

# 目录

|  |            |
|--|------------|
| 第一章 简介.....                                      | 错误! 未定义书签。 |
| Chapter 1 Introduction.....                      | 2          |
| 性能特色.....  | 错误! 未定义书签。 |
| Features.....                                    | 2          |
| 第二章 规格说明.....                                    | 错误! 未定义书签。 |
| Chapter 2 Specifications                         |            |
| 1.外形结构及尺寸.....                                   | 错误! 未定义书签。 |
| 1.Printer outline and out dimension              |            |
| 2.规格说明.....                                      | 3          |
| 2.specifications                                 |            |
| 3.安装方式.....                                      | 错误! 未定义书签。 |
| 3.printer installation                           |            |
| 4.连接定义.....                                      | 错误! 未定义书签。 |
| Interface connection                             |            |
| 第三章 操作说明及打印测试.....                               | 7          |
| Chapter3 Operation specifications and print test |            |
| 1.操作说明.....                                      | 错误! 未定义书签。 |
| 1.Operation specifications                       |            |
| 2.打印测试.....                                      | 错误! 未定义书签。 |
| 2.Print test                                     |            |
| 第四章 使用注意事项.....                                  | 8          |
| Chapter4 Using attention and protection          |            |
| 第五章 打印命令集.....                                   | 错误! 未定义书签。 |
| Chapter5 Print commands                          |            |
| 1、打印命令一览表.....                                   | 错误! 未定义书签。 |
| 1.Summary  |            |
| 2、打印命令详解.....                                    | 错误! 未定义书签。 |
| 2.Command Descriptiron                           |            |
| 2.1 打印命令.....                                    | 错误! 未定义书签。 |
| 2.1 print commands                               |            |
| 2.2 行间距设置命令.....                                 | 错误! 未定义书签。 |
| 2.2 format setting commands                      |            |

|   |            |
|---|------------|
| 2.3 字符设置命令.....                         | 错误! 未定义书签。 |
| 2.3 Character Setting Commands          |            |
| 2.4 图形打印命令.....                         | 错误! 未定义书签。 |
| 2.4 Graphics Print Commands             |            |
| 2.5 按键控制命令.....                         | 错误! 未定义书签。 |
| 2.5 Button Control Commands             |            |
| 2.6 初始化命令.....                          | 错误! 未定义书签。 |
| 2.6 Initialization Commands             |            |
| 2.7 状态传输命令.....                         | 错误! 未定义书签。 |
| 2.7 Real time Commands                  |            |
| 2.8 条码打印命令.....                         | 错误! 未定义书签。 |
| 2.9 Bar Code Printing Commands          |            |
| 附录 A: 代码页.....                          | 错误! 未定义书签。 |
| APPENDIX A: Valid codes tab             |            |
| 附录 B: 国际字符集.....                        | 错误! 未定义书签。 |
| APPENDIX B: International Character Set |            |

## 第一章 简介 Introduction

### 性能特色 Features

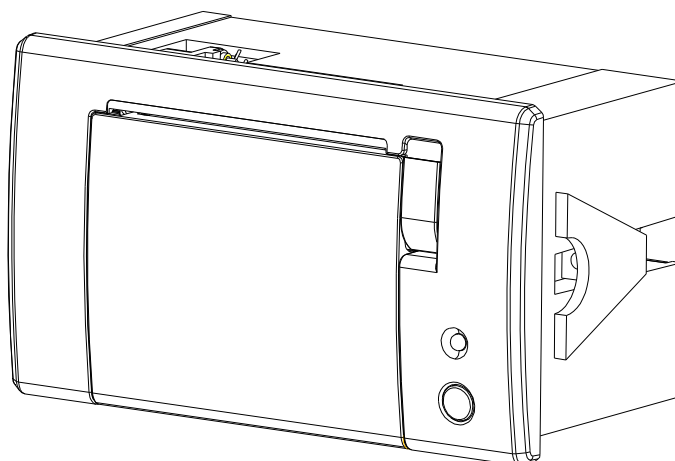
- 低噪音的直接热敏打印方式 Low-noise direct thermal printing method
- 打印控制板内置 GB18030 中文字库，彻底免除生僻字的苦恼 Printer control panel built-in GB18030 Chinese character, thoroughly remove the uncommon words of anguish
- 打印速度快，噪声低 Fast printing speed, low noise
- 可装最大纸卷直径 39MM 的打印纸，同类型中最大纸卷 can support Max.39MM (diameter) paper roll , that is biggest papar roll of the same models.
- 接口可选串口（RS-232C，TTL）/并口 Optional serial interface (RS-232C, TTL) / parallel port
- 丰富的图形/曲线/文字打印功能 rich of graphics / curves / characters print function
- 易装纸结构方便上纸 Easy paper loading structure
- 支持 5V-9V 宽电压 Support 5V-9V wide power voltage

