

User Manual

HPP-240



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※Safety Caution!




Caution : Please follow the direction in using the product as it may become the reason of malfunction, serious injury, or even death.

- Do not disassemble or modify the product.
- Do not remove jammed paper while power is turned on.
- Do not go over the specified voltage.
- Do not wash the product.
- Do not hit or cause an impact to the product.
- Do not store the product in the wet / humid place.



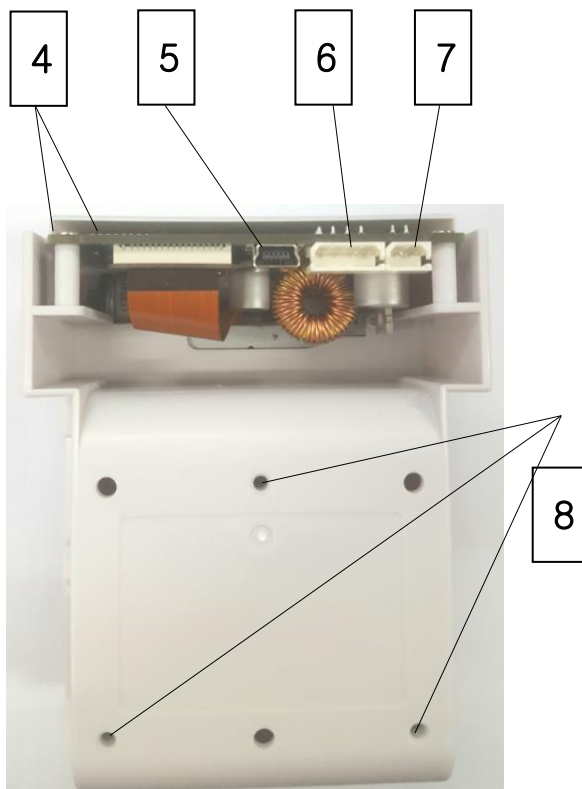
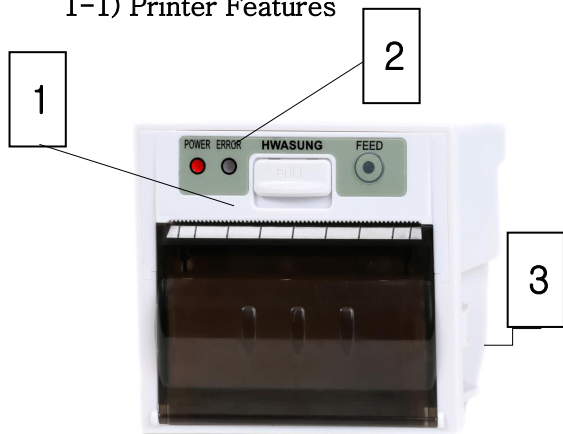
Caution : Please follow the direction in using the product as it may become the reason of malfunction, serious injury, or even death.

- Please contact us to take an action when product fails.
- Please power off during the removal of any matter.
- Please ventilate the air circulation in closed area.
- Please install the product away from the near interferences.
- Please install the wiring in a safe place.
- Please follow the directed terms of compliance in using the electrical product.

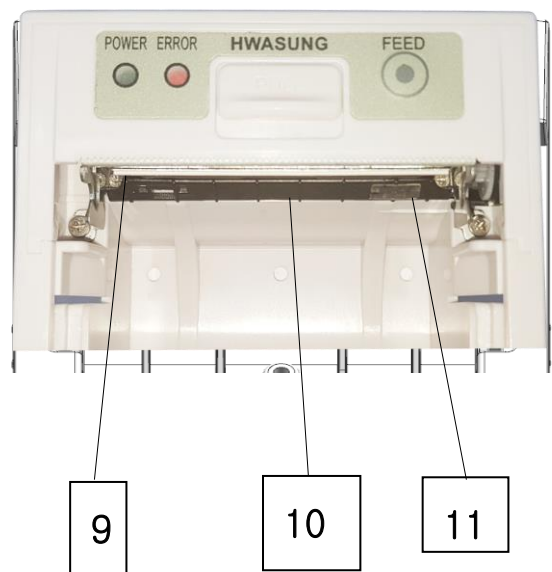
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1. Printer features & External dimension

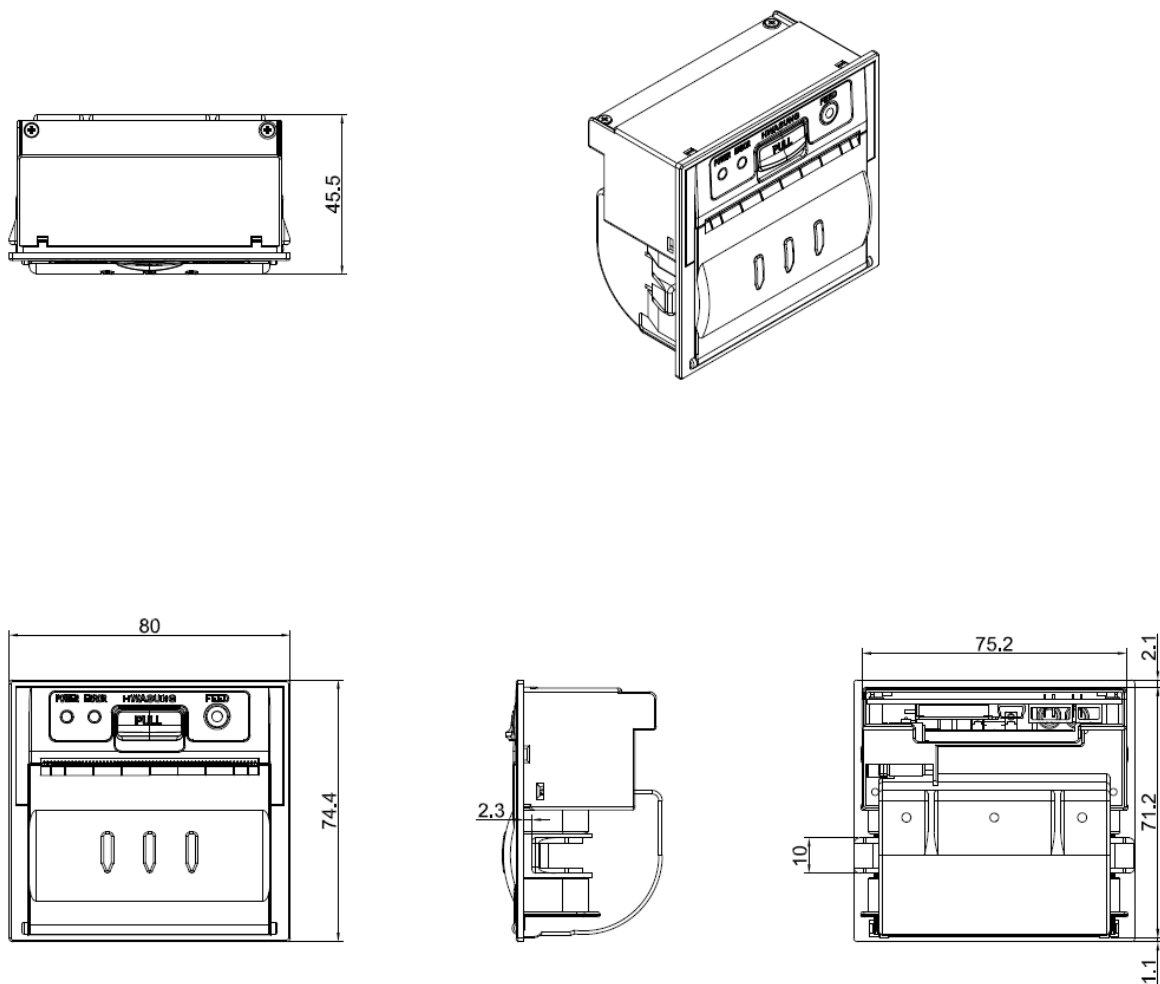
1-1) Printer Features




1. Open Lever
2. Front Indicator Panel (LED, FEED)
3. Fixture Hook
4. Dip switch (Option)
5. I/F USB Connector
6. I/F Serial Connector
7. Power Connector
8. Fixture Hole
9. Manual Cutter
10. Thermal Head
11. Paper Sensor



1-2) External Dimension



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1-3) Product Composition

- 1. Printer
- 2. Power Cable (20Cm)
- 3. Communication Cable (20Cm USB Optional)



1

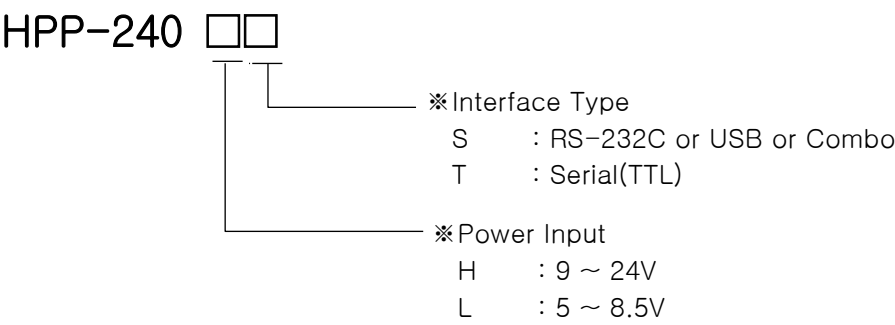


2



3

1-4) Model Number



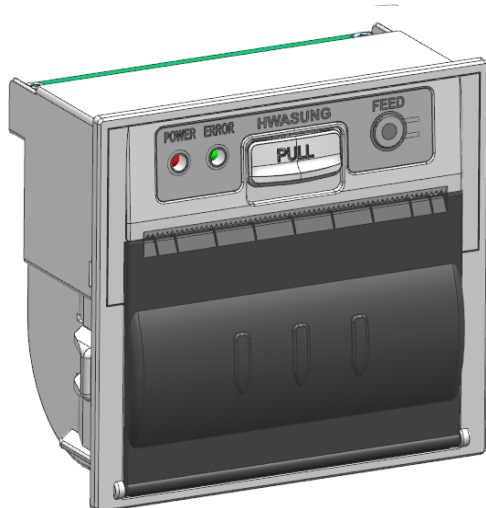
Ex)Ordered Model Name
HPP-240HS --- 9 ~ 24V, Serial(RS-232C)
HPP-240LS --- 5 ~ 8.5V, Serial(RS-232C)
HPP-240LT --- 5 ~ 8.5V, Serial(TTL)

2. Operation

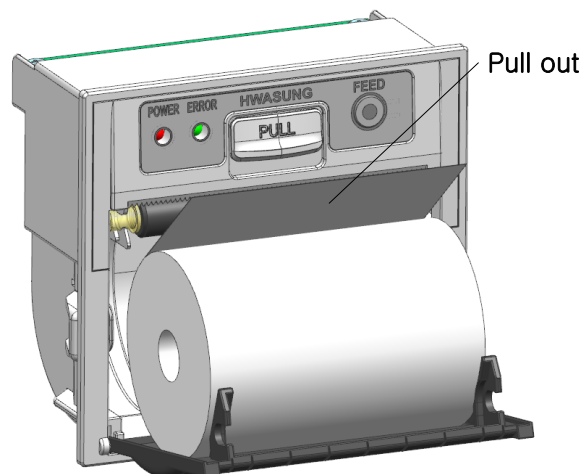
2-1) Paper Change

Follow the direction below for the paper change.

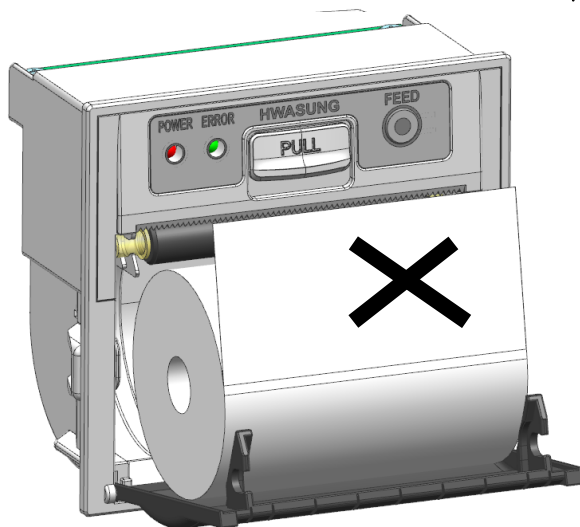
Open the cover by pressing down on the lever.



