

**Dot Matrix Printer**  
**DP8340RC SERIES**

**[PARALLEL INTERFACE]**

***USERS MANUAL***



**Federal Communications Commission  
Radio Frequency Interference  
Statement**

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 interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used 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.

For compliance with the Federal Noise Interference Standard, this equipment requires a shielded cable.

*This statement will be applied only for the printers marketed in U.S.A.*

**Statement of  
The Canadian Department of Communications  
Radio Interference Regulations**

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

*The above statement applies only to printers marketed in Canada.*

**Trademark acknowledgments**

DP8340: *Star Micronics Co. Ltd.*

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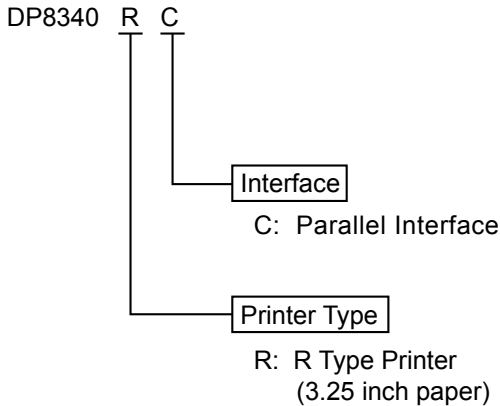
# 1. OUTLINE

The DP8340RC series of serial dot matrix printers is for use in ECR, POS, electronic instruments, banking machines and computer peripheral equipment.

The DP8340RC series include the following features;

- 1) 2 color printing (Red and Black)
- 2) High-speed bidirectional printing (2 line/sec, 29 or 44 columns per line)
- 3) 9-pin print head
- 4) Parallel interface (Centronics compatible)
- 5) Commands for expanded characters, inverted characters, emphasized characters, red and black printing, and 10CPI or 15CPI characters etc. are provided, which makes the printer very versatile.
- 6) Simultaneous Data Communication and Printing
- 7) 2 Peripheral Drivers
- 8) One line validation printing (Option)

## Model Name Notation

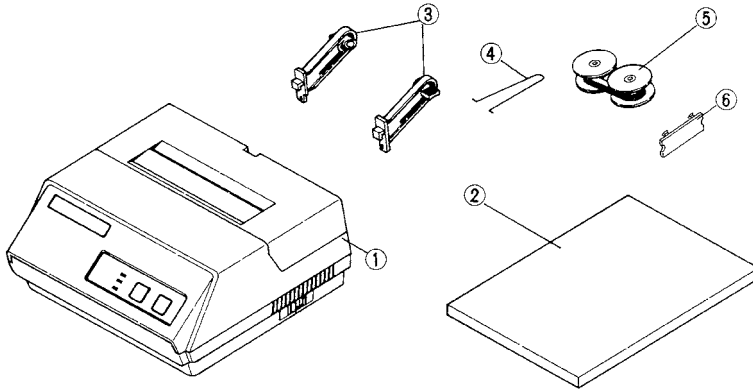


## 2. UNPACKING AND INSTALLATION

### 2-1. Unpacking

After opening the box, check if all necessary accessories are included.

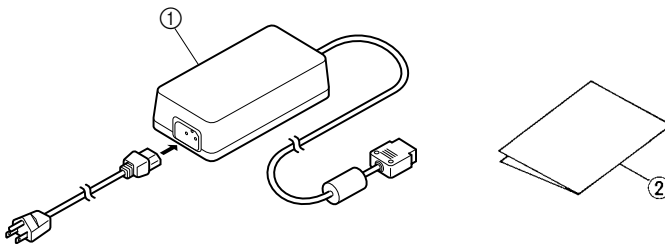
#### (A) Printer



- ① Printer
- ② User's Manual
- ③ Paper Holders

- ④ Re-Roll Prevention Guard
- ⑤ Ink Ribbon
- ⑥ DIP Switch Cover

#### (B) Power Supply Unit (Option: PS8340A)



- ① Power Supply Unit
- ② User's Manual

Figure 2-1. Unpacking

## 2-2. Installation of Paper Holders and Re-Roll Prevention Guard

Install the Paper Holders in the intermost holes in the rear of the printer.

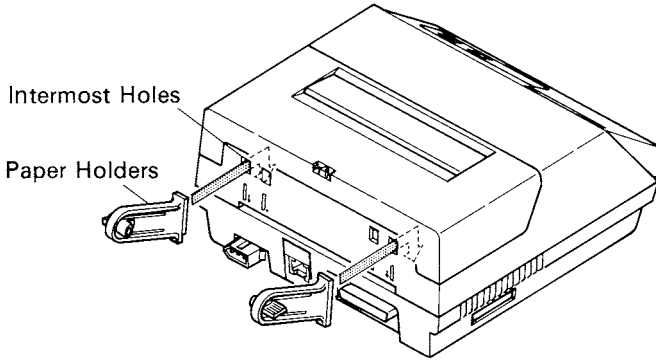


Figure 2-2. Installation of Paper Holders

Install the Re-Roll Prevention Wire in the holes of the printer cover. Twisting the Wire as shown in the figure below, will make the installation easier.

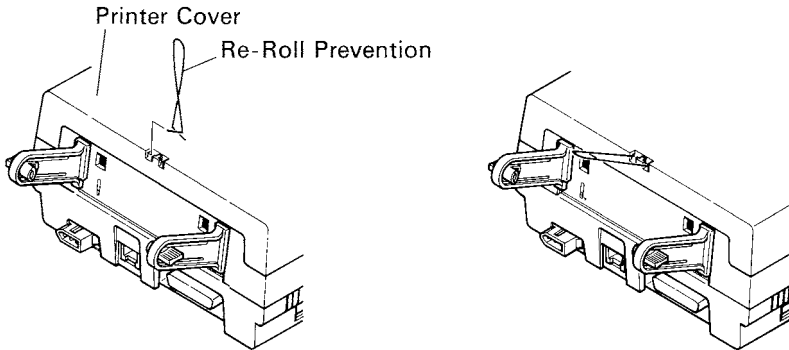


Figure 2-3. Installation of Re-Roll Prevention

## 2-3. Handling Care

1. Be careful not to drop paper clips, pins or other foreign matter into the unit as these cause the printer to malfunction.
2. Do not attempt to print when either paper or ribbon cartridge is not located in the printer, otherwise the print head can be damaged.
3. Do not open the cover while printing.
4. Do not touch the print head immediately after printing as it gets very hot.
5. Use only roll paper that is not glued to the core.
6. When the paper end mark appears on the paper, replace the roll paper before it runs out.

