Product Specifications

2 & 3-inch Super High Speed Kiosk Printer

ＮＰ－２５１１
ＮＰ－３５１１

Revision　0.01　2006.11.30　Provisional version
Revision　0.07　2007.05.21　Provisional version

※Since the product is under designing, the specifications described can be changed.
※All specifications of 2-inch version is the provisional.

All specifications described are subject to change without prior notice.
Though we made assurance dubly sure to write this product specifications,
Please contact us if you find foul play, mistake and erroneous omitting.

Nippon Primex Inc.

Record of Revision 1

Rev.	V.	Descriptions			approval	PIC
		page	item	change		
0.01	Pv		New release (prov.)			Abe 2006.11.30
0.02	Pv	3	Print Speed	Deleted page/line mode and mentioned MAX.200mm/sec		Abe 2006.12.13
0.03	Pv		25)engine motor	Added		Abe 2006.12.26
		1	Features 12)	* added test schedule		
		3	Print Speed Condition	Optimized to drive		
		6	Consumption current conditon	Optimized to drive		
		9、10	Receiption control signal	Integrated to RTS		
		15	Select drive	Optimized to drive		
				Optimized to drive		
		19～	Command	Added		
		45～	Character code table	Added		
		atch	Kanji code table	Added		
		atch	Chinese(GB18030-200)	Added		
		atch	KSX1001-1992	Added		
0.04	Pv	1	Outline option (in review)	Factory setting、added black mark sensor		Abe 2007.01.24
		1	Feauters 12)	* delete test schedule		
		3	Print speed condition	Added storage mothod		
				Ratio for print 50%→less than 50%		
		4	Print mode, page mode	Added under development		
		4	Operating environment Temparature	Changed -20～60→-20～45		
		5	Print area & Cutting Positoin	Changed 3→2		
				Changed 12.5→11.5		
		5	Print area & Cutting Position	Added *Preprint		
		7	Operating environment Specs temparature	Changed -20～60→-20～45		
		7	Operating environment Specs	Changed testing→retesting schedule		
				Added next production		
		7	Storage environment Specifications	Changed testing→retesting schedule		
		7	Safety standard	Changed standard		
		7	UL60950-1	Changed approved		
		9	Interface USB	Delete inspect *4)		
		11	4)CN7:Presenter	Delete except NPT-301		
				Added NPT-305/NPO1201		
		12	Momory switch	Added M2-6 option select		
		13	Memory switch manual setting	Added		
		13	Fig.3 Language font	Added MS2		
				Changed Korean→Chinese		
				Changed Chinese→Korean		
		13	Seft Print	Changed control～function→control～operation		
				Deleted printer mechanism function		
				Deleted print quality		
				Deleted printer mechanism auto		
		14	Cutter abnormal status	Deleted not-connect		
		14	Cutter abnormal cancell	Changed thermal head cover open		
		14	Blackmark detective error	Deleted		
		14	Presenter abnormal	Added		

Record of Revison 2

Rev.	V	Descritpion			Approved	PIC
		page	item	change		
0.04	pv	16	ALARM display pattern	Deleted Recovery		Abe 2007.01.24
				Added paper near empty		
		19、35	Macro definition start/finish	Deleted		
		19、38	Macro excution	Deleted		
		20	Command table	Added *print method		
		31	Raster image bit	Added serial interface		
		35	Black/white reverse printe set/reset	Changed download→Raster		
		36	Print start/end setting	Changed fig. n(hex)		
				Changed print length 210→160		
				Deleted *Storage Print		
				Added *USB interface		
		39	Barcode Print	Changed not barcode print over		
		40	Print density set	Change stardard print desity~		
				Added Print start/finish~		
0.05	pv	1	Option	Added A:5 series blackmark		Abe 2007.02.08
				Deleted blackmark in review		
		5	Print area and cut position	Added specs of blackmark print		
				Added postion of partial cut		
				Added limited area		
		12	Memroy switch	Changed MS2-6 revervation		
				Deleted *MS2-6 option selection		
				Changed *MS2-6、MS2-7、MS2~		
		14	Details of error detection	Added print start status		
				Added presenter abnormal→detected paper error		
				Deleted priority		
		16	ALARM Display pattern	Added priority		
				Changed Presenter abnormal→paper deted error		
		16	FEED switch	Deleted Cancel Mark detection		
		19、32	Detection blackmark	Added		
		20	Plan to add～	deleted		
		31	Raster image bit	Deleted serial interface		
		34	Printer status transmit	Presenter abnormal→detect paper error		
				Deleted Fig.		
		39	Print status auto-transmit	Changed Presentor abnorma→Paper detect error		
				Deleted fig.		
0.06	pv	-	NP-2511	Added provional specs.		Abe 2007.05.01
		-	Annotation	Deleted 3 papers but recomended～		
				Deleted 7)low tempt.or highhumidity~		
				Deleted 24)preprinted～		
		1	①paper size	Added 2:2inch(standard:58mm)		
		1	②paper holder	Changed 1:holder for roll paper		
		1	④Option・OEM etc	Deleted A:5 series blackmark		

Rev.	V	Description			Approval	PIC
		page	Item	Change		
0.06	pv	1	Feature	Changed partly		Abe
		1	Feature 1)〜3)	Consolidated in 1)		2007.05.01
		1	Feature 8)	Changed holder for roll paper		
		2	constitution	Added NP-2511		
		3	Specifications	Added NP-2511		
		3	Print specifications	Separated in head specs and print specs.		
		3	Number of total dot	Changed 576→640		
		3	Max. print width	Changed 72→80		
		3	Number of print digit	Changed max. print digit		
				Changed Font A 48→53		
				Changed Font B 64→71		
				Changed Kanji 24→26		
		4	Autocutter(partly)	Move to other page		
		4	Paper Specifications	Move to other page		
		4	Near empty	Move to other page		
		4	Environmental Specs.	Move to other page		
		5	Print area & cut position	Changed Paper specifications		
		7	Print Area	Added		
		8	Cutter Specs	Added		
		9	Position of Blackmark	Added		
		11	Consumption current	Separated 2 and 3 inch model		
				Ajusted supply voltage		
				Changed 25% 4→3.5		
				Changed 100% 15→14		
		11	Condition	Changed 2-fraction drive print		
		12	reliability	Changed reliability Specs.		
		13	Environmental Specs.	Added		
		19	Functions setting	Added NP-2511		
		19	Memory Switch	Changed MS2-6 Mark sensor		
				Deleted MS2-6		
		26	How to remove jammed paper	Added *fig.NP-3511〜		
		26	How to clean Thermal head	Changed 1)〜4)		
		27、36	Back Feed	ADDED (NP-3511 F/W Ver1.10 and later)		
		27〜	Detected Blackmark	Deleted		
		28、47	Cue operaiton	Added(NP-3511F/W Ver1.10 and later)		
		28、47	How to detect mark and set the positioning offset	Added (NP-3511 F/W Ver1.10 and later)		
		28、47	Set cue disposal when paper set	Added(NP-3511 F/W Ver1.10 and later)		
		28、48	Set Print area	Added(NP-3511 F/W Ver1.10 and later)		
		28、48	Set Max. print speed	Added (NP-3511 F/W Ver1.10 and later)		
		28	*51)〜53)Black~	Added		
		28	*17)、51)〜55) NP-	Added		
		39	Raster Bit Image	Delete command〜		
0.07	pv	15	External measurement	Added NP-2511		Abe
						2007.05.21

Read Carefully Before Using the Printer

Wrong handling of the printer may cause its performance declined and the product damaged. Please read the notes below before handling.

1. Static discharge prevention must be made for installation and removal of the printer to protect IC and other electrical parts. Connect it to the earth ground. It is also requested to remove the static from body of the person before handling, especially, the input terminal.
2. Avoid excessive force to the input terminal for handling.
3. Avoid printing with no paper loaded. It damages platen and thermal head, printer life will be shorten.
4. Do not scrabble thermal head with sharp edge or something hard, or give impact.   The heat element may be damaged.
5. Set the power of printer off before connecting or removing connecters.
6. The printer is not protected from water or dew formed. Do not water the printer or handle it with a wet hand, which may cause damage to the printer due to short circuit, or heat or fire.
7. The printer is not protected from dust or dirt. If it is used at dusty place, the thermal head may be damaged or paper feed is not operated properly.
8. When cooling the printer with a fan, avoid the printer's paper outlet from locating fan's air inlet. It may cause mal-function of printer.
9. Reflection type of infrared ray sensors are used at some locations in the printer. Direct sun light may cause mal-function of printer. Avoid from such a location for installation.
10. This printer does not support any operations caused by the commands or control commands not specified in this manual.
11. Please use both hand when you hold the printer.
12. In order to prevent excess current, please put elemental device to external 24V power line (Please refer to the power supply specification for the details), and also put fuse.
13. Please plug off the printer when you do not use the product for a long time. Please also insert paper between the platen.
14. When paper jam occurred, please make sure to slowly remove the paper to paper exit direction   after head up status.
15. The product is designed to use with general electronic devices (Computer, PC, OA, others). This is not designed and not guaranteed   to use with extremely high quality, high reliability product or product whose failure may danger human life (Atomic power control device, aerospace aircraft devices, Transportation devices, Traffic signal devices, Ignition control devices, Medical devices, other safety equipments: we call "Specific application" thereafter). Users take full responsibility for using with such specific application.
16. The product uses part that includes GaAS (Gallium arsenide). Please do not break the product, no chemical splitting ,otherwise it may harm human with such part broken pieces.
17. The product should not be installed where it is tend to take place static easily, shaking strongly and electromagnetic field, corrosive gas, rain, fog and direct sunlight.
18. There is some possibility that cut surface of steel plate on principal structural part of the product is to rust easily.
19. Don't re-create the product.
20. Don't pull the paper while printing and paper-feeding. When thermal head cover is closed, don't pull the paper except for patial cut. When patial cut, you should pull either right or left on the edge of paper to separate.
21. When you get rid of the proucting, you must dispose of according to local autholities.
22. In case the motor in engine of the product has been working for a long time or stopped and worked at very short interval, the motor produces heat and doesn't execised fully capacity. To avoid it, you should get the motor stop for the same period of working time. The continuous working time is 6 minites one time.
23. The coverage of warranty is limited within the product itself, Nippon Primex Inc is not responsible for anything induced by the defect of the product, and don't pay for any compensation.

Table Contents

1. Overview

1.1 Overview

Model name is specified as follows;

$$N P - \underset{①}{\underline{3}} \, 5 \, 1 \, \underset{②}{\underline{1}} \, \underset{③}{\underline{U}} - \underset{④}{\underline{*}}$$

1. Paper Width (Factory Setting)
   3: 3 inch (Standard: 80mm)
   2: 2 inch (Standard: 58mm)

   * 2 inch in review

2. Paper Holder Type (Factory Setting)
   1. Holder for Roll Paper

3. Interface (Factory Setting)
   No mark: Serial (RS-232C), USB (V2.0 Full Speed) by user's selection.
   U   : USB (V2.0 Full Speed) only.

4. Options or OEM etc.
   No mark: original model (without option)
   * Option: Bezel in review

1.2 Features

This model mounted with new developed small and low-cost in-house printer mechanism is small and low-cost module printer for improving usability.
Installation at apparatuses has been finished with power supply (DC24V) and data supply only, and this model can be used under the wide range of temperature environment. Threrefore, the user can install this model freely. We can realize high liability and quality by mounting in-house printer mechanism.

1) Small, light weight. Since this model is low-profile, it is easy to install on apparatuses
2) High Speed Printing & High Quality Printing
3) Interface available for Serial (RS232C) and USB (v2.0 High Speed)
4) Adaptation to various types of 1D barcode
5) Adaptation to various applications
6) Easy operational adjustable paper holder with detective sensor of near-empty
7) Drivers for various Operation Systems (optional)
    Windows 2000/XP/CE5.0　Linux（sample）
8) Easy to re-write firm ware with Flash Memory & 3 patterns of registration available with NV bit image.
9) Comply with Multiple Languages
10) Controllable external paper feeding（Presenter:NPT-301）
11) Easy to change roll paper by auto-loading
12) Wide range of operation temperature

1.3 Configulations

model	specifications	Part#	Q'ty	NP-3511	NP-3511U
NP-3511	USB & Serial	70-00170-00	1	○	
NP-3511U	USB only	70-00171-00	1		○
Thermal roll paper	W80xφ30(IDφ12)	24-00018-00	1	○	○

Model	Specifications	Part No.	Q'ty	NP-2511	NP-2511U
NP-2511	USB / Serial	70-00330-00	1	○	
NP-2511U	USB	70-00331-00	1		○
thermal roll paper	W58xφ30(IDφ12)	24-00017-00	1	○	○

2. Specifications

2.1 Basic Specifications

No.	Specifications		2 inch (tentative)	3 inch
1	Print head	1:Print method	Line thermal dot	
		2:Total Dot	448 dots	640 dots
		3:Dot density	8dot/mm	
		4:Print width (MAX)	56mm	80mm
2	Printing	1:Print speed(MAX) [*1]	MAX.200mm/sec	
		conditions	Head temp.35°Cand more、bufferful method Optimized drive print ratio 50% or less * except communication time	
		2:Max. print digit		
		Font A(12×24)	37 digit	53 digit
		Font B(9×17)	49 digit	71 digit
		Kanji (24×24)	18 disit	26 digit
		3:Paper feed pitch	0.125mm	
3	Character	1:Character size		
		Font A(12×24)	1.50×3.00mm	
		Font B(9×17)	1.13×2.13mm	
		Kanji (24×24)	3.00×3.00mm	
		2:Charactoers		
		Japanese	JIS C 6226·1983 （Full size） Katakana character set （Half size） Extended graphic character set （Half size） Code Page 858 （Half size） International character set （Half size）	
		Korean	KS X 1001:1992 （Full size） Katakana character set （Half size） [*2] Extended graphic character set （Half size） [*2] Code Page 858 （Half size）	
		Chinese	GB18030-2000 （Half/Full size）	
		Greek	Code Page 1253 （Full size）	
		Polish	Code Page 1250 （Half size）	
		Russian	Code Page 1251 （Half size）	
		Scandinavian	Code Page 1252 （Half size）	
		Turkish	Code Page 1254 （Half size）	
		3:Character Modifications	Double width Double Height Quadruple Bold print Double strike Inverted 90°clock-wise rotaion underlined	
		4:Line feed Q'ty (Default)	4.25mm （1/6 inch）	

*1 Print speed fluctuates depending on the condition.
*2 KS X 1001:1992 Build-in Font

No.	Specifications		2 inch (tentative)	3 inch
4	Print mode		Line mode Page mode (under development)	
5	Barcode spec	1:1D Symbology	UPC-A UPC-E JAN-13(EAN-13) JAN-8(EAN-8) CODE39 ITF CODABAR CODE128	
6	inerface	1:Serial (dual tipe)	RS232C compliance	
		2:USB(dual U type)	V2.0 FULL SPEED compliance	
7	Autocutter	1:cut mode	Full/Partial cut * by command selection	
8	Receive buffer		Approx. 15K byte	
9	Operation Switch input		ALARM LED OUT FEED Switch Input Reset Switch	
10	Appearance	1:Dimensions Without connector&roll paper	106(W) x 150(D) x 75(H)　mm	127(W) x 150(D) x 75(H)　mm
		2:Weight Without roll paper	Approx. 640g	Approx. 750g
		3:Mounting note[*4]	Horizetal Position	Horizental Position

*3 Paper roll should be wind tightly. If not, can't detect corectly.

　　Can't detect near-end when you use wider core diameter than value set of near-end due to

　　reflective type photo sensor.

*4 This printer should be installed horizontally.

