

Windows Driver Guide

CITIZEN SYSTEMS JAPAN CO. LTD.

6-1-12 Tanashi-cho, Nishi-Tokyo-shi, Tokyo 188-8511 JAPAN

Tel 81-424-68-4631

Fax 81-424-68-4740

sales-op@systems.citizen.co.jp

<http://www.citizen-systems.co.jp>

Revision history

Date	Version	Details
05/08/01	050420 (V1.00)	This document is released
05/09/01	050901 (V1.40)	CT-S280 driver is added. FontAxx / FontBxx are added to CD-S500 series driver The problem with longer data than full column is corrected. Fewer columns problem with Font 15cpi Size 80 is corrected. The problem with mixed font lines between printer font and TrueType font is corrected. The problem with custom size paper for CT-S300 is fixed.
05/11/16	051116 (V1.51)	CT-S2000 driver is added
06/1/28	V1.53	Printing garbage problem with parallel I/F is fixed. High resolution CD-S500 graphic printing problem is fixed. CD-S500 longer than full column printing problem is fixed.
06/7/30	V1.56	Automatic line feed is added to the end of CT-S280 printing. The problem of feed length after barcode printing is fixed. The problem of divided TrueType font is fixed. The print speed down by above change is improved. Graphic print method of CT-S300 is changed. CT-S4000 driver is added.

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1. Operating system

Citizen Systems drivers are designed to work on any of following operating systems.

Microsoft Windows 2000

Microsoft Windows XP

Microsoft Windows Server 2003 (The functions in terminal mode are limited.)

2. Printer models and drivers.

Drivers for CBM printers are listed as follows.

Thermal printer	CITIZEN CBM1000 Type II	Standard driver
	CITIZEN CBM1000 Type II Label	With label function
	CITIZEN CT-S2000	Standard driver
	CITIZEN CT-S280	No cutter, No drawer
	CITIZEN CT-S300	Standard driver
	CITIZEN CT-S300 Black Mark	With black mark function
	CITIZEN CT-S4000	Standard driver
	CITIZEN PPU-700	No drawer
Dot impact printer	CITIZEN CD-S500	No cut function
	CITIZEN CD-S501/503	With cut function

[Note]

- * CD-S500/501/503 have emulation mode for CBM, Star and ESC/POS. The driver for the model is for ESC/POS mode.
- * CD-S501 and CD-S500 use same driver.
- * Japanese driver is available separately.

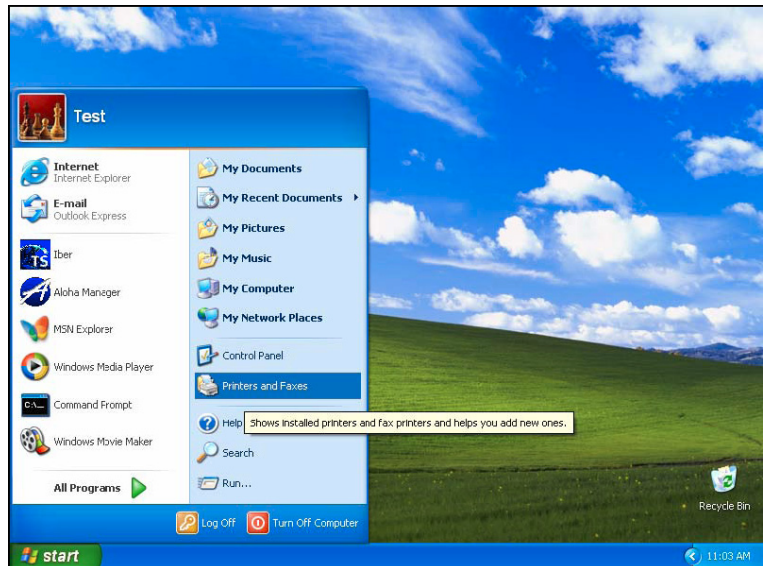
Caution

If you use CT-S280 USB interface model or CT-S2000 USB model with setting for V-COM, USB drivers need to be installed before Windows driver installation.. Please refer to the separate manual for USB driver.

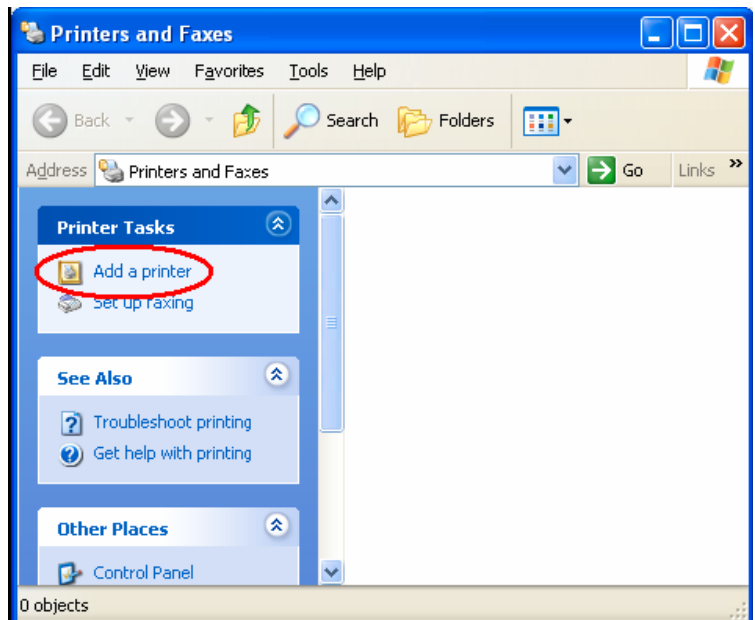
3. Installing the driver

These instructions use Windows XP as the example operating system. Windows 2000 and Windows Server 2003 are similar. Significant differences are noted.

