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Thermal Printer Interface Card
Escape Commands
Manual

Document Title: Thermal Printer Interface Card Escape Commands

Manual.

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1. COMMAND SPECIFICATIONS

Each command is explained using the following conventions.

[Function]   Function of Command
[Code]   Control code represented in hexadecimal or decimal notation.

1.1.   To Initialize Printer

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

[Range]   None

[Default]   None

[Description]   Clears the data in the print buffer and resets the printer modes to the modes that were in effect when the power was turned ON.

1.2.   TO PRINT TEXT

Simply send the text as per your requirements and on completion on text send
„\n□ or „\r□ so that the test is printed.

The font commands can be sent before sending the text to select appropriate fonts. See **SELECT_FONT** for details.

1.3. TO PRINT IMAGE

[Format]:	**ASCII**	**ESC**	*****	**n2**	**n1**	**Data**
	Hex	**1B**	**2A**	**n2**	**n1**	**Data**
	Decimal	**27**	**42**	**n2**	**n1**	**Data**

[Range]: **n2** = MSB of height
n1 = LSB of height
Data = pixel data of image

[Description]: Prints the image we sent.

For more detailed information check Procedure to convert a picture to print on 2"
thermal printer

In our example, height of the image is 192 and its equivalent hexadecimal is 00C0 hence, n2 = 00
and n1 = C0

Note: Use maximum baud rate of 57600. More than that can cause variation in printing and you might
need to reset the board

1.4. TO CHANGE BAUD RATE:

[Format]:	**ASCII**	**SUB**	**Baudrate**
	Hex	**1A**	**Baudrate**
	Decimal	**26**	**Baudrate**

[Range]: 2400 to 115200. **For Image Max baud rate is 57600**

[Description]: Sets the baud rate for data communication.

[Notes]: Once new baud rate is changed, send data at new baud rate only.

1.5.   FOR DEFAULT IMAGE PRINT:

[Format]:   **ASCII**   **ESC**   **^**

  Hex   **1B**   **5E**

  Decimal   **27**   **94**

[Range]:   None.

[Description]: This command will print image stored in internal flash.

Note: This command is not a part of the given version. It only prints pre-stored string "www.coineltech.com"

1.6.   SELECT FONT:

[Format]:   **ASCII**   **ESC**   **n**

  Hex   **1B**   **n**

  Decimal   **27**   **n**

[Range]:   For   Fixedsys,   **n =⬚0⬚**

  Courier,   **n =⬚1⬚**

  Hindi,   **n =⬚2'**

[Description]:   Selects the particular font for text printing.

[Notes]:   This command setting is effective until performing **ESC@**, reset or Power-off.

1.7. PRINT AND LINE FEED:

[Format]: **ASCII** **LF('\n')**
                Hex **0A**
                Decimal **10**

[Range]: None

[Description]: Prints the data in the print buffer and feed feeds one line, based on current line spacing.

Program Sample
Print #1: $0A
Print #1:   "AAAAA"
Print #1:   "BBBBB"

Print Sample
AAAAA
BBBBB

1.8. HORIZONTAL TAB:

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

[Description]: Moves the print position to the next horizontal tab position.
The position of tab length is fixed.

[Note]: Tab works only for 1xn size fonts. Where n is height of font.

1.9.   SET BAR CODE HEIGHT:

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

[Range]:   1 ≤ **n** ≤ 255

[Description]:   Sets the height of a bar code to n dots.

[Notes]:   This command setting is effective until performing **ESC@**, reset or Power-off.

Program Sample

Print #1: $1D$68$n   where n= 1 to 255. Print
#1: $1D$6Bm9876543210

Where   m ☐ bar code data length
        $ ☐ Hex Value

Print Sample

← Height: 50

← Height: 100

1.10. SET BAR CODE WIDTH:

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

[Range]: $2 \leq n \leq 6$

[Description]: Sets the horizontal size of a bar code to n dots.
  □ **n** specifies the bar code module width.