② Set the paper orientation so that the end of the paper is clear as shown in the picture.

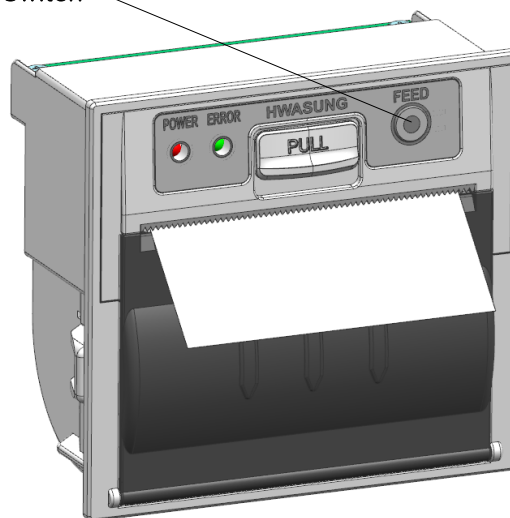


③ Paper direction should not be flipped as shown on the picture



④ Close the cover, press feedswitch, feed a certain amount, then cut it manually.

Feed Switch



2-2) Self Test Print

You can start the self test by turning on the printer while pressing down on the feed button, and the suggested material on the self test print is shown below.

HPP-240 Control Board	
Firmware	: VerX .XX
Create	: 20XX/XX/XX

Interface and Setting information	
<hr/>	
Interface	: USB & RS-232C
Baud Rate	: 19200
Data Bit	: 8 Bit
Parity	: None
Stop Bit	: 1 or 2
<hr/>	
Peripheral & Setting Information	
<hr/>	
USB Status	: B

- Model Name
- Firmware Version and Created Date
- Interface Configuration
- Dip SW Configuration
- Sample Print

※When shipped out, the Dip Switch is not included in the factory default and it will be set on 19200 baudrate, 8 bit, non-parity mode as a default.

2-3) HEX Dump Print

Turn on the power after placing the Dip SW1 number 8 to ON position. After printing as [HEX DUMP MODE], it will print all receiving datas to 16 hexadecimal data for all receiving datas. This would be useful when developing an application because this notifies the transmission status.

- Prints if 12 digits is received.
- Data under 12 digits will print when you press the feed button.
- Control Code (Below 1F₁₆) prints as “.”
- Prints as “^” when 80₁₆ or above.


[Print Sample]

16 hexadecimal indicator	ASCII indicator
[HEX DUMP MODE]	
41 42 43 44 45 46 47 47 49	A B C D E F G H I
30 31 32 33 34 35 36 37 38	0 1 2 3 4 5 6 7 8
FF 1B 69	^ . i

2-4) On-board Update

Printer program is easily updateable from PC with the Flash Memory equipped.
When updating, you should be well informed of the following order before executing.

- 1) Turn the power off and back on. (Dip SW manipulation is unnecessary)
- 2) Check the connectivity of Printer and the communication cable.
(You can save time updating by using USB cable)
- 3) Run the update after configuring the model name and communication port through the provided update program.
The ERROR LED will turn off and it will turn back on few seconds later, and the update will start when the LED starts flashing rapidly.
Do not turn off the printer until the update is complete
- 4) Update Complete notification will display when the process is complete.
※ If the ERROR LED flashes slowly during the update, then the process is in error, so you need to terminate the update program, and repeat the process from the direction number 1) after checking the abnormalities on the device.
- 5) The printer will reset automatically after the update and will return to the ready to use status.

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2-5) Dip Switch

Adjust the DIP switch according to the environments you are using, such as host, and port.

1)Dip Switch

a) no. 1 : DLE Command

SW1	DLE Command
ON	DLE Command ON
OFF	DLE Command OFF

b) no. 2,3 : Baudrate

SW2	SW3	Baud Rate(BPS)
OFF	OFF	9600
ON	OFF	19200
ON	ON	38400
OFF	ON	57600

c) no. 4 :

SW4	Reserve
ON	--
OFF	--

d) no. 5,6: Parity

SW5	SW6	Parity
OFF	OFF	None
ON	OFF	Even
ON	ON	Odd

e) no. 7 : Print Mode

SW7	Print Mode
ON	HEX DUMP Mode
OFF	NORMAL Mode

f) no. 8 : Operation Mode

SW8	Operation Mode
ON	Factory Mode
OFF	NORMAL Mode

※When shipped out, the Dip Switch is not included in the factory default and it will be set on 19200 baudrate, 8 bit, non-parity mode as a default.

2-5-1) Manual Configuration

1) Run the printer in initial configuration mode.

※How to run in Initial Configuration Mode

When you turn the printer's power on while pressing down on the FEED button for more than 2 seconds, the PE LED and ERROR LED will simultaneously turn on / flash and run the initial configuration mode. (9600 BPS, PARITY NONE, HARDWARE HANDSHAKE)

2)After running the initial configuration mode, it will print as the following.

```
[Menu]
 1.Baud rate
 2.Parity
 3.Flow control
 4.Hex Dump Mode
 5.Print Density
 6.Auto Melody
 7.Cut Mode
 8.Auto Buzzer
 9.Print Speed
Select and then Enter...

Enter : Press the feed button once for
        more than 1second.
Select: Press the feed button many times
        less than 1second as menu number.
Exit  : Turn power off then on.
```

Press the FEED button more than 1 seconds to confirm (Enter) less than 1 seconds to select menu. For example, if you'd like to change the Auto Melody option in the list number 6, press the FEED button less than 1 seconds 6 times, and more than 1 seconds 1 time. When terminating the configuration, just turn off and back on.

3)Continuing from the previous, you can confirm after selecting the category on the printed list.

```
Ex) [Baud rate]
-> 1.9600
    2.19200
    3.38400
    4.115200

-> : Indicate current set status
Select and then Enter...
```

Meaning, (->) indicates the current setting. When changing the settings, select from the list and if you want to move to the next menu without making any changes, then just confirm without selecting from the list.

4)Subsequently, you can then learn the results of the change in the printed paper.


It was changed successfully!

Indicates that the changes were made without a problem.

The value is invalid, try again!

Displayed when the selected item is invalid or moved to another menu without changing the item.

5) You may find the configuration results by checking the position of the arrow character (->), after printing the test page or entering preferences mode, by selecting one of the list

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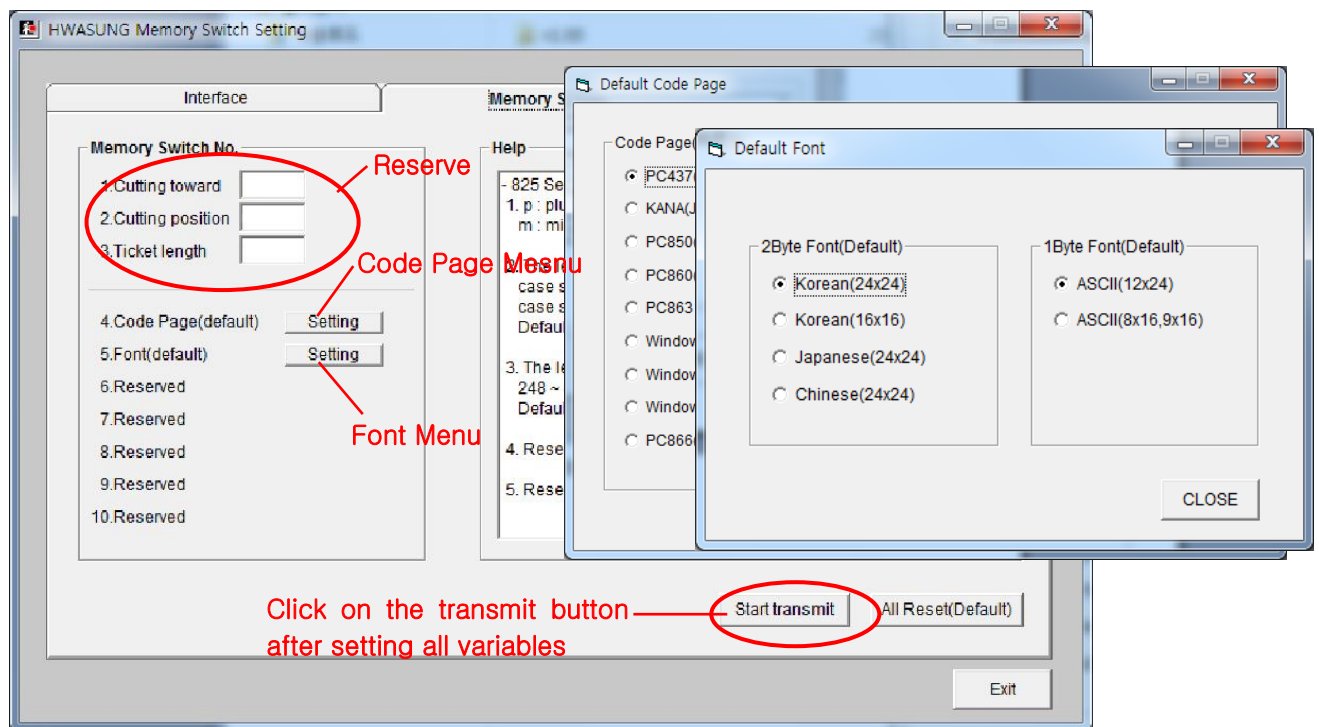
2-6) Memory Switch

Use non-volatile memory to set the function.

※Please use the provided 'Memory Switch Utility' for the setting.

※Once you've set the value, it will not reset even if you turn off the power so the value will maintain until you make the change.

Memory SW	Set Value	Description
SW1	Reserve	
SW2	Reserve	
SW3	Reserve	
SW4	Basic Code Page	Setting one of the Code Page out of the option to be a default
SW5	Basic Font	2byte code will set the default from Korean (24x24), Korean (16x16), Japanese(24x24), Chinese(24x24). 1byte code will set the default from ASCII(12x24), ASCII(8x16,9x16).
SW6	Reserve	
SW7	Reserve	
SW8	Reserve	



2)Memory Switch Modification Check

※After adjusting the memory switch, check the modified details by running a self test.
When you turn on the power while holding down the FEED button, start self-test and stop printing.
Press the FEED button one more time to display the contents of the memory switch.

[Memory Switch information]
=====

Code Page = PC437(U.S)

2Byte Font = Korean(24x24)

1Byte Font = ASCII(12x24)

Mem1:FFh

Mem2:FFh,FFh

Mem3:FFh,FFh

Mem4:00h

Mem5:00h

Mem6:FFh

Mem7:FFh

Mem8:FFh

Mem9:FFh

Mem10:FFh

(Example of memory switch content checking

2-7)Internal Connector

1)CN1 : Power Connector

YMAW025-02R(Yunho) or 5268-02A(Molex)

--→ Housing : YMH025-02R(Yunho) or 5264-02A(Molex)

Pin	Circuit	Note
1	V-	GND
2	V+	5 ~ 8.5V or 9 ~ 24V

※Opposite connection causes product to break. Make sure to identify the polarity (+/-) before connecting the power cable.

