PRINTER DRIVER GUIDE
(PD93UN0)

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Refer to the following web site to check the latest versions of the printer driver.
http://www.vcp.melco.co.jp

Use the printer driver corresponding to the operating system.
PD93UN0   :Windows2000/XP

System requirements

Computer   :Computer equipped with Pentium class CPU or more
Main storage memory   :128MBytes or more
Hard disk   :Empty capacity 256 MBytes or more
Operating system   :Microsoft(R) Windows(R)2000, Microsoft(R) Windows(R)XP
USB cable   :Use a cable 2m or shorter, comply with USB2.0 standard High speed,
                             USB-IF (USB Implementers Forum) approved.
P93D series supports the USB 2.0 (Hi-Speed USB) interface.
As USB 2.0 is completely upwardly compatible with USB 1.1, P93D series can be connected with a personal computer on which USB 1.1 interface is available.
When you use P93D series with USB 2.0 (Hi-Speed USB), the personal computer has to support USB 2.0 (Hi-Speed USB).
For the compatibility of the personal computer with USB 2.0 (Hi-Speed USB), ask the manufacturer of the personal computer.

Windows 2000
1. Installing the USB port
    1) Start Microsoft(R) Windows(R) 2000 Operating system.
    2) Connect a USB cable between the computer and the printer before the installation begins.
    3) Turn on the printer.
    4) A USB port will be installed automatically.
    5) "Found New Hardware Wizard" appears. (Fig. 1)
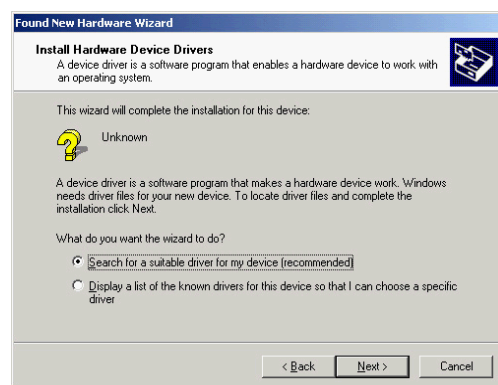   *The OS standard USB port is used for USB connection in Windows 2000.
2. Installing the driver
    1) Insert the CD-ROM.
    2) Click "Next" button on "Found New Hardware Wizard". (Fig. 1)
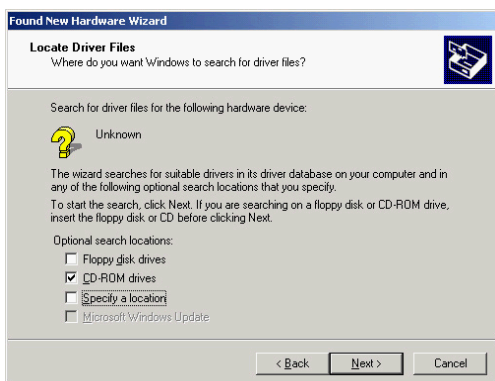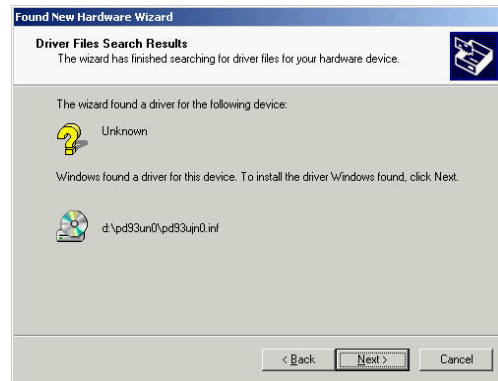   3) Select "Search for a suitable driver for my device (recommended)" and click "Next" button. (Fig. 2)

<Fig. 1>	<Fig. 2>

    4) Select "CD-ROM drives" and click "Next" button. (Fig. 3)
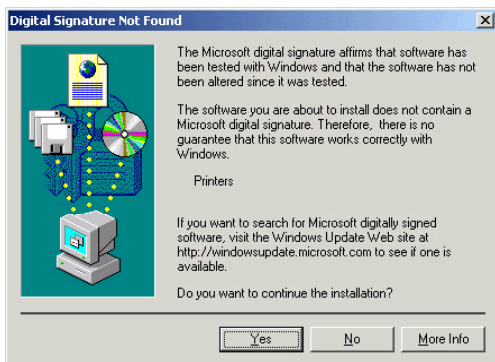   5) Click "Next" button. (Fig. 4)

<Fig. 3>	<Fig. 4>

    6) Click "Yes" button.
    7) Click "Finish" button.

