

User's Manual

PRP-076N
PRP-076C
PRP-076D

Impact Dot-Matrix Printer



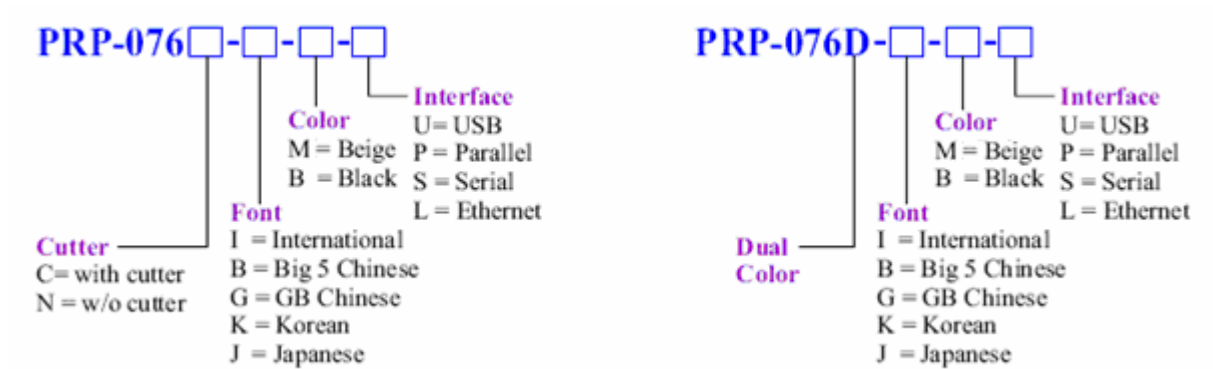
Specifications subject to change without notice

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1. General Information

1.1) Models



Note: International font can be combined with others languages, for example PRP-076C-BI-M-S, with cutter, Big5+International, beige, serial interface.

1.2) Features

Main Features:

- 3.5 characters line/sec / 4.5 characters line/sec (32 bit ARM CPU)
- 76 mm \pm 5 mm Max. label width
- Low-noise dot matrix printing
- High reliability due to a stable mechanism
- Command protocol is based on the ESC/POS standard
- Support black mark anchor testing print
- Various Layouts are possible by using page mode
- Repeated operation and copy printing are possible
- Easy paper-roll installation
- Easy paper jam clearance
- Easy maintenance for tasks such as head cleaning
- Built-in interface provides control capability for cash drawer

Available fields:

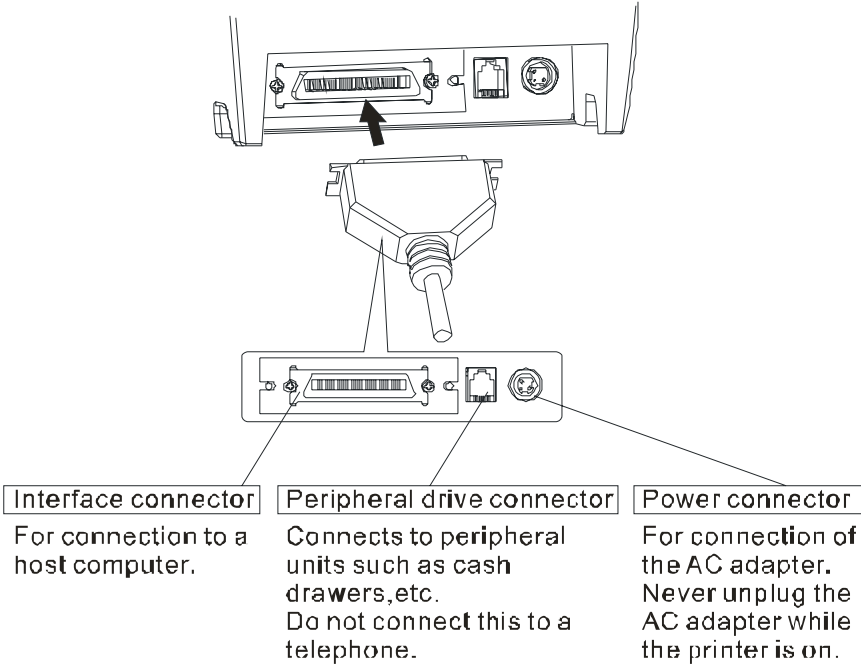
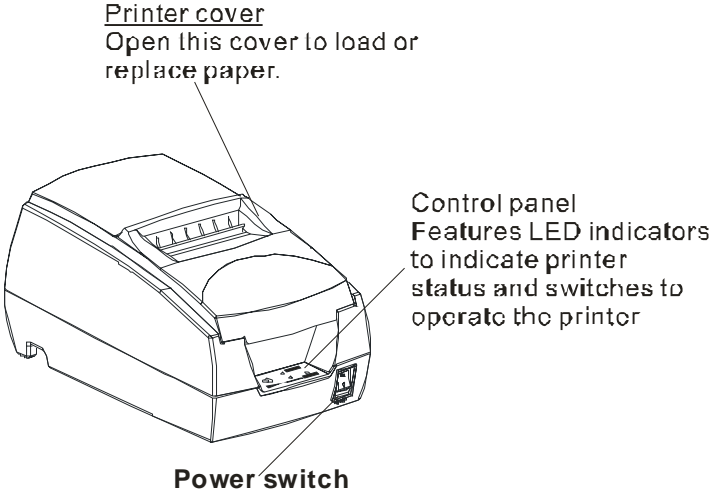
- Print POS system receipts
- Print EFT POS system receipts
- Print gym, post, hospital, civil aviation system receipts
- Print inquiry, service system receipts
- Print instrument test receipts
- Print tax, tab receipts

2. Quick Start

2.1) Unpacking & Parts Identification

Unpacking:

Parts Identification:



2.2) Loading the Paper Roll and Ink Ribbon

- a. Make sure that the paper roll matches the printer's specification. Do not use paper rolls that have the paper glued to the core because the printer cannot detect the paper end correctly.

