

ESC/POS iOS SDK Reference Guide

| Item | Content |
|-------------|--------------------------|
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Update

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ESC/POS iOS SDK Reference Guide

Update

1 Print Commands

- 1.1 Print and line feed
- 1.2 Print and return to standard mode
- 1.3 Print and carriage return
- 1.4 Print data in page mode
- 1.5 Print and feed paper
- 1.6 Print and reverse feed
- 1.7 Print and feed lines
- 1.8 Print and reverse feed lines
- 1.9 Print Self Test

2 Line Spacing Commands

- 2.1 Set default line spacing
- 2.2 Set line spacing

3 Character Commands

- 3.1 Cancel print data in page mode
- 3.2 Set right-side character spacing
- 3.3 Set print mode
- 3.4 Set/cancel user-defined character set
- 3.5 Define user-defined characters
- 3.6 Turn underline mode on/off
- 3.7 Cancel user-defined characters

- 3.8 Turn emphasized mode on/off
- 3.9 Turn double-strike mode on/off
- 3.10 Set character font
- 3.11 Set an international character set
- 3.12 Turn 90° clockwise rotation mode on/off
- 3.13 Set print color
- 3.14 Set character code table
- 3.15 Turn upside-down print mode on/off
- 3.16 Set character color
- 3.17 Set background color
- 3.18 Turn shading mode on/off
- 3.19 Set character size
- 3.20 Turn white/black reverse print mode on/off
- 3.21 Turn smoothing mode on/off
- 3.22 setCharacterMultipleSize
- 3.23 CharacterTransform
- 3.24 enterPrinterSave
- 3.25 exitPrinterSave
- 3.26 getVietnamTransform
- 3.27 setVietnamTransform
- 3.28 setThaiTransform
- 3.29 setPrinterLanguage
- 3.30 get Printer Status
- 3.31 Automatic return switch
- 4 Panel Button Commands
 - 4.1 Enable/disable panel buttons
- 5 Paper Sensor Commands
 - 5.1 Set paper sensor(s) to output paper-end signals
 - 5.2 Set paper sensor(s) to stop printing
- 6 Print Position Commands
 - 6.1 Horizontal tab
 - 6.2 Set absolute print position
 - 6.3 Set horizontal tab positions
 - 6.4 Set print direction in page mode
 - 6.5 Set print area in page mode
 - 6.6 Set relative print position
 - 6.7 Set justification
 - 6.8 Set absolute vertical print position in page mode
 - 6.9 Set left margin
 - 6.10 Set print position to the beginning of print line
 - 6.11 Set print area width
 - 6.12 Set relative vertical print position in page mode
- 7 Bit Image Commands
 - 7.1 Set bit-image mode
 - 7.2 Print NV bit image
 - 7.3 Transmit the NV graphics memory capacity.
 - 7.4 Set the reference dot density for graphics.
 - 7.5 Print the graphics data in the print buffer.
 - 7.6 Transmit the remaining capacity of the NV graphics memory.

- 7.7 Transmit the remaining capacity of the download graphics memory.
- 7.8 Transmit the key code list for defined NV graphics.
- 7.9 Delete all NV graphics data.
- 7.10 Delete the specified NV graphics data.
- 7.11 Define NV graphics data
- 7.12 Print the specified NV graphics data.
- 7.13 Transmit Graphic Key Code List
- 7. 14 Delete Downloaded NV Graphic All
- 7.15 Delete specified download graphics data.
- 7. 16 Define Downloaded NV graphics data
- 7.17 Print Downloaded NV Graphic
- 7.18 Store Graphic Data
- 7.19 Define NV Bit Image
- 7.20 Define Downloaded Bit Image
- 7.21 Print Downloaded Bit Image
- 7.22 Print Variable Vertical Size Bit Image
- 8 Status Commands
 - 8.1 Transmit real-time status
 - 8.2 Transmit peripheral device status
 - 8.3 Transmit paper sensor status
 - 8.4 Set auto status back status
 - 8.5 Automatic Status Back (ASB) for ink
 - 8.6 Transmit Status
- 9 Barcode Commands
 - 9.1 HRI Font
 - 9.2 Append Barcode
- 10 Macro Function Commands
 - 10.1 Define Macro
 - 10.2 Execute macro
- 11 Mechanism Control Commands
 - 11.1 Return Home
 - 11.2 Set Unidirectional Print Mode
 - 11.3 Set Partial Cut
 - 11.4 Set Cut Mode and Distance
- 12 Miscellaneous Commands
 - 12.1 Send Real Time Request
 - 12.2 Generate Pulse in Real-Time
 - 12.3 Execute Power-Off Sequence
 - 12.4 Transmit Specified Status in Real Time
 - 12.5 Clear Buffer
 - 12.6 Initialize Printer
 - 12.7 Set Page Mode
 - 12.8 Set Standard Mode
 - 12.9 Set Density
 - 12.10 Set Speed
 - 12 .11 Set Page Printable Area
 - 12.12 Draw Line / Rectangle
 - 12.13 Set Motion Units
- 13 Kanji Commands

- 13.1 Set Kanji Print Mode
- 13.2 Set Kanji Mode
- 13.3 Set Kanji Font Mode
- 13.4 Set Kanji Underline
- 13.5 Cancel Kanji Mode
- 13.6 Define Kanji
- 13.7 Set Kanji Code System
- 13.8 Set Kanji Spacing
- 13.9 Set Kanji Quadruple Mode
- 13.10 Cancel Kanji Define
- 14 Two Dimension Code Commands
 - 14.1 PDF417
 - 14.2 QR Code
 - 14.3 Maxi Code
 - 14.4 RSS-2D
 - 14.5 Composite Symbol
- 15 Customize Commands
 - 15.1 Write/Read to NV user memory
 - 15.2 Delete Record
 - 15.3 Store Record
 - 15.4 Transmit Data In Record
 - 15.5 Transmit NV Memory Used Capacity
 - 15.6 Transmit NV Memory Remaining Capacity
 - 15.7 Transmit Key Code List
 - 15.8 Delete all data in the NV user memory
 - 15.9 Change User Setting Mode
 - 15.10 End User Setting Mode

1 Print Commands

1.1 Print and line feed

- **Description**

- Prints the data in the print buffer and feeds one line, based on the current line spacing.
- 打印并走纸一行

- **Objective-C (iOS)**

```
- (void)printAndLineFeed;
```

- **Sample Code (Objective-C)**

1.2 Print and return to standard mode

- **Description**

- In page mode, prints all the data in the print buffer collectively and switches from page mode to standard mode.
- 打印并回到标准模式(页模式)

- **Objective-C (iOS)**

```
- (void)printAndReturnStandardMode;
```

- **Sample Code (Objective-C)**

1.3 Print and carriage return

- **Description**

- Executes one of the following operations.
- 回车

- **Objective-C (iOS)**

```
- (void)printAndCarriageReturn
```

- **Sample Code (Objective-C)**

1.4 Print data in page mode

- **Description**

- In page mode, prints the data in the print buffer collectively.
- 在页模式下打印数据

- **Objective-C (iOS)**

```
- (void)printDataInPageMode;
```

- **Sample Code (Objective-C)**

1.5 Print and feed paper

- **Description**

- Prints the data in the print buffer and feeds the paper $n \times$ (vertical or horizontal motion unit).
- 打印并走纸

- **Objective-C (iOS)**

```
- (void)printAndFeed:(NSInteger)offset;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| offset | 0 to 255 |

- **Sample Code (Objective-C)**

1.6 Print and reverse feed

- **Description**

- Prints the data in the print buffer and feeds the paper $n \times$ (vertical motion unit) in the reverse direction.
- 打印并回纸

- **Objective-C (iOS)**

```
- (void)printAndReverseFeed:(NSInteger)offset;
```

- **Parameter**

| Parameter | Range |
|-----------|---------|
| offset | 0 to 48 |

- **Sample Code (Objective-C)**

1.7 Print and feed lines

- **Description**

- Prints the data in the print buffer and feeds n lines.
- 打印并向前走纸 n 行

- **Objective-C (iOS)**

```
- (void)printAndFeedLines:(NSInteger)lines;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| lines | 0 to 255 |

- **Sample Code (Objective-C)**

1.8 Print and reverse feed lines

- **Description**

- Prints the data in the print buffer and feeds n lines in the reverse direction.
- 打印并回纸n行

- **Objective-C (iOS)**

```
- (void)printAndReverseFeedLines:(NSInteger)lines;
```