2.2 Paper Specifictions

1) Printermechanism

	2 inch (tentative)	3 inch
Paper wide	58/60^{-1}mm	65/76/80^{-1}mm
Paper thickness	65～150µm	

・Do not change narrow paper to wide paper on using.（In case you use narrower paper
　than wide of Thermal head, the uncovered part by paper on thermal head grazes
　directly with palaten roller and the thermal head could be destoried.）
・In case you use paper wide 60, 65 and 76mm, please contact us. (Settnng of paper wide
　for printers should be at Factory.

　① Thermal Roll Paper Specifications.
　　a) External Dimensions of Thermal Roll Paper
　　　max. external diameter : φ83mm
　　　※Now we'd prepare paper holder PH-8L only. (upto φ83mm)
　　　　When you use paper with φ84 and more, please contact us.
　　　　（In the case of using paper with φ100 and more, we adapt axis-suppot and
　　　　　need additional cushion device.）

　　b) Paper Core Specificaitons

Paper thickness	Inner core diameter	Outer core diameter
65～85µm	φ12.0mm	φ18.0mm
100～150µm	φ25.4mm	φ33.4mm

　　　※Width of paper core should be same as width of width of roll paper.

　　c) Conditions of using thermal paper
　　　You should keep stricktly the following conditions;
　　　・Do not stick end of paper with glue and scotch tape.
　　　・The core of paper roll should not be deformed.
　　　・The core of paper should not be sticked out over the side of paper roll.
　　　・Don't keep paper rolls on condition of heat and humidity

2) Paper Holder
　① roll paper

Name	Paper wide	External diameter	Paper core	Near Empty
PH-8L	80^{-1}mm	φ83mm	Innerφ12.0mm Outterφ18.0mm	φ22.0±2mm
PH-10 * 1	－	φ83mm	Innerφ12.0mm Outterφ18.0mm	φ22.0±2mm

　* 1　Now PH-10 is under design for NP-2511.
　　　By attaching the addional part, you can extend to Inner coreφ25.4mm、
　　　Outer coreφ33.4mm.（in this case, we are confirming Near Empty.）

3) Recommended Thermal Paper

Base paper #	Paper thickness	manufacturer	Printing dentisy
PD160R	75μm	Oji Paper Co	100%
PD450-145	145μm	Oji Paper Co	5℃～60℃ : 100% -20℃～5℃ : 120%

4) Remarks

・When printing on low temperature or high humidity on highly printing ratio, there is a case that the recording paper get filthy due to water vapor generated from recording paper and the printer builds up condensation. Please pay attention that a drop of water doesn't falls on thermal head. In the case of condensation, you should switch off until the condemsation disappears. You should use the reliable and confirmed fully thermal paper that has little Na+ ion, K+ion, Cl-ion.

2.3 Print Area

Print Area
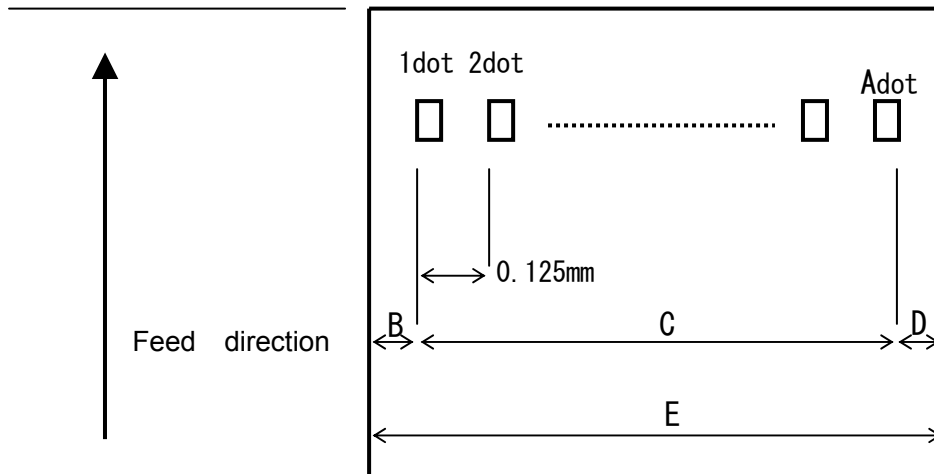
1) Name of Symbols

Symbol	Name
A	The number of dot for Printing
B	Left Margin
C	Area of Printing
D	Right Margin
E	Paper Width

2) Paper Width and Example of Printing Area Setting

|	A(dot)	B(±1mm)	C(±0.2mm)	D(±1mm)	E(-1mm)
2inch	416	3	52	3	58
（tentative）	432	3	54	3	60
	472	3	59	3	65
3inch	560	3	70	3	76
	576	4	72	4	80

In case the margin on Left and Right is not enough, printing is run off due to directional bias on paper. (We recommended more than 3mm) Printing Area can be changed by command.

3) Factory Setting

Factory setting as follows:

	A(dot)	B(±1mm)	C(±0.2mm)	D(±1mm)	E(-1mm)
2 inch (tentative）	416	3	52	3	58
3 inch	576	4	72	4	80

2.4 Specifictions of Cutter
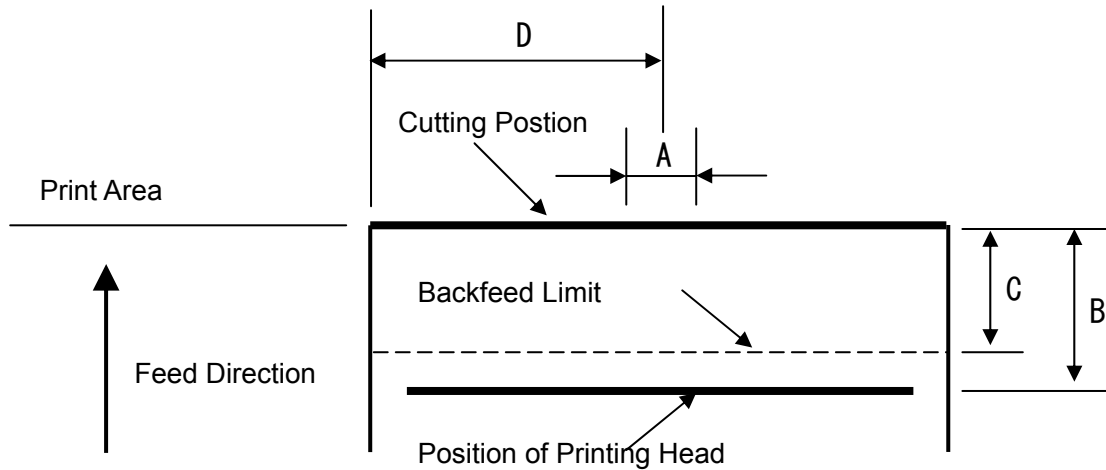
Symbol	Descriptions	Meaurement
A	Tab size on Partial Cutting	1.5±0.5mm
B	Position of Printer Head (Cut to Print)	9.5±1mm
C	Limit of Backfeed	6.5mm
D	From edge of pape (1 dot~) to the center of tab on partial cutting	30±0.5mm(NP-2511) 40±0.5mm(NP-3511)

※Value of D doesn't change in case paper wide changes to 75 or 65mm

1) Cutting Method : Slide System

2) Cutting Mode : Full cut／Partial Cut A／Partial Cut B
　　　　　　　　 ※Selectable by Command

3) Allowance of Cutting Frequency : 30 cuts per minutes

4) Paper Thickness : 65～150μm
　　　　　　　 ※In case Partial Cut B is conducted with the paper with 75μm and
　　　　　　　 more thicker, there may be a case that paper is drawn from
　　　　　　　 mechanism side at the time of extracting paper.

5) Note:
・In case you burden palaten like drawing paper strongly after partial cut etc, please pay attention there is a case that the next line is not properly printed. You should pull left or right end of paper to avoid burdening palaten or taking measure of feeding the paper by approx. 1mm before printing.

・2mm paper feed is automatically effected to avoid paper jam after cutting, the above mentioned cutting margin is 11.5±1mm.

2.5 Postion of Black Mark

Print surface
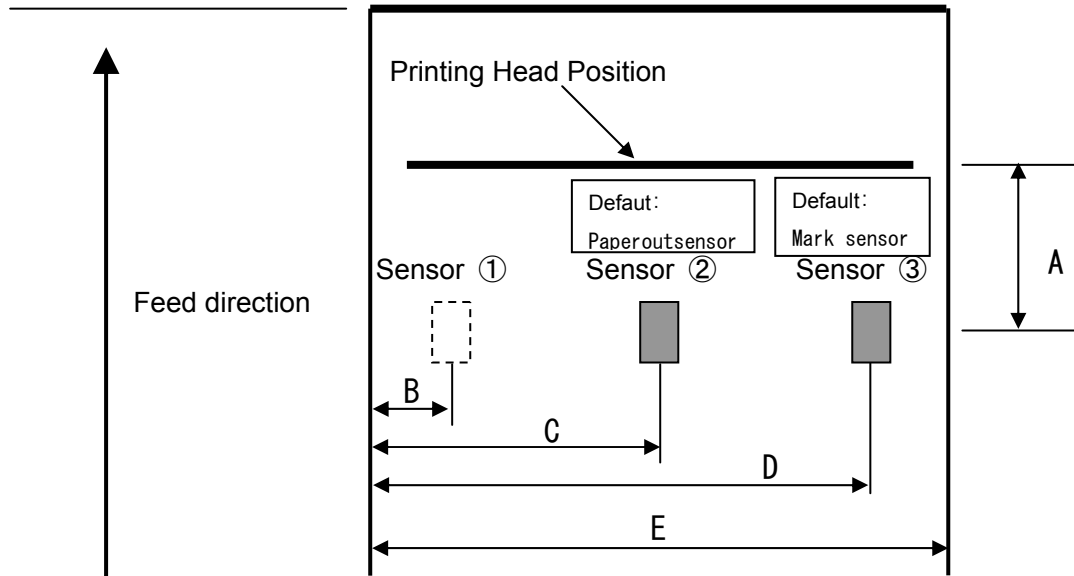
1) Name of Symbol

Symbol	Descriptons
A	Printer Head～Sensor Position
B	Sensor①position
C	Sensor②positon
D	Sensor③position
E	Paper Width

2) Sensor Positon

	A(±1mm)	B(±0.5mm)	C(±0.5mm)	D(±0.5mm)	E(−1mm)
2inch	11.5	8.0	30.0	52.0	58
3inch	11.5	7.5	40	N.A.	65
	11.5	7.5	40	72.5	76
	11.5	7.5	40	72.5	80

3) Sensor Specifications

Sensor①and③ are selectable. Standard is Sensor③.

Mark Sensor and No paper Sensor are selectable by MS2-6.

	MS2-6	Mark Sensor	No Paper Sensor
Standard	OFF	Sensor③	Sensor②
	ON	Sensor②	Sensor③
Options	OFF	Sensor①	Sensor②
	ON	Sensor②	Sensor①

※Please remove dust and paper powder etc on Sensor periodically.

4) Black Mark Printing Specifications

Mark Print position *1	The center of Sensor set by Mark Sensor is reference position.
Mark Width(Min) *1	left and right 7.5mm（Min 15mm）from reference position
Height of Mark (Min)	5mm
Printing Side	Not Printing Side
PCS value	0.9
Reflectance Ratio	Reflectance less 7% of 900nm(infra-red）
Preprint limited Area *1	Preprint with dark color is prohibited on the area on left and right 7.5mm from reference position. You should fully confirm to use paper preprinted.

*1：In case you set Mark Sensor on Sensor③ in using paper width 76mm, specifications is partly changed as per below mentioned.

Mark Print Positon	Paper edge on Sensor③ side is reference position.
Mark Width(Min)	10mm from reference point.
Preprint limited area	Preprint with dark color is prohibited on the area on 10mm from reference point. You should fully confirm to use paper preprinted.

2.6 Power Supply Specifications
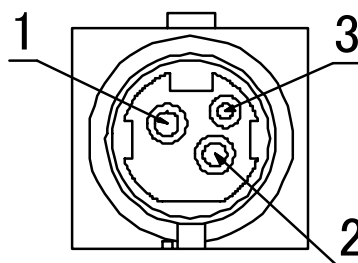
1) Power supply input connector

The printer should be connected with the specific AC adaptor.

Connector on printer side: TCS7960-5320177 Hoshiden or equivalent

Connector on Adaptor side: TCP8927-631177 Hoshiden or equivalent

No	function
1	+24V
2	GND
3	N.C
shell	FG

Connector Fig.

2) Power Supply Voltage：DC24V±5%

3) Current Consumption※1※2

Power supply	Consumption Current	
	2-inch	3-inch
	+24V±5%	+24V±5%
Standby		約 80mA(typ)
Print avarage　25%		Max. approx. 3.5A
Print avarage 100%		Max. approx. 14A

Condition：Optimized drive print、dual partitioning print

*1 A power supply with enough capacity is required in order to secure a good printing quality. Depending on the printing contents, the current may be big at the peak time.

*2 If power supply cable is excessively long, the operation may become unstable. Cable should be made as short as possible. If not available, connect cables near the printer and place an electrolysis condenser of 2200μ between power supply and ground. Voltage resistance should be higher than 35V.

2.7 Reliability Specifications

1) Head Life
    ①Thermal Head
      Anti-Pulse Characterics   : 100 million pulse
      Anti-abration characteristic   : 100km
    ②Cutter Life   : 1 milions
    ③Life Definition
      ・   Entering period abrasion of failure period.
      ・   Condition to satifiy life is as follows:;
        Average Print Ratio：12.5%
        Recommended Thermal Paper：PD160R/PD450-145
        Print Density   : 100%

      ※If paper but recommended paper is used, there will be different life by
        the paper of quality, width and thickness. The user must confirm the
        abovementioned paper actually.

2) MTBF(Mean Time Between Failfure)
    2.3×10^5 hours

2.8 Environment Specifications
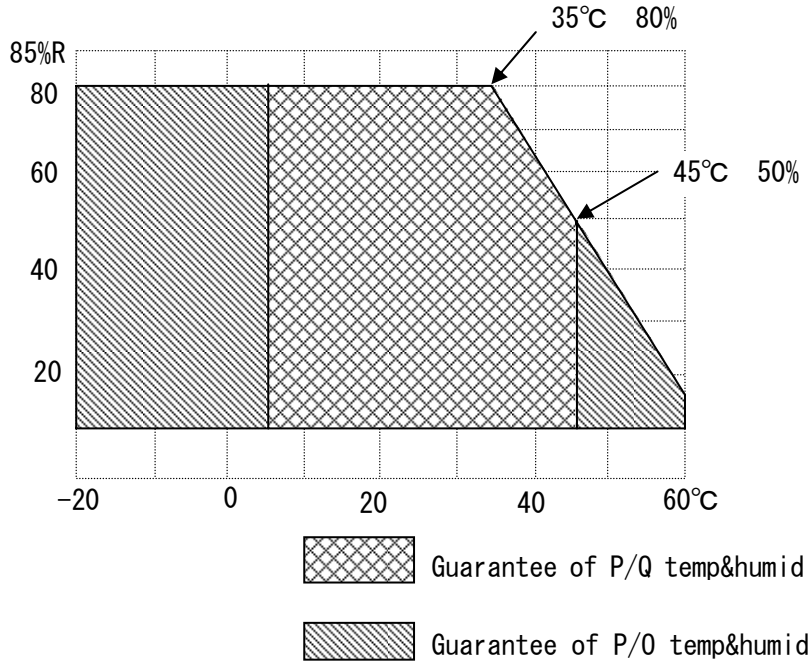
1) Operating Envirnment

　　　Temperature 　: 　-20～60℃ 　*NP-3511Rev「01A」
　　　　　　　　　　　　　　　*in case of NP-3511Rev「no mark」-20～45℃
　　　Humidity : 　10～80%RH
　　　　　　Non Codensing, 80%RH supposed 35℃

*Warrant scope of print quality (P/Q) & Print operatable (P/O) scope

35℃　80%

45℃　50%

```
Guarantee of P/Q temp&humid

Guarantee of P/O temp&humid
```

２）Archiving environment（except for papers）
　　　Temparature : -30～70℃
　　　Humidity 　　: 10～90%RH
　　　　　　　Non Condensing
　　　High-temparature and humidity : 40℃ 90%RH(non condesing)is the worst.