Important: The printing quality and lifespan of the printer head cannot be guaranteed if any paper other than that recommended is used. Thus, the warranty will be void automatically if any fault occurs due to the use of wrong paper rolls.

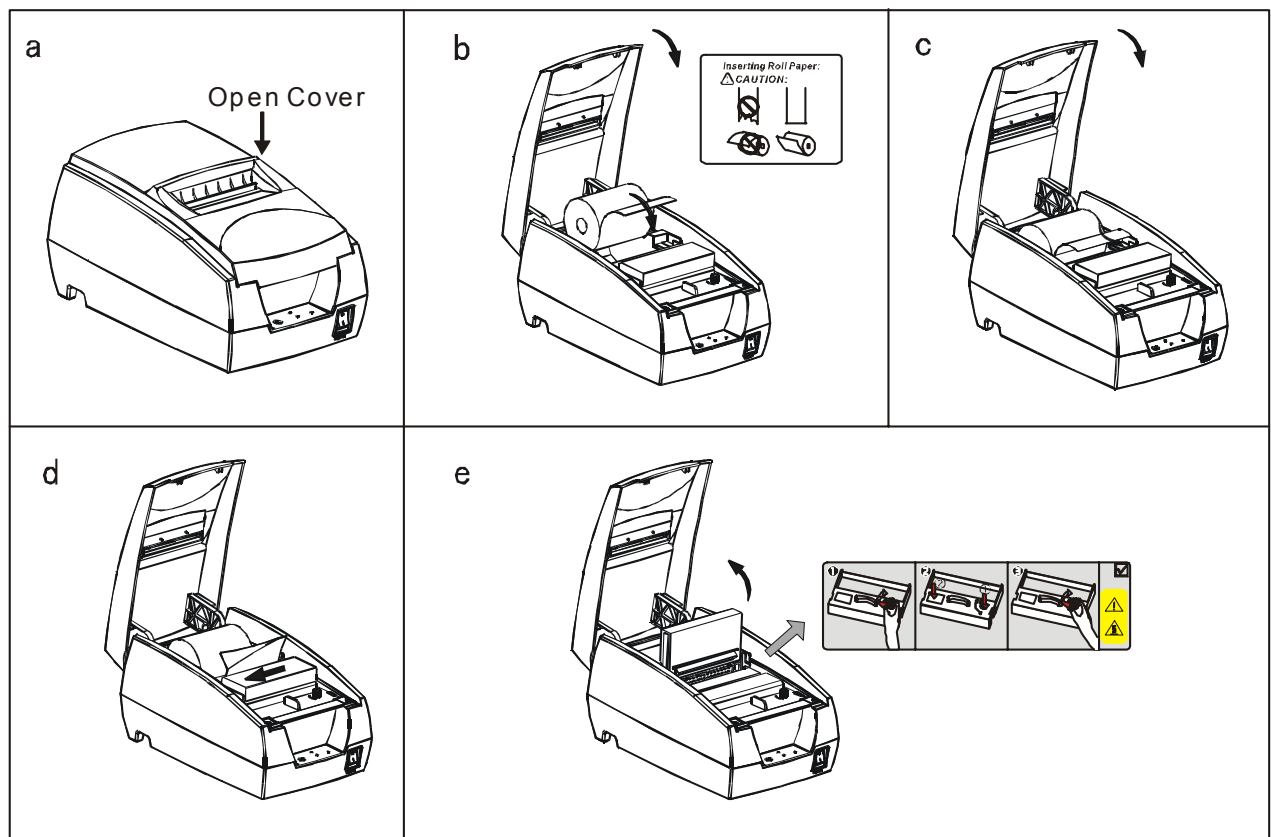
- b. Open the top cover

Important: Do not open the printer cover when printing is in progress.

- c. Install the paper roll as the picture showing direction

- d. Pull the paper out of some length to outside, then close the cover.

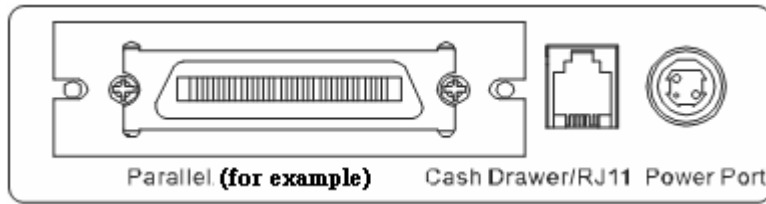
- e. Open the printer's cover, turn the knob five or six times in the direction of the arrow, insert the ink ribbon, and push the ribbon cassette down until it clicks.



