

1. OUT LINE

BTP710, a compact type printer with various which can be incorporated into a rack, etc, can serve to print, on paper, the data having been input either in serial or parallel mode.

1-1 FEATURE

1. Ultra small-sized panel mount configuration.
2. Extremely light weight.
3. Quiet and fast printing(50mm/sec) using the direct line thermal.
4. Extremely easy to load a paper by clamshell uite.
5. Easy maintenance and head cleaning.
6. Setting the baud rate, handshaking, character, density etc., by external button.
7. Support for many bar code type:
(JAN/EAN-8, JAN/EAN-13, CORD39, CODE128, CODE93)
8. Command selection of font sizes(12x24, 8x16).
9. Self-test facility.
10. Dump mode function.

1-2. SPECIFICATIONS

MODELS	BTP-710
PRINT METHOD	DIRECT THERMAL
PRINT FONT	INTERNAL 8X24/EXTERNAL 16X24
PRINT MODES	NOMAL,DOUBLE WIDTH,DOUBLE HIGH, INVERTED, GRAPHICS
INTERFACE	RS232-C,PARALLEL
PAPER WIDTH	58mm
NUMBER OF COLUMNS	32:384 DOT/LINE
PRINT SPEED	50mm/SEC
DATA BUFFER	7K BYTE MEMORIES
MECHANICAL LIFETIME	50KM
BAUD RATE	2400-115200 BPS,
POWER REQUIREMENT	12V/2.5A
OPERRATING TEMPERATUR	0-40°C
HUMIDITY	20-80%
DIMENSIONS	110X119X80

2. OPERATION.

2-1 Opening/closing of printer cover.

Applying your finger on both side of printer, push it up when the lock is released as Shown in the drawing.

It open by about 120DEG centering the fixed axis.

For the closing, pressing the top cover, tightly close it until click sound is Head. Also confirm, on closing, paper is free of slackening.

2-2 installing paper

Please ensure that correct grade of paper is used with the BTP-710.

It is extremely easy to load a new paper roll into the printer by following these Simple steps.

- * Open the cover and remove the old paper core.
- * Drop the new roll paper into the reservoir so that it will rotate in the correct direction(i.e.so that the emulsion side of the paper outside rests against the printer head)
- * Hold the front edge of the paper outside the main cavity at the front of the printer.
- * Close the printer cover

2-3 self-test

- The purpose of the self-test
The self-test checks whether the printer has any problems
When the printer does not function properly, please contact the supplier.
- The self-test checks the followings
Control circuit functions
Control ROM version
Program setting
Printer quality
- * Running the self-test
Make sure the roll paper cover is closed and roll paper is installed correctly.
Turn on the power while pressing FEED button, the self-test begins.
The followings contents are printed for printer current status printing first.

2-4 Set-up mode

Following these step when setting the program.

Turn on the power while pressing ONLINE button, then printer will go into set-up mode And print the current parameter status.

The power LED indicator will flash every second to indicate program mode.

Each time the FEED button is pressed and released the next printer parameter is Printed. Pressing the ONLINE button will cause the status of that parameter to change In The sequence shown.

Once the correct status has been selected, then press ONLINE button while

Pressing FEED button.

Note: if no button are pressed for 15 seconds, the set-up mode is
Automatically terminated without changing the original parameters.

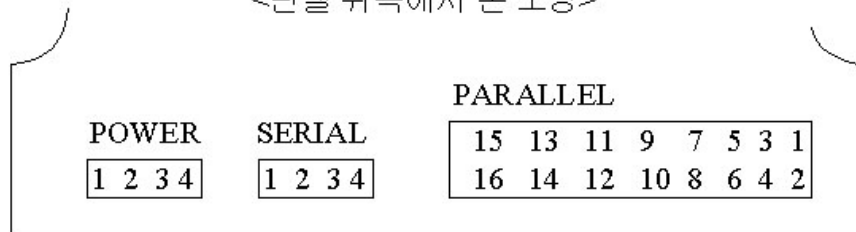
ONLINE S/W	FEED S/W
BAUD RATE	115200/57600/38400/19200/9600/4800/2400
HANDSHAKING	DTR,X-ON. / X-OFF
COUNTRY	DENMARK2/NORWAY/JAPAN/SPAIN/ITALY/SWEDEN DENMARK1/UK/GERMANY/France/USA/KOREA
PRINT MODE	DATA(INVERTED),TEXT(UPRIGHT)
PAPER	NORMAL PAPER REPRINT PAPER
DENSITY	0%/55%/60%/65%/70%/75%/80%/85%/90%/95%/100%/105%/110%/115%/120%/125%/130%/135%/140%/145%/150%

2-5 Dump mode

- The purpose of dump mode : dump mode check whether printer receive data correctly from host or not
- Running the dump mode :turn off power
turn on the power while pressing SEL and FEED
button together.