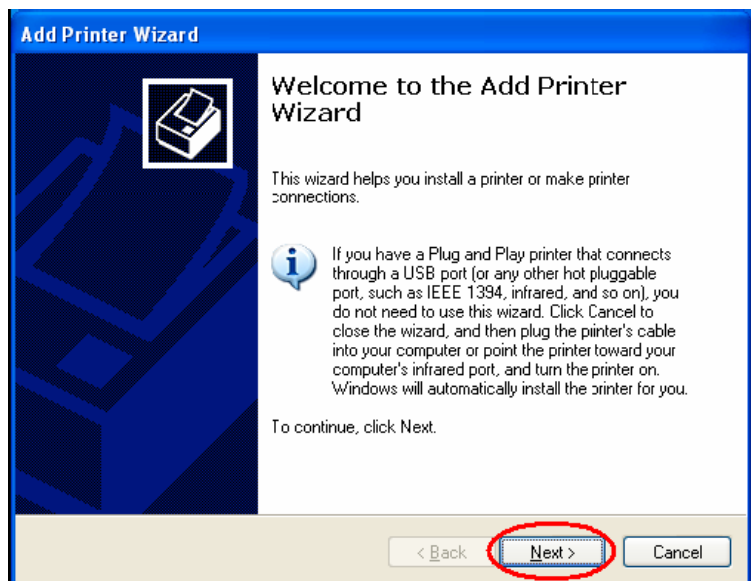
For Windows XP open the "Printer and Faxes" on the "Start" menu. For Windows 2000 and Server 2003 open "Start->Settings->Printers".



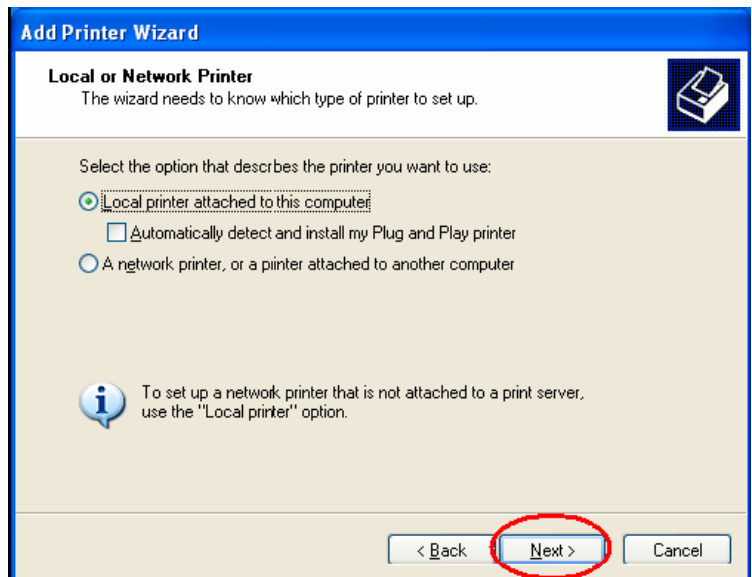
Then select the Add printer wizard



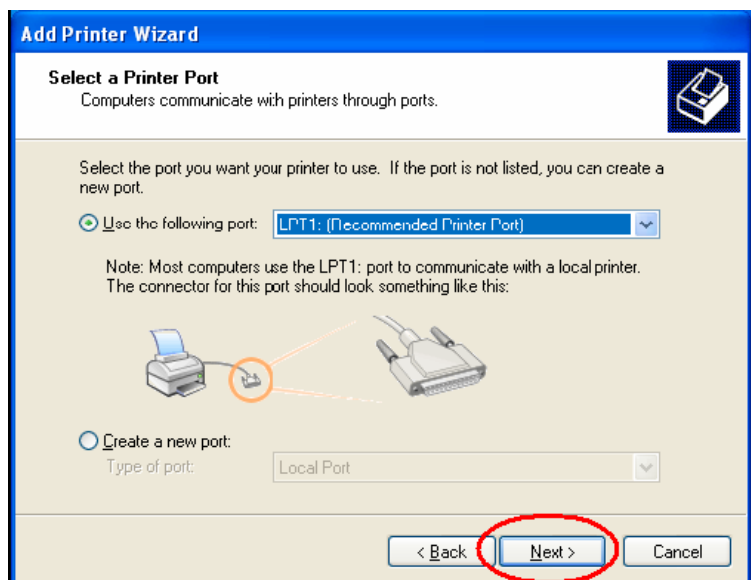
Press "Next" on the information dialog



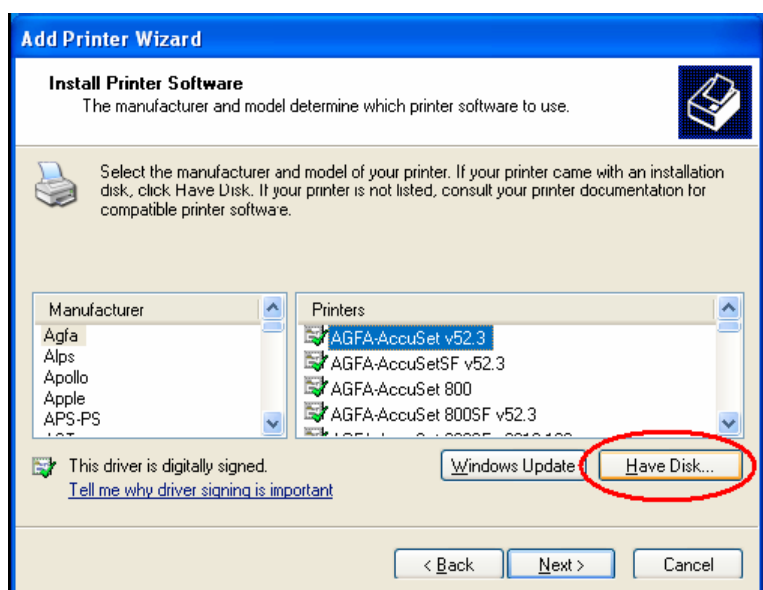
Uncheck the "Automatic detect and install my Plug and Play printer", then press "Next"



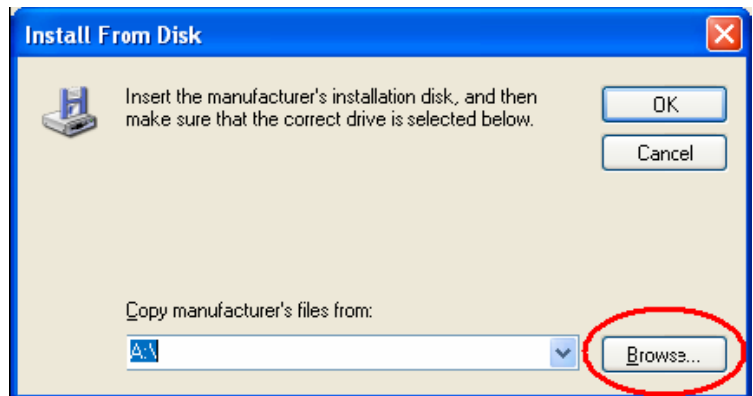
Select the correct port for your printer.