2)CN2 : Machanism Connector

05005HS-30F(Yunho) --→ FFC Cable

Pin No.	Circuit	Type	Note
1	A		Motor
2	/A		
3	B		
4	/B		
5	FG		
6	PS_OUT	Collector	Paper Existance Sensor
7	PS_GND	Emitter	
8	PS_GND	Cathode	
9	PS_IN	Anode	
10	COM	5 ~ 8.5V	Thermal Head
11	COM		
12	SO		
13	/LATCH	Low Active	
14	GND		
15	GND		
16	STB1		
17	STB2		
18	STB3		
19	TM	Thermistor	
20	TM	Thermistor GND	
21	VDD		
22	STB4		
23	STB5		
24	STB6		
25	GND		
26	GND		
27	CLOCK		
28	SI		
29	COM		
30	COM		

3)CN3 : Serial Communication Connector

YMAW025-04R(Yunho) or 5268-04A(Molex)

--→ Housing : YMH025-04R(Yunho) or 5264-04A(Molex)

Pin	Circuit	Note
1	TxD	
2	RxD	
3	RTS or DTR	
4	GND	

※Refer to Interface Specification in page 16 for the connecting method.

4)CN4 : USB Communication Connector(Optional)

USB MINI-B type

Pin	Circuit	Note
1	Vcc	5V
2	D-	Data-
3	D+	Data+
4	NC	Not Connected
5	GND	

3.Specification

3-1) Printer Specification

- 1) Print Mode : Direct Thermal
- 2) Resolution : 203dpi, 1dot=0.125mm, 8dot/mm
- 3) Total Dot Number : 384dot/line
- 4) Print Speed(Max) : 90mm/sec(Max,8.5V,Approximately 1 head standard)
- 5) Print Width : 48mm
- 6) Paper Width : 58mm
- 7) Paper Diameter (pi): 40 pi (Max)
- 8) 1 row print maximum character allocation: 32 characters(12 x 24), 16characters(24 x 24)

3-2)FONT

- 1)Alphanumeric : FONT A(8 x 22) 95 characters, FONT B(8 x 20)95 characters
- 2)Graphic Expansion Character : FONT A(8 x 22) 128 characters, FONT B(8 x 20)95 characters
- 3)International Character : 14types 37 characters(Korea, USA, France, Germany, England, Denmark 1, Sweden, Italy, Spain 1, Japan, Norway, Denmark 2, Spain 2, Latin America)
- 4)Korean : FONT A Gothic type(24 x 24), FONT B Gothic type(16 x 16,Option)

3-3) Internal Buffer

Transmit Buffer : 4K Byte

3-4) Power Specification

1)Operating Voltage

Input Voltage	9V ~ 24V	
Internal Operating Voltage	8.5V	Head motor internal operating voltage
Logic Voltage	5V±5%	Logic Circuit

2)Current Consumption

Average : 1.5A(On Print rate 12.5%)

Peak : 3.7A(When operating approximately 5 heads), 18.6A(When operating approximately 1 head)

3-5)Operating Temperature / Humidity

1)Temperature : 0 ~ 40℃

2)Humidity : 40 ~ 50%RH

※Print Quality may subject to change with the condition above.

3-6)MCBF

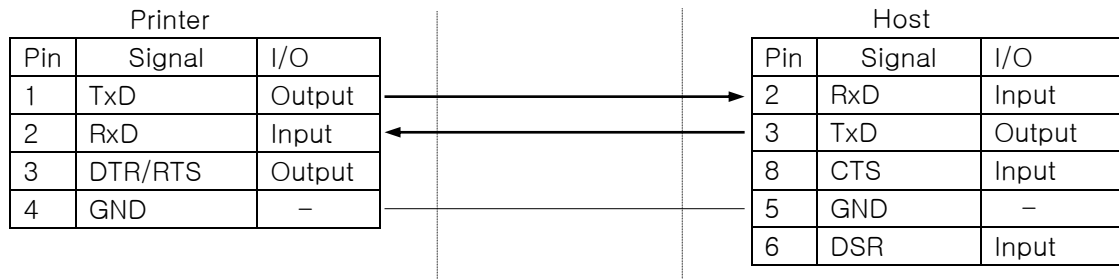
1)Mechanism : 15,000,000 Lines.

2)Thermal Head : 50Km, 100 million pulse.

4.Interface Specification

4-1) RS-232C / TTL

- 1)Data Transfer Methods : Serial
- 2)Hand Shake : Hardware (RTS/CTS or DTR/DSR)
- 3)Baud Rate : 9600, 19200, 38400, 57600 BPS
- 4)Data Bit : 8비트
- 5)Parity : None, Odd, Even
- 6)Stop Bit : 1 or 1.5 or 2비트
- 7)Connector : YMAW025-04R(Yunho) or 5268-04A(Molex)



.....▶ (Dotted Line): Connect depending on Host.

4-2) USB

- 1)Standard : USB 2.0 Compatible, Full Speed(12Mb) Response
- 2)Connector : Type MINI-B
- 3)Cable : USB2.0 standard cable
- 4)Data Method : Bulk IN, Bulk OUT
 - Bulk IN : End point 6,
 - Bulk OUT : End point 2
 - Full Speed : Max Packet Size 64 Byte(Bulk OUT),64 Byte(Bulk IN)

4. Command Specification

4-1) Command List

Category	Function	Page
CR	Print and Lineup	20
LF	Print and Lineup	20
CAN	Print Data Delete	20
HT	Horizontal Tab	20
FF	Restores PAGE MODE PRINT or STANDARD MODE	20
SUB x	Graphic Expansion Mode	21
SUB p	Offline Output through paper detection	21
SUB R	Border of characters (square)	21
SUB B	2D Barcode	22
SUB 1	Select Line 1	23
SUB 2	Select Line 2	23
SUB W	Data Line WRITE	23
SUB C	Data Line CLEAR	23
SUB O	Line ON	23
SUB F	Line OFF	24
SUB P	Line 1 Dotted Character	24
ESC D	Horizontal Tab Location	25
ESC SP	Gap between ASCII Characters	25
ESC !	Designating ASCII Character Arrangement	25
ESC \$	Designating Absolute Path in Print	26
ESC *	Bit Image (Vertical Arrangement)	27
ESC -	ASCII Character Underline	28
ESC 2	Initial Row Space	29
ESC 3	Column Space	29
ESC @	Printer Reset	29
ESC E	Bold Format	29
ESC G	Double Print	29
ESC J	FEED	30
ESC j	BACK FEED	30
ESC M	Font	30
ESC R	International Character	31
ESC a	Print Range	31
ESC d	Print and Row Unit FEED	32
ESC {	180° Rotation	32
ESC t	International Codepage Setting	32
ESC S	STANDARD MODE Setting	33
ESC L	PAGE MODE Setting	33
ESC FF	Execute Page Area's Character	33

Category	Function	Page
ESC T	PAGE MODE Character Direction Setting	34
ESC W	PAGE MODE Character Field Setting	35
FS !	Collective Designation of Korean Character Mode	36
FS &	Designating Korean Character Mode from Graphic Extended Mode	36
FS .	Cancel Korean Character Mode from Graphic Extended Mode	36
FS -	Korean Character Underline	37
FS S	Korean Character Spacing	37
FS W	Korean Character Size	37
FS q	Register NV Logo (Bit Image)	38
FS p	Print NV Logo	38
GS !	Expand Characters	39
GS (K (fn=49)	Character Density	40
GS (K (fn=97)	Operating in Low Power	40
GS B	Black and White Cross Character	41
GS H	Barcode Text	41
GS L	Left Margin	42
GS W	Print Area Setting	42
GS h	Barcode Height	42
GS k	Barcode Character	43
GS w	Barcode Expand / Minimize	44
GS r	Status Check	44
GS a	Status Check Auto Reply	45
GS v	Roster Bit Image (Horizontal)	46
DLE ENQ	Real Time Buffer Clear	47
DLE EOT	Transmit Real Time Printer Status	47

CR

[Function]	Print and carriage return	
[Code]	ASCII	CR
	Hex	0Dh
	Decimal	13
[Range]	-	
[Description]	Equal to LF.	

LF

[Function]	Print and line feed	
[Code]	ASCII	LF
	Hex	0Ah
	Decimal	10
[Range]	-	
[Description]	①STANDARD MODE:	
	After printing the data and go to return accordingly to fixed data.	
	②PAGE MODE:	
[Caution]	Only the fixed data can be conducted, according to the fixed data.	
	The LF is ignored behind of CR	

CAN

[Function]	Cancel print data in page mode	
[Code]	ASCII	CAN
	Hex	18h
	Decimal	24
[Range]	-	
[Description]	The print data will be deleted in print area	

HT

[Function]	Horizontal tab	
[Code]	ASCII	HT
	Hex	09h
	Decimal	9
[Range]	-	
[Description]	Moves the print position to the next tab position	
[Caution]	Horizontal tab positions are to set in ESC+ 'D'+ n.	

FF

[Function]	Print and return to standard mode and page mode	
[Code]	ASCII	FF
	Hex	0Ch
	Decimal	12
[Range]	-	
[Description]	Print the data in the print buffer and returns to standard mode	
[Caution]	When it does not return to STANDARD MODE then use ESC+ FF.	

SUB+ 'x'+ n

[Function]	Extension Graphic Mode, Korean Mode			
[Code]	ASCII	SUB	x	n
	Hex	1A	78h	n
	Decimal	26	120	n
[Range]	$0 \leq n \leq 1$			
[Initial Value]	n=0			
[Description]	n=0 : Korean Mode, First code is A1h more, automatically transfer Korean in 2 bytes			
	n=1 : Extension Graphic Mode, Every code setting is in 1 byte Extension Graphic font will be printed			

SUB+ 'p'+ n

[Function]	Offline printing in paper detection			
[Code]	ASCII	SUB	p	n
	Hex	1A	70h	n
	Decimal	26	112	n
[Range]	$0 \leq n \leq 1$			
[Initial Value]	n=1			
[Description]	n=0 : Does not transition to offline when paper is empty (data communication available)			
	n=1 : Transition to offline when paper is empty (data communication not available)			

SUB+ 'R'+ n

[Function]	Set the character outline			
[Code]	ASCII	SUB	b	n
	Hex	1A	52h	n
	Decimal	26	82	n
[Range]	$0 \leq n \leq 1$			
[Description]	n=0 : cancel outline (border) of character in tetragon.			
	n=1 : Set outline (border) of character in tetragon.			
[Caution]	When expanding in horizontal it is effective up to 8 times, however It is only effective up to 2 times for vertical expansion.			

[Name]	2 dimension barcode (2D)						
[Format] ASCII	SUB	B	n1	n2	n3	d1.....dk	
	Hex		1A	42h	n1	n2	n3 d1.....dk
	Decimal		26	66	n1	n2	n3 d1.....dk
[Range]	Plesae refer to the following table.						
[Descript]	Please use the barcode according to the number of data.						
	n1 : Type of 2D barcode						
	n2 : Number of data						
	n3 : Size of barcode						
	d1... dk : Barcode data						

n1	Type of 2D barcode
1	PDF417
2	QR code

1) PDF417

n2	Number of data
	$1 < n2 \leq 255$

n3	Size of barcode
3	Horizontal 3
4	Horizontal 4
5	Horizontal 5
6	Horizontal 6
7	Horizontal 7
8	Horizontal 8
9	Horizontal 9

2)QR code

n2	Number of data
n3=1	$1 < n2 \leq 17$
n3=3	$1 < n2 \leq 53$
n3=5	$1 < n2 \leq 106$
n3=9	$1 < n2 \leq 230$

n3	Size of barcode
1	Version 1
3	Version 3
5	Version 5
9	Version 9

※PDF417 Vertial size automatic setting.

SUB+'1'

[Name]	Choice of rule 1		
[Format]	ASCII	SUB	1
	Hex	1A	31h
	Decimal	26	49
[Descript]	Choose the rule 1 of two rules (rule1 or rule2).		

SUB+'2'

[Name]	Choice of rule 2		
[Format]	ASCII	SUB	1
	Hex	1A	32h
	Decimal	26	50
[Descript]	Choose the rule 2 of two rules (rule1 or rule2).		