### WARNING

- ✓ Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Immediately unplug the equipment and contact your dealer for advice.
- ✓ Never attempt to repair this product yourself. Improper repair work can be dangerous.
- ✓ Never disassemble or modify this product. Tampering with this product may result in injury, fire, or electric shock.
- ✓ During and immediately after printing, the area around the print head is very hot. Do not touch it, as you could be burned.

### CAUTION

- ✓ We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods. Because of this, you should locate the printer so that the power outlet it is plugged into is nearby and easy to access.
- ✓ If the voltage shown on the label on the of your printer does not match the voltage for your area, contact your dealer immediately.
- ✓ Make sure that the printer is turned off and unplugged from the AC outlet and that the computer is turned off before making connections.
- ✓ Do not connect a telephone line into the modular connector.
- ✓ Do not pull out paper while the printer cover is closed.
- ✓ If liquids, foreign objects (coins and paper clips), and so on enter the printer, turn off the printer, unplug it from the AC outlet, and contact your dealer for advice. Continued use could cause a short circuit, which may result in fire or electric shock.

## **2-4. Maintenance**

Essentially, your printer is a robust piece of equipment, but should be treated with a modicum of care in order to avoid malfunctions. For example:

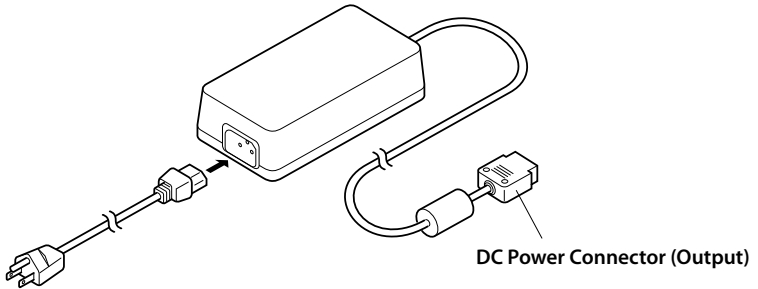
1. Keep your printer in a “comfortable” environment. Roughly speaking, if you feel comfortable, then the environment is suitable for your printer.
2. Do not subject the printer to physical shocks or excessive vibration.
3. Avoid over-dusty environments. Dust is the enemy of all precision mechanical devices.
4. To clean the exterior of the printer, use a cloth barely dampened with either water with a little detergent or a little alcohol, but do not allow any liquid to fall inside the printer.
5. The interior of the printer may be cleaned with a small cleaner or a compressed-air aerosol (sold for this purpose). When performing this operation, be sure not to bend or damage any cable connections or electronic components.



# 3. PART IDENTIFICATION AND NOMENCLATURE

## 3-1. Power Supply Unit (Option)

Model name : PS8340A  
Input : 100 to 240V AC, 50/60 Hz 6.0A  
Output : DC12V±5% 2.0A



Shape of AC Power plug will vary according to destinations.