[Notes]: This command setting is effective until performing **ESC@**, reset or power-off.

Program Sample

Print #1: $1D$68$50   : bar code height
Print #1: $1D$77$n   : n = 02 to 06 (Width)
Print #1: $1D$6Bm9876543210

Print Sample

Example Barcodes for different width

1.11. PRINT BAR CODE:

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

[Range]:   1 ≤ **m** ≤ 11

[Description]:   Prints the bar code using the bar code length in **m**.
- **k** indicates bar code command in ASCII
- **d** specifies the character code data of the bar code data to be printed in accordance to length m.

[Notes]   Bar Code will be printed in Code39 format.
Others not implemented.

Program Sample

Print #1: $1D$68$n   : bar code height. Print
#1: $1D$6Bm9876543210

Where   m ⬜ bar code data length
          $ ⬜ Hex Value

Print Sample

9876543210

1.12. SELECT CHARACTER SIZE:

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

[Range]: $0 \leq$ **height** ≤ 7, $0 \leq$ **width** ≤ 3

[Description]:   Selects the character height using bits 0 to 2 and select the character width using bits 4 to 6.

[Notes]:   This command setting is effective until performing **ESC@**, reset or Power-off.

CHARACTER HEIGHT SELECTION					
BIT 2	**BIT 1**	**BIT 0**	**HEX**	**DECIMAL**	**HEIGHT**
off	off	off	00	0	1
off	off	on	01	1	2
off	on	off	02	2	3
off	on	on	03	3	4
on	off	off	04	4	5
on	off	on	05	5	6
on	on	off	06	6	7
on	on	on	07	7	8

CHARACTER WIDTH SELECTION					
BIT 6	**BIT 5**	**BIT 4**	**HEX**	**DECIMAL**	**WIDTH**
off	off	off	00	0	1
off	off	on	10	16	2
off	on	off	20	32	3
off	on	on	30	48	4

Note: Bit3, Bit7 are reserved. Bit6 is 0 and kept for future use.

Example:

If we want the height at 8 and width at 4 (This is the maximum size). The value to be send is

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	0	1	1	0	1	1	1

The result is 0x37
0x☐ Hex

1.13. PRINT FEED N LINES:

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

[Range]: $0 \leq n \leq 255$

[Description]:   Prints data in the print buffer and feed n lines.

[Notes]:   This command is used to temporary feed a specific line without changing

the line spacing set by other commands.

Program Sample

Print #1: "AAAAA

Print #1: "BBBBB"

Print #1: $1B$64$ where n = 0 to 255

Print #1: n

Print Sample

AAAAA

BBBBB

CCCCC

---

www.coineltech.

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1.14. PRINT REVERSE FEED N LINES:

[Format]:	**ASCII**	**ESC**	**e**	**n**
	Hex	**1B**	**65**	**n**
	Decimal	**27**	**101**	**n**

[Range]:   0 ≤ **n** ≤ 255

[Description]:   Prints data in the print buffer and feed n lines in the reverse direction.

[Notes]   This command is used to temporary feed a specific line without changing the line spacing set by other commands.

Program Sample

Print #1:   "AAAAA
Print #1:   "BBBBB"
Print #1: $1B$65$ where n = 0 to 255
Print #1:   n
            "CCCC

Print Sample

AAAAACCCCC
BBBBB   Paper reverse fed one line after printing the
               line of Bs

Note: When using reverse feed, there are chances that the "paper not detected" LED glows. This might be because of misalignment of paper with the paper detect sensor. Apply paper forward feed (paper feed switch) if this happens.

1.15. SELECT JUSTIFICATION:

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

[Range]: $0 \le n \le 2$

[Default]:   **n**=0

[Description]:   Aligns the data in one line to the selected layout using **n** as follows.

[Notes]:   The setting of this command is effective until **ESC@** is executed, the printer is reset, or the power is turned off.

