

**BONGSHIN<sup>®</sup>**

**OPERATIONAL MANUAL**

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**BS-6026**

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**MINI PRINTER**

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# THERMAL PRINTER SPEC

## BAS - 6026

### 1. Basic Features

- 1.) Type : PANEL Mounting or DESK top type
- 2.) Printing Type : THERMAL PRINT
- 3.) Printing Speed : 25mm / SEC
- 4.) Printing Column : 24 COLUMNS
- 5.) FONT : 24 X 24 DOT MATRIX
- 6.) Character : English, Numeric & Others
- 7.) Paper width : 57.5mm  $\pm$  0.5mm
- 8.) Character Size : 5times enlarge possible
- 9.) INTERFACE : CENTRONICS PARALLEL I/F  
SERIAL I/F
- 10.) DIMENSION : 122(W) X 90(D) X 129(H)
- 11.) Operating Temperature range : 0°C - 50°C
- 12.) Storage Temperature range : -20°C - 70°C
- 13.) Outlet Power : DC 12V ( 1.6 A )/ DC 5V ( 2.5 A)
- 14.) Application : Indicator, Scale, Factory automation equipments  
and any other data recording, etc.,

## 1) SERIAL INTERFACE SPECIFICATION

\* CONNECTOR : 25 P FEMALE

PRINTER : 4 P CONNECTOR

3 ( TXD )	-----	2 ( RXD ) 2
2 ( RXD )	-----	1 ( TXD ) 3
7 ( GND )	-----	4 ( GND ) 5

DIP SWITCH			BUAD RATE
1	2	3	
ON	ON	ON	150
OFF	ON	ON	300
ON	OFF	ON	600
OFF	OFF	ON	1200
ON	ON	OFF	2400
OFF	ON	OFF	4800
ON	OFF	OFF	9600
OFF	OFF	OFF	19200

## 2) BAUD RATE SELECTION

DIP SWITCH (4) ON : Combination type  OFF: Complete type	* PROTOCOL : XON / XOFF Type * DATA BIT : 8 BIT STOP BIT : 1 STOP BIT PARITY CHECK : NO PARITY * DEFAULT VALUE : BAUD RATE (9600 BPS)
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## PRINTING COMMAND

### \* Explanation

Command is composed of One Byte Control code and ESC code.

This arrangement is started with ESC code which is connected by character & numeric code

The control code in Printer does not be still in standardization (ESC Control Code).

All printers have a code structure by themselves.

The control code of Mini - Printer series is designed by popularally IBM & EPSON Printer.

So, it can be comfortable with almost printers.

Print command +- One Byte Control : Form Feed, Carriage Return, Line Feed  
 | 2 times width enlarge cancel (14H)  
 +- ESC Control code : ESC Hexadecimal n

### 1. Command List

- One Byte Control

One Byte Control	Contents
LF ( 0H )	1 Line Feed
FF ( 0CH )	Form Feed
CR ( 0DH )	Carriage return
DC4 ( 14H )	2 times width cancel

- ESC Control code

ESC Control code	Contents
ESC R n	Reverse print(n=1 : Reverse print), (n=0 : Normal print)
ESC U n	2 times vahre enlarge (n=2 : 2times enlarge) 2 times width enlarge cancel (One Byte control code 14H)
ESC I n	Reverse print (n=1 : Reverse print), (n=0 : Normal print)

## 2. Command Explanation

### Code control

Code arrange	Function
Format	ASCII : ASCII mechanical arrangement Decimal : Decimal arrangement Hexadecimal : Hexadecimal arrangement

#### 1) One Byte Code

LF	Line Feed
Format :	ASCII : LF Decimal : 10 Hexadecimal : 0AH

The Paper is fed by 1 line.