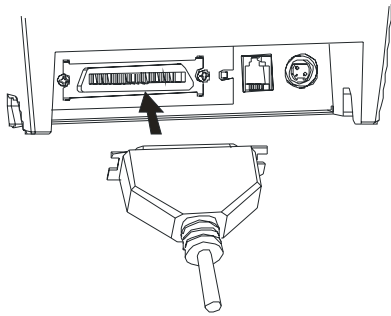
3. Printer Interface and Connection

3.1) Connecting the Interface Cable

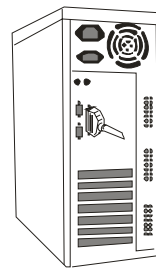
Printer Interface:



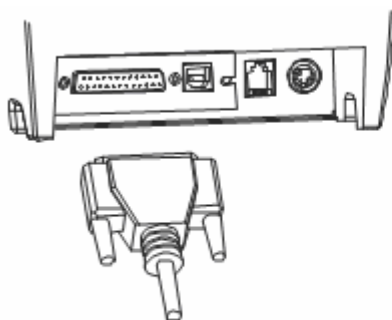
- a) Before connecting/disconnecting the interface cable, make sure that power to the printer and all the devices connected to the printer is turned off.
- b) Connect the interface cable to the connector on the rear panel of the printer.
- c) In the case of a serial interface, tighten the connector screws. In the case of a parallel interface, fasten the connector clasps.



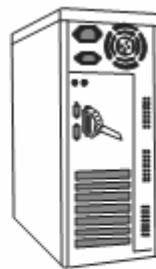
Plug the cable connector securely into the printer's Parallel Port connector



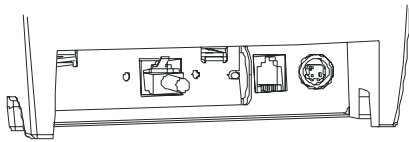
Attach the other end of the cable to the computer



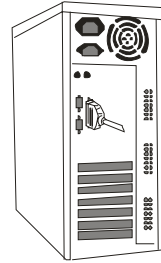
Plug the cable connector securely into the printer's Serial Port or USB Port connector



Attach the other end of the cable to the computer

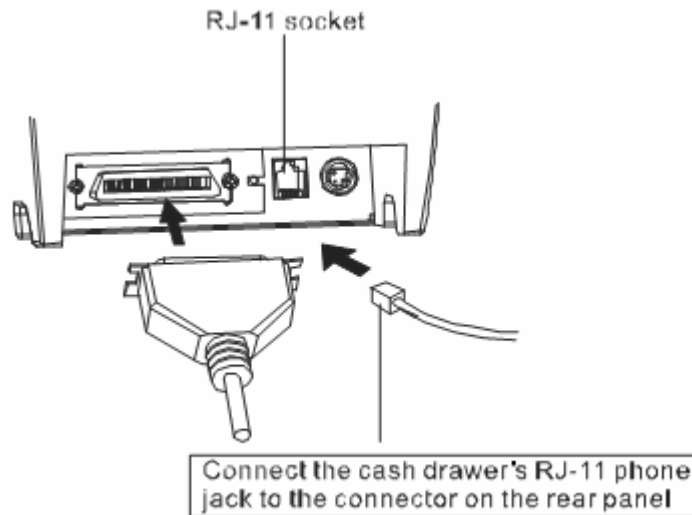


Plug the cable connector securely into the printer's Ethernet Port connector



Attach the other end of the cable to the computer

3.2) Connecting to a Cash Drawer

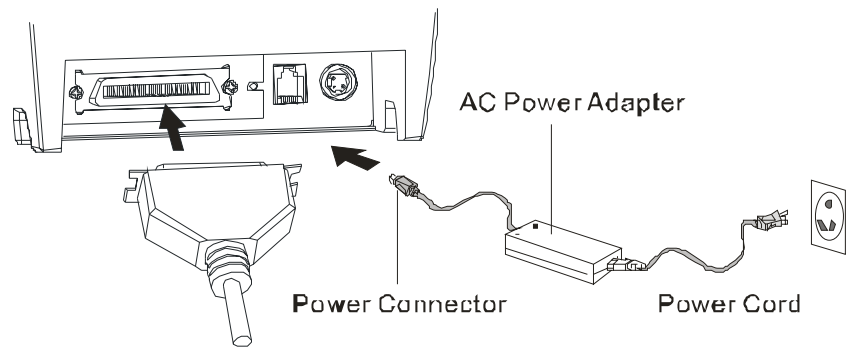


Important:

- Make sure that the printer is turned off and unplugged from the AC outlet and that the computer is turned off before making connections.
- Do not connect a telephone line into the peripheral drive connector. Failure to observe this may result in damage to the printer.

3.3) Connecting the AC Adapter

- a. Connect the AC power cord to the inlet of AC adapter, and then connect the power cord plug to a suitable electrical outlet.
- b. Connect the adapter cable to power connector of printer; make sure the printer power switch is OFF before making any connections.



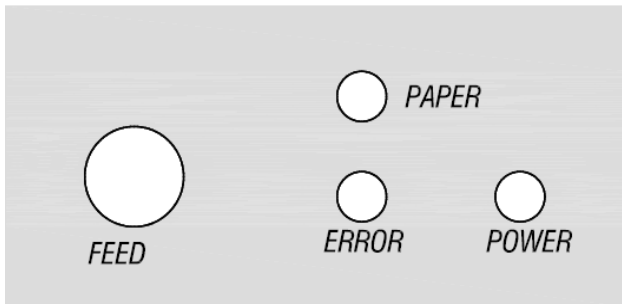
CAUTION:

DO NOT USE ANY AC POWER ADAPTERS OTHER THAN SPECIFIED.

c. Turn on the power switch; the POWER lamp on the control panel will light up.

