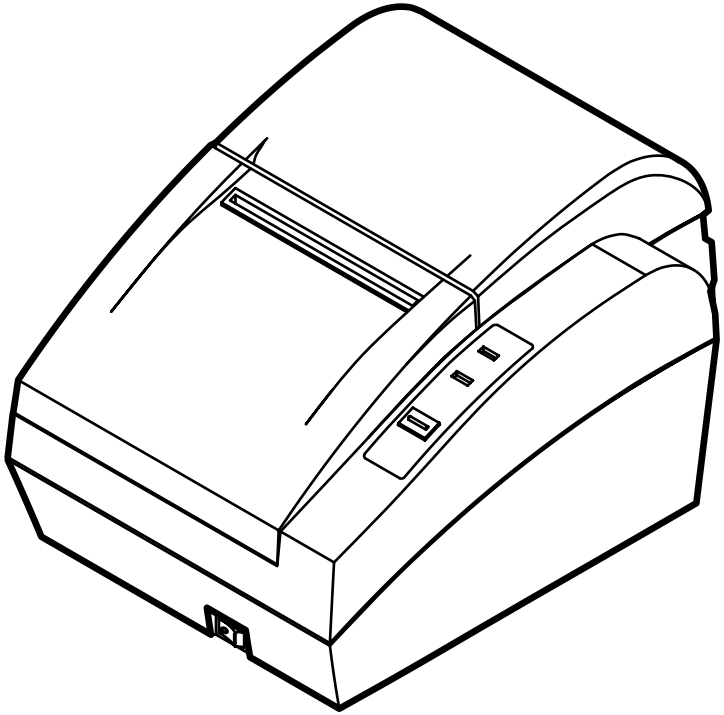
DATE: July. 2001
MANUAL REVISION 2.0

STP131 Series

Operator's Manual



SAMSUNG
ELECTRO-MECHANICS

TEL : 82-31-210-5620
FAX : 82-31-210-5589

Warning - U.S

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interface when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and uses in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice - Canada

This Apparatus complies with class "A" limits for radio interference as specified in the Canadian department of communications radio interference regulations.

Get appareil est conforme aux normes class "A" d'interference radio tel que specifier par ministre canadien des communications dans les reglements d'interference radio.

Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer "OFF".

Introduction

The STP131 Series Roll Printer are designed for use with electronic instruments such as system ECR, POS, banking equipment peripheral equipment, etc.

The main features of the printer are as follows:

1. High speed printing : 17.3(1/6" Feed) lines per second.
2. Low noise thermal printing.
3. RS-232(STP131 Series), Parallel(STP131 Series)
4. The data buffer allows the unit to receive print data even during printing.
5. Peripheral units drive circuit enables control of external devices such as cash drawer.
6. Characters can be scaled up to 64 times compared to it's original size.
7. Bar code printing is possible by using a bar code command.
8. Different print densities can be selected by DIP switches.

Please be sure to read the instruction in this manual carefully before using your new STP131 Series.

NOTE : The socket-outlet shall be near the equipment and it shall be easy accessible.

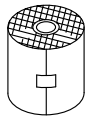
Table of Contents

Chapter 1. Setting Up the Printer

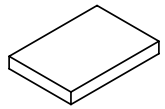
1-1. Unpacking

Your printer box should include these items. If any items are damaged or missing, please contact your dealer for assistance.

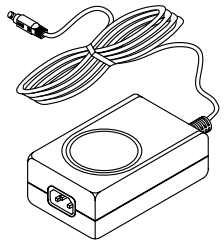
STP131 Series



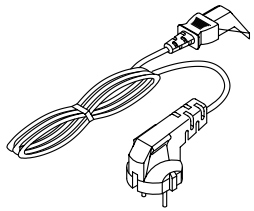
Roll paper



Operator's Manual

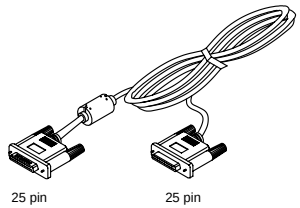


AC Adapter

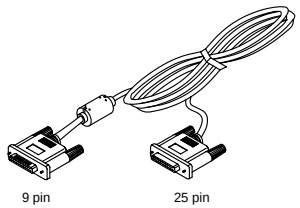


Power cable

Interface cable (option)



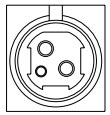
Parallel cable



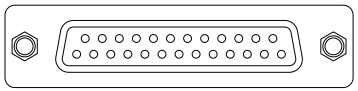
Serial cable

1-2. Connecting the Cables

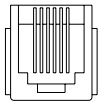
You can connect up to three cables to the printer. They all connect to the connector panel on the back of the printer, which is shown below:



Power supply connector



Interface connector



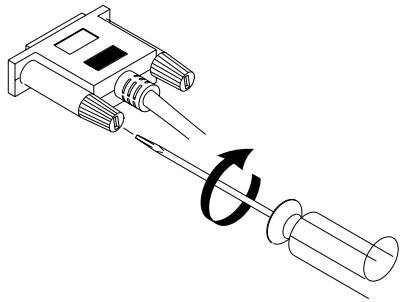
Drawer kick-out connector

NOTE : Before connecting any of the cables, make sure that both the printer and the host are turned off.

1-3. Connecting the Computer

You need an appropriate interface cable.

1. Plug the cable connector securely into the printer's interface connector.
2. Tighten the screws on both sides of the cable connector.



3. Attach the other end of the cable to the computer.

1-4. Connecting the Drawer

WARNING :

Use a drawer that matches the printer specification. Using an improper drawer may damage the drawer as well as the printer.

CAUTION :

Do not connect a telephone line to the drawer kick-out connector; otherwise the printer and the telephone line may be damaged.

Plug the drawer cable into the drawer kick-out connector on the back of the printer next to the power supply connector.

1-5. Connecting the Power Supply

CAUTION :

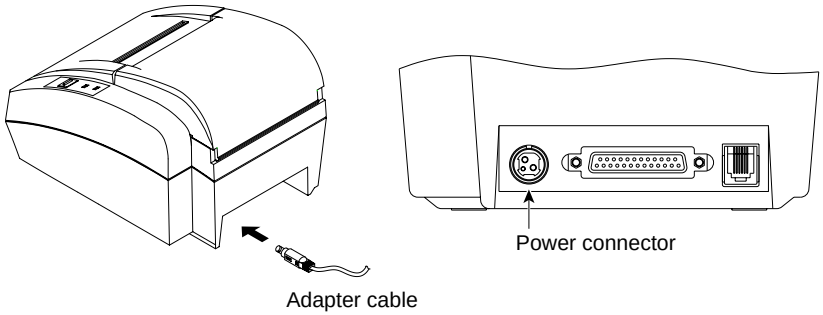
When connecting or disconnecting the power supply from the printer, make sure that the power supply is not plugged into an electrical outlet. Otherwise you may damage the power supply or the printer.

If the power supply's rated voltage and your outlet's voltage do not match, contact your dealer for assistance. Do not plug in the power cord. Otherwise, you may damage the power supply or the printer.

1. Make sure that the Printer's power switch is turned off, and the power supply's power cord is unplugged from the electrical outlet.