**Figure 3-1. Power Supply Unit**

### 3-2. Printer

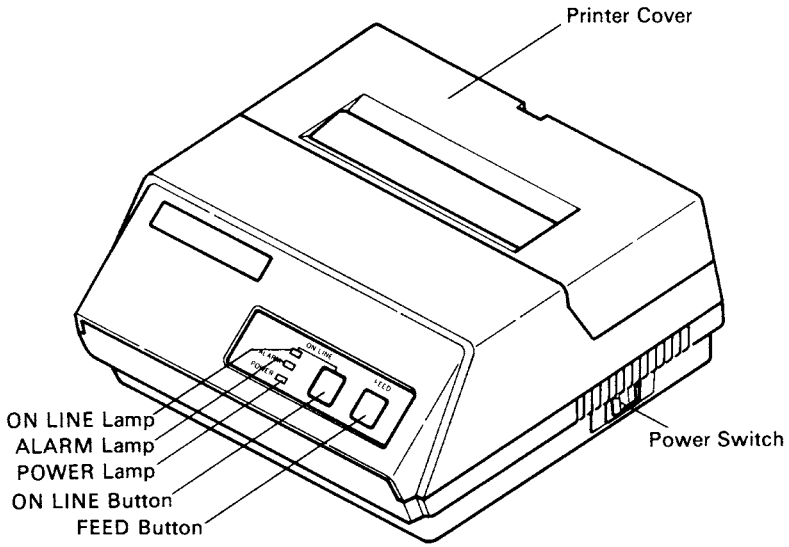


Figure 3-2. Printer: Front View

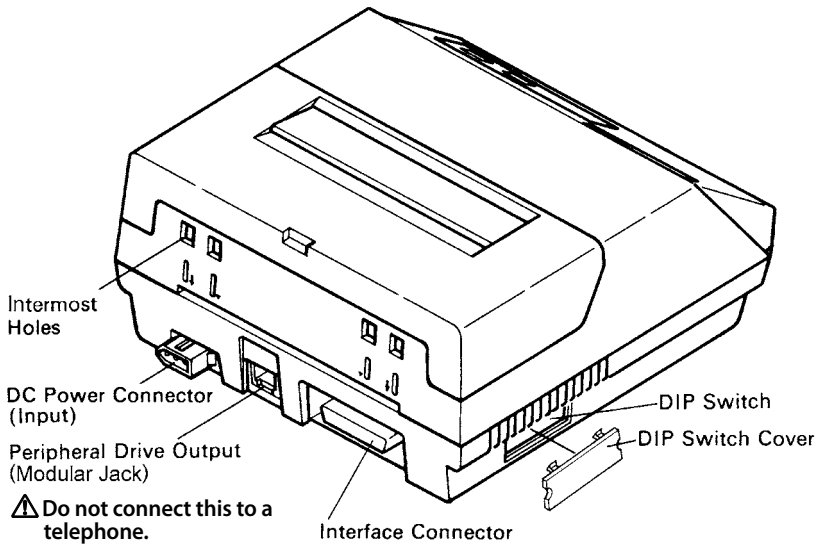


Figure 3-3. Printer: Rear View

### 3-3. Part Functional Description

- (1) AC Power Plug : Connect to an outlet of the specified voltage.
- (2) DC Power Outlet : Supplies DC 12V power to the printer.
- (3) Printer Cover : Protects the printer against dust and reduces noise.
- (4) POWER Lamp : Lights up (green LED) when power is on.
- (5) ON LINE Lamp : Lights up (green LED) when the unit is in the online mode.
- (6) ALARM Lamp : Lights up (red LED) when printer operation is not normal, or the printer is out of paper. It is necessary to install paper into the printer and press the ON LINE Button to recover from paper empty status. Turn off the printer power in order to recover from abnormal operation.
- (7) ON LINE Button : Toggles between the on-line and off-line modes. The printer will go on-line after turning power on.
- (8) FEED Button : Momentary operation of this button provides one line feed. Pressing this button continuously will cause continuous paper feed. If power is turned on while pressing this button, self printing\*1 will be performed.
- (9) Interface Connector : Connects the printer to host computers. Check that both computer and printer are off before connecting.
- (10) DIP Switches : Allows for setting of various functions according to user requirements.
- (11) Peripheral Drive Output : Connects the printer to the peripheral devices such as Cash Drawer, Paper Cutter and Paper Take-Up Device etc. to drive them.

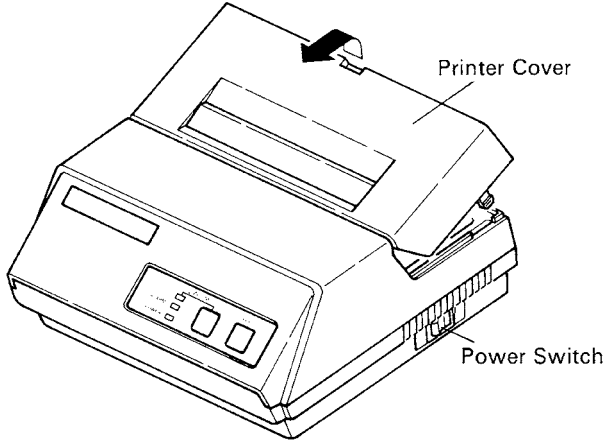
\*1 Self Printing      This printer has another convenient function, the Automatic Test Printing. With the ink ribbon and paper properly installed in the printer, turn the power ON while holding down the Feed switch. Test printing will start and stop again automatically.

# 4. INSTALLATION OF INK RIBBON AND PAPER

## 4-1. Installation of Ink Ribbon

- (1) Turn power off, lift the Printer Cover up and remove it.

**Note:** Be careful not to touch the print head immediately after printing, because it can get very hot.



**Figure 4-1. Printer Cover Removal**

- (2) Unwind ribbon so that the spools are separated as shown in Figure 4-3. Hold the ribbon taut as shown with the drive pins facing down and slide the ribbon between the print head and the platen. While keeping the ribbon taut, wrap one side around the black ribbon guide on the end of the platen and drop one spool on the spool shaft. As you move the spool downwards, move the detecting lever aside to allow the spool to drop into place. Make sure the spool drive pins engage with the spool drive holes. As the spool drops into place there will be a click.
- (3) While continuing to hold the ribbon taut, install the remaining ribbon spool in a similar fashion.
- (4) Turn the spool that rotates freely to take up the ribbon slack.

### Ribbon Life

Description	Ribbon life	
	Black	Red
SF-03BR	Approx. 0.8 million characters	Approx. 0.4 million characters

## Ribbon Life

Description	Ribbon life
	Black
SF-03B	Approx. 0.8 million characters

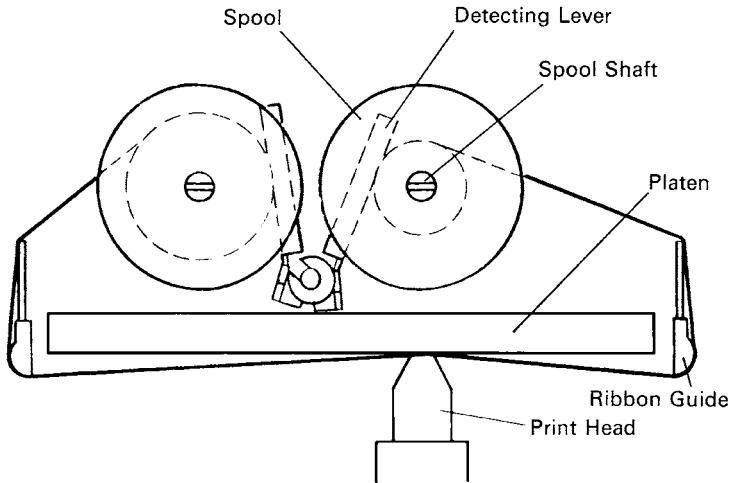


Figure 4-2. Installation of Ink Ribbon

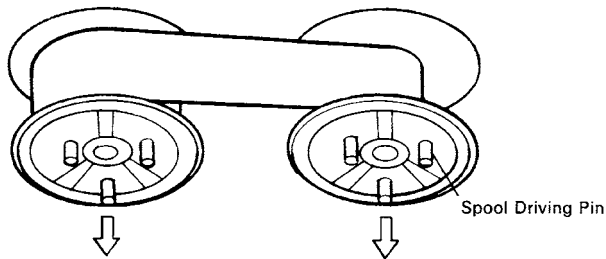


Figure 4-3. Ribbon Spools

## 4-2. Removal of Ink Ribbon

Hold the spool and lift gently, rotating it until the ribbon sags. Push the ribbon detecting lever out, lift the spool until it comes off the shaft. Remove the second spool in a similar manner.

(Do not apply excessive force when lifting spools.)

## 4-3. Paper Insertion

### 4-3-1. For Roll Paper

- (1) Cut the Roll Paper end straight and square. Hold the roll so that the paper comes from the bottom.
- (2) Attach the Roll Paper to the Holders Paper by slipping one side of the roll onto the Hub and pulling the other Hub out to allow the roll to slip in place.
- (3) Insert the paper evenly into the Paper Insertion Slot.
- (4) Turn the Power Switch "ON", and press the FEED Button. The paper will be fed into the unit.