4. Configuration

Printer Control Panel & Status Indication

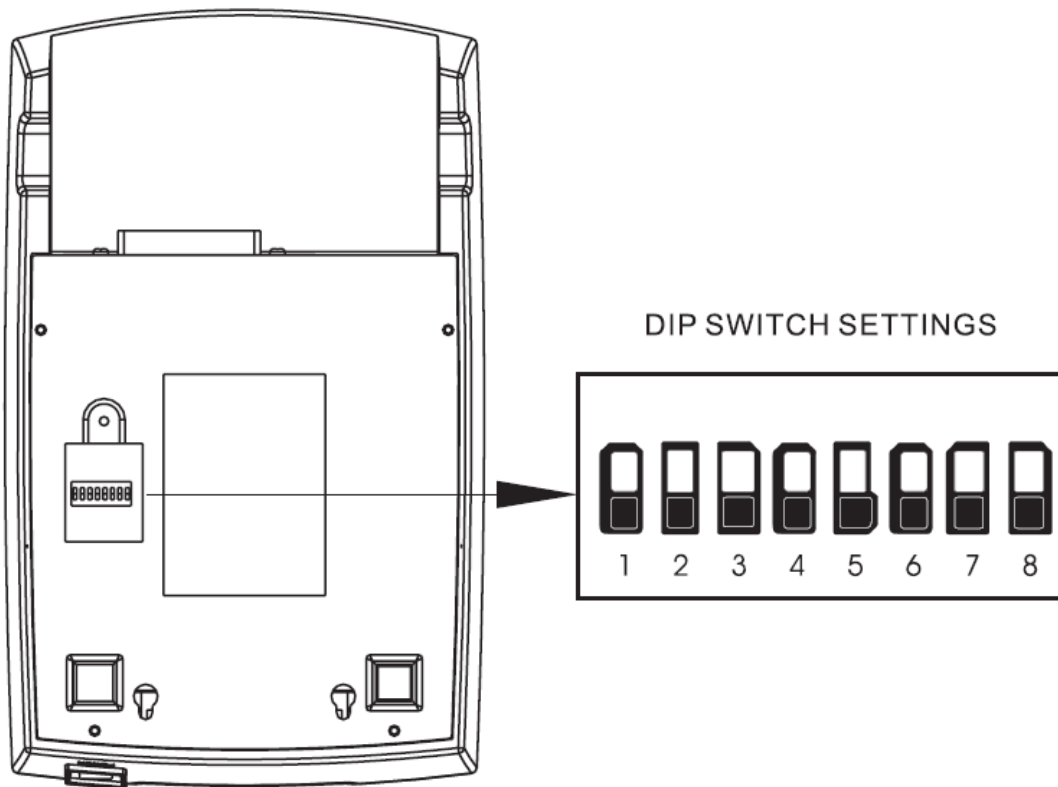


4.1) Printer Status

- Power (**POWER**) LED: Green
 - On: Power is on.
 - Off: Power is off.
- Error (**ERROR**) LED: Red
 - On: Offline (except during paper feeding using the FEED button and test printing, and the error state.)
 - Off: Normal condition.
- Paper roll end (**PAPER**) LED: Red
 - Flash: The paper roll end is detected.
 - Off: Paper is loaded (Normal condition).
- **FEED** (Button)
 - Press the FEED button to feed roll paper.
 - Press the FEED button for 1 second and the roll paper will be fed continuously.

4.2) DIP Switch Settings

The DIP switch panel is located at the bottom of the printer as shown:



DIP Switch Functions:

Switch	Function	ON	OFF
1	Black mark mode	No	Yes
2	Select Cutter	No	Yes
3	Cut mode	Partial	Full
4	Select characters per line (CPL) 7 x 9 / 9 x 9	40CPL/33CPL	42CPL/35CPL
5	Unidirectional	No	Yes
6	Two-byte character	Yes	No

SW 7	SW 8	Baudrate
On	On	38400
Off	On	4800
On	Off	9600
Off	Off	19200

Note:

Before configuring the DIP switch settings, please first turn the printer power off and remove the paper roll.

(*) Baud Rate is only available for serial interface models.

4.3) Printer Self Test

This is to test whether the printer is working properly or not and also checks the printing quality, firmware version, and DIP switch settings

1. Hold the FEED button first and then turn on the power at the same time, release the button after around 2 seconds.
2. If the printer is working properly, it should then automatically print the self-testing result that indicating the firmware version number, printer connection type, English alphanumeric characters, and few Taiwanese fonts.
3. The test print will be ended with the following message:

*** COMPLETED ***

Note: The above procedure does not test parallel or serial, USB, Ethernet ports. Please use communication utility such as Windows HyperTerminal to test the printer connection.

4.4) Hexadecimal Dumping

1) Hexadecimal Dumping

This function prints the data transmitted from the host computer in hexadecimal numbers and in its corresponding characters.

2) Starting hexadecimal dumping

Turn the power on while pressing the FEED button or executing **GS (A command)**. The printer first prints “Hexadecimal Dump” on paper roll and prints the received print data in hexadecimal numbers and in its corresponding characters.

NOTES: 1. When using the hexadecimal dump mode, please set the SW-4 of the DIP switch to OFF.

2. During hexadecimal dumping, any commands do not function.

3. If no characters correspond to the data received, the printer prints “. ” ◦

3) Ending hexadecimal dumping

Hexadecimal dumping ends by turning the power off, or pressing the FEED button three times.

