

BIXOLON®

SAMSUNG mini printers



SAMSUNG
ELECTRO-MECHANICS

USER'S MANUAL

SRP-275

IMPACT PRINTER



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EMC and Safety standards Applied

Product Name : SRP-275

The following standards are applied only to the printers that are so labeled.

Europe : CE marking, TUV/GS : EN60950-1; 2001

North America : EMI : FCC Class A

Safety standards : UL / C-UL : UL60950-1

National : CB-scheme : IEC 60950-1: 2001

WARNING

The connection of a non-shielded printer interface cable to this printer will invalidate the EMC standards of this device. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

CE Marking

The printer conforms to the following Directive and Norms

EMC Directive 89/336/EEC EN55022 Class A : 1998+A1 : 2000
 EN55024 : 1998+A1 : 2001
 EN61000-3-2 : 2000
 EN61000-3-3 : 1995+A1 : 2001

Low Voltage Directive 73/23/EEC Safety : EN60950-1 : 2001

Safety precautions

In using the present appliance, please keep the following safety regulations in order to prevent any hazard or material damage.



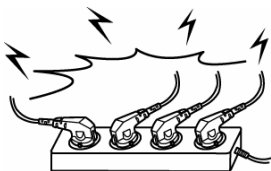
WARNING

Violating following instructions can cause serious injury or death.

Do not plug several products in one multi-outlet.

- This can provoke over-heating and a fire.
- If the plug is wet or dirty, dry or wipe it before usage.
- If the plug does not fit perfectly with the outlet, do not plug in.
- Be sure to use only standardized multi-outlets.

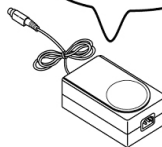
PROHIBIT



You must use only the supplied adapter.

- It is dangerous to use other adapters.

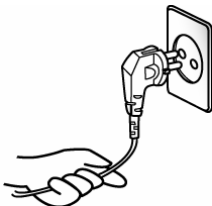
ONLY SUPPLIED ADAPTER



Do not pull the cable to unplug.

- This can damage the cable, which is the origin of a fire or a breakdown of the printer.

PROHIBIT



Keep the plastic bag out of children's reach.

- If not, a child may put the bag on his head.

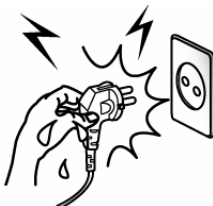
PROHIBIT



Do not plug in or unplug with your hands wet.

- You can be electrocuted.

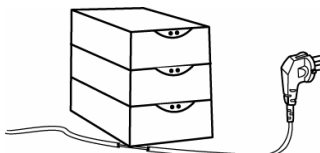
PROHIBIT



Do not bend the cable by force or leave it under any heavy object.

- A damaged cable can cause a fire.

PROHIBIT





WARNING

Violating following instructions can cause serious injury or death.

If you observe a strange smoke, odor or noise from the printer, unplug it before taking following measures.

- Switch off the printer and unplug the set from the mains.
- After the disappearance of the smoke, call your dealer to repair it.

TO UNPLUG



Keep the desiccant out of children's reach.

- If not, they may eat it.

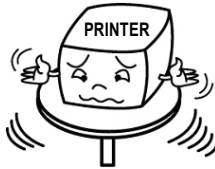
PROHIBIT



Install the printer on the stable surface.

- If the printer falls down, it can be broken and you can hurt yourself.

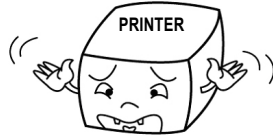
PROHIBIT



Use only approved accessories and do not try to disassemble, repair or remodel it for yourself.

- Call your dealer when you need these services.
- Do not touch the blade of auto cutter.

**DISASSEMBLING
PROHIBITED**



Do not let water or other foreign objects in the printer.

- If this happened, switch off and unplug the printer before calling your dealer.

PROHIBIT



Do not use the printer when it is out of order. This can cause a fire or an electrocution.

- Switch off and unplug the printer before calling your dealer.

TO UNPLUG



Table of contents

Chapter 1 Setting up the printer

| | | |
|-------|--|-----|
| 1.1 | Unpacking | 1-1 |
| 1.2 | Choosing a place for the printer | 1-1 |
| 1.3 | Connecting the cables | 1-2 |
| 1.3.1 | Connecting the AC adaptor | 1-2 |
| 1.3.2 | Connecting the interface cable and drawer kick-out cable | 1-2 |
| 1.4 | Installing the ribbon cassette | 1-3 |
| 1.5 | Installing the paper roll | 1-4 |
| 1.6 | Changing the paper width | 1-5 |
| 1.7 | Installing the wall mount (Option) | 1-6 |
| 1.8 | Using the operation panel | 1-7 |
| 1.9 | Self test | 1-8 |

Chapter 2 Troubleshooting

| | | |
|-----|--|-----|
| 2.1 | ERROR LED blinking pattern | 2-1 |
| 2.2 | The printer does not start printing | 2-2 |
| 2.3 | The printer stops printing | 2-3 |
| 2.4 | You want to check the operation of the printer by itself | 2-3 |
| 2.5 | Printing is poor | 2-4 |
| 2.6 | You want to check a software program | 2-4 |

Chapter 3 Setting the switches

| | | |
|-------|---|-----|
| 3.1 | Setting the DIP Switch | 3-1 |
| 3.1.1 | DIP Switch setting for Epson(ESC/POS) mode | 3-1 |
| 3.1.2 | DIP Switch setting for Citizen(iDP 3550) mode | 3-2 |
| 3.1.3 | DIP Switch setting for Star(SP500) mode | 3-3 |
| 3.1.4 | Changing the DIP Switch setting | 3-4 |
| 3.2 | Setting the Memory Switches | 3-5 |
| 3.2.1 | Memory Switch setting for Epson(ESC/POS) mode | 3-5 |
| 3.2.2 | Memory Switch setting for Star mode | 3-9 |

Chapter 4 Control commands list

| | | |
|-------|---|------|
| 4.1 | Command notation | 4-1 |
| 4.2 | Explanation of term | 4-1 |
| 4.3 | Exception processing | 4-2 |
| 4.4 | Commands for SRP-275 series | 4-3 |
| 4.4.1 | Commands list for EPSON mode (TM-U220) | 4-3 |
| 4.4.2 | Command description for EPSON mode (TM-U220) | 4-4 |
| 4.4.3 | Commands list for STAR mode (SP500) | 4-28 |
| 4.4.4 | Commands list for CITIZEN mode (iDP3550/3551) | 4-30 |

Chapter 5 Reference information

| | | |
|-----|-------------------------------|-----|
| 5.1 | Printing specification | 5-1 |
| 5.2 | Paper specifications | 5-1 |
| 5.3 | Ribbon cassette specification | 5-1 |
| 5.4 | Electrical characteristics | 5-2 |

| | | |
|-----|------------------------------|-----|
| 5.5 | Reliability | 5-2 |
| 5.6 | Environment conditions | 5-2 |
| 5.7 | Environment conditions | 5-3 |
| 5.8 | Optional features | 5-3 |

Appendix A Code table

| | | |
|------|---|------|
| A.1 | Page 0 (PC 437 : USA, Standard Europe(International Character Set : USA)) | A-1 |
| A.2 | Page 1 (Katakana) | A-2 |
| A.3 | Page 2 (PC850 : Multilingual) | A-3 |
| A.4 | Page 3 (PC860 : Portuguese) | A-4 |
| A.5 | Page 4 (PC863 : Canadian-French) | A-5 |
| A.6 | Page 5 (PC865 : Nordic) | A-6 |
| A.7 | Page 16 (WPC1252 : Latin1) | A-7 |
| A.8 | Page 17 (PC866 : Russian) | A-8 |
| A.9 | Page 18 (PC852 : Latin2) | A-9 |
| A.10 | Page 19 (PC858 : Euro) | A-10 |
| A.11 | Page 21 (PC862 : Israel) | A-11 |
| A.12 | Page 22 (PC864 : Arabic) | A-12 |
| A.13 | Page 23 (Thai character code 42) | A-13 |
| A.14 | Page 24 (WPC1253 : Greek) | A-14 |
| A.15 | Page 25 (WPC1254 : Turkish) | A-15 |
| A.16 | Page 26 (WPC1257 : Baltic) | A-16 |
| A.17 | Page 27 (Farsi) | A-17 |
| A.18 | Page 28 (WPC1251 : Russian) | A-18 |
| A.19 | Page 29 (PC737 : Greek) | A-19 |
| A.20 | Page 30 (PC775 : Baltic) | A-20 |
| A.21 | Page 31 (Thai character code 16) | A-21 |
| A.22 | Page 32 (OldCode : Israel) | A-22 |
| A.23 | Page 33 (WPC 1255 : Israel) | A-23 |
| A.24 | Page 34 (Thai character code 11) | A-24 |
| A.25 | Page 35 (Thai character code 18) | A-25 |
| A.26 | International character code table | A-26 |

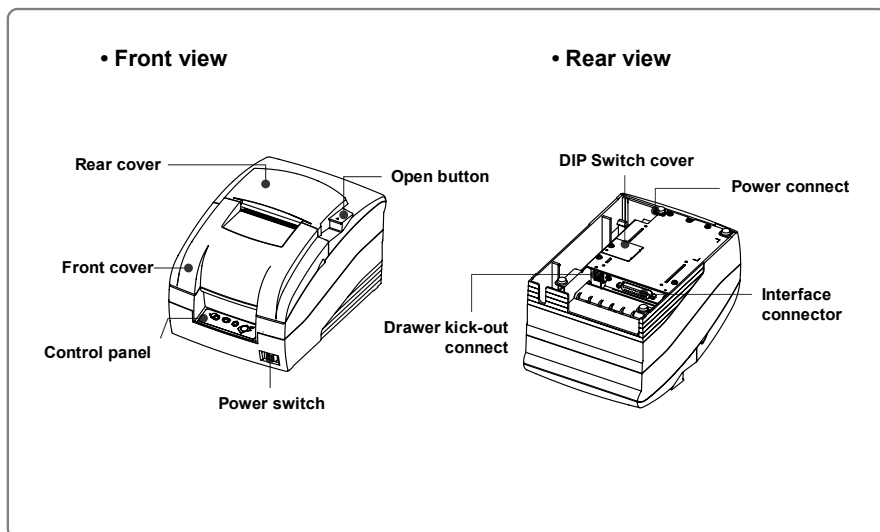
Appendix B Connectors

| | | |
|-----|--|-----|
| B.1 | RS-232C Serial I/F | B-1 |
| | B.1.1 RS-232C Serial I/F cable connection | B-1 |
| | B.1.2 RS-232C Serial I/F signal descriptions | B-1 |
| B.2 | IEEE 1284 Parallel I/F | B-2 |
| | B.2.1 IEEE 1284 Parallel I/F signal specification (Compatibility / Nibble / Byte mode) | B-2 |
| B.3 | USB I/F | B-3 |
| | B.3.1 USB I/F signal description | B-3 |
| B.4 | Drawer kick-out | B-3 |
| | B.4.1 Drawer kick-out connection | B-3 |

Introduction

**The SRP-275 is a high-quality impact printer.
This one-station printer has the following features.**

- Compact design and light-weight.
- High-speed printing using logic-seeking (5.1LPS).
- Easy to use : Easy paper loading.
- High reliability and long life due to the use of stepping motors for head carriage return and paper feeding.
- Two color printing (red/black) available.
- Various formats are possible because the paper feeding pitch is selectable.
- High general control utility based on the ESC/POS(TM) standard.
- The head can be driven due to the internal drawer interface.
- Character font (7 x 9, 9 x 9) is selectable.
- The auto cutter uses a circular method with a high-quality blade and a long life (Approximately 1,000,000 cuts).
- Paper near end Switch is standard.
- A internal AC adaptor.



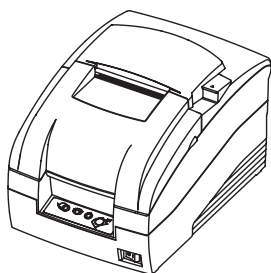
NOTES

Please be sure to read the instructions in this manual carefully before using your new printer.

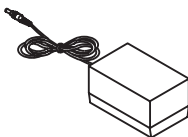
1.1 Unpacking

Your printer box should include the items shown in the illustration below.

If any items are damaged or missing, please contact your dealer.



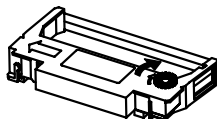
SRP-275A, C



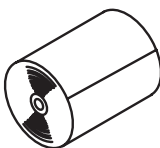
AC adaptor



Power cord



Ribbon cassette



Paper roll



Quick reference guide



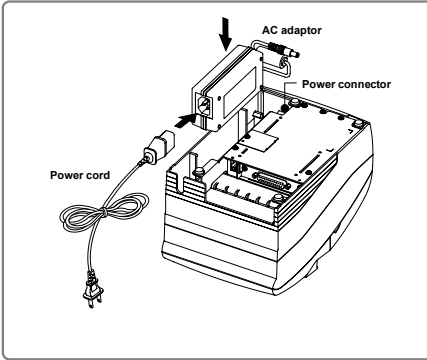
User's manual

1.2 Choosing a place for the printer

- Avoid locations that are subject to direct sunlight or excessive heat.
- Avoid using or storing the printer in a place subject to excessive temperature or moisture.
- Do not use or store the printer in a dirty location.
- When setting up the printer, choose a stable, horizontal location.
- Intense vibration or shock may damage the printer.
- Ensure the printer has enough space to be used easily.

1.3 Connecting the cables

1.3.1 Connecting the AC adaptor



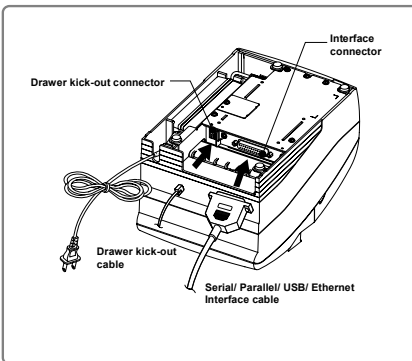
• **Connect the AC adapter according to the following procedure.**

- 1) Make sure the printer is turned off.
- 2) Before inserting the AC adaptor, connect the power cord.
- 3) Insert the AC adaptor as shown.
- 4) Plug the AC adapter cable into the printer's power connector.
- 5) Plug the power cord into the outlet, and turn on the power.

CAUTION

Before connecting the printer to the power supply, make sure that the voltage and power specifications match the printer's requirements. Using an incorrect power supply can cause serious damage to the printer.

1.3.2 Connecting the interface cable and drawer kick-out cable



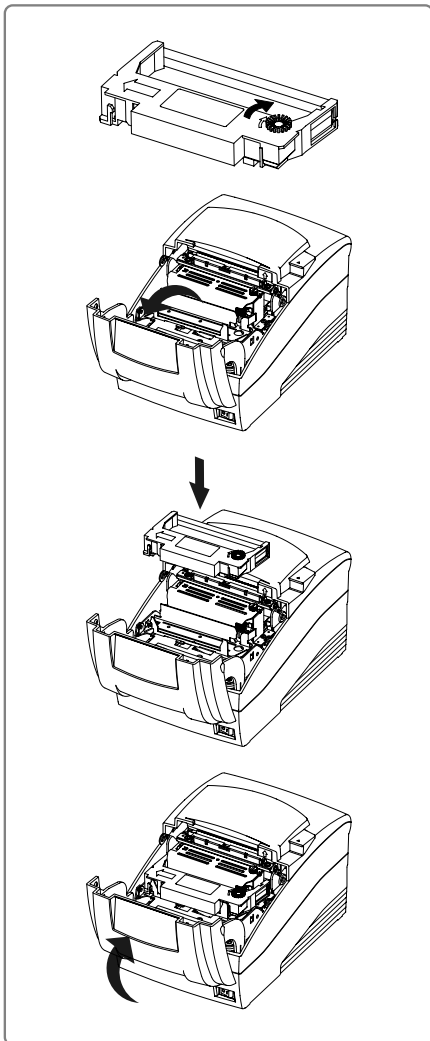
• **Connect the cables according to the following procedure.**

- 1) Turn off printer and the host ECR (host computer).
- 2) Plug the interface cable into the interface connector on the printer then fasten the screw on both sides of the connector.
- 3) Plug the drawer kick-out cable into the drawer kick-out connector on the printer.
(When removing the drawer kick-out cable, press on the connector's clip while pulling out.)

NOTES

Connect the printer to the host ECR (host computer) through an interface cable matching the specification of the printer and the host ECR (host computer). Be sure to use a drawer that matches the printer's specification.

Depending on the interface your system uses, either connect the serial, parallel, USB or Ethernet communication cable to the appropriate connector on the back of the printer. Cables are provided by your dealer or system installer.

1.4 Installing the ribbon cassette

1) Before inserting the ribbon cassette, turn the knob clockwise to prevent twisting the ribbon.

2) Open the front cover of printer.

3) Take out the old ribbon cassette if there is one.

4) Insert the new ribbon cassette as shown and pay particular attention to the placement of the ribbon behind the Printer Head.

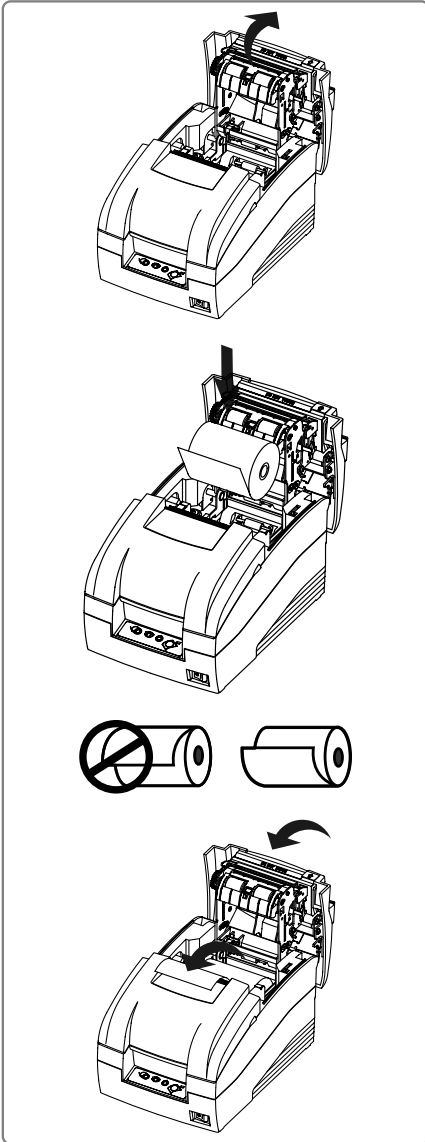
5) During inserting the ribbon cassette, turn the knob clockwise again to make sure the ribbon moves freely in the cassette.

6) Close front cover of printer.

NOTES

Malfunctions and other problems may arise if other than specified ribbon cassettes are used in the printer. The Warranty may be void if other than specified ribbon cassettes are used. Contact your dealer or place of purchase for more information about proper ribbon cassettes.

1.5 Installing the paper roll



1) To prevent data loss, make sure that the printer is not receiving data.

2) Open the rear cover by pushing the open button.

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

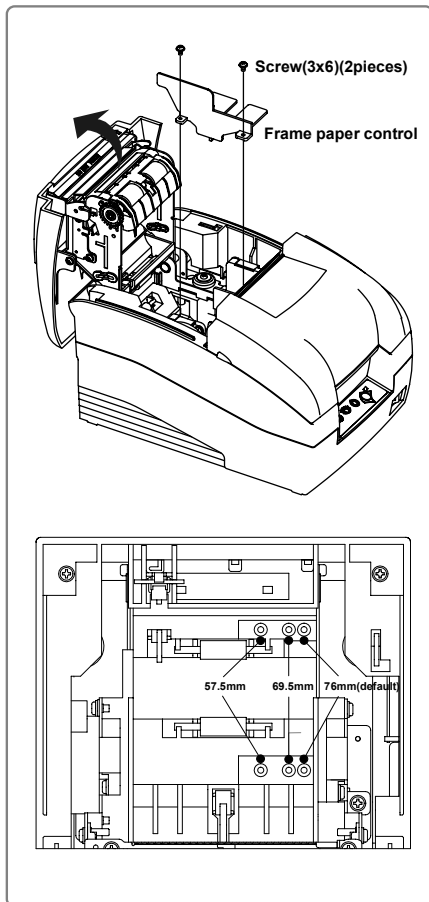
4) Insert the paper roll as shown.

5) Be sure to note the correct direction that the paper should come off the paper roll.

6) Pull out small amount of paper as shown. Then close the cover and tear off the extra paper by pulling it toward the front of the printer.

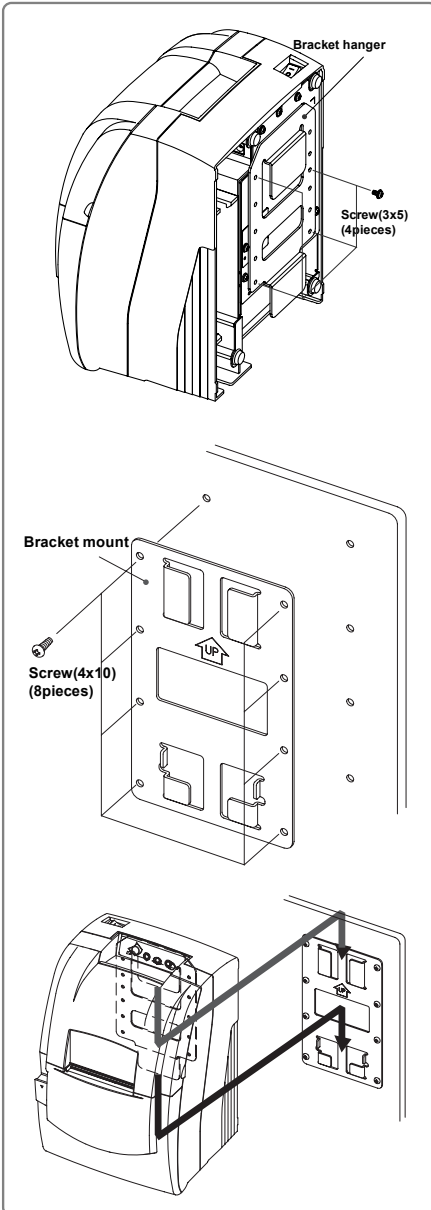
CAUTION

Do not touch the auto cutter blade when you open rear cover.

1.6 Changing the paper width

- 1) Open the rear cover.
- 2) Remove the frame paper control by loosening the two screws(3×6).
- 3) Reattach the frame paper control in you want. (Insert and tighten two screws(3×6) to reattach.)
- 4) Close the rear cover.
- 5) Change the Memory Switch setting for changing paper roll width. (See the instructions "Setting the Memory Switches"(3.1) in Chapter 3.)

1.7 Installing the wall mount (Option)



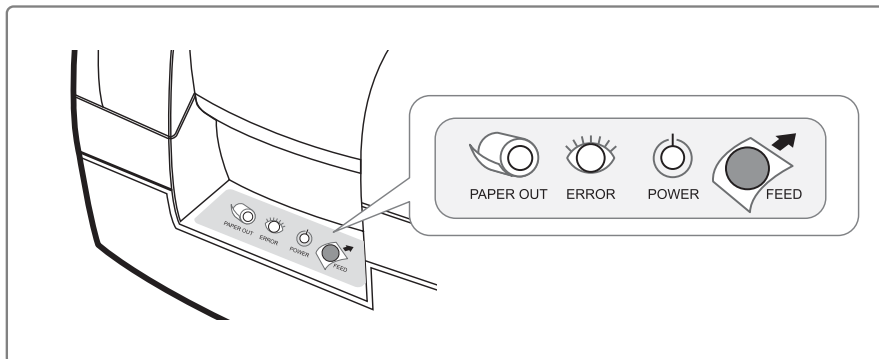
1) Turn the Set over and attach the Bracket hanger to the Frame base then tighten four screws.

2) Attach the Bracket mount to the wall firmly with the eight screws. Be sure that the Bracket attached properly to match the direction of arrow as shown. And the Bracket mount should be always fixed vertically.

3) Insert the Bracket hanger of Set to the Bracket mount as shown.

1.8 Using the operation panel

Most of the functions of this printer are governed by software, but you can monitor the printer's status by looking at the lights on the control panel and for some procedures you will use the buttons.

• Control panel**- POWER LED (Green Color)**

This indicator light is on when the power is turned on. It blinks when the printer is in the self test printing standby state. Always wait until this indicator light stops blinking before you start using the printer and before you turn it off.

- ERROR LED (Red Color)

When this indicator light is on (but not blinking), it means that the printer is out of paper or almost out of paper or the printer covers are open. When this light blinking, there is an error. (See "ERROR LED blinking pattern" (2.1) in Chapter 2.) If you see this light blinking, turn off the printer for a few seconds and then turn it back on. If the light is still blinking, call your supervisor or a service person.

- PAPER OUT LED (Red Color)

When this indicator light is on, it means that the paper near end. Replace the new paper roll. When ERROR and PAPER OUT indicator lights are on it means paper end. Install the paper roll. (See "Installing paper roll" (1.5) in Chapter 1.)

- FEED button

Use this button to feed paper or to start self test and for hexadecimal dump mode. (See the instructions "Self test" (1.7) in this chapter for self test.) (See the instructions "Hexadecimal dump" (2.6) in Chapter 2 for hexadecimal dump mode.)

1.9 Self test

The self test let you know if your printer is operating properly. It checks the printing quality, ROM version, DIP Switch settings, memory switch settings and statistic data.

The test is independent of any other equipment or software, so it is a good idea to run it when you first set up the printer or if you have any trouble. If the self test works correctly, the problem is in the other equipment or the software, not the printer.

- Running the self test



- 1) Make sure the printer is turned off and the printer cover is closed properly.
- 2) While holding down the FEED button, turn on the printer and continue to hold until the paper begins to feed. The self test prints the printer DIP Switch settings and memory switch settings. And cuts the paper and pauses. (The power light blinks.)
- 3) Press the FEED button to continue printing the statistic data.
- 4) Press the FEED button to continue printing the rolling ASCII pattern.
- 5) The self test mode terminates after printing the rolling ASCII pattern automatically.

This chapter gives solutions to some printer problems you may have.

2.1 ERROR LED blinking pattern

The printer stops all printer operations for the selected paper section, goes off line, and the ERROR LED blinks when an error is detected.

• Errors that automatically recover

| Error | Description | ERROR LED blinking pattern | Recovery |
|--|--|---|---|
| Rear cover open error (When recoverable Error is selected)(*1) | The rear cover is opened when printing |  | Recovers automatically when the rear cover is closed. |
| Print head temperature error(*2) | The temperature of the print head is extremely high. |  | Recovers automatically when the print head cools. |




NOTES

(*1) These conditions are selected by MSW8-5, 8-8. When MSW8-5 (mapping of the cover open status) is off, the error hasn't occurred but there is a "paper end error" instead. If MSW8-8 is off, this error is handled as an automatically recoverable error.

(*2) Print head temperature error is not abnormal.

• Recoverable errors

When a recoverable error occurs, after the cause of the error is removed, the printer can recover from the error by receiving an error recovery command without turning off the power.

| Error | Description | ERROR LED blinking pattern | Recovery |
|--|--|---|---|
| Rear cover open error (*1) | The rear cover is opened when printing. |  | Recovers automatically when the rear cover is closed. |
| Auto cutter error (Type C only) | The auto cutter does not work correctly. |  | Recovers by error recovery command. |
| Home position detection error (This is "Mechanical error") | The home position cannot be detected due to a paper jam. |  | Recovers by error recovery command. |

NOTES

(*1) These conditions are selected by MSW8-5, 8-8. When MSW8-5 (mapping of the cover open status) is off, the error hasn't occurred but there is a "paper end error" instead. If MSW8-8 is off, this error is handled as an automatically recoverable error.