３）Safety Regulations
　　　　CE mark (Approved)
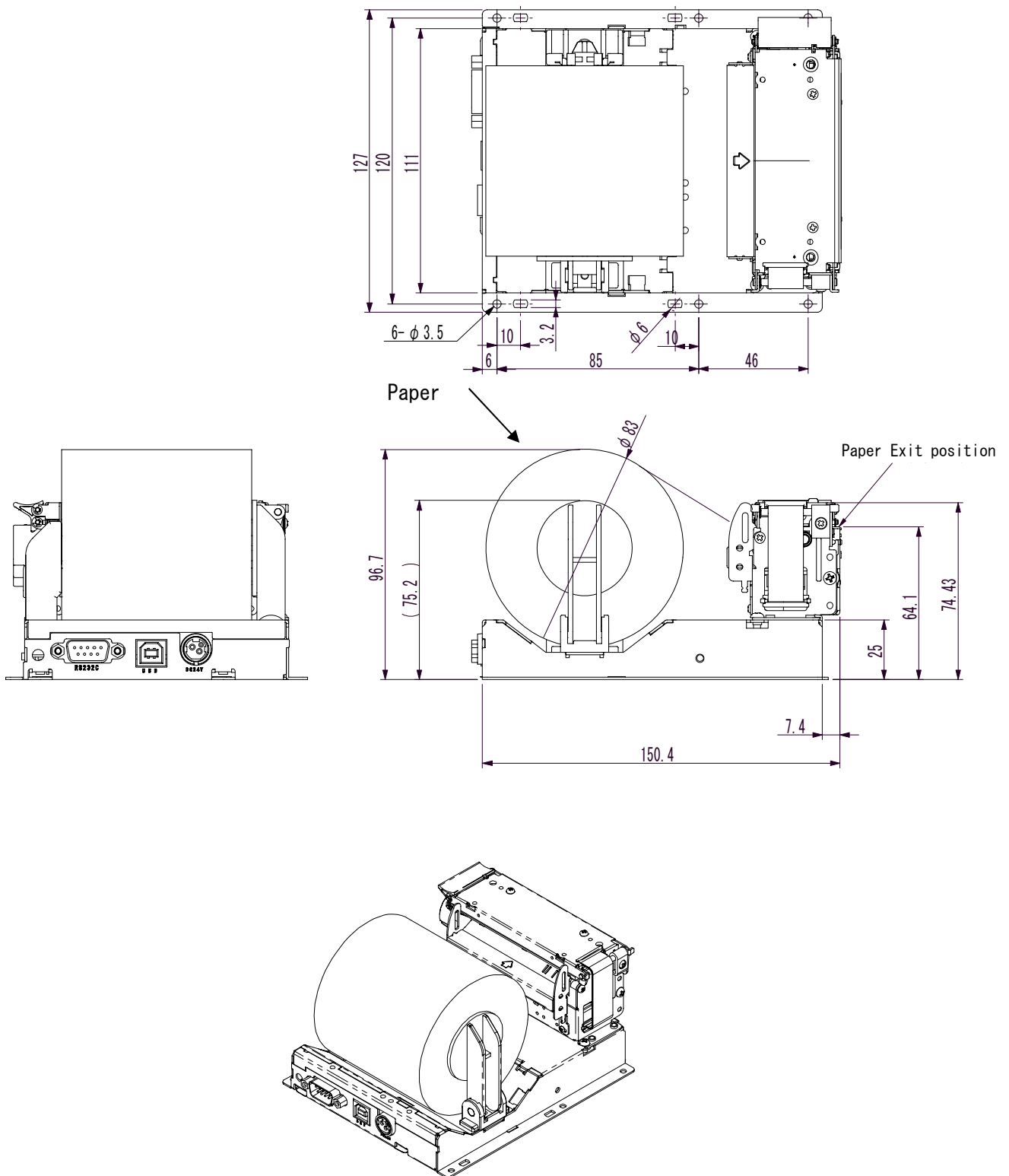　　　　UL60950-1(Approved)
　　　　VCCI 　　: Class A (Approved)
　　　　FCC 　　 : Class A (Approved)

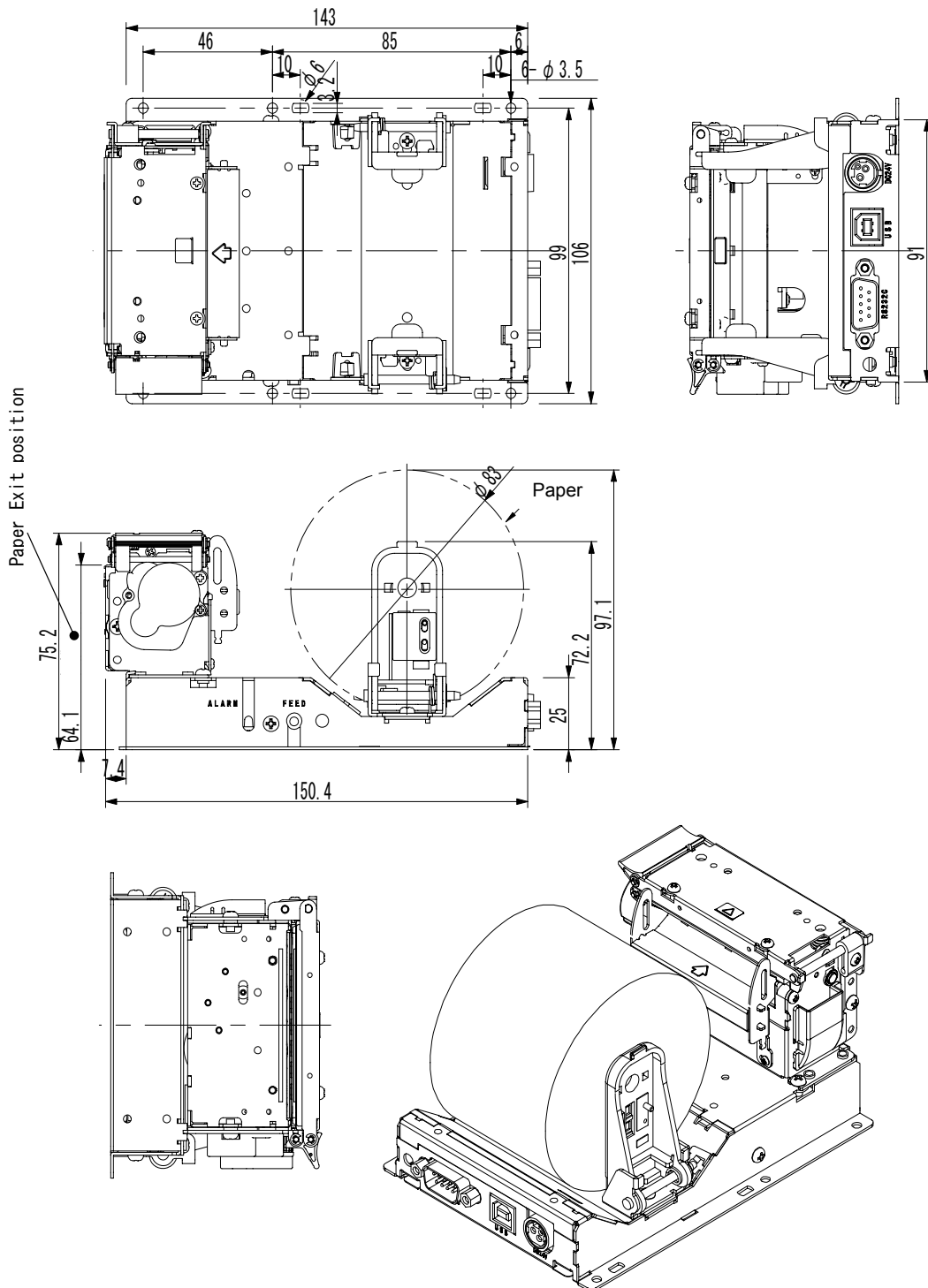　　　*The above regulations are adapted to NP3511, but NP2511 in review.

2.9 Dimenssions

1) NP-3511

Paper

Paper Exit position

6- φ 3.5

φ 6

127
120
111

10
3.2
10
6
85
46

φ 83

96.7
(75.2)
74.43
64.1
25
7.4
150.4

RS232C   DC24V

* The above is the external drawing of NP-3511 USB/Serial multiple Interface type.

2) NP-2511

* The above is the external drawing of NP-2511 USB/Serial multiple Interface type.

3. Configurations

    3.1 Interface specifications : RS-232C
        1) Synchronization   : Asynchronous
        2) Transmission speed :   9600, 19200, 38400, 115200bps (user selectable)
        3) A word consists of
               Start bit   : 1bit
               Data bit   : 7 or 8 bit (user selectable)
               Parity bit   : odd, even or no parity (user selectable)
               Stop bit   : more than 1 bit
        4) Signal polarity
          RS-232C
               Mark   =   Logic "1" (-3V -- -12V)
               Space   =   Logic "0" (+3V -- +12V)
        5) Receive data (RXD signal)
               Mark   =   1
               Space   =   0
        6) Transmit data (TXD signal)
               Mark   =   1
               Space   =   0

           XON/XOFF when controlled
              DC1(11) h code, XON   :possible to receive data
              DC3(13) h code, XOFF :Impossible to receive data

        7) Receive-Control (RTS signal)
               Mark : Impossible to receive data
               Space: Possible to receive data
        8) Transmit-Permission (CTS signal)
               Mark: Impossible to transfer data
               Space: Possible to transfer data

    3.2 Interface specifications: USB (V2.0 Full Speed)
        1) Version   : V2.0 FULL SPEED (12Mbps)
        2) Port   : Upstreamport (B jack)
        3) Power Supply   **:** Self Powered
        4) Reset function   **:** Automatic reset by insert and remove USB cable

3.3 Connecter Signal Details

1) CN1: Power Input Connecter

Printer side: TCS7960-5320177(Hoshiden) or equivalent

Adaptor side: TCP8927-531177, TCP8927-631177,

TCP8935-531177(Hoshiden)equivalent (Hoshiden) or Equivalent

Pin No.	Signal name	Input/Output	Function
1	VH	Input	Power DC +24V
2	GND	-	Power ground
3	N.C	-	
Shell	FG	-	FG

*A sufficient volume of power supply is required to maintain print quality due to high peak current that may run according to printing contents.

*If power supply cable is excessively long, the operation may become unstable. Cable should be as short as possible. If not available, connect cables near the printer and place an electrolysis condenser of 2200μ between power supply and ground. Voltage resistance should be higher than 35V.

2) CN2: Serial Data signal input connector (Multiple Interface type only)

Printer side: JEC-9P (JST) or equivalent

Host side: JEC-9S (JST) or equivalent

Pin No.	Signal	Input/Output	Function	Remark
2	RXD	Input	Serial receiving data	
3	TXD	Output	Serial transmitting data	
4	RTS	Output	Receiving permission signal	Connect to No.7
5	GND	-	Singnal ground	
7	RTS	Output	Receiving permission signal	Connect to No. 4
8	CTS	Input	Transmit permission signal	
1, 6, 9	N.C	-		

3) CN3: USB data signal input connector

Printer side: B jack DUSB-BRA42-T11 (DDK) or equivalent

Host side: B plug or equivalent

Pin No.	Signal	Input / Output	Function	Remark
1	VBUS	Input	Power line	Non twist power line
2	D-	Input and output	Data line	Twist pair signal line
3	D+	Input and output	Data line	Twist pair signal line
4	GND	-	Power line	Non twist power line
Shell	Shield	-		

* Use USB cable which conforms to the standard (V2.0 FULL SPEED)

* We shall not be liable for operation using the connector not comformed with the standard.

4) CN7: connecting to presenter (NPT-301)

      Printer side: 53047-0810 (Molex) or equivalent

      Host side: 51021-0800 (Molex) or equivalent

Pin no	Signal	Input/Output	Function
1	LED1+	output	To sensorLED1
2	sensor1	input	From sensor1
3	GND	—	Signal GND
4	LED2+	output	To Sensor LED2
5	sensor2	input	From Sensor2
6	GND	—	Signal GND
7	M+	output	Motor drive output
8	M-	output	Motor drive output

* Please do not connect any presenter except NPT-301.

  There may be failure when other presenter connected.

* NPT-305/NP01201/NP01301 in review

4. Functions

4.1 Function Setting

4.1.1 Dip Switch

	Functions	O N	OFF	Factory setting NP-2511 NP-3511	Factory setting NP-2511U NP-3511U
DS1-1	Transmit setting	See Fig.1		OFF	OFF
DS1-2				OFF	OFF
DS1-3				OFF	OFF
DS1-4	Serial transmit speed	See Fig.2		OFF	OFF
DS1-5				OFF	OFF
DS1-6	Serial flow control	XON/XOFF	RTS/CTS	OFF	OFF
DS1-7	Autocutter	no	yes	OFF	OFF
DS1-8	Reserved	—	—	OFF	OFF

* DS1-8 must be "OFF"

Fig.1 Transmit Setting

Interface	Bit length	Parity setting	DS1-1	DS1-2	DS1-3
USB	-	-	OFF	OFF	OFF
Serial	8bit	nil	O N	OFF	OFF
		odd	OFF	O N	OFF
		even	O N	O N	OFF
	7bit	nil	OFF	OFF	O N
		odd	O N	OFF	O N
		even	OFF	O N	O N
Reserved	-	-	O N	O N	O N

Fig.2 Serial transmit speed

Serial transmit speed	DS1-4	DS1-5
115200	OFF	OFF
38400	O N	OFF
19200	OFF	O N
9600	O N	O N

4.1.2 Memory Switch

	Function	O N	OFF	Factory setting NP-2511 NP-3511	Factory setting NP-2511U NP-3511U
MS2-1	Japanese Kanji code	Shift JIS	JIS	OFF	OFF
MS2-2	Built-in Language font Switch	See Fig.3		OFF	OFF
MS2-3				OFF	OFF
MS2-4	Near empty	no	yes	OFF	OFF
MS2-5	Presenter (NPT-301)	Yes	No	OFF	OFF
MS2-6	Black mark sensor	Center	Side	OFF	OFF
MS2-7	Reserved	-	-	OFF	OFF
MS2-8	Reserved	-	-	OFF	OFF

* MS2-7 and MS2-8 must be "OFF".

How to set Memory Switch
1. Tharmal head cover is opened and push FEED switch more than 3 seconds. Re-write mode of Memory Switch is activated. (ALARM red: flash)
2. Lift your finger off FEED switch, set Memory Switch on dip switch.
3. By pushing FEED switch, setting of dip switch is copied to Memory Switch. (ALARM red:light) Return dip switch setting to original position, and thermal head cover is closed. The contents of Memory Switch is printed for confirmation.
   * Pleas do not forget to return Dip switch setting to original position.
   * When you cancel Rewrite mode of Memory Switch, let thermal head cover be closed.
   * After setting of Memory Switch, transition to the self print is not available when thermal head cover is closed.