SUB+'W'+nL+nH+kL+kH

[Name]	Writing the rule data						
[Format]	ASCII	SUB	W	nL	nH	kL	kH
	Hex	1A	57h	nL	nH	kL	kH
	Decimal	26	87	nL	nH	kL	kH
[Range]	0≤nL+nHx256≤448, (0≤nL≤255, 0≤nH≤3) 0≤kL+kHx256≤448, (0≤kL≤255, 0≤kH≤3)						
[Descript]	It writes 1 from nL+nHx256 to kL+kHx256.						
[Caution]	If the range is exceed, the data will be ignored.						
	If the writing is set up, the data is not erased, until you do power off or you receive the command (the rule clear).						

SUB+'C'

[Name]	Rule CLEAR		
[Format]	ASCII	SUB	C
	Hex	1A	43h
	Decimal	26	67
[Descript]	It clears all of data (as) zero you choosed.		
[Caution]	Please use this command, once you do rewrite the rule data.		
	If you need to speed up the processing, you use the command on/off.		

SUB+'O'

[Name]	Rule ON		
[Format]	ASCII	SUB	O
	Hex	1A	4Fh
	Decimal	26	79
[Descript]	Once you set up the command, the rull will be printing with the character or font..		

SUB+'F'

[Name]	Rule OFF		
[Format]	ASCII	SUB	O
	Hex	1A	46h
	Decimal	26	70
[Descript]	Once you set up the command, the rull will be preserved.		

SUB+'P'

[Name]	Printing a dot of Rule.		
[Format]	ASCII	SUB	P
	Hex	1A	50h
	Decimal	26	80
[Descript]	It's printing a dot of rule 1.		
[Caution]	Please do not use this command if you print the character or the graphic.		
	Please use the Rule ON if you print the character or the graphic.		
	Please use this command if you print the rule between row and row at the space.		

ESC+ 'D'+ n1...nk+ NUL

[Function]	Sets the horizontal position			
[Code]	ASCII	ESC	D	n1...nk NUL
	Hex	1B	44h	n1...nk 00
	Decimal	27	68	n1...nk 0
[Range]	$1 \leq n \leq 255, 0 \leq k \leq 32$			
[Description]	Sets the horizontal tab position.			
[Caution]	n: indicates the figures from the initial poistion of the line to the set position.			
	k: indicates the total tabs per line.			

ESC+ SP+ n

[Function]	Set the space amount on the right of ASCII character			
[Code]	ASCII	ESC	SP	n
	Hex	1B	20h	n
	Decimal	27	32	n
[Range]	$0 \leq n \leq 255$			
[Initial Value]	n=0			
[Description]	Set in n x 0.125mm the space amount on the right side of ASCII character			
[Caution]	Set the Korean space in FS+ 'S'+ n.			

ESC+ '!' + n

[Function]	Set character all at once			
[Code]	ASCII	ESC	!	n
	Hex	1B	21h	n
	Decimal	27	33	n
[Range]	$0 \leq n \leq 255$			
[Initial Value]	n=0			
[Description]	Set font & character in the same time.			
[Caution]	If it's Korean, the Font / the Stress is valid only.			

Bit	Function	Hex	Decimal
0	0: Font 12x24, 24x24	00h	0
	1: Font 8x16, 16x16	01h	1
1	–	–	–
2	–	–	–
3	0: Stress Cancel	00h	0
	1: Stress Setting	08h	8
4	0: Cancel Vertical Extension	00h	0
	1: Vertical Extension Setting	10h	16
5	0: Cancel Horizontal Extension	00h	0
	1: Horizontal Extnesion Setting	20h	32
6	–	–	–
7	0: Cancel Underline	00h	0
	1: Underline Setting	80h	128

ESC+ '\$'+ nL+ nH

[Function] Absolute Position Settings

[Code]	ASCII	ESC	\$	nL	nH
	Hex	1B	24h	nL	nH
	Decimal	27	36	nL	nH

[Range] $0 \leq nL + nH \times 256 \leq 65535$, $0 \leq nL \leq 255$, $0 \leq nH \leq 255$

[Initial Value] nL=0, nH=0

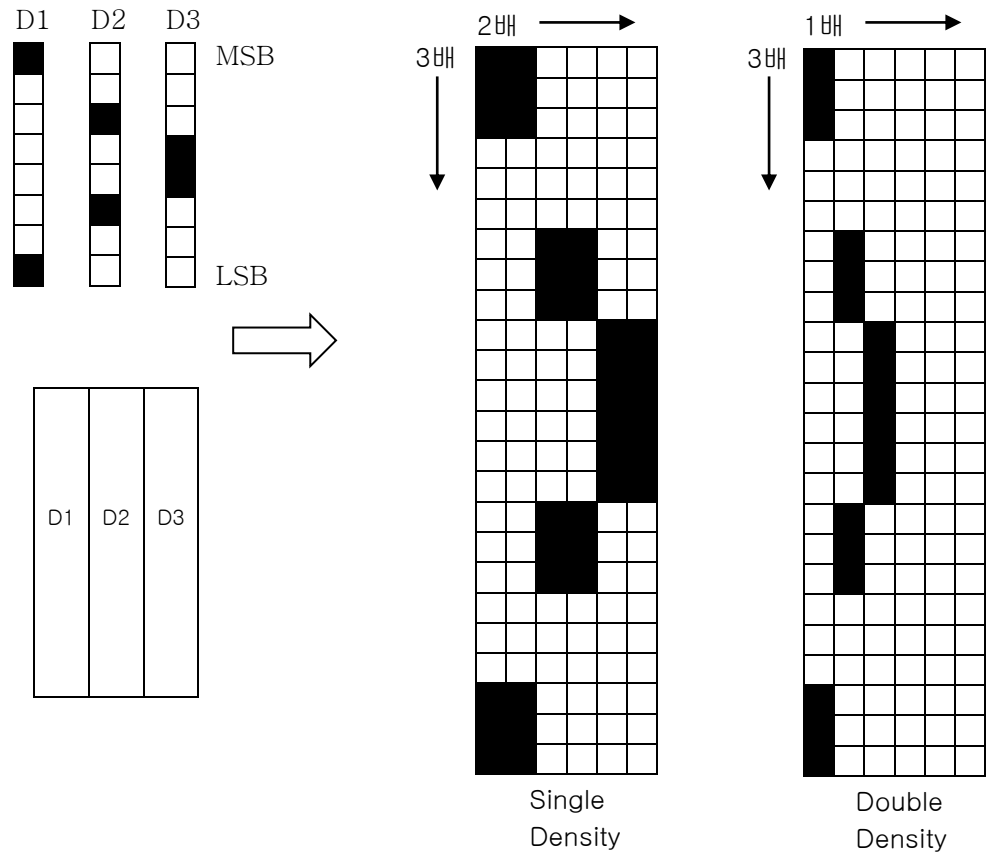
[Description] Move the position from the space of left ending to $(nL + nH \times 256) \times 0.125\text{mm}$.
Move the position into the space of left ending, if the area is over.

ESC+ '*' + m + nL + nH + d1 + ... + dk

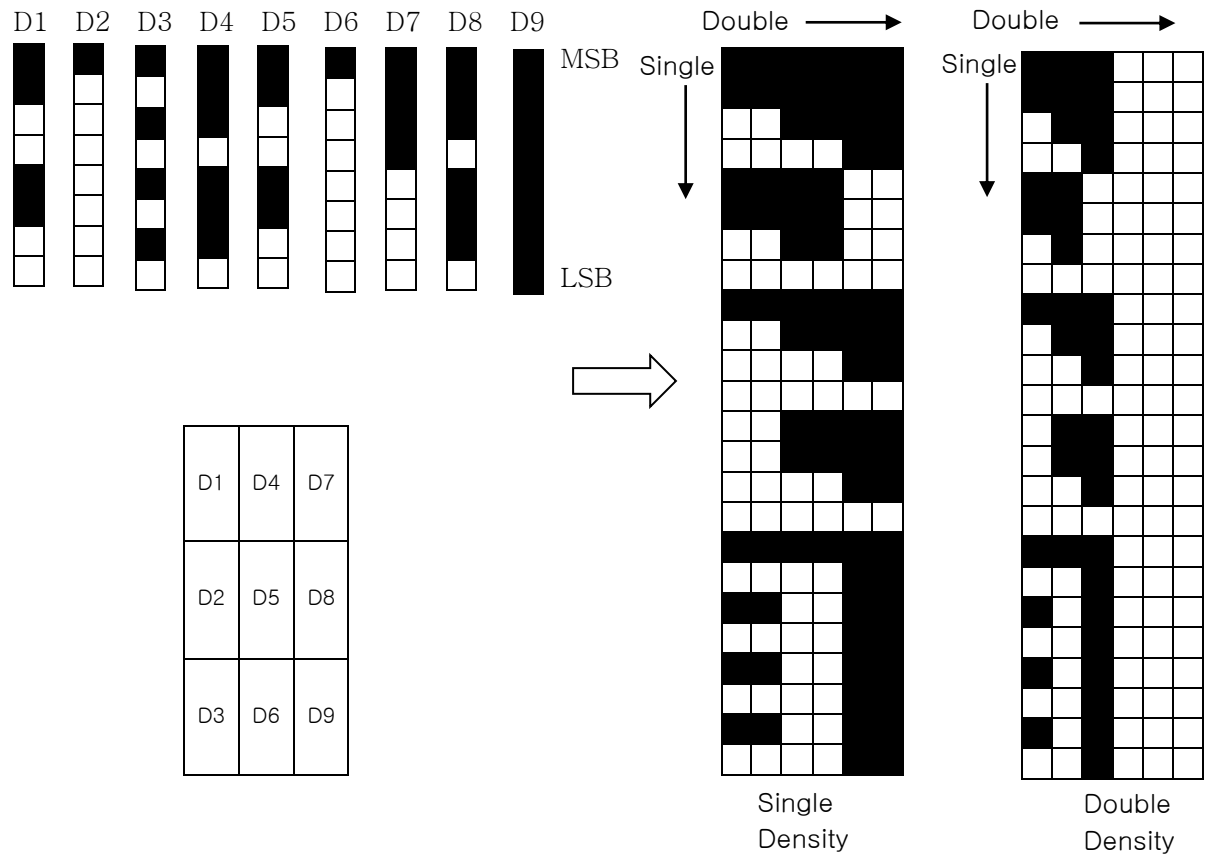
[Function]	bitmap image setting						
[Code]	ASCII	ESC	*	m	nL	nH	d1...dk
	Hex	1B	2Ah	m	nL	nH	d1...dk
	Decimal	27	42	m	nL	nH	d1...dk
[Range]	m = 0, 1, 32, 33						
	$1 \leq nL + nH \times 256 \leq 1023, 0 \leq nL \leq 255, 0 \leq nH \leq 3, 0 \leq d \leq 255$						
[Description]	Due to fixing $nL + nH \times 256$, Printing from bit data to graphic data in Mode m						

m	Mode	Dots in vertical	Dots in horizontal	Data (k)
0	8dots Single Density	8	224	$nL + nH \times 256$
1	8dots Double Density	8	448	$nL + nH \times 256$
32	24dots Single Density	24	224	$(nL + nH \times 256) \times 3$
33	24dots Double Density	24	448	$(nL + nH \times 256) \times 3$

•8 dots Mode



•24 Dot Mode



ESC+ '-' + n

[Function]	Set / Cancel underline			
[Code]	ASCII	ESC	-	n
	Hex	1B	2Dh	n
	Decimal	27	45	n
[Range]	0 ≤ n ≤ 255,			
[Initial Value]	n=0,			
[Description]	Set / Cancel underline.			

n	Function
0	Cancel underline
1	Set underline in thick 0.125mm
2	Set underline in thick 0.25mm
3	Set underline in thick 0.375mm
4	Set underline in thick 0.5mm
5	Set underline in thick 0.625mm
6	Set underline in thick 0.75mm
7	Set underline in thick 0.875mm

ESC+'2'

[Name]	Set the initial line spacing		
[Format]	ASCII	ESC	2
	Hex	1B	32h
	Decimal	27	50
[Range]	0≤n≤255,		
[Initial Value]	n=0		
[Descript]	Set the interval of initial value in 4mm		