• **Errors that are impossible to recover**

| Error | Description | ERROR LED blinking pattern | Recovery |
|---|---|-----------------------------------|---|
| R/W error in memory or gate array | After R/W checking, the printer does not work correctly. Writing to, reading out, or erasing the NV memory for image scanning results does not work correctly. | | Recovers automatically when the rear cover is closed. |
| High voltage error | The power supply voltage is extremely high. | | Impossible to recover. |
| Low voltage error | The power supply voltage is extremely low. | | Impossible to recover. |
| CPU execution error | The CPU executes an incorrect address or I/F board is not connected. | | Impossible to recover. |
| Print head temperature detection circuit error. | There is an abnormality in the print head temperature. | | Impossible to recover. |

NOTES

If you see this light blinking, turn off the printer for a few seconds and then turn it back on.
If the light is still blinking, call your supervisor or a service person.

2.2 The printer does not start printing

• **Are any of the operation panel lights on, If no operation panel lights are on, check the following:**

- Make sure that the printer is turned on.
- Make sure that the power supply cable is correctly plugged into the printer and to the power outlet.

• **If any of the lights are on, please check the following:**

- If the POWER LED is blinking, the printer is not ready yet.
Wait until the light quits blinking and the printer is ready to use.
- If the ERROR LED is on (but not blinking), the printer is off line. Check to see that the covers are closed and check the paper state. See "Installing paper roll" (1.5) in Chapter 1 for instructions on installing or replacing the paper roll.
- If the ERROR LED is blinking, there is an error. In this case, turn off the printer for a few seconds and then turn it back on. If the light is still blinking, call your supervisor or service person.
- If the PAPER OUT LED is on, check the paper roll in the printer. See "Installing paper roll" (1.5) in Chapter 1 for instruction on installing the paper roll.

2.3 The printer stops printing

- If the ERROR LED is on (but not blinking), the printer is off line. Check to see that the covers are closed and check the paper state. See "Installing paper roll"(1.5) in Chapter 1 for instructions on installing or replacing the paper roll.
- If the ERROR LED is blinking, there is an error. In this case, turn off the printer for a few seconds and then turn it back on. If the LED is still blinking, call your supervisor or a service person.
- Turn off the printer and check for a paper jam. To clear paper jam, follow the steps below:
 - 1) Turn off the printer and open the rear cover of the printer.
 - 2) Remove the jammed paper and reload the paper roll as described in Chapter 1.
 - 3) Close the rear cover.
 - 4) Turn on the printer.

2.4 You want to check the operation of the printer by itself

• Self test

Try to run the self test to check that the printer works properly. See the self test instructions in Chapter 1 to run the self test. If the self test does not work, contact your supervisor or a service person.

If the self test works properly, check the following:

- 1) Check the connection at both ends of the interface cable between the printer and the computer. Also make sure that this cable meets the specifications for both the printer and the computer.
- 2) The data transmission settings may be different between the printer and computer. Make sure that the printer's DIP Switch settings for data transmission are the same as the computer's. You can see the printer's interface settings on your self test printout.

NOTES

If the printer still does not print, contact your dealer or a qualified service person.

2.5 Printing is poor

Check the state of ribbon cassette. If the ribbon cassette life ends, replace the ribbon cassette as described in Chapter 1.

NOTES

If the printer is still poor, contact your dealer or a qualified service person.

2.6 You want to check a software program

• Hexadecimal dump

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 other data in hexadecimal format along with a guide section to help you find specific commands.

• To use the hexadecimal dump feature, follow these steps:

- 1) After you make sure that the printer is off, open the rear cover of the printer.
- 2) Hold down the FEED button while you turn on the printer.
- 3) Close the rear cover.
- 4) Run any software program that sends data to the printer. The printer prints "Hexadecimal dump" and then all the codes are received in a two column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

```
Hexadecimal Dump
To terminate hexadecimal dump
Press FEED button three times

1B 21 00 1B 26 02 40 40 . ! . . & . . @ @
1B 25 01 1B 63 34 00 1B . % . . c 4 . .
41 42 43 44 45 46 47 48 A B C D E F G H

<Online Hex Dump Completed>
```

(A period(.) is printed for each code that has no ASCII equivalent.)

- 5) When the printing finishes, turn off the printer.

3.1 Setting the DIP Switch

Although the factory settings are best for almost all users, if you have special requirements, you can change the DIP Switch. Your printer has two sets of DIP Switches. The functions of the switches are shown in the following table.

3.1.1 DIP Switch setting for Epson(ESC/POS) mode

• DIP Switch 1

| Switch | Function | ON | OFF | Default |
|--------|-------------------------------------|------------------------------|--------------------------------|---------|
| 1-1 | Emulation Selection (*1) | Refer to the following table | | OFF |
| 1-2 | | | | |
| 1-3 | Auto cutter | Enable | Disable | OFF |
| 1-4 | BUSY condition | Receive buffer full | Receive buffer full or Offline | OFF |
| 1-5 | Serial interface selection | Memory Switch | DIP Switch | OFF |
| 1-6 | Print NV bit image #1 after cutting | Enable | Disable | OFF |
| 1-7 | Near end switch | Enable | Disable | OFF |
| 1-8 | Print column | 42/35 | 40/33 | OFF |

• DIP Switch 2 (RS232C serial interface model)

| Switch | Function | ON | OFF | Default |
|--------|--------------------------|------------------------------|-----------|---------|
| 2-1 | Data receive error | Ignore | Print “?” | OFF |
| 2-2 | | Reserved | | OFF |
| 2-3 | Hand shaking | XON/XOFF | DTR/DSR | OFF |
| 2-4 | Word length | 7 bits | 8 bits | OFF |
| 2-5 | Parity check | Enable | Disable | OFF |
| 2-6 | Parity selection | EVEN | ODD | OFF |
| 2-7 | Baud rate selection (*2) | Refer to the following table | | OFF |
| 2-8 | | | | OFF |

• DIP Switch 2 (Parallel interface model)

| Switch | Function | ON | OFF | Default |
|--------|----------------|-----------|---------|---------|
| 2-1 | Auto Line Feed | Enable | Disable | OFF |
| 2-2~8 | | Undefined | | OFF |

NOTES

(*1) Emulation Selection (DSW 1-1 and 1-2)

| Emulation | 1-1 | 1-2 |
|-----------|-----|-----|
| EPSON | OFF | OFF |
| STAR | OFF | ON |
| CITIZEN | ON | OFF |
| EPSON-KP | ON | ON |

- EPSON-KP(EPSON Kitchen Printer mode) : A alarm is generated by printer after auto cutting and in paper end error.

(*2) Baud rate selection (Transmission speed)

| Transmission | 2-7 | 2-8 |
|--------------|-----|-----|
| 2400 baud | ON | ON |
| 4800 baud | OFF | ON |
| 9600 baud | OFF | OFF |
| 19200 baud | ON | OFF |

3.1.2 DIP Switch setting for Citizen(iDP 3550) mode

• DIP Switch 1

| Switch | Function | ON | OFF | Default |
|--------|-------------------------------|-------------------------------|-------------------------------|---------|
| 1-1 | Emulation Selection (*1) | Refer to the following table | | OFF |
| 1-2 | | | | |
| 1-3 | Auto cutter | Enable | Disable | OFF |
| 1-4 | CBM command | CBM2 mode (iDP3530 system) | CBM1 mode (iDP3540 system) | OFF |
| 1-5 | International characters (*2) | Refer to the following table | | ON |
| 1-6 | | | | |
| 1-7 | | | | |
| 1-8 | CR mode | CR | CR+LF | OFF |

• DIP Switch 2 (RS232C serial interface model)

| Switch | Function | ON | OFF | Default |
|--------|--------------------------|------------------------------|-----------|---------|
| 2-1 | Word length | 8 bits | 7 bits | ON |
| 2-2 | Parity check | Disable | Enable | ON |
| 2-3 | Parity selection | ODD | EVEN | ON |
| 2-4 | Hand shaking | DTR/DSR | XON/XOFF | ON |
| 2-5 | Baud rate selection (*3) | Refer to the following table | | OFF |
| 2-6 | | | | |
| 2-7 | Near end switch | Enable | Disable | OFF |
| 2-8 | Mechanism type | Graphic | Character | OFF |

NOTES

(*1) Emulation Selection (DSW 1-1 and 1-2)

| Emulation | 1-1 | 1-2 |
|-----------|-----|-----|
| EPSON | OFF | OFF |
| STAR | OFF | ON |
| CITIZEN | ON | OFF |
| EPSON-KP | ON | ON |

- EPSON-KP(EPSON Kitchen Printer mode) : A alarm is generated by printer after auto cutting and in paper end error.

(*2) International Character Selection

| Country | No. | DSW 1-5 | DSW 1-6 | DSW 1-7 | Code page |
|--------------|-----|---------|---------|---------|-------------------------------|
| U.S.A. | | ON | ON | ON | Page 0 (PC437 : U.S.A.) |
| France | | OFF | ON | ON | |
| Germany | | ON | OFF | ON | Page 2 (PC850 : Multilingual) |
| U.K. | | OFF | OFF | ON | |
| Denmark | | ON | ON | OFF | Page 5 (PC865 : Nordic) |
| Sweden | | OFF | ON | OFF | |
| Italy | | ON | OFF | OFF | Page 2 (PC850 : Multilingual) |
| Windows Code | | OFF | OFF | OFF | |

(*3) Baud rate selection (Transmission speed)

| Transmission | 2-5 | 2-6 |
|--------------|-----|-----|
| 2400 baud | ON | ON |
| 4800 baud | OFF | ON |
| 9600 baud | OFF | OFF |
| 19200 baud | ON | OFF |

Setting the switches

3.1.3 DIP Switch setting for Star(SP500) mode

• DIP Switch 1

| Switch | Function | ON | OFF | Default |
|--------|--------------------------|------------------------------|---------|---------|
| 1-1 | Emulation Selection (*1) | Refer to the following table | | OFF |
| 1-2 | | | | |
| 1-3 | Auto cutter | Enable | Disable | OFF |
| 1-4 | Black/Red Printing | Enable | Disable | OFF |
| 1-5 | Reserved | | | OFF |
| 1-6 | | | | |
| 1-7 | | | | |
| 1-8 | | | | |

• DIP Switch 2 (RS232C serial interface model)

| Switch | Function | ON | OFF | Default |
|--------|--------------------------|------------------------------|---------|---------|
| 2-1 | Reserved | | | OFF |
| 2-2 | | | | |
| 2-3 | Hand shaking | XON/XOFF | DTR/DSR | OFF |
| 2-4 | Word length | 7 bits | 8 bits | OFF |
| 2-5 | Parity check | Enable | Disable | OFF |
| 2-6 | Parity selection | EVEN | ODD | OFF |
| 2-7 | Baud rate selection (*2) | Refer to the following table | | OFF |
| 2-8 | | | | OFF |

NOTES

(*1) Emulation Selection (DSW 1-1 and 1-2)

| Emulation | 1-1 | 1-2 |
|-----------|-----|-----|
| EPSON | OFF | OFF |
| STAR | OFF | ON |
| CITIZEN | ON | OFF |
| EPSON-KP | ON | ON |

- EPSON-KP(EPSON Kitchen Printer mode) : A alarm is generated by printer after auto cutting and in paper end error.

(*2) Baud rate selection (Transmission speed)

| Transmission | 2-7 | 2-8 |
|--------------|-----|-----|
| 2400 baud | ON | ON |
| 4800 baud | OFF | ON |
| 9600 baud | OFF | OFF |
| 19200 baud | ON | OFF |

NOTICE

Change in DIP Switch settings are recognized only when the printer power is turned on or when the printer is reset by using the interface. If the DIP Switch setting is changed after the printer power is turned on, the change does not take effect until the printer is turned on again or is reset.

3.1.4 Changing the DIP Switch setting

If you need to change settings, follow the steps below to make your changes.

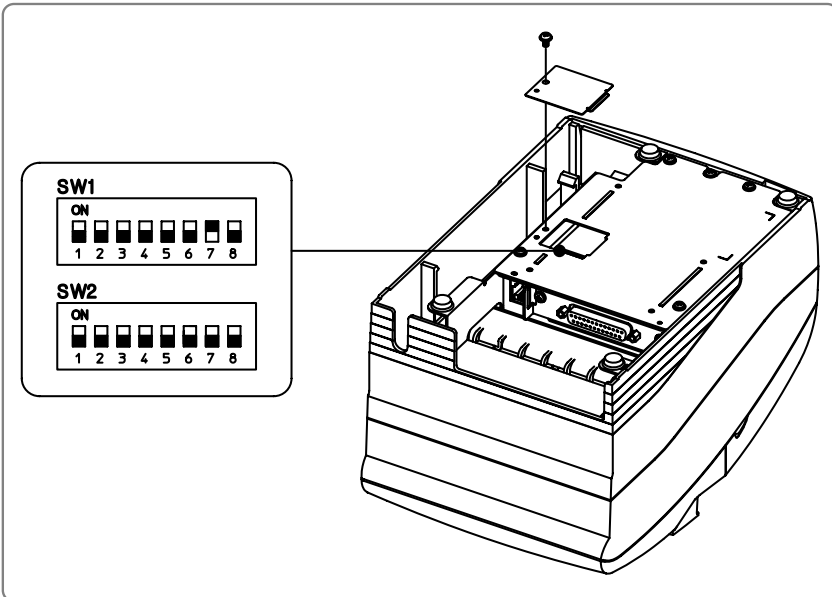
⚠ CAUTION

Turn off the printer before removing the DIP Switch cover to prevent an electric short, which can damage the printer.

- 1) Make sure the printer is turned off.
- 2) Remove the screw from the DIP Switch cover.
Then take off the DIP Switch cover, which is shown in the illustration below.
- 3) Set the switches using a pointed tool, such as tweezers or a small.
- 4) Replace the DIP Switch cover. Then secure it with the screw.

📄 NOTES

The new settings take effect when you turn on the printer.



3.2 Setting the Memory Switches

3.2.1 Memory Switch setting for Epson(ESC/POS) mode

This printer has "Memory Switch" set which is software switches. Memory Switch set has "MSW 2", "MSW 8", "Customize value", "Serial communication condition". "Memory Switch setting utility" can change the Memory Switch set to ON or OFF as shown in the table below (default: all OFF):

NOTES

The Memory Switch is available to be changed by three methods:

- Memory Switch setting utility
- Memory Switch setup mode (there are limitations on what can be changed)
- Control from ESC/POS command
- Some Memory Switch settings can be changed by the "Memory Switch setting mode". See "Procedure of Memory Switch setting".

Settings of the Memory Switch are stored in the NV memory; therefore, even if the printer is turned off, the settings are maintained. When you replace a SRP-270 with a SRP-275, you should adjust the MSW 8-5 to OFF.

• Memory Switch 2

| Switch | Function | On | Off |
|--------|--------------------------------|------------------------------|--------------|
| 1 | Reserved | - | Fixed to Off |
| 2 | Reserved | - | Fixed to Off |
| 3 | Reserved for Chinese selection | - | Fixed to Off |
| 4-8 | Code page selection (*1) | Refer to the following table | |

NOTES

Desired code page can be selected using Memory Switch 2-4~8 by setting as following.

(*1) Code page selection

| MSW 2-8 | MSW 2-7 | MSW 2-6 | MSW 2-5 | MSW 2-4 | Character Table |
|---------|---------|---------|---------|---------|----------------------------------|
| 0 | 0 | 0 | 0 | 0 | Page 0 (PC437 : U.S.A.) |
| 0 | 0 | 0 | 0 | 1 | Page 1 (Katakana) |
| 0 | 0 | 0 | 1 | 0 | Page 2 (PC850 : Multilingual) |
| 0 | 0 | 0 | 1 | 1 | Page 3 (PC860 : Portuguese) |
| 0 | 0 | 1 | 0 | 0 | Page 4 (PC863 : Canadian-French) |
| 0 | 0 | 1 | 0 | 1 | Page 5 (PC865 : Nordic) |
| 0 | 0 | 1 | 1 | 0 | Page 16 (WPC1252 : Latin1) |
| 0 | 0 | 1 | 1 | 1 | Page 17 (PC866 : Russian) |
| 0 | 1 | 0 | 0 | 0 | Page 18 (PC852 : Latin2) |
| 0 | 1 | 0 | 0 | 1 | Page 19 (PC858 : Euro) |
| 0 | 1 | 0 | 1 | 0 | Page 21 (PC862 : Israel) |
| 0 | 1 | 0 | 1 | 1 | Page 22 (PC864 : Arabic) |
| 0 | 1 | 1 | 0 | 0 | Page 23 (Thai character code 42) |
| 0 | 1 | 1 | 0 | 1 | Page 24 (WPC1253 : Greek) |
| 0 | 1 | 1 | 1 | 0 | Page 25 (WPC1254 : Turkish) |
| 0 | 1 | 1 | 1 | 1 | Page 26 (WPC1257 : Baltic) |
| 1 | 0 | 0 | 0 | 0 | Page 27 (Farsi) (*2) |
| 1 | 0 | 0 | 0 | 1 | Page 28 (WPC1251 : Russian) (*2) |
| 1 | 0 | 0 | 1 | 0 | Page 29 (PC737 : Greek) (*2) |
| 1 | 0 | 0 | 1 | 1 | Page 30 (PC775 : Baltic) (*2) |
| 1 | 0 | 1 | 0 | 0 | Page 31 (Thai character code 16) |
| 1 | 0 | 1 | 0 | 1 | Page 32 (OldCode : Israel) |
| 1 | 0 | 1 | 1 | 0 | Page 33 (WPC1255 : Israel) |
| 1 | 0 | 1 | 1 | 1 | Page 34 (Thai character code 11) |
| 1 | 1 | 0 | 0 | 0 | Page 35 (Thai character code 18) |

(*2) Only Font B available.

• **Memory Switch 8**

| Switch | Function | On | Off |
|--------|---------------------------------------|----------------------------------|-----------------------------------|
| 1 | Reserved | - | Fixed to Off |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | Selection of the cover open status | Cover open | Paper end |
| 6 | Reserved | - | Fixed to Off |
| 7 | Receive buffer full release | Remaining 522 bytes | Remaining 640 bytes |
| 8 | Printer (Cover open during operation) | Errors that can possibly recover | Errors that automatically recover |

 **NOTES**

MSW 8-5:

When Off is selected, a bit of the "paper end sensor" in each status that is transmitted from the printer is changed every time the rear cover is open or closed. When On is selected, a bit of the "rear cover open / close" in each status that is transmitted from the printer is changed every time the rear cover is open or closed. When you replace a SRP-270 with a SRP-275, you should adjust the MSW 8-5 to Off.

MSW 8-8:

When Off is selected, a bit of the "automatic recoverable error" in each status that is transmitted from the printer is changed every time the rear cover is open. When On is selected, a bit of the "mechanical error" in each status that is transmitted from the printer is changed every time the rear cover is open.

The setting of MSW 8-5 and 8-8 can be set by "Memory Switch setup mode".

• **Customize value**

| Function | Selectable value |
|------------------|---|
| Paper roll width | 57.5 mm / 69.5 mm / 76 mm (default value) |

 **NOTES**

These setting can be set by "Memory Switch setup mode."

• **Serial communication**

| Function | Selectable value | |
|-------------|------------------|-----------|
| baud rate | 2400 bps | 4800 bps |
| | 9600 bps | 19200 bps |
| | | |
| Parity | None | Odd |
| | Even | - |
| | | |
| Handshake | DSR/DTR | XON/XOFF |
| Data length | 7 bit | 8 bit |

 **NOTES**

There are two methods, DIP Switch and Memory Switch, to adjust the serial communication conditions. DIP Switch 1-5 selects which is effective, DIP Switch or Memory Switch. To enable the "Serial communication" setting, you have to adjust the "Serial interface selection" function of DIP Switch 1-5 to "Memory Switch". These settings can be set by "Memory Switch setup mode".

Setting the switches

• Memory Switch Setup Mode

The following items are specified in the Memory Switch setup mode:

Basic Serial communication condition (Serial communication)

- Transmission speed
- Parity
- Handshaking
- Data length

Receive buffer full release condition (MSW 8-7)

Paper roll width (Customize value)

Cover open status (MSW 8-5)

NOTES

All new settings will be lost if the power supply is turned off in the Memory Switch setup mode. Be sure to follow the proper procedure, and turn the power off at the correct time.

Use the following procedure to start the Memory Switch setup mode.

- 1) Open the rear cover.
- 2) Turn the power on while pressing the paper FEED button.
- 3) Press the FEED button twice while POWER, ERROR, and PAPER OUT LEDs are lit.
- 4) Close the cover. The printer prints the enabled settings of the Memory Switches and instructions.
- 5) Follow the instructions to process the switch setup.

NOTES

In the Memory Switch setup, the power LED may be flashing.

• Example of Memory Switch setup sheet

Memory S/W Setup

You can choose desired item using YES or NO as following

YES: Keep pressing FEED button
Until printing starts

NO : Press & release it swiftly

Serial interface setting

Do you want to change
Serial interface condition?

Buffer full release condition

Current condition: 640 bytes left

Do you want to change
Buffer full release condition?

Paper width

Current paper width: 76.0 mm

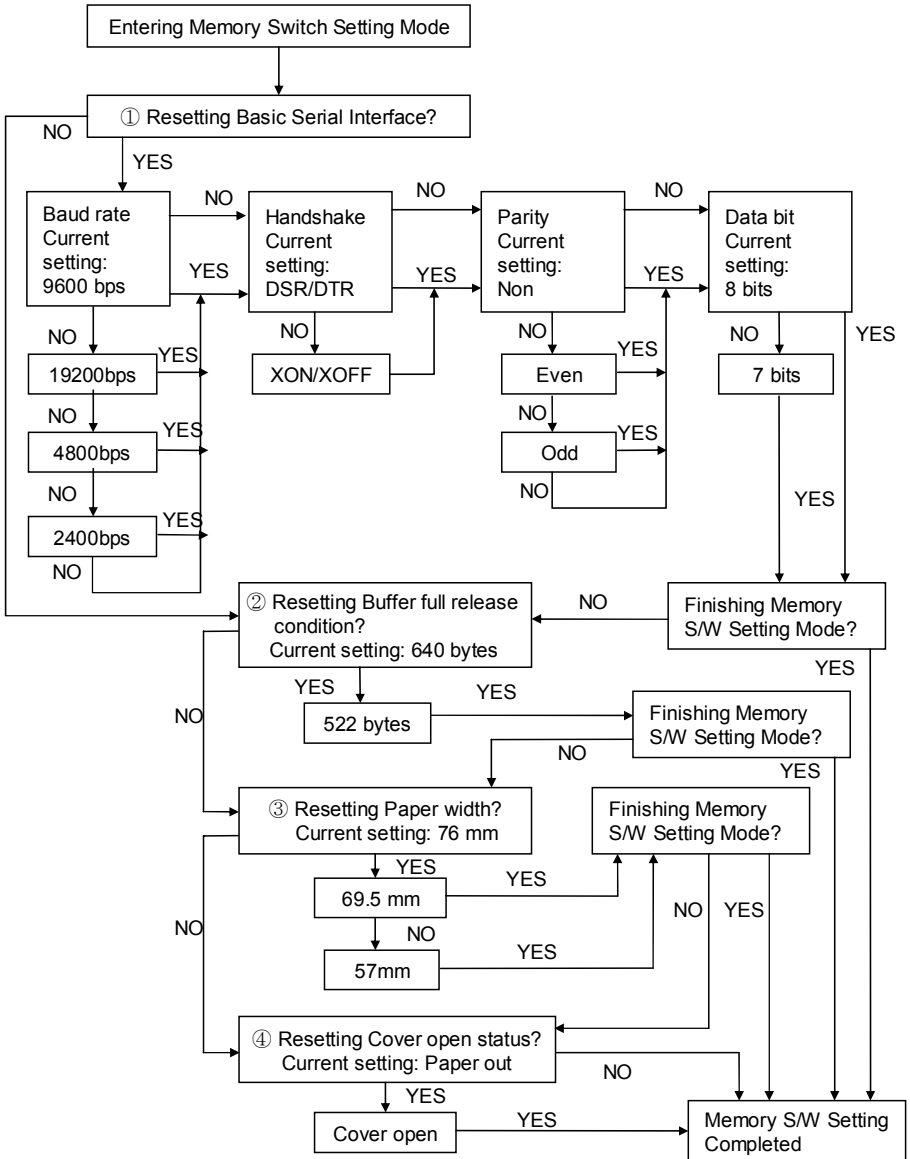
Do you want to change
paper width?

Cover open status

Current status: Paper out

Do you want to change
cover open status?

• Procedure of Memory Switch setting



3.2.2 Memory Switch setting for Star mode

• Settings

Memory Switches are from MSW 0 to MSW 8. They are stored in non-volatile memory (flash memory). To change the settings, send the following commands from the host.

| | | | | | |
|--------|-------------------|-----|----|----|-------------------------------|
| [Name] | Set Memory Switch | | | | |
| [Code] | ASCII | ESC | GS | # | <i>m N n1 n2 n3 n4</i> LF NUL |
| | Hexadecimal | 1B | 1D | 23 | <i>m N n1 n2 n3 n4</i> 0A 00 |
| | Decimal | 27 | 29 | 35 | <i>m N n1 n2 n3 n4</i> 10 0 |

[Defined Region] *m* = "W", "T", ",", "+", "-", "@"
 "0" ≤ *N,n1,n2,n3,n4* ≤ "9",
 "A" ≤ *N,n1,n2,n3,n4* ≤ "F"

[Function] Sends command to write after defining Memory Switch using the definition command specified by the following classes to set the Memory Switch. The printer is automatically reset after writing the setting defined by that command to the non-volatile memory.

Do not turn off the power to the printer while sending commands to the non volatile memory. Doing so will destroy the Memory Switch setting. It is also possible for all Memory Switch settings to become offset to their initial, default settings.

Consider the life of the non-volatile memory and avoid over-use of this command.

| Function | Class | <i>m</i> | <i>N</i> | <i>n1 n2 n3 n4</i> |
|--|------------|----------|--------------|--------------------|
| Data Definition (Data Specification) | Definition | "," | N | <i>n1 n2 n3 n4</i> |
| Data definition (set specified bit) | Definition | "," | N | <i>n1 n2 n3 n4</i> |
| Data definition (clear specified bit) | Definition | "," | N | <i>n1 n2 n3 n4</i> |
| Data Definition (clear all data) | Definition | "@" | Fixed at "0" | Fixed at "0000" |
| Definition data write and reset | Write | "W" | Fixed at "0" | Fixed at "0000" |
| Definition data write and reset and test print | Write | "T" | Fixed at "0" | Fixed at "0000" |

(Ex) Memory Switch 1-8 = 0; Memory Switch 2-7 = 1; Memory Switch 2-A = 1 for a test print:

```
PRINT #1, CHR$(&H1B);CHR$(&H1D);CHR$(&H23);CHR$(&H2D);CHR$(&H31); ' <ESC><GS> # - 1
PRINT #1, CHR$(&H30);CHR$(&H31);CHR$(&H30);CHR$(&H30);CHR$(&H0A);CHR$(0); ' 0100 <LF><NUL>
PRINT #1, CHR$(&H1B);CHR$(&H1D);CHR$(&H23);CHR$(&H2B);CHR$(&H32); ' <ESC><GS> # + 2
PRINT #1, CHR$(&H30);CHR$(&H34);CHR$(&H38);CHR$(&H30);CHR$(&H0A);CHR$(0); ' 0480 <LF><NUL>
PRINT #1, CHR$(&H1B);CHR$(&H1D);CHR$(&H23);CHR$(&H54);CHR$(&H30); ' <ESC><GS> # T 0
PRINT #1, CHR$(&H30);CHR$(&H30);CHR$(&H30);CHR$(&H30);CHR$(&H0A);CHR$(&H0); ' 0000 <LF><NUL>
```

• **Default Settings**

The default settings for Memory Switch 0 to Memory Switch 8 are shown below.

