

HD10K User Gamma correction Software Manual

Ver1.2

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1 . Outline

This software adjusts the [CUSTOM] of the gamma item in User Menu of the HD10K projector.
[NORMAL], [A] and [B] of the gamma item can't be changed.

2 . System environment

Operating System:

This software works on the following operating system of English edition.
WindowsXP Home edition/Professional edition.

Hard Disk:

More than 100MB of Disk space is necessary..

Memory:

More than 64MB of memory is necessary.

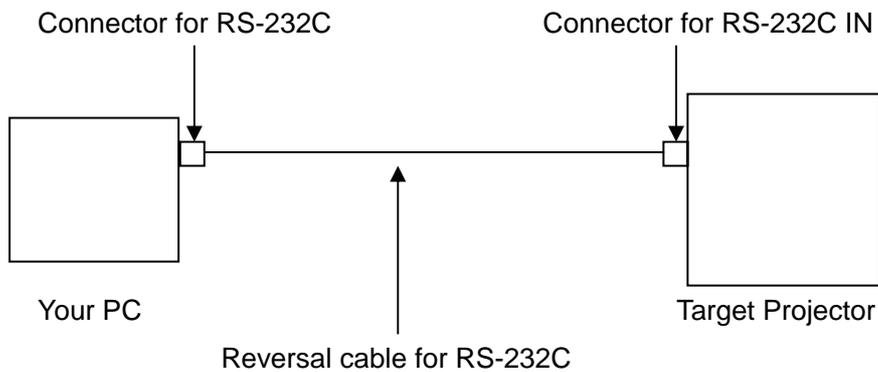
3 . Preparation

Before starting installation, the following things is prepared.

- 1) The target projector(HD10K).
- 2) Reversal cable for RS-232C.

4 . Connection to the projector

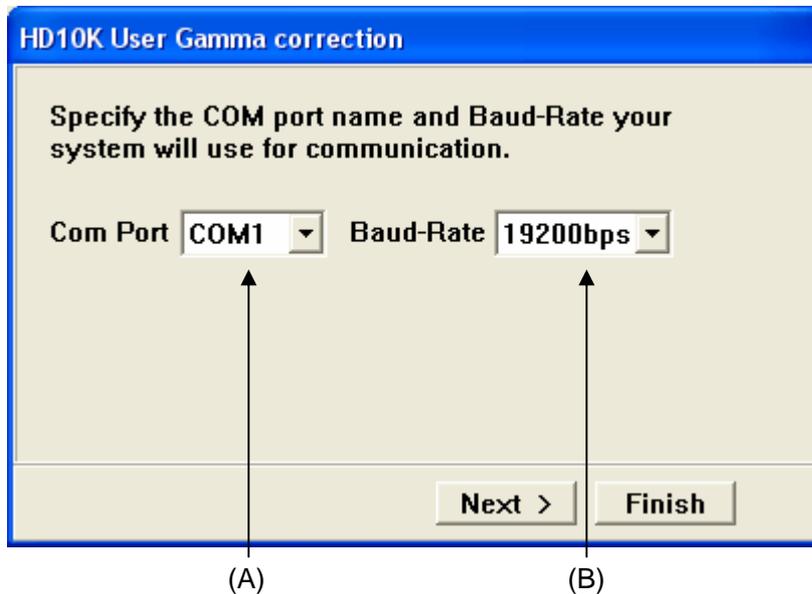
Connect between the personal computer and the projector as follows.



5 . Startup Window

First, power on the projector.

When this software starts, the following windows are displayed.



(A): The port of RS-232C is selected.

COM1-COM20 is optional.

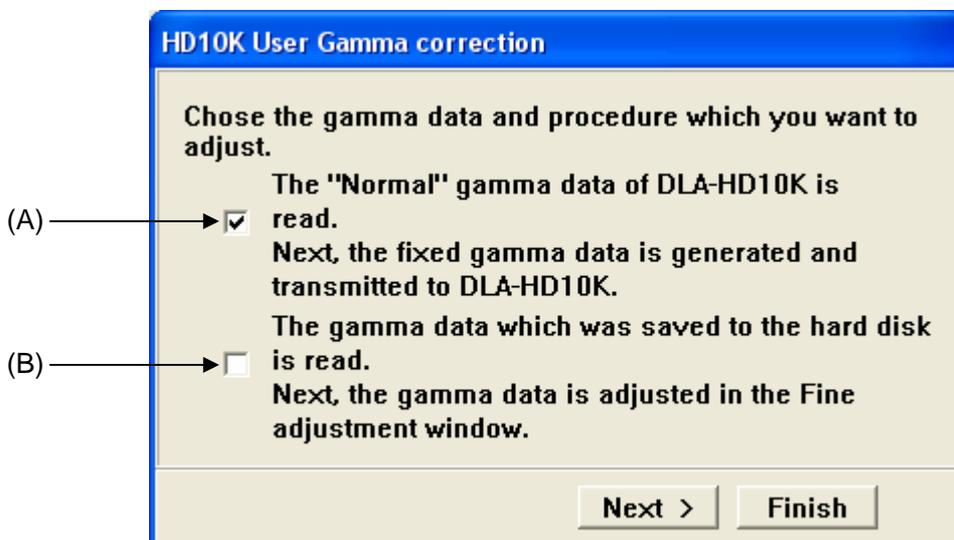
(B): The transmission rate is selected.

9600bps and 19200bps are optional.