Fig.3 Installed Language Fonts

Installed language fonts	MS2-2	MS2-3
Japanese	OFF	OFF
Chinese	O N	OFF
Korean	OFF	O N
Greek	O N	O N

* Japanse JIS C 6226　：Full size
  Katakana character set＋Extended graphic character set ＋Code Page 858＋International character：Half size
* Korean KS X 1001:1992　：Full size
  Katakana character set＋Extended graphic character set＋Code Page 858　：Half size
  （KS X 1001:1992 installed font）
* Chinese GB18030-2000　：Half/Full size
* Greek Code Page1253　：Full size (1 byte code)

Please refer to [select character code table] for other language.

4.1.3 Self Print
   1) By performing self-diagnostic print following items are checked.
     * Proper function of control circuitry
     * Control F/W version
     * Status of Dip switch setting and memory switch setting
     * Correct function of paper out sensor

   2) Start and end of self diagnostic print
      Turn on the power while pressing the FEED switch and release the FEED switch after initializing print mechanism. Self diagnostic print will take place.
      The self diagnostic print automatically ends when a preset print pattern are printed. While printing, the printer is in Off-line mode.

   4.1.4 Paper sensor
      Paper end sensor equipped in the paper course of the printer mechanism, and it detects paper end status. It stops printing by error bit ON, when detected the paper end.
      The sensor can not detect paper end glued to the core. Please exchange the paper roll shortly after detecting the paper end.

4.2 Processing error

1) Error detection details

Name	Status	Status Info	Alarm Status	Removal
Comm. Error	232C Comm.error Parity Overrun Framing	-	-	Adjust comm.condtion
Normal	Normal	-	OFF	
Print start status	Print start setting by command(not error)	bit7 1	OFF	Print end setting by command
Paper near empty	Remaining paper detect Paper near empty sensor detect (MS2-4:OFF)	bit0 1	Blink	Paper replenishment
Paper end	No paper	bit2 1	ON	Paper replenishment
Thermal head cover open	Thermal head cover open	bit1 1	ON	Thermal head cover close
Head Temparature	Head Tempt. over 70°C	bit3 1	Blink	Automatically recover at 65°C
Cuttter error	Cutter Paper Jam Not connected	bit4 1	Blink	Open head cover,. remove error factor, close head cover
Paper detect error	Paper not detected during presenter operation or Mark detection.	bit5 1	Blink	
Presenter clamp	Presenter clamps paper	bit6 1	Blink	Extract paper

When the above errors are detected (except transmission error and paper near empty , print start status), printer stops all operation.
・It turns ON error bit of the status information.

2) Return to normal status from error statuses
Remove causes of error statuses and turn the power on again or push the RESET switch to return to normal. When this process is activated, at the time of power switch turned off, the printer will be initialized, so that settings are required again.
If data remains in the buffer, attention should be paid

4.3 Buffer full print
If there remains data after one line of data is received, printer automatically prints preceding data. The volume of buffer full data varies depending on ANK, Kanji or bit images.

4.4. Drive Select

Select optimization, fixed division (no division / dual partitioning) by command.

Select depending on provided power and print duty.

1) Select Partition Drive

Please refer command table.

* Prinint speed is decreased when select dual partitioning.

2) Optimization

Select no division or dual partitioning according to the number of total dot of print per line.

	No division	Dual partitioning
3-inch model	352dotl or less	353dot or more

* When select optimization, printing speed changed depending on printing ratio, and printing noise occurred somewhat.

* When select optimization, printing quality is descended somewhat.

4.5 Select Full size and half size character

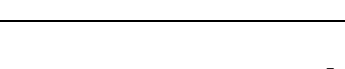| Character	How to select			
Japanese	Command[FS &],[FS .] or Switching Shift JIS code			
Korean	Command[FS &]、[FS .]			
Chinese	Please refer to the followings			
		1 byte code (Half size)	2 byte code (Full size)	4 byte code (Full size)
	1st byte	00 h ～ 80 h	81 h ～ FE h	81 h ～ FE h
	2nd byte		40 h ～ 7E h 80 h ～ FE h	30 h ～ 39 h
	3rd byte			81 h ～ FE h
	4th byte			30 h ～ 39 h
Greek	No switch (Only Full size)			
Polish	No switch (Only half size)			
Russian	No switch (Only half size)			
Scandinavian	No switch (Only half size)			
Turkish	No switch (Only half size)			

4.6 Operation panel
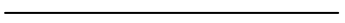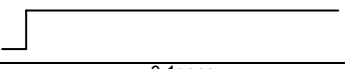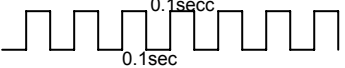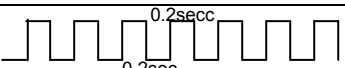
The printer is ready for the following operations;

1) ALARM (red) ［alarm lamp］
Will turn on (or blink) when printer is on error status.
Will blink/ turn on/ turn off when rewriting Flash Rom
※The pattern of the ALARM indication is in the following chart.

Display pattern	Printer status	Priority (9:High ~ 1:Low)
1 O ————————————	Normal Status Print(receive) ready	1
1 O ⌐————————————	No paper	3
	Thermal head cover open	4
1 ⊓⊔⊓⊔⊓⊔ 0.1secc O 0.1sec	F/W write mode	9
1 ⊓⊔⊓⊔⊓⊔ 0.2secc O 0.2sec	Paper near empty	2
1 ⌐—— 2.2sec ——⌐ O 2.2sec	Head temperature over 70℃ Or, Wrong head connection	5
1 0.2sec ⌐⊓⊔⊓⊔⌐ O 0.2sec 1.0sec	Auto cutter error	6
	Paper detect error	7
	Presenter clamp (detects remaining paper)	8

2) FEED Switch ［Paper feed switch］
Switch to feed paper in the forward direction
Also, used in self-printing .

3) Reset SW
Reset SW is placed on the right side of FEED SW, and you cannot push Reset SW with your finger to avoid misoperation. (Push Reset SW lightly with ballpoint pen etc, and release.)
By activating Reset SW, the printer is initialized at the time of power on.

* Reset Switch will be implemented on production February 2007.

4.7 How to set roll paper

1) NP-3511

 - As illustrated, you lift the shaft vertically and set a roll paper passing through the shaft
(Pay attention to the direction of roll paper.)
 - Set shaft back to previous position.
 - Put the edge of paper into loading slot. (Put it straight into slot, not curl)
 - Retract the paper automatically with sensor detected. (In case of power on)
 - Paper is retracted into a certain length and can print after cut the excess of it.

 (Attention): The leading edge of paper should be straight and at right angle.
   Paper at cutout state might be retracted at an angle.
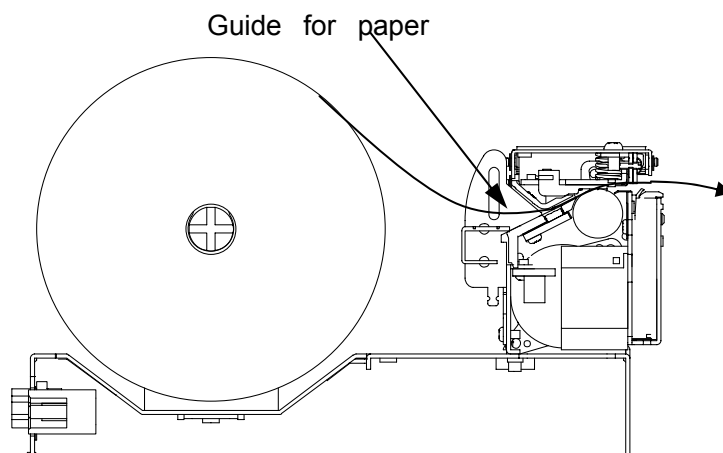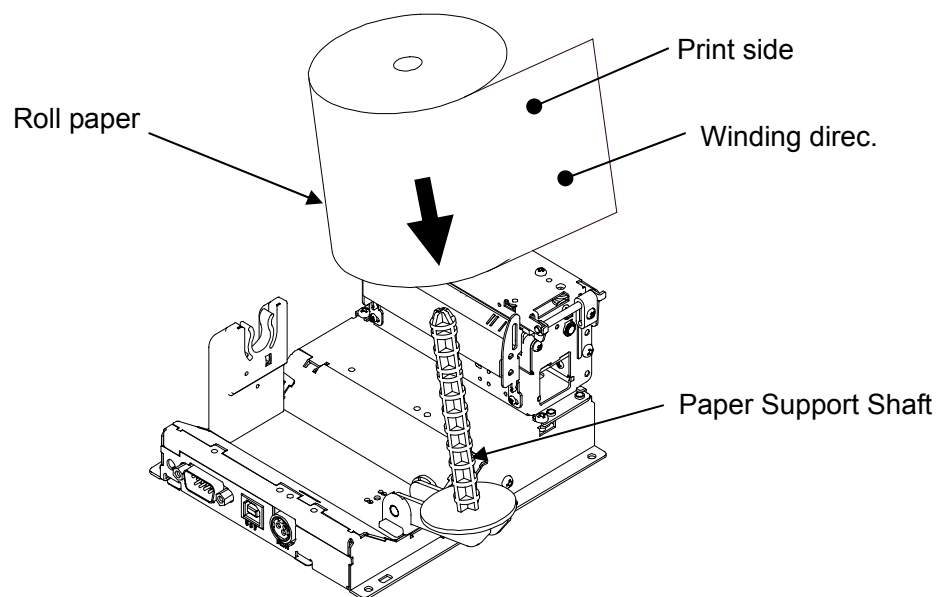
2) NP-2511

4.8 How to remove the jammed paper
- Pull up head open lever at the direction as illustrated.
- Remove all jammed paper on the route of paper.
- Close thermal head cover completely.(Until hearing click)

Attentions: Since the thermal head reaches a high temperature, please don't touch it. If a paper jam occurr, a cutter blade may stick out. DO NOT TOUCH IT.

Head Open Lever
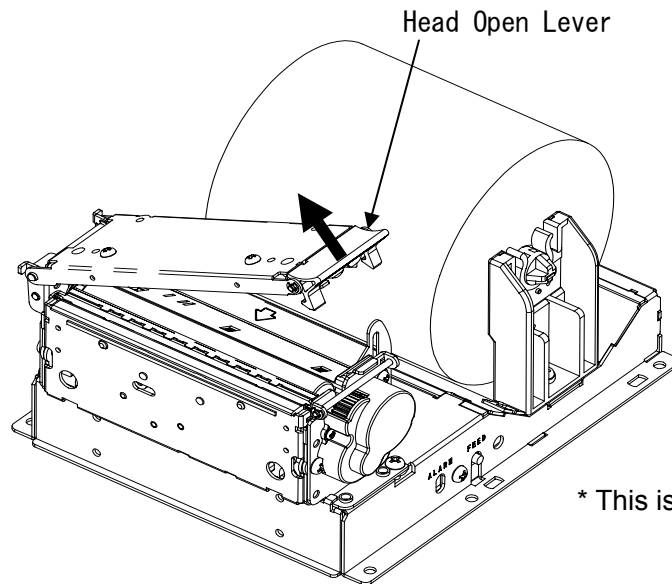
* This is drawing of NP3511

4.9 How to clean Thermal Head

In case the heat generation part of the thermal head gets wisps of paper, the quality of print may drop. In this case, you should clean the thermal head as following procedures.

1) Thermal Head
Remove wips of paper and grim with swab moistened alcohols solvent (ethanol / IPA) on the heat generation part of thermal head. The use of methanol in alcohols solvent is prohibited.

2) Platen
Remove wips of paper and dust on the surface by wiping like rubbing slightly with dry cloth.

3) Mark Sensor／No paper sensor and its surrounding
Remove wips and paper and dust on sensors with swab moistened slightly.

4) Attentions
・Since the thermal head reach a high temperature shorly after printing, don't touch it with hands.
・Don't touch the heat generation part of thermal head with hands and metal materials.
・When you clean thermal head, you should pay fully attention to the risk of breaking of thermal head due to static electricity.
・In case a lot of wips of paper are genrated depending on paper, timing of maintenaunce should be decided after confirming the paper.
・You should power on after completely driy on the printer.

5. Command

5.1 Command Table

▲ is effected on Japanese/Korean font selected from language font.

■ is effected on Japanese font selected.

※51)～53 is related to Black Mark Commands.

※17)、51)～55) is valid for Firm Ware Ver.1.10 afterwards in NP-3511

※In case print method is storage, print speed will be　max. 200mm /sec.

5.2 Printer Driver

Please apply the driver stated below for using under Windows environment.

Windows 2000／Windows XP／Windows CE 5.0／Linux(only sample)

5.3 Command details

1) 【Horizental Tab】《HT》

Code：〔09〕h

Print position is moved at next horizental tab.

* Horizental tab is set by【Horizental tab position set】command.
* Default of【Horizental tab】is every 8th character（9 digit,17 digit,··,41digit）in font A.
* If the next【Horizental tab】is not set, this command is disregarded.

2) 【Line feed】《LF》

Code：〔0A〕h

Data in print line buffer is printed, and linefeed is conducted based on preset line feed quantity.

3) 【Carriage return】《CR》

Code：〔0D〕h

* This command is disregarded.

4) 【Software Reset】《DC1》

Code：〔11〕h

Let Farmware restarted as same procedures when power-on

* Since this command stored on internal reception input buffer executes sequential, the timing of receptin of command is different from that of command execution.
* Software reset is activated after auto-cutter finished driving.

5) 【Barcode termination change】《ESC RS c n》

Code：〔1B〕h＋〔1E〕h＋〔63〕＋n　　　　　　※〔n=00,80〕h

Change terminator of 【Barcode print】command with n.

* n is indicated as follows;

n(hex)	termination
00	〔00〕h
80	〔FF〕h

* Default of n is〔00〕h

6) 【Setting character right space quantity】《ESC SP n》

Code：〔1B〕h＋〔20〕h＋n　　　　　　　※〔00≤n≤20〕h

Set the value of right space of character by dot (by 1/203 inch)

* Right space is reflected with zoom when double width zoom mode
* Default of n is〔00〕h.

7) 【Print mode batch setting】《ESC！n》
　　Code：〔1B〕h＋〔21〕h＋n　　　　　　　　※〔00≤n≤FF〕h
　Print mode setting
　* n has the following meanings.

bit	funciton	value	
		0	1
0	Character font	Font A	Font B
1	Undifined		
2	Undifined		
3	Bold	reset	set
4	Double height	reset	set
5	Double width	reset	set
6	Undifined		
7	Underline	reset	set

　* If double height and double width are set at the same time, quadruple character will be
　　formed.
　* All of the printed characters will be underlined except for the 90° rotated characters and
　　spaces created by horizontal tab.
　* Underline width is determined by the value set in [Underline set/reset] section.
　　The default value is 1 dot width.
　* Bold print control is effected when Kanji mode
　* Different sizes of character mixed such as double width and normal size can be
　　printed.
　* The default of n is〔00〕h.

8) 【Absolute position setting】《ESC $ n1 n2》
　　Code：〔1B〕h＋〔24〕h＋n1＋n2　　　　　※〔00≤n1≤FF〕h
　　　　　　　　　　　　　　　　　　　　　　　　※〔00≤n2≤02〕h

　Setting from the front on position of start of print by the number of dot
　(by 1/203-inch position)
　* 256 into the number of dot at print start point is n2、remainder is n1
　* print start point is n1＋n2×256 from the front of the line.
　* Disregard the setting when beyond the end of the line.
　* When this command is received on the middle of line, it is efective not to over the
　　current position.

9) ■【Download characters set set/reset】《ESC % n》
　※Effective only when Japanese is selected.
　　Code：〔1B〕h＋〔25〕h＋n　　　　　　　　※〔00≤n≤FF〕h
　Set/Reset Download characters
　* n is the bottom bit. Effective on only(b0). b0 mentioned as follows;

b0	Function
0	Reset Download character set
1	Set Downlaod character set

　* Default of n is 〔00〕h

10) ■【Defintion of Download Characters】《ESC & s n m a Dn》

※Efective only when selected Japanese.