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<Fig. 5>	<Fig. 6>

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WindowsXP
1. Installing the USB port
    1) Start Microsoft(R) Windows(R) XP Operating system.
    2) Connect a USB cable between the computer and the printer before the installation begins.
    3) Turn on the printer.
    4) A USB port will be installed automatically.
    5) "Found New Hardware Wizard" appears. (Fig. 7)
     *The OS standard USB port is used for USB connection in WindowsXP.
2. Installing the driver
    1) Insert the CD-ROM.
    2) Select "Install from a list of specific location (Advanced)" on "Found New Hardware Wizard" and click "Next" button. (Fig. 7)
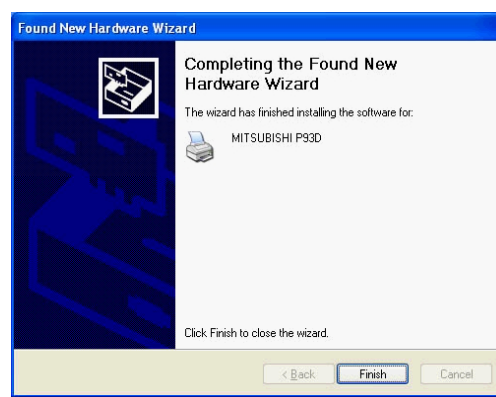   3) Select "Search removable media(floppy, CD-ROM...)" and click "Next" button. (Fig. 8)

<Fig. 7>

<Fig. 8>
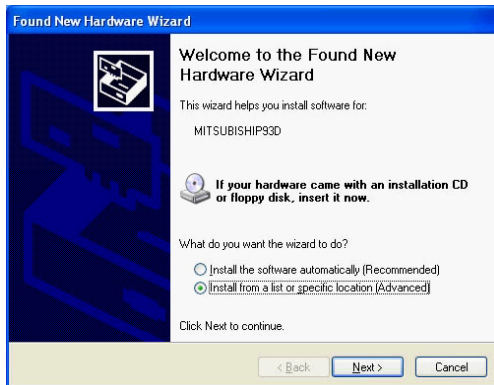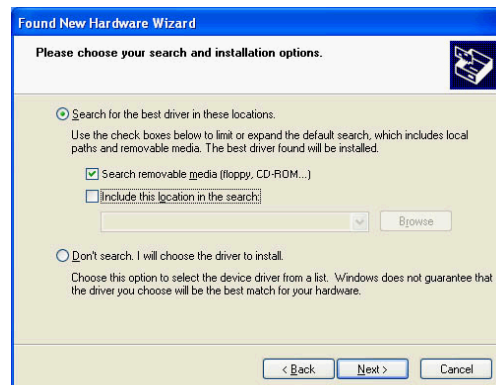
    4) Click "Continue Anyway" button. (Fig. 9)
    5) Click "Finish" button. (Fig. 10)

<Fig. 9>

<Fig. 10>

Uninstallation

Operate the following procedures to uninstall the printer driver.
When uninstalling the printer driver, confirm that the printer driver is not used from the application or the print job does not remain in the spooler.

PD93UN0(Windows2000/XP)
    1) Turn off the printer.
    2) Insert the CD-ROM.
    3) Start up the command prompt.
    4) Input and execute the command.
        When CD drive is D,
        C:\>D:\rem93 p93d
    5) Reboot the computer.

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1. Standard dialog

<Fig.11. The dialog of "Standard">
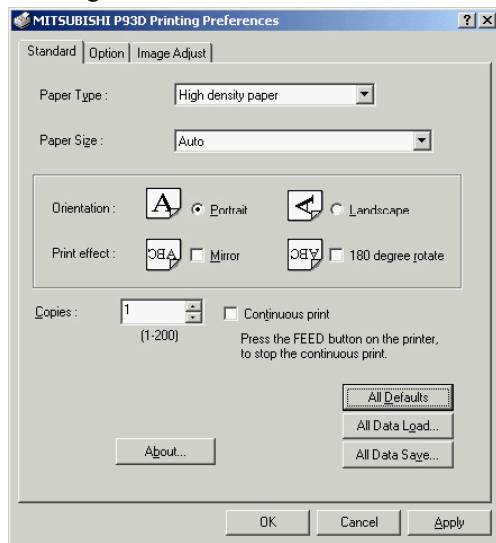
<Table. Paper size and print pixel>