Settings vary for single byte character countries (standard specifications (SBCS)) and for double-byte character countries (Chinese character specifications (DBCS)).

- **Standard Specifications (SBCS)**

| Memory Switch Number | Ex-factory Settings (n1, n2, n3, n4) |
|-----------------------------|---|
| MSW 0 | "0000" |
| MSW 1 | "0000" |
| MSW 2 | "0000" |
| MSW 3 | "0000" |
| MSW 4 | "0000" |
| MSW 5 | "0000" |
| MSW 6 | "0000" |
| MSW 7 | "0000" |
| MSW 8 | "0000" |

- **Chinese character specifications (DBCS) (For China)**

| Memory Switch Number | Ex-factory Settings (n1, n2, n3, n4) |
|-----------------------------|---|
| MSW 0 | "0010" |
| MSW 1 | "0000" |
| MSW 2 | "0000" |
| MSW 3 | "0000" |
| MSW 4 | "0000" |
| MSW 5 | "0000" |
| MSW 6 | "0000" |
| MSW 7 | "0000" |
| MSW 8 | "0000" |

Setting the switches

• Function

- Memory Switch 0

| Bit | Function | 0 | 1 |
|-----|--|---------------------------------|---------------------------------|
| F~C | Reserved | | |
| B~A | Red and Black (inverted black and white) Commands (*3) | Refer to the following table | |
| 9~5 | Reserved | | |
| 4 | Country Specifications (*1) | SBCS (Single Byte countries) | DBCS (Double Byte countries) |
| 3~2 | <FF> Command (*2) | Refer to the following table | |
| 1~0 | Reserved | | |

NOTES

(*1) Country Specifications

| Country | MSW 0-4 = 0 | MSW 0-4 = 1 |
|----------|-------------------------|--------------------|
| Overseas | Standard Specifications | Chinese Characters |

(*2) <FF> Command Function Selection

| MSW 0-3 | MSW 0-2 | <FF> Command Function | <FF> Command Function |
|-------------------|---------|---|------------------------------------|
| Auto cutter model | | | Tear Bar Model (SRP-275A type) |
| 0 | 0 | Executes a form feed. | Executes a form feed. |
| 0 | 1 | After paper fed to cutting position executes partial cut (*3) | Paper fed to the tear-bar position |
| 1 | 0 | Executes a form feed. | Executes a form feed. |
| 1 | 1 | After paper fed to cutting position executes partial cut (*3) | Paper fed to the tear-bar position |

(*3) Red and Black (inverted black and white) Commands

| MSW 0-B | MSW 0-A | <ESC> 4 / <ESC> 5 Command Functions |
|---------|---------|---|
| 0 | 0 | White/black inverted printing (1 Pass) |
| 0 | 1 | <Option 1> White/black inversion (7 × 9 font print) + enhancing (2 passes) |
| 1 | 0 | <Option 2> Upper line + Underline + enhancing (2 passes) |
| 1 | 1 | <Option 3> Upper line + Underline + double tall expanded + enhancing (4 passes) |

This setting functions to specify adornments when the subsequent red (white/black inversion) print command is set. It is a substitute function for the conventional red/black (white/black inversion) printing. <ESC> "4": Red (white/black inversion) printing <ESC> "5": Red (white/black inversion) printing cancelled.

When using <ESC> 5 to cancel adornments, it returns to the previously set adornments. (Adornments such as underline, upper line, double-tall expanded and enhancing are cancelled if there is no command to set them (for example the <ESC> "-" 1 specification for underlines).)

This setting is enabled only for ANK characters and block characters. It is disabled for IBM block characters and Chinese characters composed of 12 dot vertical characters (IBM block characters and Chinese characters do not have adornment with this command).

- Precautions for selecting Option 1.

- 1) Prints white/black inverted characters using 7 × 9 fonts regardless of the current font size setting.
- 2) Inserts a one dot string of black printing to the head of the white/black inverted characters.
- 3) Printing data created on a conventional red/black printer, using 1 and 2 above, there are cases in which the printing position will shift to the right and a line of printable characters reduced.
(For example, to write 42 digits of red print data using conventional a 7 × 9 font, there is a line feed at the 35th digit, and the remaining 7 digits are printed on the next line.)
- 4) Download defined characters defined with 7 × 9 fonts are printed regardless of the current font setting (7×9/9×9).
- 5) MSW 3-6 must not be set to 1 (ANK character count = many). (This will cause a while line to appear between characters.)

- Precautions for selecting Option 2 and Option 3.

- 1) Do not apply an upper line or an underline to characters when rotating 90 or 270 degrees.

- Memory Switch 1

| Bit | Function | 0 | 1 |
|-----|-------------------------------|------------------------------|------------|
| F | Reserved | | |
| E~5 | | | |
| 4 | Zero style | Normal | Slash zero |
| 3~0 | International Characters (*1) | Refer to the following table | |

NOTES

(*1) International Characters Default Value Settings

| MSW1-3 | MSW1-2 | MSW1-1 | MSW1-0 | International Characters |
|--------|--------|--------|--------|--------------------------|
| 0 | 0 | 0 | 0 | U.S.A |
| 0 | 0 | 0 | 1 | France |
| 0 | 0 | 1 | 0 | Germany |
| 0 | 0 | 1 | 1 | U.K. |
| 0 | 1 | 0 | 0 | Denmark1 |
| 0 | 1 | 0 | 1 | Sweden |
| 0 | 1 | 1 | 0 | Italy |
| 0 | 1 | 1 | 1 | Spain1 |
| 1 | 0 | 0 | 0 | Japan |
| 1 | 0 | 0 | 1 | Norway |
| 1 | 0 | 1 | 0 | Denmark2 |

- Memory Switch 2

| Bit | Function | 0 | 1 |
|-----|---|------------------------------|---------------|
| F | Reserved | | |
| E | How to recover to print ready after inserting paper | Press FEED. | Auto-recovery |
| D~C | Reserved | | |
| B | Printing region width (*1) | Refer to the following table | |
| A | Paper width selection (*1) | Refer to the following table | |
| 9~4 | | | |
| 3 | Contextual auto-cut function (*2) | Disabled | Enabled |
| 2 | | | |
| 1~0 | Near end switch function (*3) | Refer to the following table | |

NOTES

(*1) Print Region Width (MSW 2-B)/Paper Width (MSW 2-A) Selection

| MSW 2-B | MSW 2-A | Printing Region Width | Paper Width |
|---------|---------|-----------------------|-------------|
| 0 | 0 | 400 half dots | 76mm |
| 0 | 1 | 300 half dots | 57.5mm |
| 1 | 0 | 385 half dots | 76mm |
| 1 | 1 | 297 half dots | 57.5mm |

(*2) Contextual Auto-cut Function

This function auto-cuts paper when a paper feed command that feeds continuously over 7/6 inch. Hosts that cannot send an escape sequence, such as <ESC> "d" 0 can cut paper if a 1/6 inch line feed code <LF> is sent seven times.

(*3) Near end switch Function

When an near end switch is mounted, settings should abide by those shown in the table below.

| MSW 2-1 | MSW 2-0 | Near end switch Function |
|---------|---------|--|
| 0 | 0 | Disabled |
| 0 | 1 | Disabled |
| 1 | 0 | Reflects the near end switch state to the status. Printing does not stop for near end, and the printer does not go offline. |
| 1 | 1 | Reflects the near end switch state to the status. Printing does stop for near end, and the printer goes offline. |

Setting the switches

- Memory Switch 3

| Bit | Function | 0 | 1 |
|-----|-----------------------------|------------------------------|---|
| F~D | | | |
| C~8 | Character Table (*2) | Refer to the following table | |
| 7~2 | | | |
| 1~0 | <CR> Command Functions (*1) | Refer to the following table | |

NOTES

(*1) <CR> Command Functions

| MSW3-1 | MSW3-0 <CR> | Functions |
|--------|-------------|---|
| 0 | 0 Ignored | |
| 0 | 1 Ignored | |
| 1 | 0 | Prints and performs a line feed (same as <LF>.) |
| 1 | 1 | Prints (No line feed) |

(*2) Character Table Settings

These settings are enabled only on standard specification printers.

| MSW3-C | MSW3-B | MSW3-A | MSW3-9 | MSW3-8 | Character Table |
|--------|--------|--------|--------|--------|----------------------------------|
| 0 | 0 | 0 | 0 | 0 | Page 0 (PC437 : U.S.A.) |
| 0 | 0 | 0 | 0 | 1 | Page 1 (Katakana) |
| 0 | 0 | 0 | 1 | 0 | Page 2 (PC850 : Multilingual) |
| 0 | 0 | 0 | 1 | 1 | Page 3 (PC860 : Portuguese) |
| 0 | 0 | 1 | 0 | 0 | Page 4 (PC863 : Canadian-French) |
| 0 | 0 | 1 | 0 | 1 | Page 5 (PC865 : Nordic) |
| 0 | 0 | 1 | 1 | 0 | Page 16 (WPC1252 : Latin1) |
| 0 | 0 | 1 | 1 | 1 | Page 17 (PC866 : Russian) |
| 0 | 1 | 0 | 0 | 0 | Page 18 (PC852 : Latin2) |
| 0 | 1 | 0 | 0 | 1 | Page 19 (PC858 : Euro) |
| 0 | 1 | 0 | 1 | 0 | Page 21 (PC862 : Israel) |
| 0 | 1 | 0 | 1 | 1 | Page 22 (PC864 : Arabic) |
| 0 | 1 | 1 | 0 | 0 | Page 23 (Thai character code 42) |
| 0 | 1 | 1 | 0 | 1 | Page 24 (WPC1253 : Greek) |
| 0 | 1 | 1 | 1 | 0 | Page 25 (WPC1254 : Turkish) |
| 0 | 1 | 1 | 1 | 1 | Page 26 (WPC1257 : Baltic) |
| 1 | 0 | 0 | 0 | 0 | Page 27 (Farsi) (*3) |
| 1 | 0 | 0 | 0 | 1 | Page 28 (WPC1251 : Russian) (*3) |
| 1 | 0 | 0 | 1 | 0 | Page 29 (PC737 : Greek) (*3) |
| 0 | 0 | 0 | 1 | 1 | Page 30 (PC775 : Baltic) (*3) |
| 1 | 0 | 1 | 0 | 0 | Page 31 (Thai character code 16) |
| 1 | 0 | 1 | 0 | 1 | Page 32 (OldCode : Israel) |
| 1 | 0 | 1 | 1 | 0 | Page 33 (WPC1255 : Israel) |
| 1 | 0 | 1 | 1 | 1 | Page 34 (Thai character code 11) |
| 1 | 1 | 0 | 0 | 0 | Page 35 (Thai character code 18) |

(*3) Only Font B available.

- Memory Switch 4

| Bit | Function | 0 | 1 |
|-----|-------------------------------|--------------|----------------------------|
| F~9 | | | |
| 8 | Automatic Status Function | Disabled | Enabled |
| 7~4 | | | |
| 3 | ESC RS a n command function | Only Setting | Auto-status sent only once |
| 2~1 | | | |
| 0 | Data reception error (serial) | Prints “?” | Ignored |

- Memory Switch 5

| Bit | Function | 0 | 1 |
|-----|----------|---|---|
| F~0 | Reserved | | |

- Memory Switch 6

| Bit | Function | 0 | 1 |
|-----|----------------|-----------------------------|-----------------------|
| F~A | | | |
| 9 | BUSY Condition | Reception Buffer or Offline | Reception Buffer Full |
| 8~0 | | | |

- Memory Switch 7

| Bit | Function | 0 | 1 |
|-----|----------|---|---|
| F~0 | Reserved | | |

4.1 Command notation**XXXX**

| | |
|---------------|---|
| [Name] | The name of the command. |
| [Format] | The code sequence. |
| [Range] | Gives the allowable ranges for the arguments. |
| [Description] | Describes the command's function. |
| [Notes] | Provides important information on setting and using the printer command, if necessary. Item(s) marked with * indicates "important notice". |
| [Default] | Gives the default values (if any) for the command arguments. |
| [Reference] | Lists related commands. |

ASCII indicates the ASCII equivalents.

Hex indicates the hexadecimal equivalents.

Decimal indicates the decimal equivalents.

[] *k* indicates the contents of the [] should be repeated *k* times.

4.2 Explanation of term

| Item | Description |
|-------------------|---|
| Reception buffer | The reception buffer is a buffer that stores, as is, the data received from the host (the reception data). The reception data is stored in the reception buffer temporarily, and is then processed sequentially. |
| Print buffer | The print buffer is a buffer that stores the image data to be printed. |
| Print buffer full | This is the state where the print buffer is full. If new print data is input while the print buffer is full, the data in the print buffer is printed out and a line feed is executed. This is the same operation as the LF operation. |
| Start of line | The start of line state satisfies the following condition: There is no print data (including spaces and portions of data skipped due to HT) currently in the print buffer. |
| Printable area | The maximum range within which printing is possible under the printer specifications. |
| Inch | A unit of length. One inch is 25.4mm. |
| MSB | Most Significant Bit |
| LSB | Least Significant Bit |

4.3 Exception processing

• Undefined codes

This term refers to the codes ranging from 00H to 1FH in the character code table. If a code in this range that is not defined as a command is input, that code (one byte) is read in and discarded, and subsequent data is processed as normal data.

Example : 30H, 31H, 03H, 32H, 0AH, 33H

If the above data string is input, the printer reads in and discards "03H" as an undefined code.

Note that 0AH is defined as a command (**LF**). As a result, the data string that is actually processed is: 30H, 31H, 32H, 0AH, 33H

• Undefined commands

If the data following **ESC** (1BH) or **GS** (1DH) is not defined as a command, then the two bytes (**ESC/GS** and the code that follows) are read in and discarded.

Example : 30H, 1BH, 22H, 31H, 32H

If the above data string is input, the printer discards the data 1BH and 22H as undefined commands.

As a result, the data string that is actually processed is: 30H, 31H, 32H

• Settings outside the defined range

If a value outside of the defined range is input for a command that takes parameters, that command is ignored and the previous value for that setting remains unchanged. In the case of a command that takes multiple parameters, command processing is halted the moment that a value outside of the defined range is input and subsequent values are processed as normal data.

Example : 1BH, 52H, 15H

If the above data string is input, 1BH and 52H are defined as a command (**ESC R**), but the parameter 15H is outside of the defined range. As a result, the printer reads in and discards the data string 1BH, 52H, 15H. Accordingly, the previously set international character set is not changed.

Control commands list

4.4 Commands for SRP-275 series

4.4.1 Commands list for EPSON mode (TM-U220)

| No. | Command | Description | Hex |
|-----|-----------------|--|-----------|
| 1 | HT | Horizontal tab | 09 |
| 2 | LF | Print and line feed | 0A |
| 3 | CR | Print and carriage return | 0D |
| 4 | DLE EOT | Real-time status transmission | 10 04 |
| 5 | DLE ENQ | Real-time request to printer | 10 05 |
| 6 | DLE DC4(fn = 1) | Generate pulse at real-time | 10 14 |
| 7 | ESC SP | Set right-side character spacing | 1B 20 |
| 8 | ESC ! | Select print mode(s) | 1B 21 |
| 9 | ESC % | Select/cancel user-defined character set | 1B 25 |
| 10 | ESC & | Define user-defined characters | 1B 26 |
| 11 | ESC * | Select bit-image mode | 1B 2A |
| 12 | ESC - | Turn underline mode on/off | 1B 2D |
| 13 | ESC 2 | Select default line spacing | 1B 32 |
| 14 | ESC 3 | Set line spacing | 1B 33 |
| 15 | ESC < | Return home | 1B 3C |
| 16 | ESC = | Select peripheral device | 1B 3D |
| 17 | ESC ? | Cancel user-defined characters | 1B 3F |
| 18 | ESC @ | Initialize printer | 1B 40 |
| 19 | ESC D | Set horizontal tab positions | 1B 44 |
| 20 | ESC E | Turn emphasized mode on/off | 1B 45 |
| 21 | ESC G | Turn double-strike mode on/off | 1B 47 |
| 22 | ESC J | Print and feed paper | 1B 4A |
| 23 | ESC K | Print and reverse feed | 1B 4B |
| 24 | ESC M | Select character font | 1B 4D |
| 25 | ESC R | Select an international character set | 1B 52 |
| 26 | ESC U | Turn unidirectional printing mode on/off | 1B 55 |
| 27 | ESC a | Select justification | 1B 61 |
| 28 | ESC c 3 | Select paper sensor(s) to output paper end signals | 1B 63 33 |
| 29 | ESC c 4 | Select paper sensor(s) to stop printing | 1B 63 34 |
| 30 | ESC c 5 | Enable/disable panel buttons | 1B 63 35 |
| 31 | ESC d | Print and feed <i>n</i> lines | 1B 64 |
| 32 | ESC e | Print and reverse feed <i>n</i> lines | 1B 65 |
| 33 | ESC g | Start macro record (For logo) | 1B 67 00 |
| 34 | ESC g<n> | Execute macro (For logo) | 1B 67 <n> |
| 35 | ESC i | Partial cut (one point left uncut) | 1B 69 |
| 36 | ESC m | Partial cut (one point left uncut) | 1B 6D |
| 37 | ESC p | Generate pulse | 1B 70 |
| 38 | ESC r | Select print color | 1B 72 |
| 39 | ESC t | Select character code table | 1B 74 |
| 40 | ESC u | Transmit peripheral device status | 1B 75 |
| 41 | ESC v | Transmit paper sensor status | 1B 76 |
| 42 | ESC { | Turn upside-down printing mode on/off | 1B 7B |
| 43 | FS p | Print NV bit image | 1C 70 |
| 44 | FS q | Define NV bit image | 1C 71 |
| 45 | GS (A | Execute test print | 1D 28 41 |
| 46 | GS (C | Edit NV user memory | 1D 28 43 |
| 47 | GS (D | Enable/disable real-time command | 1D 28 44 |
| 48 | GS (E | User setup commands | 1D 28 45 |
| 49 | GS I | Transmit printer ID | 1D 49 |
| 50 | GS V | Select cut mode and cut paper | 1D 56 |
| 51 | GS a | Enable/disable Automatic Status Back (ASB) | 1D 61 |
| 52 | GS r | Transmit status | 1D 72 |

4.4.2 Command description for EPSON mode (TM-U220)

HT

[Name] Horizontal tab
 [Format] ASCII HT
 Hex 09
 Decimal 9
 [Range] None
 [Default] None
 [Description] Moves the printing position to the next horizontal tab.

LF

[Name] Print and line feed
 [Format] ASCII LF
 Hex 0A
 Decimal 10
 [Range] None
 [Default] None
 [Description] Prints the data in the print buffer and feeds one line.

CR

[Name] Print and carriage return
 [Format] ASCII CR
 Hex 0D
 Decimal 13
 [Range] None
 [Default] None
 [Description]

| When auto line feed is enabled(DSW 2-1) (Only available with Parallel Interface) | When auto line feed is disabled |
|---|---|
| Executes printing and one line feed as LF | Prints data in print buffer and does not feed the paper |

Control commands list

DLE EOT

| | | | | |
|----------|-------------------------------|-----|-----|----------|
| [Name] | Real-time status transmission | | | |
| [Format] | ASCII | DLE | EOT | <i>n</i> |
| | Hex | 10 | 04 | <i>n</i> |
| | Decimal | 16 | 4 | <i>n</i> |

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

[Description] Transmits 1 byte of status data specified in real time, using *n* as follows:

| <i>n</i> | Function |
|----------|------------------------------|
| 1 | Transmit printer status |
| 2 | Transmit offline status |
| 3 | Transmit error status |
| 4 | Transmit paper sensor status |

[Notes]

- Printer status (*n* = 1) is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|---|
| 0 | 0 | 00 | 0. | Not used. Fixed to Off |
| 1 | 1 | 02 | 2 | Not used. Fixed to On |
| 2 | 0 | 00 | 0 | Drawer kick-out connector pin 3 is LOW |
| | 1 | 04 | 4 | Drawer kick-out connector pin 3 is HIGH |
| 3 | 0 | 00 | 0 | Online |
| | 1 | 08 | 8 | Offline |
| 4 | 1 | 10 | 16 | Not used. Fixed to On |
| 5 | 0 | 00 | 0 | Not used. Fixed to Off |
| 6 | 0 | 00 | 0 | Not used. Fixed to Off |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off |

- Offline status (*n* = 2) is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|---|
| 0 | 0 | 00 | 0. | Not used. Fixed to Off |
| 1 | 1 | 02 | 2 | Not used. Fixed to On |
| 2 | 0 | 00 | 0 | Cover is closed |
| | 1 | 04 | 4 | Cover is open |
| 3 | 0 | 00 | 0 | Paper is not being fed by the paper feed button |
| | 1 | 08 | 8 | Paper is being fed by the paper feed button |
| 4 | 1 | 10 | 16 | Not used. Fixed to On |
| 5 | 0 | 00 | 0 | No paper end stop |
| | 1 | 20 | 32 | Printing stops due to a paper end |
| 6 | 0 | 00 | 0 | No error |
| | 1 | 04 | 4 | Error occurred |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off |

- Error status (*n* = 3) is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|---------------------------------|
| 0 | 0 | 00 | 0 | Not used. Fixed to Off |
| 1 | 1 | 02 | 2 | Not used. Fixed to On |
| 2 | 0 | 00 | 0 | No mechanical error |
| | 1 | 04 | 4 | Mechanical error occurred |
| 3 | 0 | 00 | 0 | No auto cutter error |
| | 1 | 08 | 8 | Auto cutter error occurred |
| 4 | 1 | 10 | 16 | Not used. Fixed to On |
| 5 | 0 | 00 | 0 | No unrecoverable error |
| | 1 | 20 | 32 | Unrecoverable error occurred |
| 6 | 0 | 00 | 0 | No auto-recoverable error |
| | 1 | 04 | 4 | Auto-recoverable error occurred |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off |

- Paper sensor status (*n* = 4) is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|---------------------------------------|
| 0 | 0 | 00 | 0 | Not used. Fixed to Off |
| 1 | 1 | 02 | 2 | Not used. Fixed to On |
| 2,3 | 00 | 00 | 0 | Paper near end sensor: paper adequate |
| | 11 | 0C | 12 | Paper near end sensor: paper near end |
| 4 | 1 | 10 | 16 | Not used. Fixed to On |
| 5,6 | 00 | 00 | 0 | Paper end sensor: paper present |
| | 11 | 60 | 96 | Paper end sensor: paper not present |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off |

DLE ENQ

[Name] Real-time request to printer
 [Format] ASCII DLE ENQ *n*
 Hex 10 05 *n*
 Decimal 16 5 *n*
 [Range] *n* = 2
 [Default] None
 [Description] Recovers from an error after clearing the receive and print buffers.

DLE DC4 (*fn* = 1)

[Name] Generate pulse at real-time
 [Format] ASCII DLE DC4 *n m t*
 Hex 10 14 *n m t*
 Decimal 16 20 *n m t*
 [Range] *n* = 1
m = 0, 1
 $1 \leq t \leq 8$
 [Description] Outputs the pulse specified by *t* to connector pin *m* as follows in real time:

| <i>m</i> | Connector pin |
|----------|---------------------------------|
| 0 | Drawer kick-out connector pin 2 |
| 1 | Drawer kick-out connector pin 5 |

The pulse ON time is [*t* x100 ms] and the OFF time is [*t* x100 ms]

ESC SP

[Name] Set right-side character spacing
 [Format] ASCII ESC SP *n*
 Hex 1B 20 *n*
 Decimal 27 32 *n*
 [Range] $0 \leq n \leq 255$
 [Default] *n* = 0
 [Description] Sets the right-side character spacing to *n* x (horizontal or vertical motion unit).

ESC !

[Name] Select print mode(s)
 [Format] ASCII ESC ! *n*
 Hex 1B 21 *n*
 Decimal 27 33 *n*
 [Range] $0 \leq n \leq 255$
 [Default] *n* = 1
 [Description] Selects or cancels print modes collectively (emphasized, double-height, double-width, underline) using *n* as follows:

| Bit | On/Off | Hex | Decimal | Function |
|-----|--------|-----|---------|---------------------------------|
| 0 | Off | 00 | | Character font A(9x9)selected |
| | On | 01 | | Character font B(7x9) selected |
| 1,2 | - | - | - | 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 | Off | - | - | Undefined |
| 7 | Off | 00 | 0 | Underline mode not selected |
| | On | 80 | 128 | Underline mode selected |

Control commands list

ESC %

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Select/cancel user-defined character set | | | |
| [Format] | ASCII | ESC | % | <i>n</i> |
| | Hex | 1B | 25 | <i>n</i> |
| | Decimal | 27 | 37 | <i>n</i> |
| [Range] | 0 ≤ <i>n</i> ≤ 255 | | | |
| [Default] | <i>n</i> = 0 | | | |
| [Description] | Selects or cancels the user-defined character set. <ul style="list-style-type: none"> - When the LSB of <i>n</i> is 0, the user-defined character set is canceled. - When the LSB of <i>n</i> is 1, the user-defined character set is selected. | | | |

ESC &

| | | | | |
|---------------|---|-----|----|---|
| [Name] | Define user-defined characters | | | |
| [Format] | ASCII | ESC | & | <i>y c1 c2 [x1 d1 ... d(y xx1)]... [xk d1 ... d(y xxk)]</i> |
| | Hex | 1B | 26 | <i>y c1 c2 [x1 d1 ... d(y xx1)]... [xk d1 ... d(y xxk)]</i> |
| | Decimal | 27 | 38 | <i>y c1 c2 [x1 d1 ... d(y xx1)]... [xk d1 ... d(y xxk)]</i> |
| [Range] | <i>y</i> = 2 $32 \leq c1 \leq c2 \leq 126$ $0 \leq x \leq 12$ (Font A (9 × 9)) $0 \leq x \leq 10$ (Font B (7 × 9)) $0 \leq d \leq 255$ $k = c2 - c1 + 1$ | | | |
| [Default] | None | | | |
| [Description] | Defines user-defined characters from character code check <i>c1</i> to <i>c2</i> . <ul style="list-style-type: none"> - <i>y</i> specifies the number of bytes in the vertical direction. - <i>x</i> specifies the number of dots in the horizontal direction. - <i>d</i> is the dot data for the user-defined characters. | | | |
| [Notes] | <ul style="list-style-type: none"> • The relationship between the definition data and printing result is as follows. Example: Downloaded character definition consists of 9×7 dots. | | | |

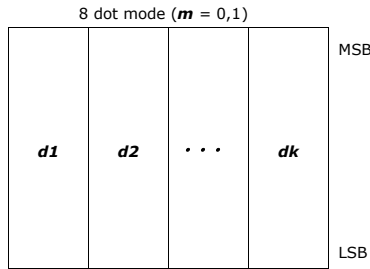
| | | | | | | | |
|-----------|-----------|-----------|-----------|------------|------------|------------|-----|
| <i>d1</i> | <i>d3</i> | <i>d5</i> | <i>d7</i> | <i>d9</i> | <i>d11</i> | <i>d13</i> | MSB |
| <i>d2</i> | <i>d4</i> | <i>d6</i> | <i>d8</i> | <i>d10</i> | <i>d12</i> | <i>d14</i> | LSB |
| | | | | | | | MSB |
| | | | | | | | LSB |

ESC *

[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
 0 ≤ *nL* ≤ 255
 0 ≤ *nH* ≤ 3
 0 ≤ *d* ≤ 255
k = *nL* + *nH* x 255
 [Default] None
 [Description] Selects a bit-image mode using *m* for the number of dots specified by (*nL* + *nH* x 256) as follows:

| <i>m</i> | Mode | Number of bits for vertical data | Dot density in horizontal | Amount of data (<i>k</i>) |
|----------|----------------------|----------------------------------|---------------------------|-----------------------------|
| 0 | 8-dot single-density | 8 | Single-density | <i>nL</i> + <i>nH</i> x 256 |
| 1 | 8-dot double-density | 8 | Double-density | <i>nL</i> + <i>nH</i> x 256 |

[Notes] • The relationship between the bit image data and the print result is as follows.