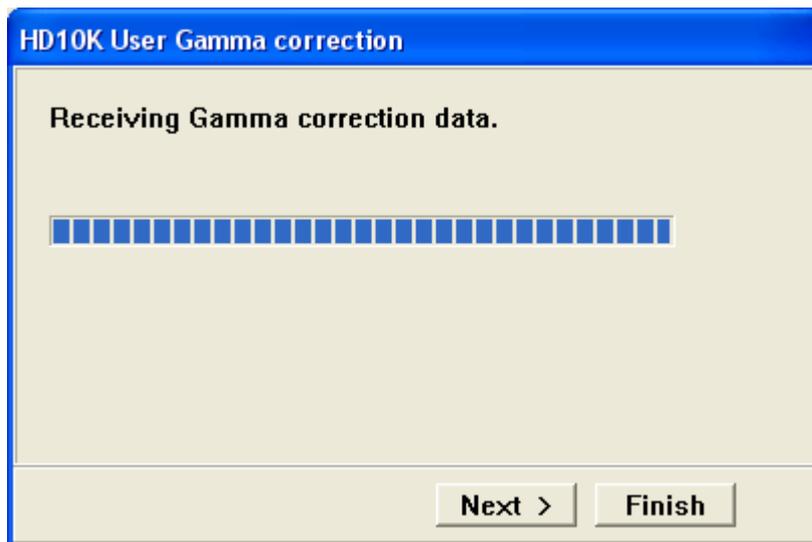
Next > displays "6. Second Window".

Finish > ends the program.

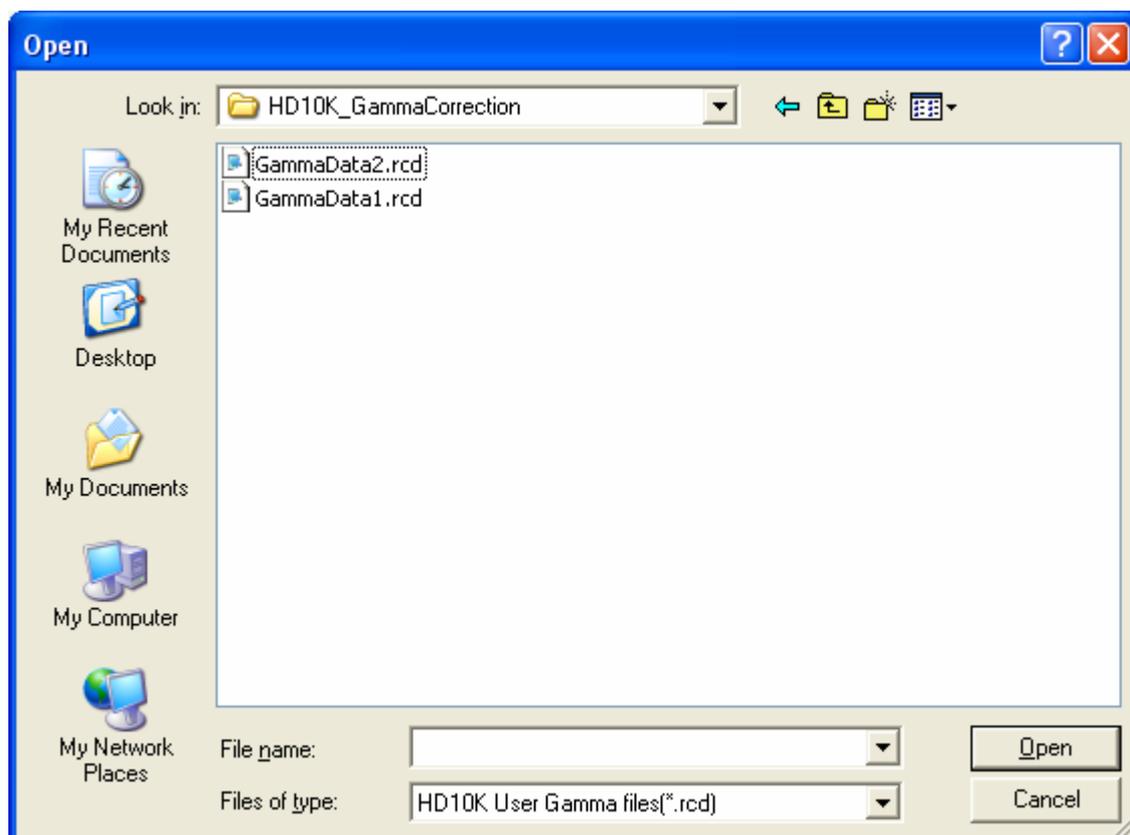
6 . Second Window



When (A) is checked and **Next>** is pushed, this program is connected with the projector. After this program is connected with the projector, Gamma data is received from the projector. Gamma data is displayed and the receive inside is displayed to the following windows. The error message is displayed when failing in the connection or failing in the receiving. Please refer to "**X. Error Message**" for the error message. When the Gamma data receive is completed, "**7.Receive complete Window**" is displayed.



When (B) is checked and **Next>** is pushed, the dialog for reading of the Gamma data which was saved to the hard disk is displayed.

