Label command

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1.Introduction

① HS-K23_ V2.1

HS-K23 is a thermal printer with auto-cutter. It has good printing quality and high stability, which is widely used in POS system, food service industry and many other fields.

HS-K23 connects other devices via Serial or USB port. It offers drivers for WINDOWS and LINUX operating systems.

The supported operating systems are as below:

WINDOWS XP

WINDOWS 7 32/64

WINDOWS 8

UBUNTU 12.04 32/64

UBUNTU 14.04 32/64

② Main features

2）Good printing quality

3）Support USB、serial port

4）Support continuous paper printing

5）Support Label Paper Printing

2. PIN definition

3.1 J2 USB

Pin number	Name	function
1	VUSB	+5V
2	D-	Data-
3	D+	Date+
4	GND	GND

3.2 J1 POWER

Pin number	Signal name	function
1	VIN(+12/24v)	+12/24V
2	GND	GND

3.3 J4 RS232

Pin number	Signal name	function
1	DTR (printer output)	output
2	TX(Tx, printer output)	output
3	RX(Rx, printer input)	input
4	GND	GND

3.4 J3 Cash box

Pin number	Signal name
1	VDR
2	DRAWER

4 Specifications

Printing Method	Thermal Label printing
Paper Width	58mm
Printing Width	48mm
Resolution	203DPI
Each row of points	384dots
Printing speed	100mm/s
Support printing content	GBK, ASCII character, Bar code, Support for different density point bitmap and download the bitmap print, QR code.
Default font	9X17、9X24、8X16(ASCII),24x24(GBK)

Label command

Appoint

Name	Appoint
Code	[COMMAND]+[Parameter]
description	COMMAND: command header identifying the action instruction, hexadecimal number, blue bold, such as: 1A 54 00. Parameter: Instruction input parameter. Parameter definition: Single-byte parameters: A specific character represents a single byte, such as Rotate, which represents a rotation and occupies one byte. Double-byte parameters: A specific character is combined with _L and _H, which in turn indicates the lower and upper bytes of the parameter. For example, x_L and x_H sequentially indicate the lower byte and upper byte of the 2-byte parameter X. Unit: Point. 1 point = 0.125mm. Range definition: x range of values: {a, b} :x = a or x = b; [a, b] :a≤x≤b; (a, b) :a<x<b;
Range of parameters	
Defaults	
Support model	
Notice	
examples	

Page Control command

Page start command

Name	Page start
Code	Hexadecimal ： a： 1A 5B 00 b： 1A 5B 01 x_L x_H y_L y_H Width_L width_H Height_L Height_H Rotate
description	Indicates the beginning of a Page, and sets the Page size, reference point coordinates, and page rotation angle. a: Input Parameters: None Return Value: None Remarks: This instruction sets the page to 576 points wide and 1200 points high, and the reference point coordinate position is the upper left corner of the current position. The page does not rotate. b: input parameters: x Page Page Reference Origin Offset The x-axis offset of the upper left corner of the current position of the label sheet. y Page Page Reference Origin Offset The y-axis offset of the upper left corner of the current position of the label sheet. Width Page Page width. The range of x+Width is: [1,576]. Height Page Page height. The range of Heigth is: [1, 1200]. Rotate Page rotation angle, Rotate value range: {0,1}. When Rotate is 0, the page does not rotate. When Rotate is 1, the page is rotated 90° to print. Return value: None.
Range of parameters	
Defaults	
Support model	
Notice	
examples	1A 5B 01 00 00 00 00 80 01 40 01 00

Page end command

Name	Page end command

Code	Hexadecimal ： 1A 5D 00
description	Identifies the end of a Page data. Input parameters: no. return value: no.
Range of parameters	
Defaults	
Support model	
Notice	
examples	

Page Print Command

Name	Page print command
Code	Hexadecimal ： a：1A 4F 00 　　　　　　b：1A 4F 01 PrintNum
description	Print the contents of the Page onto the label sheet. a: Input parameters: no Return value: None Note: This command only prints the page content once. b: Input parameters: PrintNum Page Page content will print PrintNum times. return value: no.
Range of parameters	
Defaults	
Support model	
Notice	
examples	

