

TECHNICAL MANUAL

(HP-058)

Release 2



| | | | |
|---|--------|-------------|--------|
| HWASUNG [®] ticket-kiosk printer | Title | Rev. | Page |
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CAUTION



- Please do not disassemble / reorganize the product.
- Please do not remove the paper jam during power on.
- Please do not exceed the standard power voltage.
- Please do not wash off the product.
- Please do not press / shock the product.
- Please do not put the product at the moist (humid) condition.




- Please contact us if there is any problem.
- Please power off once remove the paper jam.
- Please clear the air / open the disclosed place.
- Please set the product without damage environment.
- Please set the product at the stable place.
- Please keep the requires as necessary as general electrics.

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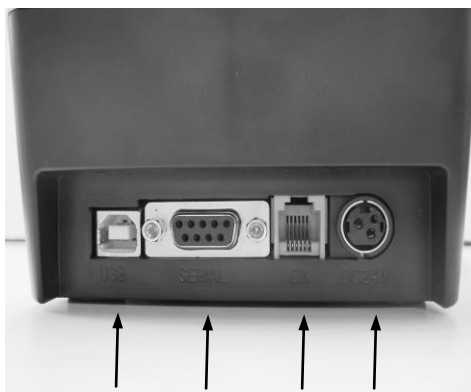
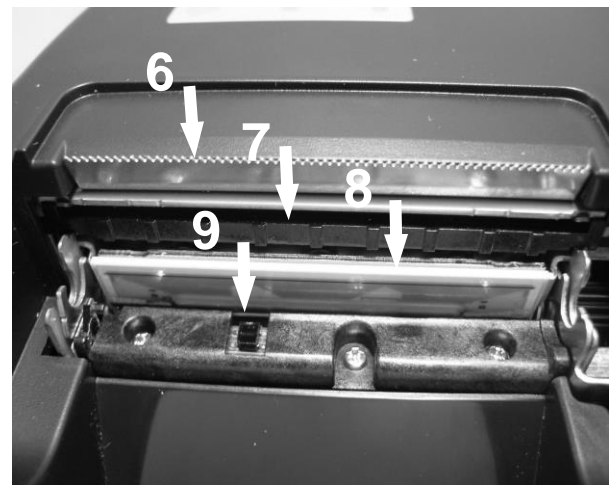
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1. Name of Parts

1-1) Name of Parts

- | | |
|------------------------------------|----------------------------|
| 1. Cover Open Lever | 9. Paper Sensor |
| 2. Indication Light | 10. Near End Sensor |
| 3. Cutter | 11. Paper Sensor |
| 4. Power Switch | 12. Dip switch |
| 5. The hole of removing cutter jam | 13. USB Interface(Type B) |
| 6. Manual Cutter | 14. RS-232C (Female 9 pin) |
| 7. Auto Cutter | 15. Cash Drawer (6 pin) |
| 8. Thermal Head | 16. Power Connection DC |



13 14 15 16



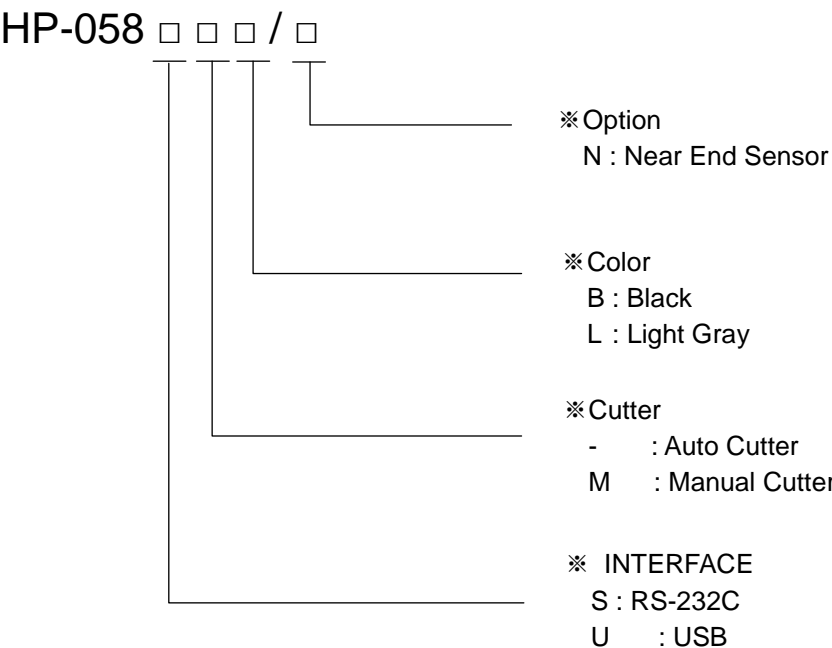
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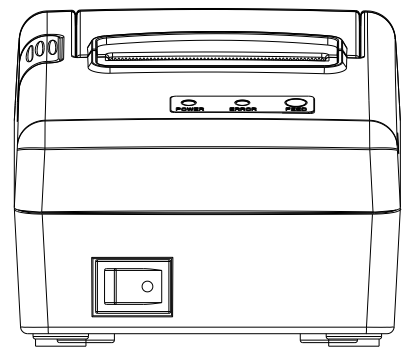
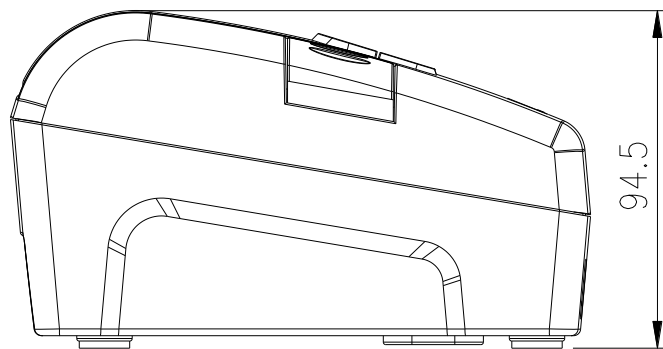
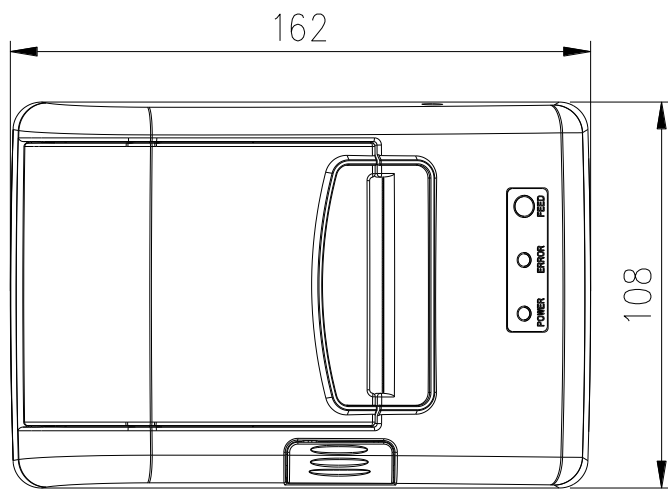
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1-2) Model number



EX) HP-058UB/N --- USB, AUTO CUTTER ,BLACK, NEAR END SENSOR
HP-058ML --- RS-232C, MANUAL CUTTER AND LIGTH GRAY
HP-058B --- RS-232C, AUTO CUTTER AND BLACK

1-3) Dimension



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1-4) PACKING

- 1. Printer
- 2,3. Adaptor and AC Cable
- 4. The Cable (RS-232C or USB)

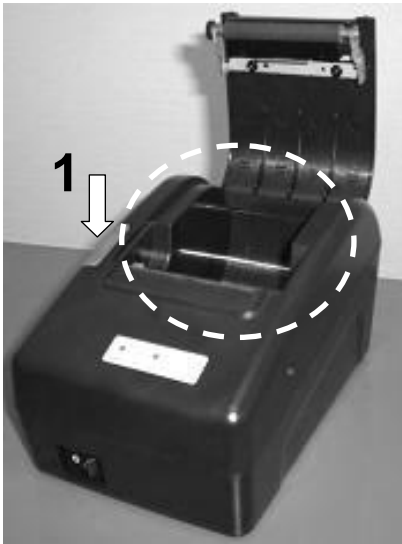


4

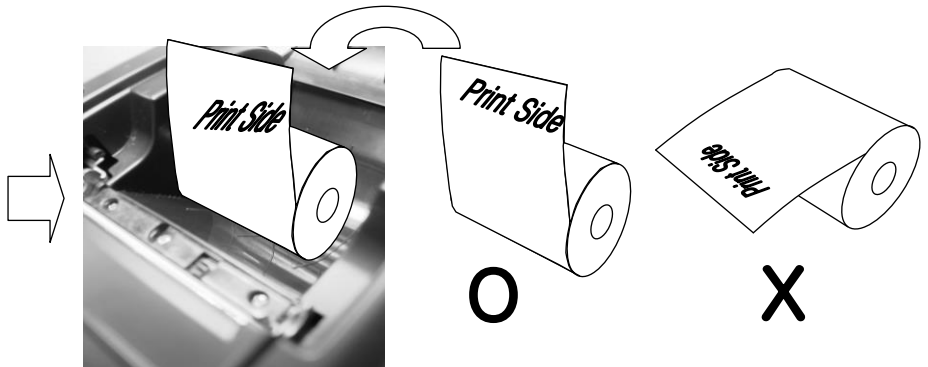


2. Operation

2-1) Paper Setting



[Pic 2-1]



[PAPER DIRECTION]



[Pic 2-2]

1. Please press down the cover open lever to open the cover.
2. Please set up the paper as image below.
Notice : Please make sure the printing side of paper
3. You can see the paper is printing and cut, when you close the cover, after you power on.

| | | | |
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2-2) Removing the paper jam

Please follow the instruction as belows., when the paper jam occurred.

- 1). Please power off the printer and Try the hole of removing the cutter jam to be rotated by Screw Driver on the left or Right. When you feel that the rotating is well, the knife in the cutter will be moving



- 2). Until the cover open well by pressing the lever, you should rotate the hole by tool..
- 3). Removing the part of carton which made a cutter jam.
- 4). After that, when the printer power on, the knife in the cutter will be set up.
- 5). Close the cover.

※ If the knife in the cutter is not back, the cover on the printer can not be closed.
So do not push to close the cover. It will make a cause for strain.

2-3) Self test

- 1). Please power on, once the feed button is being pressed down.
- 2). The following information will be printed.

```
*****
HP-058 Control Board
Firmware   : R2.VerX .XX
Create     : 20XX/XX/XX
*****

Interface and Setting information
=====
Interface   : USB & RS-232C
Baud Rate   : 19200
Data Bit    : 8 Bit
Parity      : None
Stop Bit    : 1 or 2
=====

Peripheral & Setting Information
=====
USB Status  : B
=====
```

- Name of Model
- Firmware /Date
- Interface Spec
- Dip Switch Spec
- Sample printing

※ Please refer to 2-7) Dip Switch

| | | | |
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2-4) HEX Dump

- 2.4.1. Please power on after the dip switch 7 (up) of 1.
- 2.4.2. Then it prints all data in hex character (16 antilogarithm).
- 2.4.3. You can see the status of receipt.
- 2.4.4. It will be useful for the application you do.

- ◆ It prints the data, once it receives the data 9 digit.
- ◆ You can print the data less than 9 digit, when you press down the button of feed.
- ◆ It prints the control code (1F₁₆ below) as “.”
- ◆ It prints the data 80₁₆ more as “^”.

[Sample]

| 16 antilogarithm | ASCII |
|----------------------------|-----------|
| [HEX DUMP MODE] | |
| 41 42 43 44 45 46 47 47 49 | ABCDEFGHI |
| 30 31 32 33 34 35 36 37 38 | 012345678 |
| FF 1B 69 | ^ . i |

2-5) On board update :

Notice : Please make you conduct the following instructions, when you get to know completely.

1) Please turn on power switch off and on(Do not need to control Dip Switch.

2) Please check the connection between the printer and the data cable.

* You can save the time to set up, if you use USB Cable.

3) Please conduct the given program, and Set up the model name with Interface port, then updating

If the error LED is turned off and is lighted on slightly after 4 seconds, then the updated is being started.

* Please do not switch off the printer power.

4) The updated will be finished after the update indicates complete.

* If the error LED keeps the light goes in and out, it's error.

Please stop the update program and check the cable and others.

Please return the process "1." and follow the step again.