2-6 pin connections

<판넬 뒤쪽에서 본 모양>



* POWER

1 -- POW(12V)
 2 -- POW(12V)
 3 -- GND
 4 -- GND

* SERIAL

1 -- RxD
 2 -- TxD
 3 -- DTR
 4 -- GND

* PARALLEL

1 -- $\overline{\text{STB}}$, 2 -- D0
 3 -- D1 , 4 -- D2
 5 -- D3 , 6 -- D4
 7 -- D5 , 8 -- D6
 9 -- D7 , 10 -- $\overline{\text{ACK}}$
 11 -- BUSY , 12 -- PE
 13 -- GND , 14 -- GND
 15 -- $\overline{\text{ERROR}}$, 16 -- $\overline{\text{RST}}$

* Command Summary

Command	Name	Page
HT	Horizontal tab	
LF	Print and line feed	
FF	(1)Print and return (2)Print and feed label to print starting position	
CAN	Cancel print data	
ESC FF	Print data in label mode	
ESC ! n	Select print modes	
ESC \$ nL nH	Set absolute print position	
ESC * m nL nH[d1...dk]	Select bit-image mode	
ESC - n	Turn underline mode on/off	
ESC 2	Set 1mm line spacing	
ESC 3 n	Set line spacing	
ESC @	Initialize printer	
ESC J n	Print and feed paper	
ESC R n	Select international character set	
ESC d n	Print and feed paper n lines	
ESC v	Transmit printer status	
ESC { n	Set/cancel upside-down character printing	
GS ! n	Select character size	
GS B n	Turn white/black reverse printing mode	
GS H n	Select printing position of HRI characters	
GS L nL nH	Set left margin	
GS h n	Select height of bar code	
GS k m[d1...dk] NUL	Print bar code	
GS k m n[d1...dn]	Print bar code	
GS w n	Select bar code width	
GS x n	Set bar code print starting position	
DC2 ! n	Select print paper	
DC2 # n	Select print density	
DC2 E	Set the printing finished	
DC2 T	Test Printing	
DC2 m s nL nH	The length of mark position	
DC2 * r n [d1...dn]	Set bit image	
DC2 V nL nH	Set MSB bit image	
DC2 v nL nH	Set LSB bit image	
FS C n	Select code system	

HT(Horizontal tab)

[Format] ASCII : HT
Hex : 09
Decimal : 9

[Description] Moves the print position to the horizontal tab position.
This command is ignored If the next horizontal tab go over possible printing area.
Horizontal tab position(units:dot)
- Font A(8x16): 64,128,192,256,320
- Font B(12x24): 96,192,288

[EX] Data : "1234567890123456789012",0Ah,"123",09h,"456",09h,
"789",09h,"012",09h,"345",0Ah
Print :

1234567890

ABCDEF

LF(Print and line feed)

[Format] ASCII : LF
Hex : 0A
Decimal : 10

[Description] Print the data in print buffer and performs next line feed.

[EX] Data : "1234567890",0Ah,"12345",0Ah
Print :

1234567890

12345

FF(Print and return, Print and feed label to print starting position)

[Format] ASCII : FF
Hex : 0C
Decimal : 12

[Description] (1) Standard mode : Print data in the buffer and feed the paper to cutting line.
(2) Label mode : Print data in the print buffer and moves to starting position of next page.

[Reference] DC2 m s nL nH , DC2 E

[EX] Data : "1234567890",0Ch,"ABCDEF",0Ah
Print :

1234567890

ABCDEF

CAN(Cancel print data)

[Format] ASCII : CAN
Hex : 18
Decimal : 24

[Description] Cancel print data in current line.

[EX] Data : "12345",18h,"ABCDE",0Ah

Print :

ABCDE

ESC FF(Print data in label mode)

[Format] ASCII : ESC FF
Hex : 1B 0C
Decimal : 27 12

[Description] In the Label mode,Print the data in the print buffer and moves to starting position of next pages.