- **Parameter**

| Parameter | Range |
|-----------|--------|
| lines | 0 to 2 |

- **Sample Code (Objective-C)**

1.9 Print Self Test

- **Description**

- Print Self Test
- 打印自检页

- **Objective-C(iOS)**

```
- (void)printSelfTest;
```

2 Line Spacing Commands

2.1 Set default line spacing

- **Description**

- Sets the line spacing to the "default line spacing."
- 设置默认行距

- **Objective-C (iOS)**

```
- (void)setLineSpacingDefault;
```

- **Sample Code (Objective-C)**

2.2 Set line spacing

- **Description**

- Sets the line spacing to $n \times$ (vertical or horizontal motion unit).
- 设置行距

- **Objective-C (iOS)**

```
- (void)setLineSpacing:(NSInteger)spacing;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| spacing | 0 to 255 |

- **Sample Code (Objective-C)**

3 Character Commands

3.1 Cancel print data in page mode

- **Description**

- In page mode, deletes all the print data in the current print area.
- 在页模式下取消打印数据

- **Objective-C (iOS)**

```
- (void)cancelPrint;
```

- **Sample Code (Objective-C)**

3.2 Set right-side character spacing

- **Description**

- Sets the right-side character spacing to $n \times$ (horizontal or vertical motion unit).
- 设置右边字符间隔

- **Objective-C (iOS)**

```
- (void)setRightCharacterSpacing:(NSInteger)spacing;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| spacing | 0 to 255 |

- **Sample Code (Objective-C)**

3.3 Set print mode

- **Description**

- Selects the character font and styles (emphasized, double-height, double-width, and underline).
- 设置打印模式(大小字体、粗体、倍高、倍宽、下划线)

- **Objective-C (iOS)**

```
- (void)setTextMini:(BOOL)mini  
                bold:(BOOL)bold  
    doubleHeight:(BOOL)doubleHeight  
    doubleWidth:(BOOL)doubleWidth  
        underline:(BOOL)underline;
```

- **Sample Code (Objective-C)**

3.4 Set/cancel user-defined character set

- **Description**

设置或取消字符设置

Selects or cancels the user-defined character set.

- When the LSB of `mode` is 0, the user-defined character set is canceled.

- When the LSB of `mode` is 1, the user-defined character set is selected.

- **Objective-C (iOS)**

```
- (void)setUserDefinedCharacterSet:(NSInteger)set;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| mode | 0 to 255 |

- **Sample Code (Objective-C)**

3.5 Define user-defined characters

- **Description**

定义用户已设定的字符

Defines the user-defined character pattern for the specified character codes.

- **Objective-C (iOS)**

```
- (void)defineCharactersWithCodeStart:(NSInteger)codeStart
                           codeEnd:(NSInteger)codeEnd
                   horizontal:(NSInteger)horizontal
                           data:(NSData *)data;
```

- **Parameter**

- **Sample Code (Objective-C)**

3.6 Turn underline mode on/off

- **Description**

下划线模式开关

- **Objective-C (iOS)**

```
- (void)setUnderline:(NSInteger)underline;
```

- **Parameter**

- Default: 0

| Range | Description |
|-------|---------------------------------------|
| 0,48 | Turns off underline mode |
| 1,49 | Turns on underline mode (1-dot thick) |
| 2,50 | Turns on underline mode (2-dot thick) |

- **Sample Code (Objective-C)**

3.7 Cancel user-defined characters

- **Description**

- Deletes the user-defined character pattern specified by character code n.
- 取消用户已设定的字符

- **Objective-C (iOS)**

```
- (void)cancelUserDefinedCharacters:(NSInteger)n;
```

- **Parameter**

| Parameter | Range |
|-----------|-----------|
| n | 32 to 126 |

- **Sample Code (Objective-C)**

3.8 Turn emphasized mode on/off

- **Description**

字符加粗开关

Turns emphasized mode on or off.

- When the LSB of `mode` is 0, emphasized mode is turned off.
- When the LSB of `mode` is 1, emphasized mode is turned on.

- **Objective-C (iOS)**

```
- (void)setBold:(NSInteger)bold;
```

- **Parameter**

| Parameter | Range |
|-----------|----------|
| mode | 0 to 255 |

- **Sample Code (Objective-C)**

3.9 Turn double-strike mode on/off

- **Description**

字符黑体字开关

Turns double-strike mode on or off.

- When the LSB of `mode` is 0, double-strike mode is turned off.
- When the LSB of `mode` is 1, double-strike mode is turned on.

- **Objective-C (iOS)**

```
- (void)setDoubleStrike:(NSInteger)doubleStrike;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|----------|---------|
| mode | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

3.10 Set character font

- **Description**

设置字符字体

- **Objective-C (iOS)**

```
- (void)setCharacterFont:(NSInteger)font;
```

- **Parameter**

| Range | Description |
|-------|---------------|
| 0, 48 | Font A |
| 1, 49 | Font B |
| 2, 50 | Font C |
| 97 | Extended Font |

- **Sample Code (Objective-C)**

3.11 Set an international character set

- **Description**

设置国际字符

Selects an international character set n as follows:

- **Objective-C (iOS)**

```
- (void)setInternationalCharacterSet:(NSInteger)set;
```

- **Parameter**

| Range | Country |
|-------|--------------------|
| 0 | U.S.A. |
| 1 | France |
| 2 | Germany |
| 3 | U.K. |
| 4 | Denmark I |
| 5 | Sweden |
| 6 | Italy |
| 7 | Spain |
| 8 | Japan |
| 9 | Norway |
| 10 | Denmark II |
| 11 | Spain II |
| 12 | Latin America |
| 13 | Korean |
| 14 | Slovenia / Croatia |
| 15 | Chinese |

- **Sample Code (Objective-C)**

3.12 Turn 90° clockwise rotation mode on/off

- **Description**

In standard mode, turns 90° clockwise rotation mode on or off for characters, using n as follows:

- **Objective-C (iOS)**

```
- (void)setVerticalMode:(NSInteger)mode;
```

- **Parameter**

- Default : 0

| Range | Description |
|-------|---|
| 0, 48 | Turns off 90° clockwise rotation mode. |
| 1, 49 | Turns on 90° clockwise rotation mode (1-dot character spacing). |
| 2, 50 | Turns on 90° clockwise rotation mode (1.5-dot character spacing). |

- **Sample Code (Objective-C)**

3.13 Set print color

- **Description**

设置打印颜色

- **Objective-C (iOS)**

```
- (void)setPrintColor:(NSInteger)color;
```

- **Parameter**

- Default : 0

| Range | Description |
|-------|-------------|
| 0, 48 | Black |
| 1, 49 | Red |

- **Sample Code (Objective-C)**

3.14 Set character code table

- **Description**

设置字符编码表

- **Objective-C (iOS)**

```
- (void)setCharacterCodeTable:(NSInteger)table;
```

- **Parameter**

| Range | Description |
|-------|--|
| 0 | Page 0 [PC437 (U.S.A., Standard Europe)] |
| 1 | Page 1 [Katakana] |
| 2 | Page 2 [PC850 (Multilingual)] |
| 3 | Page 3 [PC860 (Portuguese)] |
| 4 | Page 4 [PC863 (Canadian-French)] |
| 5 | Page 5 [PC865 (Nordic)] |
| 6 | Page 6 [Simplified Kanji, Hirakana] |
| 7 | Page 7 [Simplified Kanji] |
| 8 | Page 8 [Simplified Kanji] |
| 16 | Page 16 [WPC1252] |
| 17 | Page 17 [PC866 (Cyrillic #2)] |
| 18 | Page 18 [PC852 (Latin 2)] |
| 19 | Page 19 [PC858 (Euro)] |
| 254 | Page 254 |
| 255 | Page 255 |

- **Sample Code (Objective-C)**

3.15 Turn upside-down print mode on/off

- **Description**

颠倒打印开关

In standard mode, turns upside-down print mode on or off.

- When the LSB of n is 0, upside-down print mode is turned off.
- When the LSB of n is 1, upside-down print mode is turned on.