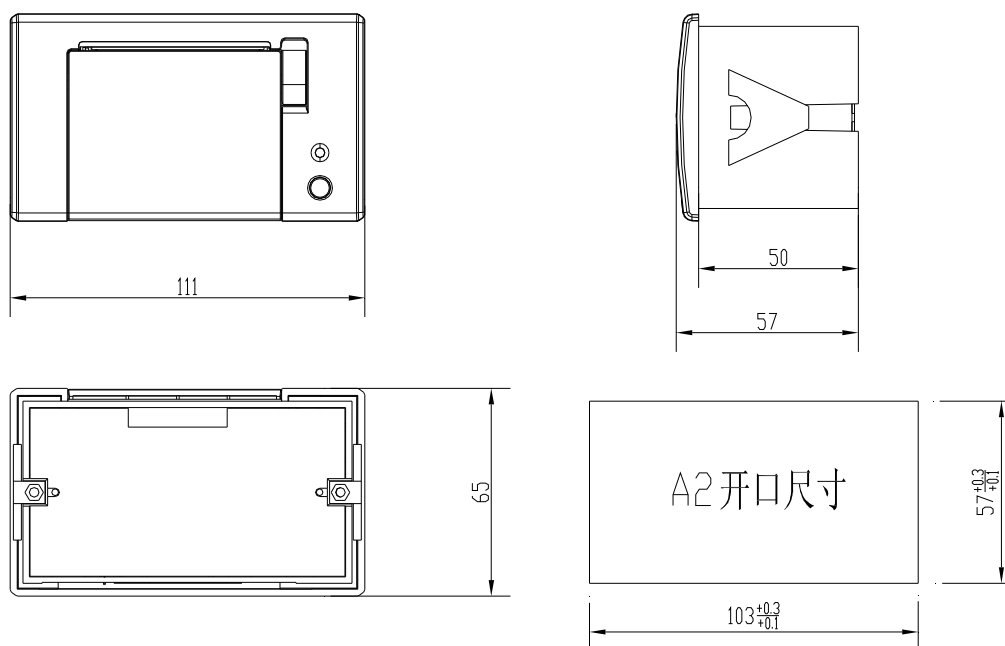
## 第二章 规格说明 Specifications

### 1.外形结构及尺寸 .Printer outline and out dimension

- ◆ 外形尺寸:111MM\*65MM\*57MM  
outline dimension : 111W\*65D\*57H mm
- ◆ 开口尺寸:103MM\*57MM  
Front opening Size: 103MM W\*57MM
- ◆ 嵌入深度:50MM  
embedded depth: 50MM
- ◆ 可装最大纸卷直径 39MM 的打印纸  
the Max diameter of paper roll :39MM

外形图如下: Outline is as follows





## 2. specifications

| 项目                                | 规格                                       |
|-----------------------------------|--|
| 打印方式 PRINT METHOD                 | thermal direct line printing             |
| 装纸方式 Paper loading method         | easy paper loading                       |
| 纸宽 paper width                    | 57mm                                     |
| 打印宽度 print width                  | 48mm                                     |
| 分辨率 resolution ration             | 8dots/mm(384dots/line)                   |
| 打印头寿命 life of printing head       | 50km                                     |
| 打印速度 printing speed               | 60mm/sec.; Max.:80MM/sec. (voltage 8.5V) |
| 字符大小 character size               | 12x24dots, or24x24dots                   |
| 汉字库 Chinese character fonts       | GB18030, 12x24dots, or24x24dots          |
| 外形尺寸 (WxHxD mm) outline dimension | 111mmx65mmx57mm                          |
| 安装尺寸(WxH mm) installation:        | 103mmx57mm                               |
| 嵌入深度 embaded depth                | 50mm                                     |
| 纸的规格 paper roll sepcification     | (widht :57mm, Max. diameter :39mm)       |
| 接口 interface                      | Serial (RS-232C, TTL)/parallel           |
| 输入电源 input power                  | DC5V-9V                                  |
| 操作温度 operatiing temperature       | 5° C~50° C                               |
| 存储温度 storage temperature          | -20° C~60° C                             |
| 操作湿度 operating humidity           | 10° C~80° C                              |
| 存储湿度 storage humidity             | 10° C~90° C                              |

### 3. 安装方式

如图 Fig.1 将打印机从所安装机子前面插入,装入后如图 Fig.2;然后按 Fig.3 从后部安上固定块锁上螺钉.注: 安装机子面板可自适应 1 到 6MM 的厚度变化.

Put the panel printe into the front of the device, as per Fig.1 and Fig.2, and then , install fixed block and screwig . as per Fig.3

Note: have 1 to 6mm variation in thickness.

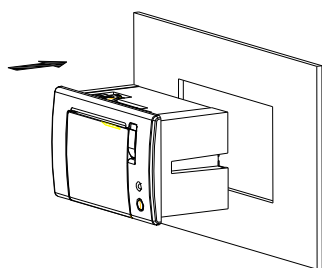


Fig 1

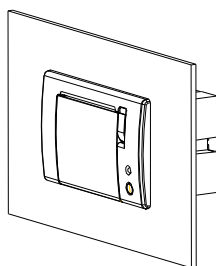


Fig 2

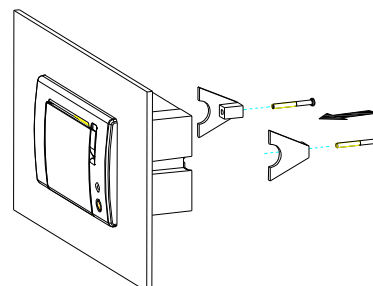


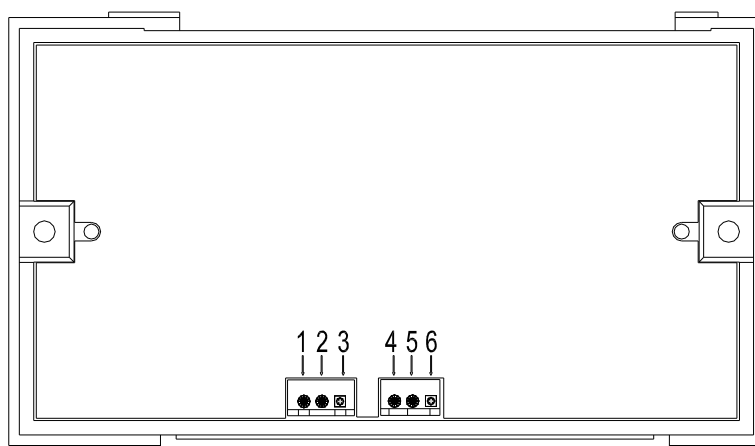
Fig 3

### 4. 连接定义 Link definition

用户可选择使用 RS232 接口、TTL 接口及 LPT 接口(出厂前)。The user have option of RS232 , TTL, and LPT interface