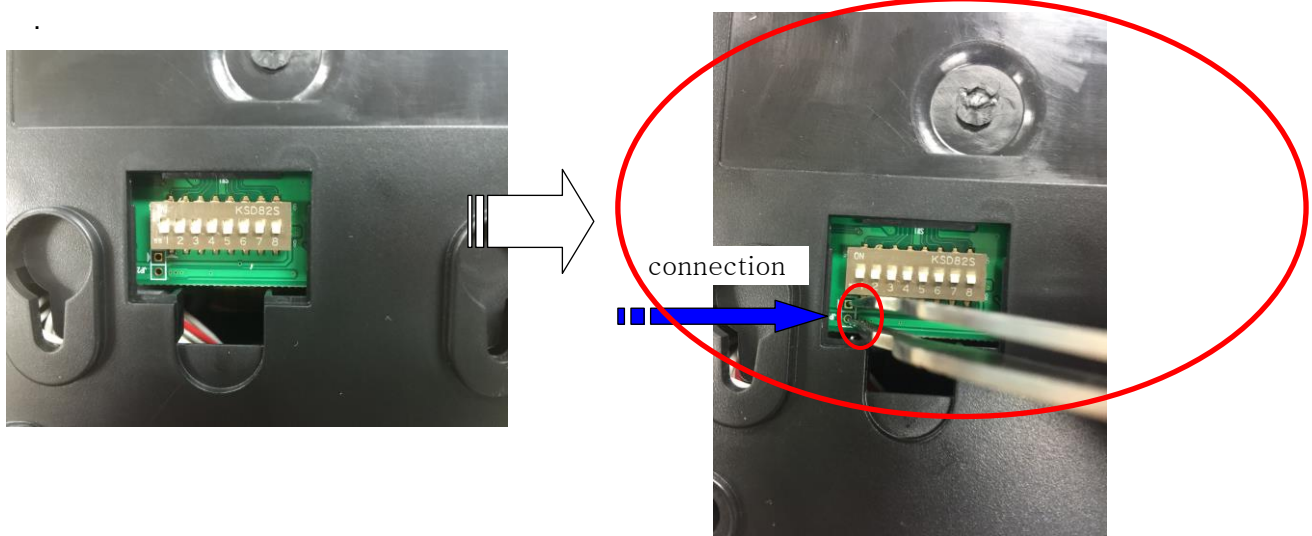
5) After updating completes, Automatically the printer will be ready to use
As Reset.

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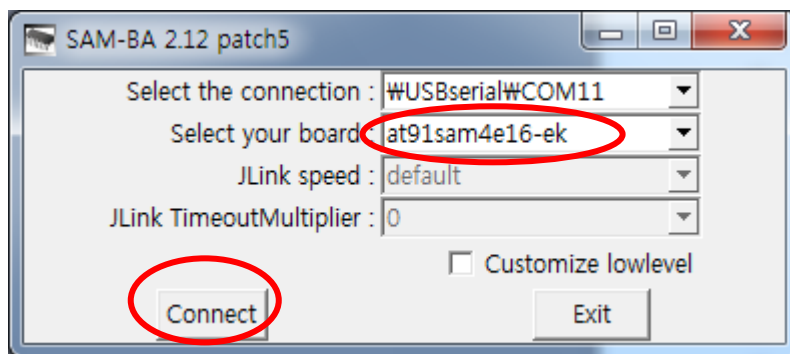
2-6) Recover firmware (Reboot)

You are able to recover the firmware, when the firmware / the boot were error as the following things.

- 1) Please open the cover the dip switch, and check the jumper the pin header.
- 2) Please connect the pin header (2.54mm) by using the jumper cap.



- 3) Please power on, after you connect the interface cable.
- 4) By using the booting program we provide,
Please set up the interface port, and choose the mode 'at91sam4e16-ek' of Select your board,
Please click the button 'Connect'.
Notice : You are able to use the port RS232C, or the port USB only,
However, please choose one of them. (You are able to save the time, if you use the port USB.)

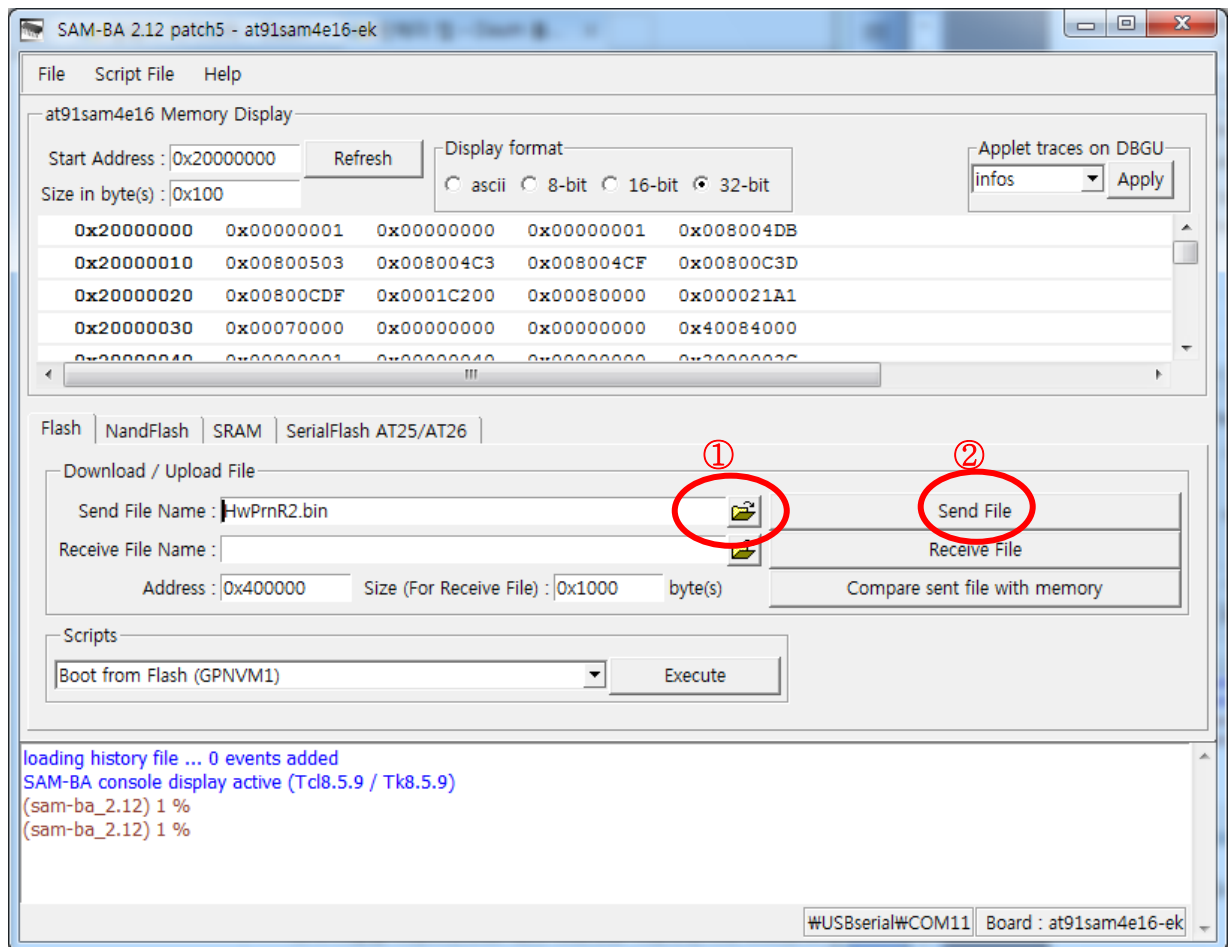


- 5) Please dis-connect pin header (2.54mm), after the booting program runs.
Notice : The booting will not be available, if you don't disconnect the jumper cap,
because the data is removed.

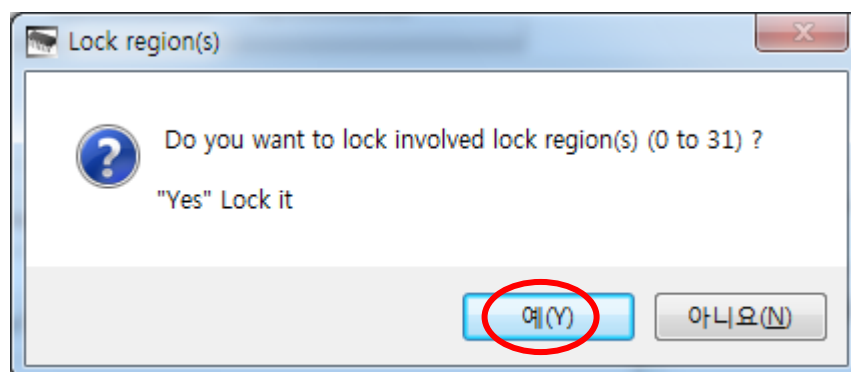
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- 6) Please open the firmware file of the model you want, at the mode 'Send File Name', and click the button 'Send File' as the image below.

Notice : Please do not change other parameters.

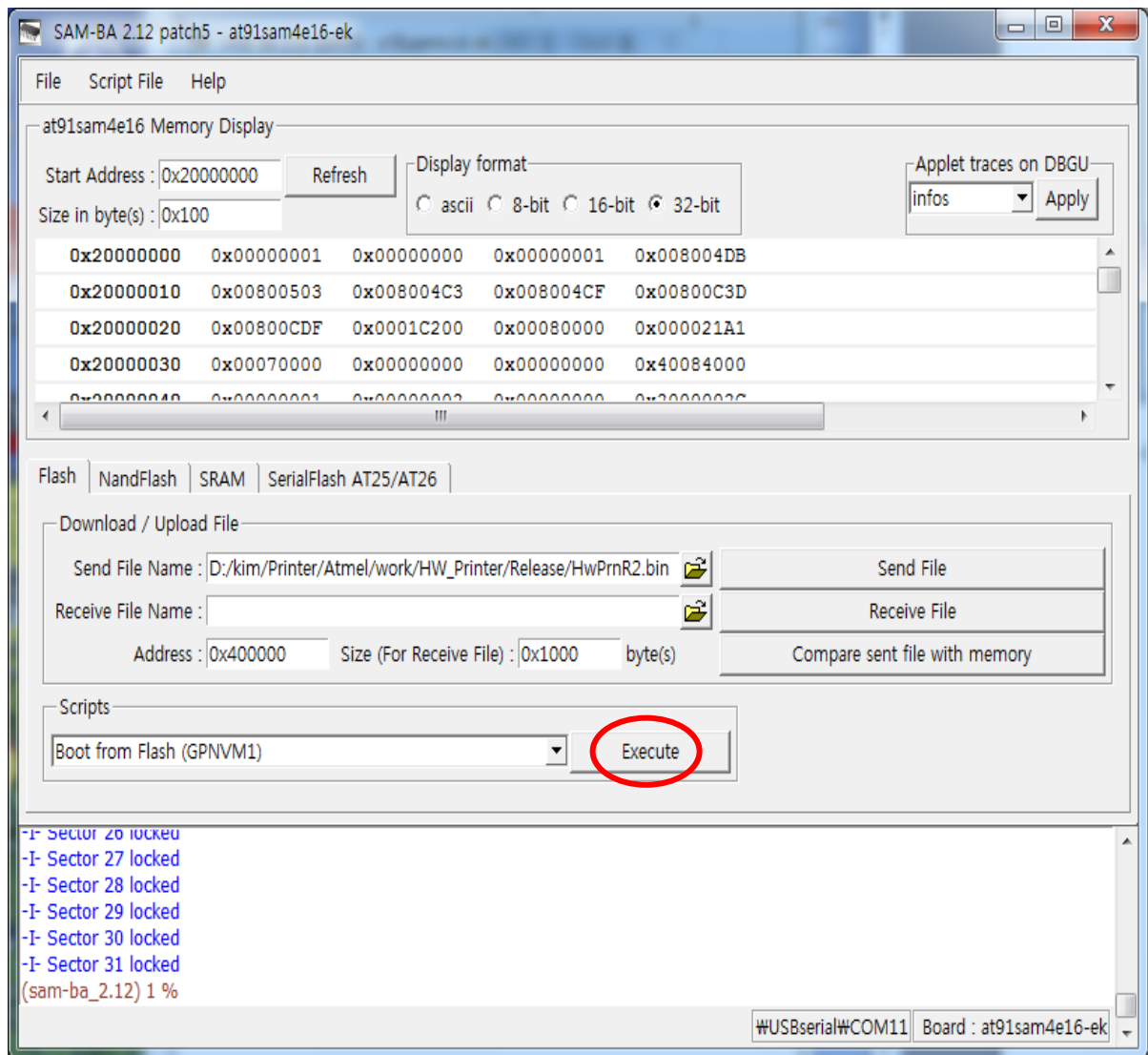


- 7) Please choose the button 'yes', after the transmission is complete as the image below.



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8) Please click 'Execute', after you make sure 'Boot from Flash(GPNVM1)' at the mode 'Scripts'.



9) Please power off and on, to restart.

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2-7) Dip switch

Please control the dip switch between the printer & the host for the protocol condition.