Code：〔1B〕h＋〔26〕h＋s＋n＋m＋a＋Dn　　※〔s=03〕h

※〔20≤ n≤ 7E〕h，〔20≤ m≤ 7E〕h

※Font A〔01≤a≤0C〕h

※Font B〔01≤a≤09〕h

Definition of font of Download characters on alphanumeric characters.

* "s" indicates a number of bytes in a vertical direction and "a" is a number of dots in horizontal direction.

* "n" indicates the start character code, and "m" means the end character code. If only 1 character should be defined, then n = m.

* Definable characters are from (20)h to (7E)h on ASCII code. (95 characters)

* Dn indicates data to be defined, It indicates the "a" dot pattern from the left. Remaining area on the right of character is filled with space.

* Once a download character defined by command, it remains valid until execution of (Software Reset) and Reset Switch or the power is turned off.

* Redefined character is only effective to specified area.

＜Reference＞
In the case of Font A
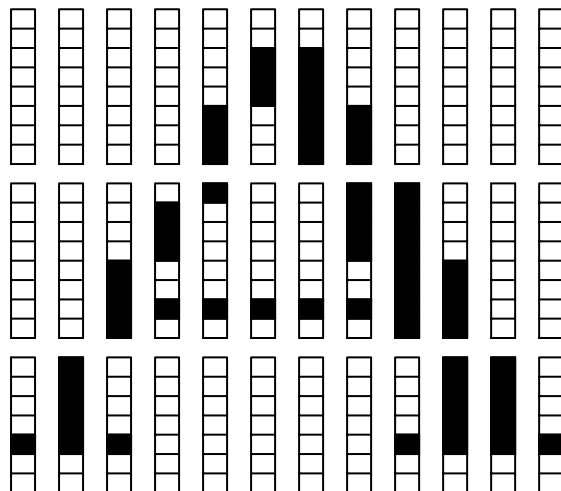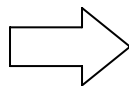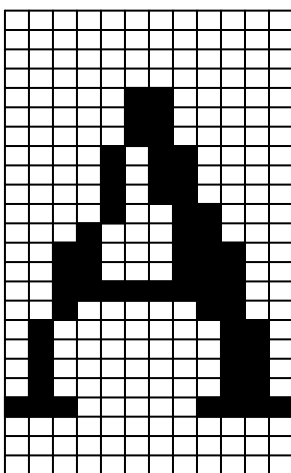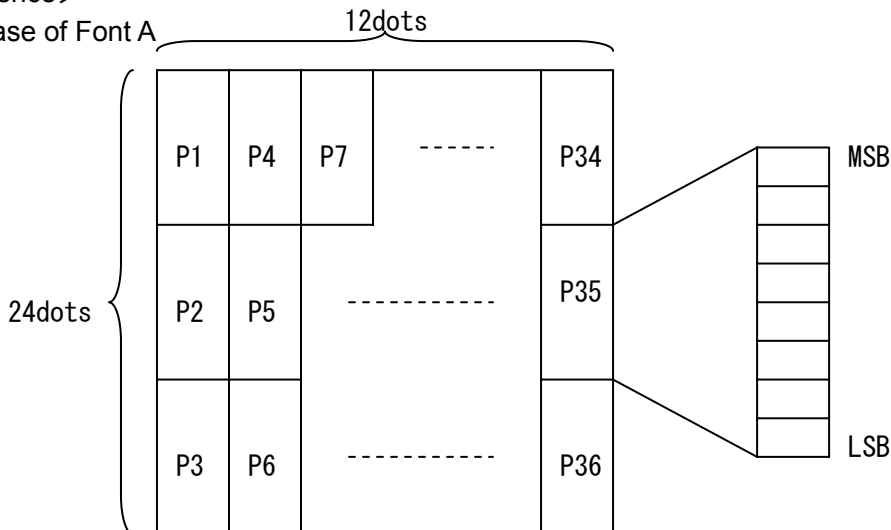
P1=〔00〕h, P4=〔00〕h, P7=〔00〕h, P10=〔00〕h, …
P2=〔00〕h, P5=〔00〕h, P8=〔0F〕h, P11=〔72〕h, …
P3=〔08〕h, P6=〔F8〕h, P9=〔08〕h, P12=〔00〕h, …

<Refernce>
In the case of Font B
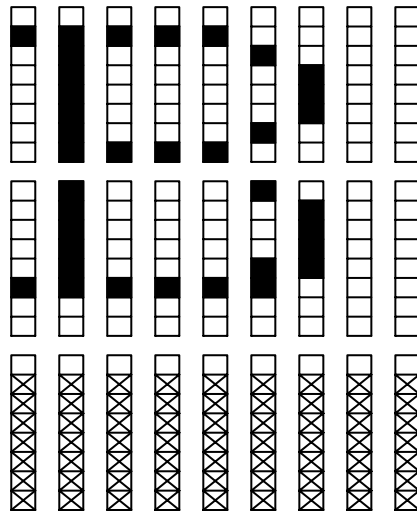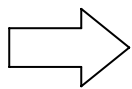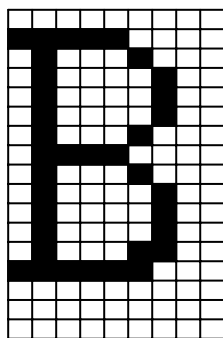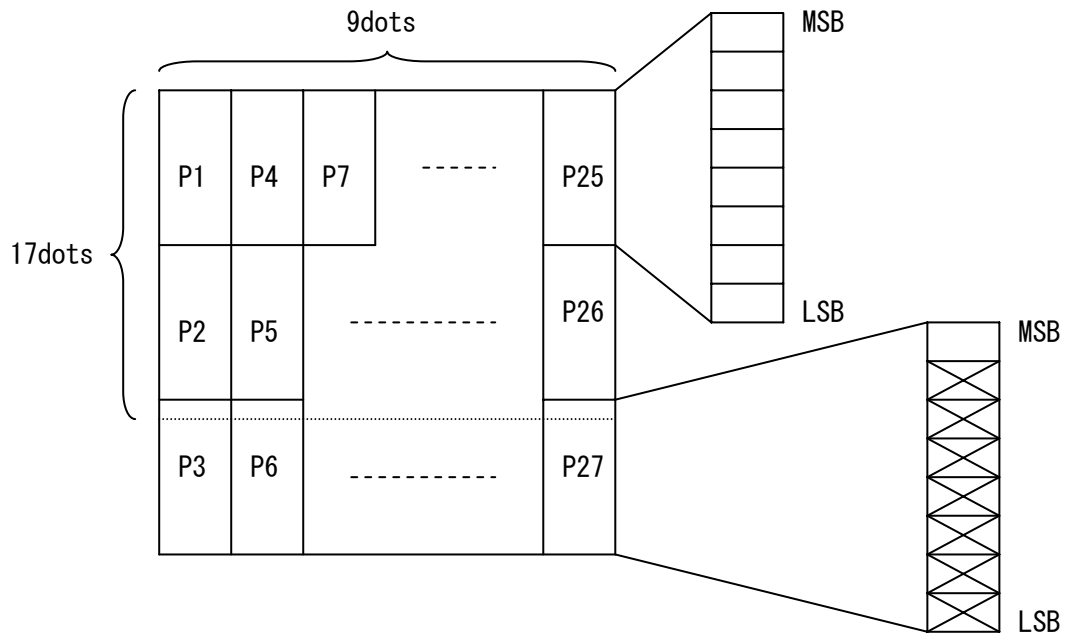
P1= 〔40〕h, P4= 〔7F〕h, P7= 〔41〕h, P10= 〔41〕h, …
P2= 〔04〕h, P5= 〔FC〕h, P8= 〔04〕h, P11= 〔04〕h, …
P3= 〔00〕h, P6= 〔00〕h, P9= 〔00〕h, P12= 〔00〕h, …

11) 【Bit Image mode Set】《ESC * m n1 n2 Dn》
   Code : 〔1B〕h＋〔2A〕h＋m＋n1＋n2＋Dn   ※〔m=indicated below〕h
                                          ※〔00≤n1≤FF〕h
                                          ※〔00≤n2≤02〕h

   * Data is printed in bit image mode for resolution specified by "m".
   * Total print dots are divided by 256, quotient is n2 and remainder is n1.
   * Total print dots in bit image mode is n1＋(256×n2).
   * If the bit image input data exceeds specified position, the exceeded data will be disregarded.
   * Bit image data (Dn) interprets bit 1 as print and bit 0 as not print.
   * Bit image mode is indicated below;

＜Standard＞

m(hex)	Bit image mode	Vertical direction		Horizental direction	
		Dot quantity	Dot density	Dot density	Maximum dot number
					3-inch model
00	8 dot single density	8	67DPI	101DPI	288
01	8 dot double density	8	67DPI	203DPI	576
20	24 dot single density	24	203DPI	101DPI	288
21,23	24 dot] double density	24	203DPI	203DPI	576

＜Relationship between Bit Image data and Printed dot＞
・8 dot bit image

Single density

Double density

□ =1dot

Print data

・24 dot image bit

Single density

Double density

□ =1dot

Print data
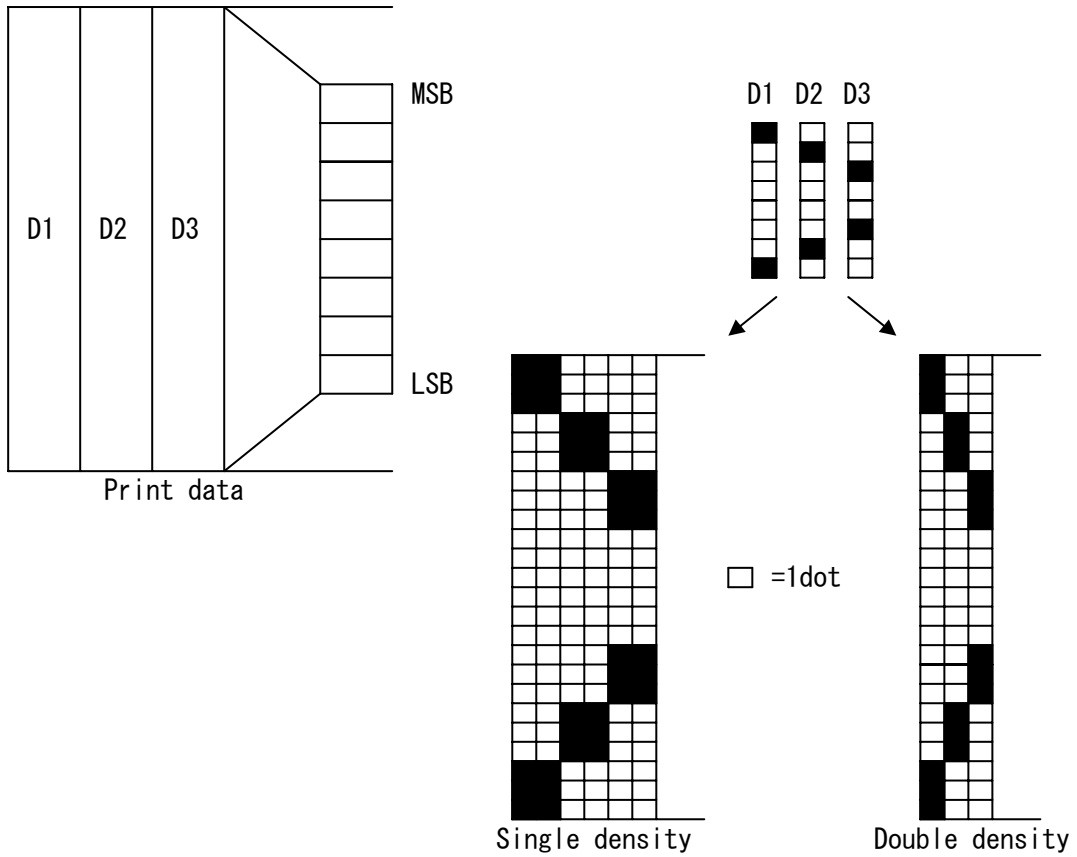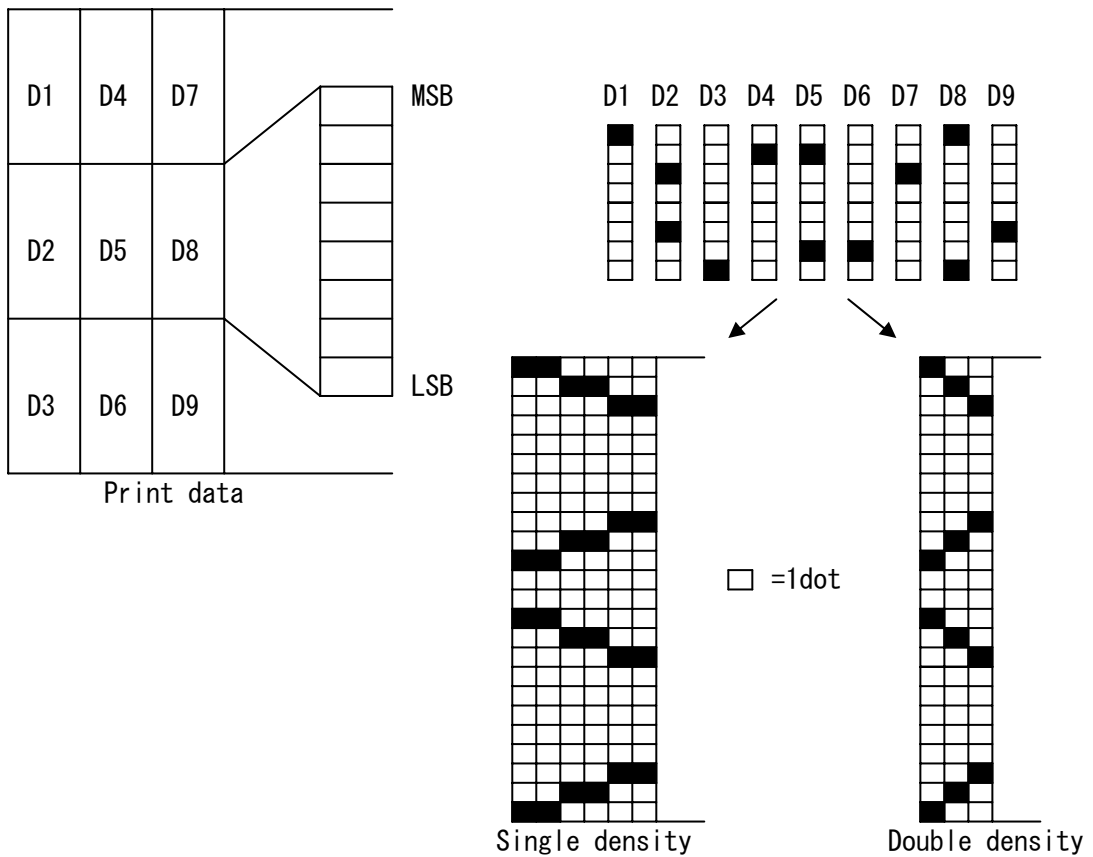
12) 【Underline Set/Reset】《ESC - n》
　　Code : 〔1B〕h＋〔2D〕h＋n　　　　　　　　　　※〔00≤n≤02〕h
　Sets and Resets Underline
　* Underline is valid for all characters except for the area skipped by horizontal tab. Also
　　Underline is not valid for 90° rotated character.
　* This command is not valid when Kanji mode.
　* Underline is verified with n value as shown bellow.

n(hex)	Type of underlines
00	Reset underline
01	Set one dot underline
02	Set two dot underline

　* Default value of n is 〔00〕h.