2. Check the label on the power supply to make sure that the voltage required by the power supply matches that of your electrical outlet.

3. Plug in the power supply's Adapter cale as shown below. Notice that the flat side of the plug faces down.



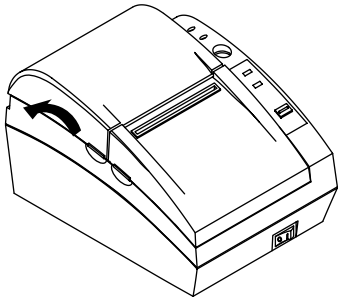
NOTE : To remove the DC cable connector, make sure that the power supply's power cord is unplugged; then grasp the connector at the arrow and pull it straight out.

1-6. Installing or Replacing the Paper Roll

NOTE : Be sure to use paper rolls that specifications. Do not use papaer rolls that have the paper glued to the core because the printer cannot detect the paper end correctly.

1. Make sure that the printer is not receiving data; otherwise, data may be lost.

2. Open the paper roll cover by pull up the cover.

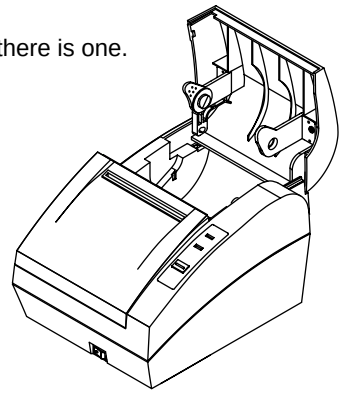


※ **You must turn on the printer before replace the paper roll.**

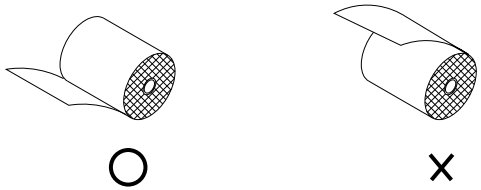
NOTE : Do not open the print cover while the printer is operating. This may damage the printer.

3. Remove the used paper roll core if there is one.

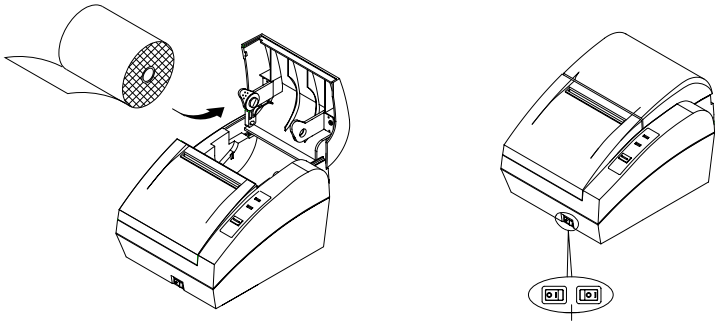
4. Insert the paper roll.



5. Be sure to note the correct direction that the paper comes off the roll.

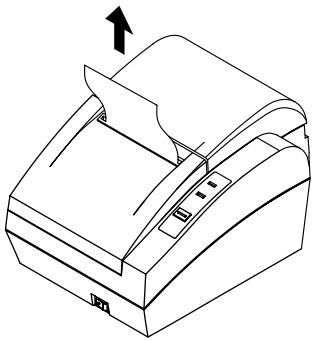


6. Close the cover.



NOTE : When closing the cover, press the center of printer cover firmlay to prevent Paper miss-loading.

7. Tear off the paper as shown.



1-7. Adjustments and Settings

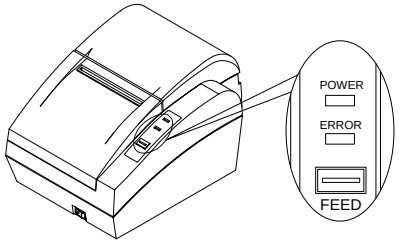
The STP131 Series is set up at the factory to be appropriate for almost all users. It does, however, offer some settings for users with special requirements.

It has DIP switches that allow you to change communication settings, such as handshaking and parity check, as well as print density.

Ths STP131 Series also has a near-end sensor for the paper. This can give you a warning when the paper is almost out. If you find that there is not enough paper remalining on the roll when the paper low is triggered, the Error LED(Red) is turn on.

1-8. Using the Printer

Control Panel



Button

The button can be disabled by the ESC c 5 command.

Press the FEED button once to advance paper one line. You can also hold down the FEED button to feed paper continuously.

Panel lights

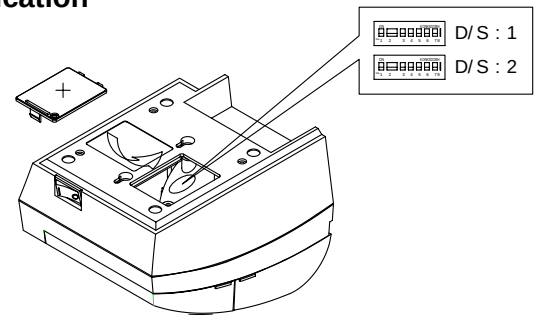
Power(Green)
The POWER light is on whenever the printer is on.

ERROR(Red)

1) The error LED blinks fast when paper is out.
2) The error LED blinks when the Near End Sensor triggered.

NOTE : Both Power and Error LED is blank when the mecha cover is open.

Serial Interface Specification



DIP Switch Functions

No.	Dip Switch 1				
	Level	BPS	D/W1	D/W2	S/W3
1	1	2400	ON	OFF	OFF
	2	4800	OFF	ON	OFF
2	3	9600	OFF	OFF	ON
	4	19200	ON	OFF	ON
3	5	38400	ON	ON	OFF
	6	57600	OFF	ON	ON
	7	115200	ON	ON	ON

	Function	ON	OFF
4	Density	Dark	Normal
5	Handshaking	Xon/Xoff	DTR/DSR
6	Auto Feeding	With cutting	Without cutting
7	Reserved	Combination code	Completion code
8	Language	English	Korean

No.	Dip Switch 2		
	Function	ON	OFF
1	Cut	Full Cut	Partial Cut
2	Not used. Fixed to OFF		
3	Not used. Fixed to OFF		
4	Not used. Fixed to OFF		
5	Not used. Fixed to OFF		
6	Not used. Fixed to OFF		
7	Not used. Fixed to OFF		
8	Not used. Fixed to OFF		

Chapter 2. Hexadecimal Dumping

This feature allows experienced users to see exactly what data is coming to the printer. This can be useful in finding software problems. When you turn on the hexadecimal dump function, the printer prints all commands and data in hexadecimal format along with a gulde section to help you find specific commands.

To use the hexadecimal dump function, follow these steps:

1. Set DIP Switch 2 (sw- 7 = Hex dump mode) of your printer ON position.

2. Turn on the power of your printer.

3. Run any software rogram that sends data to the printer. The printer will print all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that corresponds to the codes.

```
1B 21 00 1B 26 02 40 40     40          . ! . .&.@@@@
02 0D 1B 44 0A 14 1E 28     28          . . .D. . . . ( ( (
00 01 0A 41 0D 42 0A 43     43          . . .A.B.CCC
```

   - A period (.) is printed for each code that has no ASCII equivalent.
   - During the hex dump, all commands except **DEL EOT** is disabled.