Feed Command

Name	Feed Command

Code	Hexadecimal ： a: 1A 0C 00 b: 1A 0C 01 Stop Position Offset_L Offset_H

description	a;
	   Input parameters:
	 no.
	 return value:
	 no.
	 Remarks:
	 After receiving this command, the printer feeds paper, and when the label seam is flush with the paper cutting port, the paper feed is stopped. At this time, the printer
	 Current cursor position, 8mm below the label head
	 b:
	   Input parameters:
	 StopPosition
	 Mark the stop position of the paper, the value range: {0, 3}.
	 StopType = 0, stop paper feed at the position where the paper cutting port is flush with the label seam;
	 StopType = 1, the cursor and the label head are at the same level to stop the paper feeding;
	 StopType = 2, stop the paper feed at the position where the paper cutting port is flush with the black mark;
	 StopType = 3, the cursor stops at the same place as the black label is flush with;
	 Offset
	 Identifies the stop position offset. When the printer detects the label head or label, it continues to feed the length of Offset points.
	 return value:
	 no.

Range of parameters	
Defaults	
Support model	
Notice	
examples	1A 0C 01 00 00 01

Page drawing command

In the following command, all coordinate points whose reference origin is the reference point defined in the Page Start command. The command descriptions Page_Width and Page_Height represent the page width and height defined in the respectively.

Text drawing Command

Name	Text Drawing Command

Code	Hexadecimal ：
	
	a.
	
	       1A 54 00 x_L x_H
	       y_L y_H
	       String00
	  b :
	     1A 54 01 x_L x_H
	     y_L y_H
	     FontHeight_L FontHeight_H
	     FontType_L FontType_H
	     String00

description	a. Input parameters: x Defines the x coordinate of the starting position of the text. Value range: [0, Page_Width-1]; y Define the starting position of the text y-coordinate, value range: [0, Page_Height-1]; String00 The stream of text string data to be terminated at 0x00 for printing. return value: no Note: Text is cut off and printed when the sum of the text width and the text start coordinate x is greater than the page width. b. Input parameters: X

Defines the x coordinate of the starting position of the text. Value range: [0, Page_Width-1];

y

Define the starting position of the text y-coordinate, value range: [0, Page_Height-1];

FontHeight

Text character font height, valid values range {16, 24, 32, 48, 64, 80, 96} (individual models {16, 17, 18, 24}).

FontType

Text character effects, you define as follows::

Data bits	definition
0	Bold flag: set 1 font bold, clear font is not bold.
1	Underline flag: Set to 1 underlined text, clear to zero underlined.
2	Reverse white flag: Set 1 text against white (white on black), clear is not inverted.
3	Delete line flag: set 1 text with strikeout, clear without delete line。
[5,4]	Rotation flag: 00 Rotation 0°; 01 Rotate 90°; 10 Rotate 180°; 11 Rotate 270°. (When the need to rotate is the need to pay attention to the starting point coordinates)
[11,8]	Font width magnification;
[15,12]	Font height magnification;

The stream of text string data to be terminated at 0x00 for printing.

Return value: None.

Remarks:

When the sum of the text width and the text start coordinate x is greater than the page width, the text is truncated and printed.

Range of parameters	
Defaults	
Support model	
Notice	
examples	**A：** 1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00 1A 54 00 00 00 00 00 B0 AE CE D2 D6 D0 BB AA 00 1a 5d 00 1a 4f 00 **B：**

	1a 5B 01 00 00 00 00 80 01 00 01 00 **1A 54 01** **00 00** **00 00** **60 00 00 00** **C4E3BAC3 00** **1A 54 01** **18 00** **00 00** **60 00 00 00** **C4E3BAC3 00** **1A 54 01** **a0 00** **00 00** **60 00 10 33** **C4E3BAC3 00** **1a 5d 00** **1a 4f 00**

Line drawing Command

Name	Line Drawing Command
Code	Hexadecimal ： a. 　　　1A 5C 00 StartX_L StartrX_H 　　　StartY_L StartrY_H 　　　EndX_L EndX_H 　　　EndY_L EndY_L 　　　b. 　　　1A 5C 01 StartX_L StartX_H 　　　StartY_L StartY_H 　　　EndX_L EndX_H 　　　EndY_L EndY_H 　　　Width_L Width_H 　　　Color
description	Draw a line segment between two points specified on the Page. a. Input parameters: StartX