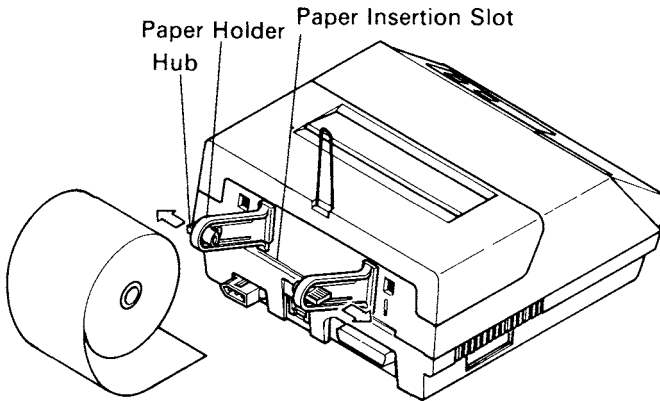


Figure 4-4. Paper Insertion (1)

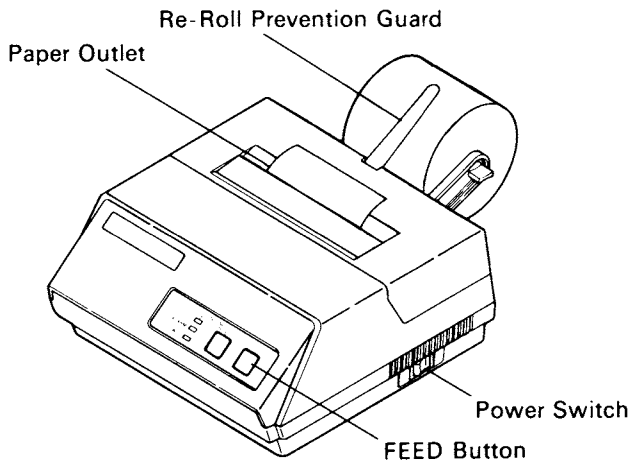


Figure 4-5. Paper Insertion (2)

### 4-3-2. Roll Paper Installation (When using the optional Printer Cover 8340R)

When installing roll paper with the optional “Printer Cover 8340R”, please use the following procedure.

- (1) Turn power off, lift the Printer Cover up and remove it.  
**Note: Be careful not to touch the print head immediately after printing because it can get very hot.**
- (2) Insert paper into the printer, and feed the paper so it extends 3 inches or more above the top surface of the printer.
- (3) Insert the paper into the slot in the “Printer Cover 8340R”.
- (4) Install the “Printer Cover 8340R” on the printer.

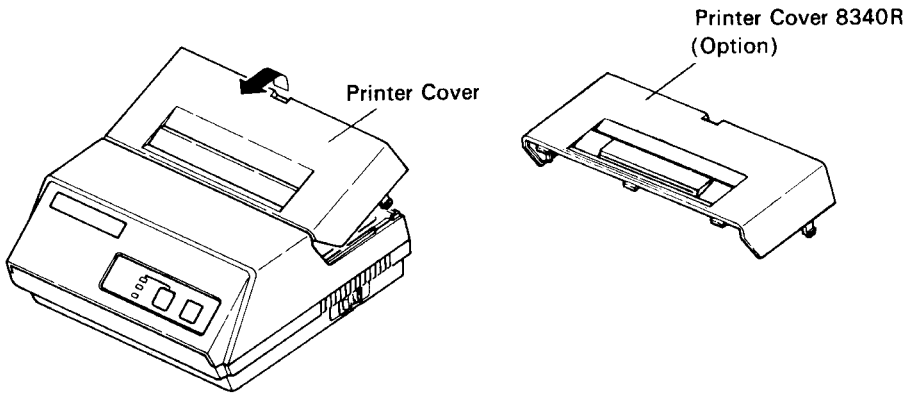


Figure 4-6. Replace the Printer Cover

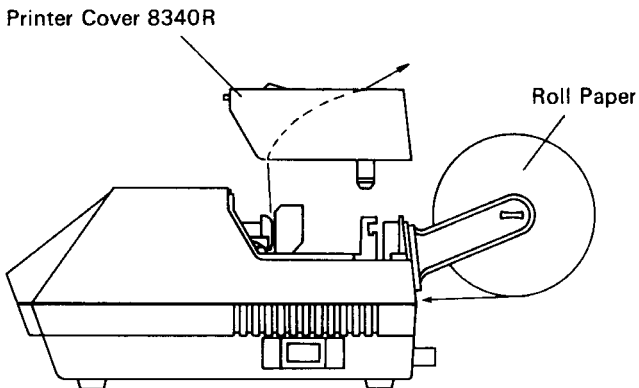


Figure 4-7. Printer Cover 8340R

### 4-3-3. Validation Option Installation

The validation printing requires the optional printer cover 8340R. Refer to item 4-3-2 for the installation.

- (1) Turn power ON.
- (2) Enter the printer the validation mode.  
(Refer to the control code “GS” in Chapter 5.)
- (3) Insert the material to be validated against the right side of the slot in the Printer Cover 8340R.

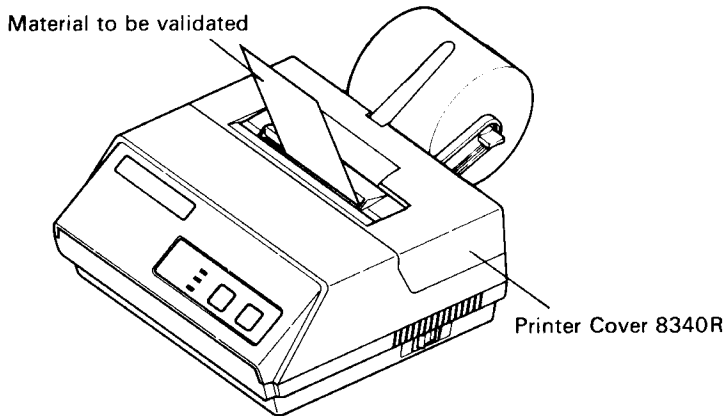


Figure 4-8. Insertion of Material to be validated

### 4-4. Roll Paper Removal

Cut the paper close to the slot and use the feed button until paper has passed completely through the printer.