<Printing example>

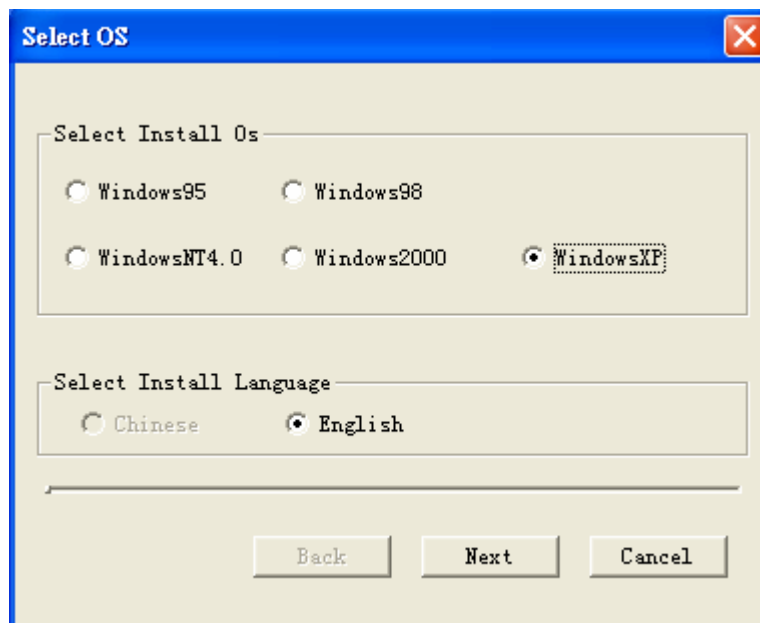
```
Hexadecimal Dump
To terminate Hexadecimal dump,
press FEED button three times

57 65 60 63 6F 6D 65 20      Welcome
54 6F 20 47 61 69 6E 73      To Gains

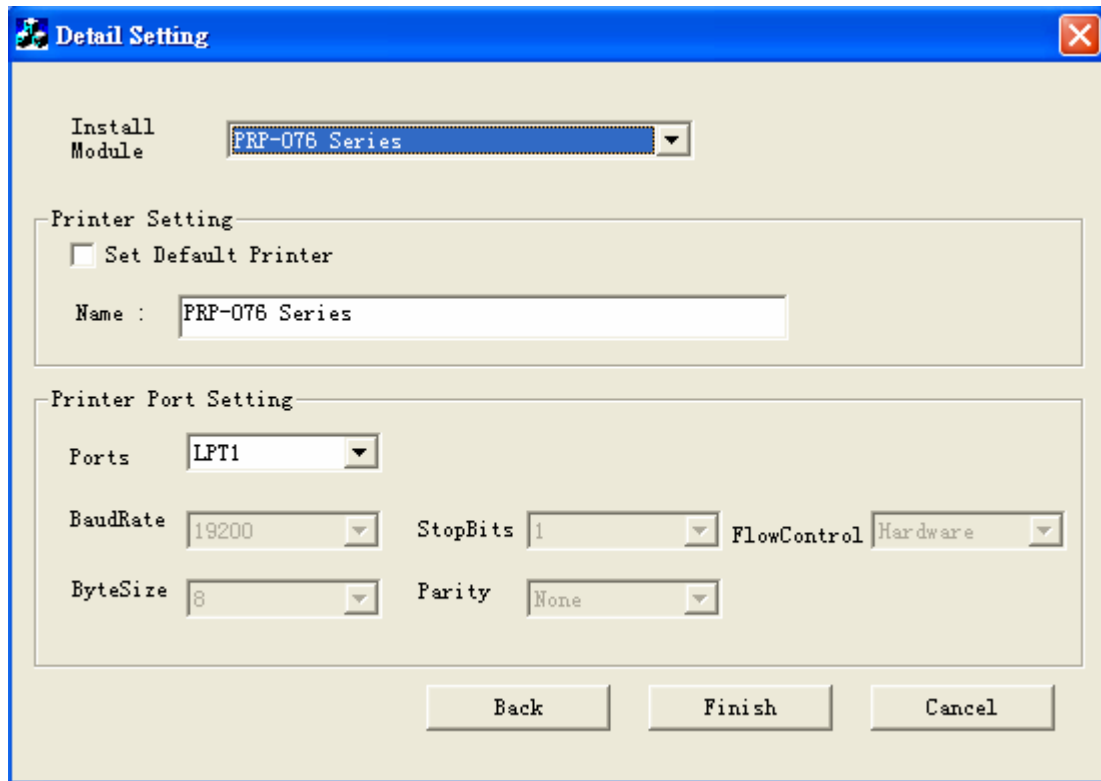
** Exit Hexadecimal Dump **
```

4.5) Driver Installation

1. To install the PRP-076 driver, please insert the bundled CD disk into the CD-ROM drive.
2. In the CD-Rom menu, please go to Receipt Printer > PRP-076 folder and double click the SetupEn.exe file to begin the driver installation process and follow the installation instructions.
3. Please choose the OS that matches with your computer system and press Next.



4. Please select PRP-076 Series for Install Module. For Printer Port Setting, if you are connecting the printer to PC COM ports via RS-232 connection, the FlowControl must be set to Hardware. Press Finish when you done all the setting to end installation.



5. Safety and Maintenance

5.1) Safety Information

1. Do not touch the HEAD of printer with anything.
2. Do not touch the cutter blade.
3. Only use the power supply that is come along with the printer.
4. Do not bend the power cord excessively or place any heavy objects onto it.
5. When connecting or disconnecting the plug, always hold the plug – not the cord.
6. Keep the distance out of children’s reach.
7. Use only approved accessories and do not try to disassemble, repair or remodel it for yourself.
8. Do not let water or other foreign objects in the printer.
9. Install the printer on the stable surface. Choose a firm, level surface where the printer will not be exposed to vibration.
10. Do not use the printer when it is out of order. This can cause a fire or an electrocution.
11. Do not connect a telephone line into the peripheral drive connector.
12. We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods.