RS232 接口、TTL 接口引脚定义如下: the define of the PIN of the interface for RS232,TTL as the following:

- |   |           |                      |
|---|-----------|----------------------|
| 1 | GND, 信号地线 | Ground               |
| 2 | NULL      |                      |
| 3 | VH, 输入电源  | input voltage, 5V-9V |
| 4 | GND, 信号地线 | Ground               |
| 5 | RXD, 接收数据 | receive data         |
| 6 | TXD, 发送数据 | send data            |

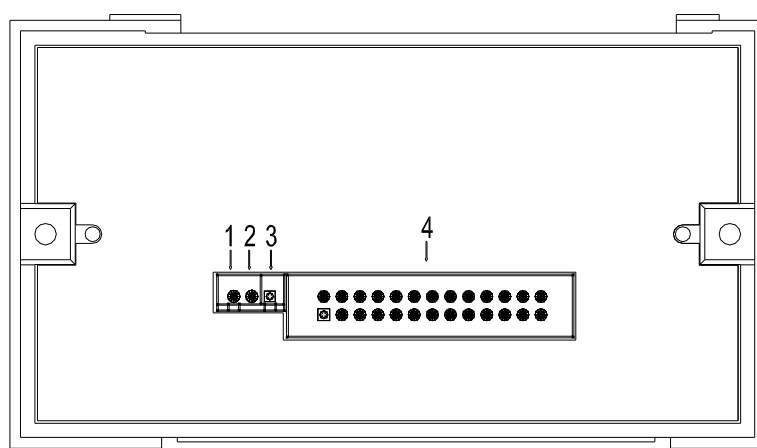


LPT 接口引脚定义如下： the define of the Pin of LPT interface as below :

- 1 GND, 信号地线 Ground
- 2 VH, 输入电源 input voltage , 5V-9V
- 3 +5V, 输入电源 input voltage (一般情况下只用+5V, VH 不输入 general condition,only use +5Vm VH not input )
- 4 LPT 接口

针脚定义如下： the define of the Pin of LPT interface as below :

- 1, STROBE 选通
- 2-9 , DATA0-DATA7 数据 0-7
- 10 , ACKNLG 确认
- 11 , BUSY 忙
- 12, PE 缺纸 paper out
- 13 , SLCT 选择 selection
- 14 , AUTO FEED 自动换行 auto change line
- 15, ERROR 错误
- 16, INIT 初始化
- 17, SLCT IN 选择输入\
- 18-26 , GND 地线



## 第三章 操作说明及打印测试 **Instructions&Print test**

### 1.操作说明 **Instructions**

#### A. 指示灯说明 **the instruction of indicator light**

上电后，指示灯将亮灭 3 次，间隔 1 秒，表示启动正常，随后指示灯如下显示：

Power on, the indicator light will flash 3 time, interval 1sec, it say the startness is ok, and then the instructions for the indicator light as below:

闪 1 次：平时正常工作时的状态显示效果；

Flash: 1 times : At ordinary times during normal working condition

闪 2 次：未检测到打印机；

Flash2 times: Not detect printer

闪 3 次：打印机缺纸，提醒用户换纸；

Flash3times: lack of paper, and remind users to change new paper roller,

闪 5 次：打印机芯的加热片过热。

Flash5 times: Printing machine heating slice overheating

#### B.按键说明 **key instruction**

面板中按键为进纸（FEED）键

The key on the panel printer is FEED key

#### C. 如何换纸 **how to change new peper roller**

换纸时将开关向上扳启就可进行易装纸动作。

Before changing , turn up the switch , and put into the paper roller.

### 2.打印测试 **printing test**

上电时，按住面板上进纸（FEED）按键，松开后，控制板将打印一张测试页；

Power on, press the [feed ]key, for a while , relax the key, it will print out one testing sample .

上电后，每按一下按键将执行进纸动作：  
Power on, press key per time, it will feed the paper

## 第四章 使用注意事项

### Chapter 4 Using attention

1.1 机芯上的TPH 与光电传感器是静电敏感器件，使用机芯时，请注意采取保护措施（比如说静电环，保证车间的潮湿度等），防止静电对机芯内部元器件产生损害。

1.1 Please notice, the ESD wrist ring and the humidity manufactures ETC, when using the printer, to protect the inner electronic parts of the printer from the damage of ESD, because the TPH of the Printer and photoelectric sensor are ESD Sensitive parts.

1.2 不要在橡胶部分上涂抹任何油或沾染其他异物，为了保护胶轴

1.2 For protecting plastic shaft, Don't smear any oil or others on the rubber parts

1.3 不要用手接触热敏头，当热敏头上沾染棕榈油时，会大大缩短热敏头的使用寿命。如果热敏头粘上任何油或异物时，请立即用棉签沾酒精清洗打印头与胶轴相交区域。此外，请不要用硬物敲击热敏头。

1.3 Don't touch the TPH, TPH having the palm oil, will induce the usage of the printer. If any oil or others in the TPH, pls using an alcohol cotton stick clean the area between plastic shaft and printer head at once. PS, Don't strike the TPH.