	The x coordinate value of the starting point of the straight line segment. The value range is [0, Page_Width-1]. StartY The y coordinate value of the starting point of the straight line segment. The value range is [0,Page_Height-1]. EndX The x-coordinate value of the end point of the straight line segment. The value range is [0, Page_Width-1]. EndY The y coordinate value of the end point of the straight line segment. The range of values is [0, Page_Height-1]. return value: no. b. Input parameters: StartX The x coordinate value of the starting point of the straight line segment. The value range is [0, Page_Width-1]. StartY The y coordinate value of the starting point of the straight line segment. The value range is [0,Page_Height-1]. EndX The x-coordinate value of the end point of the straight line segment. The value range is [0, Page_Width-1]. EndY The y coordinate value of the end point of the straight line segment. The range of values is [0, Page_Height-1]. Width Line segment width, value range: [1, Page_Height-1]. Color Line segment color, value range: {0, 1}. When Color is 1, the line segment is black. When Color is 0, the line segment is white. Output parameters: no.
Range of parameters	
Defaults	
Support model	
Notice	
examples	1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00 1A 5C 01 00 00 00 00 00 01 00 00 30 00 01 1a 4f 00

Draw a rectangle with a segment instruction

1B 40 1a 5B 01 00 00 00 00 80 01 00 01 00

1A 5C 01 10 00 10 00 00 01 10 00 04 00 01

1A 5C 01 10 00 10 00 10 00 c0 00 04 00 01

1A 5C 01 10 00 c0 00 00 01 c0 00 04 00 01

1A 5C 01 00 01 10 00 00 01 c0 00 04 00 01

1a 4f 00

Rectangular box drawing Command

Name	Rectangular Box Drawing Command
Code	Hexadecimal ： a. 　　　1A 26 00 Left_L Left_H 　　　Top_L Top_H 　　　Right_L Right_H 　　　Bottom_L Bottom_H 　　b. 　　　1A 26 01 Left_L Left_H 　　　Top_L Top_H 　　　Right_L Right_H 　　　Bottom_L Bottom_H 　　　Width_L Width_H 　　　Color
description	Draws a rectangle of a specified size at a specified position on the Pages page. a. Input parameters: Left The x coordinate value of the upper left corner of the rectangle, in the range of [0, Page_Width-1]. Top The y coordinate value of the upper left corner of the rectangle. Value range: [0, Page_Height-1]. Right The x coordinate value of the lower right corner of the rectangle. Value range: [0, Page_Width-1]. Bottom The y-coordinate value in the lower right corner of the rectangle. Value range: [0, Page_Height-1]. return value: no. b.

	Input parameters: Left The x coordinate value of the upper left corner of the rectangle, in the range of [0, Page_Width-1]. Top The y coordinate value of the upper left corner of the rectangle. Value range: [0, Page_Height-1]. Right The x coordinate value of the lower right corner of the rectangle. Value range: [0, Page_Width-1]. Bottom The y-coordinate value in the lower right corner of the rectangle. Value range: [0, Page_Height-1]. Width The width of the rectangle. Color The color of the rectangular frame, the straight range {0, 1}. When Color = 1, draw a black rectangle wide, and when Color = 0, draw a white rectangle. Return parameters: none
Range of parameters	
Defaults	
Support model	
Notice	
examples	1a 5B 01 00 00 00 00 80 01 40 01 00 1a 26 01 10 00 10 00 00 01 00 01 10 00 01 1a 4f 00

```
1B 40  1a  5B  01  00  00  00  00  80  01  40  01  00
1a  26  01  10  00  10  00  00  01  00  01  10  00  01
1A  54  00  50  00  50  00  B0  AE  CE  D2  D6  D0  BB  AA  0X00
1a  4f  00


(draw a table)
1B 40  1a  5B  01  00  00  00  00  80  01  40  01  00
1a  26  01  10  00  10  00  00  01  C0  00  04  00  01
1A  5C  01  10  00  40  00  00  01  40  00  04  00  01
1A  5C  01  10  00  80  00  00  01  80  00  04  00  01
1A  5C  01  40  00  10  00  40  00  c0  00  04  00  01
1A  54  00  50  00  50  00  B0  AE  CE  D2  D6  D0  BB  AA  00
1a  4f  00
```

Draw rectangular block Command

Name	Draw Rectangular Block Command

Code	Hexadecimal ： 1A 2A 00 Left_L Left_H
	                    Top_L Top_H
	                    Right_L Right_H
	                    Bottom_L Bottom_H
	                    Color

description	Draw rectangular blocks at the specified position on the Pages page. Input parameters: Left The x coordinate value of the upper left corner of the rectangular block. The value range is [0, Page_Width-1]. Top The y coordinate value of the upper left corner of the rectangle. Value range: [0, Page_Height-1]. Right The x-coordinate value of the lower right corner of the rectangle. Value range: [0, Page_Width-1]. Bottom The y-coordinate value in the lower right corner of the rectangle. Value range: [0, Page_Height-1]. Color The color of the rectangle, range: {0, 1}. When Color is 1, the rectangular block is black. When Color is 0 The rectangle is white. return value: no.
Range of parameters	
Defaults	
Support model	
Notice	
examples	1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00 1A 2A 00 00 00 00 00 60 00 60 00 01 1a 4f 00