Program Sample

Print #1: $1B$61$ where n=0, 1, 2.
Print #1: "ABC"
Print #1: "ABCD"
Print #1: "ABCDE
           "

Print Sample

```
ABC    ┐
ABCD   │  ESC a 0
ABCDE  ┘
              ABC    ┐
              ABCD   │  ESC a 1
              ABCDE  ┘
                         ABC
            ESC a 2      ABCD
                         ABCDE
```

1.16. TURN WHITE/BLACK REVERSE PRINT MODE ON/OFF:

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

[Range]:   0 ≤ n ≤ 1

[Default]:   n=0

[Description]:   Turns white/black reverse print mode on or off.
- When **n** is 1 the white/black reverse print mode is turned on.
- When **n** is 0 the white/black reverse print mode is turned off.

[Notes]   The setting of this command is effective until **ESC@** is executed, the printer is

reset, or the power is turned off.

Program Sample

Print   #1: $1D$42$1

Print   #1:   "AAAAA"

Print   #2: $1D$42$0

Print   #2:   "BBBBB"

Print Sample

AAAAA ← White/black reverse printing
BBBBB ← Normal printing

1.17. TEST PRINT:

[Format]:

	ASCII	GS	A
	Hex	**1D**	**41**
	Decimal	**29**	**65**

[Description]:   Executes the test print.

1.18. GET INPUT VOLTAGE:

[Format]:

	ASCII	ESC	y
	Hex	**1B**	**79**
	Decimal	**27**	**121**

[Description]:   Return the applied input voltage on UART.

1.19. GET HEAD TEMPERATURE:

[Format]:

	ASCII	ESC	t
	Hex	**1B**	**74**
	Decimal	**27**	**116**

[Description]:   Return the current head temperature in degree Celsius on UART.

1.20. PLATTEN STATUS:

[Format]:

	ASCII	ESC	p
	Hex	**1B**	**70**
	Decimal	**27**	**112**

[Description]:   return the status of platten presence on UART.

1.21. PAPER STATUS:

[Format]:	**ASCII**	**ESC**	**P**
	Hex	**1B**	**50**
	Decimal	**27**	**80**

[Description]:   return the status of paper presence on UART.

1.22. BMP IMAGE PRINT:

[Format]:	**ASCII**	**ESC**	*****
	Hex	**1B**	**2A**
	Decimal	**27**	**42**

[Description]:   After sending these command send the BMP image.

1.23. SET PRINT INTENSITY:

[Format]:	**ASCII**	**GS**	**D**	**n**
	Hex	**1D**	**44**	**n**
	Decimal	**29**	**68**	**n**

[Range]: $0 \le n \le 2$

[Description]:   n=0 for Light intensity.
n=1 for medium intensity.
n=2 for dark intensity.

Note: Don't send any new data when print indication LED is glowing. Wait for print indication LED to turn off and only after that send the new information.

2. HINDI TEXT PRINT

0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F	0030
	!	"	#	$	%	&	'	(	)	*	+	,	—	.	/	०

0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F	0040	0041
१	२	३	४	५	६	७	८	९	:	;	<	=	>	?	₹	अ

0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F	0050	0051	0052
आँ	इ	ई	उ	ऊ	ऋ	ऋ	ऌ	ॡ	ऐं	ए	क	छ	ट	ठ	ड	ढ

0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F	0060	0061	0062	0063
द	फ	र	ळ	ह	ङ	ञ	ऋ	[	\	]	^	_	'	त	द	ड

0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F	0070	0071	0072	0073	0074
ध	व	इ	उ	प	न	द	ध	न	त	थ	ठ	घ	त	न	ल	ळ

0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F	0080	0081	0082	0083	0084	0085
व	ष	ष	न	ह	र	{	|	}	~							

0086	0087	0088	0089	008A	008B	008C	008D	008E	008F	0090	0091	0092	0093	0094	0095	0096
						इ		हे	ह							

