



**EPSON OPOS ADK MANUAL**

# **APPLICATION DEVELOPMENT GUIDE**

**POSPrinter (TM-U230)**

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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-U230 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-U230	TM-U230P	TM-U230U	TM-U230E
TM-U230M	TM-U230PM	TM-U230MU	TM-U230ME

Before reading the manual, see the following explanation about the characteristic of the TM-U230 models.

- Station: Receipt (Serial impact dot matrix)
- Delayed Cut function
- 2-Color Printing

Throughout the manual, the various model names will be referred to as TM-U230.

## 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-U230 printers.

### 2.1 References of Firmware Versions

Refer to the release notes (Relnote.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	OFF	Settable
8	OFF	Settable

DIP-SW2

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

It is possible to change the settings of DIP-SW1-1 and 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, 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-SW2-5 (PAPER OUT LED blinking pattern) and DIP-SW2-8 (Internal buzzer) 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	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Recommended

DIP-SW2

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

It is possible to change the settings of DIP-SW1-1, 2 and 8, but it is recommended to leave them OFF.

Set DIP-SW2-5 (PAPER OUT LED blinking pattern) and DIP-SW2-8 (Internal buzzer) to match the environment of use.

When parallel I/F is used with Windows 2000, Windows XP or Windows Vista, please set Busy Condition of DIP-SW1-8 to ON (Buffer full).

Make other settings in accordance with the settings described above.

**3) USB Port**

DIP-SW1

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

DIP-SW2

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

It is possible to change the settings of DIP-SW1-1, 2 and 8, but it is recommended to leave them OFF.

Set DIP-SW2-5 (PAPER OUT LED blinking pattern) and DIP-SW2-8 (Internal

buzzer) to match the environment of use.

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  
Recommended

DIP-SW2

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

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

It is possible to change the settings of DIP-SW1-1, 2 and 8, but it is recommended to leave them OFF.

Set DIP-SW2-5 (PAPER OUT LED blinking pattern) and DIP-SW2-8 (Internal buzzer) to match the environment of use.

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]	4800,9600
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]	9600
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-U230.

### 2.4.1 Usable Device Specific Settings

For the TM-U230, 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
Color Bitmap	Method
	Brightness
	Primary
Status Log	ERROR
	OFFLINE
	Log file name (include full path)
	Maximum file size [KB]
Default Value <sup>*1</sup>	Multilingual font

<sup>\*1</sup> Available only for the Multilingual character model.

## Section 3. Function Details

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This section describes the functions of the TM-U230 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_ASCII *1
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
CapRecNearEndSensor	TRUE
CapRecMarkFeed	0
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	FALSE
CapRec2Color	TRUE
CapRecPresent	TRUE
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

\*1 If Multilingual character model, "PTR\_CCS\_KANJI" is set.

### 3.1.2 List Properties

The List Properties are explained in the following.

List Property	Settings
CharacterSetList	"254,255,437,850,858,860,863,865,998" *1
JrnLineCharsList	""
RecLineCharsList	"33,40"
SlpLineCharsList	""
RecBarCodeRotationList	""
RecBitmapRotationList	"0,180"
SlpBarCodeRotationList	""
SlpBitmapRotationList	""
FontTypefaceList	""

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

### 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	12	127	0
JrnLineSpacing	X	X	X
SlpLineSpacing	X	X	X
SlpLineHeight [dot]	X		
RecLineHeight [dot]	9		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	X		
RecLineWidth [dot]	200		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines	0		
RecSidewaysMaxChars	0		
RecLinesToPaperCut	8 <sup>*1</sup>		
SlpSidewaysMaxLines	X		
SlpSidewaysMaxChars	X		
SlpMaxLines	X		

X : No settings

<sup>\*1</sup> 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.

I/F	DeviceName	DeviceDescription
S	TM-U230	EPSON TM-U230 POS Printer
	TM-U230M	EPSON TM-U230M POS Printer
P	TM-U230P	EPSON TM-U230P POS Printer
	TM-U230PM	EPSON TM-U230PM POS Printer
U	TM-U230U	EPSON TM-U230U POS Printer
	TM-U230MU	EPSON TM-U230MU POS Printer
E	TM-U230E	EPSON TM-U230E POS Printer

	TM-U230ME	EPSON TM-U230ME POS Printer
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I/F indicate the connected interface.

The following is the list of the four connecting interfaces.

S: Serial

P: Parallel

U: USB

E: Ethernet

### 3.2 Methods

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

Method	Supported/Unsupported
PrintNormal	O
PrintTwoNormal	X
PrintImmediate	O
PrintBarCode	X
PrintBitmap	O
PrintMemoryBitmap	O
CutPaper	O (1~100: One point remains uncut)
MarkFeed	X
ChangePrintSide	X
ValidateData	O
TransactionPrint	O
SetLogo	O
SetBitmap	O
RotatePrint	O
EndRemoval	X
BeginRemoval	X
EndInsertion	X
BeginInsertion	X
ClearPrintArea	X
PageModePrint	X

O: Supported

X : Unsupported

### 3.3 Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

Escape Sequence	Receipt
#P	0~100
#fP	0~100
#sP	X
sL	X
#B	O
tL	O
bL	O
#R	X
#IF	0~9999
#uF	0~ approx. 50cm
#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
lA	O
N	O

O: Supported

X : Unsupported

Numbers: Settable range

### 3.4 Power Condition Reports

The TM-U230 models support Power Condition Reports as follows.

Powered on reporting: Supported

Powered off reporting: Unsupported

### 3.5 Synchronous Processing

The TM-U230 models do not use Process ID to determine output completion.

### 3.6 Printing Positions

The TM-U230 models support the function for setting printing position.

Function	Receipt
Left margin	X
Printing Position	O

O: Supported

X: Unsupported

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

### 3.7 Electronic Logo Function (NVRAM)

The TM-U230 models do not support the Electronic Logo Function.

### 3.8 Printable Bitmap Types and Sizes

The TM-U230 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



### 3.9 Automatic Recovery Function

The TM-U230 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.

### 3.10 Output without Flow Control on the USB/Ethernet Interfaces

The TM-U230 models support outputting without flow control on the USB/Ethernet interfaces. The operations differ by the firmware versions. See the section 2 "2.1 References of Firmware Versions" of this manual.

### 3.11 Delayed Cut Function

The TM-U230 models are equipped with a delayed cut function. This function is used to delay cutting position of the receipt when the present printing location coincides with the receipt cutter. Once the function is set, delayed cutting is done automatically.

The Delayed cut function is accessed via the DirectIO PTR\_DI\_DELAYED\_CUT command. The receipt will be fed and the cut will occur in a location of  $4\text{mm} + x$  where  $x$  is the value of  $p\text{Data} * 0.176\text{mm}$  ( $p\text{Data}/144$  inches). The default value of  $p\text{Data}$  is "0" and the valid values range from 0 to 255.

The Delayed Cut function is cancelled by pressing the [Paper Feed] button or by executing a command that causes the printer to reset.

## **Section 4. Warnings**

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This section describes precautions in use of the TM-U230.

There is no specific warning.