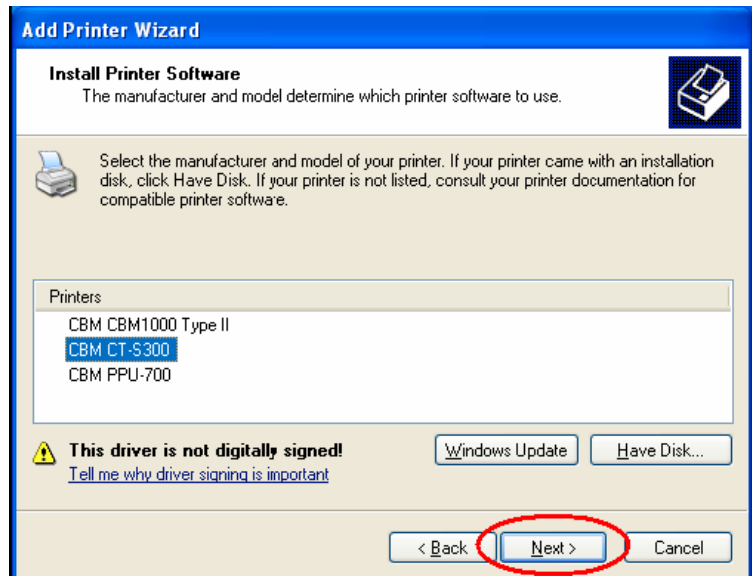
Press the "Have Disk Button"



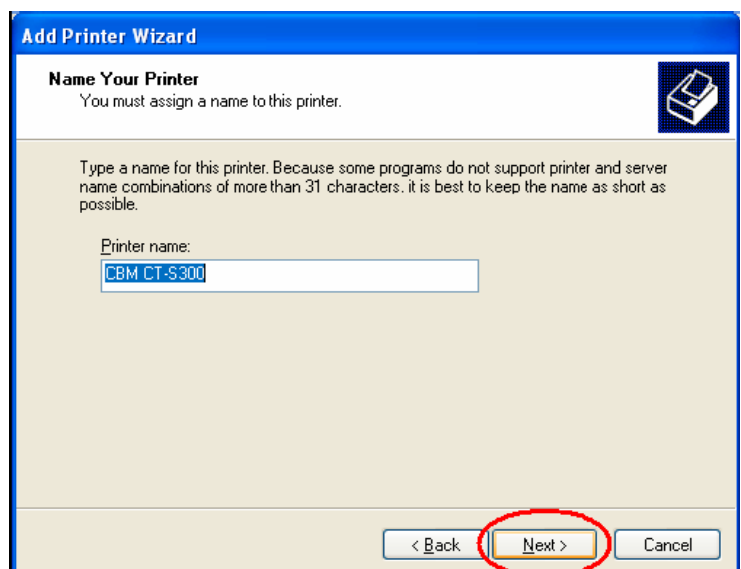
Press the "Browse" button and select the directory that you unzipped the drivers into. Then press "OK"



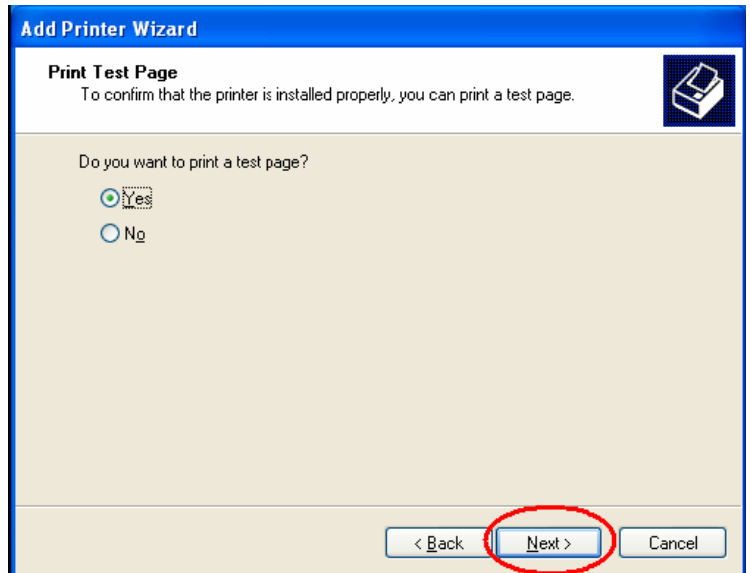
Select the driver for your printer and press "Next"



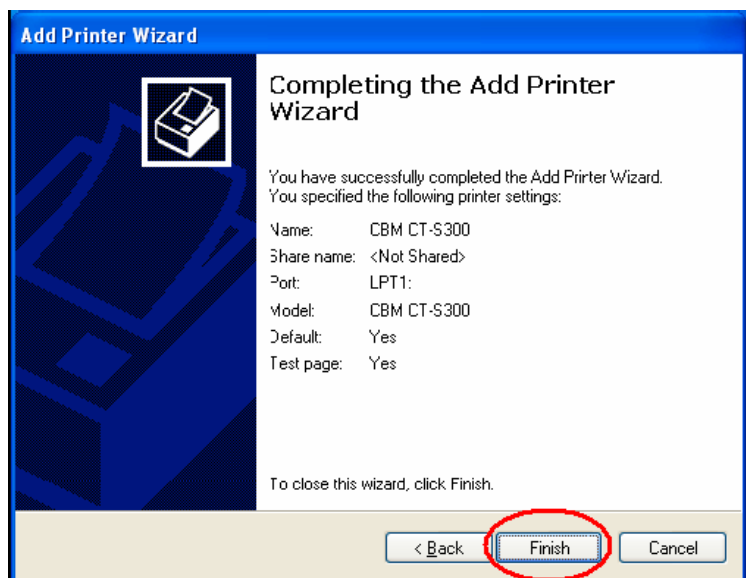
Type in the name for the printer and press "Next"



