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第一章 简介 Introduction

性能特色 Features

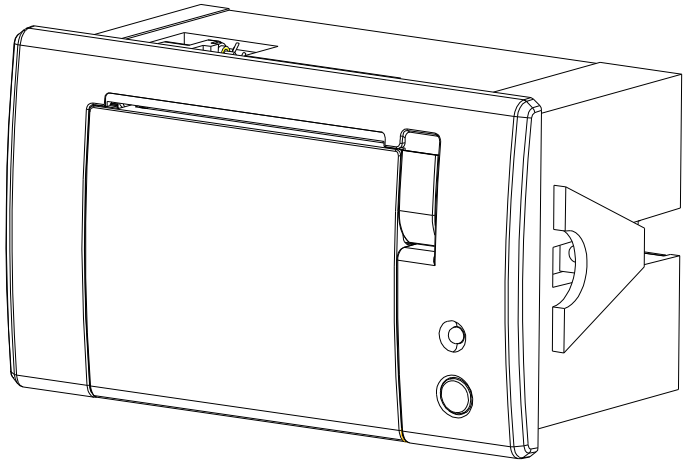
- 低噪音的直接热敏打印方式 Low-noise direct thermal printing method
- 打印控制板内置 GB18030 中文字库，彻底免除生僻字的苦恼 Printer control panel built-in GB18030 Chinese character, thoroughly remove the uncommon words of anguish
- 打印速度快，噪声低 Fast printing speed, low noise
- 可装最大纸卷直径 39MM 的打印纸，同类型中最大纸卷 can support Max.39MM (diameter) paper roll , that is bigest 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

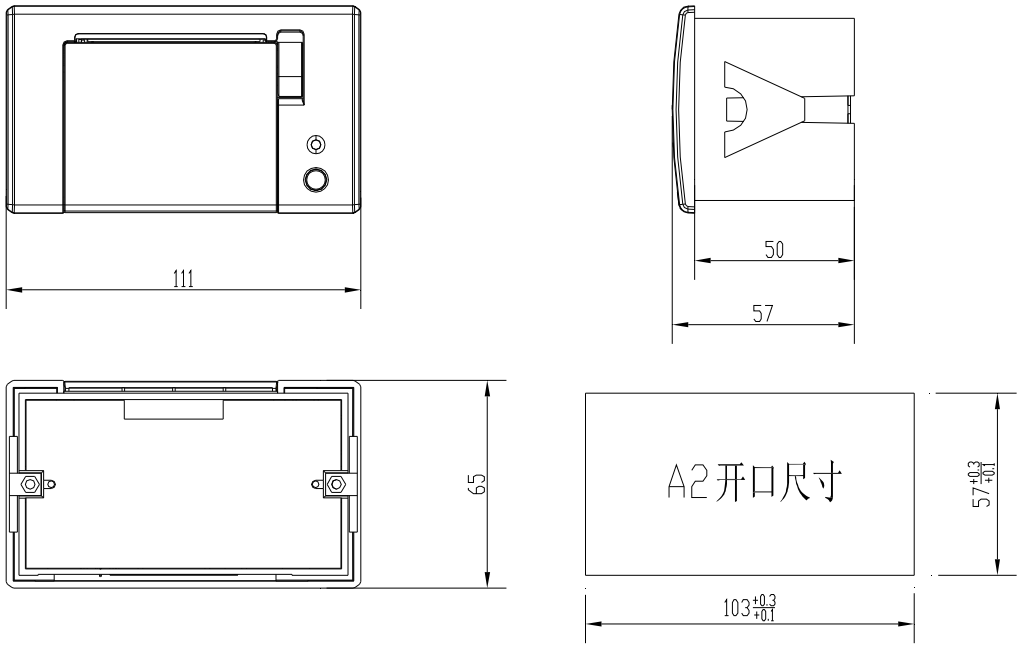
第二章 规格说明 Specifications

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.