4. Close the cover, then the printer enters the hexadecimal dump mode.

5. Set DIP Switch 2 (sw- 7 = Hex dump mode) of your printer off position and then hexadecimal mode is off.

Chapter 3. The self test

The self-test checks whether the printer has any problems. If the printer does not function properly, contact your dealer. The self-test checks the following;

1. Make sure paper roll has been installed properly.
2. Turn on the power while holding down the FEED button. The self-test begins.
3. The self-test prints the current printer status, which provides the control ROM version and the DIP switch setting.
4. After printing the current printer status, self-test printing will print the following, and pause.

Self-test printing.
Please press the FEED button

5. Press the FEED button to continue printing. The printer prints a pattern using the built-in character set.
6. The self-test automatically ends and cuts the paper after printing the following.

*** * * SELF TEST * * ***

The printer is ready to receive data as soon as it completes the self-test.

Chapter 4. Code Table

The following pages show the character code tables. To find the character corresponding to a hexadecimal number, count across the top of the table for the left digit and count down the left column of the table for the right digit. For example, 4A = J.

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL 00	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	01	XON 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	0010	02	18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≤ 242
3	0010	03	XOFF 19	% 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	▒ 179	├ 195	╙ 211	π 227	≥ 243
4	0100	EQT 04	20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	▒ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	ENQ 05	21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	▒ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	06	22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	ª 166	▒ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	07	23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	º 167	▒ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	BS 08	CAN 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	▒ 184	╚ 200	╪ 216	Φ 232	° 249
9	1001	HT 09	25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	ö 153	⌐ 169	▒ 185	╔ 201	┘ 217	θ 233	• 249
A	1010	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	▒ 186	╩ 202	┌ 218	Ω 234	• 250
B	1011	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	¢ 155	1/2 171	▒ 187	╦ 203	▒ 219	δ 235	√ 251
C	1100	FF 12	FS 28	, 44	< 60	L 76	\ 92	▒ 108	¦ 124	î 140	£ 156	1/4 172	▒ 188	╠ 204	▒ 220	∞ 236	n 252
D	1101	CR 13	GS 29	– 45	= 61	M 77	] 93	m 109	} 125	ì 141	¥ 157	¡ 173	▒ 189	═ 205	▒ 221	ϕ 237	² 253
E	1110	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	Pt 158	« 174	▒ 190	╬ 206	▒ 222	∈ 238	▪ 254
F	1111	15	31	/ 47	? 63	O 79	_ 95	o 111	SP 127	Å 143	ƒ 159	» 175	▒ 191	╧ 207	▒ 223	∩ 239	SP 255

Page 0 (PC437 : USA, Standard Europe)
(International Character Set : USA)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	▬ 128	┴ 144	SP 160	ー 176	タ 192	ミ 208	二 224	× 240
1	0001	▬ 129	┬ 145	。 161	ア 177	チ 193	ム 209	上 225	円 241
2	0010	▬ 130	┤ 146	「 162	イ 178	ツ 194	メ 210	土 226	年 242
3	0010	▬ 131	├ 147	」 163	ウ 179	テ 195	モ 211	工 227	月 243
4	0100	▬ 132	─ 148	、 164	エ 180	ト 196	ヤ 212	◢ 228	日 244
5	0101	▬ 133	┼ 149	・ 165	オ 181	ナ 197	ユ 213	◣ 229	時 245
6	0110	▬ 134	│ 150	ヲ 166	カ 182	ニ 198	ヨ 214	◥ 230	分 246
7	0111	▬ 135	│ 151	ァ 167	キ 183	ヌ 199	ラ 215	◤ 231	秒 247
8	1000	▌ 136	┌ 152	ィ 168	ク 184	ネ 200	リ 216	♠ 232	〒 249
9	1001	▌ 137	┐ 153	ゥ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	1010	▌ 138	└ 154	ェ 170	コ 186	ハ 202	レ 218	♦ 234	区 250
B	1011	▌ 139	┘ 155	ォ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	1100	▌ 140	╭ 156	ャ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	1101	▌ 141	╮ 157	ュ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E	1110	▌ 142	╯ 158	ョ 174	セ 190	ホ 206	゛ 222	／ 238	▒ 254
F	1111	┼ 143	╰ 159	ッ 175	ソ 191	マ 207	゜ 223	＼ 239	SP 255

Page 1 (Katakana)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	ð 208	Ó 224	¯ 240
1	0001	ü 129	æ 145	í 161	▓ 177	┴ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	⁞ 178	┬ 194	É 210	Ô 226	‗ 242
3	0010	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	3/4 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	i 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	f 214	u 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	p 232	° 249
9	1001	ë 137	ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	‖ 186	╩ 202	┌ 218	Û 234	• 250
B	1011	ï 139	ø 155	1/2 171	╗ 187	╦ 203	▉ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	1/4 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	X 158	« 174	¥ 190	╬ 206	ì 222	¯ 238	▪ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▌ 223	´ 239	SP 255

Page 2 (PC850 : Multilingual)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	0010	é 130	É 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≤ 242
3	0010	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≥ 243
4	0100	ä 132	õ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	┤ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	Á 134	ú 150	ª 166	╡ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╢ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	Ì 152	¿ 168	╖ 184	╚ 200	╪ 216	Φ 232	° 249
9	1001	Ê 137	õ 153	Ò 169	╣ 185	╔ 201	┘ 217	θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	• 250
B	1011	Í 139	¢ 155	1/2 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	1/4 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¡ 173	╜ 189	═ 205	▌ 221	ϕ 237	² 253
E	1110	Ã 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	238	■ 254
F	1111	Â 143	Ó 159	» 175	┐ 191	╧ 207	▀ 223	239	SP 255

Page 3 (PC860 : Portuguese)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	⌐ 160	▒ 176	└ 192	╨ 208	α 224	240
1	0001	ü 129	É 145	´ 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	0010	é 130	Ê 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0010	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	Â 132	Ë 148	¨ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	Ï 149	¸ 165	┤ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	134	û 150	³ 166	╡ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	¯ 167	╢ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	¤ 152	Î 168	╖ 184	╚ 200	╪ 216	Φ 232	° 249
9	1001	ë 137	Ô 153	⌐ 169	╣ 185	╔ 201	┘ 217	θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	• 250
B	1011	Ï 139	¢ 155	1/2 171	╗ 187	╦ 203	▉ 219	δ 235	251
C	1100	î 140	£ 156	1/4 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	═ 141	Ù 157	3/4 173	╜ 189	═ 205	▌ 221	ϕ 237	² 253
E	1110	À 142	Û 158	« 174	╛ 190	╬ 206	▐ 222	238	■ 254
F	1111	§ 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	239	SP 255

Page 4 (PC863 : Canadian-French)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0010	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 249
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	1/2 171	╗ 187	╦ 203	▉ 219	δ 235	251
C	1100	î 140	£ 156	1/4 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ϕ 237	2 253
E	1110	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	238	▪ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	239	SP 255