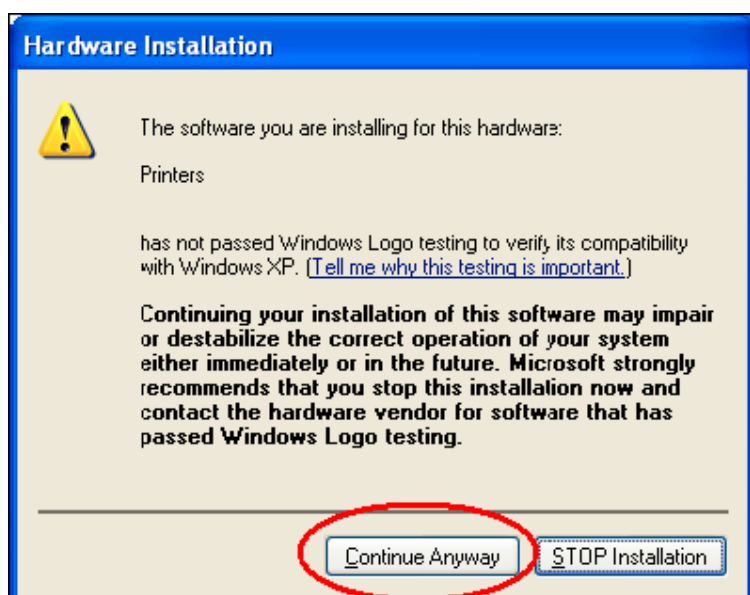
Press "Next" to have a test page printed



Press "Finish"



Press Continue Anyway



4. DIP/Memory switch setting of printer and port settings of Windows

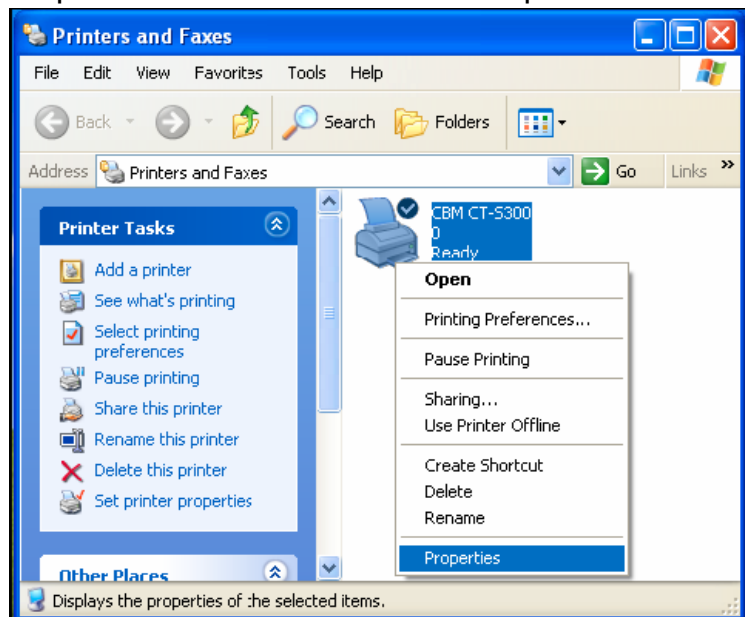
The printer drivers are designed to work with the factory default settings for the printer. To set the printer to the factory default settings please check the printer's users manual. If you are having trouble with a serial port printer (RS-232) please refer to appendix A.

5. Using the printer

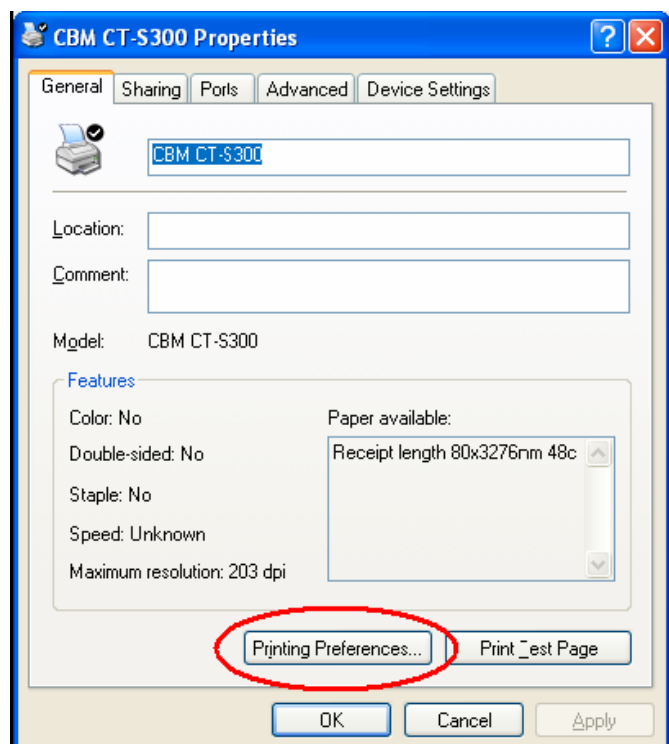
5.1 Printer User Interface

Follow the steps below to access the custom part of the user interface for the printers:

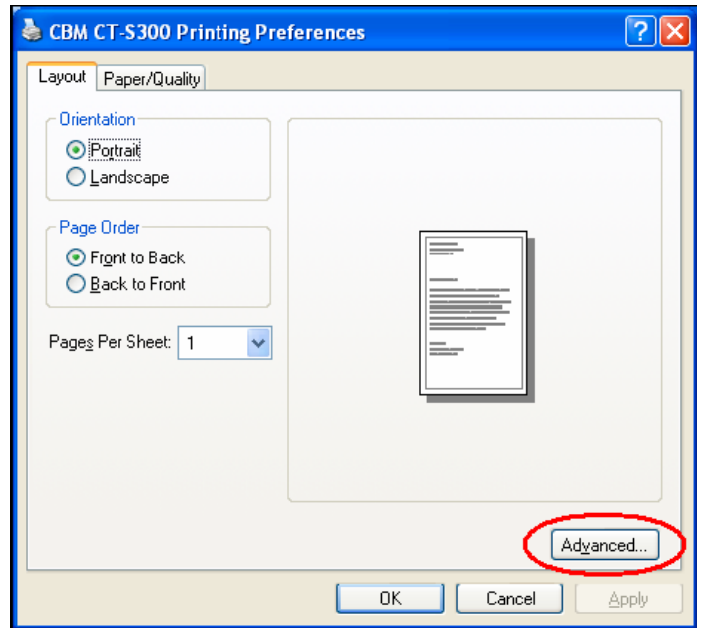
Select the printer properties for the printer driver by right clicking on the printer icon.