13) 【1/6 inch line feed pitch】《ESC 2》
　　Code : 〔1B〕h＋〔32〕h
　　Sets one line feed to 1/6th of an inch.

14) 【Sets smallest pitch line feed】《ESC 3 n》
　　Code : 〔1B〕h＋〔33〕h＋n　　　　　　　　　　※〔00≤n≤FF〕h
　　Sets a line feed pitch to n/203rd of an inch.
　　* Despite of height set by value, the same space with character height is sent by line
　　feed.
　　* Default value of n is 〔22〕h.

15) 【Data input control】《ESC = n》
　　Code : 〔1B〕h＋〔3D〕h＋n　　　　　　　　　　※〔00≤n≤FF〕h
　Select apparatus to be data input from host
　* Each bit of N indicates below;

bit	function	value	
		0	1
0	Printer	invalid	valid
1	Undefined		
2	Undefined		
3	Undefined		
4	Undefined		
5	Undefined		
6	Undefined		
7	Undefined		

　* When printer is not selected、all reception data is disregarded until this printer is
　　selected by this command.
　* When printer is not selected, busy situation may remains by operation of printer.
　* Default value of n is 〔01〕h.

16) 【Printer initialization】《ESC @》
　　Code : 〔1B〕h＋〔40〕h
　Clears the data stored in the print buffer and resets each setting to default values.
　* It does not clear the data stored in the internal receive buffer.
　* re-reads the dip switch and memory switch.
　* It is stored in the internal receive buffer and activated in sequential.

17) 【Back feed】 《ESC B n》

    Code ： 〔1B〕h＋〔42〕h＋n   ※〔00≤n≤FF〕h

This command is for forwarding paper in reverse direction.

 * Set forwarding length in n Dot line. In case of set〔00〕h, no forwarding.

 * You should set this command once only due to avoid paper jam, and then forward
   paper in right direction.

 * Backlash may let paper not put properly.

 * In case there is print data on buffer of Print Line buffer, it should be   backfeed after
   prining.

 * Tip of paper should not be exceed the limited of backfeed.
    （Use〔n≤34〕h）

18) 【Horizental tab position set】《ESC D n1 n2 --- NUL》

    Code ：〔1B〕h＋〔44〕h＋n1＋n2＋---＋〔00〕h   ※〔00≤n≤FF〕h

Sets horizental tab position.

 * "n" indicates the digits number from the head to the tab position. In this case, [n = tab
    position – 1].

 * Tab position is set at the location of character width x n from the beginning of a line.
   The character width in this case includes character right space. When double width
   function is set, then the width becomes double of ordinary character.

 * Maximum number of tab positions is 32. If setting exceeds 32, then
    the exceeded values are neglected.

 * < ESC D NUL > clears all tab positions being set. After the tab is cleared,
    (horizontal tab) will be ignored.

 * Default value is set at every 8 characters of font A (at 9th, 17th, 25th, 33rd and 41st digit).

19) 【Bold print set/reset】《ESC E n》

    Code ：〔1B〕h＋〔45〕h＋n   ※〔00≤n≤FF〕h

Set and Reset Bold Print

 * "n" is only valid for LSB (b0)

 * LSB (b0) is defined as following.

b0	Value
0	Resets Bold print
1	Sets Bold print

 * When bold print, the result of print may be deformed.

 * Default value of n is〔00〕h.

20) 【Double strike print set/reset】《ESC G n》

    Code ：〔1B〕h＋〔47〕h＋n   ※〔00≤n≤FF〕h

Set and Reset Double Strike Print Function.

 * "n" is only valid for LSB (b0)

Control by LSB (b0) is explained as following.

b0	Descriptions
0	Reset Double Strike print
1	Set Double Strike print

 * When Double Strike print, the result of print may be deformed.

 * Default value of n is 〔00〕h.

21） 【Print and smallest pitch line feed】《ESC J n》
　　Code：〔1B〕h＋〔4A〕h＋n　　　　　　　　※〔00≤n≤FF〕h
　Prints the data in the print line buffer and feeds the paper by n/203rd of an inch.
　* Line feed quantity does not remain.
　* Beginning of a line is a print start position.
　* The height of character for a line is always sent by line feed. If the value of height is set
　　by "n" below the height of character, the same space with character height is sent by
　　line feed.

22） ■【International character select】《ESC R n》
　　Effective only when selecting either overseas or domestic code in [character code
　　table select] and Japanese in language font.
　　Code：〔1B〕h＋〔52〕h＋n　　　　　　　　※〔00≤n≤0A〕h
　Selects International characters
　* The values of "n" have following meanings

n(hex)	Character set
00	U.S.A.
01	France
02	Germany
03	U.K.
04	Denmark I
05	Sweden
06	Italy
07	Spain
08	Japan
09	Norway
0A	Denmark II

　* Default value of n is 〔08〕h.

23） 【90° clockwise rotated character set and reset】《ESC V n》
　　Code：〔1B〕h＋〔56〕h＋n　　　　　　　　※〔00≤n≤01〕h
　Sets and resets 90° clockwise rotated character.
　* (Underline set) is invalid when the 90° clockwise rotated character set.
　* "n" has the following meaning.

n(hex)	Descriptions
00	Reset 90°　rotated character
01	Set 90° rotated character

　* Default value of n is 〔00〕h.

24） 【Relative position set】《ESC ¥ n1 n2》
　　Code：〔1B〕h＋〔5C〕h＋n1＋n2　　　　　※〔00≤n1≤FF〕h
　　　　　　　　　　　　　　　　　　　　　　　　※〔00≤n2≤FF〕h
　Print start position is assigned by dots in 1/203rd of inch from the current postion.
　* Divide the value of dot by 256, place quotient to n2, and remainder to n1.
　* Rightward defines plus, leftward defines minus.
　* When n dot is set on rightward, the value is n1 + n2 x 256.
　* When n dot is set on leftward, the value is set by n's complement.
　　n dot = 65536-n
　* Setting which exceeds end of line is ignored.

25) 【Position alignment】《ESC a n》

Code : 〔1B〕h＋〔61〕h＋n　　　　　　　　　※〔00≤n≤02〕h

Align print data in a line at the specfied position.

(Except for definite Bit Image)

* n has the following meanings;

n(hex)	Position
00	Left alignment
01	Centering
02	Right alignment

* Effective only when input on the beginning of the line.

* Default value of n is〔00〕h

26)【Raster Bit Image】《ESC b n1 n2 n3 Dn》
  Code :〔1B〕h+〔62〕h+n1+n2+n3+Dn

※〔01≤n1≤48〕h : 3-inch model
※〔00≤n2≤FF〕h
※〔00≤n3≤FF〕h

Print data in raster bit image.
* Dn is raster bit image data.
* The printer prints raster bit image of width n1 byte by height n2+(256*n3) dot lines.
* The total byte of the requested raster bit image data (Dn) is n1*(n2+(256*n3)).
* Raster bit image data (Dn) exceeding the printing field will be disregarded.
* Raster bit image data (Dn) interprets bit"1" as print and bit"0" as not print.
* Relation between raster bit image data (Dn) and printed dots are as follows.

n1 byte

D1	D2	– – – – – – – –	Dn1
Dn1+1	Dn1+2	– – – – – – – –	Dn1*2
Dn1*2+1	Dn1*2+2	– – – – – – – –	Dn1*3
·– – – – – –	·– – – – – –	– – – – – – – –	n1*(n2+(256*n3))

n2+(256*n3)dots

MSB   LSB
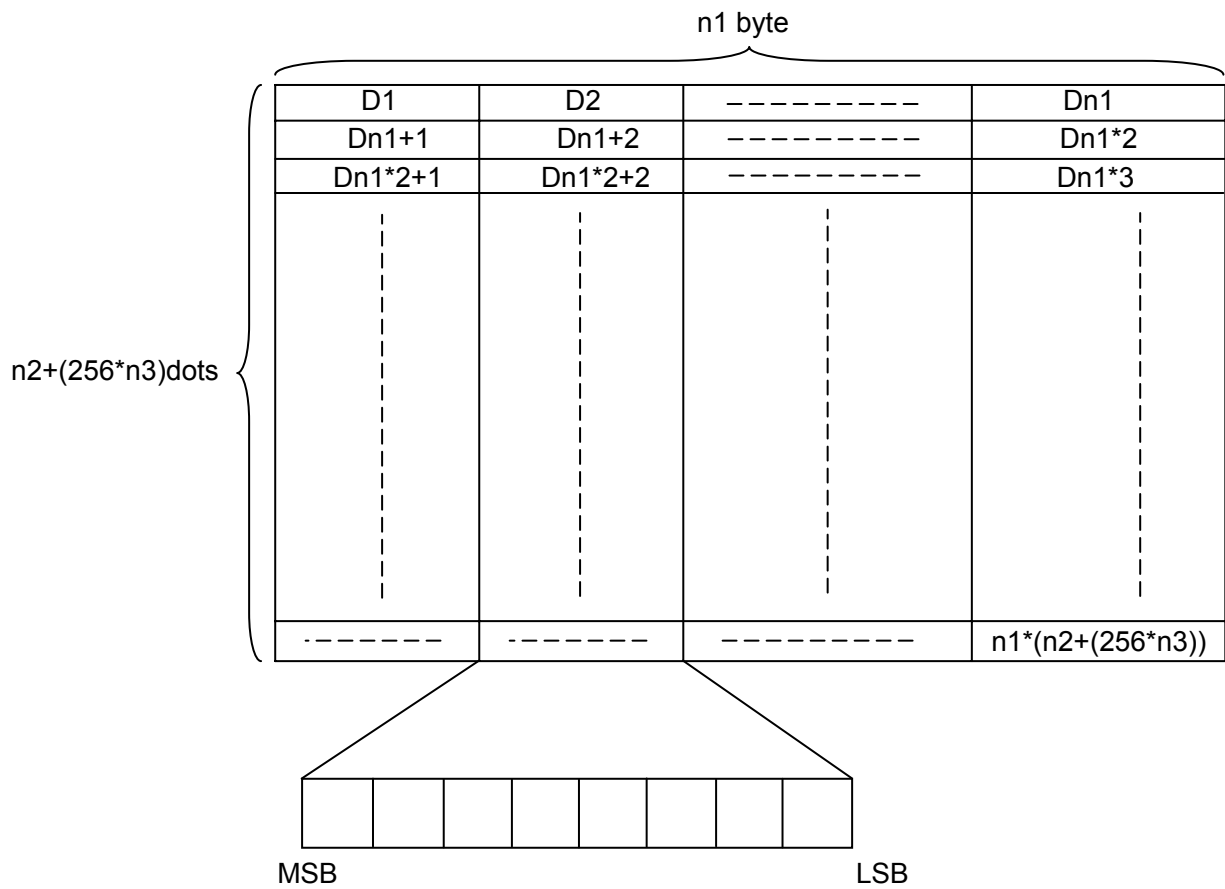
* Please add < ESC J 00h > ([1B] h + [4A] h + [00] h) at the end of this command.
* Data of this command is started printing after storage regardless of <start print/end of set>.

27) 【FEED Switch enable/disable】《ESC c 5 n》
    Code：〔1B〕h＋〔63〕h＋〔35〕h＋n   ※〔00≤n≤FF〕h
  Changes the FEED switch valid or invalid
  * "n" is only valid for LSB (b0)
  * "n" bit has a following meanings

B0	Description
0	Enable FEED switch
1	Disable FEED switch

  * Default value of "n" is [00] h.

28) 【Print and "n" line feed】《ESC d n》
    Code：〔1B〕h＋〔64〕h＋n   ※〔00≤n≤FF〕h
  Prints the data in the print line buffer and feeds paper by "n" lines.
  * The setting value by this command will not remain, so please set the value every time
    you use this command.
  * Beginning of a line is a next print start position.
  * If there is print data remained, line feed should be always activated for th same height
    of character.

29) 【Presenter ejection mode set】《ESC h n》
    ※This command is effective only when you use Presenter(NPT-301)
    Code：〔1B〕h＋〔68〕h＋n   ※〔00≤n≤01〕h
  Select "Clamp Feed" or "All Feed" on Presenter Feed mode
  *n has a following meanings.

n(hex)	Function
00	Clamp Feed
01	All Feed

  * Default of n is〔00〕h.

30) 【Full Cut】《ESC i》
    Code：〔1B〕h＋〔69〕h
    * Full cut the paper is activated.
    * Effective at the head of a line

31) 【Partial Cut A】《ESC m》
    Code：〔1B〕h＋〔6D〕h
  * conduct partial cut (center is left uncut.)
  * Effective at the head of a line

32) 【Partial Cut B】《ESC n》
    Code：〔1B〕h＋〔6E〕h
  * conduct partial cut (a few mm in the center is left uncut.)
  * Effective at the head of a line.
  * The part of Uncut is thicker than one on (Partial Cut A).

33) 【Compulsary Feed】《ESC r n》
   ※This command is effective only when you use Presenter(NPT-301)
   Code : 〔1B〕h+〔72〕h+n   ※〔00≤n≤01〕h
   (Compulsary Feed) is used for compulsary feed / (All Feed) with status of unremoval of
   paper in a certain time running after (Clamp Feed).
   * This command let motor normal or reverse rotate the motor until feed all paper.
   * n has the following meanings.

n(hex)	Motor
00	Forward Rotation
01	Reverse Rotation

34) 【Printer information transitting】《ESC s n》
   Code : 〔1B〕h+〔73〕h+n
   Conduct printer information transmitting.
   * Details of n and return information mentioned as the following;

n(hex)	Category of Printer Information	Return Data format	Return data length
02	Model info.	Variable length string (terminal NULL=00h)	Max32Byte
03	F/W version info.	Fixed length string	8 Byte
04	Boot version info.	Fixed length string	8 Byte
05	SW setting info.	Fix Length Hex data	4 Byte

   Return Transimit Format
   〔FF〕h + n(※1) +return data
   ※1 n is designated by command.

35) ▲【Select Character code table】《ESC t n》
   ※Effective only when Japanese and Korean selected
   Code : 〔1B〕h+〔74〕h+n   ※〔00≤n≤06〕h
   Conduct selection of Character code table
   * n has the following meaning.

n(hex)	Font Table
00	International Code page
01	Japanese Code page
02	Code Page 858
03	Code Page 1250
04	Code Page 1251
05	Code Page 1252
06	Code Page 1254

   * Default value of n is〔01〕h

36) 【Printer status transmit】《ESC v》
   Code : 〔1B〕h+〔76〕h
   Transmit current printer status
   * Status transmit is one byte. Please refer to the error detection for the details.
  * Transmit one byte after confirmation of receivable on host (CTS singnalon space status)
   * When host is unreceivable (CTS singnal at Mark status), printer is waiting until host is
      receivable.
   * This command is effective only for Serial Interface.
   * Command should be issued before transmit of print data.
      (Stored on internal receipt input buffer, run on sequential)
   * Receivable except for internal receive input buffer is full.

37） 【Inverted Character Set・Reset】《ESC { n》

    Code：〔1B〕h＋〔7B〕h＋n   ※〔00≤n≤FF〕h

Set or Reset Inverted Character function.

 * n is only valid for LSB (b0)

 *LSB(b0) has the following meaning.

b0	Descriptions
0	Resets inverted character
1	Sets interted character

 * The command is only valid when it is assigned at the beginning of a line.

 * Default Value of n is〔00〕h.

38） 【Select division drive】《GS % n》

    Code：〔1D〕h＋〔25〕h＋n   ※〔01≤n≤03〕h

Select division drive

 * n has the following meaning;

n(hex)	divisions
01	Fix without divisions
02	Fix in two division
03	Optimization

 ・Default value of n is〔03〕h.