Page 5 (PC865 : Nordic)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	SP 128	SP 144	SP 160	SP 176	SP 192	SP 208	SP 224	SP 240
1	0001	SP 129	SP 145	SP 161	SP 177	SP 193	SP 209	SP 225	SP 241
2	0010	SP 130	SP 146	SP 162	SP 178	SP 194	SP 210	SP 226	SP 242
3	0010	SP 131	SP 147	SP 163	SP 179	SP 195	SP 211	SP 227	SP 243
4	0100	SP 132	Ö 148	SP 164	SP 180	SP 196	SP 212	SP 228	SP 244
5	0101	SP 133	SP 149	SP 165	SP 181	SP 197	SP 213	SP 229	SP 245
6	0110	SP 134	SP 150	SP 166	SP 182	SP 198	SP 214	SP 230	SP 246
7	0111	SP 135	SP 151	SP 167	SP 183	SP 199	SP 215	SP 231	SP 247
8	1000	SP 136	SP 152	SP 168	SP 184	SP 200	SP 216	SP 232	SP 249
9	1001	SP 137	SP 153	SP 169	SP 185	SP 201	SP 217	SP 233	SP 249
A	1010	SP 138	SP 154	SP 170	SP 186	SP 202	SP 218	SP 234	SP 250
B	1011	SP 139	SP 155	SP 171	SP 187	SP 203	SP 219	SP 235	SP 251
C	1100	SP 140	SP 156	SP 172	SP 188	SP 204	SP 220	SP 236	SP 252
D	1101	SP 141	SP 157	SP 173	SP 189	SP 205	SP 221	SP 237	SP 253
E	1110	SP 142	SP 158	SP 174	SP 190	SP 206	SP 222	SP 238	SP 254
F	1111	SP 143	SP 159	SP 175	SP 191	SP 207	SP 223	SP 239	SP 255

Page 255 (Space Page)

Country	ASCII code (hexadecimal)											
	Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
	Dec	35	36	64	91	92	93	94	96	123	124	125	126
U.S.A.		#	$	@	[	\	]	^	`	{	¦	}	~
France		#	$	à	°	ç	§	^	`	é	ù	è	"
Germany		#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.		£	$	@	[	\	]	^	`	{	¦	}	~
Denmark I		#	$	@	Æ	ø	Å	^	`	æ	ø	å	~
Sweden		#	¤	É	Ä	Ö	Å	Ü	è	ä	ö	å	ü
Italy		#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain		Pt	$	@	¡	Ñ	¿	^	`	"	ñ	}	~
Norway		#	¤	É	Æ	ø	Å	Ü	è	æ	ø	å	ü
Denmark II		#	$	É	Æ	ø	Å	Ü	è	æ	ø	å	ü

International Character Set

Chapter 5. Control Commands

The commands listed in the table below are available for control of the printer.

Commands

Command	Name	Command Classification		Standard Mode
		Executing	Setting	
HT	Horizontal tab	○		○
LF	Print and line feed	○		○
CR	Print and carriage return	○		○
DLE EOT	Real-time status transmission	○		○
ESC SP	Set right-side character spacing		○	○
ESC !	Select print mode(s)		○	○
ESC $	Set absolute print position	○		○
ESC %	Select/cancel user-defined character set		○	○
ESC &	Define user-defined characters		○	○
ESC *	Select bit-image mode	○		○
ESC -	Turn under line mode on/off		○	○
ESC 2	Select 1/6-inch line spacing		○	○
ESC 3	Set line spacing		○	○
ESC =	Select peripheral device		○	○
ESC ?	Cancel user-defined characters		○	○
ESC @	Initialize printer	○	○	○
ESC D	Set horizontal tab positions		○	○
ESC E	Turn emphasized mode on/off		○	○
ESC G	Turn double-strike mode on/off		○	○
ESC J	Print and feed paper	○		○
ESC R	Select an international character set		○	○
ESC V	Turn 90 clockwise rotation mode on/off		○	○
ESC \	Set relative print position	○		○
ESC a	Select justification		○	(○)
ESC c3	Select paper sensor(s)to output Paper-end signals		○	○
ESC c4	Select paper sensor(s) to stop printing		○	○
ESC c5	Enable/disable panel buttons		○	○
ESC d	Print and feed paper n lines	○		○

Command	Name	Command Classification		Standard Mode
		Executing	Setting	
ESC i	Partiall cut(one point center uncut)	○	○	○
ESC p	General pulse	○		○
ESC t	Select character code table		○	○
ESC {	Turn upside-down printing mode on/off		○	(○)
GS !	Select character size		○	○
GS *	Define downloaded bit image		○	○
GS /	Print downloaded bit image	○		●
GS :	Start/end macro definition	○	○	○
GS B	Turn white/black reverse printing mode on/off		○	○
GS H	Select printing position of HRI characters		○	○
GS I	Transmit print ID	○		○
GS L	Set left margin		○	(○)
GS P	Set vertical and horizontal motion units		○	○
GS V	Select cut mode and cut paper	○		(○)
GS W	Set printing area width		○	(○)
GS ^	Execute macro	○		○
GS f	Select font for HRI characters		○	○
GS h	Set bar code height		○	○
GS k	print bar code	○		●
GS r	Transmit status	○		○
GS w	Set bar code width		○	○

Command classification

Executing : Printer executes the command, which does not affect the following data.
Setting : Printer uses flags to make setting, and those setting affect the following data.

Standard mode

○ : Enagled
(○) : Enabled only when the command is used at the beginning of a line.
● : Enabled only when data is not present in the buffer.

Page mode

○ : Enagled
▲ : Only setting is possible.
Disabled : Parameters are processed as printable data.
Ignored : Command codes and parameters are all ignored.

Control Commands

HT

[Name] Horizontal tab.
[Format] ASCII HT
Hex 09
Decimal 9
[Description] Moves the print position to the next horizontal tab position.

LF

[Name] Print and line feed.
[Format] ASCII LF
Hex 0A
Decimal 10
[Description] Prints the data in the print buffer an feeds one line based on the current line spacing.

FF

[Name] Print and return o standard mode in page mode.
[Format] ASCII FF
Hex 0C
Decimal 12
[Description] Prints the data in the print buffer collectively and returns to standard mode.

CR

[Name] Print and carriage return.
[Format] ASCII HT
Hex 0D
Decimal 13
[Description] When automatic line feed is enabled, this command functions the same as **LF**; when automatic line feed is disabled, this command is ignored.

CAN

[Name] Cancel print data in page mode.
[Format] ASCII CAN
Hex 18
Decimal 24
[Description] In page mode, deletes all the print data in the current printable area.

DLE EOT n

[Name] Real-time status transmission.

[Format]

ASCII	DLE	EOT	n
Hex	10	04	n
Decimal	16	4	n

[Range] $1 \le n \le 4$

[Description] Transmits the selected printer status specified by n in real time, according to the following parameters:

n = 1 : Transmit printer status.
n = 2 : Transmit off-line status.
n = 3 : Transmit error status.
n = 4 : Transmit paper roll sensor status.

n = 1 : Printer status.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used, Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer open/close signal is LOW (connecotor pin 3).
	On	04	4	Drawer open/close signal is HIGH (connector pin 3).
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5-6	-	-	-	Undefined.
7	Off	00	0	Not used. Fixed to Off.

n = 2 : Off-line status.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed.
	On	04	4	Cover is open.
3	Off	00	0	Paper is not being feed by using the PAPER FEED button/
	On	08	8	Paper is being feed by the PAPER FEED button.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not used. Fixed of Off.
6	Off	00	0	Not used. Fixed of Off.
7	Off	00	00	Not used. Fixed of Off.