- **Objective-C (iOS)**

```
- (void)setUpToDownMode: (NSInteger)mode;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|----------|---------|
| mode | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

3.16 Set character color

- **Description**

设置字符颜色

- **Objective-C (iOS)**

```
- (void)setCharacterColor:(NSInteger)color;
```

- **Parameter**

| Range | Character Color |
|-------|-----------------|
| 48 | None (No Print) |
| 49 | color 1 |
| 50 | color 2 |
| 51 | color 3 |

- **Sample Code (Objective-C)**

3.17 Set background color

- **Description**

设置背景颜色

- **Objective-C (iOS)**

```
- (void)setBackgroundColor:(NSInteger)color;
```

- **Parameter**

| Range | Background Color |
|-------|------------------|
| 48 | None (No Print) |
| 49 | color 1 |
| 50 | color 2 |
| 51 | color 3 |

- **Sample Code (Objective-C)**

3.18 Turn shading mode on/off

- **Description**

阴影模式开关

- **Objective-C (iOS)**

```
- (void)setShadowMode:(NSInteger)mode color:(NSInteger)color;
```

- **Parameter**

- mode

| mode | Description |
|-------|--------------------------------------|
| 0, 48 | Character shadow mode is turned on. |
| 1, 49 | Character shadow mode is turned off. |

- color

| color | shadow Color |
|-------|-----------------|
| 48 | None (No Print) |
| 49 | color 1 |
| 50 | color 2 |
| 51 | color 3 |

- **Sample Code (Objective-C)**

3.19 Set character size

- **Description**

Selects the character height (vertical number of times normal font size) using bits 0 to 2 and selects the character width (horizontal number of times normal font size) using bits 4 to 6, as follows:

- **Objective-C (iOS)**

```
- (void)setCharacterWidth:(NSInteger)width height:(NSInteger)height;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|--------|---------|
| width | 0 to 8 | 0 |
| height | 0 to 8 | 0 |

- **Sample Code (Objective-C)**

3.20 Turn white/black reverse print mode on/off

- **Description**

Turns white/black reverse print mode on or off.

- When the LSB of n is 0, white/black reverse print mode is turned off.
- When the LSB of n is 1, white/black reverse print mode is turned on

- **Objective-C (iOS)**

```
- (void)setReverse:(NSInteger)reverse;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|----------|---------|
| reverse | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

3.21 Turn smoothing mode on/off

- **Description**

Turns smoothing mode on or off.

- When the LSB of n is 0, smoothing mode is turned off.
- When the LSB of n is 1, smoothing mode is turned on.

- **Objective-C (iOS)**

```
- (void)setSmooth:(NSInteger)smooth;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|----------|---------|
| reverse | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

3.22 setCharacterMultipleSize

- **Description**

- Select the size of the characters in the printed data
- 选择字符大小

- **Objective-C(iOS)**

```
- (void)setCharacterMultipleSize:(NSInteger)size;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|--------|---|
| size | 0 to 8 | 0:2x2mm,1:3x3mm,2:4x4mm,3:6x6mm,4:8x8mm,5:9x9mm,6:10x10mm,7:12x12mm,8:14x14mm,9:15x15mm,10:16x16mm,11:18x18mm,12:21x21mm,13:24x24mm |

3.23 CharacterTransform

- **Description**

- 设置字符变形
- setCharacterTransform

- **Object-C**

```
- (void)setCharacterTransformMode:(NSInteger)mode;
```

- **Parameter**

| Parameter | Range | Description |
|-----------|-------|---|
| mode | 0to3 | 0:close 1:Transform, sort by word 2: Transform, sort by phrase 3: Transform,sort by complete rule |

3.24 enterPrinterSave

- **Description**

- 进入断电保存模式
- enterPrinterSaveMode

- **Object-C**

```
- (void)enterPrinterSaveMode;
```

- **Parameter**

此接口和退出保存的接口一起使用，适用于一些需要断电保存的指令

This interface is used with the exit save interface for some commands that require power outage save
eg:

```
let esc = PTCommandESC.init()
esc.enterPrinterSaveMode()
esc.setCharacterCodeTable(temp)
esc.exitPrinterSaveMode()
PTDispatcher.share().send(esc.getCommandData())
```

3.25 exitPrinterSave

- **Description**

- 退出保存模式
- exitPrinterSaveMode

- **Object-C**

```
- (void)exitPrinterSaveMode;
```

- **Parameter**

此接口和进入保存模式一起使用

This interface is used with the enter save mode

3.26 getVietnamTransform

- **Description**

- 获取越南语变形状态
- `getVietnamTransform`

- **Object-C**

```
- (void)getVietnamTransformMode;
```

- **Parameter**

返回值情况:

00 00 : close

01 00 : ASCII input

02 00 : utf-8 input

3.27 setVietnamTransform

- **Description**

- 设置越南语变形
- `setVietnamTransform`

- **Object-C**

```
- (void)setVietnamTransformMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Range | Description |
|-----------|-------|-----------------------------|
| mode | 48-50 | 48:close 49:ASCII 50: utf-8 |

3.28 setThaiTransform

- **Description**

- 是否开启泰文变形
- `setThaiTransformStatus`

- **Object-C**

```
- (void)setThaiTransformStatus:(NSInteger)status;
```

- **Parameter**

| Parameter | Range | Description |
|-----------|-------|----------------|
| status | 0,1 | 0:close 1:open |

3.29 setPrinterLanguage

- **Description**

- 设置打印机语言
- setPrinterLanguage

- **Object-C**

```
- (void)setPrinterLanguageMode:(NSInteger)mode;
```

- **Parameter**

| Parameter | Range | Description |
|-----------|-------|---|
| mode | 0-2 | 0: SimplifiedChinese 1: English 2: TraditionalChinese |

3.30 get Printer Status

- **Description**

- 获取打印机状态
- getPrinterStatus

- **Object-C**

```
- (void)getPrinterStatus;
```

- **BackData**

```
/**
 bit7 bit6 bit5 bit4 bit3 bit2 bit1 bit0
 该接口下发后返回两个字节的的数据，第一个字节表示是否开盖，第一个字节表示是否缺纸
 如果第一个字节的bit2为是0则表示开盖，反之则是合盖
 如果第二个字节的bit2和bit3都是0表示缺纸，反之则是有纸
 */
```

- **Sample**

```
[ProgressHUD show:nil];
```

```

PTCommandESC *cmd = [[PTCommandESC alloc] init];
[cmd getPrinterStatus];
NSMutableString *resultStatus = [[NSMutableString alloc] init];
[[PTDispatcher share] sendData:[cmd getCommandData]];
[[PTDispatcher share] whenReceiveData:^(NSData *data) {
    if (data != nil) {
        Byte *byte = (Byte *)data.bytes;
        if ((byte[0] & 4) == 4) {
            [resultStatus appendString:@"开盖"];
        }else {
            [resultStatus appendString:@"合盖"];
        }

        if ((byte[1] & 12) == 12) {
            [resultStatus appendString:@"缺纸"];
        }else {
            [resultStatus appendString:@"有纸"];
        }
        [ProgressHUD showSuccess:resultStatus];
    }
}];

```

3.31 Automatic return switch

- Description

- 自动回传开关
- turnOnPrintStatusCallBack

- Object-C

```
- (void)turnOnPrintStatusCallBack:(BOOL)flag;
```

- Parameter

| Parameter | Range | Description |
|-----------|-------|----------------|
| flag | 0,1 | 0:close 1:open |

4 Panel Button Commands

4.1 Enable/disable panel buttons

- **Description**

Enables or disables the panel buttons.

- When the LSB of n is 0, all buttons are enabled.
- When the LSB of n is 1, all buttons are disabled.

- **Objective-C (iOS)**

```
- (void)setPanelButtonMode:(NSInteger)mode;
```

- **Parameter**

| Parameter | Range | Default |
|-----------|----------|---------|
| reverse | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

5 Paper Sensor Commands

5.1 Set paper sensor(s) to output paper-end signals

- **Description**

是否使用纸尽传感器

- **Objective-C (iOS)**

```
- (void)enableOutPaperSensor:(BOOL)enable;
```

- **Sample Code (Objective-C)**

5.2 Set paper sensor(s) to stop printing

- **Description**

是否使用传感器停止打印

- **Objective-C (iOS)**

```
- (void)enableStopPrintSensor:(BOOL)enable;
```

- **Sample Code (Objective-C)**

6 Print Position Commands

6.1 Horizontal tab

- **Description**

- Moves the print position to the next horizontal tab position.
- 横向跳格

- **Objective-C (iOS)**

```
- (void)setHorizontalTab;
```

- **Sample Code (Objective-C)**

6.2 Set absolute print position

- **Description**

- Moves the print position to $(xPos + yPos \times 256) \times (\text{horizontal or vertical motion unit})$ from the left edge of the print area.
- 设置绝对打印位置(x、y 起始坐标)

- **Objective-C (iOS)**

```
- (void)setAbsolutePosition:(NSInteger)position;
```

- **Parameter**

| Parameter | Range |
|-----------|------------|
| position | 0 to 65535 |

- **Sample Code (Objective-C)**

6.3 Set horizontal tab positions

- **Description**

Sets horizontal tab positions

- n specifies the number of digits from the setting position to the left edge of the print area.
- k indicates the number of horizontal tab positions to be set.