BASIC Program :

```
10 FOR i=1 TO 11 STEP 2
20 LPRINT " Line feed test " ; CHR$(10);
40 NEXTi
```

Print Ex)      Line feed test                      1 Line feed  
 Line feed test  
 Line feed test  
 Line feed test

FF	Form Feed
Format :	ASCII : FF Decimal : 12 Hexadecimal : 0C

CR	Carriage return
Format :	ASCII : CR Decimal : 13 Hexadecimal : 0D

It is printed at the starting position at next page

The data in buffer is printed when carriage return is executed, and the paper is Supplied at one column.

This command is resized to normal from 2 times sized character by ESC U

DC4		2 times width cancel	
Format	:	ASCII	: DC4
		Decimal	: 20
		Hexadecimal	: 14

## 2) ESC control code

ESC R		Reverse Print			
Format	:	ASCII	:	ESC R	n
		Decimal	:	27	82 n
		Hexadecimal	:	1BH	52H n

<Notice> Command : If n=1, it is "Reverse print status. (n=0 : Normal print)

Default Value is n=0 in factory set.

The command of reverse & 2 times enlarge can be used together.

It can be effected before input of ESC R 0 code

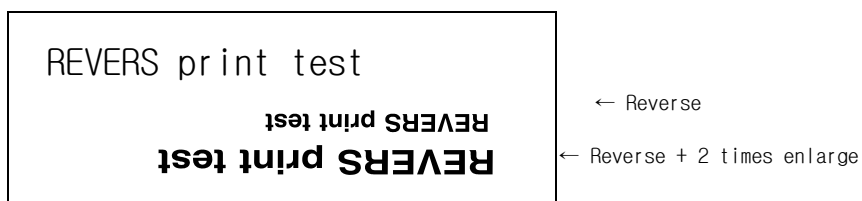
BASIC Program :

```

10 LPRINT " REVERS print test " ; CHR$(10) ;
20 LPRINT CHR$(27) ; " R " ; CHR$(1) ; → Reverse print N
30 LPRINT " REVERS print test " ; CHR$(10) ;
40 LPRINT CHR$(27) ; " u " ; CHR$(2) ; → 2 times width enlarge print
50 LPRINT " REVERS print test " ; CHR$(10) ;

```

Print Ex)



ESC V		Height enlarge		
Format	: ASCII	:	ESC V	n
	Decimal	:	27 86	n
	Hexadecimal	:	1B 56	n

The graph or character according to this command is printed by n times with normal width.

n is within 1-5 range. Default value is "n=1".

This means normal width.

BASIC Program:

```

10 FOR I=1 TO 5                                'from 1 to 5 times
20 LPRINTER CHR$(27) ; " U " ; CHR$(I) ;      'ESC U command
30 LPRINTER " TEST" ;                          'print string
40 NEXT I
50 LPRINTER CHR$(13) ;                          'CR command

```

Print Ex :

**TEST**

The graph or character according to this command is printed by n times with normal width.

ESC V		Height enlarge		
Format	: ASCII	:	ESC V	n
	Decimal	:	27 86	n
	Hexadecimal	:	1B 56	n

n is within 1-5 range. Default value is "n=1". This command is set only at the starting of line, and this line is enlarged by n times.

BASIC Program:

```

10 FOR I=1 TO 5                                'from 1 to 5 times
20 LPRINTER CHR$(27) ; " V " ; CHR$(I) ;      'ESC V command
30 LPRINTER " TEST" ;
'print string
40 NEXT I
50 LPRINTER CHR$(13) ;                          'CR command

```

ESC K	Print bit image	
Format	: ASCII	: ESC K n1 n2 ... data ...
	Decimal	: 27 75 n1 n2 ... data ...
	HEXADecimal	: 1B 4B n1 n2 ... data ...

This command can be printed for the graphic.

ESC + K : Command header

n1 : This is lower byte of dot quantity to be able to print.

n2 : This is upper byte of dot quantity to be able to print

0x0D : This command is for the finishing of BIT IMAGE PRINT command.

<Caution> The combination value of n1 and n2 can not be beyond of 576 DOT.

Ex) If 240 X 320 of graphic LCD want to print ;

After ESC,K is transferred, transfer n1 ( = 240 ) & n2 ( = 0 ) consecutively.