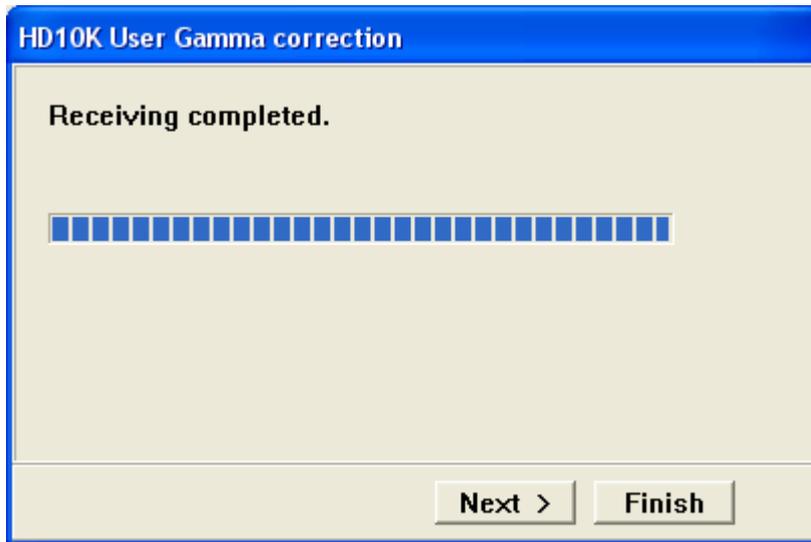


The file name is input or is selected, and it and is clicked. The selected Gamma data file is read. Then program is connected with the projector. After this program is connected with the projector, the Gamma table is changed to [CUSTOM]. The error message is displayed when failing in the connection or failing in changing the Gamma table. Please refer to "**X. Error Message**" for the error message.

"**13. Fine adjustment Window**" is displayed when it succeeds in the change of the Gamma table. The graph of the read data is displayed in (D) of "**Fine adjustment Window**".

ends the program.

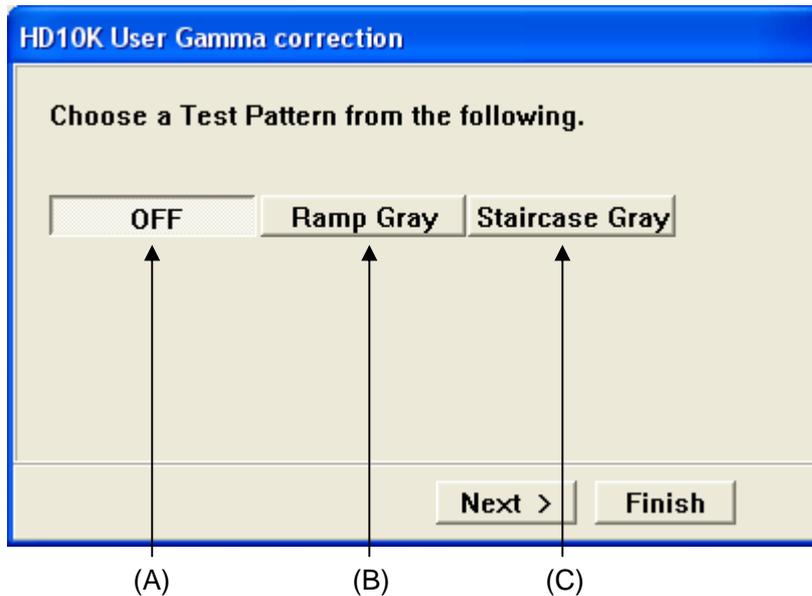
7 . Receive complete Window



Next> displays "**8.Test Pattern Select Window**".

Finish> ends the program.

8 . Test Pattern Select Window



(A): The test pattern is turned off. The input video is displayed.

(B): Test pattern (Ramp Gray) is displayed.

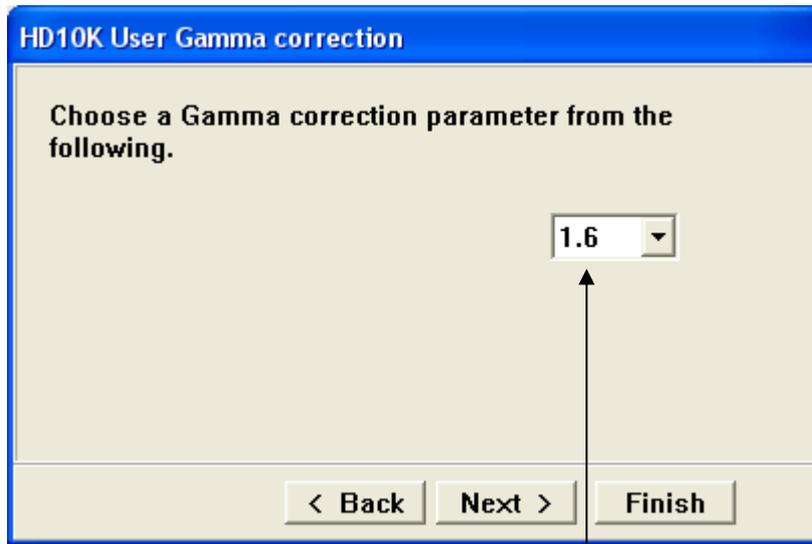
(C): Test pattern (Staircase Gray) is displayed.

The test pattern displayed on the screen of the projector is selected by clicking the button of (A), (B) or (C) of the dialog. The error message is displayed when failing in the change of the test pattern. Please refer to "**X. Error Message**" for the error message.

Next> displays "**9.Gamma ratio Select Window**"

Finish> ends the program after turning off the test pattern.