**Note:** Do not try to remove the paper by hand as it could become crooked and get jammed inside the printer.



# 5. CONTROL CODES

## Character Code List

	Character	Code	Function
1	LF	(0A)H	Print and line feed instruction
2	CR	(0D)H	Print and line feed instruction (same as LF)
3	SO	(0E)H	Expanded character instruction
4	DC4	(14)H	Expanded character release
5	ESC-1	(1B)H (2D)H(01)H (1B)H (2D)H (31)H	Underline instruction
6	ESC-0	(1B)H (2D)H(00)H (1B)H (2D)H (30)H	Underline release
7	SI	(0F)H	Inverted print instruction
8	DC2	(12)H	Inverted print release
9	ESC E	(1B)H (45)H	Emphasized print instruction (one-way printing)
10	ESC F	(1B)H (46)H	Emphasized print release
11	ESC 4	(1B)H (34)H	Red character print instruction
12	ESC 5	(1B)H (35)H	Red character print release
13	ESC a n	(1B)H (61)H n	n-line feed instruction
14	ESC C n	(1B)H (43)H n	Sets page length in lines $1 \leq n \leq 120$ (default $n = 42$ )
15	ESC N n	(1B)H (4E)H n	Set bottom margin in lines $0 \leq n \leq 120$ (default $n = 0$ )
16	ESC O	(1B)H (4F)H	Cancel Bottom margin
17	FF	(0C)H	Form feed
18	ESC @	(1B)H (40)H	Printer initialization instruction
19	ESC BEL n <sup>1</sup> n <sup>2</sup>	(1B)H (07)H n <sup>1</sup> n <sup>2</sup>	Set peripheral unit drive 1 pulse duration $1 \leq n^1 \leq 127, 1 \leq n^2 \leq 127$ (default $n^1 = n^2 = 20$ )
20	BEL	(07)H	Trigger peripheral unit drive 1 (Deferred)
21	FS	(1C)H	Trigger peripheral unit drive 1 (Immediate)
22	SUB	(1A)H	Trigger peripheral unit drive 2 (Immediate)
23	CAN	(18)H	Clears print buffer
24	ESC P	(1B)H (50)H	Select 10 CPI
25	ESC M	(1B)H (4D)H	Select 15 CPI (Default value)
26	GS	(1D)H	Validation printing instruction

## 6. GENERAL SPECIFICATIONS

Printing method :	Serial impact dot matrix printing, 9 wires		
Number of print columns :	29 columns (10CPI), 44 columns (15CPI)		
Print speed :	Approx. 2 lines/sec		
Print direction :	Bi-directional		
Line spacing :	1/6 inch		
Paper feed method :	Friction Feed		
Paper feed speed :	Approx. 12 lines/sec		
Character set :	ASCII	96 characters	
	Special	64 characters	
	Block graphics*	64 characters	
	Katakana (Japanese)	64 characters	
Font configuration :	10CPI Ordinary characters	5 × 9 dots	
	Block graphics*	6 × 6 dots	
	15CPI Ordinary characters	7 × 9 half dots	
	Block graphics*	5 × 6 dots	
	* Graphic Feed Not Available		
Character size :	10CPI	2.00 (H) × 2.42 (V) mm	
	15CPI	1.32 (H) × 2.42 (V) mm	
Character spacing :	10CPI	2.55 mm (1/10 inch)	
	15CPI	1.70 mm (1/15 inch)	
Dot spacing :	10CPI	H=0.425 mm V=0.353 mm	
	15CPI	H=0.340 mm V=0.353 mm	
Gross dot :	10CPI	174 dots/wire/line	
	15CPI	220 dots/wire/line	
Print area :	10CPI	73.53 mm	
	15CPI	74.46 mm	
Print Buffer :	Approx. 1.5 KB		
Interface :	Parallel Interface (Centronics compatible)		
	Peripheral drive	2 outputs (each 1A max. at 12V. Both cannot operate at the same time.)	
External dimensions :	(Printer)	202(W) × 200(D) × 98(H) mm (without paper holder, DC Power Connector)	
	(Power supply unit)	54(W) × 114(D) × 36(H) mm (without AC cable)	
Weight :	(Printer)	Approx. 1.9 kg	
	(Power supply unit)	Approx. 0.3 kg (without AC cable)	

Power supply unit :

Four supplies available with following ratings

Input	Output
AC 100 to 240 V 50/60 Hz 0.6 A	DC 12.0 V $\pm$ 5%  2.0 A

Paper specification :

Paper type Ordinary and carbonless copy paper  
Size Paper width 82.55  $\pm$  0.5mm (3.25 inches)  
Roll diameter 80 mm outer diameter (Max)  
Thickness (single) 0.07 mm (52.3 g/m<sup>2</sup>) to 0.09 mm (64g/m<sup>2</sup>)  
(2 copy) One copy and one original (max 0.13 mm)  
Paper end Paper should not be attached to the core  
One line validation Check (Refer to Fig. 6-2)  
Paper width 70 to 90 mm  
Thickness 0.1 to 0.15 mm  
\* Requires the optional Printer Cover 8340R

Ink ribbon specification :

Color Black and red / Black only  
Ribbon material Nylon (#40 denier)  
Ribbon size 13mm  $\times$  6m  
Spool 13mm (width), 35mm in diameter (two spool)  
Recommended ribbon SF-03BR (Black and red), SF-03B (Black)  
Operating conditions : Temperature +5°C to +40°C  
Humidity 10% to 80%RH  
Storage conditions : Temperature -20°C to +70°C  
Humidity 5% to 95%RH (+40°C)  
Head life : 70 million characters  
Printer reliability : 5.0 million lines MCBF (except head life)