[Reference] FF, DC2 E,DC2 m s nL nH

ESC ! n(Select print modes)

[Format] ASCII : ESC ! n
Hex : 1B 21 n
Decimal : 27 32 n

[Description]

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A(12x24) selected.
	On	01	1	Character font B(8x16) selected.
1				
2				
3				
4	Off	00	0	Double-height mode not selected
	On	10	16	Double-height mode selected
5	Off	00	0	Double-width mode not selected
	On	20	32	Double-width mode selected
6				
7	Off	00	0	Underline mode not selected
	On	80	128	Underline mode selected

[EX] Data : "12",1Bh,21h,01h,"34",1Bh,21h,10h,"56",1Bh,21h,20h,"78",
1Bh,21h,80h,"90",0Ah

Print :

1234⁵⁶7890

ESC \$ nL nH(Set absolute print position)

[Format] ASCII : ESC \$ nL nH
Hex : 1b 24 nL nH
Decimal : 27 36 nL nH

[Description] Set the print position of beginning(Left).

[nL + nH x 256] x 0.125 mm

0 <= n < 300

Default : 0

[Reference] GS L nL nH

[EX] Data : "1234567890",0Ah,1Bh,"\$",3Ch,00,"1234",0Ah

Print :

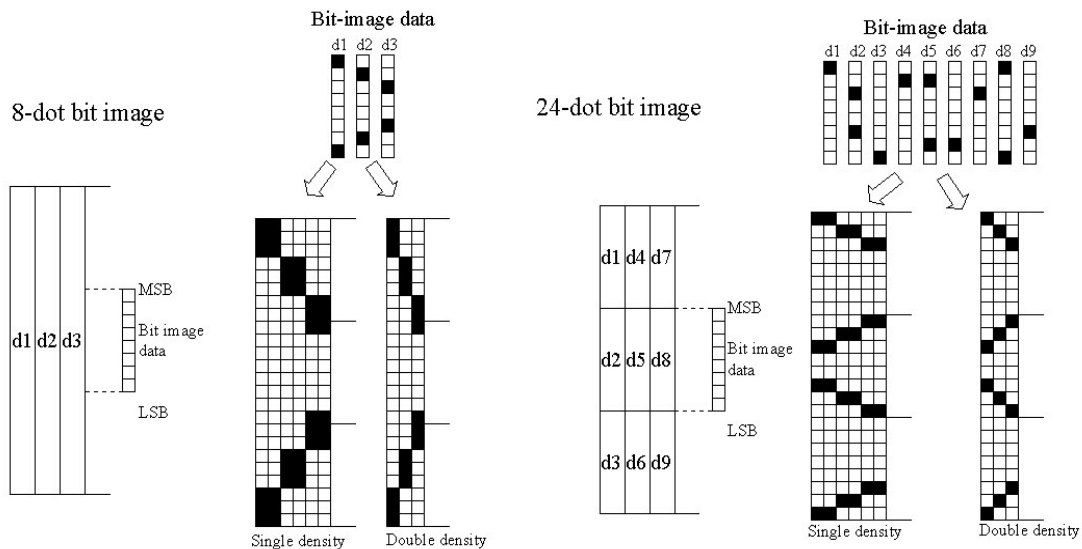
1234567890
1234

ESC * m nL nH[d1...dk](Select bit-image mode)

[Format] ASCII : ESC * m nL nH [d1...dk]
 Hex : 1B 2A m nL nH [d1...dk]
 Decimal : 27 42 m nL nH [d1...dk]

[Description] Select bit-image mode using n for the number of dots specified by nL and nH,as follows;
 Print bit-image mode continuous : (1) Set the line spacing to 24
 (2) Select bit-image mode
 (3) LF(Line feed)
 (4) Repeat (2) and (3).

M	Mode	Vertical Direction	Horizontal Direction
		No. of Dots	Number of Data(k)
0	8-dot single-density	8	nL + nH x 256
1	8-dot double-density	8	nL + nH x 256
32	24-dot single-density	24	(nL + nH x 256) x 3
33	24-dot double-density	24	(nL + nH x 256) x 3



ESC – n(Turn underline mode on/off)

[Format] ASCII : ESC - n
 Hex : 1B 2D n
 Decimal : 27 45 n

[Description] Turns underline mode on or off,based on the following values of n.

