Kalstein®

Thermal Printer
YR0176
Operation User's Manual

Thank you very much for purchasing our Thermal Printer YR0176..

Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the "Warranty" at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

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DECLARE

§ **This product belongs to A grade, maybe it will cause radio disturbance at natural environment, in such circumstances, needs that the user takes practicable measures for it.**

Security Information

To use your printer in effectiveness and security, please obey the following rules.

→Before Use

- **To hold the true usage method, before using printer, please read this user's manual particularly.**
- **Please put this 《User's Manual》 on the convenient position, to take out reading and solving problems at any moment.**

→Notices in Security

If neglect the following notice matters, incorrect use may be bringing damage.

NOTICE

- ◇ **If occurred paper jams, make sure turning off button as the first step, waiting for ten seconds, to cool down the print head, and then clearing away the paper.**
- ◇ **Please don't set this product in the humid or dusty environment.**
- ◇ **No pressing, No dumping.**

Roller Paper

◇ **Make sure to use the specific roller paper which fit for this manual.**

◇ **Don't be used the roller paper which the end be felted on the paper axes, Or, the printer can't detect the end of roller paper exactly, may be could bring damage to printer; Also, can't choose the roller paper which without paper axes, Or, maybe when printing to the end, Paper jams occurred because of the paper is not enough.**

TABLE OF CONTENTS

Chapter I Introduction

1.1 Technique Specification

Item	Parameter
Printing Mode	Direct thermal line printing
Printing Speed	About 50 ㎜/second
Printing Width	57.5±0.5 ㎜
Printing Density	8dot/㎜, 384dot/line
Effective Printing Width	48 ㎜
Paper Solve Method	Manual cut
Delectation of Without Paper	Photo electricity Sensor
Life of Print Head	50KM

1.2Printing Paper

Item	Parameter
Roll Paper Type	Thermal paper
Specification of Roll Paper	Width:57.5 ±0.5 ㎜; Max Outer Diameter: ϕ50 ㎜
	Min Inner Diameter: ϕ10 ㎜; Thickness: 53～60g/㎡

1.3Printing Character

Item	Parameter
ANK Character Set	12×24dot, 1.25(width)×3.00(height) ㎜
International Standard I、II Class Chinese Font	24×24dot
	3.00(width) ×3.00(height) ㎜

1.4Interface Form

Item	Parameter
Serial Interface	D-SUB 25 thread socket(female), Support RTS/CTS; Baud rate: 9600bps;
	Data structure: 1 bit(start bit)+8bit(Data bit)+1bit or above (stop bit)
Parallel Interface	8 digit Parallel Interface, BUSY handshake protocol, PE without paper detect interface socket use D-SUB25 thread socket(male)
Cash Drawer	DC 12V, 2 A, 6 Thread RJ-11 Socket

Control	

1.5Control Command

Item	Parameter
Dot Printing Command	Support different density dot and load graphics printing
Character Printing Command	Support ANK character, user defined character and Chinese characters double width printing, double height printing, the gap of the characters are adjustable

1.6Power and Operating Environment Request

Item	Parameter
Power Supply	DC12V, 2A
Operating Temp	5～40
Operating Relative Humidity	10～80%
Storage Temp	－20～60℃
Storage Relative Humidity	10～90%

1.7 Dimension and Weight

Item	Parameter
Dimension	197(L)×120(W)×96.4(H)㎜
Weight	650g (Without Roller)

Chapter II Installation and Operation

2.1 Printer Dimension

Figure2-1 The printer dimension

2.2 Control Board

T58ZII Printer Board has one keys and three indicator lights, the graphic 2-2.1 as follows:

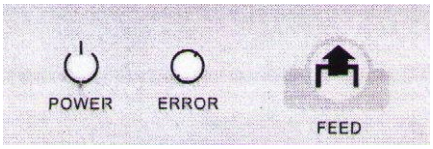


Figure 2-2.1 The sketch graphic of control board

2.3 Indicator light and key operation

Indicator:

□ Power light: Normal work, the green light is bright

□ Fault light: Abnormally, error indicator light will flash

Print head over temp

Print head over temp, error light flashed till restoring by itself.

□ No paper light, when the paper not be set well, or no paper, the light will be bright.

Key:

□ Under the general pattern, pressing the key, printer paper moved ahead.