9 . Gamma ratio Select Window



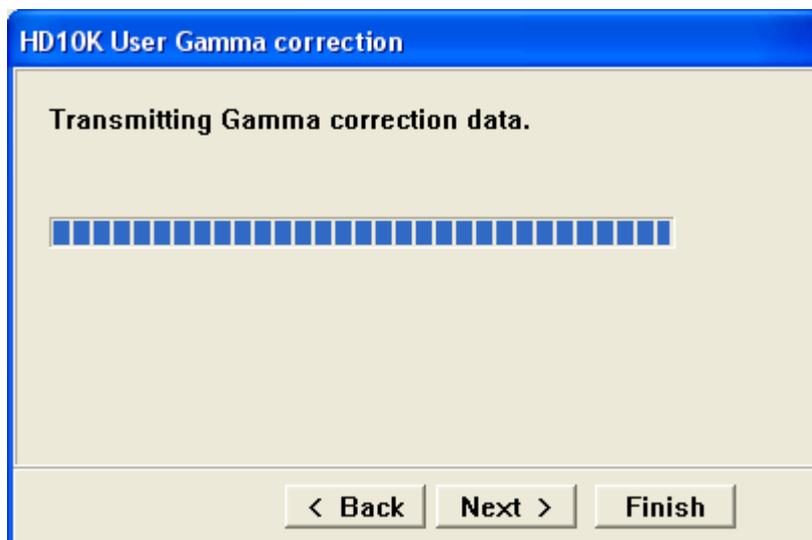
(A)

(A): The gamma correction factor is selected. The range of 1.6-2.8 can be selected by 0.1 units. Gamma data of the selected correction factor is made from Gamma data of the 2.2th power by the calculation.

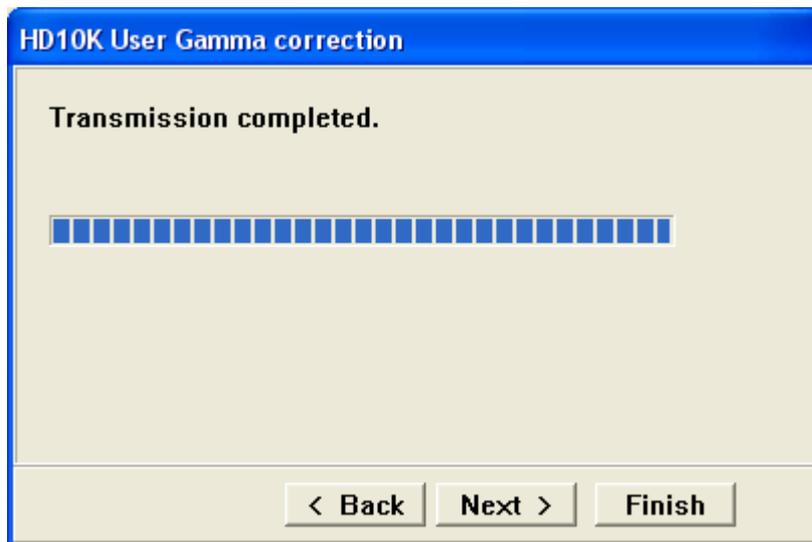
Back> returns to "8. Test Pattern Select Window".

Next> is a change of the gamma to [CUSTOM], and transmits Gamma data of the selected correction factor to the projector. Following Windows is displayed while transmitting. The error message is displayed when failing in the change of the gamma or failing in the transmission of Gamma data. Please refer to "X.Error Message" for the error message. When the transmission ends, "10. Transmit complete Window" is displayed.

Finish> ends the program after turning off the test pattern.



10 . Transmit complete Window

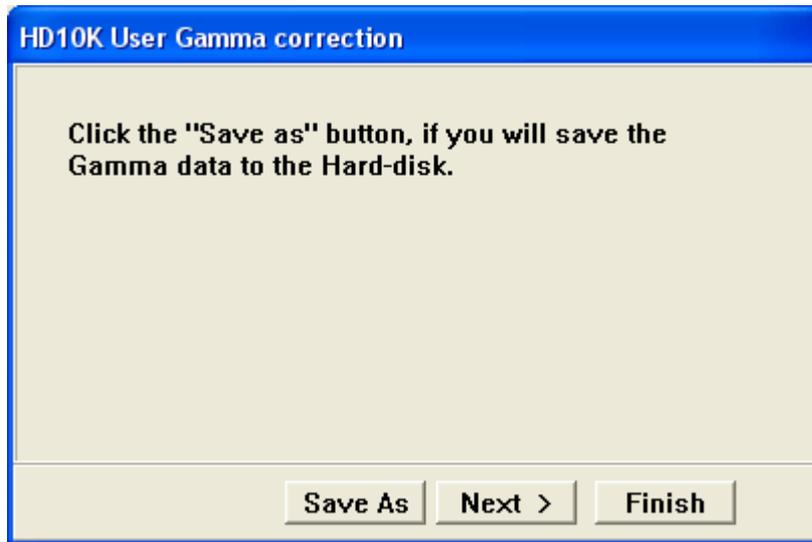


Back> returns to "9.Gamma ratio Select Window".

Next> displays "11.Gamma data Save Window".

Finish> ends the program after turning off the test pattern.