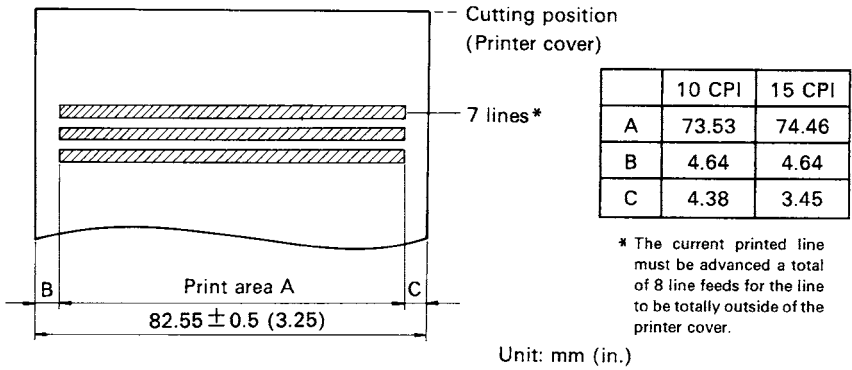


Figure 6-1. Roll Paper and Print Area

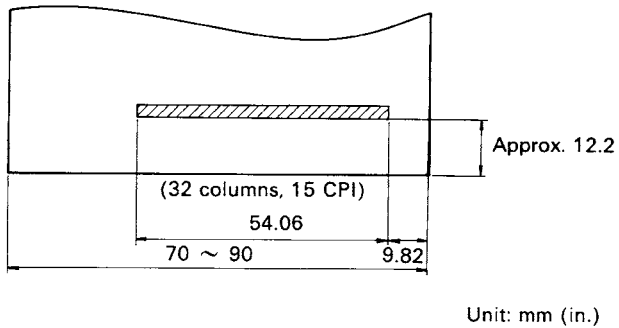
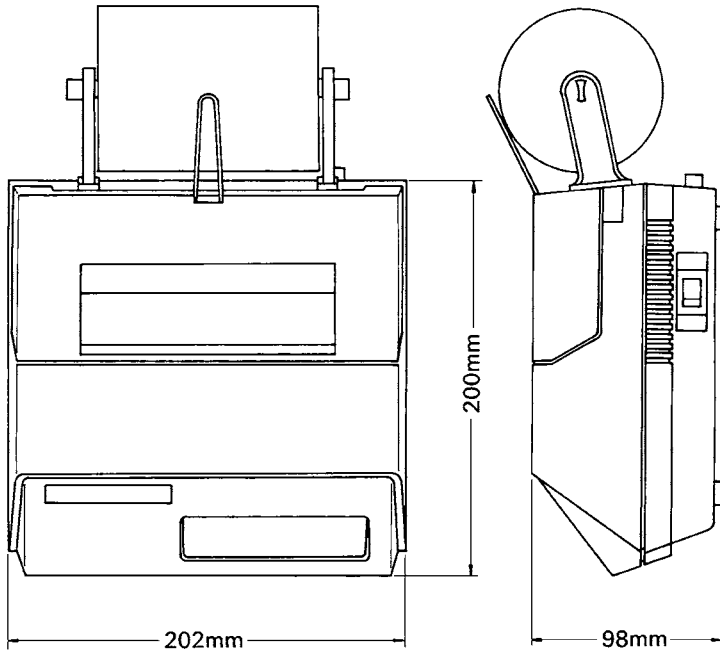
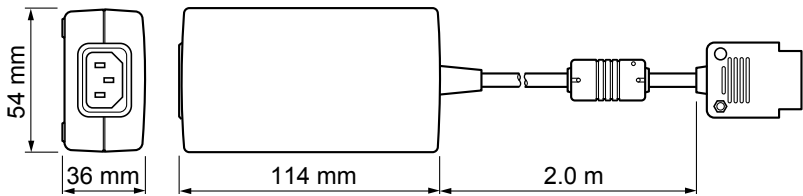


Figure 6-2. Material to be validated and One Line Validation Printing



**Figure 6-3. External Dimensions (Printer)**



Shape of AC Power plug will vary according to destinations.

**Figure 6-4. External Dimensions (Power Supply Unit)**

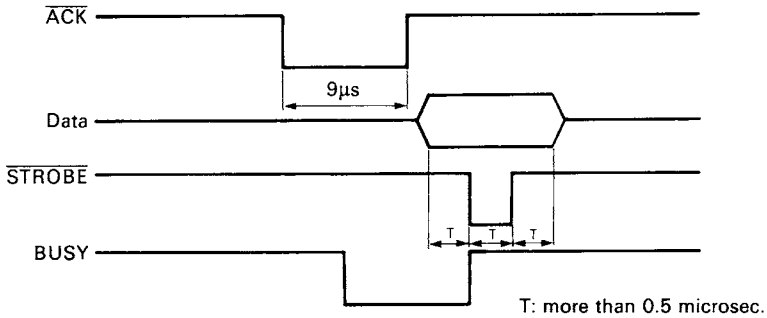
# 7. INTERFACE

## 7-1. Interface Specifications

This printer has a parallel interface to communicate with the computer. The operating specifications of the parallel interface are as follows.

- (1) Data transfer rate            1000 to 6000 characters per second
- (2) Synchronization            Via externally supplied  $\overline{\text{STROBE}}$  pulses
- (3) Handshaking                 $\overline{\text{ACK}}$  and  $\text{BUSY}$  signals
- (4) Logic level                    Compatible with TTL level

## 7-2. Interface Timing



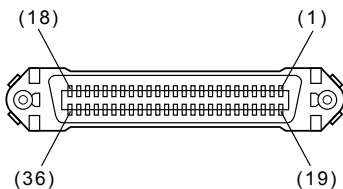
**Figure 7-1. Interface Timing Diagram**

Signal Name	Circuit Example
DATA1-DATA8 (To Printer)	<div style="display: flex; justify-content: space-between;"> <span>4.7 k<math>\Omega</math></span> <span>74LS Compatible</span> </div>
$\overline{\text{STROBE}}$ (To Printer)	<div style="display: flex; justify-content: space-between;"> <span>1k<math>\Omega</math></span> <span>74LS Compatible</span> </div>
BUSY, $\overline{\text{ACK}}$ (From Printer)	<div style="display: flex; justify-content: space-between;"> <span>4.7 k<math>\Omega</math></span> <span>74LS Compatible</span> </div>

**Figure 7-2. Typical Interface Circuit**

### 7-3. Connectors and Signals

Pin No.	Signal Name	IN/OUT	Function
1	$\overline{\text{STROBE}}$	IN	Signals when data is ready to be read. Signal goes from HIGH to LOW (for at least 0.5 microsec.) when data is available.
2-9	DATA1-8	IN	These signals provide the information of the first to eighth bits of parallel data. Each signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
10	$\overline{\text{ACK}}$	OUT	A 9 microsecond LOW pulse acknowledges receipt of data.
11	BUSY	OUT	When this signal goes LOW, the printer is ready to accept data. When the printer is in one of the conditions below, "HIGH" is set. 1. Data being entered. 2. Off line. 3. Error condition.
12	PAPER OUT	OUT	This signal is normally LOW. It will go HIGH if the printer runs out of paper.
13	SELECTED	OUT	This signal is HIGH when the printer is online.
14-15	—		Unused
16	SIGNAL GND		Signal ground.
17	CHASSIS GND		Chassis ground, isolated from logic ground.
18	LOGIC		This pin is pulled-up 4.7 k $\Omega$ resistor to +5V.
19-30	GND		Twisted pair return signal ground level.
31	$\overline{\text{RESET}}$	IN	When this signal goes LOW, the printer is reset to its power-on condition.
32	$\overline{\text{ERROR}}$	OUT	This signal is normally HIGH. This signal goes LOW to signal that the printer cannot print due to an error condition. Refer to Item 7-6 Emergency Suspension.
33	EXT GND		External ground.
34	—		Unused
35	+5V		This pin is pulled-up 2.2 k $\Omega$ resistor to +5V.
36	$\overline{\text{SELECT IN}}$		Unused



This connector mates with an Amphenol 57-30360 connector.