1.4 由于该款机芯是易装纸结构。所以只要用力拉胶棍部分，就可取出胶棍。因此，如果发生卡纸时，太用力拉纸就会引起胶棍齿轮的滑落或损坏。请不要用力拉纸。应打开上盖重新装纸。

1.4 Due to the printer is easy-paper structure, you need pick up the rubber stick only push the rubber stick. So, if the paper jam, push harder will cause the rubber stick gearwheel damaged. so pls don't push the paper harder, pls do open the cover and re-fill the paper

1.5 如果连续打印时，机芯热敏头保护板的温度（用热敏电阻辐射热测量器检测）不能超过65℃，因为机芯内部的IC 保护板及马达表面温度不能超过90℃，也是为了更好地保护马达线圈。

1.5 The temperature of the TPH protection must be below 65℃, if you print continuously, Because the exterior of the temperature of the IC protection & motor can't not over 90℃ to protect the motor thread ring.

1.6 请使用质量较好的热敏打印纸，因为 纸质的热敏感度对打印效果有很大影响，同时纸质粗糙的纸张对打印头磨损严重，会缩短打印头的寿命。

1.6 Pls use the good quality paper, because the sensitive of the paper will influence print effect, meanwhile, rough paper will increase the excessive wear to the printer head, and reduce the life of the printer.



## 5 ESC/POS PRINTING COMMAND SET

### 5.1 Set of Command

| Type                 | Command                     | Name                                       |
|----------------------|-----------------------------|--|
| Print Command        | LF                          | Print and line feed                        |
|                      | HT                          | JMP to the next TAB position               |
|                      | FF                          | Print the data in the buffer               |
|                      | ESC FF                      | Print the data in the buffer               |
|                      | ESC J                       | Print and Feed n dots paper                |
|                      | ESC d                       | Print and Feed n lines                     |
|                      | ESC =                       | Toggle the printer online or offline       |
| Line spacing Command | ESC 2                       | Select default line spacing                |
|                      | ESC 3 n                     | Set line spacing                           |
|                      | ESC a n                     | Select justification                       |
|                      | GS L nL nH                  | Set the left blank margin with dots        |
|                      | ESC B n                     | Set the left blank char number             |
| Character Command    | ESC ! n                     | Select print mode(s)                       |
|                      | GS ! n                      | Set or Cancele the double width and height |
|                      | ESC E n                     | Set or Cancele bold font                   |
|                      | ESC SP                      | Set the space between chars                |
|                      | ESC S0                      | Turn double width on                       |
|                      | ESC DC4                     | Turn double width off                      |
|                      | ESC { n                     | Turn upside-down printing mode on/off      |
|                      | GS B n                      | Turn inverting printing mode on/off        |
|                      | ESC - n                     | Set the underline dots(0,1,2)              |
|                      | ESC % n                     | Select/Cancel user-defined characters      |
|                      | ESC &                       | Define user-defined characters             |
|                      | ESC ?                       | Cancele user-defined characters            |
|                      | ESC R n                     | Select and internation character set       |
| ESC t n              | Select character code table |  |
| Bit Image Command    | ESC *                       | Select bit-image mode                      |
|                      | GS *                        | Define downloaded bit image                |
|                      | GS /                        | Print downloaded bit image                 |
|                      | GS v                        | Print the bitmap with width and height     |
|                      | DC2 *                       | Print the bitmap                           |
|                      | DC2 V                       | Print MSB bitmap                           |
|                      | DC2 v                       | Print LSB bitmap                           |

|                    |             |   |
|--------------------|-------------|---|
| Init Command       | ESC @       | Initialize printer                                    |
| Status Command     | ESC v n     | Transmit paper sensor status                          |
|                    | ESC u n     | Transmit peripheral device status                     |
|                    | GS a n      | Enable/Disable AutomaticStatus Back(ASB)              |
| Bar Code Command   | GS H        | Select printing position of human readable characters |
|                    | GS h        | Set bar code height                                   |
|                    | GS x        | Set bar code left position                            |
|                    | GS w        | Set bar code width                                    |
|                    | GS k        | Print bar code  |
| Board Para Command | ESC 7 n1 n2 | Set printing para. Heat & break time, max heat dot    |
|                    | DC2 # n     | Set printing density.                                 |
|                    | DC2 T       | Printing test page                                    |

## 5.2 Command detail

TCB thermal printer control board use ESC/POS command set.

The printing command is described as followed format:

| CMD         | Function                                   |
|-------------|--|
| Format      | ASCII List by ASCII characters             |
|             | Decimal <b>LIST BY DECIMAL CHARACTERS</b>  |
|             | Hexadecimal List by hexadecimal characters |
| Description | Command function description               |
| Example     | Command use example                        |

### 5.2.1 Print Commands

| LF          | Print and line feed  |
|-------------|--|
| Format      | ASCII LF   |
|             | Decimal 10   |
|             | Hexadecimal 0A   |
| Description | LF prints the data in the print buffer and feeds one line.<br>When the print buffer is empty, LF feeds one line. |
| HT          | Jump to the next TAB position  |
| Format      | ASCII HT   |
|             | Decimal 09   |
|             | Hexadecimal 09   |
| Description | TAB position is 8 chars position.  |

---

FF Print the data in buffer and locate to the next black mark

---

Format ASCII FF

Decimal 12

Hexadecimal 0c

---

Description Print the data in the buffer.

Locate to the black mark

NOTE: Only board with black mark function support this command.

---

ESC J n Print and feed paper

---

Format ASCII ESC J n

Decimal 27 74 n

Hexadecimal 1B 4A n

---

Description n = 0-255.

ESC J prints the data in the print buffer and feeds n dots.

The command will not change the setting set by command ESC 2, ESC 3.

---

ESC FF Print the data in buffer and locate to the next black mark

---

Format ASCII ESC FF

Decimal 27 12

Hexadecimal 1b 0c

---

Description Print the data in the buffer.

Locate to the black mark

NOTE: Only board with black mark function support this command.