5.2) Periodical Cleaning

Printed characters may become partially unclear due to accumulated paper dust and dirt. To prevent

such a problem, paper dust collected in the paper holder and paper transport section and on the surface of the printer head must be removed periodically. Such cleaning is recommended to be carried out once six month or one million lines.

Cleaning the Paper Holder

Use a soft cloth to remove paper dust from the paper holder and paper transport section.

5.3) Preventing Paper Jams

The paper should not be touched during printing. Shift the paper during paper ejection may cause a feed failure or paper jam.

5.4) Fixing Paper Jam

The Status LED (Red) on the printer control panel will flash with beeps if paper is jammed. Please follow the below instruction to remove paper jam.

- (a) Switch the printer power off.
- (b) Open the printer cover.
- (c) If the printer cover opens, removed the jammed paper gently (**take care not to touch the printer head.**) And reinstall the paper roll.

Caution:

Since working on the cutter may be dangerous, be sure to turn off the printer first.

Note:

Do not apply extreme force to open the front cover to prevent damages to the cutter. If the front cover will not open properly, please contact your dealer.

- (d) Return the cutter to its home-position and release or clean out the jammed paper in inside the front cover. Open the top cover, and then reinstall paper roll.

6. Appendix

Product Specifications

1.1) Printing Specifications

- 1) Printing method: 9 pins Impact Dot Matrix
- 2) Print density: 400 dpi (half dot)
385 dpi (half dot)
- 3) Printing direction: Bidirectional, adjustable by dipswitch
- 4) Printing width: 42CPL (7 x 9) / 35CPL (9 x 9)
40CPL (7 x 9) / 33CPL (9 x 9)
- 5) Printing speed: 4.5 characters line/sec
- 6) Paper feed speed: 120 mm/sec

NOTE: There may be variations in printing after switching the mode of the printing speed. To prevent this for logo printing with ESC command, using a downloaded bit image is recommended. Change in printing speed does not occur during down loaded bit image printing. Printing speed may be slower depending on the data transmission speed and the combination of control commands. Low transmission speed may cause intermittent printing. It is recommended to transmit data to the printer as quickly as possible.

1.2) Print font

- 1) ASCII code: 7 x 9 dots, 1.2 (W) x 3.1 (H) mm
9 x 9 dots, 1.6 (W) x 3.1 (H) mm
- 2) Graphic font: 16 x 16 dots, 2.54 (W) x 2.82 (H) mm

1.3) Mechanical Specification

- 1) Weight: 1600g / 1680g (PRP-076D)
- 2) Dimension: 260 (L) x 155 (W) x 130 (H) mm

1.4) Paper Specification

- 1) Paper type: Continuous multipart, original plus carbonless copies
- 2) Form: Paper roll
- 3) Paper width: 75 ± 0.5 mm
- 4) Paper roll size: Roll diameter: Maximum 75 mm
Minimum 12 mm

1.5) Interface

- 1) Serial port: Dsub 25 pin female connector, 4800,9600,19200 or 38400 bps
baud-rate, none parity, 8 data bits, and 1 stop bit, supports RTS/CTS &

- | | |
|----------------------|--|
| | XON/XOFF protocol |
| 2) Parallel port: | 36 pin Centronics connector. 8 bits parallel, supports BUSY/nAck protocol |
| 3) USB port: | USB1.0 |
| 4) Ethernet port: | Transmission speed: 10M (Max)
Communication protocol: TCP/IP protocol
Connector: 10 Base-T RJ-45 connector |
| 5) Cash drawer port: | DC 24V/1A, 6 wires RJ-11 socket |

1.6) Electrical Characteristics

- | | |
|--------------------|---|
| 1) Supply voltage: | Input: AC 110V/220V, 50~60Hz
Output: DC 24V/2.5A |
|--------------------|---|

1.7) Reliability

- | | |
|-------|--|
| MCBF: | 10,000,000 lines
(This is an average failure interval based on failures relating to wear out and random failures up to the life of 15 million lines.) |
|-------|--|

1.8) Environmental Conditions

- | | |
|-----------------|---|
| 1) Temperature: | Operating: 0 to 50C (41 to 113F)
Storage: -10 to 60C (14 to 122F) (except paper) |
| 2) Humidity: | Operating: 10 to 80% RH
Storage: 10 to 90% RH (except for paper) |

NOTE: If the printer is not used for a long time with paper installed, some part of the printing may be light due to the deformation of the paper. If the printer is not used for a long time with paper installed, be sure to feed paper approximately 30 mm before printing

- | | |
|--------------------------------|--|
| 3) Acoustic noise (Operating): | When using auto cutter Approximately 50 dB
(Bystander position) When not using auto cutter: Approximately 40 dB
(Bystander position) |
|--------------------------------|--|

1.9) Installation

The PRP-076 series printer must be installed horizontally. (Vibration during paper cutting and using a drawer should be considered. Take measures to prevent the printer from moving. Affixing tapes are provided as an option.) An optional hanging bracket can attach the printer to a wall. (Following the procedures describes in the installation manual, install the wall mount and change the location of the paper roll near-end sensor, then install

the paper roll stopper and other parts.)