• The modes selectable by *m* are as follows:

| <i>m</i> | Mode | Vertical dot density | Dot density | Set adjacent dots | Horizontal | |
|----------|----------------------|----------------------|-------------|-------------------|--|--|
| | | | | | Maximum number of dots | |
| | | | | | DSW1-8: ON Paper Width: 76/ 69.5/ 57.5 (mm) | DSW 1-8: OFF Paper Width: 76/ 69.5/ 57.5 (mm) |
| 0 | 8-dot single-density | 72 dpi | 80 dpi | Permitted | 192/ 180/ 148 | 200/ 180/ 150 |
| 1 | 8-dot double-density | 72 dpi | 160 dpi | Prohibited | 385/ 360/ 297 | 400/ 360/ 300 |

ESC -

[Name] Turn underline mode on/off
 [Format] ASCII ESC - *n*
 Hex 1B 2D *n*
 Decimal 27 45 *n*
 [Range] *n* = 0, 1, 48, 49
 [Default] *n* = 0
 [Description] Turns underline mode on or off using *n* as follows:

| <i>n</i> | Function |
|----------|---------------------------------------|
| 0, 48 | Turns off underline mode |
| 1, 49 | Turns on underline mode (1-dot thick) |
| 2, 50 | Turns on underline mode (1-dot thick) |

Control commands list

ESC 2

| | | | | |
|---------------|--|-----|----|--|
| [Name] | Select default line spacing | | | |
| [Format] | ASCII | ESC | 2 | |
| | Hex | 1B | 32 | |
| | Decimal | 27 | 50 | |
| [Range] | None | | | |
| [Default] | None | | | |
| [Description] | Sets the line spacing to the "default line spacing." | | | |

ESC 3

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Set line spacing | | | |
| [Format] | ASCII | ESC | 3 | <i>n</i> |
| | Hex | 1B | 33 | <i>n</i> |
| | Decimal | 27 | 51 | <i>n</i> |
| [Range] | $0 \leq n \leq 255$ | | | |
| [Default] | Amount of line spacing which corresponds to "default line spacing." (See ESC 2 for the default line spacing.) | | | |
| [Description] | Sets the line spacing to <i>n</i> x (vertical or horizontal motion unit). | | | |

ESC <

| | | | | |
|---------------|---|-----|----|--|
| [Name] | Return home | | | |
| [Format] | ASCII | ESC | < | |
| | Hex | 1B | 3C | |
| | Decimal | 27 | 60 | |
| [Range] | None | | | |
| [Default] | None | | | |
| [Description] | Moves the print head to the standby position. | | | |

ESC =

| | | | | |
|---------------|--|-----|----|----------|
| [Name] | Select peripheral device | | | |
| [Format] | ASCII | ESC | = | <i>n</i> |
| | Hex | 1B | 3D | <i>n</i> |
| | Decimal | 27 | 61 | <i>n</i> |
| [Range] | $0 \leq n \leq 255$ | | | |
| [Default] | <i>n</i> = 1 | | | |
| [Description] | Selects the device to which the host computer sends data, using <i>n</i> as follows: | | | |

| <i>n</i> | Function |
|----------|----------------------|
| 1 | Enables the printer |
| 2 | Disables the printer |
| 3 | Enables the printer |

ESC ?

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Cancel user-defined characters | | | |
| [Format] | ASCII | ESC | ? | <i>n</i> |
| | Hex | 1B | 3F | <i>n</i> |
| | Decimal | 27 | 63 | <i>n</i> |
| [Range] | $32 \leq n \leq 126$ | | | |
| [Default] | None | | | |
| [Description] | Cancels the user-defined characters defined for the character code <i>n</i> . | | | |

ESC @

| | | | | |
|---------------|---|-----|----|--|
| [Name] | Initialize printer | | | |
| [Format] | ASCII | ESC | @ | |
| | Hex | 1B | 40 | |
| | Decimal | 27 | 64 | |
| [Range] | None | | | |
| [Default] | None | | | |
| [Description] | <p>The data in the print buffer is cleared, and the printer mode(s) is reset to the mode that was in effect when the power was turned on.</p> <ul style="list-style-type: none"> - Any macro definitions are not cleared. - Contents of user NV memory are not cleared. - NV bit image is not cleared. | | | |

ESC D

| | | | | |
|---------------|--|-----|----|-----------------------|
| [Name] | Set horizontal tab positions | | | |
| [Format] | ASCII | ESC | D | <i>n1 ... nk NULS</i> |
| | Hex | 1B | 44 | <i>n1 ... nk 00</i> |
| | Decimal | 27 | 68 | <i>n1 ... nk 0</i> |
| [Range] | $0 \leq n \leq 255$ $0 \leq k \leq 32$ | | | |
| [Default] | <i>n</i> = 8, 16, 24, 32, ... | | | |
| [Description] | <p>(Every eight characters for the default font set by ESC ! or ESC M)</p> <p>Sets a horizontal tab to <i>n</i> columns from the beginning of the line.</p> <ul style="list-style-type: none"> - <i>k</i> indicates the number of horizontal tab positions to be set. | | | |

ESC E

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Turn emphasized mode on/off | | | |
| [Format] | ASCII | ESC | E | <i>n</i> |
| | Hex | 1B | 45 | <i>n</i> |
| | Decimal | 27 | 69 | <i>n</i> |
| [Range] | $0 \leq n \leq 255$ | | | |
| [Default] | <i>n</i> = 0 | | | |
| [Description] | <p>Turns emphasized mode on or off.</p> <ul style="list-style-type: none"> - When the LSB of <i>n</i> is 0, emphasized mode is turned off. - When the LSB of <i>n</i> is 1, emphasized mode is turned on. | | | |

ESC G

| | | | | |
|---------------|--|-----|----|----------|
| [Name] | Turn double-strike mode on/off | | | |
| [Format] | ASCII | ESC | G | <i>n</i> |
| | Hex | 1B | 47 | <i>n</i> |
| | Decimal | 27 | 71 | <i>n</i> |
| [Range] | $0 \leq n \leq 255$ | | | |
| [Default] | <i>n</i> = 0 | | | |
| [Description] | <p>Turns double-strike mode on or off.</p> <ul style="list-style-type: none"> - When the LSB of <i>n</i> is 0, double-strike mode is turned off. - When the LSB of <i>n</i> is 1, double-strike mode is turned on. | | | |

Control commands list

ESC J

| | | | | |
|---------------|--|-----|----|----------|
| [Name] | Print and feed paper | | | |
| [Format] | ASCII | ESC | J | <i>n</i> |
| | Hex | 1B | 4A | <i>n</i> |
| | Decimal | 27 | 74 | <i>n</i> |
| [Range] | $0 \leq n \leq 255$ | | | |
| [Default] | None | | | |
| [Description] | Prints the data in the print buffer and feeds the paper <i>n</i> x (vertical or horizontal motion unit). | | | |

ESC K

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Print and reverse feed | | | |
| [Format] | ASCII | ESC | K | <i>n</i> |
| | Hex | 1B | 4B | <i>n</i> |
| | Decimal | 27 | 75 | <i>n</i> |
| [Range] | $0 \leq n \leq 24$ | | | |
| [Default] | None | | | |
| [Description] | Prints the data in the print buffer and feeds the paper <i>n</i> x (vertical motion unit) in the reverse direction. | | | |

ESC M

| | | | | |
|---------------|--|-----|----|----------|
| [Name] | Select character font | | | |
| [Format] | ASCII | ESC | M | <i>n</i> |
| | Hex | 1B | 4D | <i>n</i> |
| | Decimal | 27 | 77 | <i>n</i> |
| [Range] | $n = 0, 1, 48, 49$ | | | |
| [Default] | <i>n</i> = 1 | | | |
| [Description] | Selects a character font, using <i>n</i> as follows: | | | |

| <i>n</i> | Font |
|----------|--------------|
| 0, 48 | Font A (9x9) |
| 1, 49 | Font B (7x9) |

ESC R

| | | | | |
|---------------|---|-----|----|----------|
| [Name] | Select an international character set | | | |
| [Format] | ASCII | ESC | R | <i>n</i> |
| | Hex | 1B | 52 | <i>n</i> |
| | Decimal | 27 | 82 | <i>n</i> |
| [Range] | $0 \leq n \leq 10$ | | | |
| [Default] | <i>n</i> = 0 | | | |
| [Description] | Selects an international character set <i>n</i> as follows: | | | |

| <i>n</i> | Country |
|----------|------------|
| 0 | U.S.A. |
| 1 | France |
| 2 | Germany |
| 3 | U.K. |
| 4 | Denmark I |
| 5 | Sweden |
| 6 | Italy |
| 7 | Spain I |
| 8 | Japan |
| 9 | Norway |
| 10 | Denmark II |

ESC U

[Name] Turn unidirectional printing mode on/off
 [Format] ASCII ESC U **n**
 Hex 1B 55 **n**
 Decimal 27 85 **n**
 [Range] $0 \leq n \leq 255$
 [Default] **n** = 0
 [Description] Turns unidirectional printing mode on or off.
 - When the LSB of **n** is 0, unidirectional printing mode is turned off.
 - When the LSB of **n** is 1, unidirectional printing mode is turned on.

ESC a

[Name] Select justification
 [Format] ASCII ESC a **n**
 Hex 1B 61 **n**
 Decimal 27 97 **n**
 [Range] $0 \leq n \leq 2, 48 \leq n \leq 50$
 [Default] **n** = 0
 [Description] Aligns all the data in one line to a specified position, using **n** as follows:

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

ESC c 3

[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] $0 \leq n \leq 255$
 [Default] **n** = 15
 [Description] Selects whether to output paper end signals to a parallel interface or not when a paper end is detected by the sensor selected, using **n** as follows:

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

Control commands list

ESC c 4

| | | | | | |
|---------------|--|-----|----|----|----------|
| [Name] | Select paper sensor(s) to stop printing | | | | |
| [Format] | ASCII | ESC | c | 4 | <i>n</i> |
| | Hex | 1B | 63 | 34 | <i>n</i> |
| | Decimal | 27 | 99 | 52 | <i>n</i> |
| [Range] | 0 ≤ <i>n</i> ≤ 255 | | | | |
| [Default] | <i>n</i> = 0 | | | | |
| [Description] | Selects whether to stop printing or not when the paper runs out using <i>n</i> as follows: | | | | |

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

ESC c 5

| | | | | | |
|---------------|--|-----|----|----|----------|
| [Name] | Enable/disable panel buttons | | | | |
| [Format] | ASCII | ESC | c | 5 | <i>n</i> |
| | Hex | 1B | 63 | 35 | <i>n</i> |
| | Decimal | 27 | 99 | 53 | <i>n</i> |
| [Range] | 0 ≤ <i>n</i> ≤ 255 | | | | |
| [Default] | <i>n</i> = 0 | | | | |
| [Description] | Enables or disables the panel buttons. | | | | |
| | - When the LSB of <i>n</i> is 0, all buttons are enabled. | | | | |
| | - When the LSB of <i>n</i> is 1, all buttons are disabled. | | | | |

ESC d

| | | | | |
|---------------|---|-----|-----|----------|
| [Name] | Print and feed <i>n</i> lines | | | |
| [Format] | ASCII | ESC | d | <i>n</i> |
| | Hex | 1B | 64 | <i>n</i> |
| | Decimal | 27 | 100 | <i>n</i> |
| [Range] | 0 ≤ <i>n</i> ≤ 255 | | | |
| [Default] | None | | | |
| [Description] | Prints the data in the print buffer and feeds <i>n</i> lines. | | | |

ESC e

| | | | | |
|---------------|--|-----|-----|----------|
| [Name] | Print and reverse feed <i>n</i> lines | | | |
| [Format] | ASCII | ESC | e | <i>n</i> |
| | Hex | 1B | 65 | <i>n</i> |
| | Decimal | 27 | 101 | <i>n</i> |
| [Range] | 0 ≤ <i>n</i> ≤ 1 | | | |
| [Default] | None | | | |
| [Description] | Prints the data in the print buffer and feeds <i>n</i> lines in the reverse direction. | | | |

ESC g

| | | | | | |
|---------------|---|-----|-----|----|---|
| [Name] | Start macro record | | | | |
| [Format] | ASCII | ESC | g | 0 | <k> [<nH > <nL>] _k [d1...dm] _k |
| | Hex | 1B | 67 | 00 | <k> [<nH > <nL>] _k [d1...dm] _k |
| | Decimal | 27 | 103 | 0 | <k> [<nH > <nL>] _k [d1...dm] _k |
| [Range] | $k \leq 10$ $0 \leq nL \leq 255$ $0 \leq nH \leq 255$ $[(256 \times nH) + nL]_1 + \dots + [(256 \times nH) + nL]_k < 2\text{Mbit (256KB)}$ $0 \leq d \leq 255$ | | | | |
| [Description] | Start macro definition (Define logo) - k = the number of total macro index - $(256 \times nH) + nL$ = the Length of each macro - $m = (256 \times nH) + nL$ | | | | |
| [Notes] | The SRP-275 Printer maintains a 2M bit (256KB) section of flash memory to save NV bit image. <ul style="list-style-type: none"> • This command is useful to define NV bit image (Logo). • The NV bit image is printed by ESC g n. | | | | |

ESC g <n>

| | | | | |
|---------------|--|-----|-----|---|
| [Name] | Execute Macro | | | |
| [Format] | ASCII | ESC | g | n |
| | Hex | 1B | 67 | n |
| | Decimal | 27 | 103 | n |
| [Range] | $1 \leq n \leq 10$ | | | |
| [Description] | Execute macro using the parameter by n . | | | |
| [Notes] | <ul style="list-style-type: none"> • n = Macro index number. • The NV bit image is defined by ESC g. | | | |

ESC i

| | | | |
|---------------|--|-----|-----|
| [Name] | Partial cut (one point left uncut) | | |
| [Format] | ASCII | ESC | i |
| | Hex | 1B | 69 |
| | Decimal | 27 | 105 |
| [Range] | None | | |
| [Default] | None | | |
| [Description] | Executes a partial cut of the paper with one point left uncut. | | |

ESC m

| | | | |
|---------------|--|-----|-----|
| [Name] | Partial cut (one point left uncut) | | |
| [Format] | ASCII | ESC | i |
| | Hex | 1B | 69 |
| | Decimal | 27 | 105 |
| [Range] | None | | |
| [Default] | None | | |
| [Description] | Executes a partial cut of the paper with one point left uncut. | | |

Control commands list

ESC p

[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
 1 ≤ **t1** ≤ 255
 1 ≤ **t2** ≤ 255

[Default] None

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

| m | Connector Pin |
|----------|---------------------------------|
| 0 | Drawer kick-out connector pin 2 |
| 1 | Drawer kick-out connector pin 5 |

- The pulse for ON time is (**t1** × 2msec) and for OFF time is (**t2** × 2 msec).

[Notes]

- If **t2** < **t1**, the OFF time is equal to the ON time.
- If **t2** < 50, **t2** is supposed to be 50.

ESC r

[Name] Select print color
 [Format] ASCII ESC r **n**
 Hex 1B 72 **n**
 Decimal 27 114 **n**

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

[Default] **n** = 0

[Description] Selects a print color, using **n** as follows:

| n | Selected color |
|----------|----------------|
| 0, 48 | Black |
| 1, 49 | Red |

ESC t

[Name] Select character code table
 [Format] ASCII ESC t **n**
 Hex 1B 74 **n**
 Decimal 27 116 **n**

[Range] **n** = 0, 1, 2, 3, 4, 5, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 255

[Default] **n** = 0

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

| n | Page |
|----------|----------------------------------|
| 0 | Page 0 (PC437 : U.S.A.) |
| 1 | Page 1 (Katakana) |
| 2 | Page 2 (PC850 : Multilingual) |
| 3 | Page 3 (PC860 : Portuguese) |
| 4 | Page 4 (PC863 : Canadian-French) |
| 5 | Page 5 (PC865 : Nordic) |
| 16 | Page 16 (WPC1252 : Latin1) |
| 17 | Page 17 (PC866 : Russian) |
| 18 | Page 18 (PC852 : Latin2) |
| 19 | Page 19 (PC858 : Euro) |
| 21 | Page 21 (PC862 : Israel) |
| 22 | Page 22 (PC864 : Arabic) |
| 23 | Page 23 (Thai character code 42) |
| 24 | Page 24 (WPC1253 : Greek) |
| 25 | Page 25 (WPC1254 : Turkish) |
| 26 | Page 26 (WPC1257 : Baltic) |
| 27 | Page 27 (Farsi) (*1) |
| 28 | Page 28 (WPC1251 : Russian) (*1) |
| 29 | Page 29 (PC737 : Greek) (*1) |
| 30 | Page 30 (PC775 : Baltic) (*1) |
| 31 | Page 31 (Thai character code 16) |
| 32 | Page 32 (OldCode : Israel) |
| 33 | Page 33 (WPC1255 : Israel) |
| 34 | Page 34 (Thai character code 11) |
| 35 | Page 35 (Thai character code 18) |

ESC u

[Name] Transmit peripheral device status
 [Format] ASCII ESC u *n*
 Hex 1B 75 *n*
 Decimal 27 117 *n*
 [Range] *n* = 0, 48
 [Description] Transmits the peripheral device status of 1 byte.
 [Notes] • The peripheral device status to be transmitted is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|--|
| 0 | 0 | | | Drawer kick-out connector pin 3 is LOW. |
| | 1 | | | Drawer kick-out connector pin 3 is HIGH. |
| 1-3 | - | - | - | Undefined. |
| 4 | 0 | 00 | 0 | Not used. Fixed to Off. |
| 5,6 | - | - | - | Undefined. |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off. |

ESC v

[Name] Transmit paper sensor status
 [Format] ASCII ESC v
 Hex 1B 76
 Decimal 27 118
 [Description] Transmits the status of paper sensor(s) as 1 byte of data.
 [Notes] • The paper sensor status to be transmitted is as follows:

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|--|
| 0,1 | 00 | 00 | 0 | Paper near end sensor: paper adequate. |
| | 11 | 03 | 3 | Paper near end sensor: paper near end. |
| 2,3 | 00 | 00 | 00 | Paper end sensor: paper present. |
| | 11 | 0C | 12 | Paper end sensor: paper not present. |
| 4 | 0 | 00 | 0 | Not used. Fixed to Off. |
| 5,6 | - | - | - | Undefined. |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

ESC {

[Name] Turn upside-down printing mode on/off
 [Format] ASCII ESC { *n*
 Hex 1B 7B *n*
 Decimal 27 123 *n*
 [Range] $1 \leq n \leq 255$
 [Default] *n* = 0
 [Description] Turns upside-down printing mode on or off.
 - When the LSB of *n* is 0, upside-down printing mode is turned off.
 - When the LSB of *n* is 1, upside-down printing mode is turned on.

Control commands list

FS p

| | | | | | |
|---------------|---|----|-----|----------|----------|
| [Name] | Print NV bit image | | | | |
| [Format] | ASCII | FS | p | <i>n</i> | <i>m</i> |
| | Hex | 1C | 70 | <i>n</i> | <i>m</i> |
| | Decimal | 28 | 112 | <i>n</i> | <i>m</i> |
| [Range] | $1 \leq n \leq 255$ $m = 0, 1, 48, 49$ | | | | |
| [Description] | Prints a NV bit image <i>n</i> using the mode specified by <i>m</i> . | | | | |

| <i>m</i> | Mode | Scaling for horizontal | Scaling for vertical |
|----------|--------------|------------------------|----------------------|
| 0, 48 | Normal | x 1 | x 1 |
| 1, 49 | Double-width | x 2 | x 1 |

FS q

| | | | | | |
|---------------|---|----|-----|--|--|
| [Name] | Define NV bit image | | | | |
| [Format] | ASCII | FS | q | <i>n</i> [<i>xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>1...[xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>n</i> | |
| | Hex | 1C | 71 | <i>n</i> [<i>xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>1...[xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>n</i> | |
| | Decimal | 28 | 113 | <i>n</i> [<i>xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>1...[xL</i> <i>xH</i> <i>yL</i> <i>yH</i> <i>d1...dk</i>] <i>n</i> | |
| [Range] | $1 \leq n \leq 255$ $1 \leq (xL + xH \times 256) \leq 1023 (0 \leq xL \leq 255, 0 \leq xH \leq 3)$ $1 \leq (yL + yH \times 256) \leq 288 (0 \leq yL \leq 255, yH = 0.1)$ $1 \leq d \leq 255$ $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$ Total defined data area is 256 KB | | | | |
| [Description] | Defines NV bit image specified. <ul style="list-style-type: none"> - <i>n</i> specifies the number of defined NV bit images. - <i>xL</i>, <i>xH</i> specifies (<i>xL</i> + <i>xH</i> × 256) bytes in the horizontal direction for the NV bit image you defined. - <i>yL</i>, <i>yH</i> specifies (<i>yL</i> + <i>yH</i> × 256) bytes in the vertical direction for the NV bit image you defined. - <i>d</i> specifies the definition data for the NV bit image. - <i>k</i> indicates the number of the definition data. <i>k</i> is a parameter for an explanation; therefore, it does not need to be transmitted. | | | | |

GS (A

| | | | | | | | | |
|---------------|--|----|----|----|-----------|-----------|----------|----------|
| [Name] | Execute test print | | | | | | | |
| [Format] | ASCII | GS | (| A | <i>pL</i> | <i>pH</i> | <i>n</i> | <i>m</i> |
| | Hex | 1D | 28 | 41 | 02 | 00 | <i>n</i> | <i>m</i> |
| | Decimal | 29 | 40 | 65 | 2 | 0 | <i>n</i> | <i>m</i> |
| [Range] | $1 \leq m \leq 3, 49 \leq m \leq 3$ | | | | | | | |
| [Description] | Executes a specified test print. <ul style="list-style-type: none"> - <i>pL</i> and <i>pH</i> specify the number of parameters following <i>n</i> to (<i>pL</i> + <i>pH</i> × 256) bytes. - <i>n</i> specifies paper used for the test print as follows: | | | | | | | |

| <i>n</i> | Paper |
|----------|--------------------------|
| 0, 48 | Basic sheet (paper roll) |
| 1, 49 | Paper roll |
| 2, 50 | |

- *m* specifies a type of the test print as follows:

| <i>m</i> | Type |
|----------|-------------------------|
| 1, 49 | Hexadecimal dump |
| 2, 50 | Printer status printing |
| 3, 51 | Rolling pattern |

GS (C

[Name] Edit NV user memory
 [Format] ASCII GS (C *pl ph m fn b [c1, c2] [d1...dk]*
 Hex 1D 28 43 *pl ph m fn b [c1, c2] [d1...dk]*
 Decimal 29 40 67 *pl ph m fn b [c1, c2] [d1...dk]*
 [Description] Deletes, stores, and transmits data in the NV user memory area based on the functions defined in the table below. Also sends status information for the amount of space used in NV RAM and the amount of space still available.

- The function code (*fn*) specifies the function.

| <i>fn</i> | Function | Description |
|-----------|------------|---|
| 0, 48 | Function 0 | Deletes specified record |
| 1, 49 | Function 1 | Stores data in specified record |
| 2, 50 | Function 2 | Sends data stored in specified record |
| 3, 51 | Function 3 | Sends capacity currently being used |
| 4, 52 | Function 4 | Sends available capacity |
| 5, 53 | Function 5 | Transmits the key code of the record stored in the NV user memory |
| 6, 54 | Function 6 | Cancels all records stored in the NV user memory |

- *pl* and *ph* specify the bytes following parameter *ph* (*m* and [*a1 b1*] ... [*ak bk*]) as (*pl* + (*ph* x 256)).
 - The other parameters are explained under each of the functions.

GS (C pl ph m fn b c1 c2 <Function 0>

[Format] ASCII GS (C *pl ph m fn b c1 c2*
 Hex 1D 28 43 *05 00 00 fn 00 c1 c2*
 Decimal 29 40 67 *5 0 0 fn 0 c1 c2*
 [Range] (*pl* + *ph* x 256) = 5 (*pl* = 5, *ph* = 0)
m = 0
fn = 0, 48
b = 0
 32 ≤ *c1* ≤ 126
 32 ≤ *c2* ≤ 126
 [Description] Deletes the specified record stored in the NV user memory. The deleted area becomes an "unused" area available for storage.

GS (C pl ph m fn b c1 c2 d1...dk <Function 1>

[Format] ASCII GS (C *pl ph m fn b c1 c2 d1...dk*
 Hex 1D 28 43 *pl ph 00 fn 00 c1 c2 d1...dk*
 Decimal 29 40 67 *pl ph 0 fn 0 c1 c2 d1...dk*
 [Range] 6 ≤ (*pl* + *ph* x 256) ≤ 65535 (0 ≤ *pl* ≤ 255, 0 ≤ *ph* ≤ 255)
m = 0
fn = 1, 49
b = 0
 32 ≤ *c1* ≤ 126
 32 ≤ *c2* ≤ 126
 32 ≤ *d* ≤ 254
k = (*pl* + *ph* x 256) - 5
 [Description] Stores data (*d1... dk*) in the record specified by parameters *c1* and *c2* (the key code ID numbers).
 - When the specified record already exists, the data is overwritten.
 - A terminator is automatically assigned.