0097	0098	0099	009A	009B	009C	009D	009E	009F	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7
						इ			'	क्र	क	ष	ट	व	र

00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8
र	म	द	ढ	द		ध	द	ञ	घ	ड	र	श्र	ऋ	ऊ	ट	उ

00B9	00BA	00BB	00BC	00BD	00BE	00BF	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9
ष	ह	ह	ह्य	श्र	ह	ह	ह	ॐ	रु	रू	ि	ऽ	ॕ	ॕ	ं	ा

00CA	00CB	00CC	00CD	00CE	00CF	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA
ी	ी	ी	ी	ी	ी	ी	्	्	्	्	्	्	्	्	्	्

00DB	00DC	00DD	00DE	00DF	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB
्	्	्	्	्	्	्	्	्	्	्	्	्	्	्	्	्

00EC	00ED	00EE	00EF	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC
्	्	=	ॅ	ॆ	◡	◡	◡	॒	॑	॑	◡	—	◡	—	॰	—

Hindi Font Table

Commands that need to be sent shall be based on the Hindi font table given above. For Eg:

अ —> 0x41

0x41 is a Hex value as required given in the above image

आ —> 0x41 0xC9

This letter required combination of two hex values so that given Hindi character is printed.

You can send various combinations based on Hindi text that you want to print.

Note: Make sure you have sent the Hindi Font selection command before sending the data and also change the font back to English as required before sending English text.

3. PROCEDURE TO CONVERT A PICTURE TO PRINT ON 2" THERMAL PRINTER :

Select the image that you would need to print and make sure that it is a bmp file.

Note that in the bmp file, the initial memory from 00 to 61(decimal)/0x3d (Hex) bytes will be the header information of monochrome bmp files

1. Take any Image which is of .bmp as shown below. We have considered a example of coinel_logo.bmp
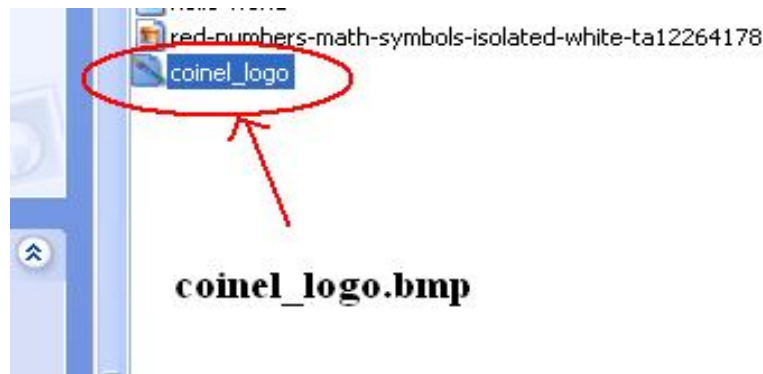
Right click on your .bmp file and open with mspaint as shown below.
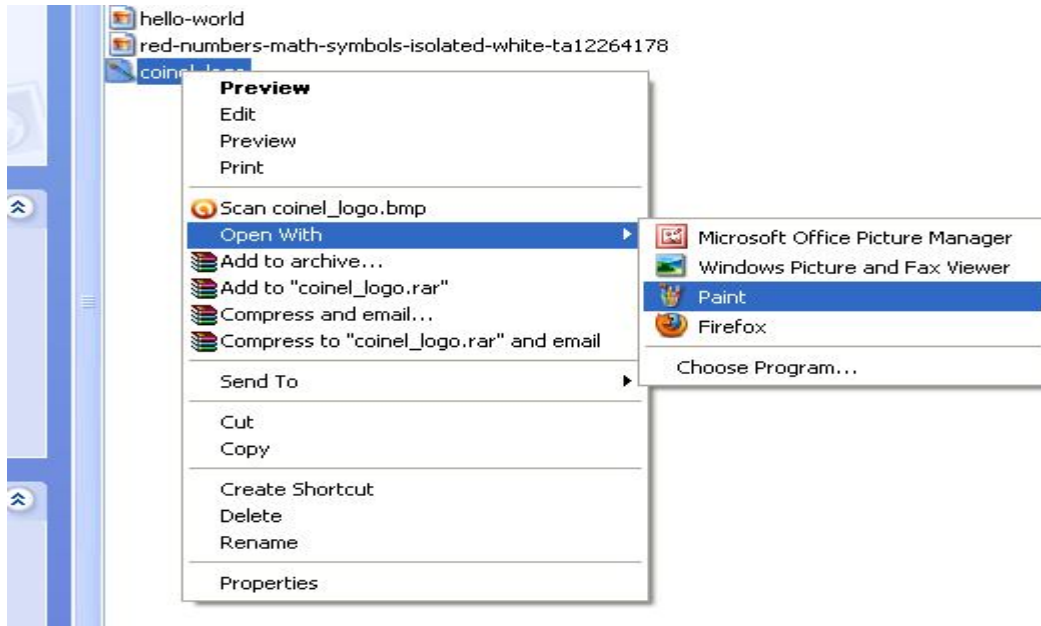
2. Your Image file will be opened in paint as shown below.