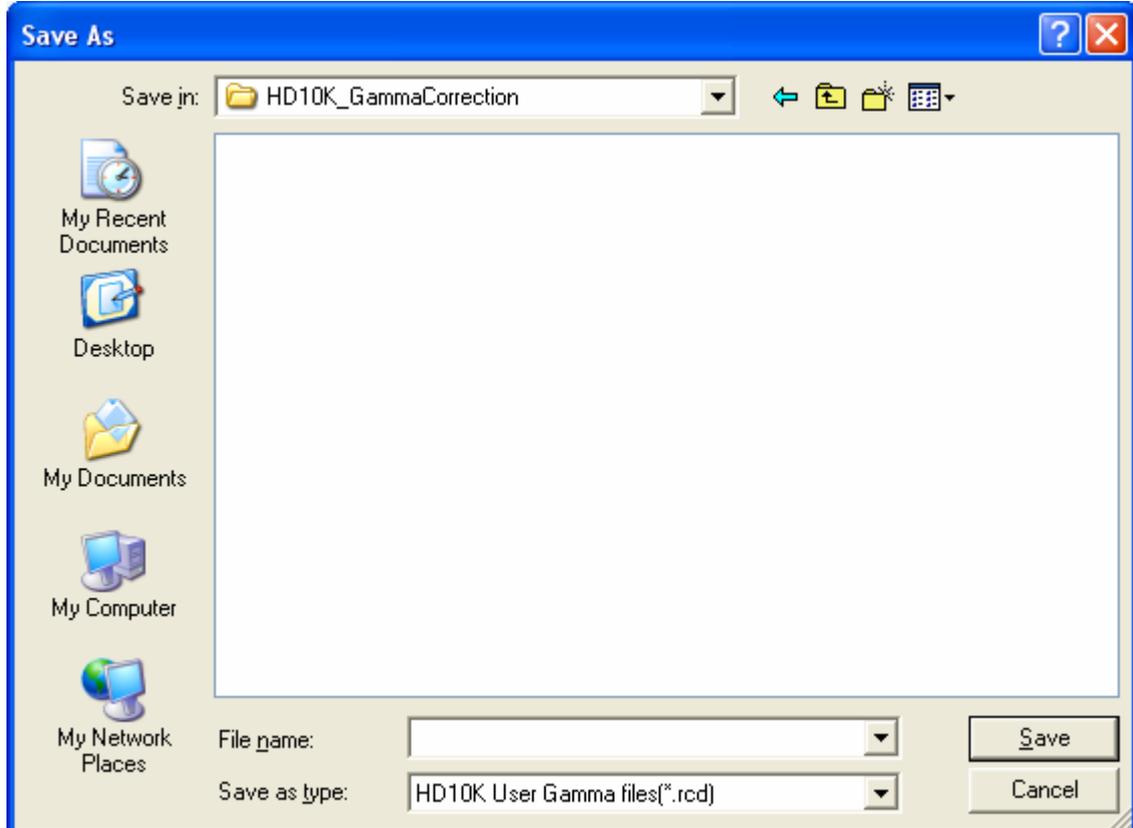
11 . Gamma data Save Window



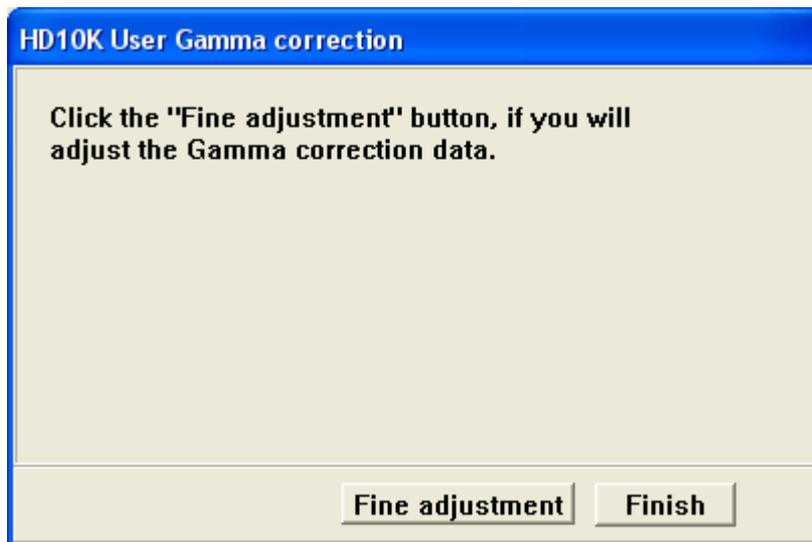
Next> displays "12.Wizard Finish Window".

Finish> ends the program after turning off the test pattern.

Save As> the dialog for the following saving is displayed. Gamma data transmitted to the projector can be saved.