Control commands list

GS (C *pL pH m fn b c1 c2* <Function 2>

| | | | | | | | | | | | |
|---------------|---|----|----|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| C | <i>pL</i> | <i>pH</i> | <i>m</i> | <i>fn</i> | <i>b</i> | <i>c1</i> | <i>c2</i> |
| | Hex | 1D | 28 | 43 | 05 | 00 | 00 | <i>fn</i> | 00 | <i>c1</i> | <i>c2</i> |
| | Decimal | 29 | 40 | 67 | 5 | 0 | 0 | <i>fn</i> | 0 | <i>c1</i> | <i>c2</i> |
| [Range] | $(pL + pH \times 256) = 5$ ($pL = 5, pH = 0$) | | | | | | | | | | |
| | <i>m</i> = 0 | | | | | | | | | | |
| | <i>fn</i> = 2, 50 | | | | | | | | | | |
| | <i>b</i> = 0 | | | | | | | | | | |
| | $32 \leq c1 \leq 126$ | | | | | | | | | | |
| | $32 \leq c2 \leq 126$ | | | | | | | | | | |
| [Description] | Transmits the data for the record with the ID code specified by parameters <i>c1</i> , <i>c2</i> in the NV user memory. | | | | | | | | | | |
| | - ESC/POS Handshaking Protocol is required for this function. | | | | | | | | | | |

GS (C *pL pH m fn b* <Function 3>

| | | | | | | | | | |
|---------------|---|----|----|----|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| C | <i>pL</i> | <i>pH</i> | <i>m</i> | <i>fn</i> | <i>b</i> |
| | Hex | 1D | 28 | 43 | 03 | 00 | 00 | <i>fn</i> | 00 |
| | Decimal | 29 | 40 | 67 | 3 | 0 | 0 | <i>fn</i> | 0 |
| [Range] | $(pL + pH \times 256) = 3$ ($pL = 3, pH = 0$) | | | | | | | | |
| | <i>m</i> = 0 | | | | | | | | |
| | <i>fn</i> = 3, 51 | | | | | | | | |
| | <i>b</i> = 0 | | | | | | | | |
| [Description] | The printer sends the host the number of data bytes currently used in the NV memory area. | | | | | | | | |
| | - ESC/POS Handshaking Protocol is not required for this function. | | | | | | | | |

GS (C *pL pH m fn b* <Function 4>

| | | | | | | | | | |
|---------------|---|----|----|----|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| C | <i>pL</i> | <i>pH</i> | <i>m</i> | <i>fn</i> | <i>b</i> |
| | Hex | 1D | 28 | 43 | 03 | 00 | 00 | <i>fn</i> | 00 |
| | Decimal | 29 | 40 | 67 | 3 | 0 | 0 | <i>fn</i> | 0 |
| [Range] | $(pL + pH \times 256) = 3$ ($pL = 3, pH = 0$) | | | | | | | | |
| | <i>m</i> = 0 | | | | | | | | |
| | <i>fn</i> = 4, 52 | | | | | | | | |
| | <i>b</i> = 0 | | | | | | | | |
| [Description] | The printer sends the available NV user memory. | | | | | | | | |
| | - ESC/POS Handshaking Protocol is not required for this function. | | | | | | | | |

GS (C *pL pH m fn b* <Function 5>

| | | | | | | | | | |
|---------------|--|----|----|----|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| C | <i>pL</i> | <i>pH</i> | <i>m</i> | <i>fn</i> | <i>b</i> |
| | Hex | 1D | 28 | 43 | 03 | 00 | 00 | <i>fn</i> | 00 |
| | Decimal | 29 | 40 | 67 | 3 | 0 | 0 | <i>fn</i> | 0 |
| [Range] | $(pL + pH \times 256) = 3$ ($pL = 3, pH = 0$) | | | | | | | | |
| | <i>m</i> = 0 | | | | | | | | |
| | <i>fn</i> = 5, 53 | | | | | | | | |
| | <i>b</i> = 0 | | | | | | | | |
| [Description] | Transmits the key code ID for the record stored in the NV user memory. | | | | | | | | |
| | - ESC/POS Handshaking Protocol is required for this function. | | | | | | | | |

GS (C pL pH m fn b d1 d2 d3 <Function 6>

[Format] ASCII GS (C **pL pH m fn b d1 d2 d3**
 Hex 1D 28 43 **06 00 00 fn 00 43 4C 52**
 Decimal 29 40 67 **6 0 0 fn 0 67 76 82**

[Range] $(pL + pH \times 256) = 6$ ($pL = 6, pH = 0$)
m = 0
fn = 6, 54
b = 0
d1 = 67
d2 = 76
d3 = 82

[Description] The printer deletes all records stored in the NV user memory.
 - All area is changed to unused area.

GS (D

[Name] Enable/disable real-time command

[Format] ASCII GS (D **pL pH m [a1 b1]...[ak bk]**
 Hex 1D 28 44 **pL pH 14 [a1 b1]...[ak bk]**
 Decimal 29 40 68 **pL pH 20 [a1 b1]...[ak bk]**

[Range] $(pL + pH \times 256) = 3, 5$ ($pL = 3, 5, pH = 0$)
m = 20
a = 1
b = 0, 1, 48, 49

[Default] **a** = 1/ **b** = 1 (**DLE DC4 fn m t** ($n = 1$): enable)

[Description] Specifies enable or disable of a real-time command.
 - **pL, pH** sets the number of parameters after **pH** (**m** and **[a1 b1]...[ak bk]**) to $(pL + pH \times 256)$ bytes.
 - **a** specifies the type of real-time command.
 - **b** specifies enable/disable of real-time command processing.

| a | b | Real-time command type |
|----------|----------|---|
| 1 | 0, 48 | Disable DLE DC4 n m t ($n = 1$): output a specified pulse in real-time (It does not process) |
| | 1, 49 | Enable DLE DC4 n m t ($n = 1$): output a specified pulse in real-time (It does process) |

DLE DC4 n m t ($n=1$): output a specified pulse in real-time.

GS (E

[Name] User setup commands

[Format] ASCII GS (E **pL pH fn [parameters]**
 Hex 1D 28 45 **pL pH fn [parameters]**
 Decimal 29 40 69 **pL pH fn [parameters]**

[Description] Controls the user setting modes. The table below explains the functions available in this command.
 - The value of **fn** specifies the function.

| fn | Function | |
|-----------|-----------------|--|
| 1 | Function1 | Changes into the user setting mode |
| 2 | Function2 | Ends user setting mode session. (Performs a software reset.) |
| 3 | Function3 | Changes the Memory Switch |
| 4 | Function4 | Transmits the host the value for the Memory Switch |
| 5 | Function5 | Changes the customized setting values |
| 6 | Function6 | Transmits the customized setting values |
| 11 | Function11 | Sets communication condition of serial interface |
| 12 | Function12 | Transmits communication condition of serial interface |

- **pL** and **pH** specify the number of bytes for the parameters following **pH** (**fn** and **[a1 b1]** ... **[ak bk]**) as $(pL + pH \times 256)$.

Control commands list

GS (E pL pH fn d1 d2 <Function 1>

| | | | | | | | | | |
|---------------|--|----|----|----|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| E | pL | pH | fn | d1 | d2 |
| | Hex | 1D | 28 | 45 | 03 | 00 | 01 | 49 | 4E |
| | Decimal | 29 | 40 | 69 | 3 | 0 | 1 | 73 | 78 |
| [Range] | $(pL + pH \times 256) = 3$ ($pL = 3, pH = 0$) | | | | | | | | |
| | $fn = 1$ | | | | | | | | |
| | $d1 = 73$ | | | | | | | | |
| | $d2 = 78$ | | | | | | | | |
| [Description] | This command changes the printer into the user setting mode. | | | | | | | | |

GS (E pL pH fn d1 d2 d3 <Function 2>

| | | | | | | | | | | |
|---------------|--|----|----|----|-----------|-----------|-----------|-----------|-----------|-----------|
| [Format] | ASCII | GS | (| E | pL | pH | fn | d1 | d2 | d3 |
| | Hex | 1D | 28 | 45 | 04 | 00 | 02 | 4F | 55 | 54 |
| | Decimal | 29 | 40 | 69 | 4 | 0 | 2 | 79 | 85 | 84 |
| [Range] | $(pL + pH \times 256) = 4$ ($pL = 4, pH = 0$) | | | | | | | | | |
| | $fn = 2$ | | | | | | | | | |
| | $d1 = 79$ | | | | | | | | | |
| | $d2 = 85$ | | | | | | | | | |
| | $d3 = 84$ | | | | | | | | | |
| [Description] | Ends the user setting mode, and the printer performs a software reset. | | | | | | | | | |

GS (E pL pH fn [a1 b1₈...b11]...[ak nk₈ nk1] <Function 3>

| | | | | | | | | | | | | | |
|---------------|--|----|----|----|-----------|-----------|-----------|-------------|--------------------------|-------------|-------------|-----------------------|-------------|
| [Format] | ASCII | GS | (| E | pL | pH | fn | [a1 | b1₈... | b11] | [ak | nk₈ | nk1] |
| | Hex | 1D | 28 | 45 | pL | pH | 03 | [a1 | b1₈... | b11] | [ak | nk₈ | nk1] |
| | Decimal | 29 | 40 | 69 | pL | pH | 3 | [a1 | b1₈... | b11] | [ak | nk₈ | nk1] |
| [Range] | $a = 2, 8$ | | | | | | | | | | | | |
| [Default] | All Memory Switches are OFF ($b = 48$). | | | | | | | | | | | | |
| [Description] | Changes the Memory Switch specified by a to the value specified by b . | | | | | | | | | | | | |
| | - When $b = 48$, the Memory Switch is set to OFF. | | | | | | | | | | | | |
| | - When $b = 49$, the Memory Switch is set to ON. | | | | | | | | | | | | |
| | - When $b = 50$, does not change the Memory Switch. | | | | | | | | | | | | |
| | • When $a = 2$, Memory Switch 2 is set as follows: | | | | | | | | | | | | |

| MSW | Setting value (b) | Function |
|------------|---------------------|----------|
| 2-1 to 2-8 | 48 | Reserved |

- When $a = 8$, Memory Switch 8 is set as follows:

| MSW | Setting value (b) | Function |
|------------|---------------------|---|
| 8-1 to 8-4 | 48 | Reserved |
| 8-5 | 48 | The printer status is sent back as "the paper end" when the rear cover is opened. |
| | 49 | The printer status is sent back "the rear cover open" when the rear cover is opened. |
| 8-6 | 48 | Reserved: Fixed to OFF (Don't change the setting) |
| 8-7 | 48 | Printer BUSY is released when the remaining capacity of the receive buffer goes to 640 bytes. |
| | 49 | Printer BUSY is released when the remaining capacity of the receive buffer goes to 522 bytes. |
| 8-8 | 48 | Printer rear cover open during operation: Error that automatically recovers. |
| | 49 | Printer rear cover open during operation: Error that can possibly recover. |

- Setting of MSW 8-5 affects the statuses as follows:

- Basic ASB status (See "GS a" command)
- Real-time status (See "DLE EOT" command)

GS (E *pL pH fn a* <Function 4>

| | | | | | |
|----------|---------|----|----|----|-------------------|
| [Format] | ASCII | GS | (| E | <i>pL pH fn a</i> |
| | Hex | 1D | 28 | 45 | 02 00 04 a |
| | Decimal | 29 | 40 | 69 | 2 0 4 a |

[Range] $(pL + pH \times 256) = 2$ ($pL = 2, pH = 0$)
 $fn = 4$
 $a = 2, 8$

[Description] The printer transmits the host the value for the Memory Switch specified by parameter **a**.

GS (E *pL pH fn [a1 n1L n1H]...[ak nKL nKH]* <Function 5>

| | | | | | |
|----------|---------|----|----|----|---|
| [Format] | ASCII | GS | (| E | <i>pL pH fn [a1 n1L n1H] ... [ak nKL nKH]</i> |
| | Hex | 1D | 28 | 45 | <i>pL pH 05 [a1 n1L n1H] ... [ak nKL nKH]</i> |
| | Decimal | 29 | 40 | 69 | <i>pL pH 5 [a1 n1L n1H] ... [ak nKL nKH]</i> |

[Range] $4 \leq (pL + pH \times 256) \leq 65533$
 $(0 \leq pL \leq 255, 0 \leq pH \leq 255: (pL + pH \times 256) = 3 \times k + 1)$
 $fn = 5$
 $1 \leq k \leq 21844$
 $a = 3$

$nL + nH \times 256 = 2, 4, 5$ ($nL = 2, 4, 5, nH = 0$)

[Default] $(nL + nH \times 256) = 5$ ($nL = 5, nH = 0$) [default value when $a = 3$]

[Description] Changes the customized value specified by parameter **a** to $(nL + nH \times 256)$.

| a | Type of customized value |
|----------|---------------------------------|
| 3 | Paper width |

[Notes] • Paper width settings ($a = 3$)

| (nL + nH x 256) | Paper width |
|------------------------|---------------------|
| 2 | 57.5mm (2.26 inch) |
| 4 | 69.5 mm (2.74 inch) |
| 5 | 76 mm (3.00 inch) |

GS (E *pL pH fn a* <Function 6>

| | | | | | |
|----------|---------|----|----|----|-------------------|
| [Format] | ASCII | GS | (| E | <i>pL pH fn a</i> |
| | Hex | 1D | 28 | 45 | 02 00 06 a |
| | Decimal | 29 | 40 | 69 | 2 0 6 a |

[Range] $(pL + pH \times 256) = 2$ ($pL = 2, pH = 0$)
 $fn = 6$
 $a = 3$

[Description] The printer transmits to the host the customized value for the NV memory area specified by parameter **a**.

| a | Type of customized value |
|----------|---------------------------------|
| 3 | Paper width |

Control commands list

GS (E *pL pH fn a d1...dk* <Function 11>

[Format] ASCII GS (E *pL pH fn a d1...dk*
 Hex 1D 28 45 *pL pH 0B a d1...dk*
 Decimal 29 40 69 *pL pH 11 a d1...dk*

[Range] $3 \leq (pL + pH \times 256) \leq 8$ ($3 \leq pL \leq 8, 0 \leq pH \leq 255$)

fn = 11

$1 \leq a \leq 4$

$48 \leq d \leq 57$ [*a* = 1]

$48 \leq d \leq 50$ [*a* = 2]

d = 48, 49 [*a* = 3]

d = 55, 56 [*a* = 4]

$1 \leq k \leq 6$

[Default] *d1...dk* = "9600" [*a* = 1]

d = 48 [*a* = 2]

d = 48 [*a* = 3]

d = 56 [*a* = 4]

[Description] Changes the condition of the serial interface defined by *a*.

| <i>a</i> | Item |
|----------|--------------|
| 1 | Baud rate |
| 2 | Parity |
| 3 | Flow control |
| 4 | Bit length |

- Baud rate (*a* = 1) is specified by number.

Example: When defining 19200 bps: 5 bytes as "19200" (Hexadecimal = 31H, 39H, 32H, 30H, 30H / Decimal = 49, 57, 50, 48, 48)

- Parity (*a* = 2) is specified by *d* as follows:

| <i>d</i> | Function |
|----------|--------------------|
| 48 | Select no parity |
| 49 | Select odd parity |
| 50 | Select even parity |

- Flow control (*a* = 3) is specified by *d* as follows:

| <i>d</i> | Function |
|----------|---------------------------------|
| 48 | Select Flow control of DTR/DSR |
| 49 | Select Flow control of XON/XOFF |

- Bit length (*a* = 4) is specified by *d* as follows:

| <i>d</i> | Function |
|----------|----------------------|
| 55 | Select 7 bits length |
| 56 | Select 8 bits length |

GS (E *pL pH fn a* <Function 12>

[Format] ASCII GS (E *pL pH fn a*
 Hex 1D 28 45 *pL pH 0B a*
 Decimal 29 40 69 *pL pH 11 a*

[Range] $(pL + pH \times 256) = 2$ ($pL = 2, pH = 0$)

fn = 12

$1 \leq a \leq 4$

[Description] Transmits the setting value of the serial interface communication condition specified by *a*.

[Notes]

- This function works in user setting mode and during normal operation.
- This function transmits "Header to NUL" as follows:

| <i>a</i> | Communication condition |
|----------|-------------------------|
| 1 | Baud rate |
| 2 | Parity |
| 3 | Flow control |
| 4 | Bit length |

GS I

[Name] Transmit printer ID
 [Format] ASCII GS I *n*
 Hex 1D 49 *n*
 Decimal 29 73 *n*
 [Range] $1 \leq n \leq 3, 49 \leq n \leq 51, 65 \leq n \leq 68, n = 33$
 [Default] None
 [Description] Transmits 1 byte of printer ID which is specified by *n* as follows:

| <i>n</i> | Printer ID | Specification |
|----------|------------------|------------------|
| 1, 49 | Printer model ID | Printer model |
| 2, 50 | Type ID | Printer type |
| 3, 51 | Version ID | Firmware version |

Transmits printer information A (common information), using *n* as follows:

| <i>n</i> | Printer ID | Specification |
|----------|------------------|---------------------|
| 33 | Type information | Supported functions |

Transmits printer information B (common information), using *n* as follows:

| <i>n</i> | Printer ID | Specification |
|----------|------------------|--------------------------|
| 65 | Firmware version | Firmware version |
| 66 | Maker name | BIXOLON |
| 67 | Printer model | Printer model |
| 68 | Serial No | Serial No of the printer |

GS V

[Name] Select cut mode and cut paper
 [Format] Function A ASCII GS V *m*
 Hex 1D 56 *m*
 Decimal 29 86 *m*
 Function B ASCII GS V *m n*
 Hex 1D 56 *m n*
 Decimal 29 86 *m n*
 [Range] Function A $m = 0, 1, 48, 49$
 Function B $m = 65, 66; 0 \leq n \leq 255$
 [Default] None
 [Description] Select a paper cutting mode using *m* and then cut the paper, as follows:

| <i>m</i> | Function |
|----------|--|
| <A> | 0,48 Executes a full cut (cuts the paper completely). |
| | 1,49 Executes a partial cut (one point left uncut). |
| | 65 Feeds paper to (cutting position + <i>n</i> × vertical motion unit) and executes a partial cut(one point left uncut). |
| | 66 Feeds paper to (cutting position + <i>n</i> × vertical motion unit) and executes a partial cut(one point left uncut). |

- [Note for <A>] • If an auto cutter is not provided, this command is ignored.
 • When *n* = 0, the printer feeds the paper to the cutting position and cuts it.
 [Notes for] • If an auto cutter is not provided, the printer only feeds the paper for specified amount.
 • Vertical motion unit is used for calculating a paper feed amount.

GS a

| | | | | |
|---------------|---|----|----|----------|
| [Name] | Enable/disable Automatic Status Back (ASB) | | | |
| [Format] | ASCII | GS | a | n |
| | Hex | 1D | 61 | n |
| | Decimal | 29 | 97 | n |
| [Range] | 0 ≤ n ≤ 255 | | | |
| [Default] | When DIP Switch or Memory Switch (BUSY condition) is Off: n = 0 When DIP Switch or Memory Switch (BUSY condition) is On: n = 2 | | | |
| [Description] | Enables or disables basic ASB (Automatic Status Back) and specifies the status items to include, using n as follows: | | | |

| Bit | On/Off | Hex | Decimal | Status for ASB |
|-----|--------|-----|---------|--|
| 0 | Off | 00 | 0 | Drawer kick-out connector pin 3 status disabled. |
| | On | 01 | 1 | Drawer kick-out connector pin 3 status enabled. |
| 1 | Off | 00 | 0 | On-line/off-line disabled. |
| | On | 02 | 2 | On-line/off-line enabled |
| 2 | Off | 00 | 0 | Error status disabled. |
| | On | 04 | 4 | Error status enabled. |
| 3 | Off | 00 | 0 | Paper sensor status disabled. |
| | On | 08 | 8 | Paper sensor status enabled. |
| 4 | - | - | - | Undefined. |
| 5 | - | - | - | Undefined. |
| 6 | - | - | - | Undefined. |
| 7 | - | - | - | Undefined. |

[Notes]

- Basic ASB status is 4-byte configuration [first byte - fourth byte].
- The status to be transmitted are as follows:
- First byte (printer information)

| Bit | On/Off | Hex | Decimal | Function |
|-----|--------|-----|---------|--|
| 0 | Off | 00 | 0 | Not used. Fixed to Off. |
| 1 | Off | 00 | 0 | Not used. Fixed to Off. |
| 2 | Off | 00 | 0 | Drawer kick-out connector pin 3 is LOW. |
| | On | 04 | 4 | Drawer kick-out connector pin 3 is HIGH. |
| 3 | Off | 00 | 0 | On-line. |
| | On | 08 | 8 | Off-line. |
| 4 | On | 10 | 16 | Not used. Fixed to On. |
| 5 | Off | 00 | 0 | Rear cover is close |
| | On | 20 | 32 | Rear cover is open |
| 6 | Off | 00 | 0 | Paper is not being fed by the paper feed button. |
| | On | 40 | 64 | Paper is being fed by the paper feed button. |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

- Second byte (printer information)

| Bit | On/Off | Hex | Decimal | Function |
|-----|--------|-----|---------|---|
| 0 | Off | 00 | 0 | Not used. Fixed to Off. |
| 1 | Off | 00 | 0 | Not used. Fixed to Off. |
| 2 | Off | 00 | 0 | No mechanical error. |
| | On | 04 | 4 | Mechanical error. |
| 3 | Off | 00 | 0 | No auto cutter error. |
| | On | 08 | 8 | Auto cutter error occurred. |
| 4 | Off | 00 | 0 | Not used. Fixed to Off. |
| 5 | Off | 00 | 0 | No unrecoverable error. |
| | On | 20 | 32 | Unrecoverable error. |
| 6 | Off | 00 | 0 | No automatically recoverable error. |
| | On | 40 | 64 | Automatically recoverable error occurred. |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

- Third byte (paper sensor information)

| Bit | On/Off | Hex | Decimal | Function |
|-----|--------|-----|---------|--|
| 0,1 | Off | 00 | 0 | Paper near end sensor: paper adequate. |
| | On | 03 | 3 | Paper near end sensor: paper near end. |
| 2,3 | Off | 00 | 0 | Paper end sensor: paper present. |
| | On | 0C | 12 | Paper end sensor: no paper present. |
| 4 | Off | 00 | 0 | Not used. Fixed to Off. |
| 5 | Off | 00 | 0 | Not used. Fixed to Off. |
| 6 | Off | 00 | 0 | Not used. Fixed to Off. |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

- Forth byte

| Bit | On/Off | Hex | Decimal | Function |
|-----|--------|-----|---------|-------------------------|
| 0 | On | 01 | 1 | Not used. Fixed to On. |
| 1 | On | 02 | 2 | Not used. Fixed to On. |
| 2 | On | 04 | 4 | Not used. Fixed to On. |
| 3 | On | 08 | 8 | Not used. Fixed to On. |
| 4 | Off | 00 | 0 | Not used. Fixed to Off. |
| 5 | Off | 00 | 0 | Not used. Fixed to Off. |
| 6 | Off | 00 | 0 | Not used. Fixed to Off. |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

GS r

| | | | | |
|---------------|--|----|-----|----------|
| [Name] | Transmit status | | | |
| [Format] | ASCII | GS | r | <i>n</i> |
| | Hex | 1D | 72 | <i>n</i> |
| | Decimal | 29 | 114 | <i>n</i> |
| [Range] | <i>n</i> = 1, 2, 49, 50 | | | |
| [Description] | Transmits 1 byte of status data using <i>n</i> as follows: | | | |

| <i>n</i> | Function |
|----------|--|
| 1, 49 | Transmits paper sensor status |
| 2, 50 | Transmits drawer kick-out connector status |

[Notes]

- Each status is 1 byte.
- The status to be transmitted is as follows:
 - Paper sensor status (*n* = 1, 49)

| Bit | Binary | Hex | Decimal | Status |
|------|--------|-----|---------|---|
| 0, 1 | 00 | 00 | 0 | Paper near end sensor: paper adequate. |
| | 11 | 03 | 3 | Paper near end sensor: paper not present. |
| 2, 3 | 00 | 00 | 0 | Paper end sensor: paper present. |
| | 11 | 0C | 12 | Paper end sensor: paper not present. |
| 4 | 0 | 00 | 0 | Not used. Fixed to Off. |
| 5,6 | - | - | - | Undefined. |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off. |

- The status to be transmitted is as follows:
 - Drawer kick-out connector status (*n* = 2, 50)

| Bit | Binary | Hex | Decimal | Status |
|-----|--------|-----|---------|--|
| 0 | 0 | 00 | 0 | Drawer kick-out connector pin 3 is LOW. |
| | 1 | 01 | 1 | Drawer kick-out connector pin 3 is HIGH. |
| 1-3 | - | - | - | Undefined. |
| 4 | 0 | 00 | 0 | Not used. Fixed to Off. |
| 5,6 | | | | Undefined |
| 7 | 0 | 00 | 0 | Not used. Fixed to Off. |

4.4.3 Commands list for STAR mode (SP500)

| n | Command | Description | Hex |
|----------|----------------|---|--------------|
| 1 | ESC GS t | Specify code page | 1B 1D 74 |
| 2 | ESC R | Specify international character set | 1B 52 |
| 3 | ESC / | Specify/cancel slash zero | 1B 2F |
| 4 | ESC M | Specify 7×9 font (half dots) | 1B 4D |
| 5 | ESC P | Specify 9×9 font | 1B 50 |
| 6 | ESC : | Specify 5×9 font (3P-1) | 1B 3A |
| 7 | ESC SP | Specify character space | 1B 20 |
| 8 | SO | Specify double-wide expanded characters | 0E |
| 9 | DC4 | Cancel double wide printing | 14 |
| 10 | ESC W | Specify/cancel double-wide printing | 1B 57 |
| 11 | ESC h | Specify/cancel double-high printing | 1B 68 |
| 12 | ESC E | Select emphasized printing | 1B 45 |
| 13 | ESC F | Cancel emphasized printing | 1B 46 |
| 14 | ESC - | Select/cancels underline mode | 1B 2D |
| 15 | ESC _ | Select/cancels upperline mode | 1B 5F |
| 16 | ESC 4 | Specify white/black inversion and red color printing | 1B 34 |
| 17 | ESC 5 | Cancel white/black inversion and specify black color printing | 1B 35 |
| 18 | SI | Select upside-down printing | 0F |
| 19 | DC2 | Cancel upside-down printing | 12 |
| 20 | ESC RS i | Specify/cancel rotating print mode | 1B 1E 69 |
| 21 | LF | Line feed | 0A |
| 22 | CR | Line feed (according to Memory Switch settings) | 0D |
| 23 | ESC a | Feed paper n lines | 1B 61 |
| 24 | ESC 0 | Set line feed to 1/8 inch | 1B 30 |
| 25 | ESC 1 | Set line feed to 7/72 inch | 1B 31 |
| 26 | ESC z 0("0") | Set line feed to 1/12 inch | 1B 7A 00(30) |
| 27 | ESC z 1("1") | Set line feed to 1/6 inch | 1B 7A 01(31) |
| 28 | ESC J | Execute n/72 inch paper feed one time | 1B 4A |
| 29 | ESC A | Define n/72 inch pitch line feed | 1B 41 |
| 30 | ESC 2 | Set ESC A line feed pitch | 1B |
| 31 | ESC 3 | Set line feed to n/216 inch line feed pitch (approximate value) | 1B 33 |
| 32 | ESC y | Set line feed to n/144 inch line feed pitch | 1B 79 |
| 33 | ESC l | Execute n/144 inch paper feed one time | 1B 49 |
| 34 | FF | Form feed | 0C |
| 35 | ESC C | Set page length to n lines | 1B 43 |
| 36 | ESC C 0 | Set page length to n inches | 1B 43 00 |
| 37 | VT | Feed paper to vertical table position | 0B |
| 38 | ESC B | Set vertical tab position | 1B 42 |
| 39 | ESC N | Set bottom margin to n lines | 1B 4E |
| 40 | ESC O | Cancel bottom margin | 1B 4F |
| 41 | ESC l | Set left margin | 1B 6C |
| 42 | ESC Q | Set right margin | 1B 51 |
| 43 | HT | Move print position to horizontal tab position | 09 |
| 44 | ESC D | Set/cancel horizontal tab position | 1B 44 |
| 45 | ESC GS a | Specify position alignment | 1B 1D 61 |
| 46 | ESC GS A | Specify absolute position | 1B 1D 41 |
| 47 | ESC GS R | Specify relative position | 1B 1D 52 |
| 48 | ESC & | Register/delete download characters | 1B 26 |
| 49 | ESC % | Set/cancel download characters | 1B 25 |
| 50 | ESC K | Standard density bit image | 1B 4B |