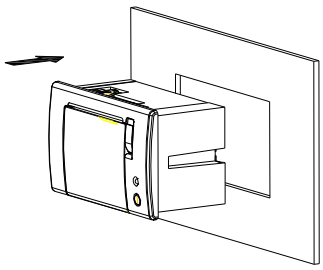


Fig 1

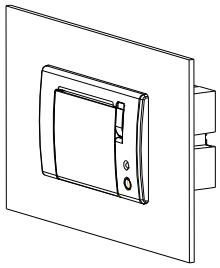


Fig 2

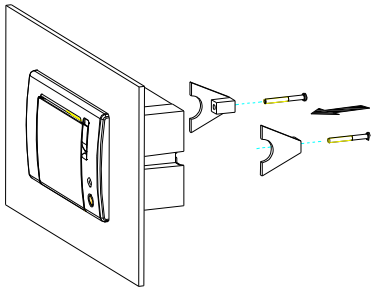


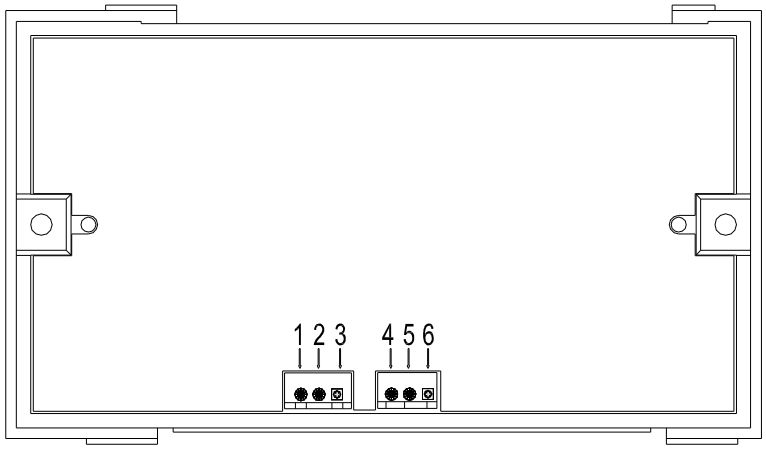
Fig 3

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 gerneral 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

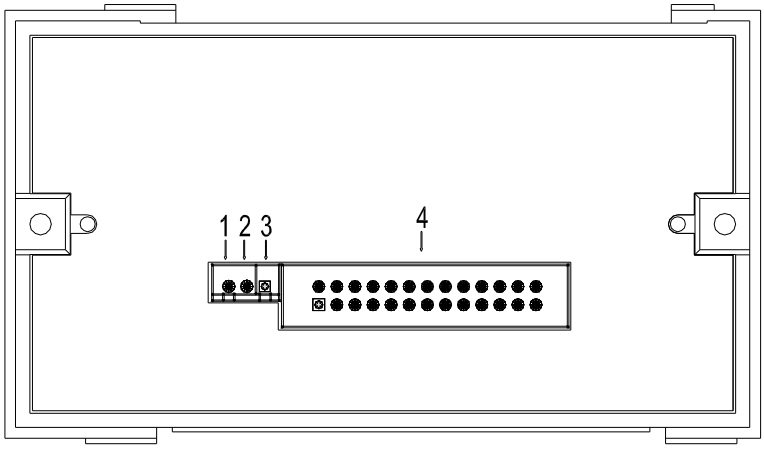
14 ，AUTO FEED 自动换行 auto change line

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 rollor,

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 rollor

换纸时将开关向上板启就可进行易装纸动作。

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

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；

Powe 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 wll 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 manufatures ETC, when using the printer,to protect the inner elctrontic 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粘染其他异物，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，当热敏头上粘染棕榈油时，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 continously,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 sensetive of the paper will infuence print effect,meanwhile,rough paper will incease 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 Cancle the double width and height
	ESC E n	Set or Cancle bold font
	ESC SP	Set the space between chars
	ESC SO	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 ?	Cancle 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 descripted as followed format:

CMD		Function
Format	ASCII	List by ASCII characters
	Decimal	LIST BY DECIMAL CHARACTERS
	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. 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 ⩽ m ⩽ 2 or 48 ⩽ m ⩽ 50 Align left: n=0,48 Aligh 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	
	0 ≤ m ≤ 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.

BIT0:

BIT1: 1: Reverse mode selected
0: Reverse mode not selected

BIT2: 1: Updown mode selected
2: Updown mode not selected

BIT3: 1:Emphasized mode selected
0:Emphasized mode not selected

BIT4: 1:Double Height mode selected
0:Double Height mode not selected

BIT5: 1:Double Width mode selected
0:Double Width mode not selected

BIT6: 1:Deleteline mode selected
0:Deleteline mode not selected

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	
	1: height enlarge	
	D7..4 0: width don't enlarge	
	1: width enlarge	

ESC E n		Set and cancle bold font
Format	ASCII	ESC ! n

	Decimal	27 69 n
	Hexadecimal	1B 45 n
Description	D0: 0: normal 1: bold	

ESC SP n — Set and cancle bold font

Format	ASCII	ESC SP n
	Decimal	27 32 n
	Hexadecimal	1B 20 n
Description	D0: 0: normal 1: bold	

ESC SO — Select Double Width

Format	ASCII	ESC SO
	Decimal	27 14
	Hexadecimal	1B 0E
Description	Select Double Width mode 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	**27 123 N**
	Hexadecimal	1B 7B n
Description	n=1:Enable Updown mode n=0:Disable Updown Mode Default value is 0	

GS B n — Turn white/black reverse printing mode or

Format	ASCII	ESC B n
	Decimal	29 66 n
	Hexadecimal	1D 42 n
Description	n=1:Enable white/black reverse mode n=0:Disable white/black reverse mode 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 characte

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≤ n ≤ m < 127

s: Character height bytes, =3(24dots)

w: Character width 0～12(s=3)

n: User-defined character starting code

m: User-defined characters ending code

dx:data, x=s*w

s=3 dx format:

d1	d4	d7								
d2	d5	d8								
d3	d6	d9								d36

Dx	D7
	D6
	D5
	D4
	D3
	D2
	D1
	D0

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 interal character.

ESC R n — Select an internal character set

Format	ASCII	ESC R n
	Decimal	**27 82 N**
	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	**27 116 N**
	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 specifed 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 defineds 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 define, it is avaiable until