**Figure 7-3. Parallel Interface Connector (Printer side)**

## 7-4. Setting of the DIP Switches

Factory settings : all ON

Switch	Function	ON	OFF
1	Character Table	U.S.A. & Europe	Japan
2	Unused		
3	CR cord	Disable	Enable
4	Unused		
5 (*1)	Ink Ribbon	2-color	Monochrome
6	International Character Set (See below)		
7			
8			

(\*1) DIP Switch 5 should be set to ON when you use a 2-color ribbon for 2-color printing.  
It should be set to OFF when a monochrome ribbon is used.

### International Character Set

SW NO.	USA	France	Germany	England	Denmark	Sweden	Italy	Spain
6	ON	OFF	ON	OFF	ON	OFF	ON	OFF
7	ON	ON	OFF	OFF	ON	ON	OFF	OFF
8	ON	ON	ON	ON	OFF	OFF	OFF	OFF

**Note:** When DIP Switches 1 is set to OFF, the printer always selects the Japan international character set regardless of the status of DIP Switches 6, 7 and 8.

When DIP Switches 1 is otherwise set, the printer selects the character set determined by DIP Switches 6, 7 and 8.

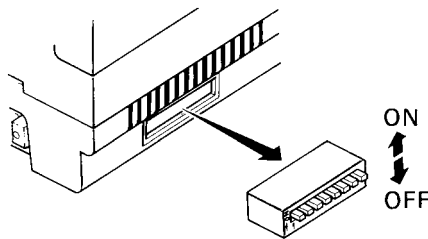


Figure 7-4. DIP Switch Setting



## 7-5. Peripheral Unit Drive Circuit

The Control Board of this printer is equipped with a circuit for driving peripheral units (Paper Cutter, Take-Up Device, Cash Drawer, etc.)

The 6P Modular Jack is used as the Drive Circuit. When using this circuit, connect the peripheral unit cable to the 6P Modular Jack (cable is not included).

**Note:** Peripheral unit drive circuit connector only connects to peripheral units such as cash drawers, etc.

**⚠ Do not connect it to a telephone.**

### 1. Drive Circuit

Drive Output	12V, MAX. 1A
--------------	--------------

Absolute Ratings (Ta = 25°C)	
D1	Voltage Breakdown 400V
D2	Peak Forward Current 1A

**Note:** It is impossible to drive peripheral devices 1 and 2 at the same time. To drive them continuously, set the duty cycle ratio to 20% or less.

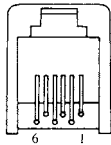
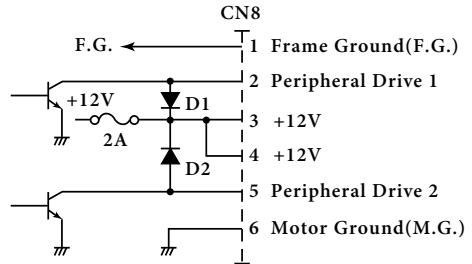


Figure 7-6. 6P Modular Jack Connector



[Printer side]

Figure 7-5. Drive Circuit

Modular plug: MOLEX 90075-0007, AMP641337, or BURNDY B-66-4

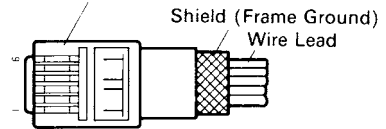


Figure 7-7. Recommend Cable

**Note:** Make sure that the metal structural parts of the peripheral device are connected to frame Ground (Pin 1) to provide a static drain path.

### 2. Control code

Codes for Drive Circuit control are ESC BEL n1 n2, BEL, FS and SUB.

Refer to the Control Codes in Section 5.

## 7-6. Error Condition Alarm Mode

If an error condition is detected during operation, the printer will stop printing and cause the ERROR signal to go Low. All solenoids & motors will be de-energized. It is necessary to turn the printer power off and on again in order to recover from the alarm mode.

The printer can detect the following error conditions:

- Motor Lock
- Defective timing detector
- Micro-processor out of program sequence

## 8. WHEN POWER IS SUPPLIED BY THE USER

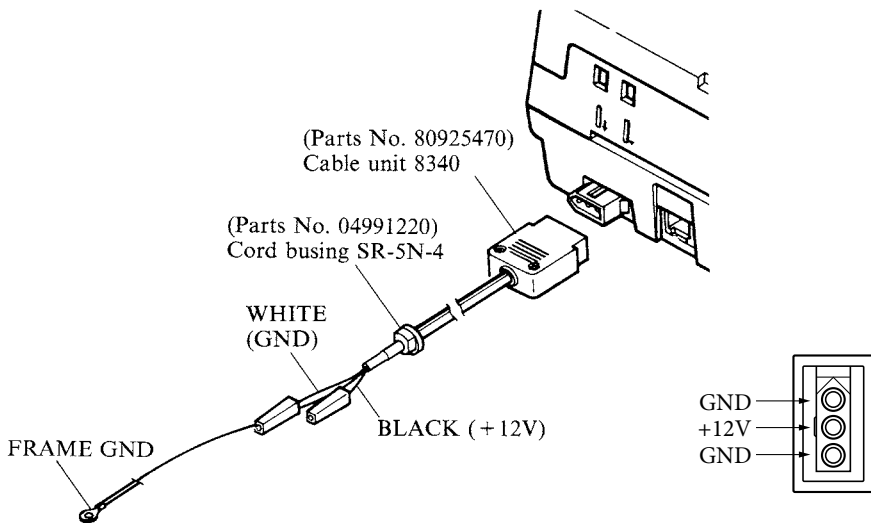
**Note :** The optional AC adapter (PS8340A) has been designed specifically for this unit(DP8340).

Other AC adapters may not meet the EMC technical standards.

When printer power is supplied by the user rather than through the accessory power source unit, please be careful of the following points.

**Note 1:** An electrolytic capacitor ( $C = 4700\mu\text{F}/25\text{V}$  to  $6800\mu\text{F}/25\text{V}$ ) must be connected across the output of the power supply. Use a power supply of DC  $12\text{V} \pm 5\%$  and more than 2.0 A with SELV output and LPS or Class 2 (double-insulation structure) output approved by IEC60950.