1) Dip switch 1

SW1 :

| | |
|-----|------------------------------------|
| SW1 | Real time command (Valid, Invalid) |
| ON | DLE Command on |
| OFF | DLE Command off |

SW2,3 :

| | | |
|-----|-----|-----------------|
| SW2 | SW3 | Baud Rate(BPS) |
| OFF | OFF | 9600 |
| ON | OFF | 19200 |
| ON | ON | 38400 |
| OFF | ON | 57600(Standard) |
| OFF | ON | 115200(OEM) |

SW4 :

| | |
|-----|---------------|
| SW4 | OEM Mode |
| ON | OEM Mode |
| OFF | Standard Mode |

SW5,6 :

| | | |
|-----|-----|------|
| SW5 | SW6 | 패리티 |
| OFF | - | None |
| ON | OFF | Even |
| ON | ON | Odd |

SW7 :

| | |
|-----|---------------|
| SW7 | Print Mode |
| ON | Hex Dump Mode |
| OFF | Normal Mode |

SW8 :

| | |
|-----|---------------|
| SW8 | Update |
| ON | Factory Mode |
| OFF | Standard Mode |

2-8) Internal connector

1) CN1 : USB connector (Type B)

| Pin | Circuit | Remark |
|-----|---------|------------|
| 1 | VBUS | VBUS input |
| 2 | D- | Data- |
| 3 | D+ | Data+ |
| 4 | GND | Signal GND |
| 5 | FG1 | Frame GND1 |
| 6 | FG2 | Frame GND2 |

2) CN2 : RS232C connector (DSUB9, FEMALE)

| Pin | Circuit | Remark |
|-----|---------|--------|
| 1 | N.C | |
| 2 | TxD | |
| 3 | RxD | |
| 4 | N.C | |
| 5 | GND | |
| 6 | DTR | |
| 7 | CTS | |
| 8 | RTS | |
| 9 | N.C | |

3) CN3 : Cash Drawer connector (RJ-45 Modular Jack)

| Pin | Circuit | Remark |
|-----|---------|-------------------|
| 1 | F.G | Frame Ground |
| 2 | Kick A | |
| 3 | Sw | Open/Close Switch |
| 4 | +24V | |
| 5 | Kick B | |
| 6 | GND | Ground |

4) CN4 : AC adapter Jack (AC00093-12-03,TECHWIN)

| Pin | Circuit | Remark |
|-----|---------|--------|
| 1 | GND | |
| 2 | +24V | |
| 3 | N.C | |

5) CN5 : Mechanism Connector (1022HS-24,Yeonho,1mm FFC Connector)

| Pin No. | Circuit | Remark | Pin No. | Circuit | Remark |
|---------|---------|----------------------|---------|---------|----------------|
| 1 | PS_C | Paper sensor Input | 13 | GND | |
| 2 | A | Paper sensor Power | 14 | GND | |
| 3 | GND | | 15 | TH | Thermistor |
| 4 | GND | | 16 | /STB1 | TPH 1 |
| 5 | HS_C | Head up sensor input | 17 | /LATCH | TPH Data Latch |
| 6 | +24V | | 18 | CLK | TPH Clock |
| 7 | DATA IN | TPH Serial Data | 19 | +24V | |
| 8 | /STB2 | TPH 2 | 20 | +24V | |
| 9 | /STB3 | TPH 3 | 21 | A | Motor A |
| 10 | VCC | +3.3V | 22 | B | Motor B |
| 11 | GND | | 23 | /A | Motor /A |
| 12 | GND | | 24 | /B | Motor /B |

* TPH : Thermal Print Head

6) CN6 : Power switch connector (YAW396-02,Yeonho)

| Pin | Circuit | Remark |
|-----|---------|-------------------|
| 1 | +24V | +24V Output power |
| 2 | +24V | +24V Input power |

7) CN7 : Cutter connector (1022HS-04,Yeonho,1mm FFC Connector)

| Pin | Circuit | Remark |
|-----|---------|-------------------------------|
| 1 | GND | |
| 2 | HM_SW | Cutter position detect switch |
| 3 | CUT_B | Drive signal B |
| 4 | CUT_A | Drive signal A |

8) CN8 : Aid PCB connector (GW200-07,Geoyoung)

| Pin | Circuit | Remark |
|-----|---------|-------------------------------------|
| 1 | VCC_A | LED Power (680 Ω Resistance) |
| 2 | VDD | +5V |
| 3 | ERR_LED | Error LED Output |
| 4 | FEED_IN | FEED SW Input |
| 5 | NEAR_C | Near End Sensor Input |
| 6 | A | Near End Sensor Power |
| 7 | GND | |

3. General specification

3-1) Specification

- 1) Printing method : Thermal line printer
- 2) Resolution : 8dot/mm, 203dpi, 1dot=0.125mm
- 3) Total dots : 432dot/line
- 4) Printing speed : 120mm/sec,max (24V, 25℃)
- 5) Paper width : 58mm, max
- 6) Heating resistance : 1500Ω±3%

3-2)Font

- 1) Numerical value : FONT A(12 x 24) 95 fonts, FONT B(8 x 16)95 fonts
- 2) Extended Graphic : FONT A(12 x 24) 128 fonts, FONT B(8 x 16)95 fonts
- 3) International : 14types 37fonts
(Korean,English,France,Germany,England,Denmark1,Sweden,Italy,
Spain1,Japan,Norway,Denmark2,Spain2,Latin America)
- 4) Korean : FONT C Korean (24x24, Symbols and Chinese Characters)
(Times New Roman, Gothic, Bodoni of one choice)
: FONT D Japanese (24x24)
: FONT E Chinese (24x24)

3-3) Power

| | | |
|----------------|---------|-------------------------------------|
| Supply voltage | 24V±10% | Motor, TPH |
| Logic voltage | 5V±5% | Logic, Paper Sensor, Head Up Sensor |

3-4) Current consumption

Average : 1.5A
Peak : 14A

3-5) Operation condition (temp./humid)

- 1) Temperature : 0 ~ 40℃
- 2) Humidity : 40 ~ 80%RH (non frost)
- ※ The printing is subject to operation condition.

3-6) Storage condition (temp./humid)


- 1) Temperature : -25 ~ 40℃
- 2) Humidity : 40 ~ 90%RH (non frost)

3-7) MCBF

- 1) Thermal head : 100Km(100 million pulse)
- 2) Auto cutter : 1,000,000

3-8) Weight

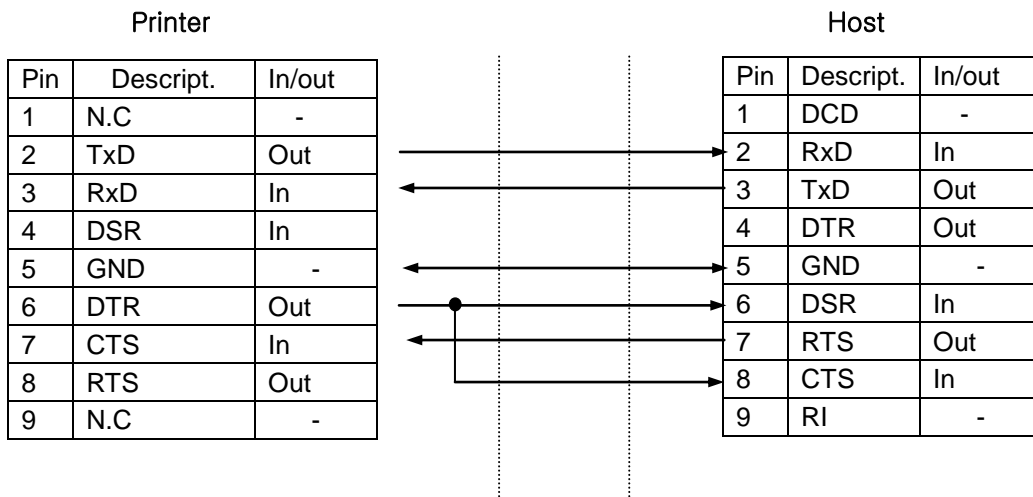
0.609kg (cutter included) 0.521kg (with tear bar)

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4. Interface specification

4-1) RS232

- 1) Data transmission : Serial
- 2) Hand shake : Hardware (RTS/CTS 또는 DTR/DSR)
- 3) Baud Rate : 9600, 19200, 38400, 57600, 115200 BPS
- 4) Data bit : 8 bit
- 5) Parity : None, Odd, Even
- 6) Stop bit : 1 or 1.5 or 2 bit
- 7) Connector : DSUB-9 Female
- 8) Cable : DSUB9(Male)-DSUB9(Female) straight (1:1) cable



4-2) USB

- 1) Spec : USB 2.0, Full Speed (12Mb) & High Speed (480Mb).
- 2) Connector : Type B
- 3) Cable : USB2.0 Standard
- 4) Transmission : 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)
 - High Speed : Max Packet Size 512 Byte(Bulk OUT),512 Byte(Bulk IN)

※ Full Speed, High Speed mode is automatically set with host communication.

| Pin | Signal | In/out |
|-----|--------|--------|
| 1 | VBus | In |
| 2 | D- | In/out |
| 3 | D+ | In/out |
| 4 | GND | GND |

4-3) Cash Drawer

Please refer the details (ESC+'p'+m+n1+n2) at the command.

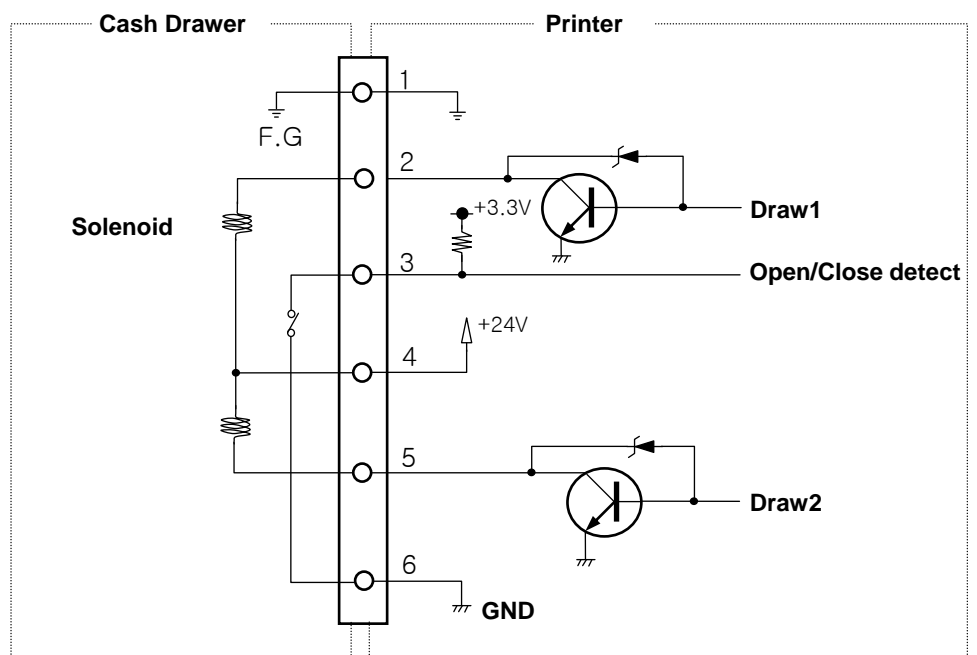
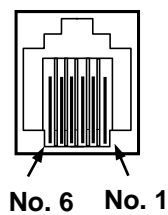
1) Rating

- Output voltage : 24V
- Output current : 1A(Max)
- Resistance coil : 24Ω more
- CAUTION

Please use 24Ω more ,once you use the solenoid resistance coil.

The transister will be damaged, once you use 24Ω below.

2) Framework



[Electric Circuit]

- ※ You can use the pin 2 or 5
- ※ You can shorten (omit) Open/Close Switch.