Bit 5 : Becomes on when the paper end sensor detects paper end and printing stops.

n = 3 : Error status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used, Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	-	-	-	Undefined.
3	Off	00	0	Not used. Fixed of Off.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not used. Fixed of Off.
6	Off	00	0	Not used. Fixed of Off.
7	Off	00	0	Not used. Fixed to Off.

Bit 3 : If these errors occur due to paper jams or the like, it is possible to recover by correcting the cause of the error and executing DLE ENQ n($1 < n < 2$).
If an error due to a circuit failure (e.g. wire break) occurs, it is impossible to recover.

Bit 6 : When printing is stopped due to high print head temperature until the print head temperature drops sufficiently or when the paper roll cover is open during printing, bit 6 is On.

n = 4 : Continuous paper sensor status.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used, Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2,3	Off	00	0	Paper roll near-end sensor. Paper adequate.
	On	0C	12	Paper near-end is detected by the paper roll near-end sensor.
4	On	10	16	Not used. Fixed to On.
5, 6	Off	00	0	Not roll end sensor. Paper present.
	On	60	96	Paper is detected by the paper roll end sensor.
7	Off	00	0	Not used. Fixed to Off.

ESC SP n

[Name] Set right-side character spacing.

[Format]

ASCII	ESC	SP	n
Hex	1B	20	n
Decimal	27	32	n

[Range] 0 ≤ n ≤ 255

[Description] Sets the character spacing for the right side of the character to [n x horizontal or vertical motion unis].

ESC ! n

[Name] Select print modes.

[Format]

ASCII	ESC	!	n
Hex	1B	21	n
Decimal	27	33	n

[Range] 0 ≤ n ≤ 255

[Description] Selects print mode(s) using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A (12 x 24)
	On	01	1	Character font B (9 x 24)
1	-	-	-	Undefined.
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	-	-	-	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

ESC-$ nL nH

[Name] Set absolute print position.

[Format]

ASCII	ESC	$	nL	nH
Hex	1B	24	nL	nH
Decimal	27	36	nL	nH

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Set the distance from the beginning of the line to the position at with subsequent characters are to be printed.

- The distance from the beginning of the line to the print position is [(nL + nH x 256) x (vertical or horizontal motion unit)] inches.

ESC % n

[Name] Select/Cancel user-defined character set.

[Format]

ASCII	ESC	%	n
Hex	1B	25	n
Decimal	27	37	n

[Range] 0 ≤ n ≤ 255

[Description] Selects or cancels the user-defined character set.

- When the LSB of n is 0, the user-defined character set is canceled.
- When the LSB of n is 1, the user-defined character set is selected.

ESC & y c1 cw [x1 d1...d(y x x1)...[xk d1...d(y x xk)]

[Name] Define user-defined characters.

[Format]

ASCII	ESC	&	y	c1	c2[x1 d1...d(y x x1)]...[xk d1//d(y x xk)]
Hex	1B	26	y	c1	c2[x1 d1...d(y x x1)]...[xk d1//d(y x xk)]
Decimal	27	38	y	c1	c2[x1 d1...d(y x x1)]...[xk d1//d(y x xk)]

[Range] y = 3
32 ≤ c1 ≤ c2 ≤ 126
0 ≤ x ≤ 12 Font A (12 x 24)
0 ≤ x ≤ 9 Font B (9 x 24)
0 ≤ d1 ... d(y x xk) ≤ 255

[Description] Defines user-deined characters.

- y specifies the number of bytes in the vertical direction.
- c1 specifies the beginning character code for the definition, and c2 specifies the final code.
- x secifies the number of dots in the horizontal direction.

ESC * m nL nH d1...dk

[Name] Select bit-image mode.

[Format]

ASCII	ESC	*	m	nL	nH	d1 ...	dk
Hex	1B	2A	m	nL	nH	d1 ...	dk
Decimal	27	42	m	nL	nH	d1 ...	dk

[Range] m = 0, 1, 32, 33
0 ≤ nL ≤ 255
0 ≤ nH ≤ 3
0 ≤ d ≤ 255

[Description] Selects a bit-image mode using m for the number of dots specified by nL and nH, as follows:

		Vertical direction		Horizontal direction	
m	Mode	Number of Dots	Dot Density	Dot Density	Number of Data (k)
0	8-dot single-density	8	60 DPI	90 DPI	nL + nH x 256
1	8-dot double-density	8	60 DPI	180 DPI	nL + nH x 256
32	24-dot sigle-density	24	180 DPI	90 DPI	(nL + nH x 256) x 3
33	24-dot double-density	24	180 DPI	180 DPI	(nL + nH x 256) x 3

ESC - n

[Name] Turn underline mode on/off.

[Format]

ASCII	ESC	-	n
Hex	1B	2D	n
Decimal	27	45	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

[Description] Turns underline mode on or off, based on the following values of n:

n	Function
0, 48	Turns off underline mode.
1, 49	Turns on underline mode (1-dot thick).
2, 50	Turns on underline mode (2-dots thick).

ESC 2

[Name] Select default line spacing.

[Format]

ASCII	ESC	2
Hex	1B	32
Decimal	27	50

[Description] Select 1/6-inch line (approximately 4.23mm) spacing.

ESC 3 n

[Name] Set line spacing.

[Format]

ASCII	ESC	3	n
Hex	1B	33	n
Decimal	27	51	n

[Range] 0 ≤ n ≤ 255

[Description] Sets the line spacing to [n x vertical or horizontal motion unit] inches.

ESC = n

[Name] Set peripheral device.

[Format]

ASCII	ESC	=	n
Hex	1B	3D	n
Decimal	27	61	n

[Range] 0 ≤ n ≤ 3

[Description] Selects device to which host computer sends data, using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Printer disabled.
	On	01	1	Printer disabled.
1-7	-	-	-	Undefined.

ESC ? n

[Name] Cancel user-defined characters.

[Format]

ASCII	ESC	?	n
Hex	1B	3F	n
Decimal	27	63	n

[Range] 32 ≤ n ≤ 126

[Description] Cancels user-defined characters.

ESC @

[Name] Initialize printer.

[Format]

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

[Description] Clears the data in the print buffer and resets the printer mode to the mode that was in effect when the power was turned on.

ESC D n1...nk NUL

[Name] Set horizontal tab positions.

[Format]

ASCII	ESC	D	n1...nk	NUL
Hex	1B	44	n1...nk	00
Decimal	27	68	n1...nk	0

[Range] 1 ≤ n ≤ 255
0 ≤ k ≤ 32

[Description] Sets horizontal tab position.

- n specifies the column number for setting a horizontal tab position from the beginning of the line.
- k indicates the total number of horizontal ta positions to be set.

ESC E n

[Name] Turn emphasized mode on/off.