□ Self-test pattern Installed the paper, and shut the cover lightly, First press the paper carrier button on the cutting power conditions, then turning on power supply, putting the paper carrier button away less than 5 seconds, the printer

moves to self-test pattern and print self-test list.

- Hex printing method: Installed the paper and pressed the paper carrier button and turned on the power supply, about 5 seconds, “No Paper” light is bright, this time loosen the button, print according to the information of hex printing method and print the data which received by interface according to hex printing method.
- Opening cover spanner: as the picture 2-2.2.

Opening cover spanner

Figure2-2.2 Opening cover spanner

2.4 Installing paper

The steps of installing thermal paper:

- Open the cover through pulling spanner as the picture 2-3.1.
- Install the roller paper into the paper storage as the picture direction, then pulling a part of paper along the paper storage and put flat on the print head as the picture 2-3.2.
- Put the cover down and close the cover lightly as the picture 2-3.2; Restore to the primary position, then, install the printing paper as the picture 2-3.4.

Picture 2-3.1 Open the cover

Picture 2-3.2 Install the paper

Picture 2-3.3 Close the cover

Picture 2-3.3 Installing finished

2.5 Interface connection

2.5.1 Serial interface connection

The serial interface of T58ZII printer is compatible with RS232C, supports RTS/CTS, and the interface socket is 25PIN female D model socket.

Per pin signal definition

Pin	Signal Name	Signal Source	Illustration
3	RXD	Host computer	Receive data
4	RTS	Printer	Could receive data
7	GND	------	Logically
2	TXD	Printer	Transmit data

The serial interface device which default by printer:

Baud rate: 9600bps

Data bit: 8 bits

Check-out: No

Stop bits: 1 bit or more than 1 bit

Handshake method: RTS/CTS

The serial interface of T58ZII printer can connect with standard RS-232C interface. When connecting with PC , the graphic as 2-2.4.

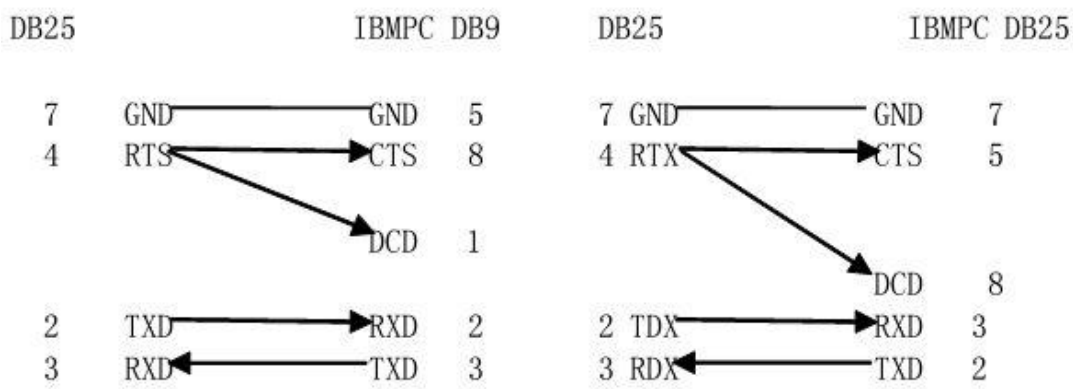


Figure2-4.1. The connection figure of printer serial interface and PC serial interface

2.5.2 Parallel interface connection

The parallel interface of T58ZII printer is 8 digit parallel interface, supporting BUSY handshake protocol , and the interface socket used DB25 thread socket(male).

Parallel interface signal per pin

Pin	Signal	Signal Source	Function
1	strobe	H	Data is selected through spring pulse, receiving data at decline.
2	DATA1	H	0------7 are data bits
3	DATA2	H	
4	DATA3	H	
5	DATA4	H	
6	DATA5	H	
7	DATA6	H	
8	DATA7	H	
9	DATA8	H	
10	nAck	P	Input impendence “high” level
11	BUSY	P	“High” level indicates that printer is “busy” now, can’t receive date
12	PE	P	“High” level indicates that print paper-end
13	SEL	P	Input impedance “high” level
15	nERR	P	Input impedance “high” level
14、16、17	NC		Not frame ground
17-18	GND		Frame ground

H: means computer, P: means printer

Refer to the parallel connection pattern interface signal time sequence as the graphic 2-4.2