1D Barcode Command

Name	1D Barcode Command

Code	Hexadecimal ：
	
	        1A 30 00 x_L x_H
	            y_L y_H

	BarcodeType BarcodeHeight UnitWidth Rotate String00
description	Draw a one-dimensional bar code at the specified position on the Page . Input parameters: x The x-coordinate value of the upper left corner of the bar code, value range: [0, Page_Width-1]. y The y-coordinate value in the upper left corner of the bar code, in the range of [0, Page_Height-1]. BarcodeType Identifier barcode type, value range: [0,29]. The values are defined as follows:BarcodeType Identifier barcode type, value range: [0,29]. The values are defined as follows：

value	Type	length	Barcode value range	remark
0	UPC-A	11	48-57	
1	UPC-E	6	48-57	
2	EAN13	12	48-57	
3	EAN8	7	48-57	
4	CODE39	1-	48-57,65-90,32,36,37,43,45,46,47	
5	I25	1-	even 48-57	
6	CODABAR	1-	48-57,65-68,36,43,45,46,47,58	
7	CODE93	1-255	0-127	
8	CODE128	2-255	0-127	
9	CODE11			
10	MSI			
11	128M			Can switch coding modes according to data -> !096 - !105
12	EAN128			Automatically switch encoding mode
13	25C			25C Check use mod 10->

					The odd number is first complemented by 0, a multiple of 10 - [(sum of odd-numbered digits <left to right) + (sum of even-numbered digits) *3]
	14	39C			39 The check code of Code 39 must be matched with the "check code relative value comparison table". As shown in the table, the relative values that are detected are accumulated and divided by 43. The remaining code is then checked against the relative code character, which is the check code.。
	15	39			Full ASCII 39 Code, Special characters are represented by two representable words, 39C also contains Full ASCII, note width-to-width ratio processing
	16	EAN13 +2			The additional code is separated from the main code by 7-12 units, starting at 1011 with the interval 01, (_0*10+_1) Mod 4-> 0--AA 1--AB 2--BA 3--BB
	17	EAN13 +5			The additional code part is the same as the above pattern ((_0+_2+_4)*3+(_1+_3)*9) mod 10 ->"bbaaa", "babaa", "baaba", "baaab", "abbaa", " Aabba", "aaabb", "ababa", "abaab", "aabab
	18	EAN8+ 2			Same EAN13+2
	19	EAN8+ 5			same EAN13+5
	20	POST			For details, see the specification, which is the

				height and width of the bar code.
21	UPCA+2			same EAN
22	UPCA+5			same EAN
23	UPCE+2			Same as EAN
24	UPCE+5			Same as EAN
25	CPOST			
26	MSIC			Check code again as data check code
27	PLESSEY			
28	ITF14			25C variant, the first number is filled with zeros. The last number must be deducted when checking the code, but it is still filled with the last one.
29	EAN14			

Barcode Height :
Define bar code height。
UnitWidth :
Define barcode code width. Value range: [1, 4]. The values are defined as follows：

Width Value	Multi-level bar code unit widt（mm）	Binary barcode narrow line width	Binary barcode wide line width
1	0.125	0.125	0.25
2	0.25	0.25	0.50
3	0.375	0.375	0.75
4	0.50	0.50	1.0

Rotate:
Indicates the bar code rotation angle. Value range: [0, 3]. The values are defined as follows：

Rotate Value	definition
0	Barcode does not rotate to draw。
1	Barcode rotation 90° drawing。
2	Barcode rotation 180°。
3	Barcode rotation 270° drawing。

	String00: Text character stream ending with 0x00. return value: no.
Range of parameters	
Defaults	
Support model	
Notice	

examples	（2 Inch paper）
	    1b 40
	    1a 5B 01 00 00 00 00 80 01 00 01 00
	    1a 30 00
	    20 00
	    40 00
	    0f
	    55
	    02
	    00
	    31 30 31 30 30 00
	    1a 5d 00
	    1a 4f 00

QRCode Command

Name	QRCode Command

Code	Hexadecimal ： 1A 31 00
	    version
	    ECC
	    x_L x_H
	    y_L y_H
	    UnitWidth
	    Rotate
	    String00

description	Input parameters： version Specify the character version. Value range: [0,20]. When the version is 0, the printer based on the length of the string The version number is calculated automatically. ECC Specify the error correction level. Value range: [1, 4]. The values are defined as follows：