N	Function
0,48	Turns off underline mode
1,49	Turns on underline mode(1-dot thick)
2,50	Turns on underline mode(2-dot thick)

[Reference] ESC ! n

[EX] Data : "123",1Bh,"-","01,"456",1Bh,"-","00,"789",0Ah
 Print :

123456789

ESC 2(Set default line spacing)

[Format] ASCII : ESC 2
 Hex : 1B 32
 Decimal: 27 50

[Description] Set the line spacing to 32(default) for each lines.

[Reference] ESC 3 n

ESC 3 n(Set line spacing)

[Format] ASCII : ESC 3 n
 Hex : 1B 33 n
 Decimal: 27 51 n

[Description] Set the line spacing.

Spacing : n x 0.125mm(1 dot size)

Range : 24 <= n <= 255

Default : 32

[Reference] ESC 2

[EX] Data : "12345",0Ah,1Bh,"3",40h,"12345",0Ah, 1Bh,"@",",67890",0Ah
 Print :

12345

12345

67890

ESC @ (Initialize printer)

[Format] ASCII : ESC @
 Hex : 1B 40
 Decimal: 27 64

[Description] Clear the data in the print buffer and resets the printer mode (to the same state as when the power is turned on)

[EX] Data : 1Bh,"-","01","12345",0Ah,"12345",1Bh,"@",",ABCD",0Ah
 Print :

12345

ABCD

ESC J n(Print and feed paper)

[Format] ASCII : ESC J n
 Hex : 1B 4a n
 Decimal: 27 74 n

[Description] Print the data in the print buffer and feeds nx0.125mm.

[Reference] ESC d n

[EX] Data : "12345",1Bh,4Ah,40h,"ABCD",0Ah
 Print :

12345

ABCD

ESC R n(Select international character set)

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

[Description] n selects an international character set from the following table.

[EX]

N	Character Set	N	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden	11	Korea

Default : n = 0 (In case of no external ROM)

Default : n = 8 (In case of external Japanese ROM)

Default : n = 11(In case of external Korean ROM)

Default : n = 0(In case of external other cuntry ROM)

ESC d n(Print and feed paper n lines)

[Format] ASCII : ESC d n
Hex : 1B 64 n
Decimal : 27 100 n

[Description] Print the data in the print buffer and feed the paper n lines..

[Reference] ESC J n

[EX] Data : "12345",0Ah,1Bh,64h,02h,"ABCD",0Ah
Print :

12345

ABCD

ESC v(Transmit printer status)

[Format] ASCII : ESC v
Hex : b 76
Decimal : 27 118

[Description] Transmit current printer status.

ASCII : P n1 V n2 n3 T n4 n5

Hex : 50 n1 56 n2 n3 54 n4 n5

Decimal : 112 n1 86 n2 n3 84 n4 n5

n1 : 0 = Paper is not present, 1 = Paper is present.

n2,n3 : Head Voltage.

n4,n5 : Head temperature.

[EX] Host : ESC+v

Printer : P+01h+V+37h+32h+T+32h+35h(Paper is present, 7.2volt, 25°C)

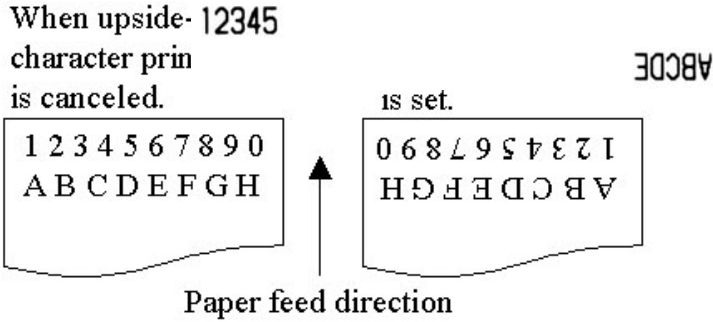
ESC { n(Set/cancel upside-down character printing)

[Format] ASCII : ESC { n
Hex : 1B 7B n
Decimal : 27 123 n

[Description] Sets or cancel the Upside-down characters.
 (Valid only when input at the beginning of a line.)
 bit of n = 1(Sets), bit of n = 0(Cancel).

