number of times head timing pulse: Roll paper	Times	4,294,967,295	Cumulative
96	Paper feed in number of head lines: Roll paper	Lines	143,165,576	Cumulative
A8	Number of carriage drive: Slip (back side)	Times	4,294,967,295	Cumulative
A9	Number of printed characters: Slip (back side)	Characters	4,294,967,295	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-H6000IV 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 Output without Flow Control on the USB/ Ethernet Interfaces

The TM-H6000IV supports outputting without flow control on the USB/Ethernet interfaces. The operations differ by the firmware versions. See the section 2 of this manual.

3.13 LED Blinking when BeginInsertion is executed

In the case of the TM-H6000IV, settings can be made in the SetupPOS utility so that the LED of the Slip starts blinking when BeginInsertion is executed. When the settings have been made in the SetupPOS utility, the LED of the slip will start blinking to indicate that the device is waiting for the paper to be inserted when the BeginInsertion method is executed.

3.14 Validation Printing

Some devices of TM-H6000IV support validation print function.

To confirm whether the device is supporting the validation print function uses DirectIO method.

For the confirmation, specifies PTR_DI_GET_SUPPORT_FUNCTION as the first parameter.

By executing the DirectIO method, a flag that indicates supported function by currently connected device is stored in the second parameter in logical OR format. Please confirm whether validation print function is supported by taking logical AND of the second parameter and PTR_DI_VALIDATION.

Switching of slip print and validation print is performed with DirectIO method by specifying PTR_DI_SELECT_SLIP as the first parameter, and PTR_DI_SLIP_FULLSLIP or PTR_DI_SLIP_VALIDATION as the second parameter.

After the switch, operate normally with BeginInsertion/EndInsertion, BeginRemoval/EndRemoval, PrintNormal, etc.

Please note that some properties are automatically updated with the switching operation. When a slip is being inserted in any stations, switching of slip/validation is unable to execute. In that case, please remove the slip, and then switch slip/validation.

For the detail of DirectIO method, please refer to the Section 4 of "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)". Also, programming examples are mentioned in the Section 5 of "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)"

3.15 Emphasized Printing Function for 90-degree Rotated Printing Mode at Slip Station

Some devices of TM-H6000IV Series support emphasized printing function for 90-degree rotated printing mode at slip station.

To confirm whether the device is supporting the emphasized printing function uses DirectIO method.

For the confirmation, specifies PTR_DI_GET_SUPPORT_FUNCTION as the first parameter.

By executing the DirectIO method, a flag that indicates supported function by currently connected device is stored in the second parameter in logical OR format. Please confirm whether emphasized printing function is supported by taking logical AND of the second parameter and PTR_DI_EMPHASIS.

ON/OFF switching of emphasized print for 90-degree rotated printing is performed with DirectIO method by specifying PTR_DI_SLIP_EMPHASIS as the first parameter, and PTR_DI_ENABLE_EMPHASIS or PTR_DI_DISABLE_EMPHASIS as the second parameter.

The 90-degree rotated printing data to be printed at slip station buffered by RotatePrint is printed according to ON/OFF setting of emphasized print for 90-degree rotated printing.

Please note that different from normal and 180-degree rotated printing mode, normal font and emphasized font are unable to set simultaneously with 90-degree rotated printing mode.

Comparing with normal font print, printing speed of emphasized font print falls.

3.16 Communication Compatibility

Use the "Communication Compatibility" setting of the SetupPOS utility if you want to enable a compatibility relation to the serial connection in the device being used by the USB connection. For details, please refer to the "Section 5. SetupPOS Utility" of the "EPSON OPOS ADK MANUAL User's Manual (Installer/ SetupPOS/ TMUSB)" manual.

Section 4. Warnings

This section describes precautions in use of TM-H6000IV.

- 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 width limitation on 90-degree rotated printing to the right is limited to 831 dots for printing on receipt. For printing on slip, it is limited to 704 dots.