Paper size	Image size	Effective pixels
Auto	The paper size is selected with the image size.	
User definition	1280x1280-5760	1280x1280-5760
1280x960	1280x960	1280x960
1280x1280	1280x1280	1280x1280
1280x1920	1280x1920	1280x1920
1280x5760	1280x5760	1280x5760
125%(1024x768)	1024x768	1280x960
160%(800x600)	800x600	1250x938
200%(640x480)	640x480	1280x960
4 split of different screen(640x640)	640x640	1280x1280
4 split of different screen(640x480)	640x480	1280x960

1) Paper Type
   High density paper/High glossy paper/Standard paper
   The paper type is selected.
2) Paper Size
   The paper size is selected. The effective pixels for eath paper size are shown in the above table.
   Refer to "2. User definition paper setting dialog" when you select the "User definition 1280x1280-5760" paper size.
   *The different screen split function does not operate normally due to the application occasionally.
3) Orientation
   Portrait/Landscape
   The direction of paper is set.
4) Print effect
   Mirror   : The function horizontally reverses the print output.
   180 degree rotate : The function rotate 180 degrees the print output.
5) Copies (1-200)
   The printer prints number of printouts which is shown in dialog.
   *   When plural pages are printed, it becomes like the example below usually.
   (example) The print result of 2 copies of 3 pages:1p 1p 2p 2p 3p 3p
   *   In case of the different screen split, only when the printout is actually executed at printing, the set number of copies becomes effective.
       Please note that the consecutive same images are not transmitted to the split screen.
   *   Some application might not transmit as the above-mentioned.

(example)The print result of 2 copies of 3 pages
:To achieve 1p 2p 3p 1p 2p 3p, the application outputs twice partially.
6) Continuous print
When turning on, the same image has been printed until paper runs out.
   * Press the FEED button on the printer, to stop the continuous print.
   * The printer gives priority to a continuous print even if the number of copies is set from the application.
   * When you print the different screen split and the plural page, the page, printed out in the beginning, is continuously printed out.
7) About...
Displays the version information of this driver.
8) All Defaults
All the settings are reset to the default settings.
9) All Data Load...
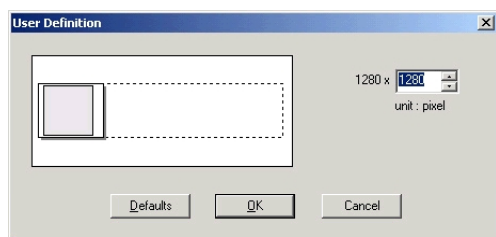All the set data loaded from the saved data.
10) All Data Save...
All the set data are saved.
   * The save changed setting value, click "Apply" button or "OK" button first to set the value. Then save the changed value.

2. User definition paper setting dialog
When "User definition 1280x1280-5760" is selected in "Paper size", "User Definition" dialog opens. The arbitrary paper size can be set at the arbitrary horizontal width (Only the even number specifiable). The width of a vertical printing is 1280 pixels. The width of horizontal printing is 1280 -5760 pixels.

<Fig.12. The dialog of "User Definition">

1) Horizontal printing width
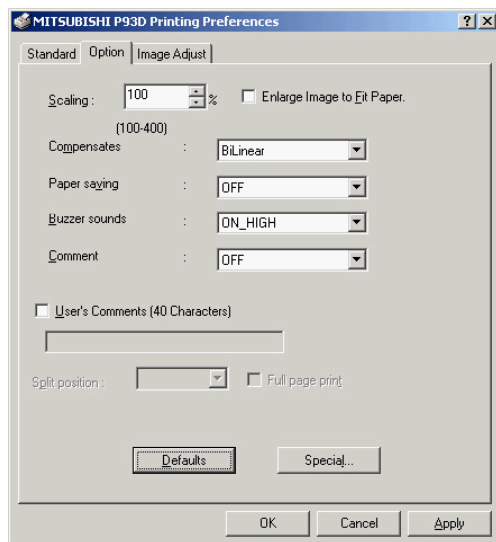The horizontal size of print area is input.(1280 - 5760 pixels)
2) Defaults
The settings are reset to the default settings.
Default data
Horizontal printing width   : 1280 pixels