[Format]

ASCII	ESC	E	n
Hex	1B	45	n
Decimal	27	69	n

[Range] 1 ≤ n ≤ 255

[Description] Turns emphasized mode on or off.
When the LSB is 0, emphasized mode is turned off.
When the LSB is 1, emphasized mode is turned on.

ESC G n

[Name] Turn on/off double-strike mode.

[Format]

ASCII	ESC	G	n
Hex	1B	47	n
Decimal	27	71	n

[Range] 0 ≤ n ≤ 255

[Description] Turns emphasized mode on or off.

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

ESC J n

[Name] Print and feed paper.

[Format]

ASCII	ESC	J	n
Hex	1B	4A	n
Decimal	27	74	n

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print buffer and feeds the paper [n x vertical or horizontal motion unit] inches.

ESC R n

[Name] Select an international character set.

[Format]

ASCII	ESC	R	n
Hex	1B	52	n
Decimal	27	82	n

[Range] 0 ≤ n ≤ 10

[Description] Selects an international character set n from the following table.

n	Character set	n	Character set
0	U.S.A.	5	Sweden
1	France	6	Italy
2	Germany	7	Spain
3	U.K.	9	Norway
4	Denmark Ⅰ	10	Denmark Ⅱ

[Default] n = 0

ESC V n

[Name] Turn 90° clockwise rotation mode on/off.

[Format]

ASCII	ESC	V	n
Hex	1B	56	n
Decimal	27	86	n

[Range] 0 ≤ n ≤ 3
48 ≤ n ≤ 49

[Description] Turns 90° clockwise rotation mode on/off
n is used as follows:

n	Function
0, 48	Turn off 90° clockwise rotation mode
1, 49	Turns on 90° clockwise rotation mode

ESC \ nL nH

[Name] Set relative print position.

[Format]

ASCII	ESC	\	nL	nH
Hex	1B	5C	nL	nH
Decimal	27	92	nL	nH

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Selects the print starting position based on the current position by using the horizontal or vertical motion unit.

- This command sets the distance from the current position to [(nL + nH x 256) x horizontal or vertical motion unit]

ESC a n

[Name] Select justification.

[Format]

ASCII	ESC	a	n
Hex	1B	61	n
Decimal	27	97	n

[Range] 0 ≤ n ≤ 2
48 ≤ n ≤ 50

[Description] Aligns all the data in one line to the specified position.
n selects the type of justification as follows:

n	Justification
0, 48	Left justification
1, 49	Centering
2, 50	Right justification

ESC \ nL nH

[Name] Set relative print position.

[Format]

ASCII	ESC	\	nL	nH
Hex	1B	5C	nL	nH
Decimal	27	92	nL	nH

[Range] $0 \leq nL \leq 255$
$0 \leq nH \leq 255$

[Description] Selects the print starting position based on the current position by using the horizontal or vertical motion unit.

- This command sets the distance from the current position to [(nL + nH x 256) x horizontal or vertical motion unit]

ESC a n

[Name] Select justification.

[Format]

ASCII	ESC	a	n
Hex	1B	61	n
Decimal	27	97	n

[Range] $0 \leq n \leq 2$
$48 \leq n \leq 50$

[Description] Aligns all the data in one line to the specified position.
n selects the type of justification as follows:

n	Justification
0, 48	Left justification
1, 49	Centering
2, 50	Right justification

ESC c 3 n

[Name] Select paper sensor(s) to output paper end signals.

[Format]

ASCII	ESC	c	3	n
Hex	1B	63	33	n
Decimal	27	99	51	n

[Range] $0 \leq n \leq 255$

[Description] Selects the paper sensor(s) to output paper end signals.

- Each bit of n is used as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll near-end sensor disabled.
	On	01	1	Paper roll near-end sensor enabled.
1	Off	00	0	Paper roll near-end sensor disabled.
	On	02	2	Paper roll near-end sensor enabled.
2	Off	00	0	Paper roll end sensor disabled.
	On	04	4	Paper roll end sensor enabled.
3	Off	00	0	Paper roll end sensor disabled.
	On	08	8	Paper roll end sensor enabled.
4-7	-	-	-	Undefined.

ESC c 4 n

[Name] Select paper sensor(s) to stop printing.

[Format]

ASCII	ESC	c	4	n
Hex	1B	63	34	n
Decimal	27	99	52	n

[Range] $0 \leq n \leq 255$

[Description] Selects the paper sensor(s) used to stop printing when a paper-end is detected, using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll end sensor disabled.
	On	01	1	Paper roll end sensor enabled.
1	Off	00	0	Paper roll end sensor disabled.
	On	02	2	Paper roll end sensor enabled.
2-7	-	-	-	Undefined.

ESC c 5 n

[Name] Enable/Disable panel buttons.

[Format]

ASCII	ESC	c	5	n
Hex	1B	63	35	n
Decimal	27	99	53	n

[Range] 0 ≤ n ≤ 255

[Description] Enables or disables the panel buttons.

- When the LSB is 0, the panel buttons are enabled.
- When the LSB is 1, the panel buttons are disabled.

ESC d n

[Name] Print and feed n lines.

[Format]

ASCII	ESC	d	n
Hex	1B	64	n
Decimal	27	100	n

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print buffer and feeds n lines.

ESC i n

[Name] Partial Cut

[Format]

ASCII	ESC	i
Hex	1B	69
Decimal	27	105

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print cut of paper.

ESC p m t1 t2

[Name] Generate pulse.

[Format]

ASCII	ESC	p	m	t1	t2
Hex	1B	70	m	t1	t2
Decimal	27	112	m	t1	t2

[Range] m = 0, 1, 48, 49
0 ≤ t1 ≤ 255, 0 ≤ t2 ≤ 255

[Description] Outputs the pulse specified by t1 & t2 to connector pin m as follows:

m	Connector pin
0, 48	Drawer kick-out connector pin 2
1, 49	Drawer kick-out connector pin 5

ESC t n

[Name] Select character code table.

[Format]

ASCII	ESC	t	n
Hex	1B	74	n
Decimal	27	116	n

[Range] 0 ≤ n ≤ n, n = 255

[Description] Selects a page n from the character code table.

n	Page
0	0 (PC437 [U.S.A., standard Europe])
1	1 (Katakana)
2	2 (PC850 [Multilingual])
3	3 (PC860 [Portuguese])
4	4 (PC863 [Canadian-French])
5	5 (PC865 [Nordic])
255	Space page

ESC { n

[Name] Turn on/off upside-down printing mode.

[Format]

ASCII	ESC	{	n
Hex	1B	7B	n
Decimal	27	123	n

[Range] 0 ≤ n ≤ 255

[Description] Turns upside-down printing mode on or off.

- When the LSB is 0, upside-down printing mode is turned off.
- When the LSB is 1, upside-down printing mode is turned on.

GS ! n

[Name] Select character size.

[Format]

ASCII	GS	!	n
Hex	1D	21	n
Decimal	29	33	n

[Range] 0 ≤ n ≤ 255
(1 ≤ vertical number of times ≤ 8, 1 ≤ horizontal number of times ≤ 8)

[Description] Selects thecharacter height using bits 0 to 2 and selects the character width using bits 4 to 7, as following:

Bit	Off/On n	Hex	Decimal	Function
0-1	Character height selection. See Table 2			
4-5	Character width selection. See Table 1			

Table 1
Character Width Selection

Hex	Decimal	Width
00	0	1(normal)
10	16	2(double-width)

Table 2
Character Height Selection

Hex	Decimal	Width
00	0	1(normal)
01	1	2(double-width)

GS * x y d1...d(x x y x 8)

[Name] Deffine downloaded bit image.

[Format]

ASCII	GS	*	x	y	d1...d(x x y x 8)
Hex	1D	2A	x	y	d1...d(x x y x 8)
Decimal	29	42	x	y	d1...d(x x y x 8)

[Range] 0 ≤ n ≤ 255
1 ≤ y ≤ 255
x x y ≤ 1536
0 ≤ d ≤ 255

[Description] Defines a downloade'd bit image using the dots specified by x any y.
- x indicates the number of dots in the horizontal direction.
- y indicates the number of dots in the vertical direction.

GS / m

[Name] Print downloaded bit image.

[Format]

ASCII	GS	/	m
Hex	1D	2F	m
Decimal	29	47	m

[Range] 0 ≤ m ≤ 3, 48 ≤ m ≤ 51

[Description] Prints a downloaded bit image using the mode specified by m.
m selects a mode from the table below:

m	Mode	Vertical Dot Density(DPI)	Horizontal Dot Density(DPI)
0, 48	Normal	180	180
1, 49	Double-width	180	90
2, 50	Double-height	90	180
3, 51	Quadruple	90	90

GS :

[Name] Start/End macro definition.

[Format]

ASCII	GS	:
Hex	1D	3A
Decimal	29	58

[Description] Starts or ends macro definition.

GS B n

[Name] Turn white/black reverse printing mode on/off.

[Format]

ASCII	GS	B	n
Hex	1D	42	n
Decimal	29	66	n

[Range] 0 ≤ n ≤ 255

[Description] Turn on or off white/black reverse printing mode.
- When the LSB is 0, white/black reverse printing mode is turned off.
- When the LSB is 1, white/black reverse printing mode is turned on.

GS H n

[Name] Select printing position of HRI characters.

[Format]

ASCII	ESC	H	n
Hex	1B	48	n
Decimal	27	72	n

[Description] Selects the printing position of HRI characters when printing a bar code.
n selects the printing position as follows:

n	Printing postion
0, 48	Not printed.
1, 49	Above bar code.
2, 50	Below bar code.
3, 51	Both above and below the bar code.

- HRI indicates Human Readable Interpreatiion.

GS I n

[Name] Transmit printer ID.

[Format]

ASCII	GS	I	n
Hex	1D	49	n
Decimal	29	73	n

[Range] $1 \le n \le 3, 49 \le n \le 51$

[Description] Transmits the printer ID specified by n as follows:

n	Printer ID	Specification	ID (hexadecimal)
1, 49	Printer mode ID	STP130S/STP130P	30
2, 50	Type ID		02
3, 51	ROM version ID	Depends on ROM version	10

GS L nL nH

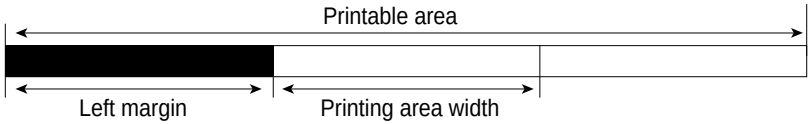
[Name] Set left margin.

[Format]

ASCII	GS	L	nL	nH
Hex	1D	4C	nL	nH
Decimal	29	76	nL	nH

[Range] $1 \le nL \le 255$
$0 \le nH \le 255$

[Description] Set the left margin using nL and nH.
- The left margin is set to [(nL + nH x 256) x horizontal motion unit)] inches.



GS P x y

[Name] Set horizontal and vertical motion units.

[Format]

ASCII	GS	P	x	y
Hex	1D	50	x	y
Decimal	29	80	x	y

[Range] $1 \le x \le 255$
$0 \le y \le 255$

[Description] Sets the horizontal and vertical motion units to approximately 25.4/x mm {1/x inch and} and approximately 25.4/y mm {1/y inches}, respectively.
When x and y are set to 0, the default setting of each value is used

① GS V m, ② GS V m n

[Name] Select cut mode and cut paper.

[Format]

① ASCII	GS	V	m	
Hex	1D	56	m	
Decimal	29	86	m	
② ASCII	GS	V	m	n
Hex	1D	56	m	n
Decimal	29	86	m	n

[Range] ① m = 1, 49
② m = 66, $0 \le n \le 255$

[Description] Selects a mode for cutting paper and exectes paper cutting.
The value of m selects the mode as follows:

m	Print mode
0, 1, 49	Partial cut (one point center uncut)
66	Feeds paper (cutting position + [n x)vertical motion unit)]), and cuts the paper partially (one point center uncut).

GS W nL nH

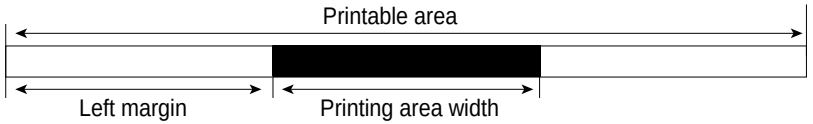
[Name] Set printing area width.

[Format]

ASCII	GS	W	nL	nH
Hex	1D	57	nL	nH
Decimal	29	87	nL	nH

[Range] $0 \le nL \le 255$
$0 \le nH \le 255$

[Description] Set the printing area width to the area specified by nL and nH.
- The printing area width is set to [(nL + nH x 256) x horizontal motion unit)] inches.



GS ^ r t m

[Name] Execute macro.

[Format]

ASCII	GS	^	r	t	m
Hex	1D	5E	r	t	m
Decimal	29	94	r	t	m

[Range] $0 \leq r \leq 255$
$0 \leq t \leq 255$

[Description] m = 0, 1
Executes a macro.

- r specifies the number of times to execute the macro.
- t specifies the waiting time for exceuting the macro.
- m specifies macro executing mode.

When the LSB of m = 0
The macro executes r times continuously at the interval specified by t.
When the LSB of m = 1:
After waiting for the period specified by t, the PAPER OUT LED indicators blink and the printer waits for the FEED button to be pressed. After the button is pressed, the priner executes the macro once. The printer repeats the operation r times.

Gs f n

[Name] Select font for Human Readable Interpreation(HRI) characters.

[Format]

ASCII	GS	f	n
Hex	1D	66	n
Decimal	29	102	n

[Range] n = 0, 1, 48, 49

[Description] Selects a font for the HRI characters used when printing a bar code. n selects a font from the following table:

n	Font
0, 48	Font A (12 x 24)
1, 49	Font B (9 x 24)

GS h n

[Name] Set bar code height.

[Format]

ASCII	GS	h	n
Hex	1D	68	n
Decimal	29	104	n

[Range] $1 \leq n \leq 255$

[Description] Set the height of the bar code.
n specifies the number of dots in the vertical direction.

① GS k m d1... dk NUL, ② GS k m n d1... dn

[Name] Print bar code.

[Format]

① ASCII	GS	k	m	d1...dk	NUL	
Hex	1D	6B	m	d1...dk	00	
Decimal	29	107	m	d1...dk	0	
② ASCII	GS	V	m	n	d1...	dn
Hex	1D	56	m	n	d1...	dn
Decimal	29	86	m	n	d1...	dn

[Range] ① $0 \leq m \leq 6$ (k and d depends on the bar code system used.)
② $65 \leq m \leq 73$ (n and d depends on the bar code system used)

[Description] Selects a bar code system and prints the bar-code.
m selects a bar code system as follows:

m		Bar Code System	Number of Characters	Remarks
①	0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	1	UPC-E	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	2	JAN13(EAN13)	$12 \leq k \leq 13$	$48 \leq d \leq 57$
	3	JAN8(EAN8)	$7 \leq k \leq 8$	$48 \leq d \leq 57$
	4	CODE39	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 90$,32, 36,37,43,45,46,47
	5	ITF	$1 \leq k$ (even number)	$48 \leq d \leq 57$
	6	CODABAR	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 68$ 36,43,45,46,47,58
②	65	UPC-A	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	66	UPC-E	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	67	JAN13(EAN13)	$12 \leq n \leq 13$	$48 \leq d \leq 57$
	68	JAN8(EAN8)	$7 \leq n \leq 8$	$48 \leq d \leq 57$
	69	CODE39	$1 \leq n \leq 255$	$48 \leq d \leq 57$, $65 \leq d \leq 90$,32, 36,37,43,45,46,47 d1 = dk = 42(1)
	70	ITF	$1 \leq n \leq 255$ (even number)	$48 \leq d \leq 57$
	71	CODABAR	$1 \leq n \leq 255$	$48 \leq d \leq 57$, $65 \leq d \leq 68$, 36, 43,45,46,47,58
	72	CODE93	$1 \leq n \leq 255$	$0 \leq d \leq 127$
	73	CODE128	$2 \leq n \leq 255$	$0 \leq d \leq 127$

GS r n

[Name] Transmit status.

[Format]

ASCII	GS	r	n
Hex	1D	72	n
Decimal	29	114	n

[Range] n = 1, 2, 49, 50

[Description] Transmits the status specified by n as follows.

n	Function
1, 49	Transmits paper sensor status.
2, 50	Transmits drawer kick-out connector status.

GS w n

[Name] Set bar code width.

[Format]

ASCII	GS	w	n
Hex	1D	77	n
Decimal	29	119	n

[Range] $2 \leq n \leq 6$

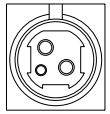
[Description] Set the horizontal size of the bar code.
n specifies the bar code width as follows.

n	Module width for multi-level bar code	Binary-level bar code	
		Thin element width (mm)	Thick element width (mm)
2	0.282	0.282	0.706
3	0.423	0.423	1.129
4	0.564	0.564	1.411
5	0.706	0.706	1.834
6	0.847	0.847	2.258

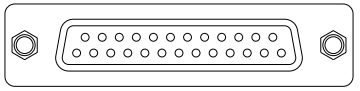
- Mulit-level bar codes are as follows :
  UPC-A, UPC-E, JAn13(ENA13), JAN8(EAN8), CODE93, CODE128.
- Binary-level bar codes are as follows.
  CODE39, ITF, CODABAR

APPENDIX

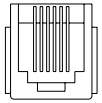
A. Connectors



Power supply connector



Interface connector



Drawer kick-out connector

STP131 Series Connector (Serial/Parallel Interface)

Interface Connector

Serial Interface

Pin No.	Signal name	Direction	Function
	FG	-	Frame Ground
2	TxD	Output	Transmit Data
3	RxD	Input	Receive Data
5	CTS	Input	Data Set Ready
7	SG	-	Signal Ground
4	RTS	Output	Data Terminal Ready

Serial Communication Interface(Example)

Host	
20	TXD(O)
19	RXD(I)
18	RTS(O)
21	CTS(I)
22~25	FG, SG (GND)

Printer	
2	RXD(I)
3	TXD(O)
8	CTS(I)
7	RTS(O)
5	FG, SG (GND)
4	DTR(O)
6	DSR(I)

CONNECT

Parallel Interface

Printer	
1	/STROBE(I/O)
2	DATA0(I/O)
3	DATA1(I/O)
4	DATA2(I/O)
5	DATA3(I/O)
6	DATA4(I/O)
7	DATA5(I/O)
8	DATA6(I/O)
9	DATA7(I/O)
10	/ACK(I)
11	BUSY(I)
12	PE(I)
13	SLCT
15	/ERROR(I)
22~25	GND
25 PINE FEMALE	

Host	
1	/STROBE(I/O)
2	DATA0(I/O)
3	DATA1(I/O)
4	DATA2(I/O)
5	DATA3(I/O)
6	DATA4(I/O)
7	DATA5(I/O)
8	DATA6(I/O)
9	DATA7(I/O)
10	/ACK(I)
11	BUSY(I)
12	PE(I)
13	SLCT
15	/ERROR(I)
18~25	GND
25 PINE FEMALE	

°ÿ14, 16~21 : NC

Drawer Connector

Pin No.	Signal name	Direction
1	Frame ground	-
2	Drawer kick-out drive signal 1	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal 2	Output
6	Signal ground	-

B. Notes

Paper dust inside the printer may lower the print quality. In this case clean the printer as follows.

1) Open the printer cover and remove the paper if exists.
2) Clean the print head with a cotton swab moistened with alcohol solvent.
3) Clean the platen roller and paper end sensor with cotton swab moistened with water.
4) Insert a paper roll and close the printer cover.

The remained amount of paper detected by paper near end sensor varies with the diameter of the paper core.
To adjust the remained amount, contact your dealer.

C. Specification

Printing method		Thermal line printing
Dot density		180 X 180 dpi (7dots/mm)
Printing width		72.192 ± 0.2 mm
Paper width		79 ~ 80 mm
Characters per line (default)		42 (Font A) (12 x 24) 56 (Font B) (9 x 24)
Printing speed		17.3 lines/sec(1/6" Feed) 73.3 mm/sec
Receive Buffer Size		15K Bytes
NOTE : Printing speed may be slower, depending on the data transmission speed and the combination of control commands.		
Supply voltage	Input voltage	120/230 VAC
	Frequency	50/60 Hz
	Output voltage	+24 VDC / 2.3A
Enviromental conditions	Temperautre	5 ~ 45˚C (Operating) -10 ~ 50˚C (Storage)
	Humidity	30 ~ 80 % RH (Operating) 10 ~ 90 % RH (Storage) ; Except for paper
LIFE *	Mechanism Head	15,000,000 lines 100million pulse (Approximately 100 Km)
	Auto Cutter	1,500,000 Cuts
MCBF *	Thermal paper	30,000,000 lines

°ÿ**Paper**

- Paper thickness : 0.065 ~ 0.1mm
- Roll size : ¨Ê50 ~ 79.5(w)
- Roll spool diameter
  1) Inside : ¨Ê12mm (0.47")
  2) Outside : ¨Ê18mm (0.71")

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