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

x=1～48(width), y＝1～255(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

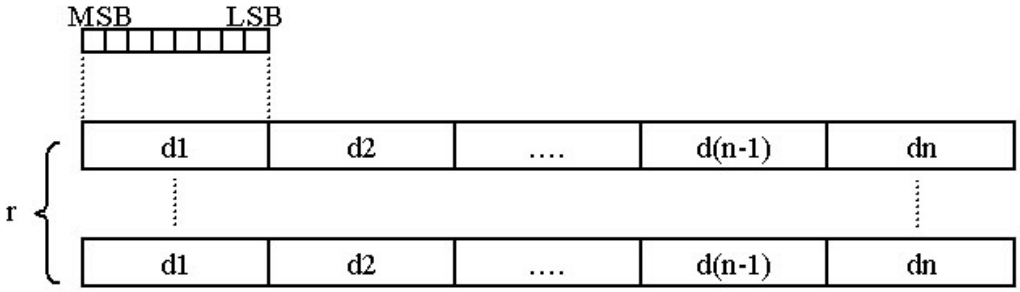
0: bitmap don't need double height

W=wL+wH*256 mean horital bytes

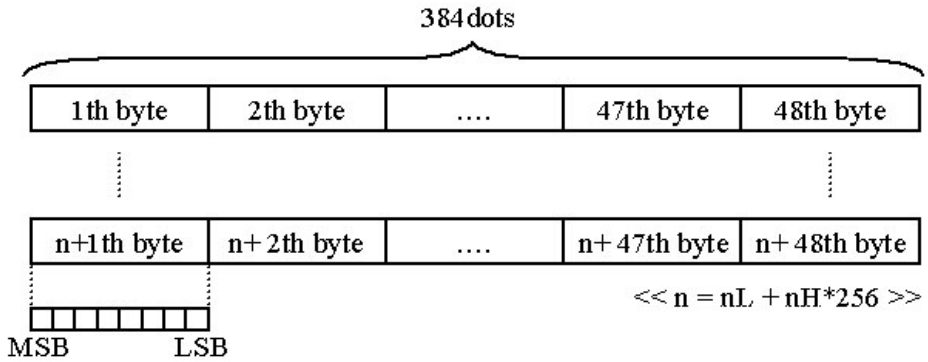
H=wL+wH*256 mean vertical dots.

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

DC2 * r n [d1...dn]		位图打印
Format	ASCII	DC2 * r n [d1 ... dn]
	Decimal	18 42 r n [d1 ... dn]
	Hexadecimal	12 2A r n [d1 ... dn]
Description	Printing bitmap with width & height r: Bitmap height n: Bitmap width Bitmap format:	

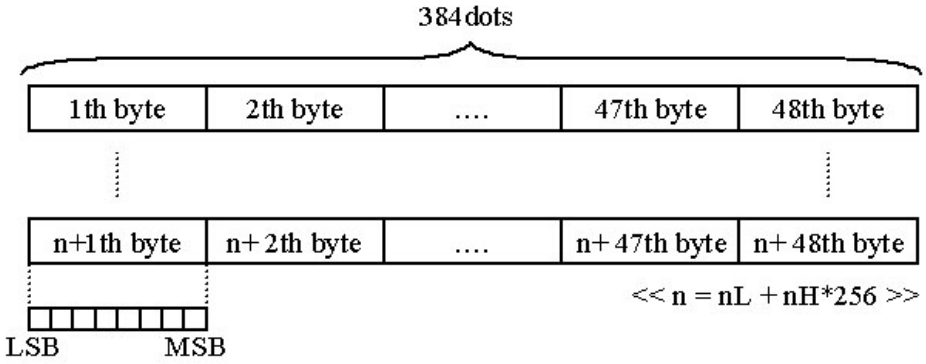


DC2 V nL nH [d1...dn]		Print MSB Bitmap
Format	ASCII	DC2 V nL nH [d1 ... d48]
	Decimal	18 86 nL nH [d1 ... d48]
	Hexadecimal	12 56 nL nH [d1 ... d48]
Description	This command use to print MSB format bitmap, The width of bitmap must the same as the printer mechanism Bitmap height: nL+nH*256 Bitmap format:	



DC2 v nL nH [d1...dn]		Print LSB Bitmap
Format	ASCII	DC2 v nL nH [d1 ... d48]
	Decimal	18 118 nL nH [d1 ... d48]
	Hexadecimal	12 76 nL nH [d1 ... d48]

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 effection. 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 definetion:

bit0: Drawer status.

bit4: 0

Always return 0 back.

5.2.8 Bar Code Command

GS H n		Select printing position of human readable characters
Format	ASCII	GS H N
	Decimal	29 72 n
	Hexadecimal	1D 48 n
Description	0 ≤ n ≤3 48 ≤ n ≤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 Positioin 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 ≤ n ≤ 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	29 119 N
	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 GS k m n d1 d2 ... dn			Print barcode symbology
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 ≤ M ≤ 10

FORMAT 2: 65 ≤ M ≤ 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 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 heting dots, the more peak current will cost whenprinting, 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 printingspeed.

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	0	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	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	¢	£	¥	₧	ƒ
A	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
B	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	

PC850

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	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	£	Ø	×	ƒ
A	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D	ð	Ð	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F	-	±	‗	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	