---

ESC d n Print and feed n lines

---

Format ASCII ESC d n

Decimal 27 100 n

Hexadecimal 1B 64 n

---

Description n = 0-255.

Print the data in the buffer and feed paper n lines.

The lines height is defined by ESC 2, ESC 3.

---

ESC = n Set print online or offline

---

Format ASCII ESC = n

Decimal 27 61 n

Hexadecimal 1B 3d n

---

Description n = 0, 1

1: Online

0: Offline

## 5.2.2 Line spacing setting command

---

ESC 2 Select default line spacing

---

Format                    ASCII   ESC 2

                          Decimal    **27 50**

                          Hexadecimal 1B 32

---

Description    ESC 2 sets the line space to default value (32dots)

---

ESC 3 n Set line spacing

---

Format                    ASCII   ESC 3 n

                          Decimal    27 51 n

                          Hexadecimal 1B 33 n

---

Description    n = 0-255

ESC 3 n sets the line spacing to n dots.

The default value is 32

---

ESC a n Select align mode

---

Format                    ASCII   ESC a n

                          Decimal    27 97 n

                          Hexadecimal 1B 61 n

---

Description    Default is 0

$0 \leq m \leq 2$  or  $48 \leq m \leq 50$

Align left:    n=0, 48

Align middle: n=1, 49

Align right:  n=2, 50

---



---

GS L nL nH Set left space

---

Format                    ASCII   GS L nL nH

                          Decimal    29 76 nL nH

                          Hexadecimal 1D 4c nL nH

---

Description    Set the left space with dots

Left space is  $nL+nH*256$ , unit:0.125mm

---

ESC \$ nL nH Set left space

---

Format                    ASCII   ESC \$ nL nH

                          Decimal    27 36 nL nH

                          Hexadecimal 1B 24 nL nH

---

Description    Set the left space with dots

Left space is  $nL+nH*256$ , unit:0.125mm

| ESC B n     | Set left blank char nums           |
|-------------|------------------------------------|
| Format      | ASCII ESC B n                      |
|             | Decimal 27 66 n                    |
|             | Hexadecimal 1B 42 n                |
| Description | Default is 0<br>$0 \leq m \leq 47$ |

## 5.2.3 Character command

| ESC ! n     | Select print mode   |
|-------------|---|
| Format      | ASCII ESC ! n   |
|             | Decimal 27 33 n   |
|             | Hexadecimal 1B 21 n   |
| Description | The default value is 0. This command is effective for all characters.<br>BIT0:<br>BIT1: 1: Reverse mode selected<br>0: Reverse mode not selected<br>BIT2: 1: Updown mode selected<br>2: Updown mode not selected<br>BIT3: 1:Emphasized mode selected<br>0:Emphasized mode not selected<br>BIT4: 1:Double Height mode selected<br>0:Double Height mode not selected<br>BIT5: 1:Double Width mode selected<br>0:Double Width mode not selected<br>BIT6: 1:Deleteline mode selected<br>0:Deleteline mode not selected<br>BIT7: |

| GS ! n      | Set the font enlarge   |
|-------------|--|
| Format      | ASCII GS ! n   |
|             | Decimal 29 33 n  |
|             | Hexadecimal 1D 21 n  |
| Description | D3..0 0: height don't enlarge<br>1: height enlarge<br>D7..4 0: width don't enlarge<br>1: width enlarge |

| ESC E n | Set and cancel bold font |
|---------|--------------------------|
| Format  | ASCII ESC ! n            |

|             |   |                 |  |
|-------------|---|-----------------|--|
|             | Decimal   | 27 69 n         |  |
|             | Hexadecimal   | 1B 45 n         |  |
| Description | D0: 0: normal<br>1: bold  |                 |  |
| ESC SP n    | Set and cancel bold font  |                 |  |
| Format      | ASCII   | ESC SP n        |  |
|             | Decimal   | 27 32 n         |  |
|             | Hexadecimal   | 1B 20 n         |  |
| Description | D0: 0: normal<br>1: bold  |                 |  |
| ESC S0      | Select Double Width   |                 |  |
| Format      | ASCII   | ESC S0          |  |
|             | Decimal   | 27 14           |  |
|             | Hexadecimal   | 1B 0E           |  |
| Description | Select Double Width mode<br>To turn double width off, use LF or DC4 command.                      |                 |  |
| ESC DC4     | Disable Double Width  |                 |  |
| Format      | ASCII   | ESC DC4         |  |
|             | Decimal   | 27 20           |  |
|             | Hexadecimal   | 1B 14           |  |
| Description | Disable Double Width mode   |                 |  |
| ESC { n     | Set/Cancel Character Updown   |                 |  |
| Format      | ASCII   | ESC { n         |  |
|             | Decimal   | <b>27 123 N</b> |  |
|             | Hexadecimal   | 1B 7B n         |  |
| Description | n=1:Enable Updown mode<br>n=0:Disable Updown Mode<br>Default value is 0                           |                 |  |
| GS B n      | Turn white/black reverse printing mode on   |                 |  |
| Format      | ASCII   | ESC B n         |  |
|             | Decimal   | 29 66 n         |  |
|             | Hexadecimal   | 1D 42 n         |  |
| Description | n=1:Enable white/black reverse mode<br>n=0:Disable white/black reverse mode<br>Default value is 0 |                 |  |
| ESC - n     | Set the underline height  |                 |  |
| Format      | ASCII   | ESC - n         |  |

Decimal 27 45 n  
 Hexadecimal 1B 2D n

Description n=0-2, the underline dots  
 default: 0 — no underline

ESC % n Enable/Disable User-defined Charac

Format ASCII ESC % n  
 Decimal 27 37 n  
 Hexadecimal 1B 25 n

Description n=1:Enable User-defined character  
 n=0:Disable User-defined character