5. Command List

| Command | Function | - |
|---------|---|----|
| CR | Print and carriage return | 22 |
| LF | Print and line feed | 22 |
| CAN | Cancel print data in page mode | 22 |
| HT | Horizontal tab | 22 |
| FF | Print end position label to start printing | 23 |
| SUB x | Extended Graphic Mode | 23 |
| SUB p | Off line printing per paper detection | 23 |
| SUB R | Outline of character (Tetragon) | 23 |
| SUB s | Printing Speed | 24 |
| ESC D | Set horizontal tab positions | 24 |
| ESC SP | Set character right side spacing (ASCII) | 24 |
| ESC ! | Set Print Mode | 25 |
| ESC \$ | Select / Cancel user-defined character set | 25 |
| ESC * | Set bit image mode | 26 |
| ESC - | Turn underline for ASCII | 27 |
| ESC 2 | Set 1/6 inch line spacing | 28 |
| ESC 3 | Set line spacing using minimum units | 28 |
| ESC @ | Printer reset (Initialize printer) | 28 |
| ESC E | Set emphasized mode | 28 |
| ESC G | Set double-strike mode | 28 |
| ESC J | Feed | 29 |
| ESC j | Back Feed | 29 |
| ESC M | Select character font | 29 |
| ESC R | Select international character set | 30 |
| ESC t | International code page | 30 |
| ESC a | Align position | 31 |
| ESC d | Printing & line feeding | 31 |
| ESC { | Print / cancel character printing in 180° turning | 31 |
| ESC i | Paper cutting | 31 |
| ESC m | Paper cutting | 32 |
| ESC S | Set the standard mode | 32 |
| ESC L | Set the page mode | 32 |
| ESC T | Set the pagemode in direction | 33 |
| ESC W | Set the printing section in page mode | 34 |
| ESC FF | Printing the page area | 35 |
| ESC p | Cash drawer & Melody box | 35 |
| FS ! | Set the printing all korean | 36 |
| FS & | Set the korean in extended graphic mode | 36 |
| FS . | Cancel the korean in extended graphic mode | 36 |
| FS - | Set the underline of Korean | 37 |
| FS S | Space Korean | 37 |
| FS W | Set the font size of Korean | 37 |

| Command | Function | - |
|---------------|---------------------------------------|----|
| FS q | Register Non Volatile logo(bit-image) | 38 |
| FS p | Print N/V logo print | 38 |
| GS ! | Extension of character | 39 |
| GS (K (fn=49) | Printing density | 39 |
| GS (K (fn=97) | Operation in Low Power | 40 |
| GS B | Printing black in reverse | 40 |
| GS H | Barcode character | 40 |
| GS L | Left space | 41 |
| GS V | Cutting paper | 41 |
| GS W | Set the printing area | 41 |
| GS h | Height of barcode | 41 |
| GS k | Printing of barcode | 42 |
| GS w | Extension / Reduction of barcode | 43 |
| GS r | Checking the status | 43 |
| GS a | Auto reply of status | 44 |
| GS v | Last bit image (Horizontal) | 45 |
| DLE ENQ | Realtime buffer clear | 46 |
| DLE EOT | Realtime printing status | 47 |
| SUB B | Second dimension | 48 |
| SUB r | 1/3 minimizing | 48 |

CR

| | | |
|------------|---------------------------|-----|
| [Name] | Print and carriage return | |
| [Format] | ASCII | CR |
| | Hex | 0Dh |
| | Decimal | 13 |
| [Range] | - | |
| [Descript] | equal LF | |

LF

| | | |
|------------|---|-----|
| [Name] | Print and line feed | |
| [Format] | ASCII | LF |
| | Hex | 0Ah |
| | Decimal | 10 |
| [Range] | - | |
| [Descript] | ① STANDARD MODE: | |
| | After printing the data and go to return according as the fixed data. | |
| | ② PAGE MODE: | |
| [Caution] | The fixed data can be only conduted, according as the fixed data. | |
| | The LF is ignored behind of CR | |

CAN

| | | |
|------------|--------------------------------|-----|
| [Name] | Cancel print data in page mode | |
| [Format] | ASCII | CAN |
| | Hex | 18h |
| | Decimal | 24 |
| [Range] | - | |
| [Dsecirpt] | - | |

HT

| | | |
|------------|--|-----|
| [Name] | Horizontal tab | |
| [Format] | ASCII | HT |
| | Hex | 09h |
| | Decimal | 9 |
| [Range] | - | |
| [Descript] | Moves the print position to the next tab poosition | |
| [Caution] | Horizontal tab position are to set in ESC+'D'+n. | |

FF

| | | |
|------------|---|-----|
| [Name] | Print and return to standard mode in page mode | |
| [Format] | ASCII | FF |
| | Hex | 0Ch |
| | Decimal | 12 |
| [Range] | - | |
| [Descript] | Print the data in the print buffer and returns to standard mode | |
| [Caution] | Use ESC+FF once standard mode not to return | |

SUB+'x'+n

| | | | | |
|-----------------|---|-----|-----|---|
| [Name] | Extension Graphic Mode, Korean Mode | | | |
| [Format] | ASCII | SUB | x | n |
| | Hex | 1A | 78h | n |
| | Decimal | 26 | 120 | n |
| [Range] | 0≤n≤1 | | | |
| [Initial Value] | n=0 | | | |
| [Descript] | n=0 : Korean Mode, First code is A1h more, automatically transfer Korean in 2 bytes | | | |
| | n=1 : Extension Graphic Mode, Every code is setting in 1 byte Extension Graphic font will be printed | | | |

SUB+'p'+n

| | | | | |
|-----------------|---|-----|-----|---|
| [Name] | Off line printing in paper detection | | | |
| [Format] | ASCII | SUB | p | n |
| | Hex | 1A | 70h | n |
| | Decimal | 26 | 112 | n |
| [Range] | 0≤n≤1 | | | |
| [Initial Value] | n=1 | | | |
| [Descript] | n=0 : Not transition to offline once paper empty (data communication available) | | | |
| | n=1 : Transition to offline once paper empty (data communication not available) | | | |

SUB+'R'+n

| | | | | |
|---------------|---|-----|-----|---|
| [Name] | Outline character (Tetragon) | | | |
| [Format] | ASCII | SUB | b | n |
| | Hex | 1A | 52h | n |
| | Decimal | 26 | 82 | n |
| [Range] | 0≤n≤1 | | | |
| [Description] | n=0 : Cancel the outline character (Tetragon). | | | |
| | n=1 : Set up the outline character (Tetragon). | | | |
| [Caution] | The horizontal extension is valid as much as eight times. | | | |
| | The vertical extension is valid as much as two times. | | | |

SUB+'s'+n

| | | | | |
|-----------------|------------------------------|-----|------------------------------|---|
| [Name] | Set the printing speed | | | |
| [Format] | ASCII | SUB | s | n |
| | Hex | 1A | 73h | n |
| | Decimal | 26 | 82 | n |
| [Range] | 1≤n≤10 | | | |
| [Initial Value] | n=10 | | | |
| [Descrpt] | n=1 : Printing Speed 70mm/s | | n=6 : Printing Speed 120mm/s | |
| | n=2 : Printing Speed 80mm/s. | | n=7 : Printing Speed 130mm/s | |
| | n=3 : Printing Speed 90mm/s | | n=8 : Printing Speed 140mm/s | |
| | n=4 : Printing Speed 100mm/s | | n=9 : Printing Speed 150mm/s | |
| | n=5 : Printing Speed 110mm/s | | | |

[Caution] Control command density once the low speed makes printing density (be) unclear

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

| | | | | | |
|-----------|--|-----|-----|---------|-----|
| [Name] | Set the horizontal position | | | | |
| [Format] | ASCII | ESC | D | n1...nk | NUL |
| | Hex | 1B | 44h | n1...nk | 00 |
| | Decimal | 27 | 68 | n1...nk | 0 |
| [Range] | $1 \leq n \leq 255, 0 \leq k \leq 32$ | | | | |
| [Descrpt] | Set the horizontal tab position | | | | |
| [Caution] | n : Indicating the figures from the start poistion of line to set position | | | | |
| | K : indicating the total tabs per line | | | | |

ESC+SP+n

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

ESC+'!' +n

| | | | | |
|-----------------|---------------------------------------|-----|-----|---|
| [Name] | Set character all at once | | | |
| [Format] | ASCII | ESC | ! | n |
| | Hex | 1B | 21h | n |
| | Decimal | 27 | 33 | n |
| [Range] | 0≤n≤255 | | | |
| [Initial Value] | n=0 | | | |
| [Descript] | Set font & character in the same time | | | |
| [Caution] | - | | | |

| Bit | Format | Hex | Decimal |
|-----|---------------------------------------|-----|---------|
| 0 | 0: Font 12x24, 24x24 | 00h | 0 |
| | 1: Font 8x16, 16x16 | 01h | 1 |
| 1 | - | - | - |
| 2 | - | - | - |
| 3 | 0: Cancel the stress | 00h | 0 |
| | 1: Set the stress | 08h | 8 |
| 4 | 0: Cancel the extension in Vertical | 00h | 0 |
| | 1: Set the extension in Vertical | 10h | 16 |
| 5 | 0: Cancel the extension in Horizontal | 00h | 0 |
| | 1: Set the extension in Horizontal | 20h | 32 |
| 6 | - | - | - |
| 7 | 0: Cancel the underline | 00h | 0 |
| | 1: Set the underline | 80h | 128 |

ESC+'\$'+nL+nH

| | | | | | |
|-----------------|--|-----|-----|----|----|
| [Name] | Set absolute poission | | | | |
| [Format] | ASCII | ESC | \$ | nL | nH |
| | Hex | 1B | 24h | nL | nH |
| | Decimal | 27 | 36 | nL | nH |
| [Range] | 0≤nL+nH×256≤65535, 0≤nL≤255, 0≤nH≤255 | | | | |
| [Initial Value] | nL=0, nH=0 | | | | |
| [Descript] | Move the printing position from left ending space to (nL+nH×256)×0.125mm | | | | |
| | Move the printing position in left ending once printing position is over | | | | |

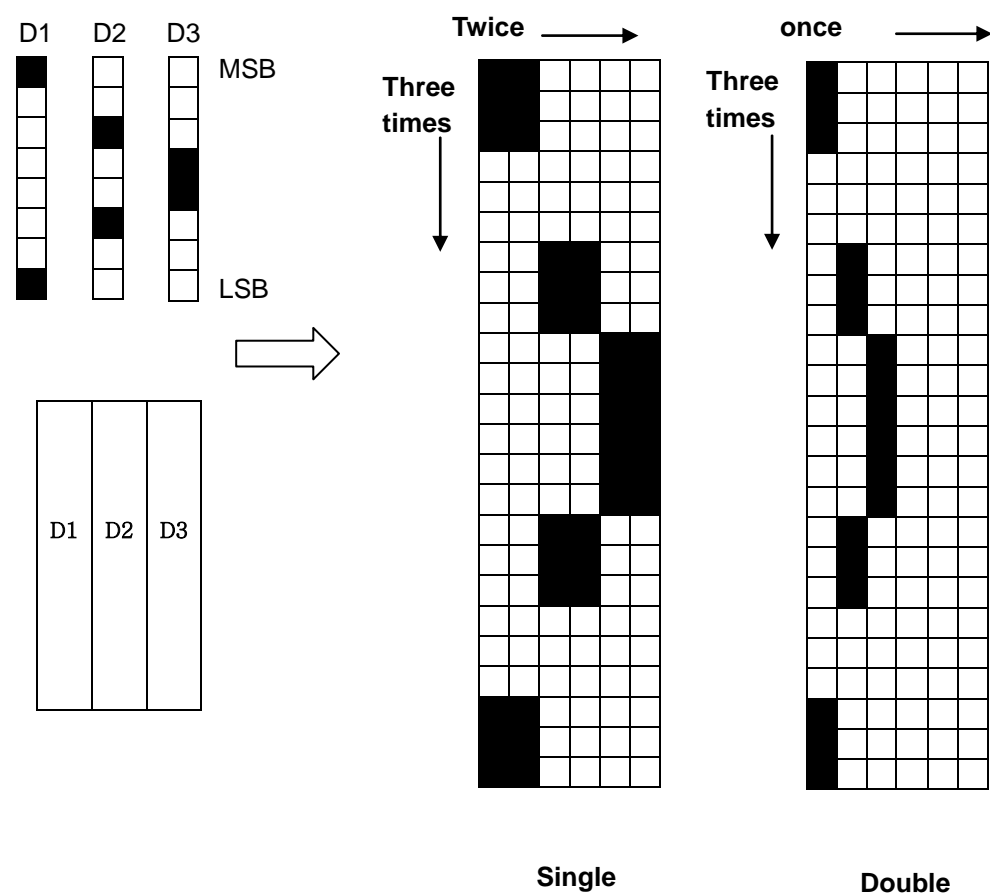
ESC+**+m+nL+nH+d1+...+dk

| | | | | | | | |
|----------|---|-----|-----|---|----|----|---------|
| [Name] | Set the bitmap image | | | | | | |
| [Format] | 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≤nL+nH×256≤1023, 0≤nL≤255, 0≤nH≤3, 0≤d≤255 | | | | | | |