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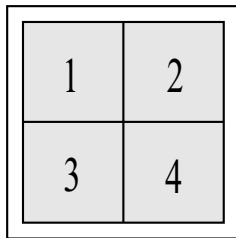
3. Option dialog

<Fig.13. The dialog of "Option">

1) Scaling
   Enlargement scale is set. (set range 100 - 400%)
2) Enlarge Image to Fit Paper
   When checked,the image is enlarged so as to fit the selected paper size.
3) Compensates
   Nearest/BiLinear/Bicubic
   Select the compensating method of the image.
4) Paper saving
   OFF/ON
   When ON is selected, the print feeding length gets shorter than normal condition.
5) Buzzer sounds
   OFF/ON-LOW/ON-HIGH
   Select the buzzer type.
   OFF   :Does not sound the buzzer.
   ON-LOW :Sounds the buzzer in lower volume.
   ON-HIGH :Sounds the buzzer in higher volume.
6) Comment
   OFF/Print setting/DATE/DATE&TIME
   Select the comments.
   OFF   :Does not print any comments.
   Print setting   :Prints the print settings.
   DATE   :Prints the date.
   DATE&TIME   :Pirnts the date and time.
7) User's Comments (40 Characters)
   When checked, the comments in the box is added at the bottom of the print.
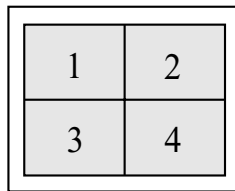
   Available character codes

		Upper 4 bits															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Lower 4 bits	0			SP	0	@	P	`	p								
	1			!	1	A	Q	a	q								
	2			"	2	B	R	b	r								
	3			#	3	C	S	c	s								
	4			$	4	D	T	d	t								
	5			%	5	E	U	e	u								
	6			&	6	F	V	f	v								
	7			'	7	G	W	g	w								
	8			(	8	H	X	h	x								
	9			)	9	I	Y	i	y								
	A			*	:	J	Z	j	z								
	B			+	;	K	[	k	{								
	C			,	<	L	\	l	l								
	D			-	=	M	]	m	}								
	E			.	>	N	^	n	~								
	F			/	?	O	_	o									

8) Split position
   The start position of the print at different screen Split mode is decided.

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* When different screen is selected, Split position is available.

< (640*640):Portrait >   < (640*480):Portrait >

9) Full page print
In case of turning on, when you printed the plural page image at different screen Split mode, even if the split position has been neither 4 after transmitting the last page, the printout can be executed.

10) Defaults
The settings are reset to the default settings.
Scaling: 100%
Compensates: BiLinear
Paper saving: OFF
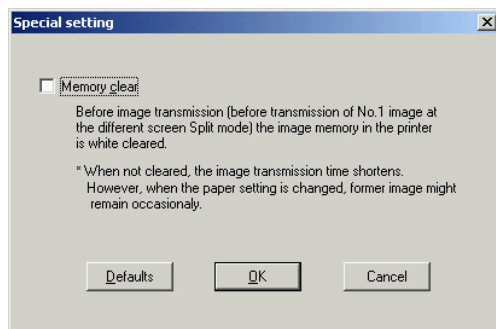Buzzer sounds: ON_HIGH
Comment: OFF

11) Special...
Special setting dialog appears. Refer to "4. Special setting dialog".