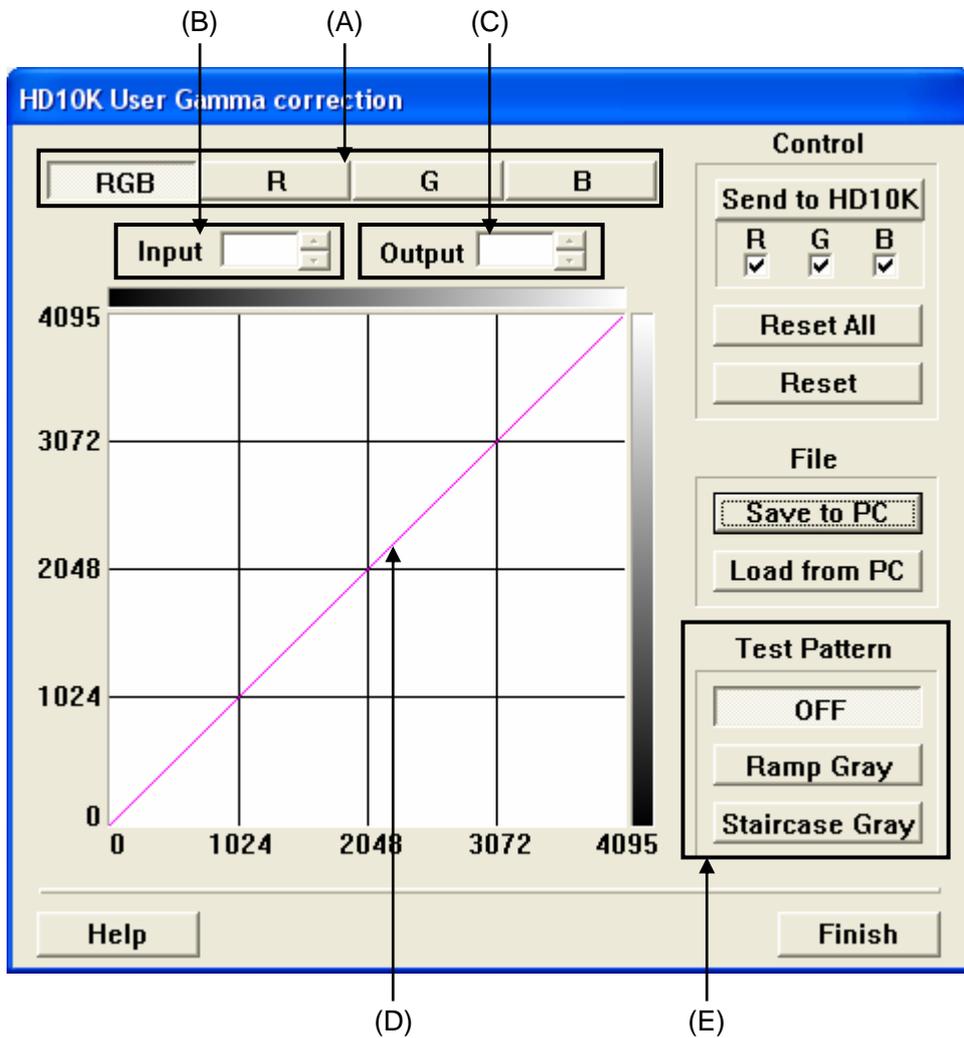
12 . Wizard Finish Window



Finish ends the program after turning off the test pattern.

Fine adjustment displays "**13.Fine adjustment Window**". Gamma data can be fine-tuned.

13 . Fine adjustment Window



(A): The adjusted color is selected.

RGB :Three colors (Red, Green, and Blue) are adjusted in the same ratio.

R : Red is adjusted.

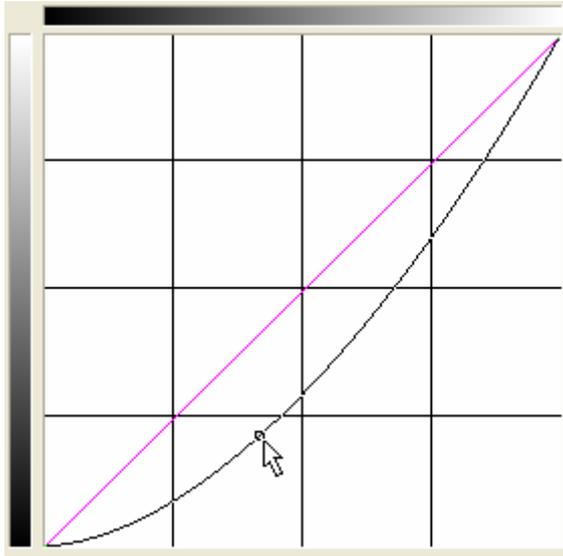
G : Green is adjusted.

B : Blue is adjusted.

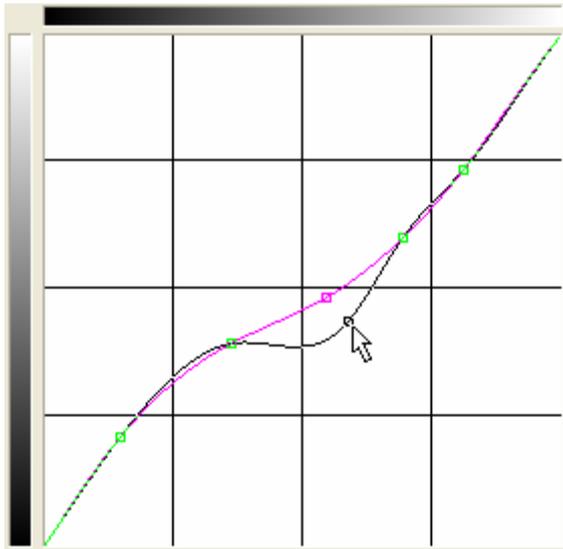
(B): The value of Input of the dragged point (value of the horizontal axis) is set directly.

(C): The value of Output of the dragged point (value of the vertical axis) is set directly.

(D): The curve on the screen is dragged with the mouse and adjusted.



The gamma correction up to five points can be adjusted.



The control point is clicked while pushing the Ctrl key to delete the control point.
When the control point is one, the control point cannot be deleted.

(E): OFF Ramp Gray Staircase Gray the test pattern used for the adjustment is selected. The error message is displayed when failing in the change of the test pattern. Please refer to "**X. Error Message**" for the error message.

Send to HD10K Gamma data is transmitted to the projector.

The gamma correction coefficient according to color is calculated as follows.