![CoiNel Technology Solutions LLP logo]
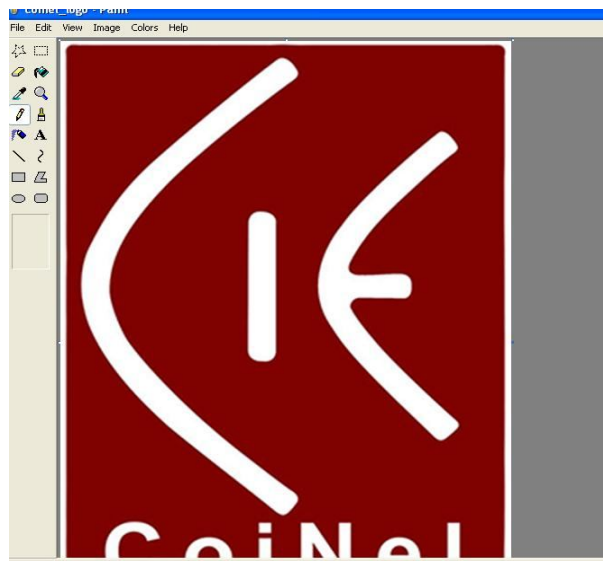
3. If Image file is too large reduce the image size and set maximum width of 384 pixels or less than 384. This is the max width pixels that can be printed per line for 2 inch printer.

4. To reduce Image size, go to the Image option, select stretch/skew option.
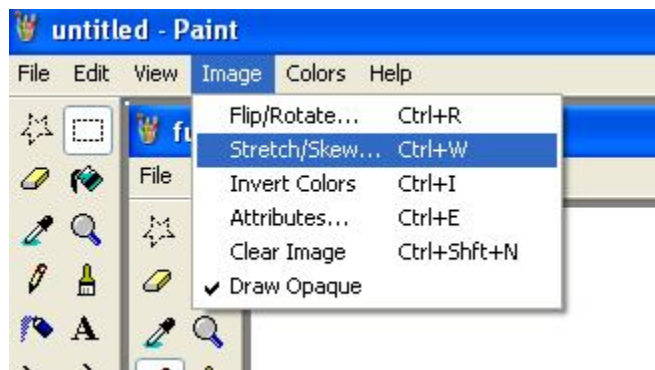
5. New window will appear as shown below.
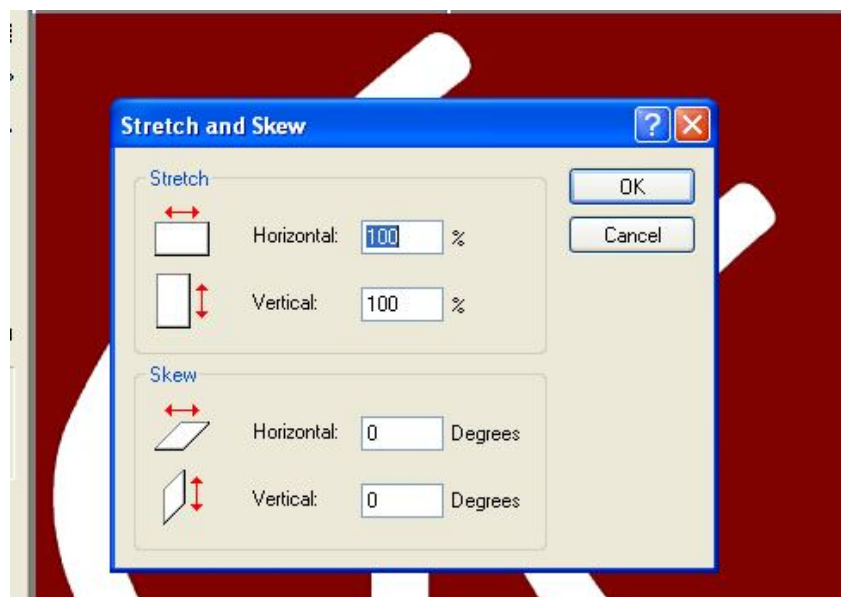
   In above options Horizontal will Increase or Decrease the image width and vertical will Increase or Decrease height of Image.