4. Special setting dialog

<Fig.14. The dialog of "Special setting">

1) Memory clear
Before image transmission (before transmission of No.1 image at the different screen Split mode) the image memory in the printer is white cleared.
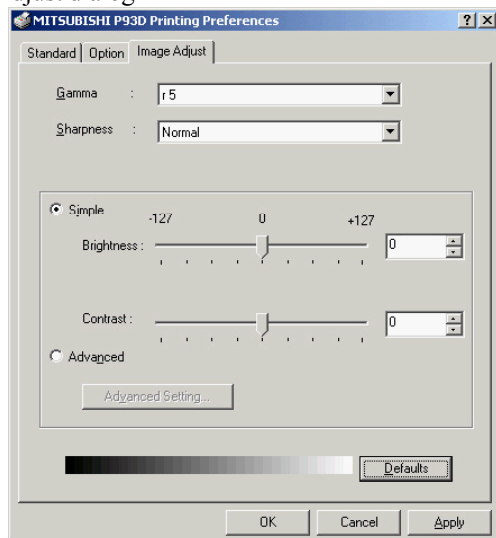* When not cleared, the image transmission time shortens.
However, when image size is changed in the paper setting menu, former image might remain occasionally.
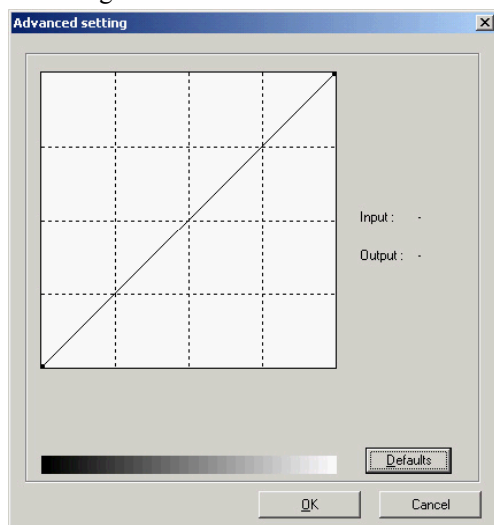
2) Defaults
Memory clear: OFF

5. Image Adjust dialog

<Fig.15. The dialog of "Image Adjust">

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1) Gamma
   r5/r4/r3/r2/r1
   Gamma curve is selected.
2) Sharpness
   Soft / Normal / Hard
   Level of outline correction is changed.
3) Simple
   Brightness
   The brightness is adjusted.
   Adjusted value (-127-+127)
   $K'(x) = K(x) + Brightness$
   Contrast
   The contrast is adjusted.
   Adjusted value (-127-+127)
   Contrast>=0
   $K'(x) = K(x)*(1+Contrast/128)$
   Contrast<0
   $K'(x) = K(x)*(1+Contrast/256)$
4) Advanced
   When checked, the Advanced Setting dialog appears. Refer to "6. Advanced Setting dialog".
5) Defaults
   The settings are reset to the default settings.
   Gamma   : r5
   Sharpness   : Normal
   Brightness   : 0
   Contrast   : 0

6. Advanced Setting

<Fig.16. The dialog of "Advanced Setting" >

1) Advanced Setting
   The more minute image adjustment is carried out by the Gamma adjustment tone curve.
   The input (gradation value before adjustment) and output (gradation value after adjustment) of the adjustment point are displayed.
2) Defaults
   All the tone curves become a linear straight line of the range (0, 0) - (255, 255).

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7. Error indication

No.	Error dialog message	Button	Operation
(1)	Paper empty. After removing Error, printer will restart. If Cancel button is clicked, printing is canceled.	Cancel	When installing a new roll of paper, the dialog disappears and printing starts again. When clicking Cancel button, the dialog disappears and the print job is deleted.
(2)	Door is opened. After removing Error, printer will restart. If Cancel button is clicked, printing is canceled.	Cancel	When closing the door, the dialog disappears and printing starts again. When clicking Cancel button, the dialog disappears and the print job is deleted.
(3)	Gear lock error. Turn the printer power Off and On. If Cancel button is clicked, printing is canceled.	Cancel	When turning off and on the power, the dialog disappears and printing starts again. When clicking Cancel button, the dialog disappears and the print job is deleted.
(4)	Printer power is Off or cable is not connected. Make sure the printer cable correctly connected. Turn the printer power Off and On.	OK	When connecting the printer (Turn on the printer or connect the I/F cable.), the dialog disappears and printing starts again. When clickiing OK button, the dialog disappears.
(5)	The printer does not respond. Turn on the printer Off and On.	OK	When turning off and on the power, the dialog disappears and pritning starts again. When clickiing OK button, the dialog disappears.

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Notes

1) Secure of Hard disk for spool file
   Secure the capacity of Hard disk for spool file enough for the printer operation and the number of printing sheets.
   The printing cannot be correctly carried out when the capacity is running short.
   The drive for spool file is the same drive as the drive of Windows system usually.