RGB_Ratio: Red, Green, and Blue common correction ratio
R_Ratio: Correction ratio of Red
G_Ratio: Correction ratio of Green
B_Ratio: Correction ratio of Blue

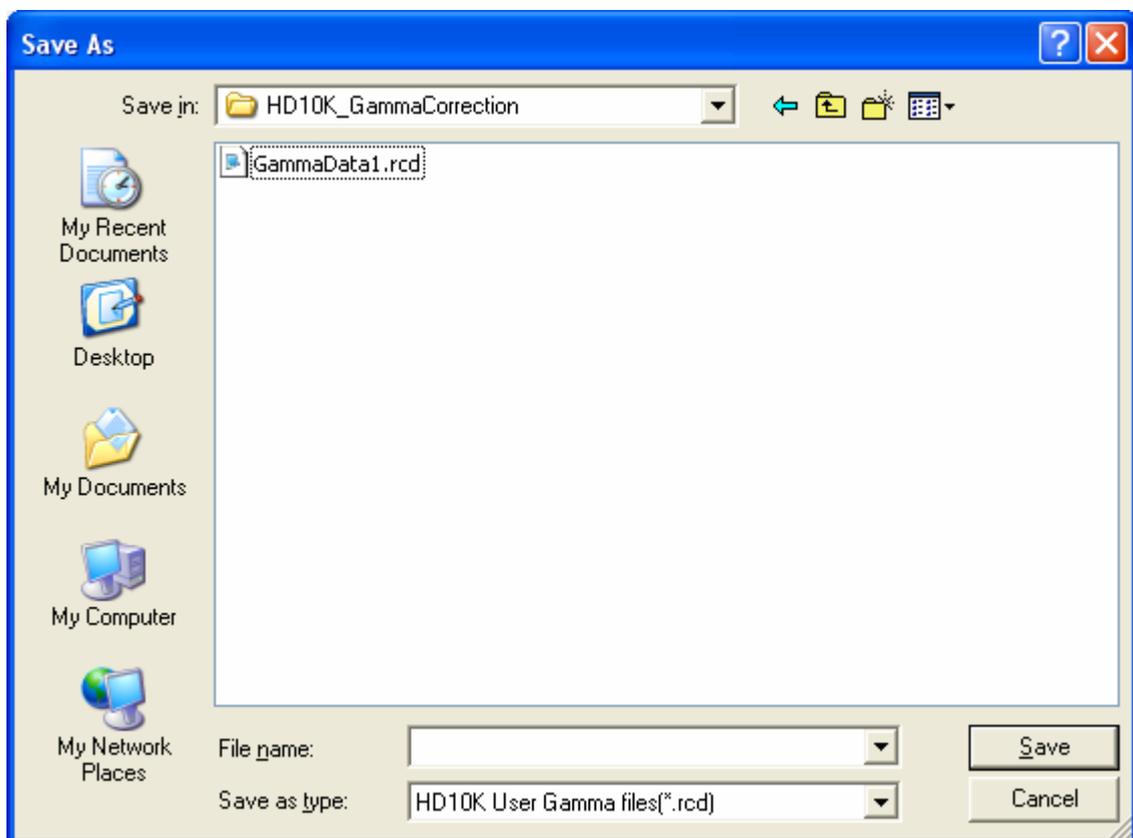
$R_coefficient = RGB_Ratio \times R_Ratio$
 $G_coefficient = RGB_Ratio \times G_Ratio$
 $B_coefficient = RGB_Ratio \times B_Ratio$

Transmitted Gamma data is calculated by R/G/B_coefficient and the characteristic data of a D-ILA projector.

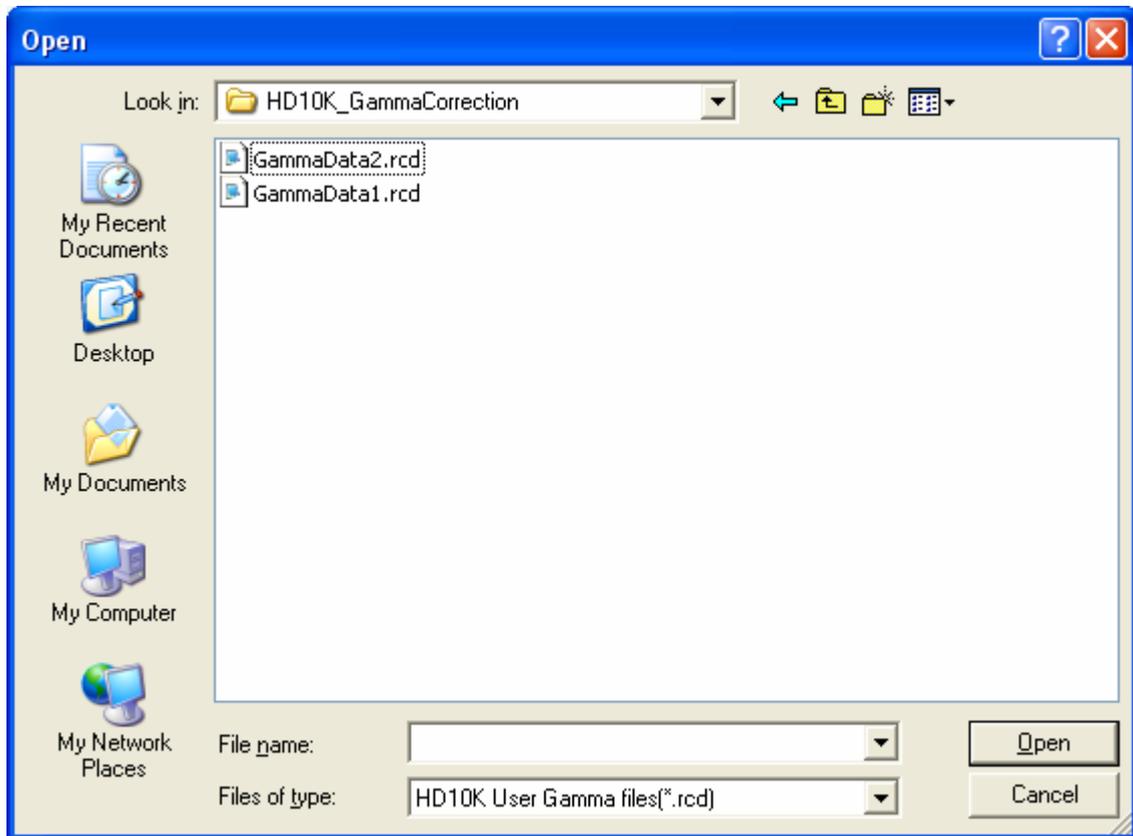
Reset All The gamma correction curve of RGB, R, G, B are returned to the straight line.