ESC & s n m w Define User-defined character

Format ASCII ESC & s n m w d1 d2 ... dx  
 Decimal 27 38 s n w m d1 d2 ... dx  
 Hexadecimal 1B 26 s n w m d1 d2 ... dx

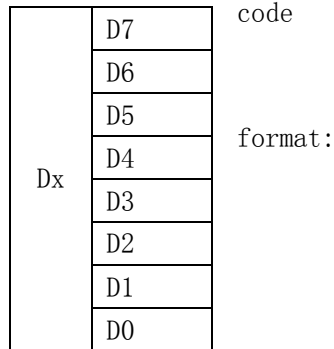
Description  
 The command is used to define user-defined character. Max 64 user chars can be defined.

s= 3,  $32 \leq n \leq m < 127$   
 s: Character height bytes, =3(24dots)  
 w: Character width 0~12(s=3)  
 n: User-defined character starting  
 m: User-defined characters ending code  
 dx:data, x=s\*w

s=3

|    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
|----|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
| d1 | d4 | d7 |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| d2 | d5 | d8 |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| d3 | d6 | d9 |  |  |  |  |  |  |  |  |  |  |  |  |  | d36 |

dx



ESC ? n Disable user-defined character

Format ASCII ESC ? n  
 Decimal 27 37 N  
 Hexadecimal 1B 25 n

Description  
 ESC ? n disable user-defined characters, printer will use the internal character.

ESC R n Select an internal character set

---

|        |             |                |
|--------|-------------|----------------|
| Format | ASCII       | ESC R n        |
|        | Decimal     | <b>27 82 N</b> |
|        | Hexadecimal | 1B 52 n        |

---

## Description

Select an internal character set n as follows:

|             |          |                  |
|-------------|----------|------------------|
| 0:USA       | 5:Sweden | 10:Denmark II    |
| 1:France    | 6:Italy  | 11:Spain II      |
| 2:Germany   | 7:Spain1 | 12:Latin America |
| 3:U. K.     | 8:Japan  | 13:Korea         |
| 4:Denmark 1 | 9:Norway |                  |

ESC t n Select character code table

---

|        |             |                 |
|--------|-------------|-----------------|
| Format | ASCII       | ESC t n         |
|        | Decimal     | <b>27 116 N</b> |
|        | Hexadecimal | 1B 74 n         |

---

## Description

Select a page n from the character code table as follows::

|       |       |
|-------|-------|
| 0:437 | 1:850 |
|-------|-------|

## 5.2.4 Bit Image Command

ESC \* m nL nH d1 d2...dk Select bit-image mode

---

|        |             |                            |
|--------|-------------|----------------------------|
| Format | ASCII       | ESC * m nL nH d1 d2 ... dk |
|        | Decimal     | 27 42 m nL nH d1 d2 ... dk |
|        | Hexadecimal | 1B 2A m nL nH d1 d2 ... dk |

---

## Description

Attention: The command may clear the user defined char.

This command selects a bit image mode using m for the number of dots specified by (nL+nH\*256)

m =0, 1, 32, 33.

**NL=0-255**

nH=0-3

dx=0-255

k = nL+256\*nH (m=0, 1)

k = (nL+256\*nH)\*3 (m=32, 33)

The modes selected by m are as follows:

- 0: 8dots single density, 102dpi
- 1: 8dots double density, 203dpi
- 31:24 dots single density, 102dpi
- 32:24 dots double density, 203dpi

The bit image format is the same as user-defined character.



| GS / n |             | Print downloaded bit image |
|--------|-------------|----------------------------|
| Format | ASCII       | GS / n                     |
|        | Decimal     | 29 47 n                    |
|        | Hexadecimal | 1D 2F n                    |

## Description

This command prints a downloaded bit image using the mode specified by n as specified in the chart. In standard mode, this command is effective only when there is data in the print buffer. This command is ignored if a downloaded bit image has not been defined.

n=0-3, 48-51: Specify bit image mode

| n     | Pattern Mode  | Vertical DPI | Horizontal DPI |
|-------|---------------|--------------|----------------|
| 0, 48 | Normal        | 203DPI       | 203DPI         |
| 1, 49 | Double width  | 203DPI       | 101DPI         |
| 2, 50 | Double height | 101DPI       | 203DPI         |
| 3, 51 | Quadruple     | 101DPI       | 101DPI         |

| GS * x y d1...dk |             | Define downloaded bit image |
|------------------|-------------|-----------------------------|
| Format           | ASCII       | GS * x y d1 ... dk          |
|                  | Decimal     | 29 42 x y d1 ... dk         |
|                  | Hexadecimal | 1D 2A x y d1 ... dk         |

Description This command defines a downloaded bit image by using  $x*8$  dots in the horizontal direction and  $y*8$  dots in the vertical direction. Once a downloaded bit image has been defined, it is available until

- Another definition is made
- ESC & or ESC @ is executed
- The power is turned off
- The printer is reset

$x=1\sim 48$ (width),  $y=1\sim 255$ (height),  $x*y < 1200$ ,  $k=x*y*8$

| GS v 0 p wL wH hL hH |             | Print bitmap                     |
|----------------------|-------------|----------------------------------|
| Format               | ASCII       | GS v 0 p wL wH hL hH d1 ... dk   |
|                      | Decimal     | 29 118 0 p wL wH hL hH d1 ... dk |
|                      | Hexadecimal | 1D 76 0 p wL wH hL hH d1 ... dk  |

Description p: bitmap format.