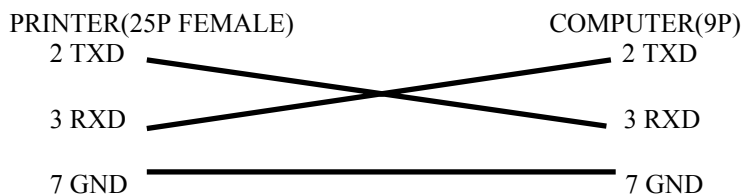
And, 240BYTE of BIT DATA is also transferred.

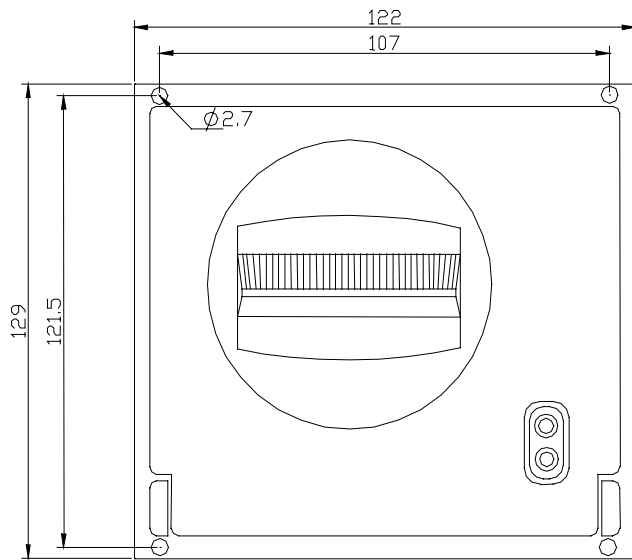
In order to remaining BIT DATA after transferred of 240BYTE data,

Please transfer ESC,K,240,0, then transfer repeatedly transfer 240BYTE data.

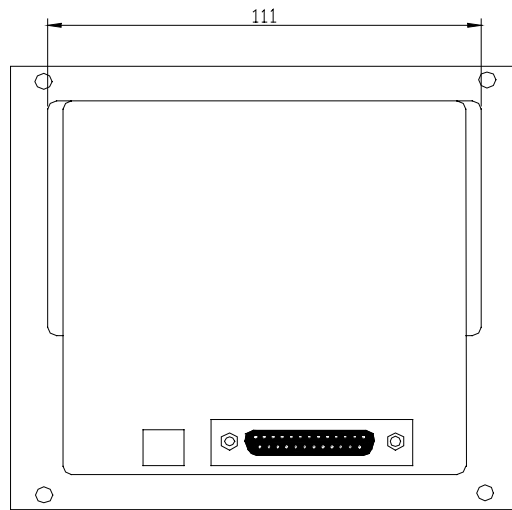
If IMAGE DATA is transferred perfectly, BIT IMAGE PRINT Command can be finished by transferred of 13 (decimal, = or 0D (hexadecimal)).

Repeating count : It is 240 x 320 LCD. Therefore, the count is  $320/8 = 40$ .

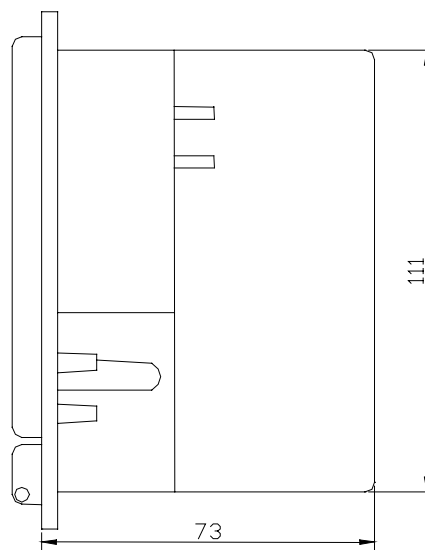




Front View



Rear View



Side View