**Note 2:** A DC power plug is available as an option.



**Note 3:** Be careful about installing the printer in an area where there is noise. Take the appropriate measures to protect against electrostatic AC line noise, etc.

# 9. CHARACTER CODE LIST

## 1) U.S.A. & Europe (DIP SW1: ON)

Hexa- decimal	0	1	2	3	4	5	6	7
0	0	16	SP	0	@	P	'	p
1	1	17	!	1	A	Q	a	q
2	2	DC2	"	2	B	R	b	r
3	3	19	#	3	C	S	c	s
4	4	DC4	\$	4	D	T	d	t
5	5	21	%	5	E	U	e	u
6	6	22	&	6	F	V	f	v
7	BEL	23	'	7	G	W	g	w
8	CAN	24	(	8	H	X	h	x
9		25	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B		ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	
D	CR	GS	-	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	⌘

(SP: Space)

Hexa- decimal	8	9	A	B	C	D	E	F
0	SP 128	┘ 144	Ä 160	é 176	ù 192	ā 208	■ 224	T 240
1	┘ 129	┘ 145	Ö 161	è 177	ü 193	â 209	■ 225	— 241
2	— 130	■ 146	Ü 162	ē 178	û 194	° 210	■ 226	— 242
3	┘ 131	■ 147	β 163	ê 179	ç 195	°C 211	■ 227	— 243
4	— 132	■ 148	§ 164	ÿ 180	ı 196	°F 212	+ 228	┘ 244
5	┘ 133	■ 149	à 165	ı 181	Ñ 197	Ω 213	┘ 229	┘ 245
6	— 134	/ 150	ó 166	ı 182	ñ 198	μ 214	┘ 230	┘ 246
7	┘ 135	\ 151	f 167	ı 183	Ē 199	Σ 215	┘ 231	■ 247
8	— 136	◀ 152	Ø 168	î 184	Ɔ 200	σ 216	■ 232	■ 248
9	┘ 137	▶ 153	½ 169	ö 185	€ 201	ā 217	⌘ 233	▶ 249
A	— 138	┘ 154	Ŧ 170	ó 186	Å 202	T <sub>L</sub> 218	┘ 234	▶ 250
B	┘ 139	┘ 155	Ŧ <sub>x</sub> 171	ð 187	φ 203	X 219	← 235	= 251
C	┘ 140	┘ 156	¥ 172	ö 188	θ 204	∞ 220	↑ 236	 252
D	— 141	┘ 157	¼ 173	ô 189	à 205	± 221	→ 237	┘ 253
E	┘ 142	◆ 158	Ā 174	ü 190	á 206	÷ 222	↓ 238	┘ 254
F	┘ 143	× 159	ë 175	ú 191	à 207	π 223	┘ 239	┘ 255

(SP: Space)

2) JAPAN (DIP SW1: OFF)

Hexa- decimal	0	1	2	3	4	5	6	7
0	0	16	SP 32	0 48	@ 64	P 80	' 96	p 112
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	CAN 8	24	( 40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	¥ 92	l 108	 124
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	* 127

(SP: Space)

Hexa- decimal	8	9	A	B	C	D	E	F
0	SP 128	┘ 144	SP 160	ー 176	タ 192	ミ 208	■ 224	T 240
1	┘ 129	┘ 145	。○ 161	ア 177	チ 193	ム 209	■ 225	■ 241
2	ー 130	■ 146	「 162	イ 178	ツ 194	メ 210	■ 226	■ 242
3	┘ 131	■ 147	」 163	ウ 179	テ 195	モ 211	■ 227	■ 243
4	ー 132	■ 148	、 164	エ 180	ト 196	ヤ 212	+ 228	┘ 244
5	┘ 133	■ 149	・ 165	オ 181	ナ 197	ユ 213	┘ 229	┘ 245
6	ー 134	/ 150	ヲ 166	カ 182	ニ 198	ヨ 214	┘ 230	┘ 246
7	┘ 135	/ 151	ア 167	キ 183	ヌ 199	ラ 215	┘ 231	■ 247
8	ー 136	▼ 152	イ 168	ク 184	ネ 200	リ 216	■ 232	■ 248
9	┘ 137	▼ 153	ウ 169	ケ 185	ノ 201	ル 217	■ 233	▲ 249
A	ー 138	┘ 154	エ 170	コ 186	ハ 202	レ 218	┘ 234	▲ 250
B	┘ 139	┘ 155	オ 171	サ 187	ヒ 203	ロ 219	← 235	= 251
C	ト 140	┘ 156	ヤ 172	シ 188	フ 204	ワ 220	↑ 236	 252
D	ー 141	┘ 157	ユ 173	ス 189	へ 205	ン 221	→ 237	┘ 253
E	┘ 142	◆ 158	ヨ 174	セ 190	ホ 206	〃 222	↓ 238	┘ 254
F	┘ 143	× 159	ツ 175	ソ 191	マ 207	。○ 223	┘ 239	┘ 255

(SP: Space)

## International Character Sets

Hexadecimal	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	\$	@	[	\	]	^	'	{		}	~
France	#	\$	à	°	ç	š	^	'	é	ù	è	¨
Germany	#	\$	š	Ä	ö	Ü	^	'	ä	ö	ü	ß
England	£	\$	@	[	\	]	^	'	{		}	~
Denmark	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
Spain	¤	\$	@	í	ñ	¿	^	'	¨	ñ	}	~
Japan	#	\$	@	[	¥	]	^	'	{		}	—



**SPECIAL PRODUCTS DIVISION  
STAR MICRONICS CO., LTD.**

536 Nanatsushinya, Shimizu-ku, Shizuoka,  
424-0066 Japan

Tel: (int+81)-54-347-0112

Fax: (int+81)-54-347-0409

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**STAR MICRONICS AMERICA, INC.**

1150 King Georges Post Road, Edison, NJ 08837-3729 U.S.A.

Tel: (int+1)-732-623-5500, Fax: (int+1)-732-623-5590

**STAR MICRONICS EUROPE LTD.**

Star House, Peregrine Business Park, Gomm Road,  
High Wycombe, Bucks, HP13 7DL, U.K.

Tel: (int+44)-1494-471111, Fax: (int+44)-1494-473333

**STAR MICRONICS ASIA LTD.**

Rm. 1901-5, 19/F., Enterprise Square Two,  
3 Sheung Yuet Road, Kowloon Bay, Hong Kong

Tel : (int+852)-2796-2727, Fax : (int+852)-2799-9344