Control commands list

| <i>n</i> | Command | Description | Hex |
|----------|--------------|---|-------------|
| 51 | ESC L | Double density bit image | 1B 4C |
| 52 | ESC d | Paper cut instruction | 1B 64 |
| 53 | ESC BEL | Set pulse width for external device drive | 1B 07 |
| 54 | BEL | External device 1 drive instruction | 07 |
| 55 | FS | External device 1 drive instruction (real time) | 1C |
| 56 | SUB | External device 2 drive instruction (real time) | 1A |
| 57 | EM | External device 2 drive instruction (real time) | 19 |
| 58 | ENQ | Inquire ENQ status | 05 |
| 59 | EOT | Inquire EOT status | 04 |
| 60 | ESC ACK SOH | Inquire status | 1B 06 01 |
| 61 | ESC RS a | Set status transmission conditions | 1B 1E 61 |
| 62 | ETB | Update ETB status (check after printing) | 17 |
| 63 | ESC RS E | Clear the ETB counter and ETB status | 1B 1E 45 |
| 64 | DC3 | Printer deselect | 13 |
| 65 | DC1 | Printer select | 11 |
| 66 | ESC @ | Command initialization | 1B 40 |
| 67 | ESC U | Select printing direction | 1B 55 |
| 68 | ESC GS # | Set Memory Switch | 1B 1D 23 |
| 69 | ESC # | Set Memory Switch | 1B 23 |
| 70 | ESC ? LF NUL | Reset printer and test print | 1B 3F 0A 00 |

4.4.4 Commands list for CITIZEN mode (iDP3550/3551)

| n | Command | Description | Hexadecimal |
|----------|----------------|---|--------------------|
| 1 | FF n | n-line paper feed (CBM1 mode) | 0C n |
| 2 | FF | Form feed (CBM2 mode) | 0C |
| 3 | SO (Note) | Specifying the double width character (CBM1 mode) | 0E |
| 4 | SI (Note) | Canceling the double width character | 0F |
| 5 | LF | Print and paper feed | 0A |
| 6 | CR | Printing | 0D |
| 7 | DC1 (Note) | Initializing the printer (CBM1 mode) | 11 |
| 8 | DC2 (Note) | Specifying/Canceling the inverted character (CBM1 mode) | 12 |
| 9 | DC3 (Note) | Specifying the red print (CBM1 mode) | 13 |
| 10 | CAN | Canceling the print data | 18 |
| 11 | ESC * n1 n2 | Specifying the bit image mode | 1B 2A n1 n2 |
| 12 | ESC - n | Specifying/Canceling the Underline | 1B 2D n |
| 13 | ESC 1 | Specifying 1/9-inch line feed width | 1B 31H |
| 14 | ESC 2 | Specifying 2/9-inch line feed width | 1B 32 |
| 15 | ESC 3 | Specifying standard line feed width | 1B 33 |
| 16 | ESC C n | Setting the page length | 1B 43 n |
| 17 | ESC N n | Specifying the perforation skip | 1B 4E n |
| 18 | ESC O | Canceling the perforation skip | 1B 4F |
| 19 | ESC f 1 | Form feed (Changing the page) | 1B 66 01 |
| 20 | ESC t n | Selecting the character code table | 1B 74 n |
| 21 | ESC BEL n1 n2 | Setting the external device drive pulse width | 1B 07 n1 n2 |
| 22 | BEL | Driving command A for Drawer-1 | 07 |
| 23 | FS | Driving command B for Drawer-1 | 1C |
| 24 | SUB | Driving command for Drawer-2 | 1A |
| 25 | RS | Buzzer-on | 1E |
| 26 | ESC P 0 | Partial cut | 1B 50 00 |
| 27 | ESC P 1 | Partial cut | 1B 50 01 |
| 28 | ESC R n | Selecting the international character set | 1B 52 n |
| 29 | ESC & 0 n1 n2 | Defining the download character set | 1B 26 00 n1 n2 |
| 30 | ESC % n | Specifying/Canceling the download character | 1B 25 n |
| 31 | ESC / n | Defining the message | 1B 2F n |
| 32 | ESC DC3 n | Printing the message | 1B 13 n |
| 33 | ESC y n | Setting the print lines after paper near end detection | 1B 79 n |
| 34 | ESC DC2 n1 n2 | Deleting the download character, message, bit image | 1B 12 n1 n2 |
| 35 | GS * n1 n2 | Defining the download bit image | 1D 2A n1 n2 |
| 36 | GS / m | Printing the download bit image | 1D 2F m |

5.1 Printing specification

| Item | Description | Remark |
|---------------------|---|--------|
| Printing method | Serial impact method | |
| Head wire | 9 pin serial type | |
| Dot pitch | 0.352mm (1/72") | |
| Dot wire diameter | 0.3mm (0.01") | |
| Printing direction | Bidirectional (logic seeking) with friction feed | |
| Characters per line | Max. 42 (characters) | |
| Printing speed | 5.1 LPS (Line Per Second) at 40 column | |
| Printing width | 63.34 mm (2.49") | |
| Line interval | 4.233 mm (1/6") | |
| Paper feed method | Friction feed | |
| Paper feed speed | Approximately 158 mm (6.2") | |
| Character font | 7 x 9 / 9 x 9 | |
| Character sets | Alphanumeric characters : 95 International characters : 32 Extended graphics : 128 x 25 pages | |

5.2 Paper specifications

| Item | Description | Remark |
|-----------------------------|--|--------|
| Paper type | Paper roll | |
| Paper roll width | 76±0.5 mm, 69.5±0.5 mm, 57.5±0.5mm | |
| Paper roll diameter | Max. ø83 mm (3.27") | |
| Normal paper | Thickness : 1 sheet 0.07~0.085 mm (0.0028~0.0034") Weight : 52.3~64g/m ² (0.115~0.1411 lb) | |
| Paper core outside diameter | Max. ø19mm (0.75") | |

5.3 Ribbon cassette specification

| Item | Description | Remark |
|----------|--|---|
| Standard | SRP 275 B/R | |
| Color | Black & Red | |
| Size | 13 mm (W) | |
| Life | SRP 275 B/R : 1,500,000 characters (Black) 750,000 characters (Red) | Continuous printing 7x9 font ASCII 25°C |

NOTES

Malfunctions and other problems may arise if other than specified ribbon cassettes are used in the printer. The Warranty may be void if other than specified ribbon cassettes are used. Contact your dealer or place of purchase for more information about proper ribbon cassettes.

5.4 Electrical characteristics

| Item | | Description | Remark |
|--|-----------|--|--------|
| Supply voltage | | 24V DC \pm 10% | |
| Current consumption (at 24V, except for drawer kick-out driving) | Operating | Mean : Approximately 0.5A Peak : Approximately 1.5A | |
| | Standby | Mean: Approximately 0.3A | |

NOTES

Maximum 1A for drawer kick-out driving.

5.5 Reliability

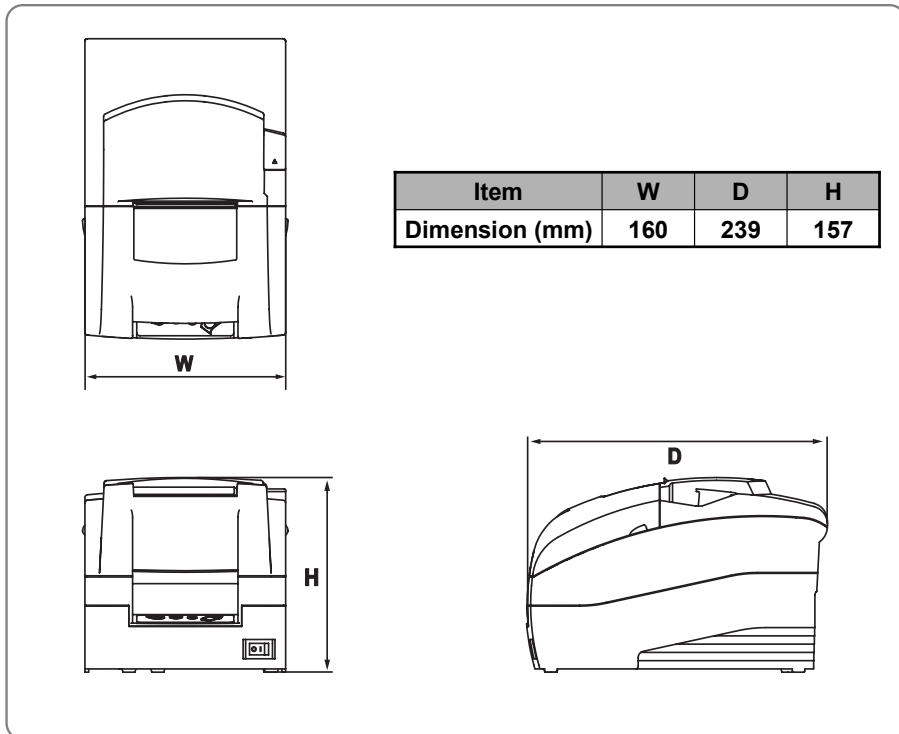
| Item | Description | Remark |
|-----------------------|--|--------|
| Life firing frequency | Mechanism : Approx. 10 million lines Auto cutter : Approx. 1 million cuts (End of life is defined as the point at which the printer reaches the beginning of the Wear out Period.) | |
| Head | Approx. 300 million dots/wire | |

5.6 Environment conditions

| Item | Description | Remark |
|-------------------|--|--------|
| Temperature | Operating : 0~50°C (32~122°F) Storage : -10~50°C (14~122°F) | |
| Relative humidity | Operating : 10~90% RH (Non-condensing) Storage : 10~90% RH (Non-condensing) | |

5.7 Dimensions & weight

• Dimensions



• Weight

Approx. Wt. : 2.5 kg
Shipping Wt. : 4.0 kg

5.8 Optional features

The optional features either replace a standard feature or enhance the operation of the printer. All optional features are installed at the factory and must be selected when the printer is ordered.

- Auto cutter (SRP-275A : Exclude auto cutter, SRP-275C : Including auto cutter)
- Interface (Serial / Parallel / USB / Ethernet)
- Cabinet color (Ivory / Dark gray)

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 right digit. For example, 4A=J.

A.1 Page 0 (PC 437 : USA, Standard Europe (International Character Set : USA))

| 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 | 0001 DLE | 0010 SP | 0011 0 | 0100 @ | 0101 P | 0110 ` | 0111 p | 1000 Ç | 1001 É | 1010 á | 1011 ■ | 1100 L | 1101 ∟ | 1110 α | 1111 ≡ |
| 1 | 0001 | 0010 XON | 0011 I | 0011 1 | 0100 A | 0101 Q | 0110 a | 0111 q | 1000 ú | 1001 æ | 1010 í | 1011 ■ | 1100 ∟ | 1101 ∟ | 1110 β | 1111 ± |
| 2 | 0010 | 0011 | 0011 " | 0011 2 | 0100 B | 0101 R | 0110 b | 0111 r | 1000 é | 1001 Æ | 1010 ó | 1011 ■ | 1100 ∟ | 1101 ∟ | 1110 Γ | 1111 ≤ |
| 3 | 0010 | 0011 XOFF | 0011 % | 0011 3 | 0100 C | 0101 S | 0110 c | 0111 s | 1000 â | 1001 ô | 1010 ú | 1011 | 1100 ∟ | 1101 ∟ | 1110 π | 1111 ≥ |
| 4 | 0100 | 0100 EQT | 0100 \$ | 0100 4 | 0100 D | 0101 T | 0110 d | 0111 t | 1000 ä | 1001 ö | 1010 ñ | 1011 | 1100 ∟ | 1101 ∟ | 1110 Σ | 1111 f |
| 5 | 0101 | 0101 ENQ | 0101 % | 0101 5 | 0100 E | 0101 U | 0110 e | 0111 u | 1000 à | 1001 ò | 1010 Ñ | 1011 = | 1100 ∟ | 1101 ∟ | 1110 σ | 1111 J |
| 6 | 0110 | 0110 | 0110 & | 0110 6 | 0100 F | 0101 V | 0110 f | 0111 v | 1000 á | 1001 ù | 1010 * | 1011 ¶ | 1100 ∟ | 1101 ∟ | 1110 μ | 1111 + |
| 7 | 0111 | 0111 | 0111 ' | 0111 7 | 0100 G | 0101 W | 0110 g | 0111 w | 1000 ç | 1001 ù | 1010 ° | 1011 ¶ | 1100 ∟ | 1101 ∟ | 1110 τ | 1111 ≈ |
| 8 | 1000 | 1000 BS | 1000 CAN | 1000 (| 1000 8 | 1000 H | 1001 X | 1001 h | 1010 x | 1011 ê | 1011 ý | 1011 ÿ | 1100 ∟ | 1101 ∟ | 1110 φ | 1111 ° |
| 9 | 1001 | 1001 HT | 1001) | 1001 9 | 1000 I | 1001 Y | 1001 i | 1010 y | 1011 è | 1011 ò | 1011 ¯ | 1011 ¶ | 1100 ∟ | 1101 ∟ | 1110 θ | 1111 • |
| A | 1010 | 1010 LF | 1010 * | 1010 : | 1010 J | 1011 Z | 1011 j | 1011 z | 1011 è | 1011 ù | 1011 ¯ | 1011 ¶ | 1100 ∟ | 1101 ∟ | 1110 Ω | 1111 • |
| B | 1011 | 1011 | 1011 ESC | 1011 + | 1011 ; | 1011 K | 1011 [| 1011 k | 1011 { | 1011 ì | 1011 ø | 1011 1/2 | 1100 ∟ | 1101 ∟ | 1110 δ | 1111 √ |
| C | 1100 | 1100 FF | 1100 FS | 1100 , | 1100 < | 1100 L | 1100 \ | 1100 | 1100 ; | 1100 î | 1100 £ | 1100 1/4 | 1100 ¶ | 1100 ∟ | 1110 ∞ | 1111 n |
| D | 1101 | 1101 CR | 1101 GS | 1101 - | 1101 = | 1101 M | 1101] | 1101 m | 1101 } | 1101 ï | 1101 ¥ | 1101 | 1100 ∟ | 1101 ∟ | 1110 φ | 1111 2 |
| E | 1110 | 1110 | 1110 . | 1110 > | 1110 N | 1111 ~ | 1111 ñ | 1111 ñ | 1111 ~ | 1111 Ä | 1111 Pt | 1111 « | 1100 ∟ | 1101 ∟ | 1110 € | 1111 " |
| F | 1111 | 1111 | 1111 / | 1111 ? | 1111 O | 1111 _ | 1111 o | 1111 SP | 1111 Å | 1111 f | 1111 » | 1100 ∟ | 1101 ∟ | 1110 ∟ | 1110 ∟ | 1111 SP |

Code tables

A.2 Page 1 (Katakana)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|------|------|------|------|------|------|------|------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ▬ | ┌ | SP | 一 | 夕 | ミ | 二 | × |
| | | 128 | 144 | 160 | 176 | 192 | 208 | 224 | 240 |
| 1 | 0001 | ▬ | ┐ | 。 | ア | チ | ム | 卍 | 円 |
| | | 129 | 145 | 161 | 177 | 193 | 209 | 225 | 241 |
| 2 | 0010 | ▬ | └ | 「 | イ | ツ | メ | 卍 | 年 |
| | | 130 | 146 | 162 | 178 | 194 | 210 | 226 | 242 |
| 3 | 0011 | ▬ | ┘ | 」 | ウ | テ | モ | 卍 | 月 |
| | | 131 | 147 | 163 | 179 | 195 | 211 | 227 | 243 |
| 4 | 0100 | ▬ | ┌ | 、 | エ | ト | ヤ | ▲ | 日 |
| | | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 |
| 5 | 0101 | ▬ | ┐ | 、 | オ | ナ | ユ | ▲ | 時 |
| | | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 |
| 6 | 0110 | ▬ | └ | ヲ | カ | ニ | ヨ | ▲ | 分 |
| | | 134 | 150 | 166 | 182 | 198 | 214 | 230 | 246 |
| 7 | 0111 | ▬ | ┘ | ア | キ | ヌ | ラ | ▲ | 秒 |
| | | 135 | 151 | 167 | 183 | 199 | 215 | 231 | 247 |
| 8 | 1000 | ▬ | ┌ | イ | ク | ネ | リ | ♠ | 〒 |
| | | 136 | 152 | 168 | 184 | 200 | 216 | 232 | 248 |
| 9 | 1001 | ▬ | ┐ | ウ | ケ | ノ | ル | ♥ | 市 |
| | | 137 | 153 | 169 | 185 | 201 | 217 | 233 | 249 |
| A | 1010 | ▬ | └ | エ | コ | ハ | レ | ♦ | 区 |
| | | 138 | 154 | 170 | 186 | 202 | 218 | 234 | 250 |
| B | 1011 | ▬ | ┘ | オ | サ | ヒ | ロ | ♣ | 町 |
| | | 139 | 155 | 171 | 187 | 203 | 219 | 235 | 251 |
| C | 1100 | ▬ | ┌ | ヤ | シ | フ | ワ | ● | 村 |
| | | 140 | 156 | 172 | 188 | 204 | 220 | 236 | 252 |
| D | 1101 | ▬ | ┐ | ユ | ス | ヘ | ン | ○ | 人 |
| | | 141 | 157 | 173 | 189 | 205 | 221 | 237 | 253 |
| E | 1110 | ▬ | └ | ヨ | セ | ホ | 、 | ／ | ■ |
| | | 142 | 158 | 174 | 190 | 206 | 222 | 238 | 254 |
| F | 1111 | ▬ | ┘ | ツ | ソ | マ | 。 | ＼ | SP |
| | | 143 | 159 | 175 | 191 | 207 | 223 | 239 | 255 |

A.3 Page 2 (PC850 : Multilingual)

| HEX | HEX BIN | 8 1000 | 9 1001 | A 1010 | B 1011 | C 1100 | D 1101 | E 1110 | F 1111 |
|-----|---------|--------|--------|---------|--------|--------|--------|--------|---------|
| 0 | 0000 | Ç 128 | É 144 | á 160 | ■ 176 | ┌ 192 | ř 208 | Ó 224 | — 240 |
| 1 | 0001 | ü 129 | æ 145 | í 161 | ■ 177 | └ 193 | Ð 209 | β 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 | Ö 229 | § 245 |
| 6 | 0110 | á 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 | ˆ 247 |
| 8 | 1000 | ê 136 | ÿ 152 | ı 168 | © 184 | ℓ 200 | ï 216 | p 232 | ° 249 |
| 9 | 1001 | ë 137 | ö 153 | ® 169 | ≠ 185 | ℓ 201 | ┘ 217 | Ú 233 | ˚ 249 |
| A | 1010 | è 138 | Û 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 | ı 173 | ¢ 189 | = 205 | ı 221 | Ý 237 | 2 253 |
| E | 1110 | Ä 142 | X 158 | « 174 | ¥ 190 | † 206 | ı 222 | — 238 | ▪ 254 |
| F | 1111 | Å 143 | f 159 | » 175 | ┘ 191 | ⊗ 207 | ■ 223 | ´ 239 | SP 255 |

A.4 Page 3 (PC860 : Portuguese)

| HEX | HEX BIN | 8 1000 | 9 1001 | A 1010 | B 1011 | C 1100 | D 1101 | E 1110 | F 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 | 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 | 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 | ø 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 | í 173 | ┘ 189 | = 205 | ■ 221 | φ 237 | ² 253 |
| E | 1110 | Ã 142 | Pt 158 | « 174 | ┘ 190 | ≡ 206 | ■ 222 | | ▪ 254 |
| F | 1111 | Â 143 | Ó 159 | » 175 | ┘ 191 | ┘ 207 | ■ 223 | | SP 255 |

A.5 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 | Ï 160 | ■ 176 | Ł 192 | ⌌ 208 | α 224 | 240 |
| 1 | 0001 | ü 129 | É 145 | ´ 161 | ■ 177 | Ł 193 | ⌌ 209 | β 225 | ± 241 |
| 2 | 0010 | é 130 | Ê 146 | ó 162 | ■ 178 | Ł 194 | ⌌ 210 | Γ 226 | ≥ 242 |
| 3 | 0010 | â 131 | ô 147 | ú 163 | Ï 179 | Ł 195 | ⌌ 211 | π 227 | ≤ 243 |
| 4 | 0100 | Â 132 | Ë 148 | ˆ 164 | Ï 180 | Ł 196 | ⌌ 212 | Σ 228 | f 244 |
| 5 | 0101 | à 133 | Ï 149 | ˆ 165 | Ï 181 | Ł 197 | ⌌ 213 | σ 229 | J 245 |
| 6 | 0110 | 134 | û 150 | ³ 166 | Ï 182 | Ł 198 | ⌌ 214 | μ 230 | ÷ 246 |
| 7 | 0111 | ç 135 | ù 151 | — 167 | Ï 183 | Ł 199 | ⌌ 215 | τ 231 | ≈ 247 |
| 8 | 1000 | ê 136 | œ 152 | Ï 168 | Ï 184 | Ł 200 | ⌌ 216 | Φ 232 | ° 249 |
| 9 | 1001 | ë 137 | Ô 153 | ƒ 169 | Ï 185 | Ł 201 | ⌌ 217 | θ 233 | • 249 |
| A | 1010 | è 138 | Û 154 | ƒ 170 | Ï 186 | Ł 202 | ⌌ 218 | Ω 234 | • 250 |
| B | 1011 | ï 139 | ç 155 | 1/2 171 | Ï 187 | Ł 203 | ⌌ 219 | δ 235 | 251 |
| C | 1100 | î 140 | £ 156 | 1/4 172 | Ï 188 | Ł 204 | ⌌ 220 | ∞ 236 | n 252 |
| D | 1101 | = 141 | Û 157 | 3/4 173 | Ï 189 | Ł 205 | ⌌ 221 | φ 237 | ² 253 |
| E | 1110 | À 142 | Û 158 | « 174 | Ï 190 | Ł 206 | ⌌ 222 | 238 | ² 254 |
| F | 1111 | § 143 | f 159 | » 175 | Ï 191 | Ł 207 | ⌌ 223 | 239 | SP 255 |




A.6 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 | Ç 128 | É 144 | á 160 | ■ 176 | ┌ 192 | └ 208 | α 224 | 240 |
| 1 | 0001 | Û 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 | f 244 |
| 5 | 0101 | à 133 | ò 149 | Ñ 165 | ┘ 181 | ┘ 197 | ┘ 213 | σ 229 | j 245 |
| 6 | 0110 | å 134 | û 150 | ª 166 | ‡ 182 | ƒ 198 | ┘ 214 | μ 230 | ÷ 246 |
| 7 | 0111 | ç 135 | ù 151 | º 167 | ‡ 183 | ƒ 199 | ‡ 215 | τ 231 | ≈ 247 |
| 8 | 1000 | ê 136 | ÿ 152 | ¿ 168 | ┘ 184 | └ 200 | ‡ 216 | Φ 232 | ° 249 |
| 9 | 1001 | ë 137 | Ö 153 | ƒ 169 | ‡ 185 | ƒ 201 | ┘ 217 | θ 233 | • 249 |
| A | 1010 | è 138 | Ü 154 | ƒ 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 | ƒ 204 | ■ 220 | ∞ 236 | n 252 |
| D | 1101 | ì 141 | Ø 157 | i 173 | 189 | = 205 | ■ 221 | φ 237 | ² 253 |
| E | 1110 | Ä 142 | Pt 158 | « 174 | ┘ 190 | ‡ 206 | ■ 222 | 238 | ▪ 254 |
| F | 1111 | Å 143 | f 159 | ⊗ 175 | ┘ 191 | └ 207 | ■ 223 | 239 | SP 255 |




A.7 Page 16 (WPC1252 : Latin1)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|------|------|------|------|------|------|------|------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | € | | | ◊ | À | Ð | à | đ |
| | | 128 | 144 | 160 | 176 | 192 | 208 | 224 | 240 |
| 1 | 0001 | | ‘ | ı | ± | Á | Ñ | á | ñ |
| | | 129 | 145 | 161 | 177 | 193 | 209 | 225 | 241 |
| 2 | 0010 | ’ | ’ | φ | 2 | Â | Ò | â | ò |
| | | 130 | 146 | 162 | 178 | 194 | 210 | 226 | 242 |
| 3 | 0011 | f | “ | £ | 3 | Ã | Ó | ã | ó |
| | | 131 | 147 | 163 | 179 | 195 | 211 | 227 | 243 |
| 4 | 0100 | ” | ” | ⌘ | ´ | Ä | Ô | ä | ô |
| | | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 |
| 5 | 0101 | … | ● | ¥ | μ | Å | Õ | å | õ |
| | | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 |
| 6 | 0110 | † | - | ı | ¶ | Æ | Ö | æ | ö |
| | | 134 | 150 | 166 | 182 | 198 | 214 | 230 | 246 |
| 7 | 0111 | ‡ | - | § | • | Ç | x | ç | + |
| | | 135 | 151 | 167 | 183 | 199 | 215 | 231 | 247 |
| 8 | 1000 | ^ | ~ | " | ˙ | È | Ø | è | ø |
| | | 136 | 152 | 168 | 184 | 200 | 216 | 232 | 248 |
| 9 | 1001 | ‰ | ™ | © | 1 | É | Ù | é | ù |
| | | 137 | 153 | 169 | 185 | 201 | 217 | 233 | 249 |
| A | 1010 | Š | š | à | ó | Ê | Ú | ê | ú |
| | | 138 | 154 | 170 | 186 | 202 | 218 | 234 | 250 |
| B | 1011 | { | } | ((|)) | Ë | Û | ë | û |
| | | 139 | 155 | 171 | 187 | 203 | 219 | 235 | 251 |
| C | 1100 | Œ | œ | ¬ | ¼ | Ì | Ü | ì | ü |
| | | 140 | 156 | 172 | 188 | 204 | 220 | 236 | 252 |
| D | 1101 | | | - | ½ | Í | Ý | í | ý |
| | | 141 | 157 | 173 | 189 | 205 | 221 | 237 | 253 |
| E | 1110 | Ž | ž | ® | ¾ | Î | Þ | î | þ |
| | | 142 | 158 | 174 | 190 | 206 | 222 | 238 | 254 |
| F | 1111 | | ÿ | - | ¿ | Ï | ß | ï | ÿ |
| | | 143 | 159 | 175 | 191 | 207 | 223 | 239 | 255 |

A.8 Page 17 (PC866 : Russian)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|----------|--|----------|----------|----------|-------------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | А 128 | Р 144 | а 160 |  176 | Л 192 | ⊥ 208 | р 224 | Ё 240 |
| 1 | 0001 | Б 129 | С 145 | б 161 |  177 | ⊥ 193 | ⊥ 209 | с 225 | ё 241 |
| 2 | 0010 | В 130 | Т 146 | в 162 |  178 | ⊥ 194 | ⊥ 210 | т 226 | ѐ 242 |
| 3 | 0011 | Г 131 | У 147 | г 163 | 179 | ⊥ 195 | ⊥ 211 | у 227 | є 243 |
| 4 | 0100 | Д 132 | Ф 148 | д 164 | ⊥ 180 | — 196 | ⊥ 212 | ф 228 | й 244 |
| 5 | 0101 | Е 133 | Х 149 | е 165 | ⊥ 181 | ⊥ 197 | ⊥ 213 | х 229 | ï 245 |
| 6 | 0110 | Ж 134 | Ц 150 | ж 166 | ⊥ 182 | ⊥ 198 | ⊥ 214 | ц 230 | ÿ 246 |
| 7 | 0111 | З 135 | Ч 151 | з 167 | ⊥ 183 | ⊥ 199 | ⊥ 215 | ч 231 | ÿ 247 |
| 8 | 1000 | И 136 | Ш 152 | и 168 | ⊥ 184 | ⊥ 200 | ⊥ 216 | ш 232 | ° 248 |
| 9 | 1001 | Й 137 | Щ 153 | й 169 | ⊥ 185 | ⊥ 201 | ⊥ 217 | щ 233 | · 249 |
| A | 1010 | К 138 | Ъ 154 | к 170 | 186 | ⊥ 202 | ⊥ 218 | ъ 234 | · 250 |
| B | 1011 | Л 139 | Ы 155 | л 171 | ⊥ 187 | ⊥ 203 | ■ 219 | ы 235 | √ 251 |
| C | 1100 | М 140 | Ь 156 | м 172 | ⊥ 188 | ⊥ 204 | ■ 220 | ь 236 | No 252 |
| D | 1101 | Н 141 | Э 157 | н 173 | ⊥ 189 | ⊥ 205 | ■ 221 | э 237 | α 253 |
| E | 1110 | О 142 | Ю 158 | о 174 | ⊥ 190 | ⊥ 206 | ■ 222 | ю 238 | ■ 254 |
| F | 1111 | П 143 | Я 159 | п 175 | ⊥ 191 | ⊥ 207 | ■ 223 | я 239 | NBSP 255 |