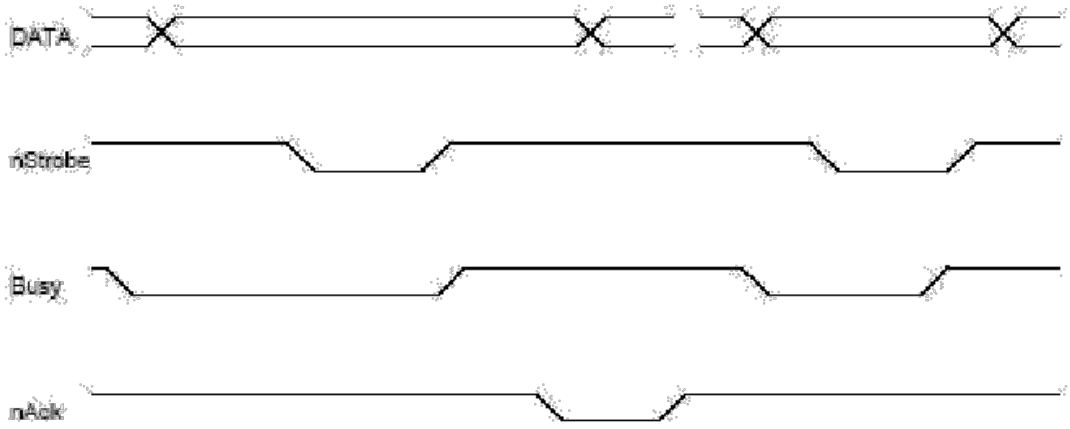


Figure 2-4.2. Parallel Interface Signal Time Sequence

2.5.3 Cash drawer interface

The cash drawer interface of T58ZII printer used RJ-11, 6 thread sockets, as the diagram 2-4.3

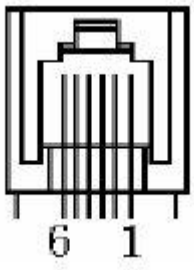


Figure 2-4.3. Cash drawer interface

Pin definition as follows:

Pin No.	Signal	Direction
1	Structure	------
2	Cash drawer drive signal	Output
3	Cash drawer on/off status signal	Input
4	Cash drawer power: DC12V/DC24V	Output
5	N.C.	------
6	Cash drawer on/off status signal ground	------

2.6 Clear print head

When printer used a period, and occurred the unclear character, should be cleaned at once, the steps as the flow:

□ Make sure that the power has turned off, and the power and communication cable have taken off.

□ Open the printer cover, and take the print paper out, then touch a little alcohol

which needed to use absorbent button, clean the dirtiness on the print head. □ After cleaning, wait for the alcohol which on the print head have volatilized, then installing the paper and closing the cover. At last, connecting power and turning into self-test, observing the cleaning effectiveness.

Chapter III Malfunction Exclusion

4.1 Command Illustration

Malfunction Phenomenon	Solution
Not electrified	Examine that the power adapter whether outputted voltage or not.
	Examine that the power output plug and printer whether connected well or not.
	Examine that the printer's power button whether opened or not.
Not carried the paper	Examine that the printer's roller paper whether used or not.
	Examine that the printer's roller paper whether jammed or not.
	Examine that the printer's test paper is dirty or not.
	Examine that the printer's cover pressing paper wheel whether pressed to position or not.
Printing unclear	Examine that the print head is dirty or not.
	Examine that the print paper is wet or not.
Not printed	Examine that the interface line of printer and PC whether connected well or not.

Chapter IV Printing Table

4.1 Command Illustration

Command	Illustration
LF	Print and change a new line
ESC J n	Print and feed paper n dot lines
ESC 2	Set character line spacing 1/6 feet
ESC 3 n	Set line spacing n dot lines(n/203 feet)
ESC ! n	Set character printing method
ESC SO	Permit character double width printing
ESC DC4	Cancel character double width printing
ESC % n	Permit/prohibit user-defined character
ESC & s n m	Set user-defined character
ESC c 5 n	Permit/prohibit pressing button command
ESC * m n1 n2 d1.....dk	Set dot command
ESC * n1 n2 d1.....dk	Defined load dot
GS / n	Print load dot
GS w n	Set bar code width
GS h n	Set bar code height
①GS k m d1.....dk NUL ②GS k m n d1 dn.....	Print bar code
ESC @	Initialization
ESC p m n1 n2	Cash drawer control
ESC v	Send the printing status to the host computer
ESC u n	Send the ambient equipment status to the host computer

4.2 Printing command

4.2.1 Printing command

LF

Print and change a new line

Form	ASCII: LF
	DECIMAL: 10
	HEX: 0A

Description	Printing content in the line buffer and move one paper line ahead, when line buffer is empty, only moving one line ahead

ESC J n

Print and feed paper n dot lines

form	ASCII: ESC J n
	DECIMAL: 27 74 n
	HEX: 1B 4A n
Description	Printing content in the line buffer and move n dot lines ahead(n/203feet) n=0～255
	This orders only effected to this line, not change the line spacing which set by ESC 2, ES 3 command

4.2.2 Setting command for line spacing

ESC 2

Set character line spacing 1/6 feet

Form	ASCII: ESC 2
	DECIMAL: 27 50
	HEX: 1B 32
	Set line spacing 1/6 feet

ESC 3 n

Set line spacing n dot lines(n/203 feet)

Form	ASCII: ESC 3 n
	DECIMAL: 27 51 n
	HEX: 1B 33 n
Description	Set line spacing n dot lines. n =0～255
	These orders set line spacing n/203 feet. Default value: n=30

4.2.3 Character printing command

ESC ! n

Set character printing pattern

Form	ASCII: ESC ! n
	DECIMAL: 27 33 n
	HEX: 1B 21 n

Description	Set line spacing n dot lines. n =0～255
	ESC ! n is a comprehensive character printing pattern setting orders, be used to choose the size of printing character. The default value of n is 0, that's to say, character isn't be extended. The definition of per printing parameter n as follows:
	 1: Double height printing 1: Double height printing

ESC SO

Permit character double width printing

Form	ASCII: ESC SO
	DECIMAL: 27 14
	HEX: 1B OE
Description	At the same line, all character's behinds this order be printed two times than the normal width.
	These orders could be deleted by Enter or DC3 command

ESC DC4

Cancel character double width printing

Form	ASCII: ESC DC4
	DECIMAL: 27 20
	HEX: 1B 14
Description	After executing these orders, character restored the normal width printing.

ESC % n

Enable/Disenable user-defined character

Form	ASCII: ESC % n
	DECIMAL: 27 37 n
	HEX: 1B 25 n
Description	When n =1, choose user-defined character fond; when n =0, choose interior character fond
	Default value n =0

ESC & s n m

Set user-defined character

Form	ASCII: ESC & S n m 〔a〔p〕s×a〕m－n＋1
	DECIMAL: 27 38 S n m 〔a〔p〕s×a〕m－n＋1
	HEX: 1B 26 S n m 〔a〔p〕s×a〕m－n＋1
Description	ESC & be used to define user-defined character. S=3, 32≤n≤m≤126 0≤a≤12, 0≤p≤255.
	s means the vertical bits, here s=3, n means the started ASCII code of user-defined character
	m means the end ASCII code of user-defined character, when only defining one character, takes n=m, could define at the most of 96 user-defined character
	a means level dot counts; p means user-defined character data, per character s ×a byte together defined m－n＋1 character.
	After defining, the user-defined character always effects, till defining again or reposition or turn off print.

4.2.4 Special Control Command

ESC c 5 n

Permit/prohibit pressing button command

Form	ASCII: ESC c 5 n
	DECIMAL: 27 99 53 n
	HEX: 1B 63 35 n
Description	When n=1, prohibit that the paper carrier button effects
	When n=0, permit that the paper carrier button effects, Default value is n=o

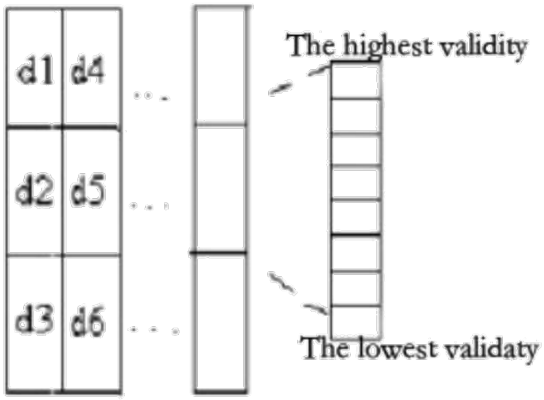
4.2.5 Dot Graphics Printing Command

ESC * m n1 n2 d1.....dk

Set dot command

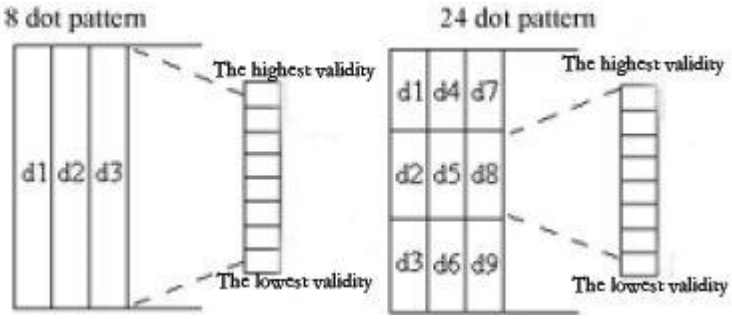
Form	ASCII: ESC * m n n1 n2 〔d〕k
	DECIMAL: 27 42 m n n1 n2 〔d〕k
	HEX: 1B 2A m n n1 n2 〔d〕k
Description	Set dot graphics pattern(takes m), dot counts(takes n1,n2) and dot graphics content (takes 〔d〕k)

	m=0, 1, 32, 33. n1=0～255, n2=0～3. d=0～255
	K=n1+256×n2(m=0,1); k=(n1+6×n2) ×3(m=32,33)
	Level dot counts is n1+256×n2
	If the dot counts over one line, the part which over the biggest dot count will be neglected(connected with the chosen dot graphics pattern, the specifics as the following table)



- d is dot graphics data byte, relevant dot is 1, which means that this dot should be printed; relevant dot is 0, which means that this dot shouldn't be printed.
- m be used to choose dot graphics pattern.

M	Mode	Vertical		Horizontal	
		Dot count	Dot density	Dot density	The most of dot counts
0	8 dots single density	8	68 DPI	101 DPI	192
1	8 dots double density	8	68 DPI	203 DPI	384
32	24 dots single density	24	203 DPI	101DPI	192
33	24 dots double density	24	203 DPI	203DPI	384

	 Dot graphics data(bit graphic) Dot graphics data(bit graphic)

GS / n

Print load dot

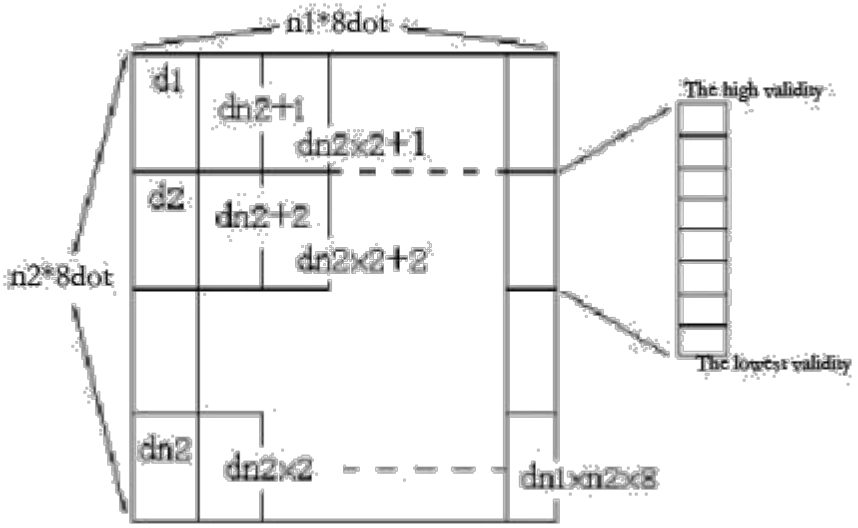
Form	ASCII: GS / n
	DECIMAL: 29 47 n
	DEX: 1D 2F n
Description	These orders be used to print load dot. n=0～3
	n be used to choose dot graphics pattern: could use GS * command to define dot graphics

n	Dot graphics pattern	Veridical density	Horizontal density
0	Normal pattern	203 DPI	203 DPI
1	Double width pattern	203 DPI	101 DPI
2	Double height pattern	101 DPI	203 DPI
3	Double height and width pattern	101 DPI	101 DPI