- **Objective-C (iOS)**

```
- (void)setHorizontalTabPositionsData:(NSData *)data
```

- **Parameter**

- **Sample Code (Objective-C)**

6.4 Set print direction in page mode

- **Description**

在页模式下设置打印方向

- **Objective-C (iOS)**

```
- (void)setPrintDirectionInPageMode:(NSInteger)direction;
```

- **Parameter**

| Range | Print Direction | Start Position |
|-------|-----------------|----------------|
| 0,48 | Left to right | Upper left |
| 1,49 | Bottom to top | Lower left |
| 2,50 | Right to left | Lower Right |
| 3,51 | Top to Bottom | Upper Right |

- **Sample Code (Objective-C)**

6.5 Set print area in page mode

- **Description**

在页模式下设置打印区域

- **Objective-C (iOS)**

```
- (void)pageSetPrintAreaWithXPos:(NSInteger)xPos  
                           yPos:(NSInteger)yPos  
                           width:(NSInteger)width  
                           height:(NSInteger)height;
```

- **Parameter**

| Parameter | Range |
|-----------|------------|
| xPos | 0 to 65535 |
| yPos | 0 to 65535 |
| width | 0 to 65535 |
| height | 0 to 65535 |

- Sample Code (Objective-C)

6.6 Set relative print position

- Description

设置相对打印位置

- Objective-C (iOS)

```
- (void)setRelativePosition:(NSInteger)position
```

- Parameter

| Parameter | Range |
|-----------|------------|
| position | 0 to 65535 |

- Sample Code (Objective-C)

6.7 Set justification

- Description

设置对齐方式

- Objective-C (iOS)

```
- (void)setJustification:(NSInteger)justification;
```

- Parameter

| Range | Description |
|-------|-------------|
| 0, 48 | Left |
| 1, 49 | Center |
| 2, 50 | Right |

- Sample Code (Objective-C)

6.8 Set absolute vertical print position in page mode

- Description

在页模式下设置绝对垂直打印位置

- Objective-C (iOS)

```
- (void)pageSetAbsoluteYPos:(NSInteger)yPos;
```

- **Parameter**

| Parameter | Range |
|-----------|------------|
| position | 0 to 65535 |

- **Sample Code (Objective-C)**

6.9 Set left margin

- **Description**

设置左边空白宽度

- **Objective-C (iOS)**

```
- (void)setLeftMargin:(NSInteger)left
```

- **Parameter**

| Parameter | Range |
|-----------|------------|
| left | 0 to 65535 |

- **Sample Code (Objective-C)**

6.10 Set print position to the beginning of print line

- **Description**

In standard mode, moves the print position to the beginning of the print line after performing the operation specified by n.

- **Objective-C (iOS)**

```
- (void)setLinePrintPositionMode:(NSInteger)mode;
```

- **Parameter**

| Range | Description |
|-------|---|
| 0, 48 | Cancel data in the current print buffer |
| 1, 49 | Print data in the current print buffer |

- **Sample Code (Objective-C)**

6.11 Set print area width

- **Description**

设置打印区域宽度

- **Objective-C (iOS)**

```
- (void)setPrintAreaWidth:(NSInteger)width;
```

- **Parameter**

| Parameter | Range |
|-----------|------------|
| width | 0 to 65535 |

- **Sample Code (Objective-C)**

6.12 Set relative vertical print position in page mode

- **Description**

在页模式下设置相对垂直打印位置

In page mode, moves the vertical print position to `yPos` from the current position.

- **Objective-C (iOS)**

```
- (void)pageSetRelativeYPos:(NSInteger)yPos;
```

- **Parameter**

| Parameter | Range |
|-----------|-----------------|
| yPos | -32768 to 32767 |

- **Sample Code (Objective-C)**

7 Bit Image Commands

7.1 Set bit-image mode

- **Description**

设置位图模式

Stores the bit image data in the print buffer using the mode specified by bit image mode `m` as follows:

- Objective-C (iOS)

```
- (void)setImageMode:(NSInteger)mode imagewidth:(NSInteger)width data:
(NSData *)data;
```

- Parameter

| m | Bit image Mode | Number of bits for vertical data | Dot density in horizontal |
|----|-----------------------|----------------------------------|---------------------------|
| 0 | 8-dot single-density | 8 | Single-density |
| 1 | 8-dot double-density | 8 | double-density |
| 32 | 24-dot single-density | 24 | Single-density |
| 33 | 24-dot double-density | 24 | double-density |

- Sample Code (Objective-C)

7.2 Print NV bit image

- Description

打印NV位图

- Objective-C (iOS)

```
- (void)setNVBitImage:(NSInteger)imageID Mode:(NSInteger)mode;
```

- Parameter

- imageID

| Parameter | Valid Range |
|-----------|-------------|
| imageID | 0 to 255 |

- Mode

| Mode | Description | Scaling for horizontal | Scaling for vertical |
|------|---------------|------------------------|----------------------|
| 0,48 | Normal | x1 | x1 |
| 1,49 | Double-Width | x2 | x1 |
| 2,50 | Double-Height | x1 | x2 |
| 3,51 | Quadruple | x2 | x2 |

- **Sample Code (Objective-C)**

7.3 Transmit the NV graphics memory capacity.

- **Description**

Transmits the entire capacity of the NV graphics area (number of bytes in the NV graphics area).

This function does not require ESC/POS Handshaking Protocol.

- **Objective-C (iOS)**

```
- (void)setNVGraphicsMemorySize:(NSString *)size;
```

- **Parameter**

| Send data | Hex | Decimal | Data length |
|-----------------|------------|----------|-------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 30H | 48 | 1 byte |
| Entire capacity | 30H to 39H | 48 to 57 | 1 to 8 byte |
| NUL | 00H | 0 | 1 byte |

- **Sample Code (Objective-C)**

7.4 Set the reference dot density for graphics.

- **Description**

设置图形点密度标准

Sets the reference dot density to process the graphics data or bit image data. (dpi: dots per inch)

- [180 dpi × 180 dpi] is selected when x=50
- [360 dpi × 360 dpi] is selected when x=5

- **Objective-C (iOS)**


```
- (void)setGraphicDotDensity:(NSInteger)fn x:(NSInteger)x;
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| fn | 1, 49 |
| x | 50, 51 |

- **Sample Code (Objective-C)**

7.5 Print the graphics data in the print buffer.

- **Description**

打印在打印缓存的图形数据

Prints the buffered graphics data stored by the process of `GS (L`

- **Objective-C (iOS)**

```
- (void)printBufferGraphic:(NSInteger)fn;
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| fn | 2, 50 |

- **Sample Code (Objective-C)**

7.6 Transmit the remaining capacity of the NV graphics memory.

- **Description**

传输NV图形内存剩余容量

Transmits the number of bytes of remaining memory (unused area) in the NV graphics area.

- This function does not require ESC/POS Handshaking Protocol.

- **Objective-C (iOS)**

```
- (void)transmitGraphicRemainingMemory:(NSInteger)fn;
```

- **Parameter**

| Send data | Hex | Decimal | Data length |
|-----------------|------------|----------|-------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 31H | 49 | 1 byte |
| Unused Capacity | 30H to 39H | 48 to 57 | 1 to 8 byte |
| NUL | 00H | 0 | 1 byte |

- **Sample Code (Objective-C)**

7.7 Transmit the remaining capacity of the download graphics memory.

- **Description**

传输下载图形内存的剩余容量

Transmits the number of bytes of remaining memory (unused area) in the downloaded graphics area.

- This function does not require ESC/POS Handshaking Protocol.

- **Objective-C (iOS)**

```
- (void)transmitDownloadGraphicRemainingMemory:(NSInteger)fn;
```

- **Parameter**

See 7.6 Parameter Table

- **Sample Code (Objective-C)**

7.8 Transmit the key code list for defined NV graphics.

- **Description**

传输已定义NV图形键值表

Transmits the defined NV graphics key code list.

- This function does require ESC/POS Handshaking Protocol.