A.9 Page 18 (PC852 : Latin2)

| | 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 | Ł 192 | đ 208 | Ó 224 | - 240 |
| 1 | 0001 | ü 129 | Í 145 | í 161 |  177 | ł 193 | Đ 209 | Œ 225 | “ 241 |
| 2 | 0010 | é 130 | Í 146 | ó 162 |  178 | Ł 194 | Ď 210 | Ô 226 | ” 242 |
| 3 | 0011 | â 131 | Ô 147 | ú 163 | 179 | ł 195 | Ě 211 | Ň 227 | ” 243 |
| 4 | 0100 | û 132 | Ö 148 | À 164 | ┌ 180 | — 196 | ď 212 | ň 228 | ” 244 |
| 5 | 0101 | ć 133 | Ľ 149 | ą 165 | Á 181 | + 197 | Ń 213 | ń 229 | § 245 |
| 6 | 0110 | Ç 134 | İ 150 | Ž 166 | Ā 182 | Ă 198 | Í 214 | Š 230 | + 246 |
| 7 | 0111 | Ł 135 | Ś 151 | ž 167 | Ě 183 | ă 199 | Î 215 | š 231 | · 247 |
| 8 | 1000 | ł 136 | ś 152 | Ę 168 | Ş 184 | Ł 200 | ě 216 | Ř 232 | ° 248 |
| 9 | 1001 | ë 137 | Ö 153 | ę 169 | ≡ 185 | ƒ 201 | ǰ 217 | Ú 233 | ” 249 |
| A | 1010 | Ő 138 | Ü 154 | ˘ 170 | ≡ 186 | ƒ 202 | ǰ 218 | Û 234 | · 250 |
| B | 1011 | ö 139 | ÿ 155 | Ž 171 | ⌌ 187 | ƒ 203 | ■ 219 | Ů 235 | Ů 251 |
| C | 1100 | ı 140 | ÿ 156 | Č 172 | ⌌ 188 | ƒ 204 | ■ 220 | Ý 236 | Ř 252 |
| D | 1101 | Ž 141 | Ł 157 | š 173 | Ž 189 | = 205 | Ĵ 221 | Ý 237 | ř 253 |
| E | 1110 | Ä 142 | x 158 | « 174 | ž 190 | ≡ 206 | Û 222 | ı 238 | ■ 254 |
| F | 1111 | Ć 143 | č 159 | » 175 | ┐ 191 | ⊘ 207 | ■ 223 | · 239 | 255 |



A.10 Page 19 (PC858 : Euro)

| HEX | HEX BIN | 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 | Ł 192 | ð 208 | ó 224 | — 240 |
| 1 | 0001 | ü 129 | æ 145 | az 161 | ■ 177 | Ł 193 | ð 209 | β 225 | ± 241 |
| 2 | 0010 | é 130 | Æ 146 | ó 162 | ■ 178 | Ł 194 | Ê 210 | Ô 226 | = 242 |
| 3 | 0011 | â 131 | ô 147 | ú 163 | 179 | Ł 195 | Ê 211 | Ô 227 | 3/4 243 |
| 4 | 0100 | ä 132 | ö 148 | " 164 | † 180 | — 196 | È 212 | Ó 228 | † 244 |
| 5 | 0101 | à 133 | ò 149 | ' 165 | À 181 | + 197 | € 213 | σ 229 | \$ 245 |
| 6 | 0110 | á 134 | û 150 | ³ 166 | À 182 | ä 198 | í 214 | μ 230 | + 246 |
| 7 | 0111 | ç 135 | ù 151 | — 167 | À 183 | Ä 199 | î 215 | þ 231 | ' 247 |
| 8 | 1000 | ê 136 | ÿ 152 | ÿ 168 | © 184 | Ł 200 | † 216 | þ 232 | ° 248 |
| 9 | 1001 | ë 137 | ö 153 | ƒ 169 | ≠ 185 | ƒ 201 | Ł 217 | Ú 233 | " 249 |
| A | 1010 | è 138 | Û 154 | ƒ 170 | 186 | ŁŁ 202 | ƒ 218 | Û 234 | ° 250 |
| B | 1011 | ï 139 | ø 155 | 1/2 171 | ƒ 187 | ƒƒ 203 | ■ 219 | Û 235 | 1 251 |
| C | 1100 | î 140 | £ 156 | 1/4 172 | ƒ 188 | ƒ 204 | ■ 220 | ý 236 | 3 252 |
| D | 1101 | ì 141 | ø 157 | 3/4 173 | ¢ 189 | = 205 | í 221 | Ý 237 | 2 253 |
| E | 1110 | Ä 142 | x 158 | « 174 | ¥ 190 | ƒƒ 206 | í 222 | — 238 | ■ 254 |
| F | 1111 | Å 143 | f 159 | » 175 | ƒ 191 | □ 207 | ■ 223 | ' 239 | SP 255 |

A.11 Page 21 (PC862 : Israel)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|----------|---|----------|---|----------|---|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | א 128 | ב 144 | א 160 |  | ל 192 | ⌞ 208 | α 224 | ≡ 240 |
| 1 | 0001 | ב 129 | ס 145 | í 161 |  | ⌞ 193 | ⌞ 209 | ß 225 | ± 241 |
| 2 | 0010 | ג 130 | ע 146 | ó 162 |  | ⌞ 194 | ⌞ 210 | Γ 226 | ≥ 242 |
| 3 | 0011 | ד 131 | ך 147 | ú 163 | 179 | ⌞ 195 | ⌞ 211 | π 227 | ≤ 243 |
| 4 | 0100 | ה 132 | פ 148 | ñ 164 | ⌞ 180 | — 196 | ⌞ 212 | Σ 228 | ∫ 244 |
| 5 | 0101 | ו 133 | ץ 149 | Ñ 165 | ⌞ 181 | ⊕ 197 | ⌞ 213 | σ 229 | ∫ 245 |
| 6 | 0110 | ז 134 | צ 150 | a 166 | ⌞ 182 | ⌞ 198 | ⌞ 214 | μ 230 | ÷ 246 |
| 7 | 0111 | ח 135 | ק 151 | o 167 | ⌞ 183 | ⌞ 199 | ⌞ 215 | τ 231 | ≈ 247 |
| 8 | 1000 | ט 136 | ר 152 | ı 168 | ⌞ 184 | ⌞ 200 | ⌞ 216 | Φ 232 | ° 248 |
| 9 | 1001 | י 137 | ש 153 | ⌞ 169 | ⌞ 185 | ⌞ 201 | ⌞ 217 | ⊖ 233 | · 249 |
| A | 1010 | ך 138 | ת 154 | ⌞ 170 | ⌞ 186 | ⌞ 202 | ⌞ 218 | Ω 234 | · 250 |
| B | 1011 | כ 139 | ¢ 155 | ½ 171 | ⌞ 187 | ⌞ 203 |  | δ 235 | √ 251 |
| C | 1100 | ל 140 | £ 156 | ¼ 172 | ⌞ 188 | ⌞ 204 |  | ∞ 236 | n 252 |
| D | 1101 | מ 141 | ¥ 157 | i 173 | ⌞ 189 | ⌞ 205 |  | φ 237 | ² 253 |
| E | 1110 | נ 142 | ₪ 158 | « 174 | ⌞ 190 | ⌞ 206 |  | ε 238 |  |
| F | 1111 | ס 143 | f 159 | » 175 | ⌞ 191 | ⌞ 207 |  | ∩ 239 | NBSP 255 |

A.12 Page 22 (PC864 : Arabic)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|--|-----------|-------------|----------|----------|----------|-----------|--|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ° 128 | β 144 | NBSP 160 | · 176 | ϕ 192 | ذ 208 | - 224 | ـ 240 |
| 1 | 0001 | · 129 | ∞ 145 | — 161 | ٨ 177 | ء 193 | ر 209 | ف 225 | ـ 241 |
| 2 | 0010 | · 130 | Φ 146 | آ 162 | ٢ 178 | آ 194 | ز 210 | ق 226 | ن 242 |
| 3 | 0011 | √ 131 | ± 147 | £ 163 | ٣ 179 | أ 195 | س 211 | ك 227 | هـ 243 |
| 4 | 0100 |  132 | ½ 148 | α 164 | ٤ 180 | ؤ 196 | ث 212 | ل 228 | ـ 244 |
| 5 | 0101 | — 133 | ¼ 149 | أ 165 | ٥ 181 | ع 197 | ص 213 | م 229 | ى 245 |
| 6 | 0110 | 134 | ≈ 150 | | ٦ 182 | ئ 198 | ض 214 | ن 230 | ي 246 |
| 7 | 0111 | ⊕ 135 | « 151 | | ٧ 183 | ا 199 | ط 215 | هـ 231 | غ 247 |
| 8 | 1000 | ⊖ 136 | » 152 | ل 168 | ٨ 184 | ب 200 | ظ 216 | و 232 | ق 248 |
| 9 | 1001 | ⊗ 137 | لأ 153 | ب 169 | ٩ 185 | ة 201 | ع 217 | ى 233 | لا 249 |
| A | 1010 | ⊘ 138 | لأ 154 | ت 170 | ف 186 | ت 202 | غ 218 | ي 234 | لاآ 250 |
| B | 1011 | ⊙ 139 | | ث 171 | ؛ 187 | ث 203 | ا 219 | ض 235 | ل 251 |
| C | 1100 | ⊚ 140 | | ، 172 | س 188 | ج 204 | ⊖ 220 | ع 236 | ك 252 |
| D | 1101 | ⊛ 141 | لا 157 | ج 173 | ش 189 | ح 205 | ÷ 221 | غ 237 | ي 253 |
| E | 1110 | ⊜ 142 | لا 158 | س 174 | ص 190 | خ 206 | × 222 | غ 238 |  254 |
| F | 1111 | ⊝ 143 | لا 159 | خ 175 | ؟ 191 | د 207 | ع 223 | م 239 | |

A.13 Page 23 (Thai character code 42)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|------------------------|-----------|----------|----------|----------|----------|-----------|-----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ┌ 128 | ○ 144 | 160 | ฅ 176 | ญ 192 | เ 208 | · 224 | ๒ 240 |
| 1 | 0001 | └ 129 | ๑ 145 | ก 161 | ฆ 177 | ฎ 193 | แ 209 | ๓ 225 | ๓ 241 |
| 2 | 0010 | └┐ 130 | ๒ 146 | ข 162 | ค 178 | ถ 194 | โ 210 | ๔ 226 | ๔ 242 |
| 3 | 0011 | └┐┐ 131 | ๓ 147 | ค 163 | ด 179 | ฑ 195 | ใ 211 | ๕ 227 | ๕ 243 |
| 4 | 0100 | └┐┐┐ 132 | ๔ 148 | ฅ 164 | ด 180 | ฏ 196 | ใ 212 | ๖ 228 | ๖ 244 |
| 5 | 0101 | └┐┐┐┐ 133 | ๕ 149 | ง 165 | ท 181 | ฑ 197 | ๑ 213 | ๗ 229 | ๗ 245 |
| 6 | 0110 | └┐┐┐┐┐ 134 | ๖ 150 | จ 166 | ธ 182 | ฐ 198 | ๑ 214 | ๘ 230 | ๘ 246 |
| 7 | 0111 | └┐┐┐┐┐┐ 135 | ๗ 151 | ฉ 167 | น 183 | ษ 199 | ๑ 215 | ๙ 231 | ๙ 247 |
| 8 | 1000 | └┐┐┐┐┐┐┐ 136 | ๘ 152 | ช 168 | บ 184 | ห 200 | ๑ 216 | ๑๐ 232 | ๑๐ 248 |
| 9 | 1001 | └┐┐┐┐┐┐┐┐ 137 | ๙ 153 | ซ 169 | ป 185 | ฬ 201 | ๑ 217 | ๑๑ 233 | ๑๑ 249 |
| A | 1010 | └┐┐┐┐┐┐┐┐┐ 138 | ๑๐ 154 | ฅ 170 | ผ 186 | อ 202 | ๑ 218 | ๑๒ 234 | ๑๒ 250 |
| B | 1011 | └┐┐┐┐┐┐┐┐┐┐ 139 | ๑๑ 155 | ฆ 171 | ฝ 187 | ฮ 203 | ๑ 219 | ๑๓ 235 | ๑๓ 251 |
| C | 1100 | └┐┐┐┐┐┐┐┐┐┐┐ 140 | ๑๒ 156 | ง 172 | พ 188 | ๓ 204 | ๑ 220 | ๑๔ 236 | ๑๔ 252 |
| D | 1101 | └┐┐┐┐┐┐┐┐┐┐┐┐ 141 | ๑๓ 157 | จ 173 | ฟ 189 | ก 205 | ๑ 221 | ๑๕ 237 | ๑๕ 253 |
| E | 1110 | └┐┐┐┐┐┐┐┐┐┐┐┐┐ 142 | ๑๔ 158 | ฉ 174 | ภ 190 | ง 206 | ๑ 222 | ๑๖ 238 | ๑๖ 254 |
| F | 1111 | └┐┐┐┐┐┐┐┐┐┐┐┐┐┐ 143 | ๑๕ 159 | ช 175 | ม 191 | ๑ 207 | ๑ 223 | ๑๗ 239 | ๑๗ 255 |

A.14 Page 24 (WPC1253 : Greek)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|-------------|----------|----------|----------|----------|----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | € 128 | | NBSP 160 | ° 176 | ‡ 192 | Π 208 | ϖ 224 | π 240 |
| 1 | 0001 | | ‘ 145 | ” 161 | ± 177 | Α 193 | Ρ 209 | α 225 | ρ 241 |
| 2 | 0010 | , 130 | , 146 | Α 162 | ² 178 | Β 194 | | β 226 | ς 242 |
| 3 | 0011 | f 131 | “ 147 | £ 163 | ³ 179 | Γ 195 | Σ 211 | γ 227 | σ 243 |
| 4 | 0100 | ” 132 | ” 148 | α 164 | ’ 180 | Δ 196 | Τ 212 | δ 228 | τ 244 |
| 5 | 0101 | … 133 | • 149 | ¥ 165 | μ 181 | Ε 197 | Υ 213 | ε 229 | υ 245 |
| 6 | 0110 | † 134 | — 150 | ¡ 166 | ¶ 182 | Ζ 198 | Φ 214 | ζ 230 | φ 246 |
| 7 | 0111 | ‡ 135 | — 151 | § 167 | · 183 | Η 199 | Χ 215 | η 231 | χ 247 |
| 8 | 1000 | | | ” 168 | Ε 184 | Θ 200 | Ψ 216 | θ 232 | ψ 248 |
| 9 | 1001 | ‰ 137 | ™ 153 | © 169 | Η 185 | Ι 201 | Ω 217 | ι 233 | ω 249 |
| A | 1010 | | | | Ι 186 | Κ 202 | Ϊ 218 | κ 234 | ϊ 250 |
| B | 1011 | < 139 | > 155 | « 171 | » 187 | Λ 203 | Ϋ 219 | λ 235 | ϋ 251 |
| C | 1100 | | | ¬ 172 | Ό 188 | Μ 204 | ά 220 | μ 236 | ό 252 |
| D | 1101 | | | - 173 | ½ 189 | Ν 205 | έ 221 | ν 237 | ύ 253 |
| E | 1110 | | | ® 174 | Υ 190 | Ξ 206 | ή 222 | ξ 238 | ώ 254 |
| F | 1111 | | | — 175 | Ω 191 | Ο 207 | ί 223 | ο 239 | |

A.15 Page 25 (WPC1254 : Turkish)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|-------------|----------|----------|----------|----------|----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | € 128 | | NBSP 160 | ° 176 | À 192 | Ğ 208 | à 224 | ğ 240 |
| 1 | 0001 | | ‘ 145 | ı 161 | ± 177 | Á 193 | Ñ 209 | á 225 | |
| 2 | 0010 | , 130 | , 146 | ¢ 162 | ² 178 | Â 194 | Ò 210 | â 226 | |
| 3 | 0011 | f 131 | “ 147 | £ 163 | ³ 179 | Ã 195 | Ó 211 | ã 227 | |
| 4 | 0100 | ” 132 | ” 148 | ¤ 164 | ´ 180 | Ä 196 | Ö 212 | ä 228 | |
| 5 | 0101 | … 133 | • 149 | ¥ 165 | µ 181 | Å 197 | Õ 213 | å 229 | |
| 6 | 0110 | † 134 | — 150 | 166 | ¶ 182 | Æ 198 | Ö 214 | æ 230 | |
| 7 | 0111 | ‡ 135 | — 151 | § 167 | · 183 | Ç 199 | × 215 | ç 231 | |
| 8 | 1000 | ^ 136 | ~ 152 | ¨ 168 | ¸ 184 | È 200 | Ø 216 | è 232 | |
| 9 | 1001 | ‰ 137 | ™ 153 | © 169 | ¹ 185 | É 201 | Ù 217 | é 233 | |
| A | 1010 | Š 138 | š 154 | ª 170 | º 186 | Ê 202 | Ú 218 | ê 234 | |
| B | 1011 | ‹ 139 | › 155 | « 171 | » 187 | Ë 203 | Û 219 | ë 235 | |
| C | 1100 | Œ 140 | œ 156 | ¬ 172 | ¼ 188 | Ì 204 | Ü 220 | ì 236 | |
| D | 1101 | | | - 173 | ½ 189 | Í 205 | İ 221 | í 237 | ı 253 |
| E | 1110 | | | ® 174 | ¾ 190 | Î 206 | Ş 222 | î 238 | ş 254 |
| F | 1111 | | ÿ 159 | — 175 | ¿ 191 | Ï 207 | ß 223 | ï 239 | ÿ 255 |

A.16 Page 26 (WPC1257 : Baltic)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|-------------|----------|----------|----------|----------|----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | € 128 | | NBSP 160 | ° 176 | À 192 | Š 208 | ą 224 | š 240 |
| 1 | 0001 | | ‘ 129 | | ± 177 | Ĳ 193 | Ń 209 | į 225 | ń 241 |
| 2 | 0010 | ’ 130 | ’ 146 | À 162 | ² 178 | Ā 194 | Ņ 210 | ā 226 | ņ 242 |
| 3 | 0011 | | “ 131 | £ 163 | ³ 179 | Ć 195 | Ó 211 | ć 227 | ó 243 |
| 4 | 0100 | ” 132 | ” 148 | α 164 | ´ 180 | Ä 196 | Ö 212 | ä 228 | ö 244 |
| 5 | 0101 | … 133 | • 149 | | μ 181 | Å 197 | Ő 213 | å 229 | ő 245 |
| 6 | 0110 | † 134 | — 150 | ı 166 | ¶ 182 | Ę 198 | Ö 214 | ę 230 | ö 246 |
| 7 | 0111 | ‡ 135 | — 151 | § 167 | · 183 | Ě 199 | × 215 | ě 231 | ÷ 247 |
| 8 | 1000 | | | ¨ 168 | ø 184 | Č 200 | Ų 216 | č 232 | ų 248 |
| 9 | 1001 | ‰ 137 | ™ 153 | © 169 | ¹ 185 | É 201 | Ł 217 | é 233 | ł 249 |
| A | 1010 | | | Ŕ 170 | ŗ 186 | Ž 202 | Ś 218 | ż 234 | ś 250 |
| B | 1011 | ‹ 139 | › 155 | « 171 | » 187 | Ě 203 | Û 219 | ě 235 | ů 251 |
| C | 1100 | | | ¬ 172 | ¼ 188 | Ģ 204 | Ü 220 | ģ 236 | ü 252 |
| D | 1101 | ¨ 141 | — 157 | - 173 | ½ 189 | Ķ 205 | Ž 221 | ķ 237 | ž 253 |
| E | 1110 | ˘ 142 | ˘ 158 | ® 174 | ¾ 190 | Ī 206 | Ž 222 | ī 238 | ž 254 |
| F | 1111 | ˙ 143 | | Æ 175 | æ 191 | Ł 207 | ß 223 | ł 239 | · 255 |




A.17 Page 27 (Farsi)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ۰ 128 | ۱ 144 | ۲ 160 | ۳ 176 | ۴ 192 | ۵ 208 | ۶ 224 | ۷ 240 |
| 1 | 0001 | ۱ 129 | ۲ 145 | ۳ 161 | ۴ 177 | ۵ 193 | ۶ 209 | ۷ 225 | ۸ 241 |
| 2 | 0010 | ۲ 130 | ۳ 146 | ۴ 162 | ۵ 178 | ۶ 194 | ۷ 210 | ۸ 226 | ۹ 242 |
| 3 | 0011 | ۳ 131 | ۴ 147 | ۵ 163 | ۶ 179 | ۷ 195 | ۸ 211 | ۹ 227 | ۱۰ 243 |
| 4 | 0100 | ۴ 132 | ۵ 148 | ۶ 164 | ۷ 180 | ۸ 196 | ۹ 212 | ۱۰ 228 | ۱۱ 244 |
| 5 | 0101 | ۵ 133 | ۶ 149 | ۷ 165 | ۸ 181 | ۹ 197 | ۱۰ 213 | ۱۱ 229 | ۱۲ 245 |
| 6 | 0110 | ۶ 134 | ۷ 150 | ۸ 166 | ۹ 182 | ۱۰ 198 | ۱۱ 214 | ۱۲ 230 | ۱۳ 246 |
| 7 | 0111 | ۷ 135 | ۸ 151 | ۹ 167 | ۱۰ 183 | ۱۱ 199 | ۱۲ 215 | ۱۳ 231 | ۱۴ 247 |
| 8 | 1000 | ۸ 136 | ۹ 152 | ۱۰ 168 | ۱۱ 184 | ۱۲ 200 | ۱۳ 216 | ۱۴ 232 | ۱۵ 248 |
| 9 | 1001 | ۹ 137 | ۱۰ 153 | ۱۱ 169 | ۱۲ 185 | ۱۳ 201 | ۱۴ 217 | ۱۵ 233 | ۱۶ 249 |
| A | 1010 | ۱۰ 138 | ۱۱ 154 | ۱۲ 170 | ۱۳ 186 | ۱۴ 202 | ۱۵ 218 | ۱۶ 234 | ۱۷ 250 |
| B | 1011 | ۱۱ 139 | ۱۲ 155 | ۱۳ 171 | ۱۴ 187 | ۱۵ 203 | ۱۶ 219 | ۱۷ 235 | ۱۸ 251 |
| C | 1100 | ۱۲ 140 | ۱۳ 156 | ۱۴ 172 | ۱۵ 188 | ۱۶ 204 | ۱۷ 220 | ۱۸ 236 | ۱۹ 252 |
| D | 1101 | ۱۳ 141 | ۱۴ 157 | ۱۵ 173 | ۱۶ 189 | ۱۷ 205 | ۱۸ 221 | ۱۹ 237 | ۲۰ 253 |
| E | 1110 | ۱۴ 142 | ۱۵ 158 | ۱۶ 174 | ۱۷ 190 | ۱۸ 206 | ۱۹ 222 | ۲۰ 238 | ۲۱ 254 |
| F | 1111 | ۱۵ 143 | ۱۶ 159 | ۱۷ 175 | ۱۸ 191 | ۱۹ 207 | ۲۰ 223 | ۲۱ 239 | ۲۲ 255 |










A.18 Page 28 (WPC1251 : Russian)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|-------------|----------|----------|----------|----------|----------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | Ғ 128 | Һ 144 | NBSP 160 | ° 176 | А 192 | Р 208 | а 224 | р 240 |
| 1 | 0001 | Ґ 129 | ‘ 145 | Ү 161 | ± 177 | Б 193 | С 209 | б 225 | с 241 |
| 2 | 0010 | , 130 | , 146 | Ү 162 | І 178 | В 194 | Т 210 | в 226 | т 242 |
| 3 | 0011 | ѓ 131 | “ 147 | Ј 163 | і 179 | Г 195 | У 211 | г 227 | у 243 |
| 4 | 0100 | ” 132 | ” 148 | Ѡ 164 | г 180 | Д 196 | Ф 212 | д 228 | ф 244 |
| 5 | 0101 | … 133 | • 149 | Ґ 165 | μ 181 | Е 197 | Х 213 | е 229 | х 245 |
| 6 | 0110 | † 134 | — 150 | і 166 | ¶ 182 | Ж 198 | Ц 214 | ж 230 | ц 246 |
| 7 | 0111 | ‡ 135 | — 151 | § 167 | · 183 | З 199 | Ч 215 | з 231 | ч 247 |
| 8 | 1000 | € 136 | | Ё 168 | ё 184 | И 200 | Ш 216 | и 232 | ш 248 |
| 9 | 1001 | ‰ 137 | ™ 153 | © 169 | № 185 | Й 201 | Щ 217 | й 233 | щ 249 |
| A | 1010 | Љ 138 | Љ 154 | Є 170 | є 186 | К 202 | Ъ 218 | к 234 | ъ 250 |
| B | 1011 | ‹ 139 | › 155 | « 171 | » 187 | Л 203 | Ы 219 | л 235 | ы 251 |
| C | 1100 | Ў 140 | Ў 156 | ґ 172 | ј 188 | М 204 | Ь 220 | м 236 | ь 252 |
| D | 1101 | Ѓ 141 | ѓ 157 | - 173 | Ѕ 189 | Н 205 | Э 221 | н 237 | э 253 |
| E | 1110 | Ғ 142 | Һ 158 | ® 174 | ѕ 190 | О 206 | Ю 222 | о 238 | ю 254 |
| F | 1111 | Ї 143 | Ї 159 | Ї 175 | ї 191 | П 207 | Я 223 | п 239 | я 255 |

A.19 Page 29 (PC737 : Greek)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|----------|--|----------|----------|----------|-------------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | Α 128 | Ρ 144 | ι 160 |  176 | ⊥ 192 | ⊥ 208 | ω 224 | Ω 240 |
| 1 | 0001 | Β 129 | Σ 145 | κ 161 |  177 | ⊥ 193 | ⊥ 209 | ά 225 | ± 241 |
| 2 | 0010 | Γ 130 | Τ 146 | λ 162 |  178 | ⊥ 194 | ⊥ 210 | έ 226 | ≥ 242 |
| 3 | 0011 | Δ 131 | Υ 147 | μ 163 | 179 | ⊥ 195 | ⊥ 211 | ή 227 | ≤ 243 |
| 4 | 0100 | Ε 132 | Φ 148 | ν 164 | ⊥ 180 | — 196 | ⊥ 212 | ϊ 228 | Ï 244 |
| 5 | 0101 | Ζ 133 | Χ 149 | ξ 165 | ⊥ 181 | ⊥ 197 | ⊥ 213 | ί 229 | ÿ 245 |
| 6 | 0110 | Η 134 | Ψ 150 | ο 166 | ⊥ 182 | ⊥ 198 | ⊥ 214 | ό 230 | ÷ 246 |
| 7 | 0111 | Θ 135 | Ω 151 | π 167 | ⊥ 183 | ⊥ 199 | ⊥ 215 | ύ 231 | ≈ 247 |
| 8 | 1000 | Ι 136 | α 152 | ρ 168 | ⊥ 184 | ⊥ 200 | ⊥ 216 | ϋ 232 | ° 248 |
| 9 | 1001 | Κ 137 | β 153 | σ 169 | ⊥ 185 | ⊥ 201 | ⊥ 217 | ώ 233 | · 249 |
| A | 1010 | Λ 138 | γ 154 | ς 170 | ⊥ 186 | ⊥ 202 | ⊥ 218 | À 234 | · 250 |
| B | 1011 | Μ 139 | δ 155 | τ 171 | ⊥ 187 | ⊥ 203 | ■ 219 | Ε 235 | √ 251 |
| C | 1100 | Ν 140 | ε 156 | υ 172 | ⊥ 188 | ⊥ 204 | ■ 220 | Η 236 | ⁿ 252 |
| D | 1101 | Ξ 141 | ζ 157 | φ 173 | ⊥ 189 | ⊥ 205 | ■ 221 | Ι 237 | ² 253 |
| E | 1110 | Ο 142 | η 158 | χ 174 | ⊥ 190 | ⊥ 206 | ■ 222 | Ό 238 | ■ 254 |
| F | 1111 | Π 143 | θ 159 | ψ 175 | ⊥ 191 | ⊥ 207 | ■ 223 | Υ 239 | NBSP 255 |