GS * n1 n2 d1.....dk

Defined load dot

Form	ASCII: GS * n1 n2 〔d〕k
	DECIMAL: 29 42 n1 n2 〔d〕k
	HEX: 1D 2A n1 n2 〔d〕k
Description	These orders be used to define load dot
	n 1=1～48, n2=1～255, n1×n2＜1200, k=n1×n2×8
	d is the dot graphics data; horizontal n1×8 dot; vertical n2×8; It always effects after loading dot graphics definition until taking new definition and reposition and recovery



4.2.6 Bar code command

GS w n

Set bar code width

Form	ASCII: GS w n
	HEX: 77 n
	DECIMAL: 29 119 n
Description	□ Set bar code horizontal size, 2≤n≤3 □ n be set the width of bar code as follows: N — Bar code: 2 — Normal; 3 — Wide bar code □ Support the below bar code: CODE 128, CODE 39, ITF Default value is n =2 Relevant command: GS K

GS h n

Set bar code height

Form	ASCII: GS h n
	HEX : 1D 68 n
	DECIMAL : 29 104 n
Description	□ Set bar code height, 1≤n≤255; □ n be set the vertical dot counts

	□ Default value is n=50 □ Relevant command: GS K

○1GS k m d1..... **dk NUL**

○2GS k m n d1..... **dn**

Print bar code

Form	①ASCII code: GS k m d1..... dk NUL
	HEX: 1D 6B m d1..... dk 00
	DECIMAL: 29 107 m d1..... dk 0
	②ASCII code: GS k m n d1..... dn
	HEX: 1D 6B m n d1..... dn
	DECIMAL: 29 107 m n d1..... dn
Description	□ Choose bar code system and print bar code: ① 4≤m≤5 (k and d decided by using bar code system) ② m=73 (n and d decided by using bar code system) □ m set the bar code system as follows:

M		Bar code system	Character units	Notes
①	4	CODE39	1≤K	48≤d≤57, 65≤d≤ 90,32,36,37,43,45,46,47
	5	ITF	1≤K(k is even)	48≤d≤57
②	73	CODE128	1≤n≤255	0≤d≤127

【Note①】

·These orders finished by NUL code.

·The units of ITF bar code data must be even. When inputting odd unit's data, the printer will be neglected the last one which received. **【Note②】**

·n designates bar code data byte counts, and the printer will take n byte date and deal with as the bar code data from the next character.

· If n exceeds the designated scale, then the printer stops dealing with these orders, and treat continued data as the general data.

· This orders feed paper according to the requirement of printing bar code, no consider the line spacing which set by ESC 2 or ESC 3.

· This orders only effects that there are no data in the printing line buffer area. When there are data in the printing line buffer area, the printer will treat continued data as the general data.

·After printing bar code, these orders set the printing position at the beginning of a line.

· These orders no effected by printing pattern(the size of character and so on), except reverse printing pattern.

When using CODE128(m=73):

· About the information of CODE128 bar code and code table, please consult appendix I.

·When this printer uses CODE128, please consider the below factors which refers to sending the data:

① The head of bar code data must be the chosen character(CODE A,CODE B, or CODE C) of code fond, be used to choose the first used code fond.

② Defined special characters by used " { " and a group of characters, through sending two " {" definition continually and defined ASCII character " {".

Special character	Sending data		
	ASCII code	HEX	DECIMAL
SHIFT	{ S	7B, 53	123, 83
CODE A	{ A	7B, 41	123, 65
CODE B	{ B	7B, 42	123, 66
CODE C	{ C	7B, 43	123, 67
FNC 1	{1	7B, 31	123, 49
FNC 2	{2	7B, 32	123, 50
FNC 3	{3	7B, 33	123, 51
FNC 4	{4	7B, 34	123, 52
" {"	{ {	7B, 7B,	123, 123

·If the data serial head of bar code is not the code fond chosen character, so the printer stop dealing with command, and treat the continued data as the general data.

·If the combination of " {" and continued characters isn't fitting for any special characters, so the printer stop dealing with command, and treat the continued data as the general data.

·If the printer can't receive the characters which should be used to special code fond, so the printer stops dealing with command, and treat the continued data as the general data.

4.2.7 Other commands

ESC @

Initialization

Form	ASCII: ESC @
	DECIMAL: 27 64
	HEX: 1B 40
Description	ESC @ command initializes the following contents: □ Clear away printing buffer; □ Restore default value;

	□ Choose character printing pattern; □ Delete user-defined character.