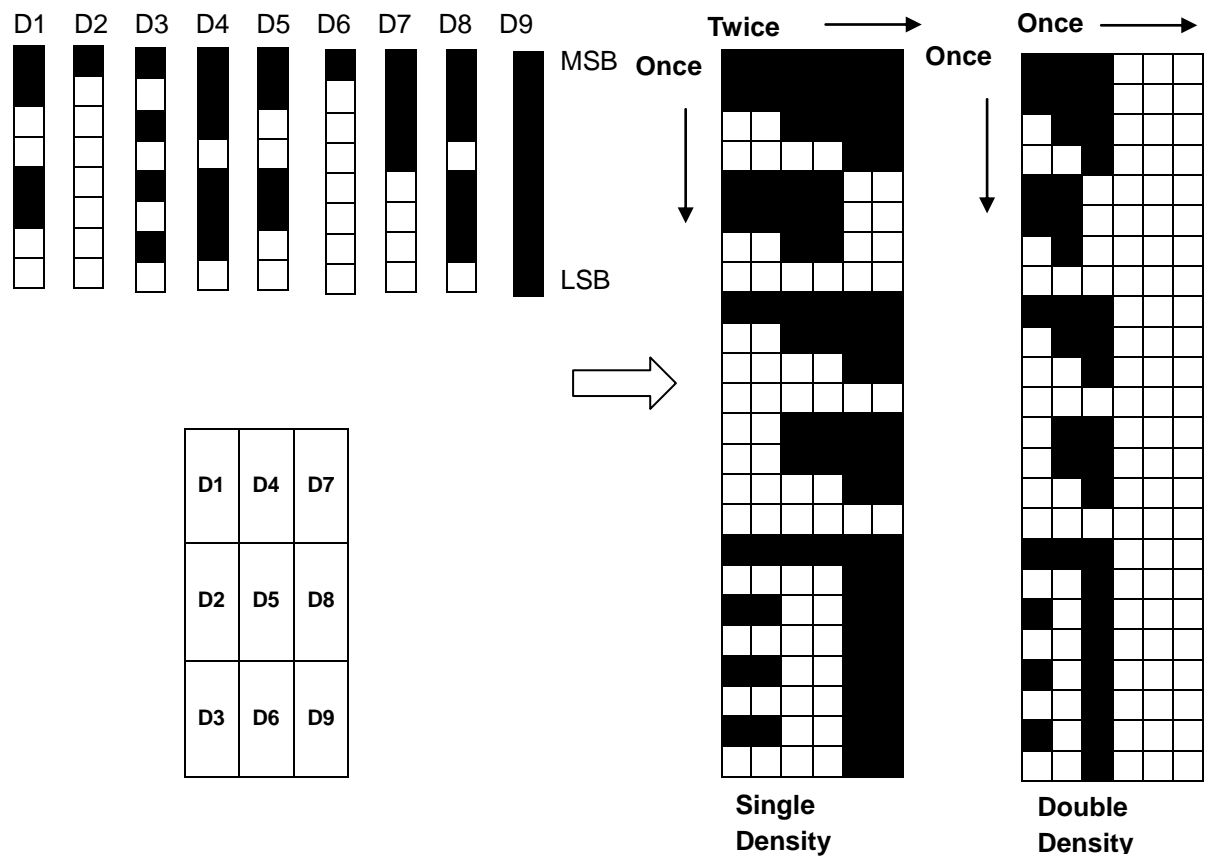
[Descrpt] Due to fixing nL+nH×256, Printing from bit data to graphic data in Mode m

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

•8 dots Mode



•24 dots Mode



ESC+⁺-+n

| | | | | |
|-----------------|------------------------|-----|-----|---|
| [Name] | Set / Cancel underline | | | |
| [Format] | ASCII | ESC | - | n |
| | Hex | 1B | 2Dh | n |
| | Decimal | 27 | 45 | n |
| [Range] | 0≤n≤255, | | | |
| [Initial Value] | n=0, | | | |
| [Descript] | 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 interval of initial line | | |
| [Format] | ASCII | ESC | 2 |
| | Hex | 1B | 32h |
| | Decimal | 27 | 50 |
| [Range] | 0≤n≤255, | | |
| [Initial Value] | n=0 | | |
| [Descrpt] | Set the interval of initial value in 4mm | | |

ESC+'3'+n

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

ESC+'@'


| | | | |
|-----------|---|-----|-----|
| [Name] | Rest printer | | |
| [Format] | ASCII | ESC | @ |
| | Hex | 1B | 40h |
| | Decimal | 27 | 64 |
| [Range] | 0≤n≤255, | | |
| [Descrpt] | 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 | | | |
| [Descrpt] | 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 | | | |
| [Descrpt] | n=0, cancel the dual printing for font | | | |
| | n=1, set the dual printing for font | | | |

| | | | |
|---|--------|-------------|---------|
|  | Title | Rev. | Page |
| | HP-058 | Ver R.V 2.0 | P.28/61 |

ESC+'J'+n

[Name] Feeding
[Format] ASCII ESC J n
Hex 1B 4Ah n
Decimal 27 74 n
[Range] $0 \leq n \leq 255$
[Descript] Printing the data inner buffer, feeding in $n \times 0.125\text{mm}$

ESC+'j'+n

[Name] Back Feeding
[Format] ASCII ESC j n
Hex 1B 6Ah n
Decimal 27 106 n
[Range] $0 \leq n \leq 255$
[Descript] Printing the data inner buffer and back feeding in $n \times 0.125\text{mm}$

ESC+'M'+n

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

| n | Font |
|---|-----------------------------|
| 0 | 12x24(ASCII), 24x24(Korean) |
| 1 | 8x16(ASCII) |

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] $n=13$

[Descirpt] Select the international character as follows:-

| 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+'t'+n

[Name] International code page

[Format]

| | | | |
|---------|-----|-----|---|
| ASCII | ESC | t | n |
| Hex | 1B | 74h | n |
| Decimal | 27 | 116 | n |

[Range] $0 \leq n \leq 6$

[Initial] $n=0$

[Description] The code page is referred with the following table.

[Caution] By the command FS +“.”
Set 1 byte as valid, / Set 2 bytes as invalid.

| n | Code Page |
|---|---------------------|
| 0 | PC437(US) |
| 1 | KANA(JAPAN) |
| 2 | GREEK |
| 3 | Windows1251 |
| 4 | PC866(Cyillic #2) |
| 5 | Windows1250(Poland) |

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] | $0 \leq n \leq 255$ | | | |
| [Descript] | Printing the date & feeding 'n' line | | | |


ESC+'{' +n

| | | | | |
|-----------------|--|-----|-----|---|
| [Name] | Turning 180° | | | |
| [Format] | ASCII | ESC | d | n |
| | Hex | 1B | 7Bh | n |
| | Decimal | 27 | 123 | n |
| [Range] | $0 \leq n \leq 255$ | | | |
| [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+'i'

| | | | |
|------------|------------------------------|-----|-----|
| [Name] | Full Cutting | | |
| [Format] | ASCII | ESC | i |
| | Hex | 1B | 69h |
| | Decimal | 27 | 105 |
| [Descript] | Cutting the paper completely | | |

| | | | |
|---|--------|-------------|---------|
|  | Title | Rev. | Page |
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ESC+'m'

[Name] Partial Cutting
[Format] ASCII ESC i
Hex 1B 6Dh
Decimal 27 109
[Descript] Cutting the paper partially

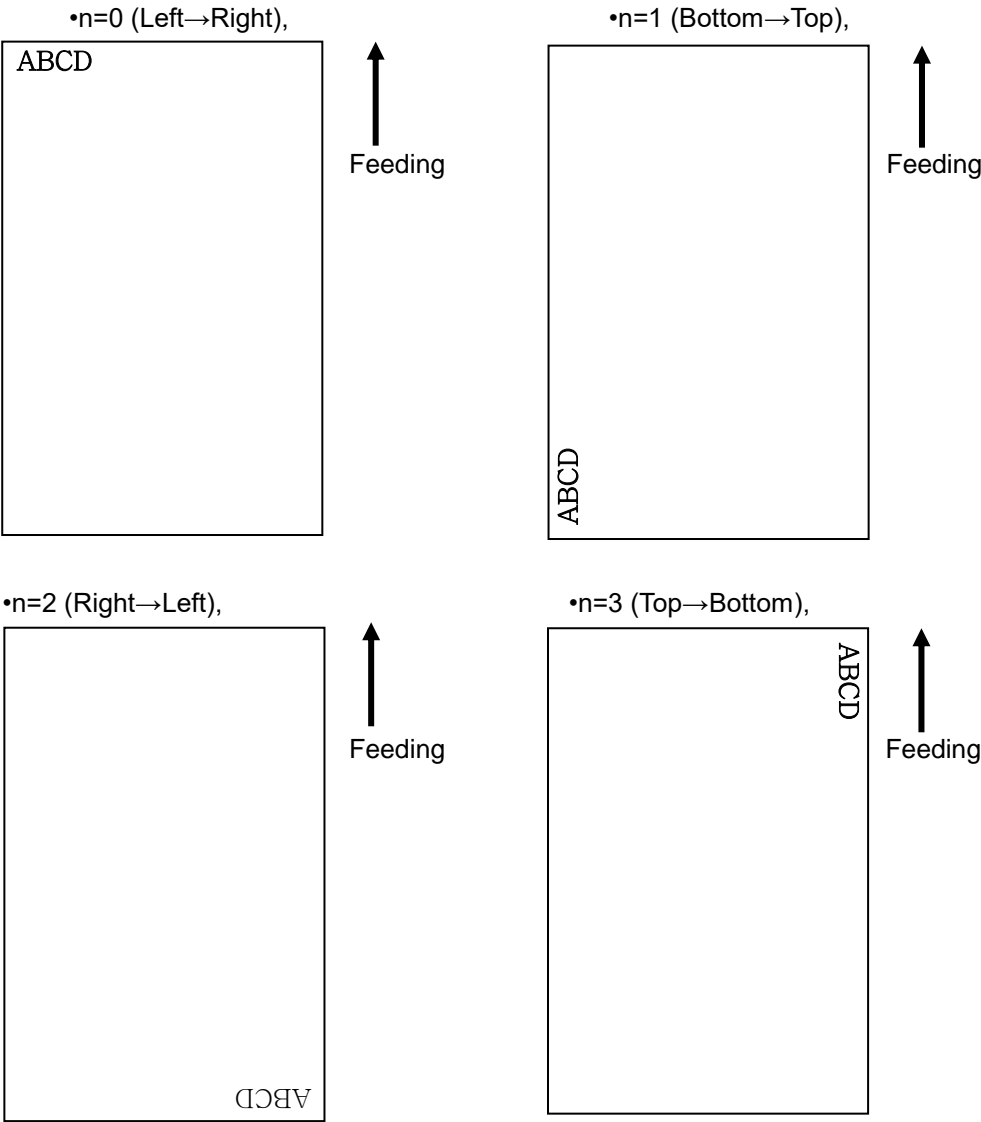
ESC+'S'

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

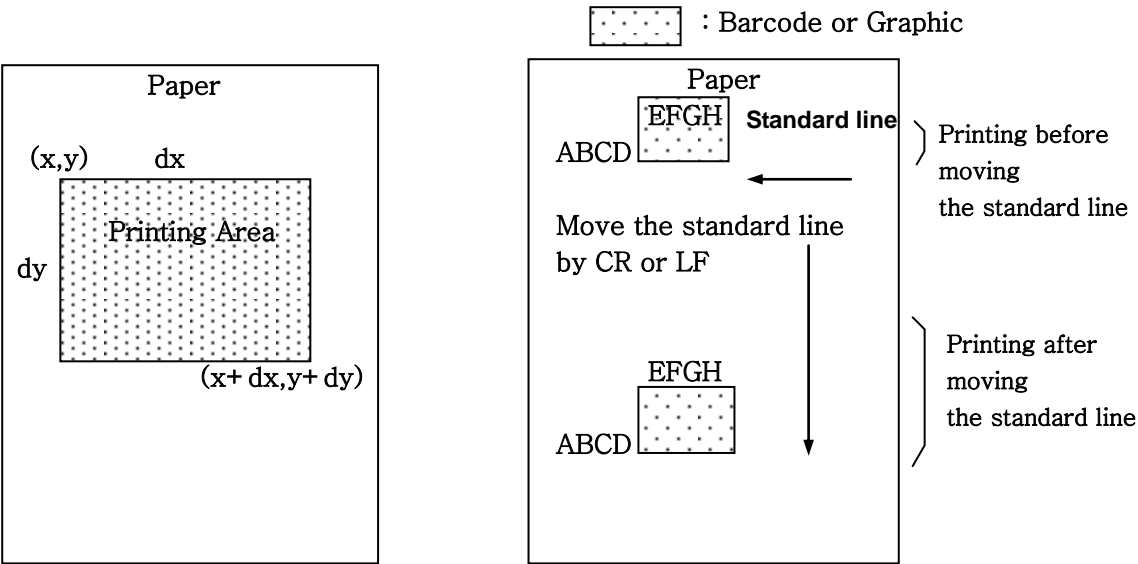
ESC+'L'

[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

| | | | | |
|-----------------|--|-----|-----|---|
| [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 | | | |



| | | | | | | | | | | | |
|-----------------|--|-----|-----|----|----|----|----|-----|-----|-----|-----|
| [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] | $0 \leq xL + xH \times 256 \leq 65535$ ($0 \leq xL \leq 255$, $0 \leq xH \leq 255$) | | | | | | | | | | |
| | $0 \leq yL + yH \times 256 \leq 65535$ ($0 \leq yL \leq 255$, $0 \leq yH \leq 255$) | | | | | | | | | | |
| | $1 \leq dxL + dxH \times 256 \leq 65535$ ($0 \leq dxL \leq 255$, $0 \leq dxH \leq 255$) | | | | | | | | | | |
| | $1 \leq dyL + dyH \times 256 \leq 65535$ ($0 \leq dyL \leq 255$, $0 \leq dyH \leq 255$) | | | | | | | | | | |
| [Initial Value] | $(xL + xH \times 256) = 0$ (0mm, $xL = 0$, $xH = 0$) | | | | | | | | | | |
| | $(yL + yH \times 256) = 0$ (0mm, $yL = 0$, $yH = 0$) | | | | | | | | | | |
| | $(dxL + dxH \times 256) = 448$ (56mm, $dxL = C0h$, $dxH = 01h$) | | | | | | | | | | |
| | $(dyL + dyH \times 256) = 1200$ (150mm, $dyL = B0h$, $dyH = 04h$) | | | | | | | | | | |
| [Descript] | Set printing area & starting point | | | | | | | | | | |
| | Horizontal starting point : $(xL + xH \times 256) \times 0.125\text{mm}$ | | | | | | | | | | |
| | Vertical starting point : $(yL + yH \times 256) \times 0.125\text{mm}$ | | | | | | | | | | |
| | Horizontal size : $(dxL + dxH \times 256) \times 0.125\text{mm}$ | | | | | | | | | | |
| | Vertical size : $(dyL + dyH \times 256) \times 0.125\text{mm}$ | | | | | | | | | | |
| [Caution] | 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. | | | | | | | | | | |



ESC+FF

[Name] Printing of page area
[Format] ASCII ESC FF
 Hex 1Bh 0Ch
 Decimal 27 12
[Description] Edit the printing of page area the receipt of data.
Print the page area in the same time.