- **Objective-C (iOS)**

```
- (void)transmitNVGraphicKeyCodeList;
```

- **Parameter**

| Send data | Hex | Decimal | Data length |
|-----------------------|------------|----------|--------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 72H | 114 | 1 byte |
| Identification status | 40H to 41H | 64 | 1 byte |
| Data | 30H to 39H | 48 to 57 | 2 to 80 byte |
| NUL | 00H | 0 | 1 byte |

- **Sample Code (Objective-C)**

7.9 Delete all NV graphics data.

- **Description**

删除所有NV图形数据

Deletes all NV graphics data that has been defined using Functions 7.10 or 7.11

- Deleted areas are designated "Unused areas."
- All key codes are designated as undefined.

- **Objective-C (iOS)**

```
- (void)deleteNVGraphicAll
```

- **Sample Code (Objective-C)**

7.10 Delete the specified NV graphics data.

- **Description**

删除指定的NV图形数据

Deletes the NV graphics data defined by the key codes (kc1 and kc2).

- Deleted areas are designated "Unused areas."
- Deleted key codes are designated as undefined.

- **Objective-C (iOS)**

```
- (void)deleteNVGraphicwithKeycode1:(NSInteger)keycode1 keycode2:
(NSInteger)keycode2
```

- **Parameter**

- **Sample Code (Objective-C)**

7.11 Define NV graphics data

- **Description**

定义NV像素图图形数据

- **Objective-C (iOS)**

```
// Raster NV Graphic
- (void)defineRasterNVGraphicData:(NSData *)data
    keycode:(NSInteger)keycode
    keycode2:(NSInteger)keycode2
    imageWidth:(NSInteger)imageWidth
    imageHeight:(NSInteger)imageHeight;

// Column NV Graphic
- (void)defineColumnNVGraphicData:(NSData *)data
    keycode:(NSInteger)keycode
    keycode2:(NSInteger)keycode2
    imageWidth:(NSInteger)imageWidth
    imageHeight:(NSInteger)imageHeight;
```

- **Parameter**

| Parameter | Valid Range |
|-------------|-------------|
| keycode | 32 to 126 |
| keycode2 | 32 to 126 |
| imageWidth | 1 to 8182 |
| imageHeight | 1 to 2304 |

- **Sample Code (Objective-C)**

7.12 Print the specified NV graphics data.

- **Description**

打印指定的NV图形数据

- **Objective-C (iOS)**

```
- (void)printNVGraphicwithKeycode:(NSInteger)keycode
    keycode2:(NSInteger)keycode2
    xScale:(NSInteger)xScale
    yScale:(NSInteger)yScale
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| keyCode | 32 to 126 |
| keyCode2 | 32 to 126 |
| xScale | 1 to 2 |
| yScale | 1 to 2 |

- **Sample Code (Objective-C)**

7.13 Transmit Graphic Key Code List

- **Description**

Transmit the key code list for defined download graphics.

- **Objective-C (iOS)**

```
- (void)transmitGraphicKeyCodeList
```

- **Sample Code (Objective-C)**

7. 14 Delete Downloaded NV Graphic All

- **Description**

Deletes all downloaded graphics data that has been defined using Functions 7.15 and 7.16

- **Objective-C (iOS)**

```
- (void)deleteDownloadedNVGraphicAll
```

- **Sample Code (Objective-C)**

7.15 Delete specified download graphics data.

- **Description**

打印指定的NV图形数据

- **Objective-C (iOS)**

```
- (void)deleteDownloadedNVGraphicKeyCode:(NSInteger)keyCode keyCode2:
(NSInteger)keyCode2
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| keycode | 32 to 126 |
| keycode2 | 32 to 126 |

- **Sample Code (Objective-C)**

7.16 Define Downloaded NV graphics data

- **Description**

定义NV像素图图形数据

- **Objective-C (iOS)**

```
- (void)defineDownloadedRasterNVGraphicData:(NSData *)data
        keycode:(NSInteger)keycode
        keycode2:(NSInteger)keycode2
        imageWidth:(NSInteger)imageWidth
        imageHeight:(NSInteger)imageHeight;

- (void)defineDownloadedColumnNVGraphicData:(NSData *)data
        keycode:(NSInteger)keycode
        keycode2:(NSInteger)keycode2
        imageWidth:(NSInteger)imageWidth
        imageHeight:(NSInteger)imageHeight;
```

- **Parameter**

| Parameter | Valid Range |
|-------------|-------------|
| keycode | 32 to 126 |
| keycode2 | 32 to 126 |
| imageWidth | 1 to 8182 |
| imageHeight | 1 to 2304 |

- **Sample Code (Objective-C)**

7.17 Print Downloaded NV Graphic

- **Description**

Define the downloaded graphics data (raster format).

- **Objective-C (iOS)**

```
- (void)printDownloadedNVGraphicWithKeycode:(NSInteger)keycode
                                   keycode2:(NSInteger)keycode2
                                   xScale:(NSInteger)xScale
                                   yScale:(NSInteger)yScale;
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| keycode | 32 to 126 |
| keycode2 | 32 to 126 |
| xScale | 1 to 2 |
| yScale | 1 to 2 |

- **Sample Code (Objective-C)**

7.18 Store Graphic Data

- **Description**

Store the graphics data in the print buffer

- **Objective-C (iOS)**

```
- (void)storeRasterGraphicData:(NSData *)data
                        xScale:(NSInteger)xScale
                        yScale:(NSInteger)yScale
                        imageWidth:(NSInteger)imageWidth
                        imageHeight:(NSInteger)imageHeight;

- (void)storeColumnGraphicData:(NSData *)data
                        xScale:(NSInteger)xScale
                        yScale:(NSInteger)yScale
                        imageWidth:(NSInteger)imageWidth
                        imageHeight:(NSInteger)imageHeight;
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| xScale | 1 to 2 |
| yScale | 1 to 2 |

- **Sample Code (Objective-C)**

7.19 Define NV Bit Image

- **Description**

Defines the NV bit image in the NV graphics area

- **Objective-C (iOS)**

```
- (void)defineNVGraphicData:(NSData *)data number:(NSInteger)number;
```

- **Parameter**

- **Sample Code (Objective-C)**

7.20 Define Downloaded Bit Image

- **Description**

Defines the downloaded bit image in the downloaded graphic area.

- **Objective-C (iOS)**

```
- (void)defineDownloadedImage:(NSData *)imageData  
    widthBytes:(NSInteger)widthBytes  
    heightBytes:(NSInteger)heightBytes
```

- **Parameter**

| Parameter | Valid Range |
|-------------|-------------|
| widthBytes | 1 to 255 |
| heightBytes | 1 to 255 |

- **Sample Code (Objective-C)**

7.21 Print Downloaded Bit Image

- **Description**

Print downloaded bit image

- **Objective-C (iOS)**

```
- (void)printDownloadedImageWithMode:(NSInteger)mode
```

- **Parameter**

| Valid Range | Mode | Width Scale | Height Scale |
|-------------|---------------|-------------|--------------|
| 0, 48 | Normal | x1 | x1 |
| 1, 49 | Double-Width | x2 | x1 |
| 2, 50 | Double-Height | x1 | x2 |
| 3, 51 | Quadruple | x2 | x2 |

- **Sample Code (Objective-C)**

7.22 Print Variable Vertical Size Bit Image

- **Description**

Prints a variable vertical size bit image using the scale mode. see 7.21

- **Objective-C (iOS)**

```
- (void)printVariableHeightImage:(NSData *)imageData
                        scale:(NSInteger)scale
                        width:(NSInteger)width
                        height:(NSInteger)height
```

- **Parameter**

| Parameter | Valid Range |
|-----------|----------------------------|
| scale | 0 to 3, 49 to 51. see 7.21 |
| width | 1 to 4256 |
| height | 1 to 16 |

- **Sample Code (Objective-C)**

8 Status Commands

8.1 Transmit real-time status

- **Description**

传输实时状态

- **Objective-C (iOS)**

```
- (void)transmitRealTimeStatus:(NSInteger)status
```

- **Parameter**

| Valid Range | Description |
|-------------|-----------------------------------|
| 1 | Transmit printer status |
| 2 | Transmit offline status |
| 3 | Transmit error status |
| 4 | Transmit roll paper sensor status |
| 7 | Transmit ink status |
| 8 | Transmit peeler status |

- **Sample Code (Objective-C)**

8.2 Transmit peripheral device status

- **Description**

Transmits the peripheral device status as 1 byte of data.