ESC p m n1 n2

Cash draw control

Form	ASCII: ESC p m n1 n2
	DECIMAL: 27 112 m n1 n2
	HEX: 1B 27 m n1 n2
Description	According to n1,n2, and produced the pulse which existed a certain time space, these orders be used to control the cash drawer movement.
	m=0, 0＜n1≤n2≤255
	The open time is n1×2ms, the closed time is n2×2ms

ESC v

Send the printing status to the host computer

Form	ASCII: ESC v
	DECIMAL: 27 118
	HEX: 1B 76
Description	It only effects to the serial model printer(YR176), when sending the printing status to the host computer.
	When the printer received these orders, sending a byte to up-printer through serial interface TXD.
	Each bit of this byte defined as follows:

Bit	Function	Data	
		0	1
0	Undefined	-------	-------
1	Undefined	-------	-------
2	Paper test instrument	With paper	Without paper
3	Undefined	-------	-------
4	Unused	Identical data is 0	Identical data is 0
5	Undefined	-------	-------
6	Undefined	-------	-------
7	Undefined	-------	-------

ESC u n

Send the ambient equipment status to the host computer

<table>
<tr><td rowspan="3">Form</td><td>ASCII: ESC u n</td></tr>
<tr><td>DECIMAL: 27 117 n</td></tr>
<tr><td>HEX: 1B 75 n</td></tr>
<tr><td rowspan="4">Description</td><td>It only effects to the serial model printer YR176, when sending the ambient equipment status to the host computer.</td></tr>
<tr><td>Default value n=0.</td></tr>
<tr><td>When the printer received these orders, sending a byte to up-printer through serial interface TXD.</td></tr>
<tr><td>Each bit of this byte defined as follows:
<table>
<tr><th rowspan="2">Bit</th><th rowspan="2">Function</th><th colspan="2">Data</th></tr>
<tr><th>0</th><th>1</th></tr>
<tr><td>0</td><td>Cash drawer open/close level</td><td>“Low”</td><td>“High”</td></tr>
<tr><td>1</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
<tr><td>2</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
<tr><td>3</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
<tr><td>4</td><td>Unused</td><td>Identical data is 0</td><td>-------</td></tr>
<tr><td>5</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
<tr><td>6</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
<tr><td>7</td><td>Undefined</td><td>-------</td><td>-------</td></tr>
</table></td></tr>
</table>

Appendix I: CODE128 bar code

1. The description of CODE128 bar code

At the CODE128 bar code system, using one bar code character fond, it could indicate 128 units ASCII characters and 2 bit counts.

These bar code characters defined by 103 units bar code characters and 3 units code fonts, per code fond indicates the following characters:

·Code fond A: ASCII character 00H to 5FH

·Code fond B: ASCII character 20H to 7FH

·Code fond C: Use one character indicates 2 bits natural characters (100 units numerals from 00 to 99)

There is another distinctive character among CODE128:

·SHIFT character

At the code fond A, the code which followed with SHIFT be treated as the code B character .At the code fond B, the code which followed with SHIFT be treated as the code A character. SHIFT character can’t be used at code fond C.

·Code fond chosen character(CODE A, CODE B, CODE C)

This character changes the following code fonts to code fond A B or C ·Function character(FNC1, FNC2,FNC3,FNC4)

The use of function character depends on the application software. At the code fond C, only FNC 1 in practical.

Code table

Printing character among code fond A

CR	0D	13	5	35	53	]	5D	93
SO	0E	14	6	36	54	^	5E	94
SI	0F	15	7	37	55	_	5F	95
DLE	10	16	8	38	56	FNC1	7B, 31	123, 49
DC1	11	17	9	39	57	FNC2	7B, 32	123, 50
DC2	12	18	:	3A	58	FNC3	7B, 33	123, 51
DC3	13	19	;	3B	59	FNC4	7B, 34	123, 52
DC4	14	20	<	3C	60	SHIFT	7B, 53	123, 83
NAK	15	21	=	3D	61	CODEB	7B, 42	123, 66
SYN	16	22	>	3E	62	CODEC	7B, 43	123, 67
ETB	17	23	?	3F	63			
CAN	18	24	@	40	64			
EM	19	25	A	41	65			
SUB	1A	26	B	42	66			
ESC	1B	27	C	43	67			
FS	1C	28	D	44	68			
GS	1D	29	E	45	69			
RS	1E	30	F	46	70			
US	1F	31	G	47	71			
SP	20	32	H	48	72			
!	21	33	I	49	73			
"	22	34	J	4A	74			
#	23	35	K	4B	75			
$	24	36	L	4C	76			
%	25	37	M	4D	77			
&	26	38	N	4E	78			
'	27	39	O	4F	79			