6. If Image is too large Enter 75 at Horizontal option and 50 at Vertical option, your Image size will be reduced as shown. You can make the changes appropriately.

7. Check Image Height and Width. By checking Height and width go to the „Image‟ option and select „Attributes‟ option.
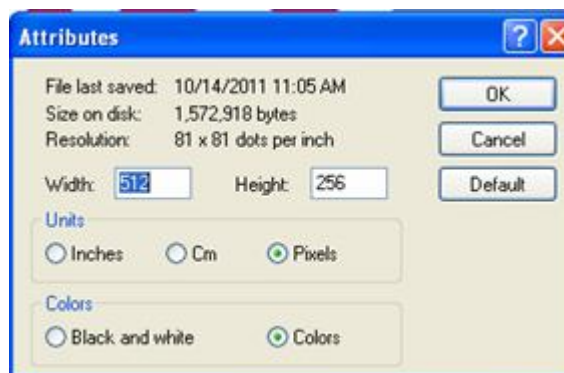
8. Keep on reducing the Image size by using stretch/skew option, until your Image width should be less then or equal to 384 pixels.

9. Once your Image size is less than or equal to 384, select Black and White option. In our example the Width is 288 (less than 384) and Height is 192(Both are decimal values.) as shown below.

Note: remember the height value as it is needed in later stage
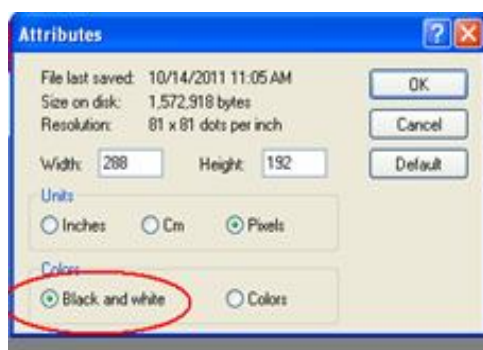
10. Select Black and White option and then Click on OK option, it will ask confirmation for the changes and select yes option, your Image will change to Black and white as shown below.
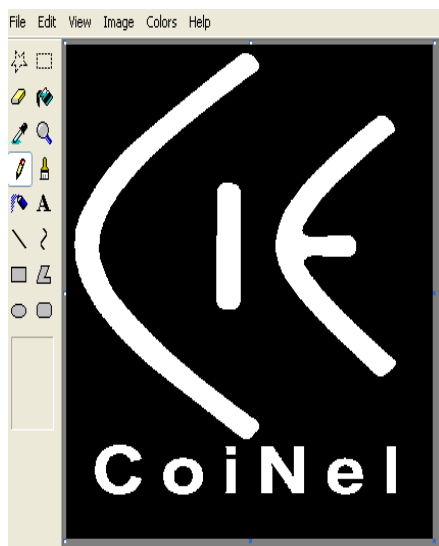
11. Go to Image option and select Flip/Rotate option as shown below.