- D0: 1: bitmap need double width  
0: bitmap don't need double width
- D1: 1: bitmap need double height  
0: bitmap don't need double height

$W=wL+wH*256$  mean horizontal bytes

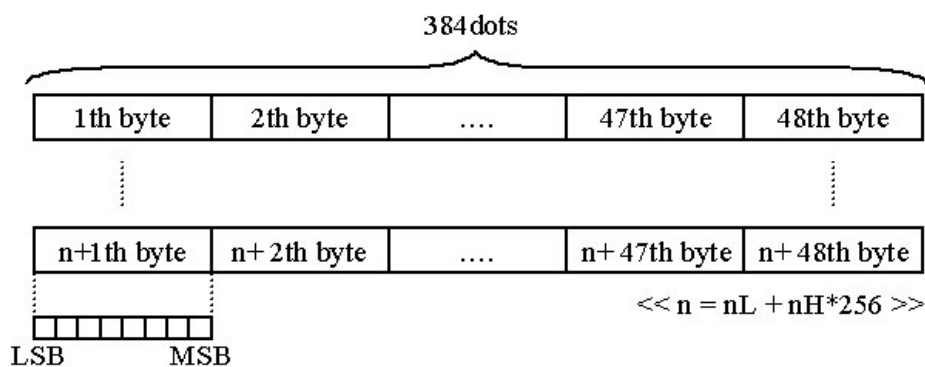
$H=wL+wH*256$  mean vertical dots.

Bitmap use MSB format, the MSB is printed at the left. And data sent first is printed at the left.



---

Description This command use to print LSB format bitmap,  
 The width of bitmap must the same as the printer mechanism  
 Bitmap height:  $nL+nH*256$   
 Bitmap format:



## 5.2.5 Key control command

ESC c 5 n Enable/Disable the panel key

---

|        |             |            |
|--------|-------------|------------|
| Format | ASCII       | ESC c 5 n  |
|        | Decimal     | 27 99 53 n |
|        | Hexadecimal | 1B 63 35 n |

---

Description This command has no effect.  
 n=1, Disable the panel key  
 n=0, Enable the panel key(Default)

## 5.2.6 Init command

ESC @ Initialize the printer

---

|        |             |       |
|--------|-------------|-------|
| Format | ASCII       | ESC @ |
|        | Decimal     | 27 64 |
|        | Hexadecimal | 1B 40 |

---

Description Initializes the printer.

- The print buffer is cleared.
- Reset the param to default value.
- return to standard mode
- Delete user-defined characters

## 5.2.7 Status Command

ESC v Transmit paper sensor status

Format                    ASCII   ESC v n  
                           Decimal   **27 118 N**  
                           Hexadecimal 1B 76 n

Description: Transmit board status to host

Return:

P<Paper>V<Voltage>T<Degree>

Example: P1V72T30    Mean: Paper Ready, Current voltage 7.2V, Printer degree:30

GS a n Enable/Disable Automatic Status Back (ASB)

Format                    ASCII   GS a n  
                           Decimal   29 97 n  
                           Hexadecimal 1D 61 n

Description    n definition as follows:

| Bit | Function                           | Value   |        |
|-----|------------------------------------|---------|--------|
|     |                                    | 0       | 1      |
| 0   | 0                                  |         |        |
| 1   |                                    |         |        |
| 2   | Disable/Enable ASB                 | Disable | Enable |
| 3-4 |                                    |         |        |
| 5   | Disable/Enable RTS as flow control | Disable | Enable |
| 6-7 |                                    |         |        |

When ASB is enabled, the printer will send the changed status to PC automatically.

ESC u n Transmit peripheral devices status

Format                    ASCII   ESC u n  
                           Decimal   27 117  
                           Hexadecimal 1B 75

Description    This command is not supported.

Return status bytes definition:

bit0: Drawer status.

bit4: 0

Always return 0 back.

## 5.2.8 Bar Code Command

GS H n Select printing position of human readable character

S

---

|        |             |               |
|--------|-------------|---------------|
| Format | ASCII       | <b>GS H N</b> |
|        | Decimal     | 29 72 n       |
|        | Hexadecimal | 1D 48 n       |

---

Description  $0 \leq n \leq 3$   
 $48 \leq n \leq 51$   
 This command selects the printing position for human readable characters when printing a barcode. The default is  $n=0$ . Human readable characters are printed using the font specified by GS fn. Select the printing position as follows:  
 n Printing Position  
 0, 48: Not printed  
 1, 49: Above the barcode  
 2, 50: Below the barcode  
 3, 51: Both above and below the barcode

GS h n Set bar code height

---

|        |             |          |
|--------|-------------|----------|
| Format | ASCII       | GS h n   |
|        | Decimal     | 29 104 n |
|        | Hexadecimal | 1D 68 n  |

---

Description This command selects the height of a barcode. n specifies the number of dots in the vertical direction. The default value is 50  
 $1 \leq n \leq 255$

GS x n Set barcode printing left space

---

|        |             |          |
|--------|-------------|----------|
| Format | ASCII       | GS x n   |
|        | Decimal     | 29 120 n |
|        | Hexadecimal | 1D 78 n  |

---

Description Set the barcode printing left space

GS w n Set bar code width

---

|        |             |                 |
|--------|-------------|-----------------|
| Format | ASCII       | GS w n          |
|        | Decimal     | <b>29 119 N</b> |
|        | Hexadecimal | 1D 77 n         |

---

Description This command selects the horizontal size of a barcode.  
 $n = 2, 3$   
 The default value is 3

GS k m d1 d2 ... dk NUL

Print barcode symbology

GS k m n d1 d2 ... dn

---

|          |             |            |                  |
|----------|-------------|------------|------------------|
| Format 1 | ASCII       | GS k m     | d1 d2 ... dk NUL |
|          | Decimal     | 29 107 m   | d1 d2 ... dk 0   |
|          | Hexadecimal | 1D 6B m    | d1 d2 ... dk 00  |
| Format 2 | ASCII       | GS k m n   | d1 d2 ... dn     |
|          | Decimal     | 29 107 m n | d1 d2 ... dn     |
|          | Hexadecimal | 1D 6B m n  | d1 d2 ... dn     |