[Caution] Please use the command ESC+S to clear,because the data remains at the page area.

ESC+'p'+n+t1+t2

[Name] Cash box Drive
[Format] ASCII ESC p n t1 t2
 Hex 1B 70h n t1 t2
 Decimal 27 112 n t1 t2
[Range] n=0,1,48,49, 0≤t1≤255, 0≤t2≤255
[Descrpt] It will be on (t1 x 2ms) or off (t2 x 2ms) by 'n'.
 t1 : (t1 x 2ms) drive ON
 t2 : (t2 x 2ms) drive OFF

| n | Function |
|------|-------------------------|
| 0,48 | Cashbox 1 (connector 2) |
| 1,49 | Cashbox 2 (connector 5) |

[Caution] In the case of t1>t2, t2 will be extending as long as t1.
※ t1>t2 = ON>OFF

We recommend that you range the t1 as short as you can,
so that the heating at the internal driver is minizing

FS+'!' +n

[Name] Set the printing mode in Korean
 [Format] ASCII FS ! n
 Hex 1C 21h n
 Decimal 28 33 n
 [Range] $0 \leq n \leq 255$
 [Initial Value] n=0
 [Descript] Set the printing mode in Korean
 [Caution] Only valid in Korean

| 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

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 | Function |
|---|---|
| 0 | Cancel the underline of Korean |
| 1 | Set the thickness of underline in 0.125mm |
| 2 | Set the thickness of underline in 0.25mm |
| 3 | Set the thickness of underline in 0.375mm |
| 4 | Set the thickness of underline in 0.5mm |
| 5 | Set the thickness of underline in 0.625mm |
| 6 | Set the thickness of underline in 0.75mm |
| 7 | Set the thickness of underline in 0.875mm |

FS+'S'+n1+n2

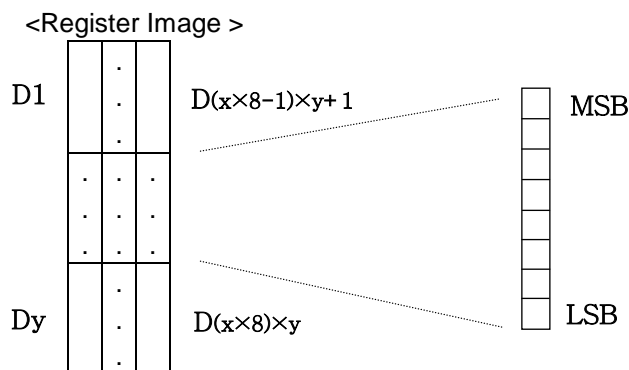
| | | | | | |
|-----------------|---|----|-----|----|----|
| [Name] | Set the space between Korean characters | | | | |
| [Format] | ASCII | FS | S | n1 | n2 |
| | Hex | 1C | 53h | n1 | n2 |
| | Decimal | 28 | 83 | n1 | n2 |
| [Range] | 0≤n1≤255, 0≤n2≤255 | | | | |
| [Initial Value] | n=0 | | | | |
| [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 | | | |

| | |
|-------------|---|
| [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 damag |

* Please download "Logo Utility Program or request us about it to set up easily.



| | |
|-----------------|---|
| [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 regsitered 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 | | | Extension in Vertical | | |
|-------------------------|------------|------|-----------------------|------------|------|
| n(Hex) | n(Decimal) | Rate | n(Hex) | n(DecimaL) | Rate |
| 00h | 0 | x1 | 00h | 0 | x1 |
| 10h | 16 | x2 | 01h | 1 | x2 |
| 20h | 32 | x3 | 02h | 2 | x3 |
| 30h | 48 | x4 | 03h | 3 | x4 |
| 40h | 64 | x5 | 04h | 4 | x5 |
| 50h | 80 | x6 | 05h | 5 | x6 |
| 60h | 96 | x7 | 06h | 6 | x7 |
| 70h | 112 | X8 | 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 |

| | | | |
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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 is effective in case of power capa is short. | | | | | | | |
| | The Second division of electric current (ampere) will be half than 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 $(nL + nH \times 256) \times 0.125\text{mm}$. | | | | |

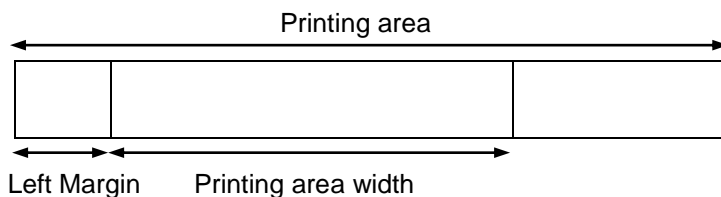
GS+'V'+m

| | | | | |
|-----------------|---------------------------------|----|-----|---|
| [Name] | Select cut mode and cut paper | | | |
| [Format] | ASCII | GS | V | m |
| | Hex | 1D | 56h | m |
| | Decimal | 29 | 86 | m |
| [Range] | $0 \leq m \leq 1$ | | | |
| [Initial Value] | m=0 | | | |
| [Descript] | Select a mode for cutting paper | | | |

| m | Function |
|---|-----------------|
| 0 | Full Cutting |
| 1 | Partial Cutting |

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, set additional “{” in 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 vertical size of barcode | | | |
| [Format] | ASCII | GS | w | n |
| | Hex | 1D | 77h | n |
| | Decimal | 29 | 119 | n |
| [Range] | 1≤n≤4 | | | |
| [Initial Value] | n=2 | | | |
| [Descript.] | Set the vertical 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 | | | |
| [Format] | ASCII | GS | a | n |
| | Hex | 1D | 61h | n |
| | Decimal | 29 | 97 | n |
| [Range] | 0≤n≤1 | | | |
| [Initial Value] | n=1 | | | |
| [Descript] | Enable / Disable | | | |

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 | 00h | 0 |
| | 1 : No paper | 01h | 1 |
| 1 | 0 : Printer head down | 00h | 0 |
| | 1 : Printer head up | 02h | 2 |
| 2 | 0 : Paper w/o jamm | 00h | 0 |
| | 1 : Paper with jamm | 04h | 4 |
| 3 | 0 : Paper adequate | 00h | 0 |
| | 1 : Paper Near End | 08h | 8 |
| 4 | 0 : Print complete | 00h | 0 |
| | 1 : Print or Feeding | 10h | 16 |
| 5 | 0 : Cutter no- error (jamm) | 00h | 0 |
| | 1 : Cutter error (jamm) | 20h | 32 |
| 6 | 0 | 00h | 0 |
| 7 | 0 : Paper invalid at sub sensor | 00h | 0 |
| | 1 : Paper valid at sub sensor | 80h | 128 |

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

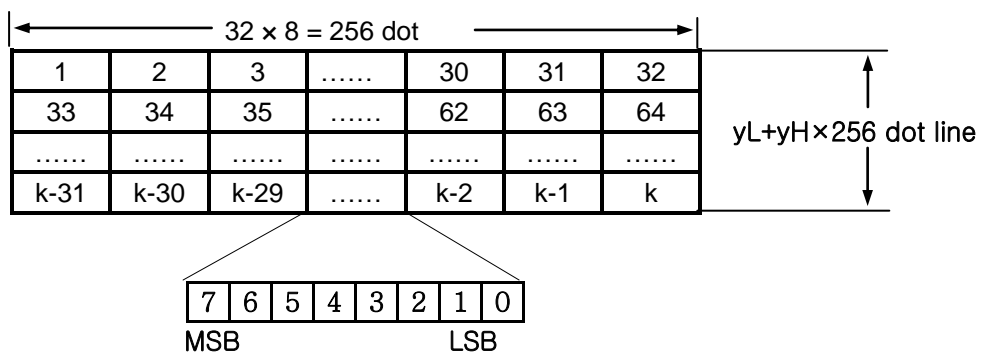
| | | | | | | | | | | |
|------------|--|----|-----|-----|---|----|----|----|----|--------|
| [Name] | Laster bit image | | | | | | | | | |
| [Format] | ASCII | GS | v | 0 | m | xL | xH | yL | yH | d1..dk |
| | Hex | 1D | 76h | 30h | m | xL | xH | yL | yH | d1..dk |
| | Decimal | 28 | 118 | 48 | m |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

* d is a data for laster 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,



[Name] Realtime request the printer to be clear each buffer

[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.

| | | | | |
|------------|--|-----|-----|---|
| [Name] | Realtime status transmission | | | |
| [Format] | ASCII | DLE | EOT | n |
| | Hex | 10h | 04h | n |
| | Decimal | 16 | 4 | n |
| [Range] | n=2 | | | |
| [Descript] | The printer transmits the current data. | | | |
| | Each status item is represented by one-byte data | | | |
| [Caution] | This command is only effective if DIP SW1 is on. | | | |
| | Pls refer the status at the table, page 29 | | | |
| | If the command is received same data, it could be same operation | | | |
| | (Bit image data,etc) | | | |

<data 1 byte of status transmission>

| bit | status | Hex | Decimal |
|-----|---------------------------------|-----|---------|
| 0 | 0 : Paper valid | 00h | 0 |
| | 1 : Paper invalid | 01h | 1 |
| 1 | 0 : Printer head down | 00h | 0 |
| | 1 : Printer head up | 02h | 2 |
| 2 | 0 : Paper jam invalid | 00h | 0 |
| | 1 : Paper jam valid | 04h | 4 |
| 3 | 0 : Paper remains | 00h | 0 |
| | 1 : Paper near end | 08h | 8 |
| 4 | 0 : Print finish. | 00h | 0 |
| | 1 : Printing or feeding | 10h | 16 |
| 5 | 0 : No cutter error | 00h | 0 |
| | 1 : cutter error | 20h | 32 |
| 6 | 0 | 00h | 0 |
| 7 | 0 : Paper invalid at sub sensor | 00h | 0 |
| | 1 : Paper valid at sub sensor | 80h | 128 |

※ The status of bit 4 is only valid, once the command is DLE+EOT+n, the others are fixed 0.

※ If the near end sensor is not available, the bit 3 is 1 all the time.

※ Please use the command, after you set up GS+"a"+n unavailable.

ex) If the status is 3, it means the paper is end, the head up.

SUB+'B'+n1+n2+n3+d1.....dk

| | | | | | | | |
|------------|---|-----|-----|----|----|----|-----------|
| [Name] | Barcode of two dimension | | | | | | |
| [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] | Please refer the table below. | | | | | | |
| [Descript] | Please choose the barcode by the data of barcode. | | | | | | |

n1 : two dimension of barcode
n2 : the number of data of barcode
n3 : size of barcode
d1... dk : the data of barcode

| n1 | Barcode |
|----|---------|
| 1 | PDF417 |
| 2 | QR code |

1) PDF417

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

| n3 | Size of data |
|----|--------------|
| 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 data |
|----|--------------|
| 1 | Version 1 |
| 3 | Version 3 |
| 5 | Version 5 |
| 9 | Version 9 |

※ Vertical is set automatically.

SUB+'r'+n

| | | | | |
|------------|--|-----|-----|---|
| [Name] | 1/3 minimizing | | | |
| [Format] | ASCII | SUB | r | n |
| | Hex | 1A | 72h | n |
| | Decimal | 26 | 114 | n |
| [Range] | $0 \leq n \leq 1$ | | | |
| [Initial] | n=1(Standard Mode) | | | |
| [Descript] | It will be minimizing and printing the character 1/3 . | | | |

| n | Function |
|---|--|
| 0 | 1/3 Minimizing font (12x24 font , 54 max printing a row) |
| 1 | Standard Mode (12x24 font, 36 max printing a row) |

6. 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).

6-1) DLL Interface

Please add the file HwaUSB.DLL at the folder System 32, or the folder SysWow64.

6-1-1) DLL function (Funtions)

1) long UsbOpen(LPCTSTR SelPrinter);

Please open the port USB by the printer Model "HP-058"

- Parameters:
SelPrinter : Printer Model Name
- Return :
Open normal : 0
Open error : -3(minus)


2) long PrintStr(LPCTSTR data);

It prints the character line.

- Parameters:
data : String datas
- Return :
Print normal : 1
Print error : 0

Notice : 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);
- It prints the data one (1) byte.
- Please use the 'PrintPackage function' as below, if there are a lot of datas to print.
- Then you are able to increase the speed of the transmission.
- Parameters:
data : one (1) byte data (0~255)
- Return :
Print normal : 1
Print error : 0

| | | | |
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4) long NewRealRead(void);

It reads the printer status data as one (1) byte by the port USB.