A.20 Page 30 (PC775 : Baltic)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|----------|---|-----------|---|----------|---|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | Ć 128 | É 144 | Ā 160 |  | Ł 192 | ą 208 | Ó 224 | - 240 |
| 1 | 0001 | ü 129 | æ 145 | Ī 161 |  | ł 193 | č 209 | ß 225 | ± 241 |
| 2 | 0010 | é 130 | Æ 146 | ó 162 |  | ṽ 194 | ę 210 | Ō 226 | “ 242 |
| 3 | 0011 | ā 131 | ō 147 | Ž 163 | 179 | ṽ 195 | è 211 | Ń 227 | ¾ 243 |
| 4 | 0100 | ä 132 | ö 148 | ž 164 | ┆ 180 | — 196 | ì 212 | õ 228 | ¶ 244 |
| 5 | 0101 | ǵ 133 | Ǧ 149 | ž 165 | Ą 181 | † 197 | š 213 | Ŏ 229 | § 245 |
| 6 | 0110 | ǻ 134 | Ǿ 150 | ” 166 | Č 182 | ų 198 | ų 214 | μ 230 | ÷ 246 |
| 7 | 0111 | ć 135 | ś 151 | ı 167 | Ę 183 | Ū 199 | ū 215 | ń 231 | ” 247 |
| 8 | 1000 | ł 136 | ś 152 | © 168 | Ę 184 | Ł 200 | ż 216 | ķ 232 | ° 248 |
| 9 | 1001 | ē 137 | Ö 153 | ® 169 | Ų 185 | Ų 201 | ┆ 217 | ķ 233 | · 249 |
| A | 1010 | Ŕ 138 | Ü 154 | ¬ 170 | 186 | ł 202 | Ŕ 218 | ł 234 | · 250 |
| B | 1011 | ŗ 139 | ø 155 | ½ 171 | Ų 187 | ṽ 203 |  | Į 235 | ¹ 251 |
| C | 1100 | ī 140 | £ 156 | ¼ 172 | Ų 188 | ṽ 204 |  | Ų 236 | ³ 252 |
| D | 1101 | Ž 141 | Ø 157 | ł 173 | ł 189 | == 205 |  | Ę 237 | ² 253 |
| E | 1110 | Ä 142 | × 158 | « 174 | Š 190 | † 206 |  | Ų 238 |  |
| F | 1111 | Å 143 | α 159 | » 175 | ┆ 191 | Ž 207 |  | ’ 239 | NBSP 255 |

A.21 Page 31 (Thai character code 16)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ┌ 128 | ┌ 144 | ┌ 160 | ┌ 176 | ┌ 192 | ┌ 208 | ┌ 224 | ┌ 240 |
| 1 | 0001 | └ 129 | └ 145 | └ 161 | └ 177 | └ 193 | └ 209 | └ 225 | └ 241 |
| 2 | 0010 | └┐ 130 | └┐ 146 | └┐ 162 | └┐ 178 | └┐ 194 | └┐ 210 | └┐ 226 | └┐ 242 |
| 3 | 0011 | └┘ 131 | └┘ 147 | └┘ 163 | └┘ 179 | └┘ 195 | └┘ 211 | └┘ 227 | └┘ 243 |
| 4 | 0100 | └┐┐ 132 | └┐┐ 148 | └┐┐ 164 | └┐┐ 180 | └┐┐ 196 | └┐┐ 212 | └┐┐ 228 | └┐┐ 244 |
| 5 | 0101 | └┐┘ 133 | └┐┘ 149 | └┐┘ 165 | └┐┘ 181 | └┐┘ 197 | └┐┘ 213 | └┐┘ 229 | └┐┘ 245 |
| 6 | 0110 | └┐└ 134 | └┐└ 150 | └┐└ 166 | └┐└ 182 | └┐└ 198 | └┐└ 214 | └┐└ 230 | └┐└ 246 |
| 7 | 0111 | └┐└┐ 135 | └┐└┐ 151 | └┐└┐ 167 | └┐└┐ 183 | └┐└┐ 199 | └┐└┐ 215 | └┐└┐ 231 | └┐└┐ 247 |
| 8 | 1000 | └┐└┐┐ 136 | └┐└┐┐ 152 | └┐└┐┐ 168 | └┐└┐┐ 184 | └┐└┐┐ 200 | └┐└┐┐ 216 | └┐└┐┐ 232 | └┐└┐┐ 248 |
| 9 | 1001 | └┐└┐┘ 137 | └┐└┐┘ 153 | └┐└┐┘ 169 | └┐└┐┘ 185 | └┐└┐┘ 201 | └┐└┐┘ 217 | └┐└┐┘ 233 | └┐└┐┘ 249 |
| A | 1010 | └┐└┐└┐ 138 | └┐└┐└┐ 154 | └┐└┐└┐ 170 | └┐└┐└┐ 186 | └┐└┐└┐ 202 | └┐└┐└┐ 218 | └┐└┐└┐ 234 | └┐└┐└┐ 250 |
| B | 1011 | └┐└┐└┐┐ 139 | └┐└┐└┐┐ 155 | └┐└┐└┐┐ 171 | └┐└┐└┐┐ 187 | └┐└┐└┐┐ 203 | └┐└┐└┐┐ 219 | └┐└┐└┐┐ 235 | └┐└┐└┐┐ 251 |
| C | 1100 | └┐└┐└┐┐┐ 140 | └┐└┐└┐┐┐ 156 | └┐└┐└┐┐┐ 172 | └┐└┐└┐┐┐ 188 | └┐└┐└┐┐┐ 204 | └┐└┐└┐┐┐ 220 | └┐└┐└┐┐┐ 236 | └┐└┐└┐┐┐ 252 |
| D | 1101 | └┐└┐└┐┐┐┐ 141 | └┐└┐└┐┐┐┐ 157 | └┐└┐└┐┐┐┐ 173 | └┐└┐└┐┐┐┐ 189 | └┐└┐└┐┐┐┐ 205 | └┐└┐└┐┐┐┐ 221 | └┐└┐└┐┐┐┐ 237 | └┐└┐└┐┐┐┐ 253 |
| E | 1110 | └┐└┐└┐┐┐┐┐ 142 | └┐└┐└┐┐┐┐┐ 158 | └┐└┐└┐┐┐┐┐ 174 | └┐└┐└┐┐┐┐┐ 190 | └┐└┐└┐┐┐┐┐ 206 | └┐└┐└┐┐┐┐┐ 222 | └┐└┐└┐┐┐┐┐ 238 | └┐└┐└┐┐┐┐┐ 254 |
| F | 1111 | └┐└┐└┐┐┐┐┐┐ 143 | └┐└┐└┐┐┐┐┐┐ 159 | └┐└┐└┐┐┐┐┐┐ 175 | └┐└┐└┐┐┐┐┐┐ 191 | └┐└┐└┐┐┐┐┐┐ 207 | └┐└┐└┐┐┐┐┐┐ 223 | └┐└┐└┐┐┐┐┐┐ 239 | └┐└┐└┐┐┐┐┐┐ 255 |

Code tables

A.22 Page 32 (OldCode : Israel)

| | HEX | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----|------|------|------|------|------|------|------|------|------|
| HEX | BIN | 0000 | 0001 | 0010 | 0011 | 0100 | 0101 | 0110 | 0111 |
| 0 | 0000 | 00 | 16 | 32 | 48 | @ | P | א | נ |
| 1 | 0001 | 01 | 17 | 33 | 49 | A | Q | ב | ס |
| 2 | 0010 | 02 | 18 | 34 | 50 | B | R | ג | ע |
| 3 | 0011 | 03 | 19 | 35 | 51 | C | S | ד | ף |
| 4 | 0100 | 04 | 20 | 36 | 52 | D | T | ה | פ |
| 5 | 0101 | 05 | 21 | 37 | 53 | E | U | ו | ץ |
| 6 | 0110 | 06 | 22 | 38 | 54 | F | V | ז | צ |
| 7 | 0111 | 07 | 23 | 39 | 55 | G | W | ח | ק |
| 8 | 1000 | 08 | 24 | 40 | 56 | H | X | ט | ך |
| 9 | 1001 | 09 | 25 | 41 | 57 | I | Y | י | ש |
| A | 1010 | 10 | 26 | 42 | 58 | J | Z | ך | ת |
| B | 1011 | 11 | 27 | 43 | 59 | K | [| כ | { |
| C | 1100 | 12 | 28 | 44 | 60 | L | \ | ל | |
| D | 1101 | 13 | 29 | 45 | 61 | M |] | ם | } |
| E | 1110 | 14 | 30 | 46 | 62 | N | ^ | נ | ~ |
| F | 1111 | 15 | 31 | 47 | 63 | O | - | ן | |

A.23 Page 33 (WPC1255 : Israel)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|----------|----------|-------------|----------|----------|----------|----------|------------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | € 128 | | NBSP 160 | ° 176 | · 192 | 208 | א 224 | נ 240 |
| 1 | 0001 | | ‘ 145 | ı 161 | ± 177 | ” 193 | · 209 | ב 225 | ס 241 |
| 2 | 0010 | , 130 | , 146 | ¢ 162 | ² 178 | ” 194 | · 210 | ג 226 | ע 242 |
| 3 | 0011 | f 131 | “ 147 | £ 163 | ³ 179 | ” 195 | : 211 | ד 227 | ף 243 |
| 4 | 0100 | ” 132 | ” 148 | ⌘ 164 | ’ 180 | · 196 | ן 212 | ה 228 | פ 244 |
| 5 | 0101 | … 133 | • 149 | ¥ 165 | μ 181 | · 197 | ן 213 | ו 229 | ץ 245 |
| 6 | 0110 | † 134 | — 150 | 166 | ¶ 182 | · 198 | ” 214 | ז 230 | צ 246 |
| 7 | 0111 | ‡ 135 | — 151 | § 167 | · 183 | · 199 | ’ 215 | ח 231 | ק 247 |
| 8 | 1000 | ^ 136 | ~ 152 | .. 168 | ³ 184 | · 200 | ” 216 | ט 232 | ך 248 |
| 9 | 1001 | % 137 | ™ 153 | © 169 | ¹ 185 | · 201 | · 217 | י 233 | ש 249 |
| A | 1010 | | | × 170 | ÷ 186 | · 202 | · 218 | ך 234 | ת 250 |
| B | 1011 | < 139 | > 155 | « 171 | » 187 | · 203 | · 219 | כ 235 | |
| C | 1100 | | | ¬ 172 | ¼ 188 | · 204 | · 220 | ל 236 | |
| D | 1101 | | | - 173 | ½ 189 | · 205 | · 221 | ם 237 | LTR 253 |
| E | 1110 | | | ® 174 | ¾ 190 | · 206 | · 222 | נ 238 | RTL 254 |
| F | 1111 | | | — 175 | ¿ 191 | · 207 | · 223 | ן 239 | |

A.24 Page 34 (Thai character code 11)

| HEX | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|------|------|------|------|------|------|------|------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ๐ | ๑ | ๒ | ๓ | ๔ | ๕ | ๖ | ๗ |
| | | 128 | 144 | 160 | 176 | 192 | 208 | 224 | 240 |
| 1 | 0001 | ๘ | ๙ | ๐ | ๑ | ๒ | ๓ | ๔ | ๕ |
| | | 129 | 145 | 161 | 177 | 193 | 209 | 225 | 241 |
| 2 | 0010 | ๑๐ | ๑๑ | ๑๒ | ๑๓ | ๑๔ | ๑๕ | ๑๖ | ๑๗ |
| | | 130 | 146 | 162 | 178 | 194 | 210 | 226 | 242 |
| 3 | 0011 | ๑๘ | ๑๙ | ๒๐ | ๒๑ | ๒๒ | ๒๓ | ๒๔ | ๒๕ |
| | | 131 | 147 | 163 | 179 | 195 | 211 | 227 | 243 |
| 4 | 0100 | ๒๖ | ๒๗ | ๒๘ | ๒๙ | ๓๐ | ๓๑ | ๓๒ | ๓๓ |
| | | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 |
| 5 | 0101 | ๓๔ | ๓๕ | ๓๖ | ๓๗ | ๓๘ | ๓๙ | ๔๐ | ๔๑ |
| | | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 |
| 6 | 0110 | ๔๒ | ๔๓ | ๔๔ | ๔๕ | ๔๖ | ๔๗ | ๔๘ | ๔๙ |
| | | 134 | 150 | 166 | 182 | 198 | 214 | 230 | 246 |
| 7 | 0111 | ๕๐ | ๕๑ | ๕๒ | ๕๓ | ๕๔ | ๕๕ | ๕๖ | ๕๗ |
| | | 135 | 151 | 167 | 183 | 199 | 215 | 231 | 247 |
| 8 | 1000 | ๕๘ | ๕๙ | ๖๐ | ๖๑ | ๖๒ | ๖๓ | ๖๔ | ๖๕ |
| | | 136 | 152 | 168 | 184 | 200 | 216 | 232 | 248 |
| 9 | 1001 | ๖๖ | ๖๗ | ๖๘ | ๖๙ | ๗๐ | ๗๑ | ๗๒ | ๗๓ |
| | | 137 | 153 | 169 | 185 | 201 | 217 | 233 | 249 |
| A | 1010 | ๗๔ | ๗๕ | ๗๖ | ๗๗ | ๗๘ | ๗๙ | ๘๐ | ๘๑ |
| | | 138 | 154 | 170 | 186 | 202 | 218 | 234 | 250 |
| B | 1011 | ๘๒ | ๘๓ | ๘๔ | ๘๕ | ๘๖ | ๘๗ | ๘๘ | ๘๙ |
| | | 139 | 155 | 171 | 187 | 203 | 219 | 235 | 251 |
| C | 1100 | ๙๐ | ๙๑ | ๙๒ | ๙๓ | ๙๔ | ๙๕ | ๙๖ | ๙๗ |
| | | 140 | 156 | 172 | 188 | 204 | 220 | 236 | 252 |
| D | 1101 | ๙๘ | ๙๙ | ๑๐๐ | ๑๐๑ | ๑๐๒ | ๑๐๓ | ๑๐๔ | ๑๐๕ |
| | | 141 | 157 | 173 | 189 | 205 | 221 | 237 | 253 |
| E | 1110 | ๑๐๖ | ๑๐๗ | ๑๐๘ | ๑๐๙ | ๑๑๐ | ๑๑๑ | ๑๑๒ | ๑๑๓ |
| | | 142 | 158 | 174 | 190 | 206 | 222 | 238 | 254 |
| F | 1111 | ๑๑๔ | ๑๑๕ | ๑๑๖ | ๑๑๗ | ๑๑๘ | ๑๑๙ | ๑๒๐ | ๑๒๑ |
| | | 143 | 159 | 175 | 191 | 207 | 223 | 239 | 255 |

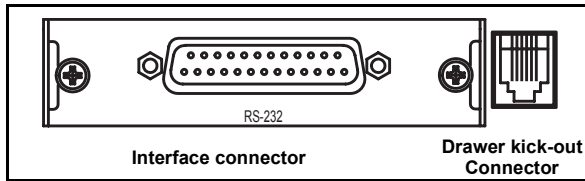
A.25 Page 35 (Thai character code 18)

| | HEX | 8 | 9 | A | B | C | D | E | F |
|-----|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| HEX | BIN | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |
| 0 | 0000 | ┌ 128 | └ 144 | ┌ 160 | └ 176 | ┌ 192 | └ 208 | ┌ 224 | └ 240 |
| 1 | 0001 | ┐ 129 | ┘ 145 | ┐ 161 | ┘ 177 | ┐ 193 | ┘ 209 | ┐ 225 | ┘ 241 |
| 2 | 0010 | └┐ 130 | ┘└ 146 | └┐ 162 | ┘└ 178 | └┐ 194 | ┘└ 210 | └┐ 226 | ┘└ 242 |
| 3 | 0011 | ┐└ 131 | ┘┘ 147 | ┐└ 163 | ┘┘ 179 | ┐└ 195 | ┘┘ 211 | ┐└ 227 | ┘┘ 243 |
| 4 | 0100 | ┌┐ 132 | ┘└ 148 | ┌┐ 164 | ┘└ 180 | ┌┐ 196 | ┘└ 212 | ┌┐ 228 | ┘└ 244 |
| 5 | 0101 | ┐└┐ 133 | ┘┘└ 149 | ┐└┐ 165 | ┘┘└ 181 | ┐└┐ 197 | ┘┘└ 213 | ┐└┐ 229 | ┘┘└ 245 |
| 6 | 0110 | └┐└ 134 | ┘└┘ 150 | └┐└ 166 | ┘└┘ 182 | └┐└ 198 | ┘└┘ 214 | └┐└ 230 | ┘└┘ 246 |
| 7 | 0111 | ┐└┐└ 135 | ┘┘└┘ 151 | ┐└┐└ 167 | ┘┘└┘ 183 | ┐└┐└ 199 | ┘┘└┘ 215 | ┐└┐└ 231 | ┘┘└┘ 247 |
| 8 | 1000 | └┐└┐ 136 | ┘└┘└ 152 | └┐└┐ 168 | ┘└┘└ 184 | └┐└┐ 200 | ┘└┘└ 216 | └┐└┐ 232 | ┘└┘└ 248 |
| 9 | 1001 | ┐└┐└┐ 137 | ┘┘└┘└ 153 | ┐└┐└┐ 169 | ┘┘└┘└ 185 | ┐└┐└┐ 201 | ┘┘└┘└ 217 | ┐└┐└┐ 233 | ┘┘└┘└ 249 |
| A | 1010 | └┐└┐└ 138 | ┘└┘└┘ 154 | └┐└┐└ 170 | ┘└┘└┘ 186 | └┐└┐└ 202 | ┘└┘└┘ 218 | └┐└┐└ 234 | ┘└┘└┘ 250 |
| B | 1011 | ┐└┐└┐└ 139 | ┘┘└┘└┘ 155 | ┐└┐└┐└ 171 | ┘┘└┘└┘ 187 | ┐└┐└┐└ 203 | ┘┘└┘└┘ 219 | ┐└┐└┐└ 235 | ┘┘└┘└┘ 251 |
| C | 1100 | └┐└┐└┐ 140 | ┘└┘└┘└ 156 | └┐└┐└┐ 172 | ┘└┘└┘└ 188 | └┐└┐└┐ 204 | ┘└┘└┘└ 220 | └┐└┐└┐ 236 | ┘└┘└┘└ 252 |
| D | 1101 | ┐└┐└┐└┐ 141 | ┘┘└┘└┘└ 157 | ┐└┐└┐└┐ 173 | ┘┘└┘└┘└ 189 | ┐└┐└┐└┐ 205 | ┘┘└┘└┘└ 221 | ┐└┐└┐└┐ 237 | ┘┘└┘└┘└ 253 |
| E | 1110 | └┐└┐└┐└ 142 | ┘└┘└┘└┘ 158 | └┐└┐└┐└ 174 | ┘└┘└┘└┘ 190 | └┐└┐└┐└ 206 | ┘└┘└┘└┘ 222 | └┐└┐└┐└ 238 | ┘└┘└┘└┘ 254 |
| F | 1111 | ┐└┐└┐└┐└ 143 | ┘┘└┘└┘└┘ 159 | ┐└┐└┐└┐└ 175 | ┘┘└┘└┘└┘ 191 | ┐└┐└┐└┐└ 207 | ┘┘└┘└┘└┘ 223 | ┐└┐└┐└┐└ 239 | ┘┘└┘└┘└┘ 255 |

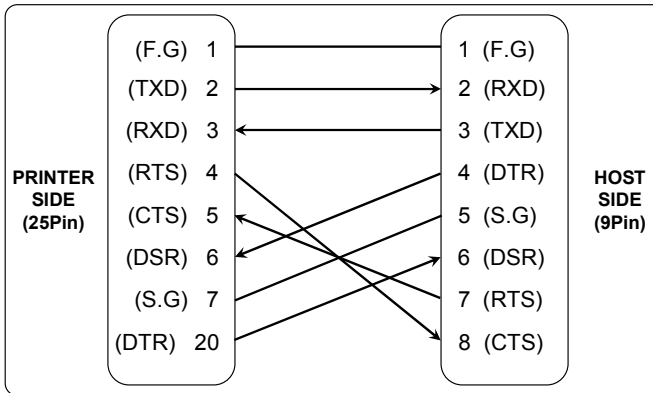
A.26 International character code table

| | Country | ASCII code (hexadecimal number) | | | | | | | | | | | |
|----|------------|---------------------------------|----|----|----|----|----|----|----|----|----|----|----|
| | | 23 | 24 | 40 | 5B | 5C | 5D | 5E | 60 | 7B | 7C | 7D | 7E |
| 0 | U.S.A. | # | \$ | @ | [| \ |] | ^ | ' | { | | } | ~ |
| 1 | France | # | \$ | à | ° | ç | § | ^ | ' | é | ù | è | ¨ |
| 2 | Germany | # | \$ | § | Ä | Ö | Ü | ^ | ' | ä | ö | ü | β |
| 3 | U.K. | £ | \$ | @ | [| \ |] | ^ | ' | { | | } | ~ |
| 4 | Denmark I | # | \$ | @ | Æ | Ø | Å | ^ | ' | æ | ø | å | ~ |
| 5 | Sweden | # | ¤ | É | Ä | Ö | Å | Ü | é | ä | ö | å | ü |
| 6 | Italy | # | \$ | @ | ° | \ | é | ^ | ù | à | ò | è | i |
| 7 | Spain | Pt | \$ | @ | i | Ñ | ¿ | ^ | ' | ¨ | ñ | } | ~ |
| 8 | Japan | # | \$ | @ | [| ¥ |] | ^ | ' | { | | } | ~ |
| 9 | Norway | # | ¤ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |
| 10 | Denmark II | # | \$ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |

B.1 RS-232C Serial I/F

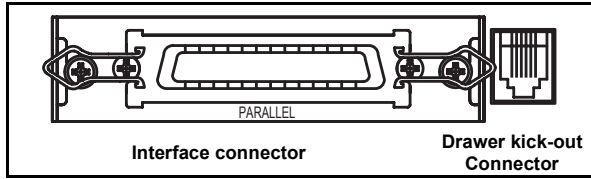


B.1.1 RS-232C Serial I/F cable connection



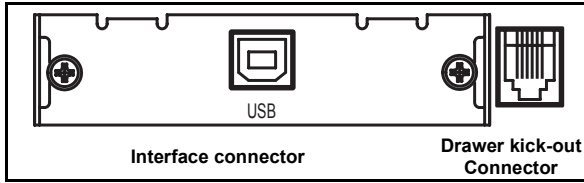
B.1.2 RS-232C Serial I/F signal descriptions

| Pin No. | Signal name | Signal direction | Function |
|---------|-------------|------------------|---|
| Body | Frame GND | - | Frame ground |
| 2 | TXD | Output | Transmit data |
| 3 | RXD | Input | Receive data |
| 6 | DSR | Input | This signal indicates whether the host computer can receive data. (H/W flow control) ① MARK(Logic 1) : The host can not receive a data. ② SPACE(Logic 0) : The host can receive a data. ③ The printer transmits a data to the host, after confirming this signal. ④ When XON/XOFF flow control is selected, the printer does not check this signal. |
| 7 | Signal GND | - | Signal ground |
| 20 | DTR | Output | This signal indicates whether the printer is busy. (H/W flow control) ① MARK(Logic 1) : The printer is busy. ② SPACE(Logic 0) : The printer is not busy. ③ The host transmits a data to the printer, after confirming this signal. ④ When XON/XOFF flow control is selected, the host does not check this signal. |

B.2 IEEE1284 Parallel I/F**B.2.1 IEEE 1284 Parallel I/F signal specifications (Compatibility / Nibble / Byte mode)**

| Pin no. | Source | Compatibility mode | Nibble mode | Byte mode |
|---------|----------------|--------------------|----------------------|--------------|
| 1 | Host | nStrobe | HostClk | HostClk |
| 2 | Host / Printer | Data 0 (LSB) | - | Data 0 (LSB) |
| 3 | Host / Printer | Data 1 | - | Data 1 |
| 4 | Host / Printer | Data 2 | - | Data 2 |
| 5 | Host / Printer | Data 3 | - | Data 3 |
| 6 | Host / Printer | Data 4 | - | Data 4 |
| 7 | Host / Printer | Data 5 | - | Data 5 |
| 8 | Host / Printer | Data 6 | - | Data 6 |
| 9 | Host / Printer | Data 7 (MSB) | - | Data 7 (MSB) |
| 10 | Printer | nAck | PtrClk | PtrClk |
| 11 | Printer | Busy | PtrBusy / Data3,7 | PtrBusy |
| 12 | Printer | Perror | AckDataReq / Data2,6 | AckDataReq |
| 13 | Printer | Select | Xflag / Data1,5 | Xflag |
| 14 | Host | nAutoFd | HostBusy | HostBusy |
| 15 | - | NC | ND | ND |
| 16 | - | GND | GND | GND |
| 17 | - | GND | FG | FG |
| 18 | Printer | Logic-H | Logic-H | Logic-H |
| 19~30 | - | GND | GND | GND |
| 31 | Host | nInIt | nInIt | nInIt |
| 32 | Printer | nFault | nDataAbail / | nDataAvail |
| 33 | - | NC | ND | ND |
| 34 | Printer | NC | ND | ND |
| 35 | Printer | NC | ND | ND |
| 36 | Host | nSelectIn | 1284-Active | 1284-Active |

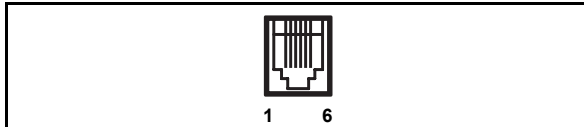
B.3 USB I/F



B.3.1 USB I/F signal descriptions

| Pin No. | Signal name | Assignment (Color) | Function |
|---------|-------------|--------------------|------------------------|
| Shell | Shield | Drain wire | Frame ground |
| 1 | VBUS | Red | NC |
| 2 | D- | White | Differential data line |
| 3 | D+ | Green | Differential data line |
| 4 | GND | Black | Signal ground |

B.4 Drawer kick-out



B.4.1 Drawer kick-out cable connection

| Pin No. | Description | Direction |
|---------|----------------------------------|-----------|
| 1 | Signal GND | - |
| 2 | Drawer kick-out driver signal #1 | Output |
| 3 | Drawer Open / Close signal | Input |
| 4 | +24V | - |
| 5 | Drawer kick-out driver signal #2 | Output |
| 6 | Signal GND | - |

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