Default = 0

[EX] Data : "12345",0Ah,1Bh,7Bh,01h,"ABCDE",0Ah



Print :

GS ! n(Select character size)

[Format] ASCII : GS ! n
 Hex : 1D 21 n
 Decimal : 29 33 n

[Description] Selects the character width/height.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Double-height mode not selected
	On	01	1	Double-height mode selected
4	Off	00	0	Double-width mode not selected
	On	10	16	Double-width mode selected

[Reference] ESC ! n

[EX] Data : "12",1Dh,21h,01,"34",1Dh,21h,10h,"56",1Dh,21h,11h,"78",0Ah
 Print:

12³⁴5678

GS B n(Turn white/black reverse printing mode)

[Format] ASCII : GS B n
 Hex : 1D 42 n
 Decimal : 29 66 n

[EX] Turns on or off white/black reverse printing mode.
 If, n=0 , white/black reverse printing mode is turned off(Default).
 If, n=1 , white/black reverse printing mode is turned on.

[EX] Data : "12345",1Dh,42h,01h,"ABCD",1Dh,42h,00h,"67890",0Ah
 Print :

12345^{ABCD}67890

GS H n(Select printing position of HRI characters)

[Format] ASCII : GS H n
 Hex : 1D 48 n
 Decimal : 29 72 n

[Description] Selects printing position of HRI characters when printing a bar code.

n	Printing position
0,48	No printed(default)
1,49	Above the bar code
2,50	Below the bar code
3,51	Both above and below the Bar code

[Reference] GS w n, GS h n, GS k m[d1...dk] NUL, GS k m n[d1...dn]

GS L nL nH(Set left margin)

[Format] ASCII : GS L nL nH
Hex : 1D 4C nL nH
Decimal : 29 76 nL nH

[Description] Sets the left margin.

Sets the left margin using nL and nH : $[nL + nH \times 256] \times 0.125 \text{ mm}$

Range : $0 \leq n < 300$ (default = 0)

[Reference] ESC \$ nL nH

[EX] Data : "1234567890",0Ah,1Dh,4Ch,50h,00h,"ABCD",0Ah,"1234",0A
Print :

1234567890
ABCD
1234

GS h n(Select height of bar code)

[Format] ASCII : GS h n
Hex : 1D 68 n
Decimal : 29 104 n

[Description] Selects the height of bar code.

Height of bar code : $n \times 0.125 \text{ mm}$

Range : $0 \leq n < 255$ (default :100)

[Reference] GS w n, GS H n, GS k m[d1...dk] NUL, GS k m n[d1...dn]

GS k m[d1...dk] NUL(Print bar code)

[Format] ASCII : GS k m [d1...dn] NUL
Hex : 1D 6B m [d1...dn] 00
Decimal : 29 107 m [d1...dn] 0

[Description] Selects a bar code system and prints the bar code.

M selects a bar code system as follows;

M	Bar Code System	Number of characters	Remarks
0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
1	UPC-E	$11 \leq k \leq 12$	$48 \leq d \leq 57$
2	EAN13(JAN)	$12 \leq k \leq 13$	$48 \leq d \leq 57$
3	EAN8(JAN)	$7 \leq k \leq 8$	$48 \leq d \leq 57$
4	CODE39	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 90$ 32,36,37,43,45,46,47
5	ITF	$1 \leq k$	$48 \leq d \leq 57$
6	CODABAR(NW-7)	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 68$ 36,43,45,46,47,58
7	CODE128A	$2 \leq k$	$0 \leq d \leq 127$

8	CODE128B	$2 \leq k$	$0 \leq d \leq 127$
9	CODE128C	$2 \leq k$	$0 \leq d \leq 127$

[Reference] GS H n, GS w n, GS h n, GS k m n[d1...dn]

GS k m n[d1...dn](Print bar code)

[Format] ASCII : GS k m n [d1...dn]
Hex : 1D 6B m n [d1...dn]
Decimal : 29 107 m n [d1...dn]

[Description]

M	Bar Code System	Number of characters	Remarks
65	UPC-A	$11 \leq n \leq 12$	$48 \leq d \leq 57$
66	UPC-E	$11 \leq n \leq 12$	$48 \leq d \leq 57$
67	EAN13(JAN)	$12 \leq n \leq 13$	$48 \leq d \leq 57$
68	EAN8(JAN)	$7 \leq n \leq 8$	$48 \leq d \leq 57$
69	CODE39	$1 \leq n$	$48 \leq d \leq 57, 65 \leq d \leq 90$ 32, 36, 37, 43, 45, 46, 47
70	ITF	$1 \leq n$	$48 \leq d \leq 57$
71	CODABAR(NW-7)	$1 \leq n$	$48 \leq d \leq 57, 65 \leq d \leq 68$ 36, 43, 45, 46, 47, 58
72	CODE93	$2 \leq n$	$0 \leq d \leq 127$
73	CODE128	$2 \leq n$	$0 \leq d \leq 127$

[Reference] GS H n, GS w n, GS h n, GS k m[d1...dk] NUL

GS w n(Select bar code width)

[Format] ASCII : GS w n
Hex : 1D 77 n
Decimal : 29 119 n

[Description] Sets the horizontal size of the bar code.