- Parameters:
None
- Return :
Read normal : Printer status value.
Read error : -1(minus)

5) long PrintPacket(unsigned char *PacketBuf,unsigned long PacketLength);

It prints the data by the port USB, as much as the data at the transmission data buffer .

- Parameters:
PacketBuf : Transmission data buffer pointer.
PacketLength : Transmisiong data length

Notice : Please do not exceed more than 64 bytes max.

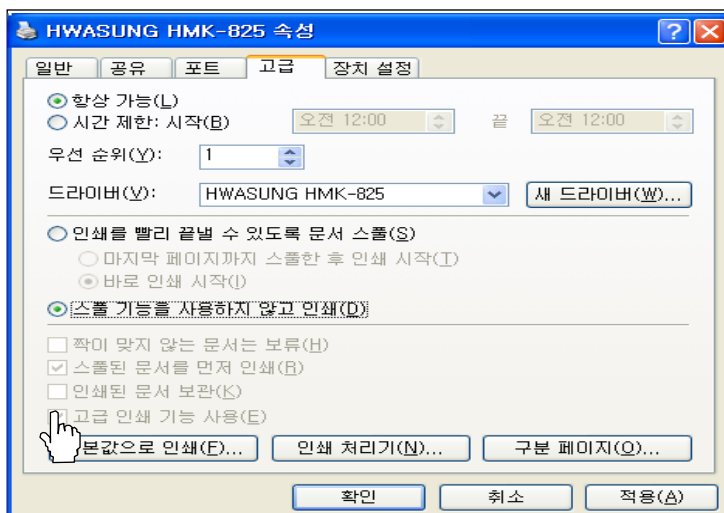
- Return :
Print normal : 1
Print error : 0

Notice Please do not use any function we don't provide, due to the debug usage.

Notice Please ask the sample program for more details.

6-2) DLL NOTICE

If you use Windows driver together, when you use OCX driver,
the data of Windows driver, and the data of OCX driver can not be delivered properly.
Please do not use the spool to print.
Please refer the following image.

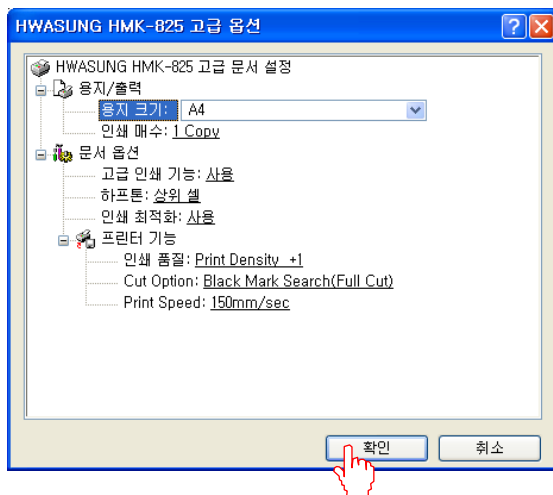
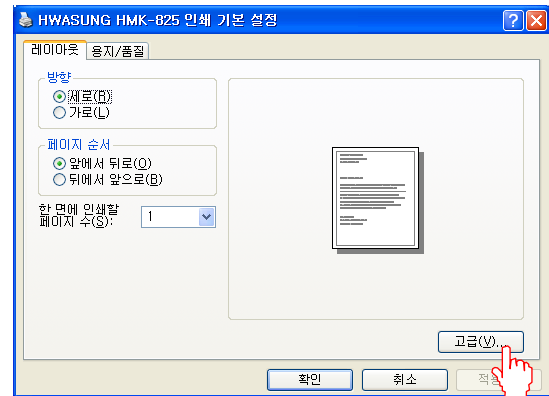
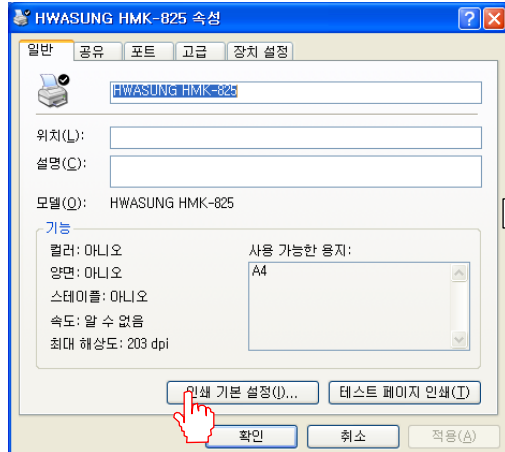


| | | | |
|--|--------|-------------|---------|
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7. Windows Driver

7-1) Paper Spec Setting

- 1) Please open the screen of printer / fax, and click the basic setting (I) of the general tap.
- 2) Please click the button



- * No Cut : No cutting & Printing.
- * Full Cut : Full cutting after printing.
- * Partial Cut : Partial cutting after printing.
- * Black Mark Search (Full Cut) :
The cutting position from the black mark will be set by the memory switch.

※ The quality of printing will be different, because it prints out as graphic. So pls try to print out as below.

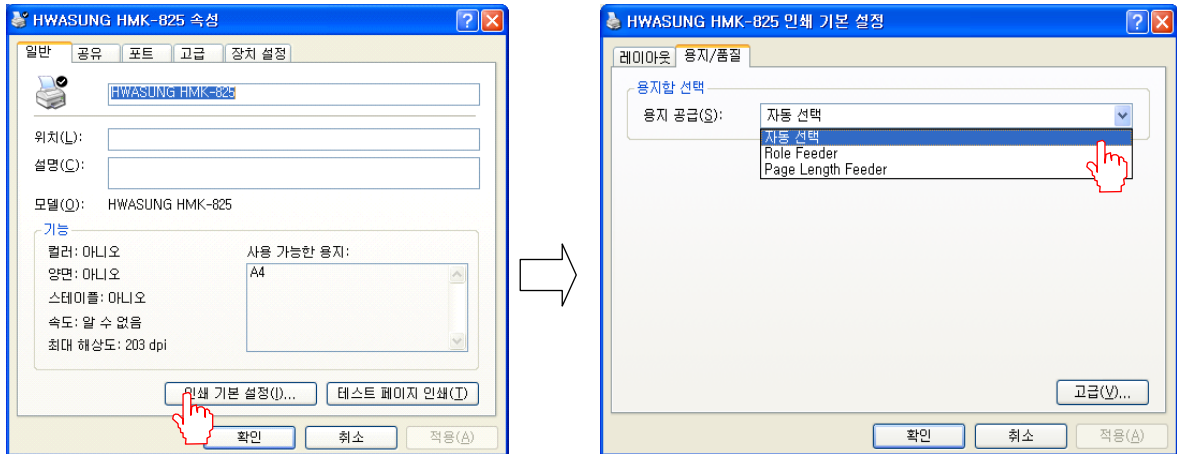
Printing width : 60mm -> Speed 150mm
80mm -> Speed 130mm

| | | | |
|--|--------|-------------|---------|
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7-2) Paper Feeding Setting

Please set the form feeding after printing.

- 1) Please click the basic setting (I) of the general tap.
- 2) Please click the tap of paper /quality, and drop down paper providing.



- 3) Auto & Role Feeder : After printing, The form feeding is not conducted any more.
Please set If the printing length is not regular.

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

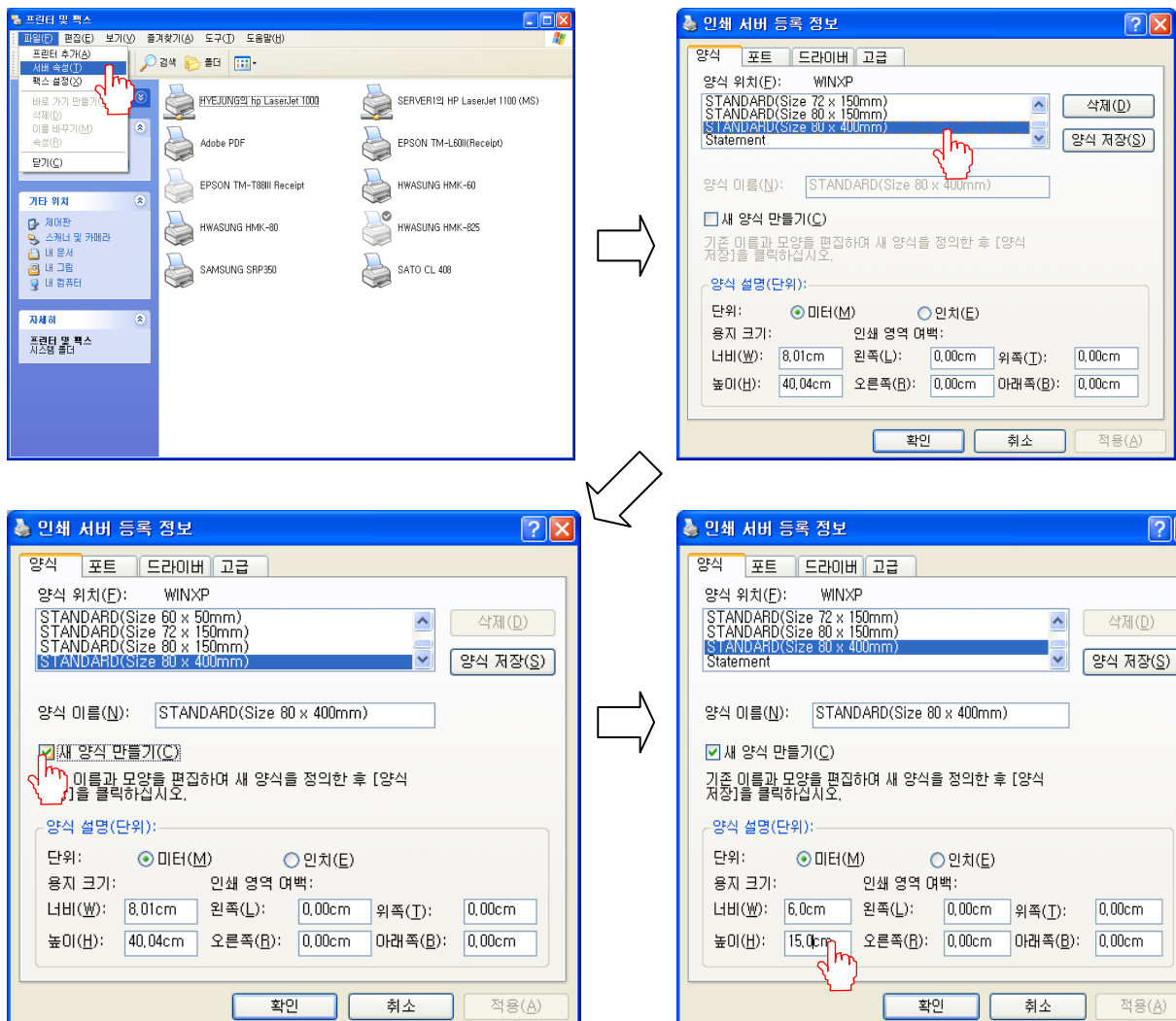
- 4) Page length Feeder : After printing, The form feeding will be conducted as the length fixed. It is mostly used when the regular length is printed.

| | | | |
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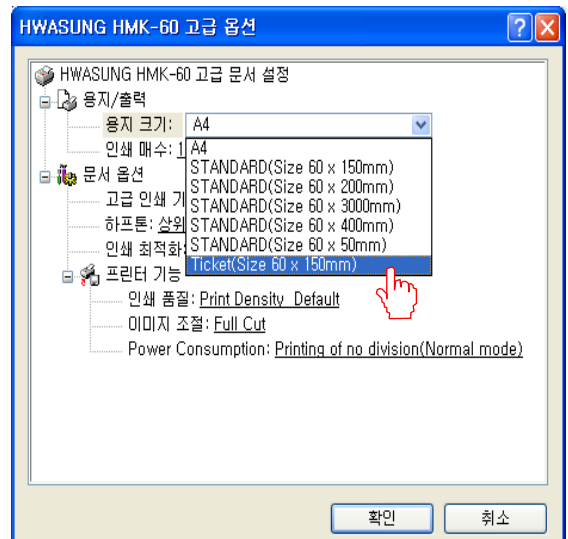
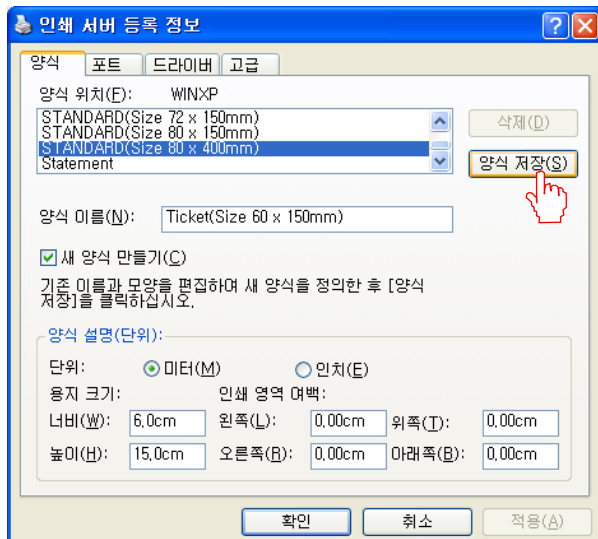
7-3) Setting a new paper

You can make the size of paper you need.
Please refer to the example of 58mm x 150mm as below.