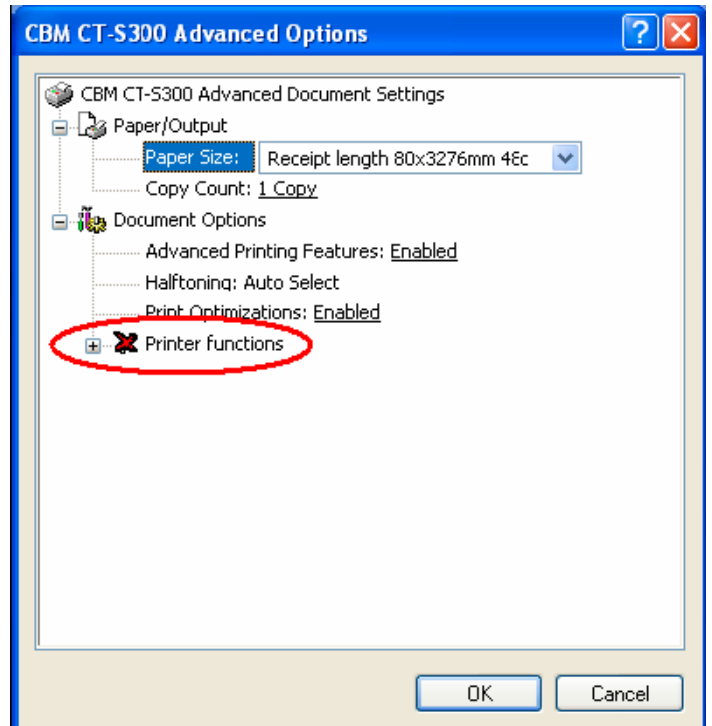
Then press the "Printing Preferences" button in the General Tab.



Then press the "Advanced" button.



Then open the "Printer functions" selection

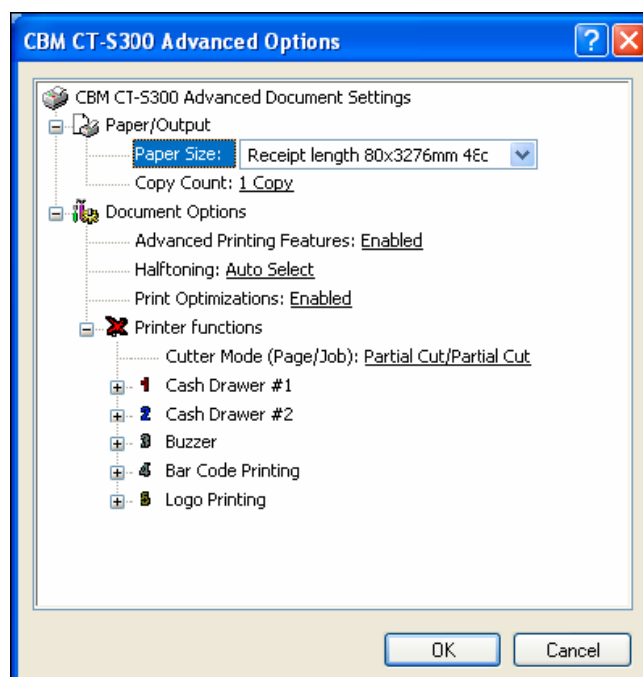


Then you will see all of areas that can be customized through the driver. These items include:

Cutter Mode (Page/Job): Specifies whether the cutter is enabled and when it is applied. The cutter options depend on the printer.

Cash Drawer #1: Specifies when Cash Drawer #1 will be opened. The pulse width can be specified to match the cash drawer specifications.

Cash Drawer #2: Specifies when Cash Drawer #2 will be opened. The pulse width can be specified to match the cash drawer specifications.



Buzzer: Specifies if the buzzer should be sounded at the beginning or end of the print job and how many times the printer beeps.

Bar Code Printing: Allows the user to change the default Human Readable Interpretation (HRI) positioning. The HRI can be added to the top, bottom or top and bottom of the barcode.

Logo Printing: Allows the user to select when and which logos should be printed.

Label paper: Allows the user to select to enable/disable for label or black mark function.

6. Printer fonts

Following printer fonts can be selected by using Windows driver.

Printing by printer font is much faster than printing by Windows font. Therefore, we recommend using these printer fonts for faster printing.

Driver	Font		Font size
CBM1000II	15 cpi	Font A	12 / 24 / 36 / 48 / 60 / 72 / 80
CT-S2000	15 cpi [Euro]		
CT-S280	15 cpi [Ext.]		
CT-S300	15 cpi [RED Euro]		
CT-S4000	15 cpi [RED Ext.]		
PPU-700	15 cpi (RED)		
	7.5 cpi		
	7.5 cpi [Euro]		
	7.5 cpi [Ext.]		
	7.5 cpi [RED Euro]		
	7.5 cpi [RED Ext.]		
	7.5 cpi (RED)		
	3.75 cpi		
	3.75 cpi [Euro]		
	3.75 cpi [Ext.]		
	3.75 cpi [RED Euro]		
	3.75 cpi [RED Ext.]		
	3.75 cpi (RED)		
	1.8 cpi		
	1.8 cpi [Euro]		
	1.8 cpi [Ext.]		
	1.8 cpi [RED Euro]		
	1.8 cpi [RED Ext.]		
	1.8 cpi (RED)		
	20 cpi	Font B	
	20 cpi [Euro]		
	20 cpi [Ext.]		
	20 cpi [RED Euro]		
	20 cpi [RED Ext.]		
	20 cpi (RED)		
	10 cpi		
	10 cpi [Euro]		
	10 cpi [Ext.]		
	10 cpi [RED Euro]		
	10 cpi [RED Ext.]		
	10 cpi (RED)		
	5 cpi		
	5 cpi [Euro]		
	5 cpi [Ext.]		
	5 cpi [RED Euro]		
	5 cpi [RED Ext.]		
	5 cpi (RED)		
	2.5 cpi		
	2.5 cpi [Euro]		
	2.5 cpi [Ext.]		
	2.5 cpi [RED Euro]		
	2.5 cpi [RED Ext.]		
	2.5 cpi (RED)		