Reset The gamma correction curve that has been selected is returned to the straight line.

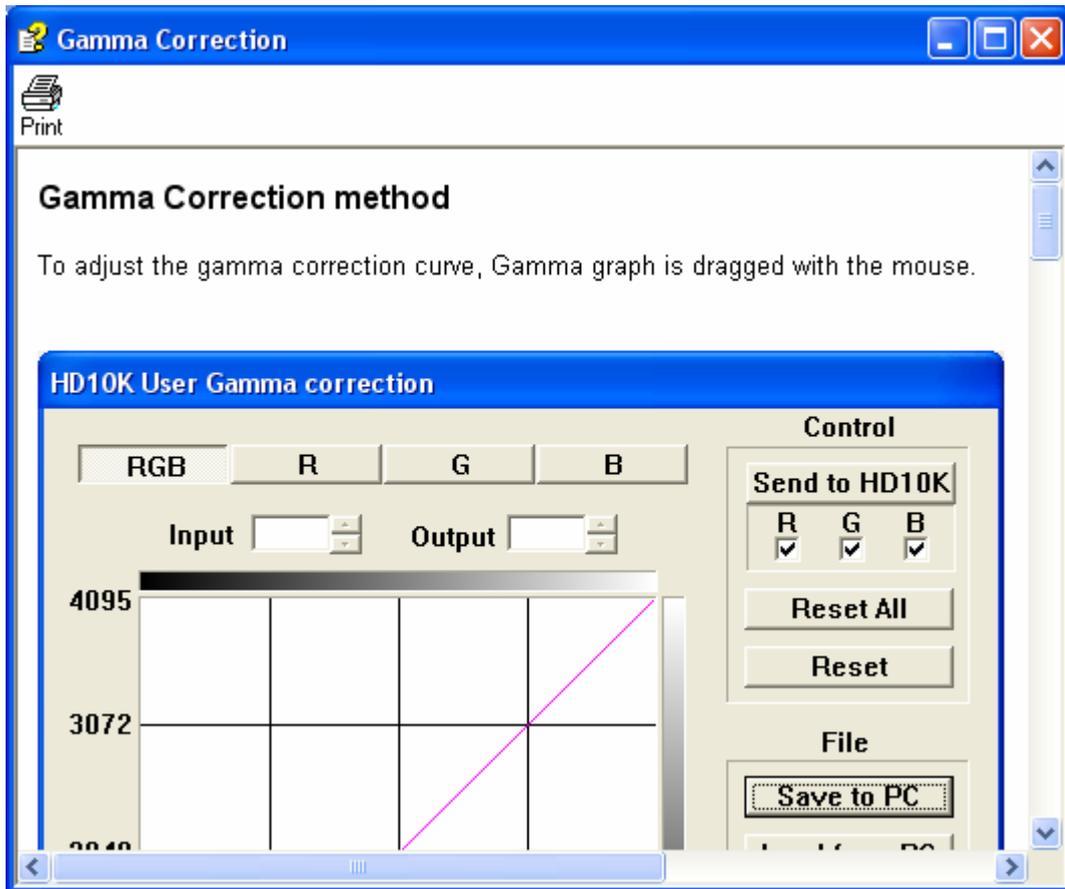
Save to PC The dialog for the following file saving is displayed. When the file name is input or is selected and **Save** is clicked, Gamma data made just before the data of the gamma graph and fine adjustment gamma data is saved in the file.



Load to PC The dialog for the following file loading is displayed. The file name is input or is selected, and it **Open** and is clicked. Gamma data made just before the data of the gamma graph where **Save to PC** that inputs or selects the file name and clicks is saved and the fine adjustment gamma data is read from the file. The graph of the read data is displayed in (D).



Help The following help menus are displayed.



Finish The gamma adjustment is ended. If the test pattern is displayed, the test pattern display is turned off.

X . Error Message

Message	Comment
This software is already activated!!	It started doubly starting this software.
Can not open COMX. (X: 1,2,....20)	The selected communication port was not able to be opened.
Connection failed.	It failed in the connection with the projector. Check that RS-232C communication speed is correct and check the cable is correct and is connected.
Can not receive Model Status.	It failed in the acquisition of the Model Name of the projector.
Model Status of this projector is not HD10K.	Model name of the connected projector is not HD10K. This software is HD10K exclusive use.
Can not receive Projector Status.	It failed in the acquisition of the status of the projector (power status).
Projector Status is not Normal mode.	The power status of the projector is not a power on mode. When the power status of the projector is only a power on mode, this software can be operated.
Can not receive Gamma correction data.	It failed in gamma data reception.
Can not change the type of Gamma to CUSTOM.	Didn't change the gamma to CUSTOM.
Can not set the test pattern.	It failed in the change the test pattern.
Can not transmit Gamma correction data.	It failed in the transmission of Gamma data.
Invalid correction data.	The data of the gamma graph and fine adjustment gamma data read from the file are a malfunction.
File not found.	The specified file was not found.
Cannot create file.	It failed in making the specified file.