- 1) Please open the screen of printer & fax, and click the property.
- 2) Please choose the standard (Size 58 x 400mm) as image.
- 3) Please tick 'new documentation (C)' as image. * Please do not change the space of printing.
- 4) Please type the width 5.80cm / the height 15.00cm as image.
- 5) Please create the name of type, and save. ex) MyPaper(Size58x150mm)
- 6) Please click the tap 'advanced' and set the MyPaper (Size 58 x 150mm).



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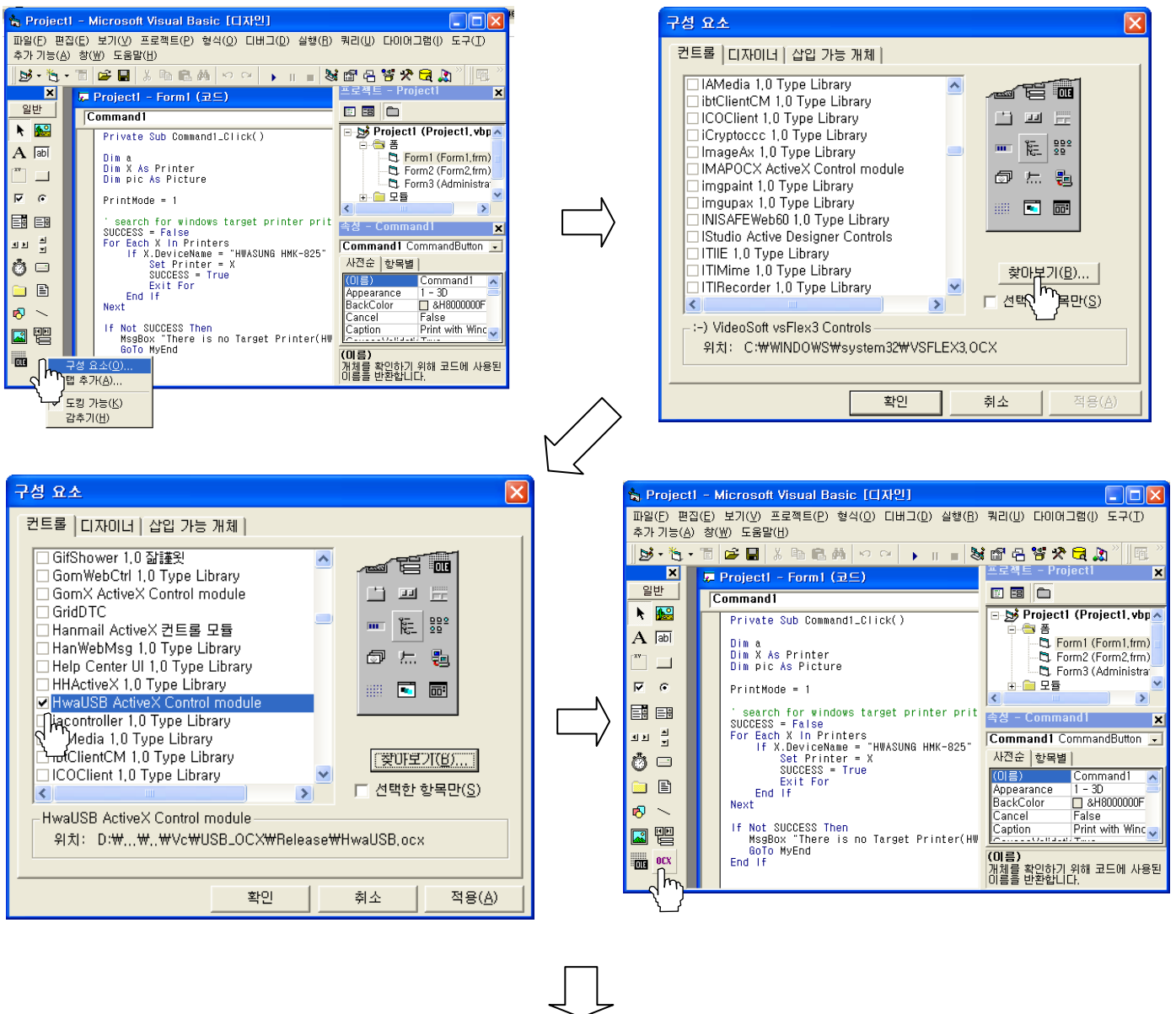
8. OCX Driver


If you use the OCX driver for USB, you can check the printer status easily.
You don't have to use the driver of window. * OCX driver : HwaUSB.OCX

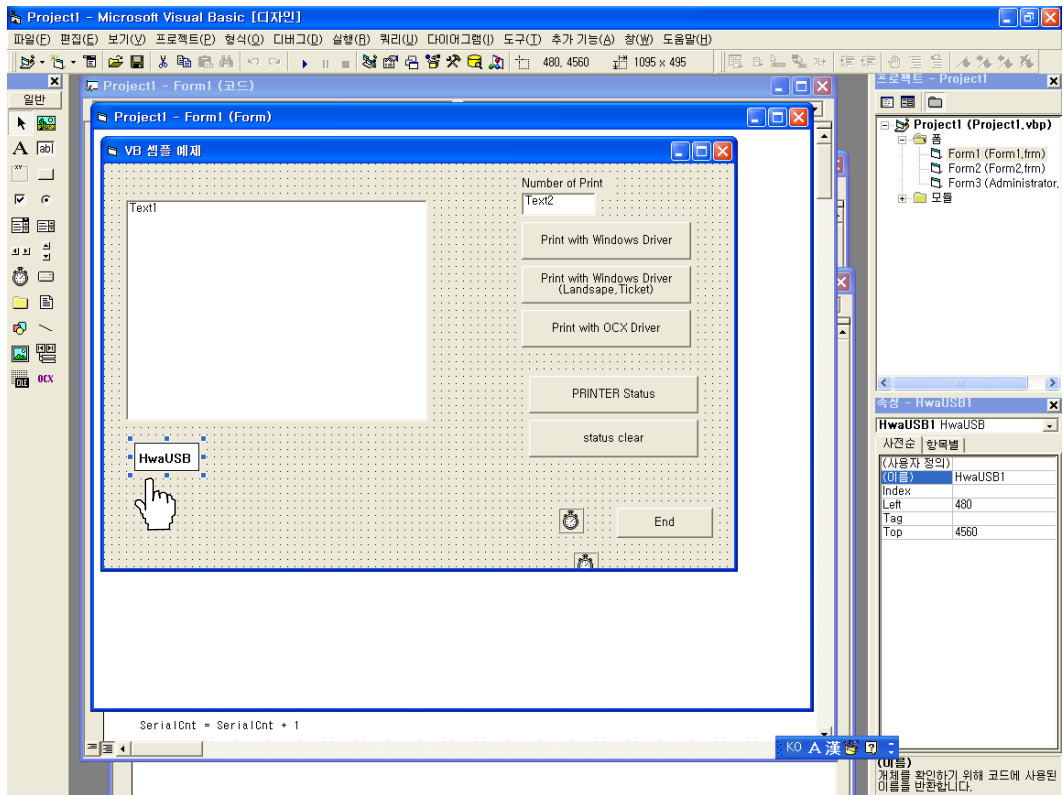
8-1) How to use

It is used for Visual Basic.

Please follows the steps as the images.



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※ Please ask the person in charge of sample program.

8-2) Functions

1) long HwaUSB1.Open(LPCTSTR SelPrinter);

Please open USB port as Printer Model("HP-058").

- Parameters:
SelPrinter : Printer Model Name
- Return :
Open normal : 0
Open error : -3(minus)

2) void HwaUSB1.Close(void);

Please close USB port by the way of which you open Printer Model.

- Parameters:
None
- Return :
None

3) long HwaUSB1.PrintStr(LPCTSTR data);

It prints the string.

- Parameters:
data : String datas
- Return :
Print normal : 1
Print error : 0

※ In order to prevent the data loss by the printing timeout,
Please check the printer status by the RealRed function, and print out.

4) long HwaUSB1.PrintCmd(unsigned char data);

It prints the data 1 byte. It is to use for the printer control command.


- Parameters:
data : 1 byte data (0~255)
- Return :
Print normal : 1
Print error : 0

5) long HwaUSB1.RealRead(void);

It reads the data of printer status as 1 byte of USB port.

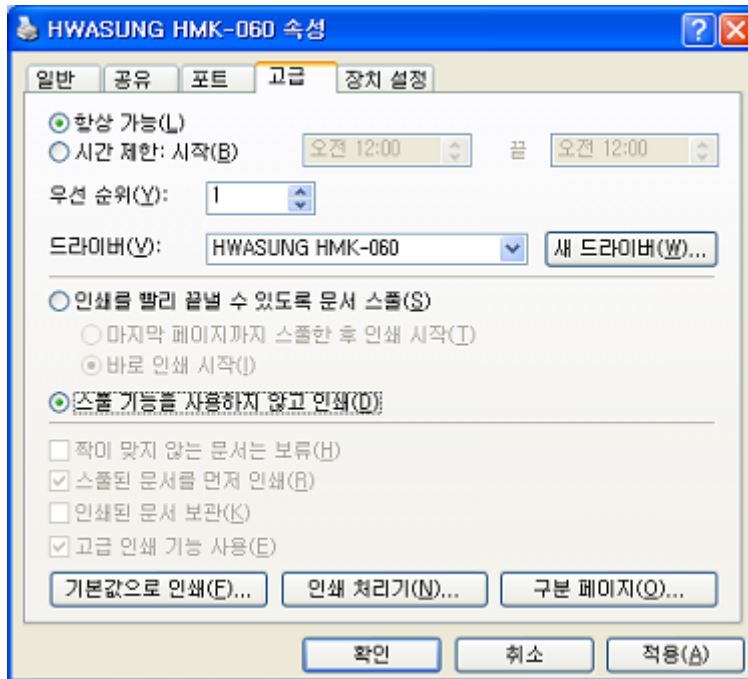
- Parameters:
None
- Return :
Read normal : Printer status
Read error : -1(minus)

※ Please do not use the functions which are not commented.
※ Please ask the person in charge of sample program.

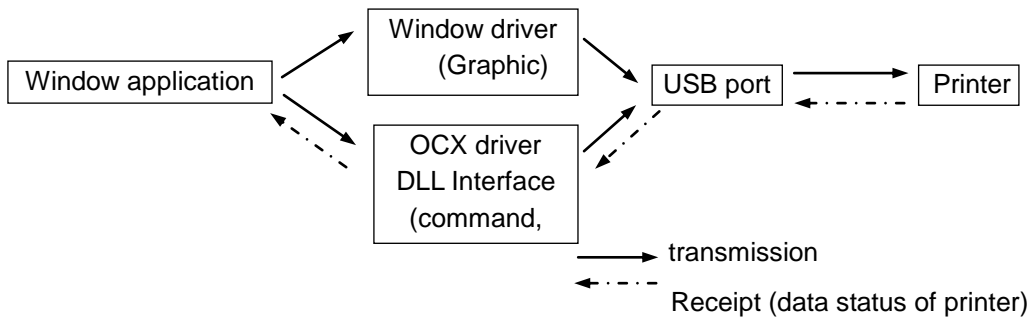
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8-3) Caution for using USB Interface

If you use the USB interface and windows drivers together, the data will not be printed in regular sequence. So please release the spool, when you want to use the USB interface and window driver together. If you release the spool, the data receipt is only made by USB Interface.



※ The Data flow chart of window application



9. Memory Switch

Setting memory switch: Functions are set by internal non-volatile memory.

- ※ For Setting, please use **utility program for setting memory switch** provided by us.
- ※ Setting value will not be erased even after power off, until next change.

| Memory SW | Value | Description |
|-----------|----------|-------------|
| SW1 | 0 ~ 255 | 8bit |
| SW2 | Reserved | |
| SW3 | Reserved | |
| SW4 | Reserved | |
| SW5 | Reserved | |
| SW6 | Reserved | |
| SW7 | Reserved | |
| SW8 | Reserved | |

1)SW1 :

| Bit | Value | Description |
|------|------------------------|---|
| 0bit | 0 : 1/3 Reduction mode | 1/3 Reduction Mode Printing for words(12x24font 1line Max4 words) |
| | 1 : Standard Mode | Standard Mode Printing (12x24 font 1 line Max 36 words) |
| 1bit | Reserved | |
| 2bit | Reserved | |
| 3bit | Reserved | |
| 4bit | Reserved | |
| 5bit | Reserved | |
| 6bit | Reserved | |
| 7bit | Reserved | |

*** Spec revision**

It is a page for the technician to know what is the revision updated.

This page is written in Korea.

[illegible]