12. Go to Image option and select Flip/Rotate option as shown below.

13. Select OK option Your Image will be Flipped Vertically as shown below.
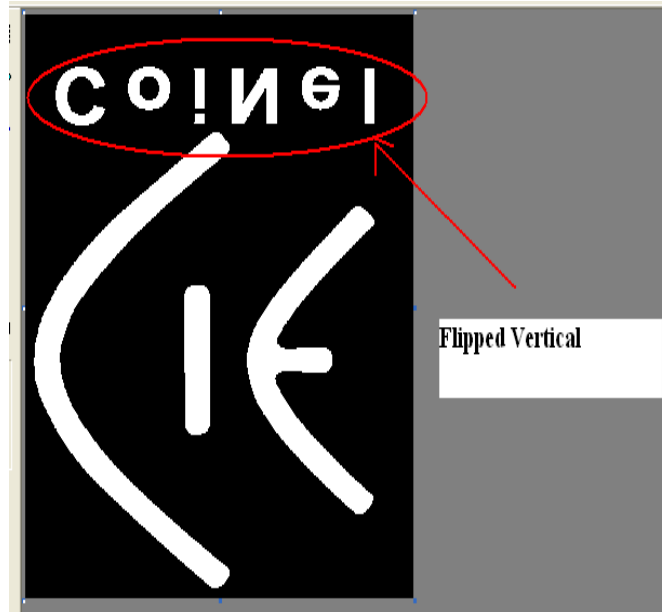
Note: In above 14th step, image is flipped vertically and this is the final image that would be printed. You still need to go through one more step to print this image.

14. Now Image color has to be inverted for this option, go to image option select Invert colors. Image Color will be inverted as shown below.
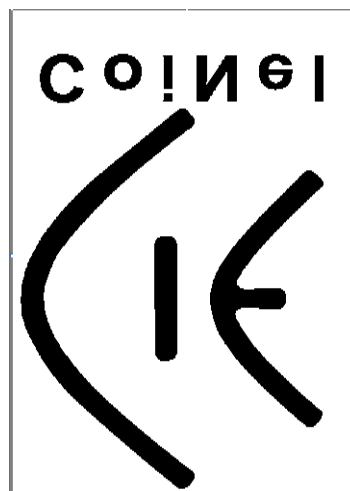
15. Save the file by any name with an extension .bmp

For eg: coinel_logo.bmp
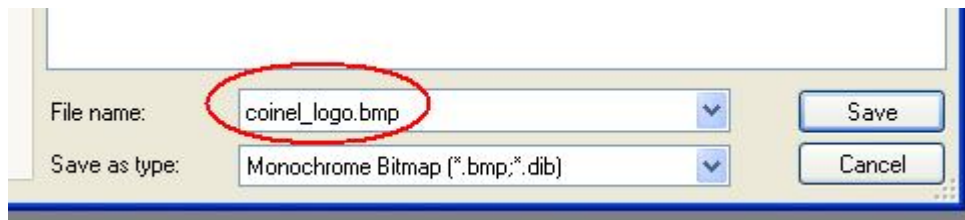
16. The printing of this image can be achieved by sending the escape command (**please refer section 1.22 on page no.18**) followed by above converted BMP image.

NOTE: if you use Photoshop or similar software, you can create better quality images.

We did not the invert the image when using Photoshop and still were able to print the images properly.

For any technical discussion related to the product with our team and various users, visit and post your questions at

www.coineltech.com/forums

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3. What additions to the data sheet do you think would enhance the structure and subject?

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5. Is there any incorrect or misleading information (what and where)?

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