---

**DESCRIPTION M: BARCODE TYPE****FORMAT 1:  $0 \leq M \leq 10$** **FORMAT 2:  $65 \leq M \leq 75$** **N: BARCODE LENGTH**

| m      | Bar code system | Number of characters | Remarks                      |
|--------|-----------------|----------------------|------------------------------|
| 0, 65  | UPC-A           | 11, 12               | 48-57                        |
| 1, 66  | UPC-E           | 11, 12               | 48-57                        |
| 2, 67  | EAN13           | 12, 13               | 48-57                        |
| 3, 68  | EAN8            | 7, 8                 | 48-57                        |
| 4, 69  | CODE39          | >1                   | 32, 36, 37, 43, 45-57, 65-90 |
| 5, 70  | I25             | >1<br>even number    | 48-57                        |
| 6, 71  | CODEBAR         | >1                   | 36, 43, 45-58, 65-68         |
| 7, 72  | CODE93          | >1                   | 0-127                        |
| 8, 73  | CODE128         | >1                   | 0-127                        |
| 9, 74  | CODE11          | >1                   | 48-57                        |
| 10, 75 | MSI             | >1                   | 48-57                        |

**5.2.9 Control Parameter Command**

ESC 7 n1 n2

Setting Control Parameter Command

---

|         |              |                |
|---------|--------------|----------------|
| Format: | ASCII:       | ESC 7 n1 n2 n3 |
|         | Decimal:     | 27 55 n1 n2 n3 |
|         | Hexadecimal: | 1B 37 n1 n2 n3 |

---

---

Description: Set “max heating dots”, ”heating time”, “heating interval”  
 n1 = 0-255 Max printing dots, Unit(8dots), Default:7(64 dots)  
 n2 = 3-255 Heating time, Unit(10us),Default:80(800us)  
 n3 = 0-255 Heating interval,Unit(10us), Default:2(20us)  
 The more max heating dots, the more peak current will cost when printing, the faster printing speed. The max heating dots is  $8*(n1+1)$   
 The more heating time, the more density, but the slower printing speed. If heating time is too short, blank page may occur.  
 The more heating interval, the more clear, but the slower printing speed.

---

ESC 8 n1 Sleep parameter

Format:                ASCII:    ESC 8 n1  
                           Decimal:    27 56 n1  
                           Hexadecimal: 1B 38 n1

---

Description: Setting the time for control board to enter sleep mode.  
 n1 = 0-255 The time waiting for sleep after printing finished, Unit(Second), Default:0(don't sleep)  
 When control board is in sleep mode, host must send one byte(0xff) to wake up control board. And waiting 50ms, then send printing command and data.  
**NOTE: The command is useful when the system is powered by battery.**

---

DC2 # n Set printing density

Format:                ASCII:    DC2 # n  
                           Decimal:    18 35 n  
                           Hexadecimal: 12 23 n

---

Description: D4..D0 of n is used to set the printing density  
                           Density is  $50\% + 5\% * n(D4-D0)$  printing density  
 D7..D5 of n is used to set the printing break time  
                           Break time is  $n(D7-D5)*250us$

---

DC2 T Printing test page

Format:                ASCII:    DC2 T  
                           Decimal:    18 84  
                           Hexadecimal: 12 54

---

Description: Printing the test page

# APPENDIXA: CODE PAGE

## PC437

|   | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Ç | ù | é | â | ä | à | å | ç | ê | ë | è | ï | î | ì | Ä | Å |   |
| 9 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ç | £ | ¥ | ₣ | f |   |
| A | á | í | ó | ú | ñ | Ñ | ª | º | ¿ | ¬ | ½ | ¼ | ; | « | » |   |   |
| B | ⋮ | ⋮ | ⋮ |   | ┌ | ┐ | ┌ | ┐ | ┌ | ┐ | ┌ | ┐ | ┌ | ┐ | ┌ | ┐ |   |
| C | L | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ |
| D | └ | ┘ | └ | L | L | └ | ┘ | └ | ┘ | └ | ┘ | ■ | ■ | ■ | ■ | ■ |   |
| E | α | β | Γ | π | Σ | σ | μ | τ | Φ | Θ | Ω | δ | ∞ | φ | ε | ∩ |   |
| F | ≡ | ± | ≥ | ≤ |   | J | ÷ | ≈ | ° | · | · | √ | n | ² | ■ |   |   |

## PC850

|   | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Ç | ù | é | â | ä | à | å | ç | ê | ë | è | ï | î | ì | Ä | Å |   |
| 9 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ø | £ | ∅ | × | f |   |
| A | á | í | ó | ú | ñ | Ñ | ª | º | ¿ | © | ¬ | ½ | ¼ | ; | « | » |   |
| B | ⋮ | ⋮ | ⋮ |   | ┌ | ┐ | Á | Â | À | © | ┌ | ┐ | ┌ | ┐ | ç | ¥ | ┐ |
| C | L | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | └ | ┘ | ○ | ○ |
| D | ø | Ð | Ê | Ë | È | I | Í | Î | Ï | ┌ | ┐ | ■ | ■ | ; | Ì | ■ |   |
| E | Ó | β | Ô | Ò | õ | Õ | μ | þ | Ɔ | Ú | Û | Ü | Ý | Ý | ˉ | ˘ |   |
| F | - | ± | = | ¾ | ¶ | § | ÷ | , | ° | ¨ | · | ¹ | ³ | ² | ■ |   |   |