Printing character among code fond B

Character	Transmit Data		Character	Transmit Data		Character	Transmit Data	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
SP	20	32	H	48	72	p	70	112
!	21	33	I	49	73	q	71	113
"	22	34	J	4A	74	r	72	114
#	23	35	K	4B	75	s	73	115
$	24	36	L	4C	76	t	74	116
%	25	37	M	4D	77	u	75	117
&	26	38	N	4E	78	v	76	118
'	27	39	O	4F	79	w	77	119
(	28	40	P	50	80	x	78	120
)	29	41	Q	51	81	y	79	121
*	2A	42	R	52	82	z	7A	122
+	2B	43	S	53	83	{	7B,7B	123,123
,	2C	44	T	54	84	|	7C	124
-	2D	45	U	55	85	}	7D	125
.	2E	46	V	56	86	~	7E	126
/	2F	47	W	57	87	DEL	7F	127
0	30	48	X	58	88	FNC1	7B,31	123,49
1	31	49	Y	59	89	FNC2	7B,32	123,50
2	32	50	Z	5A	90	FNC3	7B,33	123,51
3	33	51	[	5B	91	FNC4	7B,34	123,52
4	34	52	\	5C	92	SHIFT	7B,53	123,83
5	35	53	]	5D	93	CODE A	7B,41	123,65
6	36	54	^	5E	94	CODE C	7B,43	123,67
7	37	55	_	5F	95			
8	38	56	`	60	96			
9	39	57	a	61	97			
:	3A	58	b	62	98			
;	3B	59	c	63	99			
<	3C	60	d	64	100			
=	3D	61	e	65	101			
>	3E	62	f	66	102			
?	3F	63	g	67	103			
@	40	64	h	68	104			
A	41	65	i	69	105			
B	42	66	j	6A	106			
C	43	67	k	6B	107			
D	44	68	l	6C	108			
E	45	69	m	6D	109			
F	46	70	n	6E	110			
G	47	71	o	6F	111			

Printing character among code fond C

Character	Transmit Data		Character	Transmit Data		Character	Transmit Data	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
00	00	0	40	28	40	80	50	80
01	01	1	41	29	41	81	51	81
02	02	2	42	2A	42	82	52	82
03	03	3	43	2B	43	83	53	83
04	04	4	44	2C	44	84	54	84
05	05	5	45	2D	45	85	55	85
06	06	6	46	2E	46	86	56	86
07	07	7	47	2F	47	87	57	87
08	08	8	48	30	48	88	58	88
09	09	9	49	31	49	89	59	89
10	0A	10	50	32	50	90	5A	90
11	0B	11	51	33	51	91	5B	91
12	0C	12	52	34	52	92	5C	92
13	0D	13	53	35	53	93	5D	93
14	0E	14	54	36	54	94	5E	94
15	0F	15	55	37	55	95	5F	95
16	10	16	56	38	56	96	60	96
17	11	17	57	39	57	97	61	97
18	12	18	58	3A	58	98	62	98
19	13	19	59	3B	59	99	63	99
20	14	20	60	3C	60	FNC1	7B,31	123,49
21	15	21	61	3D	61	CODE A	7B,41	123,65
22	16	22	62	3E	62	CODE B	7B,42	123,66
23	17	23	63	3F	63			
24	18	24	64	40	64			
25	19	25	65	41	65			
26	1A	26	66	42	66			
27	1B	27	67	43	67			
28	1C	28	68	44	68			
29	1D	29	69	45	69			
30	1E	30	70	46	70			
31	1F	31	71	47	71			
32	20	32	72	48	72			
33	21	33	73	49	73			
34	22	34	74	4A	74			
35	23	35	75	4B	75			
36	24	36	76	4C	76			
37	25	37	77	4D	77			
38	26	38	78	4E	78			
39	27	39	79	4F	79			