N specifies the bar code width as follows :

(1dot=0.125mm)

N	Module Width(dots) for Multi-level Bar Code	Binary-level Bar Code	
		Thin element width(dots)	Thick element width(dots)
1	1 (0.125mm)	1 (0.125mm)	3 (0.375mm)
2	2 (0.250mm)	2 (0.250mm)	5 (0.625mm)
3	3 (0.375mm)	3 (0.375mm)	8 (1.000mm)
4	4 (0.500mm)	4 (0.500mm)	(1.250mm)

- Multi-level Bar Code : UPC-A, UPC-E, EAN13(JAN), EAN8(JAN), CODE93 CODE128

- Binary-level Bar Code : CODE39, ITF, CODABAR

- Default : 2

[Reference] GS H n, GS h n, GS k m [d1...dn] NUL, GS k m n [d1...dn]

GS x n(Set bar code print starting position)

[Format] ASCII : GS x n
Hex : 1D 78 n
Decimal : 29 120 n

[Description] Sets the bar code print position of beginning(left).

Sets the print position of beginning using the : n x 0.125 mm

Range : n ≤ 255

Default : 0

[Reference] GS H n, GS w n, GS h n, GS k m[d1...dk] NUL, GS h n, GS k m[d1...dn]

DC2 ! n(Select print paper)

[Format] ASCII : DC2 ! n
Hex : 12 21 n
Decimal : 18 33 n

[Description] Selects the print paper(default = 0).

N	Paper
0	Normal
1	Reprint

DC2 # n(Select print density)

[Format] ASCII : DC2 # n
Hex : 12 23 n
Decimal : 18 35 n

[Description] Sets print density.

N	Density	N	Density	n	Density
0	50%	7	85%	14	120%
1	55%	8	90%	15	125%
2	60%	9	95%	16	130%
3	65%	10	100%	17	135%
4	70%	11	105%	18	140%
5	75%	12	110%	19	145%
6	80%	13	115%	20	150%

Standard paper : Mitsubishi ,P220AG(100%)

DC2 E(Set the printing finished)

[Format] ASCII : DC2 E
Hex : 12 45
Decimal : 18 69

[Description] Print data in the print buffer and moves to starting position of next page when printer is in label mode.

[Description] FF, ESC FF,DC2 m s nL nH

DC2 T(Test Printing)

[Format] ASCII : DC2 T
Hex : 12 54
Decimal : 18 84

[Description] Print the default seting,volt,head temperature and buffer space.

DC2 m s nL nH(The length of mark position)

[Format] ASCII : DC2 m s nL nH
Hex : 12 6d s nL nH
Decimal : 18 109 s nL nH

[Description] Sets the length of mark potion in label mode.

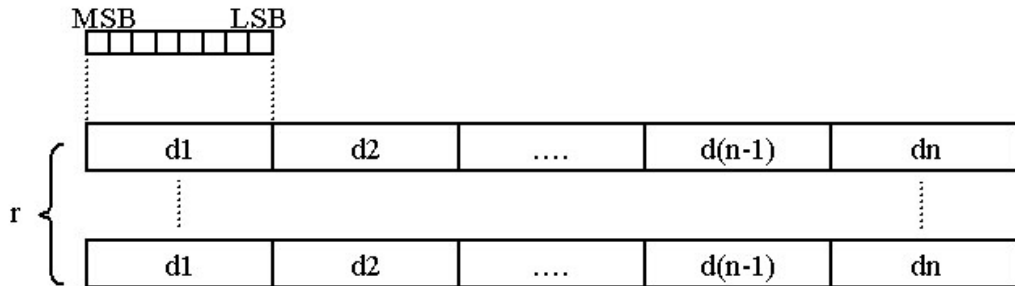
[Reference] FF, ESC FF,DC2 E

DC2 * r n [d1...dn](Set bit image)

[Format] ASCII : DC2 * r n [d1...dn]