- **Objective-C (iOS)**

```
- (void)transmitPeripheralDeviceStatus:(NSInteger)status
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| status | 0, 48 |

- **Sample Code (Objective-C)**

8.3 Transmit paper sensor status

- **Description**

Transmits the status of paper sensor(s) as 1 byte of data.

- **Objective-C (iOS)**

```
- (void)transmitPaperSensorStatus
```

- **Sample Code (Objective-C)**

8.4 Set auto status back status

- **Description**

Enables or disables basic ASB (Automatic Status Back) and specifies the status items to include, using n as follows:

- **Objective-C (iOS)**

```
- (void)setASBStatusWithDrawer:(BOOL)drawer  
    offline:(BOOL)offline  
    error:(BOOL)error  
    rollPaper:(BOOL)rollPaper  
    panelSwitch:(BOOL)panelSwitch
```

- **Parameter**

| Parameter | Description |
|-------------|----------------------------------|
| drawer | Drawer kick-out connector status |
| offline | Online/offline status |
| error | Error status |
| rollPaper | Roll paper sensor status |
| panelSwitch | Panel switch status |

- **Sample Code (Objective-C)**

8.5 Automatic Status Back (ASB) for ink

- **Description**

Enables or disables the ink ASB (Automatic Status Back) and specifies the status items to include

- **Objective-C (iOS)**

```
- (void)setInkASBWithOffline:(BOOL)offline detection:(BOOL)detection
```

- **Parameter**

| Parameter | Description |
|-----------|--|
| offline | online/offline status of the ink mechanism |
| detection | ink status detection |

- **Sample Code (Objective-C)**

8.6 Transmit Status

- **Description**

传输状态

- **Objective-C (iOS)**

```
- (void)transmitStatus:(NSInteger)status
```

- **Parameter**

| Valid Range | Description |
|-------------|--|
| 1, 49 | Transmits paper sensor status |
| 2, 50 | Transmits drawer kick-out connector status |
| 4, 52 | Transmits ink status |

- **Sample Code (Objective-C)**

9 Barcode Commands

9.1 HRI Font

- **Description**

设置打印条码数字字体

- **Objective-C (iOS)**

```
- (void)setHRIFont:(NSInteger)font
```

- **Parameter**

| Valid Range | Description |
|-------------|-------------|
| 0, 48 | Font A |
| 1, 49 | Font B |
| 2, 50 | Font C |

- **Sample Code (Objective-C)**

9.2 Append Barcode

- **Description**

- Objective-C (iOS)

```
- (void)appendBarcode:(ESCBarcode)type
    data:(NSString *)data
    justification:(NSInteger)justification
    width:(NSInteger)width
    height:(NSInteger)height
    hri:(NSInteger)hri
```

- Parameter

- type

```
typedef NS_ENUM(NSInteger, ESCBarcode) {
```

```
    ESCBarcodeA_UPCA      = 0,
    ESCBarcodeA_UPCE      = 1,
    ESCBarcodeA_EAN13     = 2,
    ESCBarcodeA_EAN8      = 3,
    ESCBarcodeA_CODE39    = 4,
    ESCBarcodeA_ITF       = 5,
    ESCBarcodeA_CODEBAR   = 6,
```

```
    ESCBarcodeB_UPCA      = 65,
    ESCBarcodeB_UPCE      = 66,
    ESCBarcodeB_EAN13     = 67,
    ESCBarcodeB_EAN8      = 68,
    ESCBarcodeB_CODE39    = 69,
    ESCBarcodeB_ITF       = 70,
    ESCBarcodeB_CODEBAR   = 71,
    ESCBarcodeB_CODE93    = 72,
    ESCBarcodeB_CODE128   = 73,
    ESCBarcodeB_EAN128    = 74,
    ESCBarcodeB_RSS14     = 75,
    ESCBarcodeB_RSS14T    = 76,
    ESCBarcodeB_RSSL      = 77,
    ESCBarcodeB_RSSE      = 78,
```

```
};
```

CODE128:

128A(数字、大写字母、控制字符)

128B(数字、大小写字母、控制字符)

128C(双位数字)

数据的第一位和第二位必须是{A或者{B或者{C

- justification

See 6.7

- width/height

| Parameter | Valid Range |
|--------------|-------------|
| width/height | 0 to 255 |

- hri

| Valid Range | Description |
|-------------|----------------------|
| 0,48 | None |
| 1,49 | Above the barcode |
| 2,50 | Below the barcode |
| 3,51 | Both above and below |

- **Sample Code (Objective-C)**

10 Macro Function Commands

10.1 Define Macro

- **Description**

Starts or ends macro definition.

- **Objective-C (iOS)**

```
- (void)defineMacro
```

- **Sample Code (Objective-C)**

10.2 Execute macro

- **Description**

Executes a macro `times` times while waiting `waitTimes` × 100 msec for each macro execution, using the mode specified by `mode` as follows:

- When `mode` = 0, the macro executes `times` times continuously at the interval specified by `waitTimes`.
- When `mode` = 1, the printer waits for the period specified by `waitTimes`, flashes the LED, and then waits for the paper feed button to be pressed. After this button is pressed, the printer executes the macro once. The printer repeats this operation `times` times.

- **Objective-C (iOS)**

```
- (void)executeMacrowithTimes:(NSInteger)times  
    waitTimes:(NSInteger)waitTimes  
    mode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| times | 1 to 255 |
| waitTimes | 0 to 255 |
| mode | 0, 1 |

- **Sample Code (Objective-C)**

11 Mechanism Control Commands

11.1 Return Home

- **Description**

Moves the print head to the standby position.

- **Objective-C (iOS)**

```
- (void)returnHome
```

- **Sample Code (Objective-C)**

11.2 Set Unidirectional Print Mode

- **Description**

Turns unidirectional print mode on or off.

- When the LSB of n is 0, unidirectional print mode is turned off.
- When the LSB of n is 1, unidirectional print mode is turned on.

- **Objective-C (iOS)**

```
- (void)setUnidirectionalPrintMode:(NSInteger)mode
```

- **Parameter**

| Valid Range | Description |
|-------------|-------------|
| 0 | OFF |
| 1 | ON |
| 0 to 255 | |

- **Sample Code (Objective-C)**

11.3 Set Partial Cut

- **Description**

Executes a partial cut of the roll paper.

- **Objective-C (iOS)**

```
- (void)setPartialCut1; // one point left uncut
- (void)setPartialCut3; // three point left uncut
```

- **Sample Code (Objective-C)**

11.4 Set Cut Mode and Distance

- **Description**

Select cut mode and cut paper

- **Objective-C (iOS)**

```
- (void)setCutMode:(NSInteger)mode distance:(NSInteger)distance
```

- **Parameter**

| Mode Valid Range | Description |
|------------------|--|
| 0, 48 | Executes a full cut (cuts the paper completely). |
| 1, 49 | Executes a partial cut (one point left uncut). |

- **Sample Code (Objective-C)**

12 Miscellaneous Commands

12.1 Send Real Time Request

- **Description**

Responds to a request in real time from the host computer

- **Objective-C (iOS)**

```
- (void)sendRealTimeRequest:(NSInteger)request
```

- **Parameter**

| Range | Description |
|-------|---|
| 0 | Recovers to online status when following online recovery waiting status. |
| 1 | Recovers from a recoverable error and restarts printing from the line where the error occurred. |
| 2 | Recovers from a recoverable error after clearing the receive and print buffers. |

- **Sample Code (Objective-C)**

12.2 Generate Pulse in Real-Time

- **Description**

Outputs the pulse specified by `time` to connector pin `mode` as follows in real time

- **Objective-C (iOS)**

```
- (void)generatePulsewithMode:(NSInteger)mode Time:(NSInteger)time
```

- **Parameter**

| Mode Range | Description |
|------------|---------------------------------|
| 0 | Drawer kick-out connector pin 2 |
| 1 | Drawer kick-out connector pin 5 |

- **Sample Code (Objective-C)**

12.3 Execute Power-Off Sequence

- **Description**

Executes the printer power-off sequence and transmits the power-off notice.

- Saving the maintenance counter values
- Busy controlling for interface
- Changing to waiting state of mechanism

Executes power off processing (this processing depends on printer model).

- **Objective-C (iOS)**

```
- (void)executePowerOffSequence
```

- Sample Code (Objective-C)

12.4 Transmit Specified Status in Real Time

- Description

Transmits specified status in real-time as follows.

- Objective-C (iOS)

```
- (void)transmitSpecifiedStatus:(NSInteger)status
```

- Parameter

| Status Range | Description |
|--------------|-----------------------------|
| 1 | Transmits basic ASB status. |
| 5 | Transmits battery status. |

- Sample Code (Objective-C)

12.5 Clear Buffer

- Description

Clears all data stored in the receive buffer and the print buffer and transmits Clear response.