2. CONFIGURATION

2.1) Interface

2.1.1) RS-232 serial interface

2.1.1.1) RS-232 Specifications

Data transmission:	Serial
Synchronization:	Asynchronous
Handshaking:	DTR/DSR or XON/XOFF control
Signal levels:	MARK = -3 to -15 V: Logic "1"/ OFF SPACE = +3 to +15 V: Logic "0"/ ON
Baud rate:	9600, 19200 bps
Data word length:	8 bits
Parity Settings:	None
Stop bits:	1 or more
Connector (printer side):	Female DSUB-25 pin connector

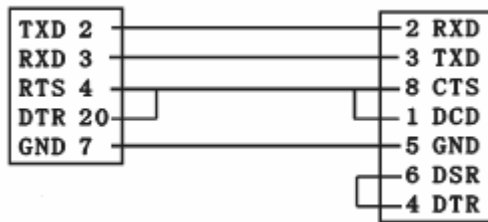
NOTES: The data word length, baud rate, and parity depend on the DIP switch settings.

The stop bit for the printer side is fixed to 1.

2.1.1.2 Serial interface connection example

Printer Side DB-25

POS RS-232 Connection DB9



NOTES: Set the handshaking so that the transmit data can be received.

Transmit data to the printer after turning on the power and initializing the printer.

Interface connector terminal assignments and signal functions

Pin number	Signal name	Signal Source	Description
2	TXD	Printer	When using XON/XOFF handshake protocol, printer transmits control code XON/XOFF
3	RXD	Host	Printer receives data from host
4	RTS	Printer	Indicates printer current status, whether the printer is Busy or Ready to receive data
7	GND	—	Signal ground
20	DTR	Printer	Same as RTS (pin 4) °

2.1.2) IEEE 1284 Bidirectional Parallel Interface (Parallel Interface Specifications)

2.1.2.1) Parallel Specifications

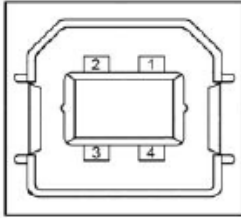
Data transmission:	Parallel
Synchronization:	Externally supplied nStrobe signals
Handshaking:	nAck and Busy signals
Signal levels:	TTL compatible
Data word length:	8 bits
Connector (printer side):	36 pins Centronics connector

2.1.2.2) Parallel Interface Pin Assignments for Each Mode

Pin	Mode	Source	Description
1	/STB	Host	The computer presents the data on the data lines, and pulses STB
2	DATA0	Host	Indicates the 1st data bit through 8 th data bit
3	DATA1	Host	
4	DATA2	Host	
5	DATA3	Host	
6	DATA4	Host	
7	DATA5	Host	
8	DATA6	Host	
9	DATA7	Host	
10	nAck	Printer	Printer acknowledge signal which indicates that printer has received previous data bit
11	BUSY	Printer	Printer is busy and cannot receive data
12	GND	---	Ground
13	Select	Printer	High electric potential
14 , 15	NC	---	No Connect
16 , 17	GND	---	Ground
18	Logic-H	Printer	High electric potential
19~30	GND	---	Ground
31	NC	---	No Connect
32	NError (nFault)	Printer	Printer Error Signal
33	GND	---	Ground
34~36	NC	---	No Connect

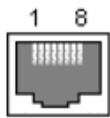
2.1.3) USB and Ethernet Interface Pin Assignments

2.1.3.1) USB Pin Assignments



Pin	Name	Description	Typical Wiring Assignment
1	VBUS	+5VDC	Red
2	D-	Data-	White
3	D+	Data+	Green
4	Ground	GND	Black
Shell	Shield	Shield	Drain Wire

2.1.3.1) Ethernet Pin Assignments



Pin	Name	Description
1	TX+	Tranceive Data+
2	TX-	Tranceive Data
3	RX+	Receive Data+
4	n/c	Not connected
5	n/c	Not connected
6	RX-	Receive Data
7	n/c	Not connected
8	n/c	Not connected

2.2 Connectors

2.2.1 Interface Connectors

Refer to Interface explain.

2.2.2 Power Supply Connector

This connector is used to connect the printer to an external power source.

Power Supply Connector Pin Assignments

Pin Number	Signal Name
1	+24 VDC
2	GND
3	NC
Shell	Frame GND

2.2.3 Drawer Kick-out Connector (Modular Connector)

The pulse specified by ESC p or DLE DC4 is output to this connector. The host can confirm the status of the input signal by using the DLE EOT, GS a, or GS r commands.

- 1) Pin assignments: Refer to Table
- 2) Connector model: Printer side: MOLEX 52065-6615 or RJ11 telephone jack
User side: 6-position 6-contact (RJ11 telephone jack)

Drawer Kick-out Connector Pin Assignments

Pin Number	Signal Name	Direction
1	NC	
2	Frame GND	Output
3	NC	
4	Drawer kick-out drive signal	Output
5	NC	
6	NC	

- 1) Drawer kick-out drive signal
Output signal: Output voltage: Approximately 24 V
Output current: 1A or less