ESC+'3'+n

[Name]	Set the line spacing using mimium units			
[Format]	ASCII	ESC	3	n
	Hex	1B	33h	n
	Decimal	27	51	n
[Range]	0≤n≤255,			
[Initial Value]	n=0			
[Descript]	Set the interval of line in n x 0.125mm			

ESC+'@'

[Name]	Rest printer (Initialize the printer)		
[Format]	ASCII	ESC	@
	Hex	1B	40h
	Decimal	27	64
[Range]	0≤n≤255,		
[Descript]	Clear buffer & Initialize all parameter		

ESC+'E'+n

[Name]	Set the font in thick			
[Format]	ASCII	ESC	E	n
	Hex	1B	45h	n
	Decimal	27	69	n
[Range]	0≤n≤255,			
[Initial Value]	n=0			
[Descript]	n=0, cancel the font in thick			
	n=1, set the font in thick			

ESC+'G'+n

[Name]	Set the printing double for font thickness			
[Format]	ASCII	ESC	G	n
	Hex	1B	47h	n
	Decimal	27	71	n
[Range]	0≤n≤255,			
[Initial Value]	n=0			
[Descript]	n=0, cancel the printing twice for font thickness			
	n=1, set the printing twice for font thickness			

ESC+'J'+n

[Name]	Feeding			
[Format]	ASCII	ESC	J	n
	Hex	1B	4Ah	n
	Decimal	27	74	n
[Range]	0≤n≤255			
[Descript]	Printing the data inner buffer, feeding in n x 0.125mm			

ESC+'j'+n

[Name]	Back Feeding			
[Format]	ASCII	ESC	j	n
	Hex	1B	6Ah	n
	Decimal	27	106	n
[Range]	0≤n≤255			
[Descript]	Printing the data inner buffer and back feeding in n x 0.125mm			


ESC+'M'+n

[Name]	Select font			
[Format]	ASCII	ESC	M	n
	Hex	1B	4Dh	n
	Decimal	27	77	n
[Range]	0≤n≤2			
[Initial Value]	n=0			
[Descript]	Select printer font			

n			
Precedence 4bits(Korean fonts)		Subordinate 4bits (ASCII)	
0000	Korean 24x24 Gothic	0000	12x24
0001	Korean 16 x 16 General	0001	8x16(9x16)
0010	Japanese 24 x 24 Bodoni	0010	56x88 big fonts, only 0~9 numbers
0011	Chinese 24 x 24 Gothic	0011	Reservation

Notice : When you set up one of fonts, you can use “Memory Switch Setting program
“ without commend. If you need any more information, please refer to How to use Memory
Switch Setting Program.

*** Caution** : In case of Big Font as 56x88, it would be possible to extend font size as much as
Double (Width and Length) and other fonts would be possible to extend the font size as 8
times

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ESC+'R'+n

[Name] Select the International character

[Format] ASCII ESC R n
 Hex 1B 52h n
 Decimal 27 82 n

[Range] $0 \leq n \leq 13$

[Initial Value] n=13

[Descript] Select the international character as 14 units((#,\$,@,[,W,],^,`,{,|,},~)

n	Country Name
0	USA
1	France
2	Germany
3	England
4	Denmark1
5	Sweden
6	Italian
7	Spain1
8	Japanese
9	Norway
10	Denmark2
11	Spain2
12	Latin America
13	Korea

ESC+'a'+n

[Name] Align the printing

[Format] ASCII ESC a n
 Hex 1B 61h n
 Decimal 27 97 n

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

[Initial Value] n=0

[Descript] Align the printing position

n	Printing Position
0	Left
1	Middle
2	Right

ESC+'d'+n

[Name]	Printing and feeding 'n' line			
[Format]	ASCII	ESC	d	n
	Hex	1B	64h	n
	Decimal	27	100	n
[Range]	0≤n≤255			
[Descript]	Printing the data & feeding 'n' line			

ESC+'{' +n

[Name]	Turning 180°			
[Format]	ASCII	ESC	d	n
	Hex	1B	7Bh	n
	Decimal	27	123	n
[Range]	0≤n≤255			
[Initial Value]	n=0			
[Descript]	Set the reverse image			
[Caution]	Move the standard from the left to the right			

n	Function
0	Cancel 180°
1	Set 180°

ESC+'t'+n

[기능]	국제 Code Page 설정			
[코드]	ASCII	ESC	t	n
	Hex	1B	74h	n
	Decimal	27	116	n
[정의범위]	0≤n≤5, 14≤n≤17			
[초기치]	n=0			
[설명]	각각의 Code Page의 국제문자를 아래표와 같이 설정함.			
[주의]	SUB + “x”커맨드로 1바이트 Mode로 설정시 유효. 2바이트 Mode로 설정시 무효.			

n	Code Page
0	PC437(US)
1	KANA(JAPAN)
2	PC850(Multilingual)
3	PC860(Portugal),
4	PC863(Canadian-French)
5	PC865(Nordic)
14	Windows1250(Poland)
15	Windows1251
16	Windows1252
17	PC866(Cyrillic #2)

ESC+S'

[Name] Set the Standard mode
[Format] ASCII ESC S
Hex 1B 53h
Decimal 27 83
[Descript] Switches from page mode to standard mode.

ESC+L'

[Name] Select page mode
[Format] ASCII ESC L
Hex 1B 4Ch
Decimal 27 76
[Range] $0 \leq n \leq 255$
[Initial Value] $n=0$
[Descript] Switches from standard mode to page mode.

ESC+FF

[Name] Printing the page area
[Format] ASCII ESC FF
Hex 1Bh 0Ch
Decimal 27 12
[Range] Please edit the received data at the page area.
The page area will be printed all at once, when you use this command.
[Descript] The page area remains. Please use the command ESC+S,
If you want all clear.

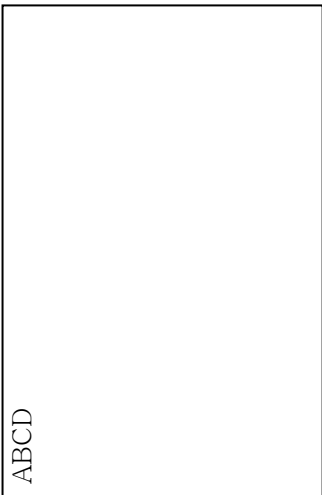
ESC+'T'+n

[Name]	Select print direction in page mode			
[Format]	ASCII	ESC	T	n
	Hex	1B	54h	n
	Decimal	27	84	n
[Range]	0≤n≤3			
[Initial Value]	n=0			
[Descript]	Select the print direction & start position in page mode			

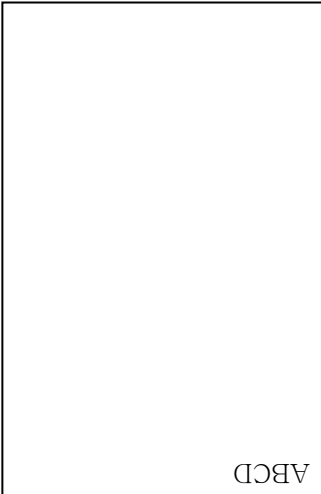
•n=0(Left→Right),



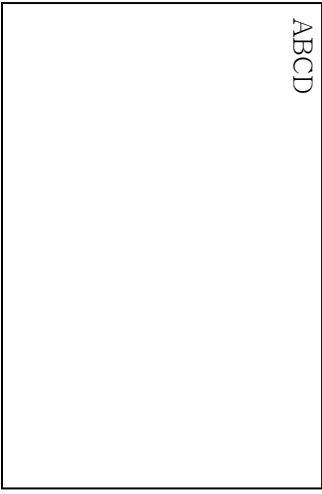
•n=1(Bottom→Top),



•n=2(Right→Left),

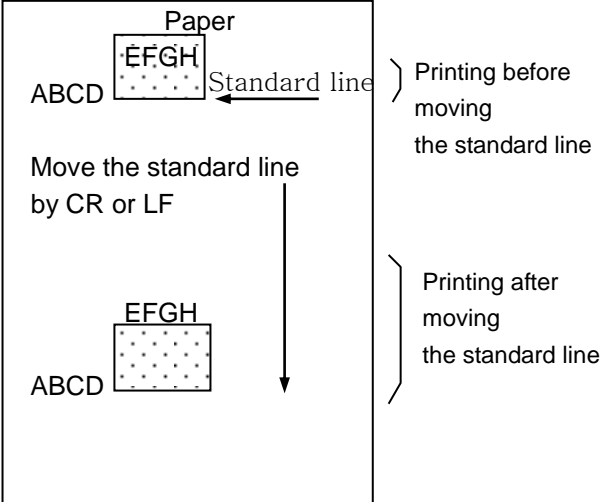
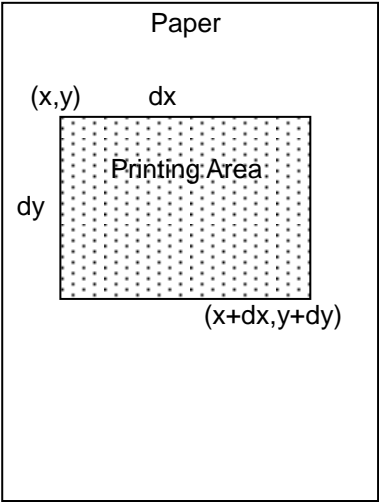


•n=3(Top→Bottom),



[Name]	Set printing area in page mode											
[Format]	ASCII	ESC	W	xL	xH	yL	yH	dxL	dxH	dyL	dyH	
	Hex	1B	57h	xL	xH	yL	yH	dxL	dxH	dyL	dyH	
	Decimal	27	87	xL	xH	yL	yH	dxL	dxH	dyL	dyH	
[Range]	0≤xL+xH×256≤65535 (0≤xL≤255, 0≤xH≤255)											
	0≤yL+yH×256≤65535 (0≤yL≤255, 0≤yH≤255)											
	1≤dxL+dxH×256≤65535 (0≤dxL≤255, 0≤dxH≤255)											
	1≤dyL+dyH×256≤65535 (0≤dyL≤255, 0≤dyH≤255)											
[Initial Value]	(xL+xH×256)=0 (0mm, xL=0, xH=0)											
	(yL+yH×256)=0 (0mm, yL=0, yH=0)											
	(dxL+dxH×256)=448 (56mm, dxL=C0h, dxH=01h)											
	(dyL+dyH×256)=1200 (150mm, dyL=B0h, dyH=04h)											
[Descript]	Set printing area & starting point											
	Horizontal starting point : (xL+xH×256) × 0.125mm											
	Vertical starting point : (yL+yH×256) × 0.125mm											
	Horizontal size : (dxL+dxH×256) × 0.125mm											
[Caution]	Vertical size : (dyL+dyH×256) × 0.125mm											
	The maximum page width is available 56mm											
	The maximum page length is available 150mm											
	Barcode & graphic data is executed as per standard line, If the size exceed the standard line, move the standardline by CR or LF.											

 : Barcode or Graphic



FS+'!' +n

[Name] Set the printing mode in Korean

[Format] ASCII FS ! n
 Hex 1C 21h n
 Decimal 28 33 n

[Range] 0≤n≤255

[Initial Value] n=0

[Descript] Set the printing mode in Korean

[Caution] Only valid in Koean

Bit	Function	Hex	Decimal
0	-	00h	0
1	-	00h	0
2	Cancel the horizontal extension	00h	0
	Set the horizontal extension	04h	4
3	Cancel the vertical extension	00h	0
	Set the vertical extension	08h	8
4	-	00h	0
5	-	00h	0
6	-	00h	0
7	Cancel the underline	00h	0
	Set the underline	80h	128

FS+'&'

[Name] Set to print Korean mode (2bytes Mode)

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

[Descript] Set to print Korean mode (2bytes Mode)

[Caution] Set to print Korean mode in extended graphic mode
 Appointment is not required in Korean mode, due to auto detection
 (Pls refer the command of SUB+'x'+n)

FS+'.'

[Name] Cancel Korean mode (2Bytes mode)

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

[Descript] Cancel Korean mode (2Bytes mode)

[Caution] In case of cancel 2 bytes mode in extended graphic mode
 Appointment is not required due to auto detection in Korean mode
 (Ref.SUB+'x'+n command)

FS+'-' +n

[Name]	Set the underline of Korean			
[Format]	ASCII	FS	-	n
	Hex	1C	2Dh	n
	Decimal	28	45	n
[Range]	0≤n≤2			
[Initial Value]	n=0			
[Descript]	Set the underline of Korean			

n	가 능
0	Cancel the underline
1	0.125mm
2	0.25mm
3	0.375mm
4	0.5mm
5	0.625mm
6	0.75mm
7	0.875mm

FS+'S'+n1+n2

[Name]	Set the space between Korean characters				
[Format]	ASCII	FS	S	n1	n2
	Hex	1C	53h	n1	n2
	Decimal	28	83	n1	n2
[Range]	0≤n1≤255, 0≤n2≤255				
[Initial Value]	n=0				
[Descript]	Set the space between Korean characters				
	Set the left space in n1×0.125mm				
	Set the right space in n2×0.125mm				

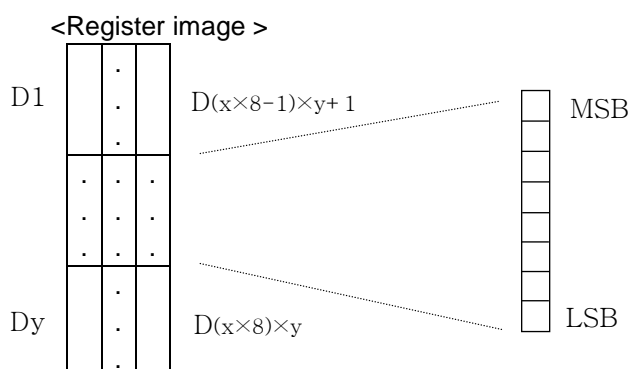
FS+'W'+n

[Name]	Set the font size in Korean			
[Format]	ASCII	FS	W	n
	Hex	1C	57h	n
	Decimal	28	87	n
[Range]	0≤n1≤255			
[Initial Value]	n=0			
[Descript]	Set the Korean font size twice (Horizontal×Vertical) in Korean			
	n=0, Cancel the font size two times			
	n=1, Set the font size two times			

FS+'q'+n+(xL+xH+yL+yH+d1...dk)1.....+(xL+xH+yL+yH+d1...dk)n

[[Name] Register logo (bitmap image) non volatilization
 [Format] ASCII FS q n (xL xH yL yH d1..dk)1...(xL xH yL yH d1..dk)n
 Hex 1C 71h n (xL xH yL yH d1..dk)1...(xL xH yL yH d1..dk)n
 Decimal 28 113 n (xL xH yL yH d1..dk)1...(xL xH yL yH d1..dk)n
 [Range] $1 \leq n \leq 255$
 $0 \leq xL + xH \times 256 \leq 65535$ ($0 \leq xL \leq 255$, $0 \leq xH \leq 255$)
 $0 \leq yL + yH \times 256 \leq 65535$ ($0 \leq yL \leq 255$, $0 \leq yH \leq 255$)
 $0 \leq d \leq 255$
 $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$
 Capable register : 64kbytes
 [Descript.] Register the logo non-volatilization
 n : Total unit of N/V logo
 xL,xH : Set the horizontal dot in $(xL + xH \times 256) \times 8$
 yL,yH : Set the vertical dot in $(xL + xH \times 256) \times 8$
 k : Bitmap image of a N/V logo
 [Caution] Register various as much as NV's capa.
 Required to delete all if (it is) registered again.
 Renewable registration / deletion at 100000 cycles,
 It's not recommended frequent registration / deletion,
 due to memory damage

You can register very easily, if you download the program of logo registration.



FS+'p'+n+m

[[Name] Printing N/ V logo
 [Format] ASCII FS p n m
 Hex 1C 70h n m
 Decimal 28 112 n m
 [Range] $1 \leq n \leq 255$, $0 \leq m \leq 3$
 [Initial Value] n=0
 [Descript.] m : printing the registered N/V in 'm' mode
 n : indicating the registered logo in the 'n'.

m	Printing mode
0	Standard
1	Horizontal extension
2	Vertical extension
3	Horizontal,vertical extension in the same time

GS+'!' +n

[Name]	Set the proportion of character extension			
[Format]	ASCII	GS	!	n
	Hex	1D	21h	n
	Decimal	29	33	n
[Range]	0≤n1≤255 (horizontal / vertical portions is restricted maxim value 8)			
[Initial Value]	n=0			
[Descript.]	Set the proportion of character extension			
[Caution]	Caculate the numeric value if vertical & horizontal is extended in the same time ex.) x3 (Horizontal Rate), x3(Vertical Rate) : n=32+2=34			

Bit	Function
0-3	Set the extension proportion in vertical
4-7	Set the extension proportion in horizontal

Extension in Horizontal

n(Hex)	n(Decimal)	Rate
00h	0	x1
10h	16	x2
20h	32	x3
30h	48	x4
40h	64	x5
50h	80	x6
60h	96	x7
70h	112	X8

Extension in Vertical

n(Hex)	n(DecimaL)	Rate
00h	0	x1
01h	1	x2
02h	2	x3
03h	3	x4
04h	4	x5
05h	5	x6
06h	6	x7
07h	7	X8

GS+'('+'K'+pL+pH+fn+m (fn=49)

[Name]	Set the printing density							
[Format]	ASCII	GS	(K	pL	pH	fn	m
	Hex	1D	28h	4Bh	pL	pH	fn	m
	Decimal	29	40	75	pL	pH	fn	m
[Range]	pL=2, pH=0, fn=49 0≤m≤5, 251≤m≤255							
[Initial Value]	m=0							
[Descript]	Set the printing density							

m	Density	m	Density
-	-	0	Standard
251	Level -5	1	Level +1
252	Level -4	2	Level +2
253	Level -3	3	Level +3
254	Level -2	4	Level +4
255	Level -1	5	Level +5

[Caution]	In case of setting the density above the standard level will shorten the thermalhead's life cycle.
	It is recommended to use within the standard density range.

GS+'('+'K'+pL+pH+fn+m (fn=97)

[Name]	Operating thermal head partially							
[Format]	ASCII	GS	(K	pL	pH	fn	m
	Hex	1D	28h	4Bh	pL	pH	fn	m
	Decimal	29	40	75	pL	pH	fn	m
[Range]	pL=2, pH=0, fn=97 0≤m≤2							
[Initial Value]	m=0							
[Descript]	Set the operation of partial thermal head							
[Caution]	This function will be effective once the power capacity is short.							
	The Second division of electric current (ampere) will be half than the first division.							

m	Partial operation
0	Initial setting (first division)
1	First Division
2	Second Division

GS+'B'+n

[Name]	Reverse printing in black			
[Format]	ASCII	GS	B	n
	Hex	1D	42h	n
	Decimal	29	66	n
[Range]	0≤n≤255			
[Initial Value]	n=0			
[Descript]	Reverse printing in black			
	n=0, standard printing			
	n=1, reverse printing in black			

GS+'H'+n

[Name]	Select the printing position of HRI characters (Barcode)			
[Format]	ASCII	GS	H	n
	Hex	1D	48h	n
	Decimal	29	72	n
[Range]	0≤n≤3			
[Initial Value]	n=0			
[Descript]	Select the printing positions of numerical value & characters			

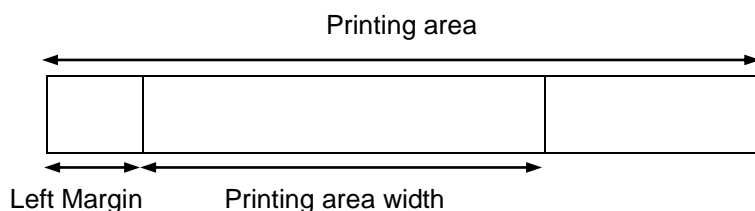
n	Printing Position
0	Non printing
1	Above the barcode
2	Below the barcode
3	Both above & below barcode

GS+'L'+nL+nH

[Name]	Select the left margin				
[Format]	ASCII	GS	L	nL	nH
	Hex	1D	4Ch	nL	nH
	Decimal	29	76	nL	nH
[Range]	$0 \leq nL \leq 255, 0 \leq nH \leq 255$				
[Initial Value]	$nL + nH \times 256 = 0$ ($nL=0, nH=0$)				
[Descript]	The left margin is set in $(nL + nH \times 256) \times 0.125\text{mm}$.				

GS+'W'+nL+nH

[Name]	Set printing area width				
[Format]	ASCII	GS	W	nL	nH
	Hex	1D	57h	nL	nH
	Decimal	29	87	nL	nH
[Range]	$0 \leq nL \leq 255, 0 \leq nH \leq 255$				
[Initial Value]	$nL + nH \times 256 = 448$ (56mm, $nL=0, nH=0$)				
[Descript]	Set printing area width from the left margin in $(nL + nH \times 256) \times 0.125\text{mm}$				



GS+'h'+n

[Name]	Select barcode height			
[Format]	ASCII	GS	h	n
	Hex	1D	68h	n
	Decimal	29	104	n
[Range]	$1 \leq n \leq 255$			
[Initial Value]	$n=162$ (20.25mm)			
[Descript]	Select barcode height by $n \times 0.125\text{mm}$			

[Name]	Print barcode					
[Format]	ASCII	GS	k	m	d1...dn	NUL
	Hex	1D	6Bh	m	d1...dn	00h
	Decimal	29	107	m	d1...dn	0
[Range]	1≤m≤7, n & d depend on barcode system used					
[Descript]	Refer the table as below					

m	Barcode system	n (Barcode data numbers)	d (barcode data)
1	UPC-E	n=7 (check digit is automatically added)	48≤d≤57
2	EAN13	n=12 (check digit is automatically added)	48≤d≤57
3	EAN8	n=7 (check digit is automatically added)	48≤d≤57
4	CODE39	1≤n (Start & Stop characteres is automatically added	48≤d≤57, 65≤d≤90 d=32,36,37,43,45,46,47
5	ITF(I of 2/5)	1≤n (Only even number)	48≤d≤57
6	CODABAR	1≤n	48≤d≤57, 65≤d≤68 d=36,43,45,46,47,58
7	CODE128	2≤n≤255 (Check digit , Stop character Is automatically added)	0≤d≤127

[Caution] In CODE128, add "{", set as 2bytes when the special character as below

Special character	Barcode data		
	ASCII	Hex	Decimal
SHIFT	{S	7Bh, 53h	123, 83
CODE A	{A	7Bh, 41h	123, 65
CODE B	{B	7Bh, 42h	123, 66
CODE C	{C	7Bh, 43h	123, 67
FNC1	{1	7Bh, 31h	123, 49
FNC2	{2	7Bh, 32h	123, 50
FNC3	{3	7Bh, 33h	123, 51
FNC4	{4	7Bh, 34h	123, 52
"{"	{{	7Bh, 7Bh	123, 123

Please add up the initial character of CODE A, CODE B, CODE C at the first, so that you could know the kind of CODE128.

CODE128	Initial character	Example of barcode
CODE A	g	"gABCD"
CODE B	h	"hABCD"
CODE C	i	"iABCD"

GS+'w'+n

[Name]	Set the horizontal size of barcode			
[Format]	ASCII	GS	w	n
	Hex	1D	77h	n
	Decimal	29	119	n
[Range]	$1 \leq n \leq 4$			
[Initial Value]	n=2			
[Descript.]	Set the horizontal size of barcode			

n	Module width	Two level barcode	
		Narrow	Wide
1	0.25mm	0.125mm	0.375mm
2	0.375mm	0.25mm	0.625mm
3	0.5mm	0.375mm	1mm
4	0.625mm	0.5mm	1.25mm

* Multi Level barcode : UPC-E, EAN13, EAN8

* 2 level barcode : CODE39, ITF, CODABAR

GS+'r'+n

[Name]	Transmit status			
[Format]	ASCII	GS	r	n
	Hex	1D	72h	n
	Decimal	29	114	n
[Range]	n=1			
[Descript]	Transmit current status of printer			
[Caution]	The status is not ready till the printer is offline,			
	If the receiver buffer is full at the printer offline, this command is not able to receive, and is not able to respond to the status.			
	Therefore we recommend the real time command (DLE+EOT)..			

[Name] Enable / Disable automatic status back (ASB)
 [Format] ASCII GS a n
 Hex 1D 61h n
 Decimal 29 97 n
 [Range] $0 \leq n \leq 1$
 [Initial Value] n=1
 [Descript] Enable / Disable ASB
 If the status is changed after checking the printer status,
 the status is automatically executed.
 This command is executed to enable or disable.

n	Function
0	Disable automatic status back
1	Enable automatic status back

<Status transmission data >

Bit	Satus	Hex	Decimal
0	0 : Paper 1 : No paper	00h 01h	0 1
1	0 : Printer head down 1 : Printer head up	00h 02h	0 2
2	0 : Paper w/o jamm 1 : Paper with jamm	00h 04h	0 4
3	0 : Paper adequate 1 : Paper Near End	00h 08h	0 8
4	0 : Print complete 1 : Print or Feeding	00h 10h	0 16
5	0 : Cutter no- error (jamm) 1 : Cutter error (jamm)	00h 20h	0 32
6	0 (unused)	00h	0
7	0: No paper in the Support Sensor 1: Paper in the Support Sensor	00h 80h	0 128

※ the status of bit 4 will be effective when the realtime command DLE + EOT + n,
 The others are fixed '0'.

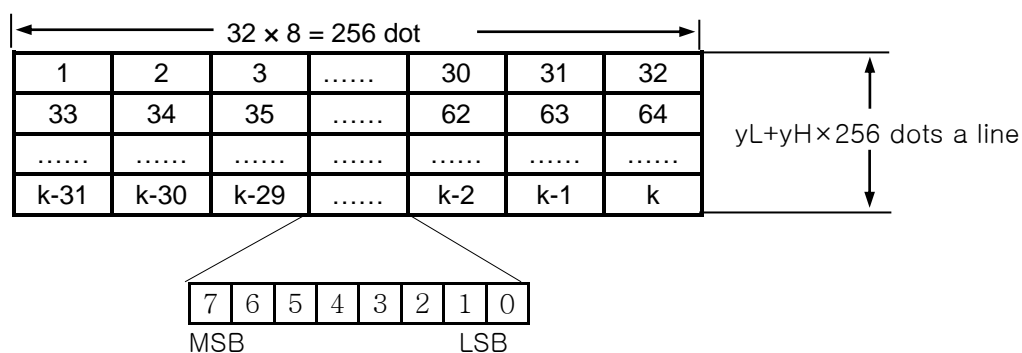
[Name]	Raster bit image									
[Format]	ASCII	GS	v	0	m	xL	xH	yL	yH	d1..dk
	Hex	1D	76h	30h	m	xL	xH	yL	yH	d1..dk
	Decimal	28	118	48	m	xL	xH	yL	yH	d1..dk
[Range]	$0 \leq m \leq 3$ or $48 \leq m \leq 51$,									
	$1 \leq (xL + xH \times 256) \leq 150$ ($0 \leq xL \leq 150$, $xH = 0$)									
	$1 \leq (yL + yH \times 256) \leq 436$ ($0 \leq yL \leq 255$, $0 \leq yH \leq 1$)									
	$0 \leq d \leq 255$ ($yL + yH \times 256$)									
[Descript]	K (All data) = $(xL + xH \times 256) \times (yL + yH \times 256)$									
	The raster bit image will be recognized in mode m.									
	xL, xH appoint the data (byte) of horizontal at image data. yL, yH appoint the data (dot line) of vertical at image data.									

* d is a data for raster bit.

m	Mode	Expansion
0, 48	Normal	X1
1, 49	Horizontal expansion	X2
2, 50	Vertical expansion	X2
3, 51	Horizontal, Vertical expansion	X2 (Horizontal & Vertical)

Ex) Expansion image

$xL + xH \times 256 = 32$ byte,



DLE+ENQ+n

[Name] Raltime buffer clear, or reset.
[Format] ASCII DLE ENQ n
Hex 10h 05h n
Decimal 16 5 n

[Range] n=2,3

1)n=2

[Descript] The realtime will clear each buffer of the printer,
as soon as this command is conducted.

[Caution] It is only valid, once the DIP SW1 is *up. *up : on.
If the offline is valid, and the printer receive the data same with this command,
The printer will be working the same with this comand. (Bit image, Data.)
You don't need to be caution,once this command will be invalid if it's online.

2)n=3

[Descript] The realtime will reset the printer, as soon as this command is conducted.

[Range] It is only valid, once the DIP SW1 is *up. *up : on.

The command ESC+@ will be reset.

However, it doesn't work at the paper jam,cutting jam, has to reset compulsory.

DLE+EOT+n

[Name] Realtime status transmission
[Format] ASCII DLE EOT n
Hex 10h 04h n
Decimal 16 4 n

[Range] n=2

[Descript] The realtime send a byte of printer status, when this command is conducted.

[Caution] **It is only valid, once the DIP SW1 is *up. *up : on.**

Please refer to the table of the printer status.

If the offline is valid, and the printer receive the data same with this command,

The printer will be working the same with this comand. (Bit image, Data.)

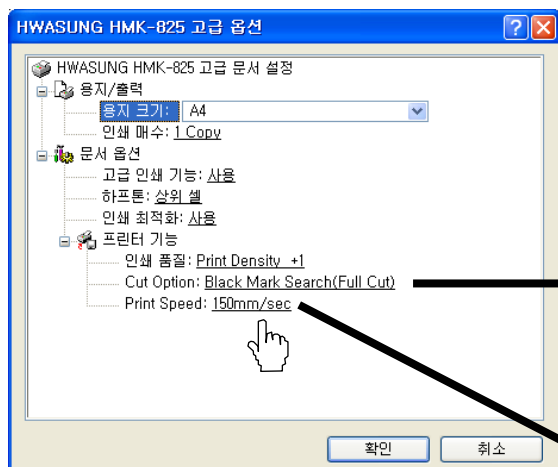
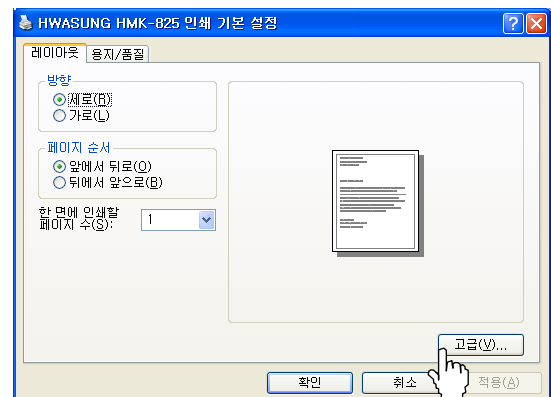
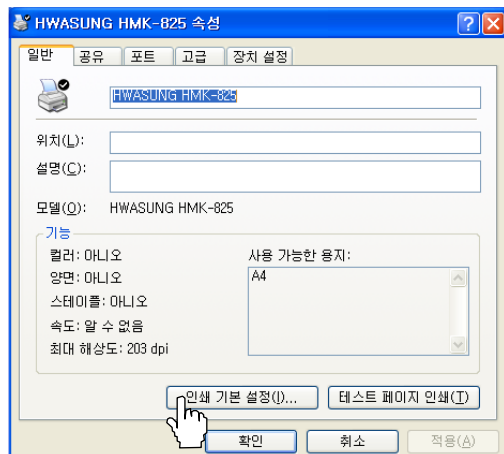
<data 1 byte of status transmission>

Bit	Satus	Hex	Decimal
0	0 : Paper 1 : No paper	00h 01h	0 1
1	0 : Printer head down 1 : Printer head up	00h 02h	0 2
2	0 : Paper w/o jamm 1 : Paper with jamm	00h 04h	0 4
3	0 : Paper adequate 1 : Paper Near End	00h 08h	0 8
4	0 : Print complete 1 : Print or Feeding	00h 10h	0 16
5	0 : Cutter no- error (jamm) 1 : Cutter error (jamm)	00h 20h	0 32
6	0 (unused)	00h	0
7	0: No paper in the Support Sensor 1: Paper in the Support Sensor	00h 80h	0 128

6. Windows Driver

6-1) Printer Configuration Settings

- 1) Please open the screen of printer / fax, and click the basic setting (I) of the general tap.
- 2) Please click Advanced Tab(V).
- 3) Please refer to the following images, and set up each details. You can select on each dropdown list to set the Density, Cutting Option, and Print Speed Setting.



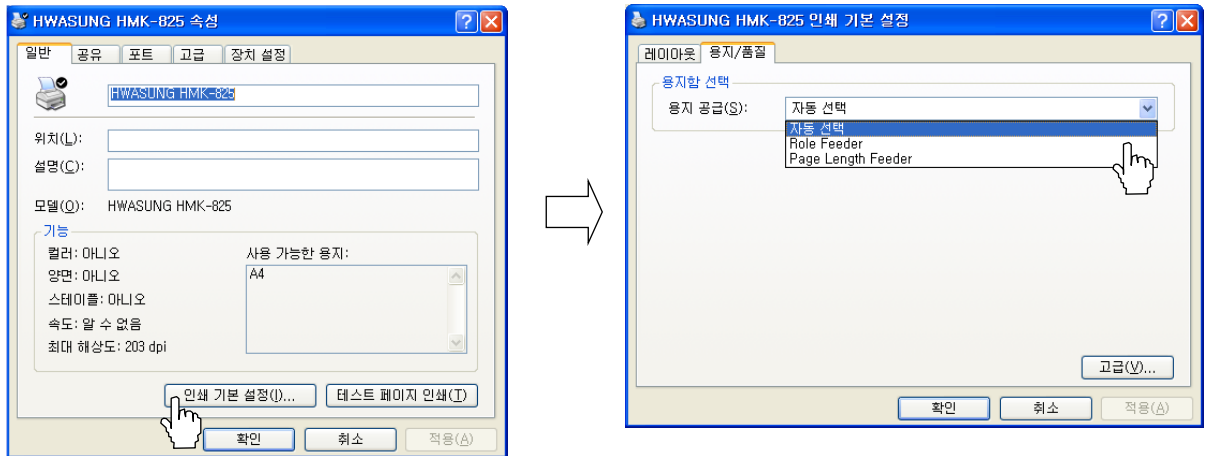
No Cut : No Cut, just Print.
 Full Cut : Full Cut after print.
 Partial Cut : Partial Cut after print.
 Black Mark Search(Full Cut) :
 The cutting position from the black mark
 will be set by the memory switch.

※All printed materials would be different
 depending on the print data size due to
 printing in graphic, so by fixing the setting
 to the below set may provide a smoother
 quality.
 Print Width 60mm: Set the speed to 150mm.
 80mm: Set the speed to 130mm.

4-2) Paper Feed Setting

Please set the form feeding after printing.

- 1) Open the Printer and Fax folder, then click on the Basic Setting (I) under General tab.
- 2) Please click the paper /quality tab, and select from the Paper Feed dropdown list.



- 3) Auto Select / Role Feeder : : After printing, the form feeding is not conducted any more regardless of the paper length. This setting is used when the printed material length is irregular.

As you can see from the example below, the feeding will not happen even if you set the margin through the Visual Basic, so you'd have to set the FontSize smaller and print "." to set the cutting position through Dummy Form Feeding.

Example)

'----- Example Dummy form feeding to cutting position -----'

```
Printer.Print " " & vbLf
```

```
Printer.Print " " & vbLf
```

```
Printer.Print " " & vbLf
```

```
Printer.FontSize = 2
```

```
Printer.Print "."
```

```
Printer.EndDoc
```

' dummy print for form feeding

- 4) page length Feeder : After print, execute form feeding up to the set page length.
Set when the printed materials are fixed to a certain length.

6-3) New Paper Settings

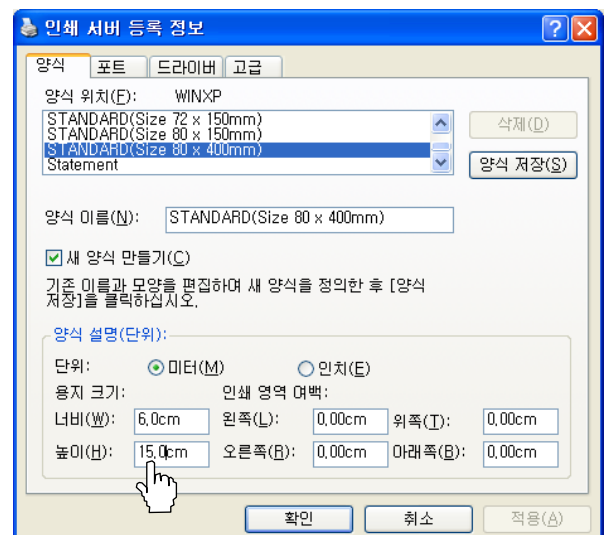
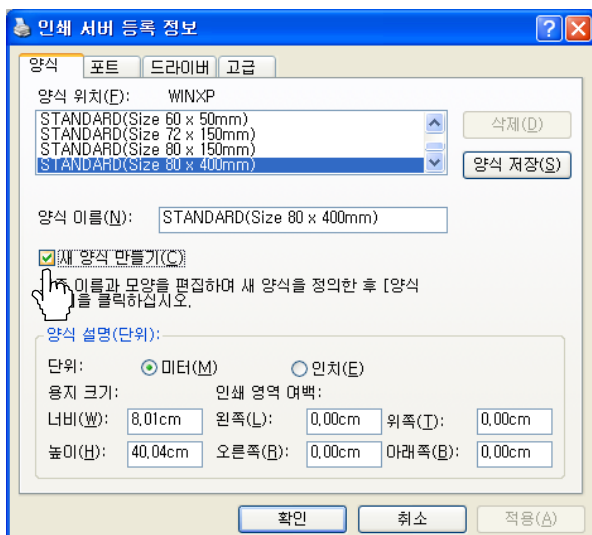
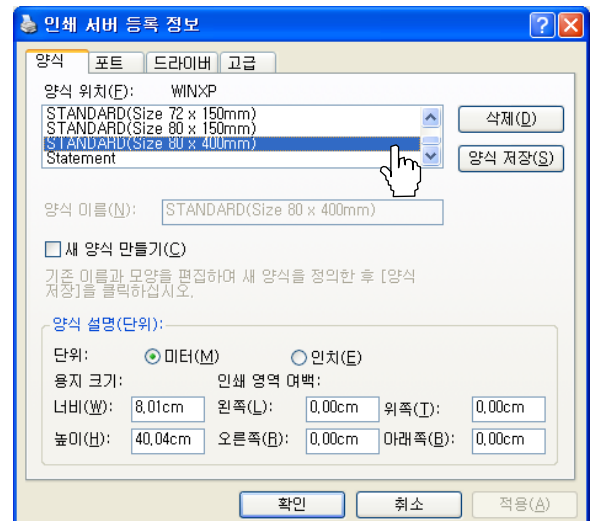
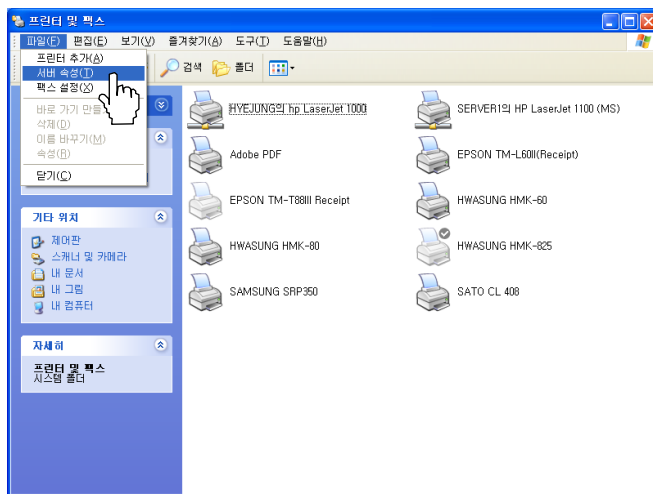
You can use the custom user paper size.

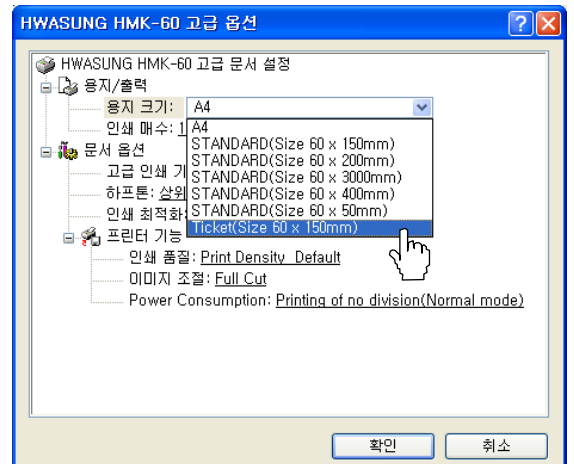
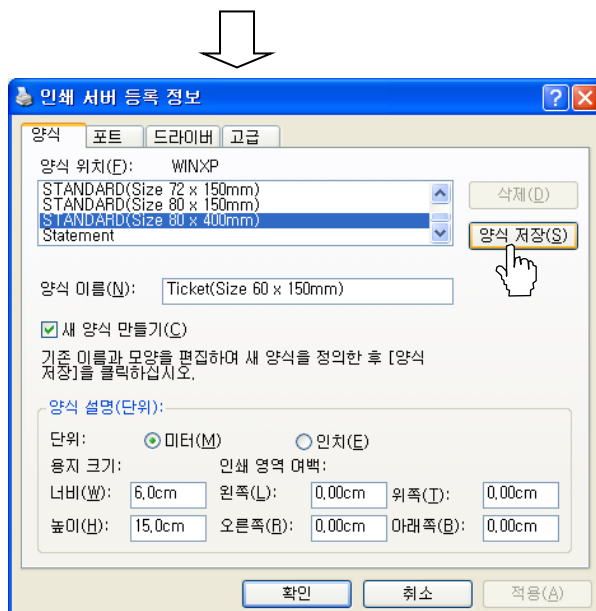
Below is the example of making 60mm x 150mm sized paper.

- 1) Open the Printer and Fax Screen, then click on the server property under File Menu.
- 2) Select the STANDARD(Size 80 x 400mm) from Form Location.
- 3) Check the "Create New Form" box.
- 4) Click the paper size field and input 6.0cm (W), 15.0cm(H).

Make sure to make no changes in the print area margin.

- 5) Save the form after creating a custom name for the size. (i.e, Ticket(Size 60 x 150mm)).
- 6) Go to Basic Print Setting -> Advance then Select the newly created Ticket(Size 60 x 150mm)





7. USB (User Interface)

Without using the Windows driver, you are able to check the printer status, and transmit / receive the data, by using USB Interface DLL (HwaUSB.DLL) and OCX driver (HwaUSB.OCX).

7-1) DLL Interface

Place the HwaUSB.DLL into the System32 folder or SysWow64 folder depending on your Operating System's bit version.

1) long `UsbOpen(LPCTSTR SelPrinter);`

Open the USB port to Printer Model "HPP-250".

- Parameters:
SelPrinter : Printer Model Name
- Return :
Open Normal : 0
Open Error : -3(negative)

2) long `PrintStr(LPCTSTR data);`

Prints String.

- Parameters:
data : String datas
- Return :
Print Normal : 1
Print Error : 0

※ To prevent the loss of data for the print timeout, please use the function 'NewRealRead' to check the status, and go to the next step, when it's normal.

3) long `PrintCmd(unsigned char data);`

Prints 1 byte of data. When printing big data spool, use the following PrintPacket Value to increase the transfer Speed.

- Parameters:
data : 1 byte data (0~255)
- Return :
Print Normal : 1
Print Error : 0

4) long `NewRealRead(void);`

Reads 1 byte of print status data using USB port.

- Parameters:
None
- Return :
Read Normal : Print Status Value
Read Error : -1(Negative)

5) long PrintPacket(unsigned char *PacketBuf,unsigned long PacketLength);
The sending data buffer outputs a USB port for the specified data length.

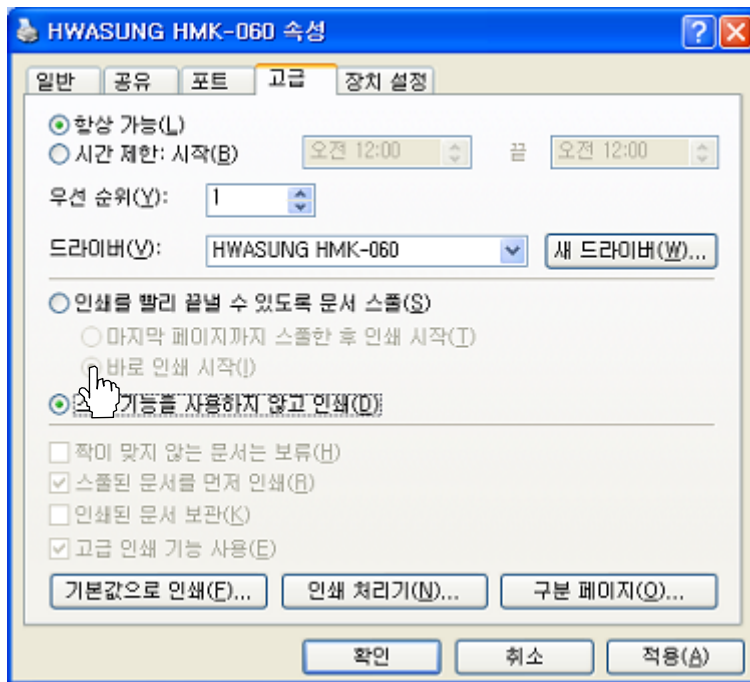
- Parameters:
PacketBuf : TransmitDataBuffer Pointer
PacketLength : Transmit data length (not to exceed up to 64 bytes)
- Return :
Normal Output : 1
Output Error : 0

※ Do not use functions other than those listed above as they are for debug.
※ For more information, download the sample program from our website.

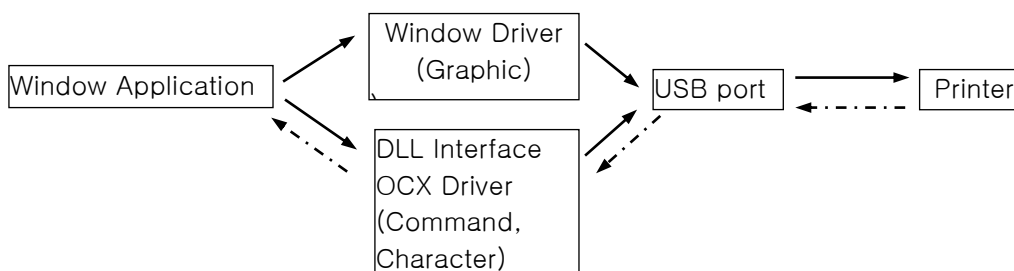
7-2) USB Cautionary Points when using the USB interface

When transmitting jointly with Windows driver with the USB interface, there are cases of data transmission does not complete in order due to the mixed signal from the windows driver data and the USB interface data. In this case, set it to 'without using Printer SpoolFunction' under the printer's property.

There won't be an error during the receiving because it would only work through USB interface when receiving.




※ Windows Application Data Flow Chart



→ Transmit

← Receive(Printer Data)

	Title	Rev	Page
	HPP-240	Ver1.0	P.54