- Objective-C (iOS)

```
- (void)clearBuffer
```

- Sample Code (Objective-C)

12.6 Initialize Printer

- Description

Clears the data in the print buffer and resets the printer modes to the modes that were in effect when the power was turned on.

- Any macro definitions are not cleared.
- Offline response selection is not cleared.
- Contents of user NV memory are not cleared.
- NV graphics (NV bit image) and NV user memory are not cleared.
- The maintenance counter value is not affected by this command.
- The specifying of offline response isn't cleared.

- Objective-C (iOS)

```
- (void)initializePrinter
```

- Parameter
- Sample Code (Objective-C)

12.7 Set Page Mode

- Description

进入页模式

- Objective-C (iOS)

```
- (void)setPageMode
```

- Sample Code (Objective-C)

12.8 Set Standard Mode

- Description

进入标准模式

- Objective-C (iOS)

```
- (void)setStandardMode
```

- Sample Code (Objective-C)

12.9 Set Density

- Description

设置打印浓度

- Objective-C (iOS)

```
- (void)setDensity:(NSInteger)density
```

- Parameter

| Parameter | Vaid Range |
|-----------|--------------------|
| density | 250 to 255, 0 to 6 |

- Sample Code (Objective-C)

12.10 Set Speed

- **Description**

设置打印速度

- **Objective-C (iOS)**

```
- (void)setSpeed:(NSInteger) speed
```

- **Parameter**

| Parmeter | Valid Range |
|----------|-------------------|
| speed | 0 to 11, 48 to 57 |

- **Sample Code (Objective-C)**

12.11 Set Page Printable Area

- **Description**

Printable area setting when page mode is selected

- **Objective-C (iOS)**

```
- (void)setPageAreaWithwidth:(NSInteger)width  
                    height:(NSInteger)height  
                    xOffset:(NSInteger)xOffset
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| width | 1 to 65535 |
| height | 1 to 65535 |
| xOffset | 0 |

- **Sample Code (Objective-C)**

12.12 Draw Line / Rectangle

- **Description**

Saves line data in the print buffer when page mode is selected.

- **Objective-C (iOS)**

```

- (void)appendLineWithXPos:(NSInteger)xPos
    yPos:(NSInteger)yPos
    xEnd:(NSInteger)xEnd
    yEnd:(NSInteger)yEnd
    mode:(NSInteger)mode;

- (void)appendRectWithXPos:(NSInteger)xPos
    yPos:(NSInteger)yPos
    xEnd:(NSInteger)xEnd
    yEnd:(NSInteger)yEnd
    mode:(NSInteger)mode;

```

- **Parameter**

| Parameter | Valid Range |
|-----------|----------------------------------|
| xPos | 0 to 431 |
| yPos | 0 to 1119 |
| xEnd | 0 to 431 |
| yEnd | 0 to 1119 |
| mode | 1 to 3 (Thin, Moderately, Thick) |

- **Sample Code (Objective-C)**

12.13 Set Motion Units

- **Description**

Sets the horizontal and vertical motion units to approximately 25.4/x mm {1/x"}
 When x = 0, the default value of the horizontal motion unit is used.

- **Objective-C (iOS)**

```

- (void)setMotionUnitsWithHorizontal:(NSInteger)horizontal vertical:
    (NSInteger)vertical

```

- **Parameter**

| Param | Valid Range | Default |
|------------|-------------|---------|
| horizontal | 0 to 255 | 0 |
| vertical | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

13 Kanji Commands

13.1 Set Kanji Print Mode

- **Description**

Selects the character styles (double-height, double-width, and Kanji-underlined) together for multi-byte code character as follows:

- **Objective-C (iOS)**

```
- (void)setKanjiWithReverse:(BOOL)reverse
      doublewidth:(BOOL)doublewidth
      doubleheight:(BOOL)doubleheight
      underline:(BOOL)underline
```

- **Parameter**

- **Sample Code (Objective-C)**

13.2 Set Kanji Mode

- **Description**

Selects Kanji character mode.

- **Objective-C (iOS)**

```
- (void)setKanjiMode
```

- **Sample Code (Objective-C)**

13.3 Set Kanji Font Mode

- **Description**

Selects multi-byte code character font (Kanji character font).

- **Objective-C (iOS)**

```
- (void)setKanjiFontMode:(NSInteger)mode
```

- **Parameter**

| Valid Range | Description |
|-------------|------------------------|
| 0, 48 | Kanji character Font A |
| 1, 49 | Kanji character Font B |
| 2, 50 | Kanji character Font C |

- **Sample Code (Objective-C)**

13.4 Set Kanji Underline

- **Description**

Turns on or off underline mode for multi-byte code character (Kanji-underline)

- **Objective-C (iOS)**

```
- (void)setKanjiUnderline:(NSInteger)underline
```

- **Parameter**

| Valid Range | Description |
|-------------|--|
| 0, 48 | Turns off Kanji-underline mode |
| 1, 49 | Turns on Kanji-underline mode (1-dot thick) |
| 2, 50 | Turns on Kanji-underline mode (2-dots thick) |

- **Sample Code (Objective-C)**

13.5 Cancel Kanji Mode

- **Description**

Cancels Kanji character mode.

- **Objective-C (iOS)**

```
- (void)cancelKanjiMode
```

- **Sample Code (Objective-C)**

13.6 Define Kanji

- **Description**

The ranges of `first` and `second` differ, depending on models and the character code system used. The ranges of `first` and `second` for each model are as follows.

- **Objective-C (iOS)**

```
- (void)defineKanji:(NSData *)data first:(NSInteger)first second:(NSInteger)second
```

- **Parameter**

| Models | first | second |
|---------------------------------|-------|-----------------------|
| Japanese model (JIS code) | 119 | 33 to 126 |
| Japanese model (SHIFT JIS code) | 236 | 64 to 126, 128 to 158 |
| Simplified Chinese | 254 | 161 to 254 |
| Traditional Chinese | 254 | 161 to 254 |

- **Sample Code (Objective-C)**

13.7 Set Kanji Code System

- **Description**

Selects a Kanji character code system for the Japanese model as follows:

- **Objective-C (iOS)**

```
- (void)setKanjiCodeSystem:(NSInteger)system
```

- **Parameter**

| Valid Range | Kanji |
|-------------|----------------|
| 0, 48 | JIS code |
| 1, 49 | SHIFT JIS code |

- **Sample Code (Objective-C)**

13.8 Set Kanji Spacing

- **Description**

Sets left- and right-side spacing of the multi-byte code character `left` and `right`, respectively.

- **Objective-C (iOS)**

```
- (void)setKanjiSpacingwithLeft:(NSInteger)left right:(NSInteger)right
```

- **Parameter**

| Parameter | Valid Range | Default |
|-----------|-------------|---------|
| left | 0 to 32 | 0 |
| right | 0 to 32 | 0 |

- **Sample Code (Objective-C)**

13.9 Set Kanji Quadruple Mode

- **Description**

Turns quadruple-size mode on or off for multi-byte code character.

- When the LSB of n is 0, quadruple-size mode is turned off and normal size is specified
- When the LSB of n is 1, quadruple-size mode is turned on.

- **Objective-C (iOS)**

```
- (void)setKanjiQuadrupleMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range | Default |
|-----------|-------------|---------|
| mode | 0 to 255 | 0 |

- **Sample Code (Objective-C)**

13.10 Cancel Kanji Define

- **Description**

Deletes the user-defined Kanji character pattern specified by the character codes (`first` and `second`) of the currently selected Kanji font.

- `first` specifies the first byte of a character code for a user-defined Kanji character.
- `second` specifies the second byte of a character code for a user-defined Kanji character.