 ・Not divide out of area

39） 【Black and white reverse print set and reset】《GS B n》

    Code：〔1D〕h＋〔42〕＋n   ※〔00≤n≤FF〕h

Sets and resets black and white reverse print.

 * n is only valid for LSB(b0).

 * LSB(b0) has the following meanings;

b0	Functions
0	Reset black and white reverse print
1	Set Black and White reverse print

 * The built-in characters and the downloaded can be reverse printed.

 * The right side space of character set by [Set right space of a character] is also included for reverse print. However, it does not cover the skipped space made by bit image, download bit image, NV bit image, barcode, HRI characters, horizontal tab, specify absolute position, specify relative position.

 * It does not include the space between the lines.

 * Reverse print has a priority over "underline specified". If a character is reversed, the character is not underlined. However, the underline setting remains effective.

 * If "highlight" or "double strike" is set on the reverse print, the print may result in damages.

 * The default value of "n" is [00] h.

40) 【Print start/Print finish setting】 《GS G n》
Code : 〔1D〕h+〔47〕h+n
Operate on printer status bit 7(print start/end set status).
* By using this command before and after printing data, the printer will monitor the printer status bit 7 and will be able to detect the printer status whether it is now printing, or finished printing.
* n has the following meaning;

n(hex)	Function
21	Priner status bit 7 "1"(print start setting)
20	Printer status bit 7 "0"(print finish setting)
31 + job ID(4Byte)	Printer status bit 7 "1"(print start setting) nomination
30	Printer status bit 7 "0"(print finish setting) , will transmit"Print finished" message of the following format.※designated under jobID(4Byte):n=11h. 〔FF〕h+〔13〕h+jobID(4Byte)+finished status(1Byte) 　　　　　　　　　　　　　　　　　　　+backup(3Byte)

* The method of printing is storage type.
* Once the receiving data storaged on memory, it starts printing data storaged after receipt of "print finish setting".
* A little bit time-lag remains between "Reception start"and"Print start"but Printing is stable at the highest speed. In case over printing capacity of 160mm on printing length, Memory storages every 160mm on printing length and prints.
  Therefore, the squences is repeated, on the edge between storage and printing remains pause and start printing.
* When the data between "Print start" and "Finishing setting" happen an error on the way of printing, you should disregard it until "Finish setting".
* When this command repeatedly is used on USB interface, you should use n =〔31〕 h,〔30〕h only and certainly transmit next print start command after reception of finish status.

41) 【Selection of printing position of HRI character】《GS H n》
Code :〔1D〕h+〔48〕h+n 　　　　　　　　　　※〔00≤n≤03〕h
You should select printing position of HRI character when printing Barcode.
* n has the following meaning.

n(hex)	Printing position
00	No printing
01	Above barcode
02	Under barcode
03	Above & Under barcode

・HRI character is printed by font selected with【Font selection of HRI character】.
・The default of n is [00]h.

42) 【NV Bit Image Print】《GS P n》

　　Code：〔1D〕h＋〔50〕h＋n　　　　　　　　※〔00≤n≤02〕h,〔10≤n≤12〕h

　Print the print data registered bit image.

* Selects one of the print pattern among three registered patterns by assigning 0 to 2 value to "n".
* with making n to 1, ([10]h ~ [12] h), if vertical direction size of fixed bit image to be printed is larger than that of distance between print head ~ cutter, full cut is inserted automatically when the distance between print head ~ cutter is pinted, the remainder is continuously printed after full cut. By using this function, it will be possible to print larger top logo than that of distance between print head ~ cutter and no margin at the top of page.
* n has the following meaning.

n(hex)	Print pattern	Cut insertion
00	Pattern 0	
01	Pattern 1	nill
02	Pattern 2	
10~12	00~02	available

43) 【NV Bit Image registration】《GS T n》

　　Code：〔1D〕h＋〔54〕h＋n

　Register the predetermined bit image print data.

* It is possible to register from 0 to 2 different kinds of patterns (3 patterns).
* In each pattern, up to the maximum of 11cm length of bit image print data can be registered. The bit image print data exceeding the maximum length is neglected.
* The registered data is not erased even if the power is set on/off or [the printer is initialized], [software reset]
* n has the following meaning.

n(hex)	Function
0	Start of pattern 0 registration
1	Start of pattern 1 registration
2	Start of pattern 2 registration
FF	End of registration

* When registrations started in the middle of a line, whole line is registered.
* When registration ended in the middle of a line, whole line is not registered.
* Following is a command sequence of pattern 0 registration.

　　GS T 00 h + (bit image data assigned by ESC *) x n lines + GS T FF h

44) 【Firmfare downloading】《GS d Dn》

　　Code：〔1D〕h＋〔64〕h＋Dn

　* Download printer firmware in hexadecimal code and rewrite firmware according to the outcome, and reboot.
　* Dn is firmware's hex code which complies with INTELLEX Hex format.

45) 【Select font of HRI character】《GS f n》

　　Code：〔1D〕h＋〔66〕h＋n　　　　　　　　※〔00≤n≤01〕h

* Selects Font of HRI character when print barcode.
* n has the following meaning.

n(hex)	Font style
00	Font A
01	Font B

* The default of n is〔00〕h.

46）【Setting of the height of barcode】《GS h n》
　　Code：［1D］h＋［68］h＋n　　　　　　　　※［01≤n≤FF］h
　Sets the height of barcode by dot.
　* n is indicated dot for horizental direction.
　* The default of n is ［A2］h.（162dots）

47）【Barcode Print】《GS k n Dn NUL》
　　コード：［1D］h＋［6B］h＋n＋Dn＋［00］h　　※［00≤n≤07］h
　Selects barcode symbology and prints barcode.
　* The next print start position is set at the beginning of the line.
　* Select following barcode symbology with "n" value.

n(hex)	Barcode Symbology
00	UPC-A
01	UPC-E
02	JAN-13(EAN-13)
03	JAN-8(EAN-8)
04	CODE39
05	ITF
06	CODABAR(NW-7)
07	CODE128

　* Dn indicates the character code to be printed.
　* If character code Dn is not a printable character, following data after Dn will be treated
　　 as normal print data.
　* When the barcode symbology whose print character number is fixed is selected, the
　　 character numbers should match to the print character numbers.
　* If horizontal data exceed one line, the exceeded data cannot be printed.
　* [00] h at the end of this command can be changed to [FF] h by [barcode end change]

48）【Auto-Transmitting of Printer Status】《GS v NUL》
　　Code：［1D］h＋［76］h＋［00］h
　When Print Status is changed, Auto-Transmitting is activated.
　* Print Status is 1 byte and the contents as per details of error detection.
　* Once the setting is done, it is effective until executing 【software reset】, reset switch
　　 or power-off.
　* This command is stored on internal reception input buffer, run by sequential.

49）【Select horizontal size of Barcode】《GS w n》
　　Code：［1D］h＋［77］h＋n　　　　　　　　※［02≤n≤04］h
　Select horizontal size of Barcode.
　* Default of n is ［03］h.

50)【Print density set】《GS ～ n》
 Code :〔1D〕h＋〔7E〕h＋n   ※〔41≤n≤87〕h
 Set Print density in the range from 65% to 135%.
 * Though n ranges〔41〕h(65%)～〔87〕h(135%),
  set it for actual use in the range〔41〕h(65%)～〔82〕h(130%).
 * Default of n is〔64〕h.
 * When this command is used while 【Print set/Finish set】command, the setting is disregarded.

51)【Cue Operation】《Gs FF n》
 Code: [1D] h + [0C] h + n   ※〔00, 10≤n≤11〕h
 After detecting black mark, activate feed for preset alignment correction.
 * n has following meaning.

n(hex)	Description
00	Mark detection + feed to print start position
10	Mark detection + feed to cut position + full cut
11	Mark detection + feed to cut position + partial cut A

52)【mark detection method & position correction feed quantity set】《Gs (m a n1 n2》
                                  ※ [01≤m,a≤01] h
 Code: [1D] h + [28] h + m + a + n1 + n2   ※ [01≤n1,n2≤FF] h
 Set mark detection method and feed quantity of position correction.
 * m, a, n1, n2 has following meaning.

Set item m(hex)		Detecting method a(hex)		Setting value (n2*256+n1)
00	Feed quantity to print start position	00	Upper edge	Set a position from mark detection to print start by dot.
		01	Lower edge	
01	Feed quantity to cut position	00	Upper edge	Set a position from mark detection to cut by dot.
		01	Lower edge	

 * feed quantity is set by dot with signed 16bit(-32767~32767), upper Bit is set by n2, lower Bit by n1.
 * When feed quantity is set negatively, paper edge does not exeed back feed limit
  (Please refer to cutter specification).
 * Defaut is as follows:

Item	Detecting mentod	Preset value
Print start position	Upper edge	92 dot (11.5mm: between sensor ~ head
Cutting position	Uppder edge	168dot (21mm: between sensor~cutter)

53)【cue process set at setting paper】《Gs m n 》
 Code: [1D] h + [6D] h +n   ※ [00≤n≤FF] h
 Activate cue process set at setting a paper.
 * each bit of n has a following meaning.

Bit	Function	value	
		0	1
0	Cue operation after auto loading	Invalidation	valid
1	Cue operation after thermal head cover open/close	Invalidation	Valid
2	Cue operation after Feed switch push	Invalidation	valid

 * this cue operation is same as selecting Gs FF [10] h
 * default of n is [00] h

54) 【Printable area set】《Gs W n1 n2》
　　Code : [1D] h + [57] h + n1 + n2　　　　　　※ [03≤n1≤50] h
　　Set left margin and printable area　　　　　　※ [03≤n2≤4D] h
　　* n1 = left margin (mm)
　　* n2 = printable area(mm)
　　* right marging(mm) = 80 – (left margin + printable area)
　　* please refer to [printable area] for the details.

55) 【maximum printing speed set】《GS S n》
　　Code: [1D] h + [53] h + n　　　　　　　　　　※ [00≤n≤04] h
　　Set maximum printing speed at storage print.
　　* "n" has following meaning

n(hex)	Maximum printing speed
00	Max. 200mm/sec
01	Max. 150mm/sec
02	Max. 125mm/sec

n(hex)	Maximum printing speed
03	Max. 100mm/sec
04	Max.　75mm/sec

　　* Default of n is [00] h

56) 【butch set of Japanese Kanji print mode】《FS ! n》
　　Code : [1C] h＋ [21] h＋n　　　　　　　　※ [00≤n≤FF] h
　　Set Japanese Kanji overall print mode set.
　　* "n" has the following meaning.

Bit	Function	Value	
		0	1
0	undefined		
1	undefined		
2	Double width	Reset	Set
3	Double height	Reset	Set
4	Undefined		
5	Undefined		
6	Undefined		
7	Underline	Reset	Set

　　* If double height and double width are set at the same time ,quadruple character will
　　　be formed.
　　* All of the printed characters will be underlined except for the 90° clockwise rotated
　　　characters and spaces created by horizontal tab.
　　* Underline width is determined by the value set in 【Kanji Underline set/reset]】.
　　　The default value is "1".
　　* Different sizes of character mixed such as normal size, double height, double width
　　　and quadruple can be printed.
　　* Combined print with ANK Character is available.
　　* Default of n is [00] h.

57) ▲ 【Japanese Kainji mode set】《FS &》
　　* Effective only　when Japanese font and Korean font selected.
　　Code : [1C] h＋ [26] h
　　Set Japanese Kanji mode
　　* It is not effective when selected Shift JIS of Japanese Kanji.
　　* Default is the reset of Japanese Kanji mode.

58) 【Japanese Kanji underline set/reset】《FS - n》
Code：〔1C〕h＋〔2D〕h＋n   ※〔00≤n≤02〕h
Set/reset underline of Japanese Kanji
* All of the printed characters will be underlined except for the 90° clockwise rotated characters and spaces created by horizontal tab.
* This command is not effective when reset Japanese Kanji mode.
* "n" has the following meanings.

n(hex)	Function
00	Reset underline of Japanese Kanji
01	Set 1 dot underline of Japanese Kanji
02	Set 2 dot underline of Japanese Kanji

* Default of n is〔00〕h.

59) ▲【Reset Japanese Kanji mode】《FS .》
※Effective only when Japanse font , Korean font selected.
Code：〔1C〕h＋〔2E〕h
Reset Japanese Kanji mode
* It is not effective when selected Shift JIS of Japanese Kanji.
* Default is the reset of Japanese Kanji mode.

60) ■【Definition of additional Characters】《FS 2 a1 a2 Dn》

※ Effecive only when the Japanese font is selected.

Code：〔1C〕h＋〔32〕h＋a1＋a2＋Dn

JIS code	※〔a1=77〕h
	※〔21≤a2≤7E〕h
Shift JIS code	※〔a1=EC〕h
	※〔40≤a2≤7E, 80≤a2≤9E〕h

Definition of Additional Kanji Character

* Definition of up to 94 characters available.

* Dn is the data to be defined. Data will be 3 byte (vertical) x 24 dot(horizontal) =72 byte.

* The default status is "space".

* Once defined by this command, it will be effective until execution of 【Software reset】 and reset switch or power off.

* Only specified area will be redefined.

＜Example＞
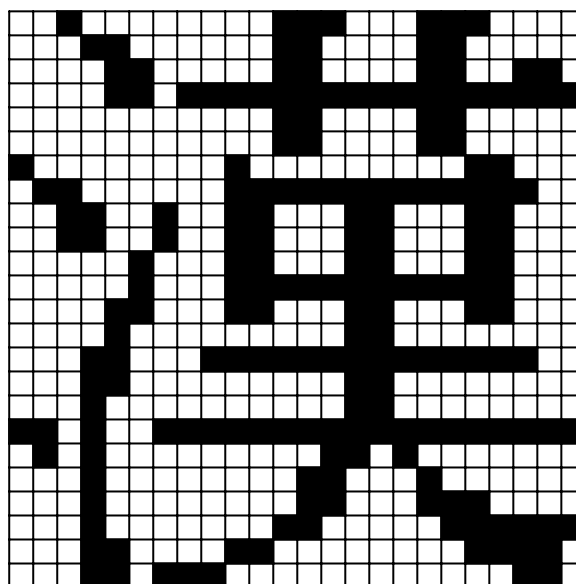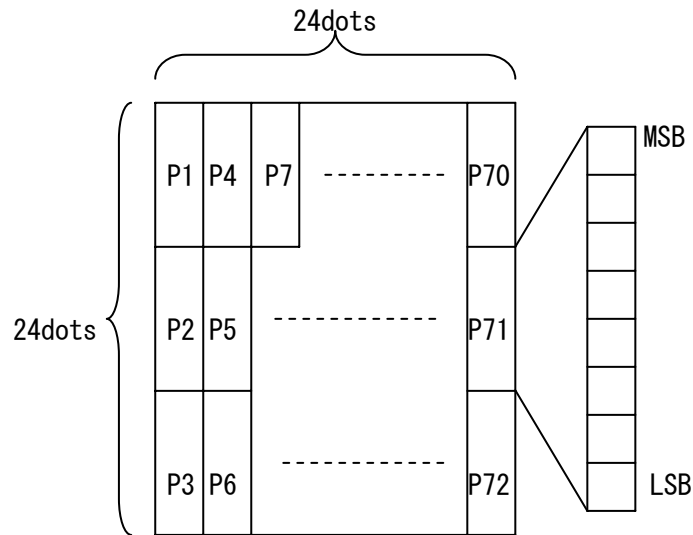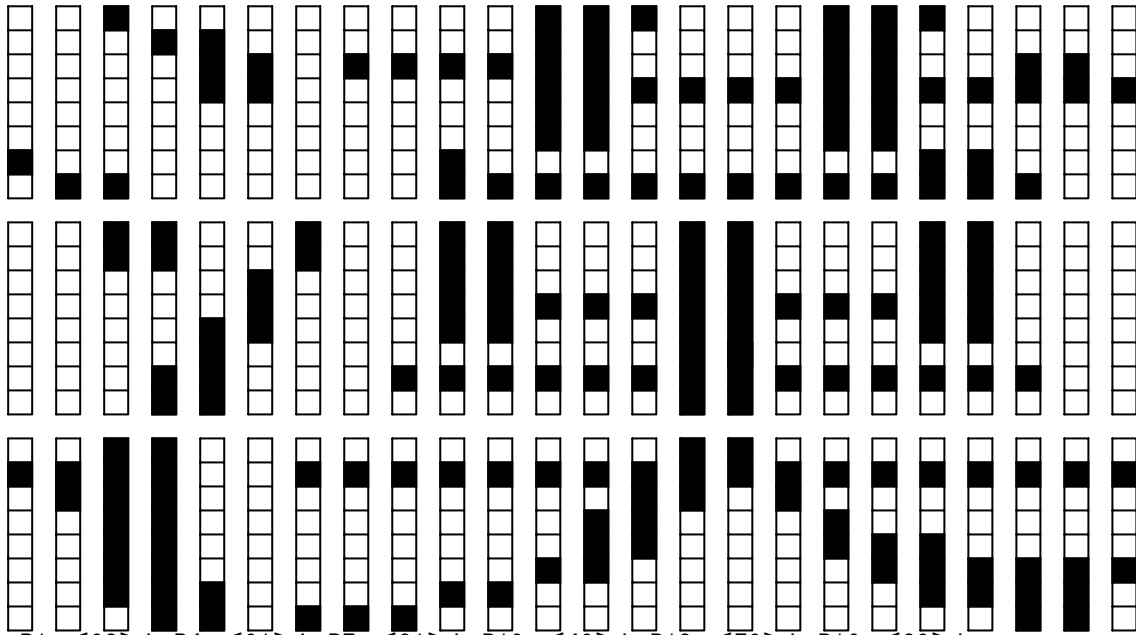
P1= 〔02〕h, P4= 〔01〕h, P7= 〔81〕h, P10= 〔40〕h, P13= 〔70〕h, P16= 〔30〕h, …
P2= 〔00〕h, P5= 〔00〕h, P8= 〔C0〕h, P11= 〔C3〕h, P14= 〔0F〕h, P17= 〔38〕h, …
P3= 〔40〕h, P6= 〔60〕h, P9= 〔FE〕h, P12= 〔FF〕h, P15= 〔03〕h, P18= 〔00〕h, …