Hex : 12 2A r n [d1...dn]
 Decimal: 18 42 r n [d1...dn]

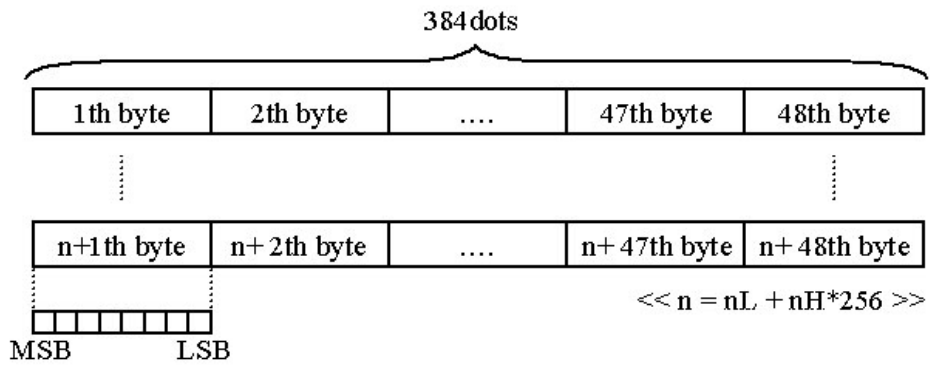
[Description]



DC2 V nL nH(Set MSB bit image)

[Format] ASCII : DC2 V nL nH
 Hex : 12 56 nL nH
 Decimal: 18 86 nL nH

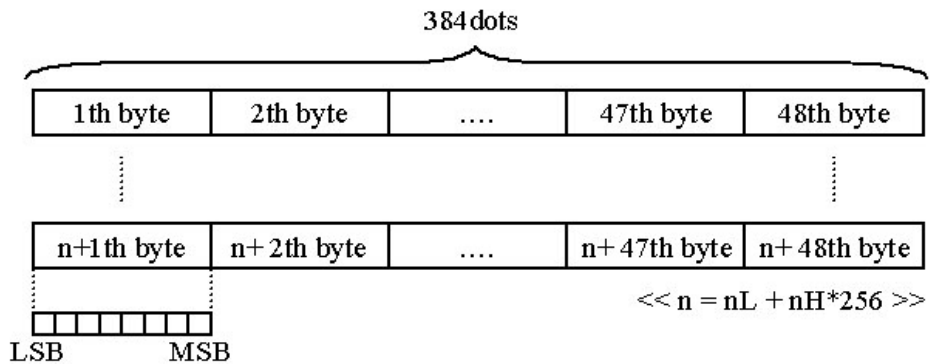
[Description]



DC2 v nL nH(Set LSB bit image)

[Format] ASCII : DC2 v nL nH
 Hex : 12 76 nL nH
 Decimal: 18 118 nL nH

[Description]



FS C n(Select code system)

[Format] ASCII : FS C n
 Hex : 1C 43 n
 Decimal: 28 67 n

[Description] : This command is valid in external ROM only(option).

N	Code system
0	JIS
1	Korean(완성형), Shift-JIS, CHINA ...
2	Korean(조합형)
3	Not used

- If external ROM is Japanese, Defaut = 0.
 Korea = 1
 Other cuntry = 0.

FS M n(Selects symbol of money)

[Format] ASCII : FS M n
 Hex : 1C 4D n
 Decimal: 28 77 n

[Description] Print the symbol of the momey.

n	Cuntry	n	Cuntry
0	Korea	3	Japan
1	U.S.A	4	Euro
2	England	5	

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	'	p	Ç	É	á	█	⊥	⊥	α	≡
1	!	1	A	Q	a	q	ü	æ	í	█	⊥	⊥	β	±
2	"	2	B	R	b	r	é	Æ	ó	█	⊥	⊥	Γ	≥
3	£	3	C	S	c	s	â	ô	ú		⊥	⊥	π	≤
4	\$	4	D	T	d	t	ä	ö	ñ	⊥	-	⊥	Σ	∫
5	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	⊥	σ	J
6	&	6	F	V	f	v	å	û	ª	⊥	⊥	⊥	μ	÷
7	'	7	G	W	g	w	ç	ù	º	⊥	⊥	⊥	τ	≈
8	(8	H	X	h	x	ê	ÿ	¿	⊥	⊥	⊥	Φ	°
9)	9	I	Y	i	y	ë	Ö	⊥	⊥	⊥	⊥	θ	·
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