ECC	Error correction level

	1	L：7%，Low error correction, more data.
	2	M：15%，middle error Correction
	3	Q：Optimize error correction
	4	H：30%，Highest error correction, less data。
	The upper left corner of the QRCode code x coordinate value, the range of values: [0, Page_Width-1]. y The y-coordinate value in the upper left corner of the QRCode code, in the range [0, Page_Height-1]. UnitWidth QRCode code block, value range: [1, 4]. Value definition and command input parameters UniWidth the same. Rotate QRCode rotation angle, value range: [0, 3]. Value definition and command input parameters Same as Rotate. String00 QRCode text character stream terminated at 0x00. return value: no.	
Range of parameters		
Defaults		
Support model		
Notice		
examples	1B 40 1a 5B 01 00 00 00 00 00 80 01 40 01 00 1A 31 00 03 03 60 00 20 00 04 00 B0 AE CE D2 D6 D0 BB AA 00 1a 5d 00 1a 4f 00	

PDF417 Barcode command

Name	PDF417 Barcode Command
Code	Hexadecimal ：1A 31 01 ColNum ECC LWRatio x_L x_H y_L y_H UnitWidth

	Rotate String00
description	Page Specifies the location to draw PDF417 barcodes. Input parameters: ColNum ColNum is the number of columns that describe how many codewords are contained in each row. One codeword is 17*UnitWidth points. The number of rows is automatically generated by the printer, and the number of rows is limited to 3 to 90. The range of values for ColNum: [1,30]; ECC Error correction level, value range: [0. 8]. The upper left corner of the PDF417 code x coordinate value, the range of values: [0, Page_Width-1]. Y coordinate value of upper left corner of PDF417 code, range of values: [0, Page_Height-1]. UnitWidth PDF417 code width, value range: [1, 3]. Value definition and command input parameters UniWidth the same. Rotate PDF417 code rotation angle, value range: [0, 3]. Value definition and command input parameters Same as Rotate. String00 PDF417 text character stream terminated at 0x00. return value: no.
Range of parameters	
Defaults	
Support model	
Notice	
examples	1B 40 1a 5B 01 00 00 00 00 00 80 01 40 01 00 1A 31 01 10 02 02 50 00 20 00 03 00 B0 AE CE D2 D6 D0 BB AA 0X00 1a 4f 00

Bitmap Command

Name	Bitmap Command

Code	Hexadecimal ：
	    a：1A 21 00
	      x_L x_H

	y_L y_H
	
	Width_L Width_H
	
	Height_L Height_L
	
	Data
	
	b：
	
	  1A 21 01
	  x_L x_H
	  y_L y_H
	  Width_L Width_H
	  Height_L Height_L
	  ShowType
	  Data

description	Draw a bitmap at the specified position on the Page. a : Input parameters: x The x-coordinate value in the upper left corner of the bitmap. Value range: [0, Page_Width]. y The y-coordinate value in the upper left corner of the bitmap, in the range [0, Page_Height]. Width Bitmap pixel width. Height Bitmap pixel height. Data Bitmap bitmap data. Return value: None. b : Input parameters: x The x-coordinate value in the upper left corner of the bitmap. Value range: [0, Page_Width]. y The y-coordinate value in the upper left corner of the bitmap, in the range [0, Page_Height]. Width Bitmap pixel width. Height

	Bitmap pixel height.
	ShowType Bitmap printing effects，Each bit of the ShowType value is defined as follows:

bits	definition
0	Invert flag, set bitmap to reverse printing, clear normal printing.
[2:1]	Rotation flag: 00 Rotate 0°; 01 Rotate 90°; 10 Rotate 180°; 11 Rotate 270°
[7:3]	Reserved。
[11:8]	Bitmap width magnification。
[15:16]	Bitmap height magnification。

	Data Bitmap bitmap data. Return value: None.
Range of parameters	
Defaults	
Support model	
Notice	
examples	1a 5B 01 00 00 00 00 80 01 40 01 00 1a 21 01 40 00 40 00 18 00 18 00 07 22 0820800E38E00C30C80C34FC0DFF980E31102D32242DFDFE2CB58C6CB58C6CB5AC4CB5AC0CFDAC0C31AC0C71AC0C71AC0CB9AC0CB5280D34400E30580C308C0C31060C3204082400 1A 5D 00 1a 4f 00