- **Objective-C (iOS)**

```
- (void)cancelKanjiDefineWithFirst:(NSInteger)first second:
(NSInteger)second
```

- **Parameter**

See 13.6

- **Sample Code (Objective-C)**

14 Two Dimension Code Commands

14.1 PDF417

- **Description**

添加 PDF417 条码

- **Objective-C (iOS)**

```
- (void)appendPDF417Data:(NSString *)data
    row:(NSInteger)row
    column:(NSInteger)column
    width:(NSInteger)width
    rowHeight:(NSInteger)rowHeight
    eccMode:(NSInteger)eccMode
    eccLevel:(NSInteger)eccLevel
    option:(NSInteger)option;

- (void)transmitPDF417SymbolDataSize;
```

- **Parameter**

| Parameter | Valid Range | Description |
|-----------|-------------|--|
| row | 0, 3 to 90 | Set the number of rows |
| column | 0 to 30 | Set the number of columns in the data region |
| width | 2 to 8 | Set the width of the module |
| rowHeight | 2 to 8 | Set the row height |

- **Mode**

Set the error correction Mode

| Mode | Description |
|------|---|
| 48 | The error correction level is set by "level." |
| 49 | The error correction level is set by "ratio." The ratio is <code>level</code> * 10% |

- Level

Set the error correction level

| Level | Description |
|-------|-------------|
| 48 | level 0 |
| 49 | level 1 |
| 50 | level 2 |

- option

Select the options

| option | Description |
|--------|-------------------|
| 0 | standard PDF417. |
| 1 | truncated PDF417. |

- Sample Code (Objective-C)

14.2 QR Code

- Description

设置模型

- Objective-C (iOS)

```

- (void)appendQRCodeData:(NSString *)data
    justification:(NSInteger)justification
    leftMargin:(NSInteger)leftMargin
    eccLevel:(NSInteger)eccLevel
    model:(NSInteger)model
    size:(NSInteger)size;

- (void)transmitQRCodeSymbolDataSize;

```

- Parameter

- Justification

See 6.7

- Left Margin

See 6.9

- ECC Level

Select the error correction level

| Level | Description | Recovery Capacity % (approx.) |
|-------|-------------|-------------------------------|
| 48 | Level L | 7 |
| 49 | Level M | 15 |
| 50 | Level Q | 25 |
| 51 | Level H | 30 |

- Model

| Valid Range | Description |
|-------------|-------------|
| 49 | Model 1 |
| 50 | Model 2 |

- Size

Set the size of module

| Parameter | Valid Range |
|-----------|-------------|
| size | 1 to 16 |

- Sample Code (Objective-C)

14.3 Maxi Code

- Description

添加 Maxi Code 条码

- Objective-C (iOS)

```
- (void)appendMaxiCodeData:(NSString *)data mode:(NSInteger)mode;  
- (void)transmitMaxiCodeSymbolDataSize;
```

- Parameter

| Valid Range | Description |
|-------------|-------------|
| 50 | mode 2 |
| 51 | mode 3 |
| 52 | mode 4 |
| 53 | mode 5 |
| 54 | mode 6 |

- **Sample Code (Objective-C)**

14.4 RSS-2D

- **Description**

设置模型的宽度

Sets the width of the module for RSS to n dots.

- **Objective-C (iOS)**

```

- (void)appendRSS2Data:(NSData *)data
    mode:(NSInteger)mode
  modulewidth:(NSInteger)modulewidth
    maxwidth:(NSInteger)maxwidth;

- (void)transmitRSS2SymbolDataSize;

```

- **Parameter**

| Parameter | Valid Range | Description |
|-------------|-------------|--|
| moduleWidth | 2 to 8 | Set the width of the module |
| maxWidth | 2 to 8 | RSS Expanded Stacked maximum width setting |

- **Mode**

| Mode | Description |
|------|--------------------------------|
| 72 | RSS-14 Stacked |
| 73 | RSS-14 Stacked Omnidirectional |
| 76 | RSS Expanded Stacked |

- **Sample Code (Objective-C)**

14.5 Composite Symbol

- **Description**

Sets the width of the module for Composite Symbol to n dots.

- **Objective-C (iOS)**

```
- (void)appendCompositeSymbolData:(NSData *)data
    mode:(NSInteger)mode
    type:(NSInteger)type
    modulewidth:(NSInteger)modulewidth
    maxwidth:(NSInteger)maxwidth
    hriFont:(NSInteger)hriFont;

- (void)transmitCompositeSymbolDataSize;
```

- **Parameter**

| Parameter | Valid Range | Description |
|-------------|-------------|--|
| moduleWidth | 2 to 8 | Set the width of the module |
| maxWidth | 2 to 8 | RSS Expanded Stacked maximum width setting |
| mode | 48, 49 | |

- HRI Font

Select font HRI characters

| Valid Range | Description |
|-------------|-------------|
| 0, 48 | None |
| 1, 49 | Font A |
| 2, 50 | Font B |
| 3, 51 | Font C |

- Type (when mode = 48)

| Type Range | Description |
|------------|--------------------------------|
| 65 | EAN8 |
| 66 | EAN13 |
| 67 | UPC-A |
| 68 | UPC-E 6 Digits |
| 69 | UPC-E 11 Digits |
| 70 | RSS-14 |
| 71 | RSS-14 Truncated |
| 72 | RSS-14 Stacked |
| 73 | RSS-14 Stacked Omnidirectional |
| 74 | RSS-14 Limited |
| 75 | RSS-14 Expanded |
| 76 | RSS Expanded Stacked |
| 77 | UCC/EAN 128 |

- Type (when mode = 49)

| Type Range | Description |
|------------|-------------|
| 65 | EAN13 |
| 66 | UPC-A |

- Sample Code (Objective-C)

15 Customize Commands

15.1 Write/Read to NV user memory

- Description

写入/读取 NV用户内存

- Objective-C (iOS)

```
- (void)writeNVUserMemory:(NSInteger)address data:(NSData *)data
- (void)readNVUserMemory:(NSInteger)address length:(NSInteger)length
```

- Parameter

| Parameter | Valid Range |
|-----------|-------------|
| address | 0 to 1023 |
| length | 0 to 80 |

- **Sample Code (Objective-C)**

15.2 Delete Record

- **Description**

Deletes the record specified by the key codes (key, key2) in the NV user memory.

- Deleted areas are designated "Unused areas".
- Deleted key codes are designated as undefined.

- **Objective-C (iOS)**

```
- (void)deleteRecordWithMode:(NSInteger)mode key:(NSInteger)key key2:
(NSInteger)key2
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 0, 48 |
| key | 32 to 126 |
| key2 | 32 to 126 |

- **Sample Code (Objective-C)**

15.3 Store Record

- **Description**

Deletes the record specified by the key codes (key, key2) in the NV user memory.

- Deleted areas are designated "Unused areas".
- Deleted key codes are designated as undefined.

- **Objective-C (iOS)**

```
- (void)storeRecordWithMode:(NSInteger)mode key:(NSInteger)key key2:
(NSInteger)key2 data:(NSData *)data
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 1, 49 |
| key | 32 to 126 |
| key2 | 32 to 126 |

- **Sample Code (Objective-C)**

15.4 Transmit Data In Record

- **Description**

Transmits the data for the record specified by the key codes (key, key2) in the NV user memory.

- ESC/POS Handshaking Protocol is required for this function.

- **Objective-C (iOS)**

```
- (void)transmitDataInRecordwithMode:(NSInteger)mode key:
(NSInteger)key key2:(NSInteger)key2
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 2, 50 |
| key | 32 to 126 |
| key2 | 32 to 126 |

- **Sample Code (Objective-C)**

15.5 Transmit NV Memory Used Capacity

- **Description**

Transmits the number of bytes of memory used in the NV user memory.

- **Objective-C (iOS)**

```
- (void)transmitNVMemoryUsedCapacitywithMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 3, 51 |

- **Sample Code (Objective-C)**

15.6 Transmit NV Memory Remaining Capacity

- **Description**

Transmits the number of bytes of remaining memory (unused area) in the NV user memory.

- **Objective-C (iOS)**

```
- (void)transmitNVMemoryRemainingCapacitywithMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 4, 52 |

- **Sample Code (Objective-C)**

15.7 Transmit Key Code List

- **Description**

Transmits the key code list in the NV user memory.

- ESC/POS Handshaking Protocol is required for this function.

- **Objective-C (iOS)**

```
- (void)transmitKeyCodeListwithMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 5, 53 |

- **Sample Code (Objective-C)**

15.8 Delete all data in the NV user memory

- **Description**

Deletes all data in the NV user memory.

- All area is changed to unused area.
- All key codes are designated as undefined.

- **Objective-C (iOS)**

```
- (void)deleteNVMemoryAllwithMode:(NSInteger)mode
```

- **Parameter**

| Parameter | Valid Range |
|-----------|-------------|
| mode | 6, 54 |

- **Sample Code (Objective-C)**

15.9 Change User Setting Mode

- **Description**

Enters the user setting mode and transmits the mode change notice.

- **Objective-C (iOS)**

```
- (void)changeUserSettingMode
```

- **Sample Code (Objective-C)**

15.10 End User Setting Mode

- **Description**

Ends the user setting mode, and performs a software reset.

- **Objective-C (iOS)**

```
- (void)endUserSettingMode
```

- **Sample Code (Objective-C)**