61) ■【Select Japanese Kanji code】《FS C n》
　　* Effecive only when the Japanese font is selected
　　Code：〔1C〕h+〔43〕h+n　　　　　　　　　　　※〔00≤n≤01〕h
　　Select Japanese Kanji code.
　　* "n" has the following meaning.

n(hex)	Code
00	JIS code
01	Shift JIS code

　　* Default is set with memory switch MS2-1

62)【Japanese Kanji Space setting】《FS S n1 n2》
　　Code：〔1C〕h+〔53〕h+n1+n2　　　　　　　　※〔00≤n1≤20〕h
　　　　　　　　　　　　　　　　　　　　　　　　　※〔00≤n2≤20〕h

　　Set side space of Japanese Kanji by dot unit
　　* n1 sets the left space. Default value is [00] h.
　　* n2 sets the right space. Default value is [00] h.
　　* Width of space will be double when selected double width.

63） 【Select character table code】《FS T n》
    Code：〔1C〕h＋〔54〕h＋n   ※〔00≤n≤03〕h
    Switch character table code
    * "n" has the following.

n(hex)	Built-in Character code table
00	Japanese
01	Chinese
02	Korean
03	Greek

    * Default of n is set by memory switch（MS2-2、MS2-3）
    * By executing 【printer initialization】, this setting will be returned to value set by memory switch (MS2-2, MS2-3).

64） 【Set/Reset Quadruple Japanese Kanji character】《FS W n》
    Code：〔1C〕h＋〔57〕h＋n   ※〔00≤n≤FF〕h
    Set/reset Quadruple Japanese Kanji character
    * "n" is only effective on LSB bit(b0).
    * Indicated control by LSB bit(b0) as follows;

b0	Function
0	Reset Quadruple
1	Set Quadruple

    * Default of n is〔00〕h

6. Character code table

6.1 Domestic Character code table（International character set：Japanese）

HEX	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	**BIN**	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	O	@	P	`	p	▁	⊥	SP	—	タ	ミ	=	×
1	0001		DC1	!	1	A	Q	a	q	▬	┬	。	ア	チ	ム	⊦	円
2	0010			"	2	B	R	b	r	▬	┤	「	イ	ツ	メ	╪	年
3	0011		DC3	#	3	C	S	c	s	▬	├	」	ウ	テ	モ	╡	月
4	0100			$	4	D	T	d	t	▬	─	、	エ	ト	ヤ	◢	日
5	0101			%	5	E	U	e	u	▮	—	・	オ	ナ	ユ	◣	時
6	0110			&	6	F	V	f	v	▮	│	ヲ	カ	ニ	ヨ	◥	分
7	0111			'	7	G	W	g	w	▮	│	ァ	キ	ヌ	ラ	◤	秒
8	1000			(	8	H	X	h	x	│	┌	ィ	ク	ネ	リ	♠	〒
9	1001	HT		)	9	I	Y	i	y	│	┐	ゥ	ケ	ノ	ル	♥	市
A	1010	LF		*	:	J	Z	j	z	│	└	ェ	コ	ハ	レ	◆	区
B	1011		ESC	+	;	K	[	k	{	▐	┘	ォ	サ	ヒ	ロ	♣	町
C	1100	FF	FS	,	<	L	¥	l	¦	▮	⌐	ャ	シ	フ	ワ	●	村
D	1101	CR	GS	—	=	M	]	m	}	■	╲	ュ	ス	ヘ	ン	○	人
E	1110		RS	.	>	N	^	n	~	■	╲	ョ	セ	ホ	゛	／	▨
F	1111			／	?	O	_	o	SP	+	╯	ッ	ソ	マ	゜	＼	SP

* "SP" indicated Space

* "CR" is ignored.

* Printer operation cannot be guaranteed if the blank control code (codes below [1F] h) is transmitted to printer.

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

6.2 Overseas character code （International set: USA）

HEX	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	€	É	á	▨	└	⊥	α	≡
1	0001		DC1	!	1	A	Q	a	q	ü	æ	í	▨	⊥	╤	β	±
2	0010			"	2	B	R	b	r	é	Æ	ó	▩	┬	╥	Γ	≤
3	0011		DC3	#	3	C	S	c	s	â	ô	ú	│	├	╨	π	≥
4	0100			$	4	D	T	d	t	ä	ö	ñ	┤	─	╞	Σ	⌈
5	0101			%	5	E	U	e	u	à	ò	Ñ	╡	+	╘	σ	⌡
6	0110			&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	0111			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	1000			(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	1001	HT		)	9	I	Y	i	y	ë	Ö	┌	╣	╔	┘	θ	∙
A	1010	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	∙
B	1011		ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	■	δ	√
C	1100	FF	FS	,	<	L	\	l	¦	î	£	¼	╝	╠	▬	∞	ⁿ
D	1101	CR	GS	−	=	M	]	m	}	ì	¥	¡	╜	=	▮	φ	²
E	1110		RS	.	>	N	^	n	~	Ä	₧	«	╛	╬	▮	∈	■
F	1111			／	?	O	_	o	SP	Å	ƒ	»	┐	╧	▬	∩	SP

* "SP" indicated Space

* "CR" is ignored.

* Printer operation cannot be guaranteed if the blank control code (codes below [1F] h) is transmitted to printer.

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

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HEX		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	Ç	É	á	▓	└	ð	Ó	–
1	0001		DC1	!	1	A	Q	a	q	ü	æ	í	▓	┴	Ð	ß	±
2	0010			”	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
3	0011		DC3	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	0100			$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	0101			%	5	E	U	e	u	à	ò	Ñ	Á	┼	€	Õ	§
6	0110			&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	0111			’	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	1000			(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	1001	HT		)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	1010	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	1011		ESC	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	1100	FF	FS	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	ý	³
D	1101	CR	GS	–	=	M	]	m	}	ì	Ø	¡	¢	=	¦	Ý	²
E	1110		RS	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	‾	■
F	1111			╱	?	O	_	o	SP	Å	ƒ	»	¬	¤	▀	´	SP

* "SP" indicated Space
* "CR" is ignored.
* Printer operation cannot be guaranteed if the blank control code (codes below [1F] h) is transmitted to printer.
* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

6.4 International character code table

n	Character set	23h	24h	40h	5Bh	5Ch	5Dh	5Eh	60h	7Bh	7Ch	7Dh	7Eh
00h	U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
01h	France	#	$	à	°	ç	§	^	`	é	ù	è	¨
02h	Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
03h	U.K.	£	$	@	[	\	]	^	`	{	¦	}	~
04h	Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
05h	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
06h	Italy	#	$	@	°	\	é	^	ù	à	Ò	è	ì
07h	Spain	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
08h	Japan	#	$	@	[	¥	]	^	`	{	¦	}	~
09h	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
0Ah	Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

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	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		‚ 201A		„ 201E	… 2026	† 2020	‡ 2021		‰ 2030	Š 0160	‹ 2039	Ś 015A	Ť 0164	Ž 017D	Ź 0179
90		' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014		™ 2122	š 0161	› 203A	ś 015B	ť 0165	ž 017E	ź 017A
A0	NBSP 00A0	ˇ 02C7	˘ 02D8	Ł 0141	¤ 00A4	Ą 0104	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	Ş 015E	« 00AB	¬ 00AC	00AD	® 00AE	Ż 017B
B0	° 00B0	± 00B1	˛ 02DB	ł 0142	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	ą 0105	ş 015F	» 00BB	Ľ 013D	˝ 02DD	ľ 013E	ż 017C
C0	Ŕ 0154	Á 00C1	Â 00C2	Ă 0102	Ä 00C4	Ĺ 0139	Ć 0106	Ç 00C7	Č 010C	É 00C9	Ę 0118	Ë 00CB	Ě 011A	Í 00CD	Î 00CE	Ď 010E
D0	Đ 0110	Ń 0143	Ň 0147	Ó 00D3	Ô 00D4	Ő 0150	Ö 00D6	× 00D7	Ř 0158	Ů 016E	Ú 00DA	Ű 0170	Ü 00DC	Ý 00DD	Ţ 0162	ß 00DF
E0	ŕ 0155	á 00E1	â 00E2	ă 0103	ä 00E4	ĺ 013A	ć 0107	ç 00E7	č 010D	é 00E9	ę 0119	ë 00EB	ě 011B	í 00ED	î 00EE	ď 010F
F0	đ 0111	ń 0144	ň 0148	ó 00F3	ô 00F4	ő 0151	ö 00F6	÷ 00F7	ř 0159	ů 016F	ú 00FA	ű 0171	ü 00FC	ý 00FD	ţ 0163	˙ 02D9

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

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	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	− 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	Ђ 0402	Ѓ 0403	‚ 201A	ѓ 0453	„ 201E	… 2026	† 2020	‡ 2021	€ 20AC	‰ 2030	Љ 0409	‹ 2039	Њ 040A	Ќ 040C	Ћ 040B	Џ 040F
90	ђ 0452	' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014		™ 2122	љ 0459	› 203A	њ 045A	ќ 045C	ћ 045B	џ 045F
A0	NBSP 00A0	Ў 040E	ў 045E	Ј 0408	¤ 00A4	Ґ 0490	¦ 00A6	§ 00A7	Ё 0401	© 00A9	Є 0404	« 00AB	¬ 00AC	− 00AD	® 00AE	Ї 0407
B0	° 00B0	± 00B1	І 0406	і 0456	ґ 0491	µ 00B5	¶ 00B6	· 00B7	ё 0451	№ 2116	є 0454	» 00BB	ј 0458	S 0405	s 0455	ї 0457
C0	А 0410	Б 0411	В 0412	Г 0413	Д 0414	Е 0415	Ж 0416	З 0417	И 0418	Й 0419	К 041A	Л 041B	М 041C	Н 041D	О 041E	П 041F
D0	Р 0420	С 0421	Т 0422	У 0423	Ф 0424	Х 0425	Ц 0426	Ч 0427	Ш 0428	Щ 0429	Ъ 042A	Ы 042B	Ь 042C	Э 042D	Ю 042E	Я 042F
E0	а 0430	б 0431	в 0432	г 0433	д 0434	е 0435	ж 0436	з 0437	и 0438	й 0439	к 043A	л 043B	м 043C	н 043D	о 043E	п 043F
F0	р 0440	с 0441	т 0442	у 0443	ф 0444	х 0445	ц 0446	ч 0447	ш 0448	щ 0449	ъ 044A	ы 044B	ь 044C	э 044D	ю 044E	я 044F

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

6.7 CODE PAGE1252

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		‚ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	‹ 2039	Œ 0152		Ž 017D	
90		' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014	˜ 02DC	™ 2122	š 0161	› 203A	œ 0153		ž 017E	Ÿ 0178
A0	NBSP 00A0	¡ 00A1	¢ 00A2	£ 00A3	¤ 00A4	¥ 00A5	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	ª 00AA	« 00AB	¬ 00AC	00AD	® 00AE	¯ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ð 00D0	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	Ý 00DD	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ð 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

6.8 CODE PAGE1253

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		, 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021		‰ 2030		‹ 2039				
90		' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014		™ 2122		› 203A				
A0	NBSP 00A0	΅ 0385	Ά 0386	£ 00A3	¤ 00A4	¥ 00A5	¦ 00A6	§ 00A7	¨ 00A8	© 00A9		« 00AB	¬ 00AC	00AD	® 00AE	― 2015
B0	° 00B0	± 00B1	² 00B2	³ 00B3	΄ 0384	µ 00B5	¶ 00B6	· 00B7	Έ 0388	Ή 0389	Ί 038A	» 00BB	Ό 038C	½ 00BD	Ύ 038E	Ώ 038F
C0	ΐ 0390	Α 0391	Β 0392	Γ 0393	Δ 0394	Ε 0395	Ζ 0396	Η 0397	Θ 0398	Ι 0399	Κ 039A	Λ 039B	Μ 039C	Ν 039D	Ξ 039E	Ο 039F
D0	Π 03A0	Ρ 03A1		Σ 03A3	Τ 03A4	Υ 03A5	Φ 03A6	Χ 03A7	Ψ 03A8	Ω 03A9	Ϊ 03AA	Ϋ 03AB	ά 03AC	έ 03AD	ή 03AE	ί 03AF
E0	ΰ 03B0	α 03B1	β 03B2	γ 03B3	δ 03B4	ε 03B5	ζ 03B6	η 03B7	θ 03B8	ι 03B9	κ 03BA	λ 03BB	μ 03BC	ν 03BD	ξ 03BE	ο 03BF
F0	π 03C0	ρ 03C1	ς 03C2	σ 03C3	τ 03C4	υ 03C5	φ 03C6	χ 03C7	ψ 03C8	ω 03C9	ϊ 03CA	ϋ 03CB	ό 03CC	ύ 03CD	ώ 03CE	

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

6.9 CODE PAGE1254

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		‚ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	‹ 2039	Œ 0152			
90		' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014	˜ 02DC	™ 2122	š 0161	› 203A	œ 0153			Ÿ 0178
A0	NBSP 00A0	¡ 00A1	¢ 00A2	£ 00A3	¤ 00A4	¥ 00A5	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	ª 00AA	« 00AB	¬ 00AC	00AD	® 00AE	¯ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ğ 011E	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	İ 0130	Ş 015E	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ğ 011F	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ı 0131	ş 015F	ÿ 00FF

* This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.