	25 cpi 25 cpi [Euro] 25 cpi [Ext.] 25 cpi [RED Euro] 25 cpi [RED Ext.] 25 cpi (RED) 12.5 cpi 12.5 cpi [Euro] 12.5 cpi [Ext.] 12.5 cpi [RED Euro] 12.5 cpi [RED Ext.] 12.5 cpi (RED) 6.25 cpi 6.25 cpi [Euro] 6.25 cpi [Ext.] 6.25 cpi [RED Euro] 6.25 cpi [RED Ext.] 6.25 cpi (RED) 3 cpi 3 cpi [Euro] 3 cpi [Ext.] 3 cpi [RED Euro] 3 cpi [RED Ext.] 3 cpi (RED)	Font C (Not supported on CBM1000II)	
	FontA11 FontA11 [255] FontA11 [Ext.]	Font A	9.5
	FontA12 FontA12 [255] FontA12 [Ext.]		19
	FontA21 FontA21 [255] FontA21 [Ext.]		9.5
	FontA22 FontA22 [255] FontA22 [Ext.]		19
	FontA24 FontA24 [255] FontA24 [Ext.]		36
	FontA42 FontA42 [255] FontA42 [Ext.]		19
	FontA44 FontA44 [255] FontA44 [Ext.]		38.5
	FontA48 FontA48 [255] FontA48 [Ext.]		77
	FontA84 FontA84 [255] FontA84 [Ext.]		38.5
	FontA88 FontA88 [255] FontA88 [Ext.]		77

	FontB11 FontB11 [255] FontB11 [Ext.]	Font B	7
	FontB12 FontB12 [255] FontB12 [Ext.]		13.5
	FontB21 FontB21 [255] FontB21 [Ext.]		7
	FontB22 FontB22 [255] FontB22 [Ext.]		13.5
	FontB24 FontB24 [255] FontB24 [Ext.]		27
	FontB42 FontB42 [255] FontB42 [Ext.]		13.5
	FontB44 FontB44 [255] FontB44 [Ext.]		27
	FontB48 FontB48 [255] FontB48 [Ext.]		54.5
	FontB84 FontB84 [255] FontB84 [Ext.]		27
	FontB88 FontB88 [255] FontB88 [Ext.]		54.5
	Control		12
CD-S500 series	16 cpi 16 cpi [Euro] 16 cpi [Ext.] 16 cpi [RED Euro] 16 cpi [RED Ext.] 16 cpi (RED) 8 cpi 8 cpi [Euro] 8 cpi [Ext.] 8 cpi [RED Euro] 8 cpi [RED Ext.] 8 cpi (RED)	7x9 dot	12 / 24 / 36 / 48 / 60 / 72 / 80
	12 cpi 12 cpi [Euro] 12 cpi [Ext.] 12 cpi [RED Euro] 12 cpi [RED Ext.] 12 cpi (RED) 6 cpi 6 cpi [Euro] 6 cpi [Ext.] 6 cpi [RED Euro] 6 cpi [RED Ext.] 6 cpi (RED)	9x9 dot	

	FontA11 FontA11 [255]	7x9 dot	9	
	FontA12 FontA12 [255]		18	
	FontA21 FontA21 [255]		9	
	FontA22 FontA22 [255]		18	
		FontB11 FontB11 [255]	9x9 dot	9
		FontB12 FontB12 [255]		18
		FontB21 FontB21 [255]		9
		FontB22 FontB22 [255]		18
Control		12		

[Note]

* The difference of "xx cpi", "xx cpi [Euro]" and "xx cpi [Ext.]" is characters/functions assigned to 80 ~ FF hex. The details of difference are as follows.

Font	80-9F(hex)	A0-FF(hex)
xxx cpi	Special function	WPC1252
xxx cpi [Euro]	WPC1252	
xxx cpi [Ext.]	Code Page 437	

Special function: Special functions are assigned. (Refer to section 9 for the special functions.)

Windows Code: Characters from Windows code table are assigned.

Code Page 437: Characters from code page 437 are assigned.

- * "xx cpi" font: If the number is smaller, character width is larger. 4 different size (Standard size, x2/x4/x8 width) can be chosen from each font.. For example, "7.5 cpi" is double width font of "15 cpi".
- * "xx cpi" font: Font size mean the height of character. Standard size is 12.
For example, Font size 24 is double high font of font size 12.
- * "FontAxx(Bxx)" font: xx means size of height and width.
For example, FontA48 is based on font A and 4 times high and 8 times wide from standard size.
- * FontAxx(Bxx)[255] font uses downloaded font by user
- * Line pitch by "xx cpi" and by "FontAxx (FontBxx)" are different because the font size is different.
- * It is possible to print 2colors by using font name with (RED). Normally two colors are black and red.
The requirement to print 2 colors are CD-S500 Black/Red ribbon cassette
 CT-S280, CBM1000II 2 color thermal paper
 CT-S2000, CT-S300, CT-S4000, PPU-700 2 color thermal paper and setting for two color mode
- * If landscape (horizontal) orientation is selected, these fonts will not be printed.
- * "Control" font is only for special functions and not for printing.
- * The function of centering or right aligning by application software does not work with the driver.
- * If the print data for printer font is longer than one line, extra part is basically ignored but in some case, one character may be printed in next line. Please do not send the longer data than one line.

7. Barcode

Using following barcode font can print barcode.

Barcode font	Font size	Applicable driver
Codabar	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
Code128	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
Code39	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
Code93	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
JAN13 (EAN)	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
JAN8 (EAN)	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
ITF	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
UPC-A	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers
UPC-E	20 / 40 / 42 / 60 / 64 / 80 / 84	All thermal printers

[Note]

- * Size of barcode can be selected by choosing font size.
- * HRI characters can be added by selecting in the UI or by using the control font.
- * Each barcode has limitation of characters to use. Please refer to the user's manual for the details of limitations.
- * These fonts will not be shown correctly.
- * The wider barcode than paper width cannot be printed.
- * The sub code set type A/B/C for Code128 should be specified as {A, {B, {C prior to the print data.
- * The data for sub code set C of Code128 is printed in decimal address of the input character.
For example, Input data "1" => Output 49 ("1" address = 31h = 49dec)
- * Printer font and barcode cannot be printed in the same line.
- * The function of centering or right aligning by application software does not work with the driver.
- * Barcode font is not shown correctly on the application software such as MS-Word.

8. Graphic printing function

Following printer drivers support graphic printing.

Windows fonts (TrueType fonts) can be printed by these drivers as well.

The resolution of each printer is as follows.

		Resolution (DPI)
CBM1000II		203 x 203
CT-S2000		203 x 203
CT-S280		203 x 203
CT-S300		203 x 203
CT-S4000		203 x 203
PPU-700		203 x 203
CD-S500 series	High quality	144 x 144
	Standard	144 x 72
	Draft	72 x 72

9. Special functions

To use special function of printer, it is necessary to send specified character in "Control" font or to send specified character in "xx cpi" font. Both "xx cpi [Euro]", "xx cpi [Ext.]" font.

Windows font (TrueType font) does not work for the special functions.

Model	Printer Function	"Control"		"xx cpi"
		ASCII Character	Hex Value	Hex Value
All drawer models	50ms pulse to drawer #1	A	41	81
All drawer models	100ms pulse to drawer #1	B	42	82
All drawer models	150ms pulse to drawer #1	C	43	83
All drawer models	200ms pulse to drawer #1	D	44	84
All drawer models	250ms pulse to drawer #1	E	45	85
All drawer models	50ms pulse to drawer #2	a	61	89
All drawer models	100ms pulse to drawer #2	b	62	8A
All drawer models	150ms pulse to drawer #2	c	63	8B
All drawer models	200ms pulse to drawer #2	d	64	8C
All drawer models	250ms pulse to drawer #2	e	65	8D
All Models	Horizontal Tab (HT)	5	35	95
All Models	Line Feed (LF)	6	36	96
All Models	Carriage Return (CR)	7	37	97
All cutter models	Receipt paper Full Cut	F	46	9D
All cutter models	Receipt paper Partial Cut	P	50	9E
All Models	NV Bitmap data ID:1 Normal printing	G	47	
All Models	NV Bitmap data ID:2 Normal printing	H	48	
All Models	NV Bitmap data ID:3 Normal printing	I	49	
All Models	NV Bitmap data ID:4 Normal printing	J	4A	
All Models	NV Bitmap data ID:5 Normal printing	K	4B	
All Models	NV Bitmap data ID:1 Double Width printing	Q	51	
All Models	NV Bitmap data ID:2 Double Width printing	R	52	
All Models	NV Bitmap data ID:3 Double Width printing	S	53	
All Models	NV Bitmap data ID:4 Double Width printing	T	54	
All Models	NV Bitmap data ID:5 Double Width printing	U	55	
All Models	NV Bitmap data ID:1 Double Height printing	V	56	
All Models	NV Bitmap data ID:2 Double Height printing	W	57	
All Models	NV Bitmap data ID:3 Double Height printing	X	58	
All Models	NV Bitmap data ID:4 Double Height printing	Y	59	
All Models	NV Bitmap data ID:5 Double Height printing	Z	5A	
All Models	NV Bitmap data ID:1 Quadruple printing	[5B	
All Models	NV Bitmap data ID:2 Quadruple printing	}	5D	
All Models	NV Bitmap data ID:3 Quadruple printing	^	5E	
All Models	NV Bitmap data ID:4 Quadruple printing	_	5F	
All Models	NV Bitmap data ID:5 Quadruple printing	`	60	

10. Paper sizes

A) Length

Followings paper length can be chosen.

	Paper length
a)	A4 length (297 mm)
b)	B5 length (257 mm)
c)	6 in Page (6 in)
d)	Letter length (11 in)
e)	Executive length (10.5 in)
f)	Receipt (3240 mm) *** This is default setting
g)	User-Defined size

[Note]

Size a – f,) Printing will stop before the specified length if the print data is finished before reaching end of the page. If the print data is more than specified length, the printer will cut on paper length that pre-set. 3240mm length cannot be used from MS-Word.

Size g) User can set the paper length.

Please make custom form as follows.

From Start button

Start -> Setting -> Printers

Then from menu of printer window,

File -> Server Property

Then check "Create A New Form" on Form tab and enter the settings for the new form.

And click "Save Form" or OK.

B) Width

Paper width depends on the printer and the setting.

Model	Paper width
CBM1000II	80mm(48col.)
	80mm(42col.)
	58mm(36col.)
	58mm(30col.)
CT-S2000	83mm (53col.)
	80mm (48col.)
	80mm (42col.)
	58/60mm (36col.)
	58mm(30col.)
CT-S280	58mm(32col.)
	58mm(30col.)
CT-S300	80mm(48col.)
	80mm(42col.)
	58mm(32col.)
	58mm(30col.)

CT-S4000	112mm(69col.) *1 83mm(55col) 80mm(48col) 80mm(42col)
PPU-700	80mm(48col.) *1 80mm(42col) 58mm(32col) 58mm(30col)
CD-S500 series	76mm 69.5mm 58.5mm

*1 Printer supports more paper width. For other paper width, use need to define the paper size.

11. Example of usage by Microsoft Word

This is the sample to use printer font on MS-Word.

From the menu, click

File--> Print --> Printer Name

Choose the printer to use then click Close button. Then

File --> Page setting --> Paper size

Choose the paper size to use. Then

File --> Page setting --> Margin

Set the proper margins. (If you set the margins to zero, it will be corrected to minimum number automatically after the error message.)

Choose the printer font in the font list box

Choose the printer font size 12 or 24 in the font size list box.

Step from here is important.

Make the print data ready and from the menu, click

Tool --> Option --> Compatibility

Then choose "Microsoft Word 6.0/95". Then

File --> Print --> OK

If you skip this step shown in red, the data is either printed in graphics or printer just feed few empty lines.

12. Example of program by Visual Basic

Following program list is for "CBM CBM1000II".

```

`Set "CBM CBM1000II" as default printer driver
Dim X As Printer
For Each X In Printers
    If X.DeviceName = "CBM CBM1000II" Then
        Set Printer = X
        Exit For
    End If
Next

`Printing Windows font"
Printer.FontSize=10
Printer.FontName="Ariel"
Printer.Print "Font Ariel / Size 10"

`Printing Printer font
Printer.FontSize=12
Printer.FontName="15 cpi"
Printer.Print "15 cpi / Size 12"

`Printing Barcode
Printer.FontSize=12
Printer.FontSize=42
Printer.FontName="Code39"
Printer.Print "ABC123456"

`Opening cash drawer
Printer.FontSize=12
Printer.FontName="Control"
Printer.Print "A" `Drawer 1 at 50ms

`Cutting paper"
Printer.FontSize=12
Printer.FontName="Control"
Printer.print "P" `Partial cut

`Printing graphic data from NV memory
Printer.FontSize=12
Printer.FontName="Control"
Printer.print "G" `Print #1 graphic data in NV memory

Printer.EndDoc

```

Also you can send commands through driver but it is necessary to choose printer font first.

```

Printer.FontSize=12
Printer.FontName="15 cpi"
Printer.Print CHR$(&H1B) + "V" + CHR$(1) `90 degrees right turned.
Printer.Print "15 cpi / Size 12"
Printer.EndDoc

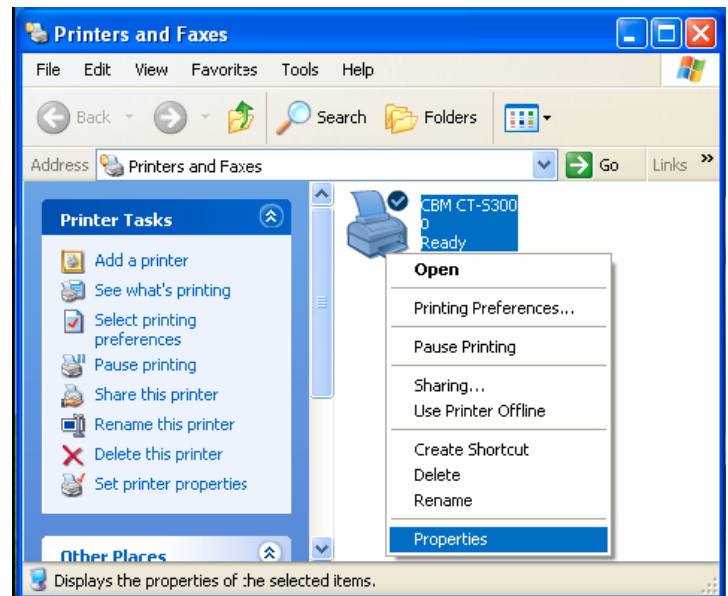
```

Caution: PrintDocument object of Visual Basic.Net etc does not support printer font. Therefore the above method using printer font cannot be used.

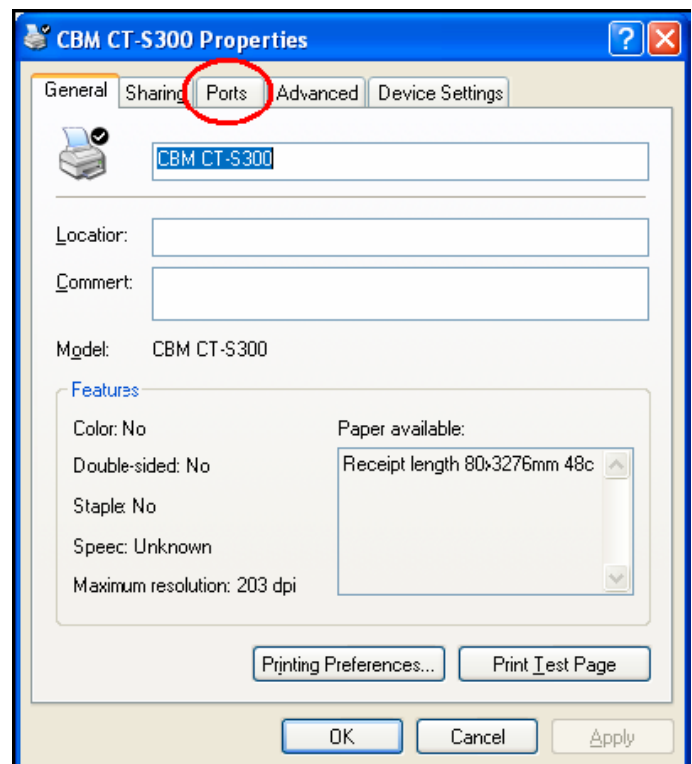
13. Serial Port Settings

The serial port settings on both the printer and Windows need to match. To check the current port settings on the printer please run a printer self test. The printer will run a self test by holding down the feed key while turning the printer on. To change the settings on the printer, please consult the printer's users manual. You can follow the steps below to change the port settings for the driver.

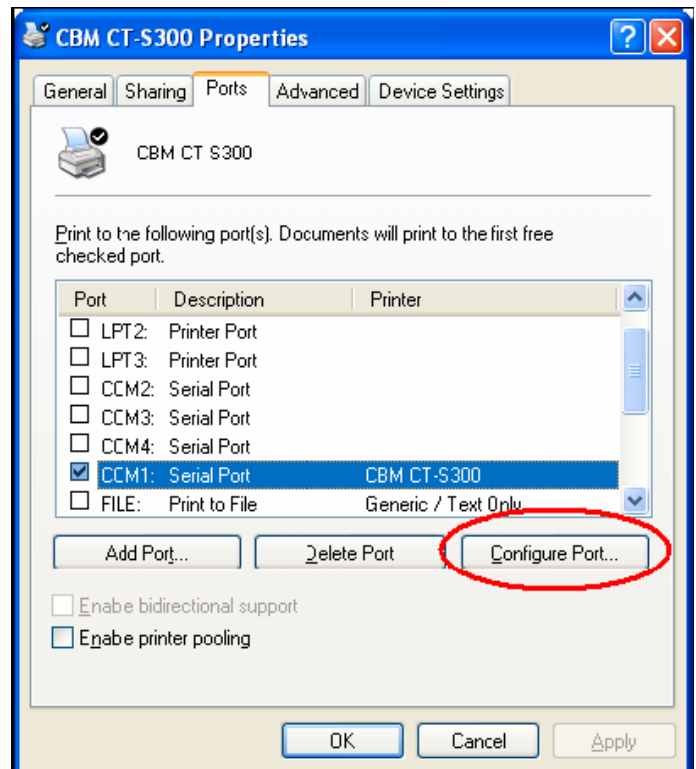
To change the baud rate settings from the printer driver, right click on the printer icon and select "Properties".



Then select the "Ports" tab.



Then press the "Configure Port..." button.



The COM Properties dialog will pop up and you can select the correct setting for your printer based on the self test. If the printer Handshake is set to DTR/DSR then use "Hardware" for Flow Control on PC. When done press the "Apply" button and then the OK button.