2) Print test of the printer with small paper size
   A part of the image is cut by printing the test page at installing. Also, a part of the image is cut when the selected paper size is smaller than the image size. To print the image, make the image size smaller than the paper size.

3) Automatic setting of paper size
   In some applications, the automatic setting of the paper size does not work. In this case, the paper size is 1280*1280.
   Select the paper size suitable to the image size to print.
   Because the print preview is displayed as the 1280*5760 paper size, it may be different from the actual print.

4) Operation of the printer
   Refer to the operation manual of the printer.
   Do not turn off the power switch during data transfer or print.
   If you turn off the power switch, restarting of a computer may be needed.
   When deletion of a printing data cannot be performed, restarting of a computer is required.

5) Applicability of the image adjustment
   The image adjustment is applied the entire printing range including the background.

6) About "Print directly to the printer"
   With some applications, if "Print directly to the printer" is selected, objects may not be printed correctly.
   In that case, please select "Spool print documents ..." for printing.
   PD93UN0 : the "details" page of PD93UN0's property sheet

7) About "Continuous print"
   When you stop "Continuous print", push the FEED button on the printer.

8) Print job
   Do not delete the print job in the spooler during data transfer. When deleting it, do not start printing until the printer becomes to the initial status.

9) Number of prints
   In some application, the number of prints set by the printer driver does not work. Set the number of the prints from the print dialog box of the application.

10) Connection with more than one printer
    When more than one P93D series is connected to one personal computer, the "Add New Hardware Wizard" will be displayed and installation of printer drivers will be carried out repeatedly for each of connected printers. The same number of printer drivers as that of connected printers are installed.

11) About connection of a computer and a printer
    Do not disconnect the interface cable during data transfer.

12) System requirements for USB interface
    Use the computers equipped with USB interface and pre-installed with Windows2000/XP.
    Computers installed with Windows2000/XP that are USB-guaranteed by the manufacturer.
    P93D series supports the USB 2.0 (Hi-Speed USB) interface.
    As USB 2.0 is completely upwardly compatible with USB 1.1, P93D series can be connected with a personal computer on which USB 2.0 (Hi-Speed USB), the personal computer has to support USB 2.0 (Hi-Speed USB).
    For the compatibility of the personal computer with USB 2.0 (Hi-Speed USB), ask the manufacturer of the personal computer.

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13) Connection of USB cable

When you take out and insert a USB cable after installation of a printer driver, wait 10 seconds or more after extracting a cable.

If the cable is reinserted without leaving an interval, the printer may not operate normally.

14) When you print and it is displayed as "Parameter's value is invalid.", perform the following operations.

a) The printer is set as "Stand-by."

b) Select "Device Manager" from "Hardware" tab of "System Properties."

c) Select "Scan for hardware changes."

Operating directions for customer's purpose

1. When you want to shorten data transmission and print time
   1) In case a small image file is expanded and printed

      When a small image file is expanded and printed, do not operate the enlargement scale of the application side or the option dialog, but select the suitable image enlarging rate (125%, 160% or 200%) of the paper size in the standard dialog. As a result, the data transmission time will be shortened.

      Example)

      When you print the file of the image of 640*480 pixels, if making the setting of the paper size in the standard dialog "200% (640 * 480)" and printing at the printer enlargement 1280*960pixels, the transmission time will be shortened.

2. When you want to adjust the image of the print out.
   1) When you want the density of entire print picture to be thick (dark), decrease the value of "Brightness" of the image adjustment dialog.
   2) When the focus of the print picture is loose (The contrast is weak), increase the value of "Contrast" of the image adjustment dialog.

      The contrast becomes stronger.
   3) When you want to change Gamma characteristics of the printout.

      By moving the graph of the Advanced Setting dialog with mouse, the density of the entire image will be adjusted to the arbitrary Gamma curve.

      The density becomes high (dark) when decrease the output value to the input value.

      The density becomes low (bright) when enlarging the output value to the input value.

   Note) If you make the above setting, the effects are invalid on the display.

Prohibition matter

We prohibit Reverse Engineering, decompiling or reverse assembling of this driver software.

Exemption from responsibility

Occasionally, this software does not operate normally depending on operating environment.

Moreover, Mitsubishi Electric Co. will not assume any responsibility for damage(including, but not limited to, lost profit or damage caused from special circumstances etc.) occurring during the use of this driver.