General Printer Commands

COMMANDS LIST

Command	Name
LF	Print and line feed
CR	Print and carriage return
ESC SP n	Set right-side character spacing
ESC ! n	Select print mode(s)
ESC % n	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC * m nL nH d1...dk	Select bit-image mode
ESC - n	Turn underline mode on/off
ESC 2	Select default line spacing
ESC 3 n	Set line spacing
ESC ? n	Cancel user-defined characters
ESC @	Initialize printer
ESC D [n]k NUL	Set horizontal tab positions
HT n	Print horizontal tab processing
ESC J n	Print and feed paper n x 0.176 mm
ESC K n	Print and reverse paper n x 0.176 mm
ESC R n	Select an international character set
ESC U n	Enable/Disable single print direction
ESC c 5 n	Enable/disable panel buttons
ESC d n	Print and feed n lines
ESC e n	Print and reverse n lines
ESC p m t1 t2	Generate cash drawer pulse
GS (A pL pH n m	Enter hexadecimal dump test mode
GS V m [n]	Select cut mode and cut paper
GS z 0 t1 t2	Set online recovery waiting time
FS ! n	Set print mode(s) for Kanji characters
FS &	Enter Kanji character mode
FS .	Exit Kanji character mode
FS 2 c1 c2 d1...dk	Define user-defined Kanji characters
FS ? c1 c2	Cancel user-defined Kanji characters
FS S n1 n2	Set left- and right-side Kanji character spacing
FS W n	Turn quadruple-size mode on/off for Kanji characters
GS (F pL pH a m nL nH	Set relative black mark anchor position
GS FF	Set black mark anchor to start of printing position
Esc r n	Select print color (PRP-076D only)

International Character Fonts

Note:

Commands for International Fonts

ESC R n Select an International Character Set
 [Format] ASC II ESC R n
 Hex 1B 52 n
 Decimal 27 82 n
 [Range] 0 ≤ n ≤ 10
 [Description] Selects an international character set n from the following table:

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

[Default] n=0

Esc t n Select character code table

[format] ASCII ESC t n
 Hex 1B 74 n
 Decimal 27 116 n

[Range] 0 ≤ n ≤ 5, 16 ≤ n ≤ 19

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

N	Page	comment
0	PC 437 (USA,Standard Europe)	
1	Katakana (Japan)	
2	PC 850 (Multilingual)	
3	PC 860 (Portuguese)	
4	PC 863 (Canadian-French)	
5	PC 865 (Nordic)	
16	WPC 1252	
17	PC 866 (Cyrillic #2)	
18	PC 852 (Latin 2)	
19	PC 858	
	Big 5 Chinese	Optional
	GB Chinese	Optional

	Korean	Optional
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Esc r n Select print color (PRP-076D only)

[format]	ASCII	ESC	t	n
	Hex	1B	72	n
	Decimal	27	114	n

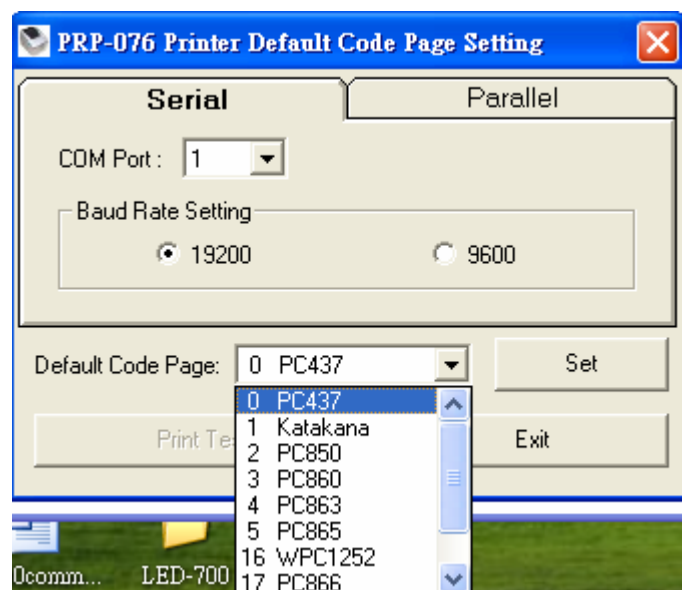
[Range] n=0, 48, 1, 49

[Description] Select print color

n	Select Color
0, 48	Black
1, 49	Red

Character code can also be selected by utility program:

1. To install the PRP-076 Default Code Page Setting utility, please insert the bundled CD disk into the CD-ROM drive.
2. In the CD-Rom menu, please go to Receipt Printer > PRP-076 > Code Page and double click the setup.exe file to begin the installation process and follow the installation instructions.
3. After installation is done, go to Program Files > CodePageSet > CodePageSet to start the utility.
4. For Serial interface connection, please select the proper COM port and baud rate which matches the current setting of the printer. For Parallel interface connection, select the proper LPT ports.



Optional multilingual character model supports printing with one of the following characters:

- a. B - Traditional Chinese (Big 5)
- b. G - Simplify Chinese (GB)
- c. K - Korean
- d. J- Japanese Kanji (JIS)

To enable/disable the multilingual character code use the following commands: (*)

FS “&” Select Multilingual Character Mode ON

[Format]	ASCII	FS	&
	Hex	1C	26
	Decimal	28	38

[Description] Enable multilingual character mode

FS “.” Select Multilingual Character Mode OFF

[Format]	ASCII	FS	.
	Hex	1C	2E
	Decimal	28	46

[Description] Disable multilingual character mode

(*)Note: This command enable/disable the specific language according to the model (B, G, K or J)

International Character Code:

Country	ASCII code (Hexadecimal)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	\$	@	[\]	^	`	{		}	~
France	#	\$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
UK	£	\$	@	[\]	^	`	{		}	~
Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü

Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
Spain I	Pt	\$	@	ì	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	\$	@	[¥]	^	`	{		}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü