TOTOKU

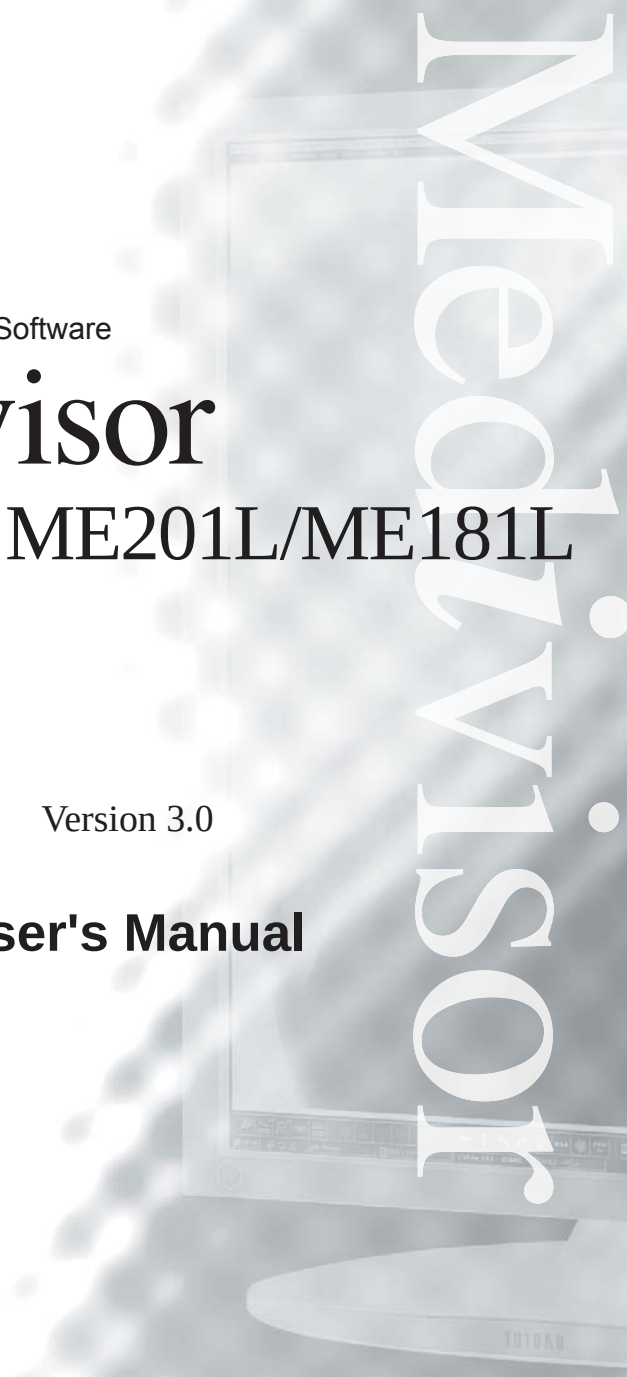
Monochrome Calibration Software

Medivisor

for ME201L/ME181L

Version 3.0

User's Manual



Contents

TOTOKU

http://www.totoku.com/display/

— Make sure to read this Software License Agreement before use. —

Software License Agreement

Please read this Software License Agreement ("Agreement") thoroughly before using or installing Medivisor for ME201L/ME181L. By installing this software, you are agreeing to be bound by the terms of this Agreement. If you do not agree to this Agreement, return the entire package with all of its contents along with the purchase receipt to the place of purchase for a full refund.

Article 1 – Definition

1. Software identified above (hereinafter called "Software"), includes documents such as manual and specifications, etc, media, any software and such products delivered by TOTOKU from time to time under this Agreement.
2. Individual Contract means the agreement to be concluded in the form of purchase order, which shall set forth terms and conditions including, but not limited to, (a) identification of Products including model numbers (b) quantity (c) requested shipping date from Japanese port (d) price (e) payment (f) shipping instructions and shipping address.

Article 2 – Order of Precedence

The terms and conditions of this Agreement shall govern Individual Agreement. In case that terms and conditions of Individual Agreement is inconsistent or conflict with the provisions of this Agreement, the provisions of this Agreement shall prevail.

Article 3. – Grant of License

1. TOTOKU hereby grants to User and User accepts non-exclusive and non-transferable license to use, install and copy Software under this Agreement.
2. User shall use Software solely on its computer of the same number as the number of licenses. User shall not sublicense, rent or lease Software or use Software for third-party training, commercial time-sharing or service bureau use.
3. The aforesaid license granted is solely for User's operations on the designated system.

Article 4 – Limitations on License

1. User shall not cause or permit to any third party the reverse engineering, discovering the source code, disassembly, modification, update, customization or recompilation of Software.
2. User shall not use or cause to be used, license granted herein and for any purpose whatsoever other than for the purpose specified in this Agreement.
3. TOTOKU shall retain all title, copyright and other proprietary rights in Software. User shall not acquire any right, express or implied, in Software, other than those specified in this Agreement.

Article 5 – Management of Software

1. Subject to the terms and conditions hereunder, User may copy Software for archival and backup purposes and agree to label all such copies with the copyright notice designated by TOTOKU. User shall manage the copy of Software with the duty of care and diligence of a good manager and, upon TOTOKU's request, shall make a written report to TOTOKU in respect of Software copied.

2. At TOTOKU's written request, User shall furnish TOTOKU with a signed certification verifying that Software are being used pursuant to the provisions of this Agreement. TOTOKU reserves the right at any time to inspect Software at the business premises of User during the term of this Agreement to insure and maintain the quality and efficient management of Software. In case the aforesaid inspection reveals that User has underpaid fees to TOTOKU, User shall be invoiced for such underpaid fees with penalty.
3. User may change its computer where Software is to be installed in subject to prior written consent of TOTOKU.

Article 6 – After Sales Service

After sales service such as reply to inquiry, technical support, training and consulting service for Software shall be provided by TOTOKU or TOTOKU's distributor under the after sales agreement between User and TOTOKU or TOTOKU's distributor.

Article 7 – Warranty

1. Program Warranty
   (1) TOTOKU warrants that Software will perform the functions described in its manual and/or specifications during the term of this Agreement unless (a) Software is modified, disassembled or customized by the parties other than TOTOKU (b) Software is operated in combinations other than as specified in its manual and/or specifications. In addition, TOTOKU shall make its best efforts to make Software free from program error. Provided, however, that TOTOKU shall not warrant that Software is error free and uninterrupted.
   (2) In the case of breach of the foregoing warranty, TOTOKU shall make its best efforts to correct the defect or program errors by providing updated or amended version of Software. In case TOTOKU cannot correct the defect or program errors, TOTOKU may, at its option, terminate this Agreement and any payment previously made to User by TOTOKU will be refunded, less the reasonable value received by User of the use of Software to the date of the aforesaid termination.
2. Media Warranty
   (1) TOTOKU warrants that CD-ROM or other media for Software is free from defects in materials and workmanship under normal use for fourteen (14) days from the date of delivery.
   (2) In the case of breach of the foregoing warranty, TOTOKU shall replace or repair the defective media accordingly. Notwithstanding the aforesaid warranty, in case that any software made by the third party is included in Software, the provisions of the user software license agreement between User and the third party shall be applied in respect of such software.
3. TOTOKU DOES NOT MAKE AND HEREBY DISCLAIMS ANY WARRANTY IN RESPECT OF SOFTWARE OTHER THAN AS PROVIDED ABOVE IN THIS ARTICLE, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

Article 8 – Intellectual Property Right

1. User acknowledge that all patents, designs, copyrights, know how and other intellectual property rights used or embodied in connection with Software are the exclusive properties of TOTOKU, and shall not dispute them for any reason whatsoever. User shall not apply for or register any intellectual property right in connection with Software.

2. User hereby agree to advise TOTOKU immediately after User becomes aware that any intellectual property right in connection with Software is attacked or infringed upon by any third party. In the case of aforesaid attack or infringement, User shall cooperate with and aid TOTOKU for the defense proceedings at its own cost, and TOTOKU shall retain all rights to control the direction of any action thereof.
3. To the best knowledge of TOTOKU, Software will not infringe upon any intellectual property right of any third party. Notwithstanding the foregoing, in the case of any claim of infringement or alleged infringement of intellectual property rights brought by third parties in relation to Software, User shall advise, cooperate with and aid TOTOKU for the defense proceedings at its own cost, and TOTOKU shall retain all rights to control the direction of any action thereof.
4. In case that Software is held or believed by TOTOKU or any court of competent jurisdiction to infringe any intellectual property right of any third party, TOTOKU shall have the option, at its expense, to (a) modify Software to be non infringing; or (b) obtain a license for User to continue the deal of Software. If it is not commercially reasonable to perform either of the above options, then TOTOKU may terminate the license for the infringing Software and refund the license fees paid for Software to User, less the reasonable value received by User to the date of the aforesaid termination.

Article 9 – Confidential Information

1. User shall not disclose to third parties any information, which is confidential and proprietary in nature of TOTOKU in respect of Software. Such confidential and proprietary information (hereinafter called as “Confidential Information”) includes, but not limited to trade secrets, know-how, inventions, patents, techniques, processes, programs, schematics, data. User agree that Confidential Information shall be kept confidential and shall not be disclosed to any other party without the written consent of TOTOKU.
2. User shall exercise the sole and proper control and supervision over any of their employees and hereby assumes full liability and responsibility of all obligations in connection with any party’s employees and any activity of such employees in connection with Confidential Information.

Article 10 – Limitation of Liability

1. To the maximum extent permitted by applicable law, in no event shall TOTOKU or its distributor be liable for any special, incidental, indirect or consequential damages whatsoever including, without limitation, damages for loss of business profits, business interruption, loss of business information or any other pecuniary loss arising out of the use of or inability to use, Software or failure to provide after sales services, even if TOTOKU has been advised the possibility of such damages. In any case, TOTOKU’s entire liability under any provision of this Agreement or Individual Contract shall be limited to the amount paid by User for the purchase of Software.
2. Software is not fault-tolerant and is not designed, intended, or licensed for use in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, and life support or weapons systems, in which the failure of Software could lead directly to death, personal injury, or severe physical or environmental damage (hereinafter called as "High Risk Activities"). Without limiting the generality of the foregoing, TOTOKU specifically disclaim any express or implied warranty of fitness for High Risk Activities.

Article 11 – Export Regulations
User may take Software outside of its own country subject to the prior written consent of TOTOKU. In the case of foregoing, User shall, at its own cost and responsibility, comply with all relevant export laws and regulations of its own country (hereinafter called as "Export Laws") to assure that neither Software nor any related program thereof are (1) exported, directly or indirectly, in violation of Export Laws; or (2) are intended to be used for any purposes prohibited by Export Laws, including, without limitation, nuclear, chemical or biological weapons proliferation.

Article 12 – Taxes
User shall be solely responsible for and shall pay or reimburse TOTOKU for, all taxes, duties, assessments and other governmental charges which are now or hereafter imposed by governmental authority associated with the performance of TOTOKU's obligations under this Agreement.

Article 13 – Duration
1. This Agreement comes into force on the date first written and, unless sooner terminated, shall continue in effect for a period of one (1) year. Provided, however, that in case the parties hereto agreed to the terms and conditions in respect of the renewal or extension of this Agreement in writing prior to the expiration of the term hereof, this Agreement shall be renewed or extended for the term agreed upon.
2. In the event of expiration of this Agreement, the parties hereto shall have no claim against the other party for the loss of good will or future profit.

Article 14 – Termination
TOTOKU may, without prejudice to any other rights or remedies, terminate this Agreement or Individual Contract, if the User fails to perform any provision of this Agreement or Individual Contract.

Article 15 – Effect of termination
If this Agreement is expired or terminated under the terms and conditions herein, the parties hereto shall comply with the followings:
(1) The license granted hereunder shall terminate.
(2) User shall return to TOTOKU Software, together with all copies, in all forms and whether partial or complete, on all types of media and computer memory, and whether or not modified or merged into other material.
(3) User shall delete or remove Software and any such source code from all workstation and/or terminal pursuant to TOTOKU's directions.

Article 16 – Damages
If TOTOKU was damaged or injured due to User's breach or default of any provision hereof or by the termination specified at the subparagraph from (1) to (5) in Article 14, TOTOKU may claim User damages thereof.

Article 17 – Survival
Article 8 (Intellectual Property Right) and 9 (Confidential Information) of this Agreement shall survive the termination or expiration hereof.

Article 18. – Severability
If any provision of this Agreement is held by a court of competent jurisdiction to be illegal or invalid, the remaining provisions hereof shall remain effect.

Article 19 – Force Majeure
Neither parties hereto shall be liable for any delay or failure to perform any of its obligations hereunder, other than the obligation to make any payment which is due, if such delay or failure is due to fire, flood, earthquake, epidemic, unusually severe weather, strike, act of God, or public enemy, public disorder, restriction by civil or military authority in their sovereign or contractual capacities, transportation failure or any other cause beyond the reasonable control of the parties.

Article 20 – Assignment and Delegation
Neither whole of this Agreement nor any part hereof shall be assignable or delegable by any party hereto without other parties' prior written consent, which shall not be unreasonably withheld. In the event of such assignment or delegation, the assigning or delegating party shall remain liable to the other parties and shall not be relieved of any obligation under this Agreement.

Article 21 – Waiver
Failure by any party to require performance by the other parties or to claim a breach of any provision of this Agreement shall in no manner be deemed to be a waiver of such provision or right on any other occasion.

Article 22 – Arbitration
All disputes, controversies or differences that may arise between the parties hereto, out of or in relation to or in connection with this Agreement or the breach hereof which have not been settled by mutual consultation, shall be finally settled by the arbitration. The arbitration shall be held in Tokyo, Japan in accordance with the Commercial Arbitration Rules of The Japan Commercial Arbitration Association. The award to be rendered shall be final and binding upon the parties hereto. Judgment upon such award may be entered in any court having jurisdiction thereof.

Article 23 – Governing Law
This Agreement shall be governed and construed in accordance with the laws of Japan.

Article 24 – Entire Agreement
This Agreement constitutes the entire and only agreement between the parties hereto and supersedes all previous negotiations, agreements and communications with respect hereto, and shall not be released, discharged, changed or modified in any manner, except by instruments signed by duly authorized officers or representatives of each of the parties hereto.

1 Introduction

Medivisor for ME201L/ME181L is a calibration software designed to calibrate the TOTOKU ME201L and ME181L Series monochrome displays.

1.1 Package contents

This product package contains the following items. If anything is missing, please contact your dealer.

	Item	Qty.
1	Medivisor CD-ROM	2
2	Calibration Sensor DTP94	1
3	Counterweight	1
4	Adhesive Gelatin Pad	1

1.2 Operating environment

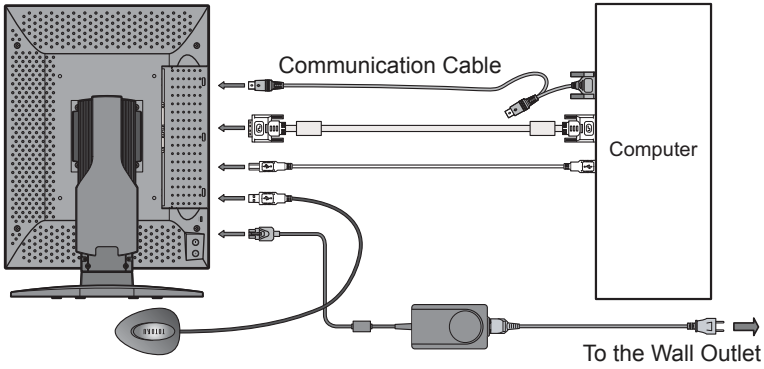
Computer	IBM PC/AT compatible machine
Operating system	Microsoft Windows XP Professional SP1 or later Microsoft Windows 2000 Professional SP4
Language	English Japanese
Supported TOTOKU display	ME201L Series ME181L Series

2 Installation

This chapter explains how to connect cables and install the hardware and software. Make sure to log in as a user with administrative privileges registered with a local computer before starting installation.

2.1 Connecting the cables

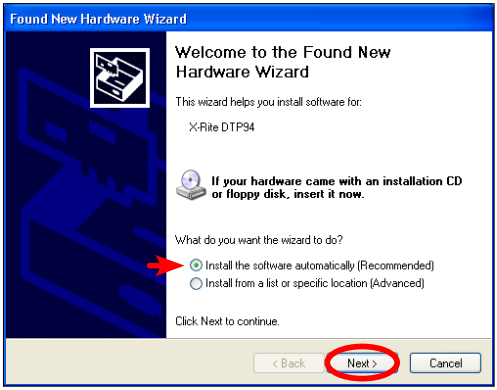
Connect one end of the communication cable supplied with the display to display's **PC-LINK** and the other end to the computer's serial port (RS-232C). For detailed information on other cable connections, refer to the display user manual.



2.2 Installing the calibration sensor driver

1. Connect the supplied calibration sensor DTP94 to the computer's USB port directly or via a USB hub. It will be detected as new hardware and the Found New Hardware Wizard starts up.

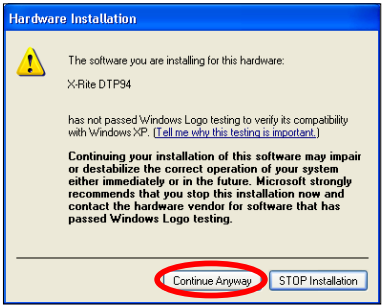
2. Insert the supplied CD-ROM Disk 2 in the CD drive on the computer. Though the software installer starts up automatically, go back to the Found New Hardware Wizard and select "Install the software automatically (Recommended)," and click "Next."



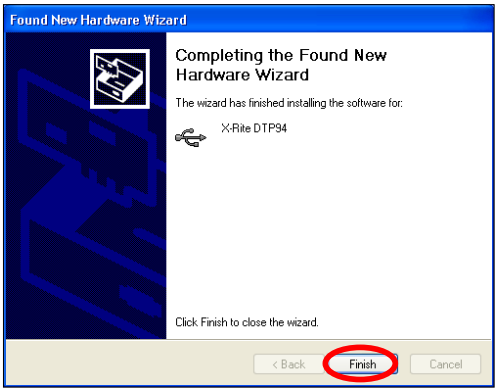
Figures used in this manual are of Windows XP. Screens on your display may appear different according to the operating system.

The Medivisor for ME201L/ME181L Installer can be closed or left open.

3. The following screen may appear. Click "Continue Anyway" to proceed with installation.

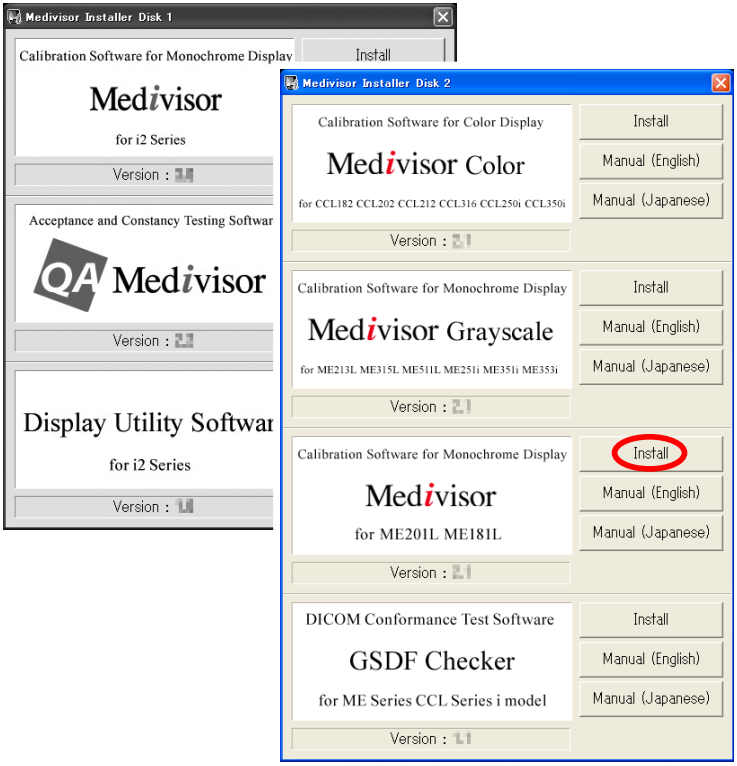


4. Click "Finish" to complete installation.

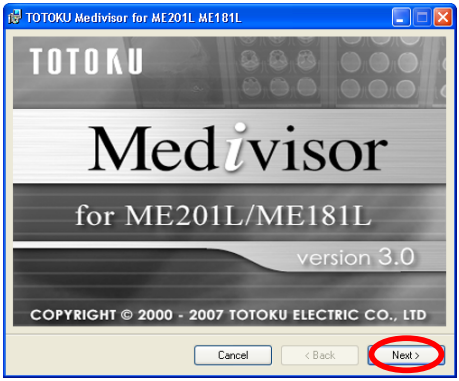


2.3 Installing Medivisor for ME201L/ME181L

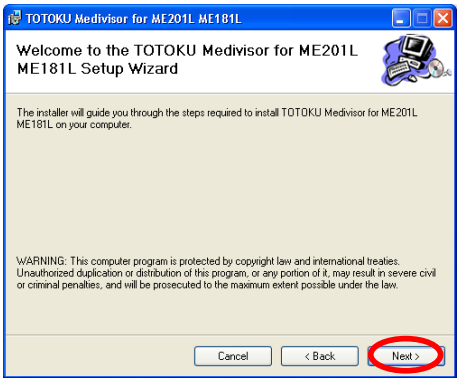
1. If the Medivisor Installer is left open, click "Install." Otherwise, reinsert the CD-ROM or run **launcher.exe** on the CD-ROM to start the installer and click "Install."



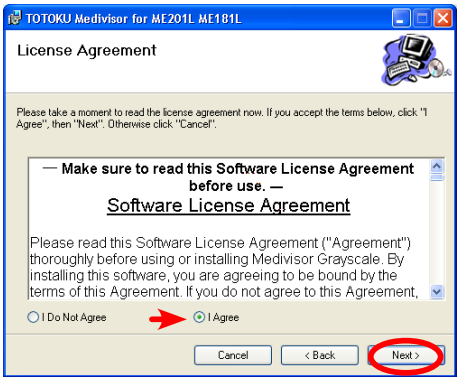
2. When the version information appears, click "Next."



3. When the Setup Wizard appears, click "Next."



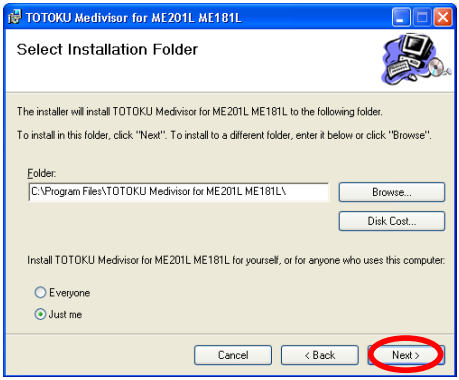
4. The License Agreement screen appears. To accept the agreement and proceed with installation, select "I Agree" and click "Next."



Important

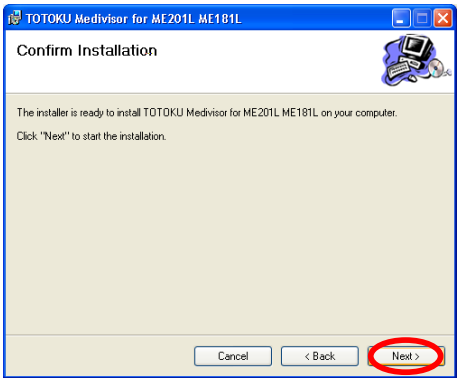
You must accept the agreement to complete installation of Medivisor for ME201L/ME181L.

5. When the Select Installation Folder screen appears, select a destination folder. Further down the screen is the setting as to where the shortcut to this software should be created. To share it with all users of the destination computer, select "Everyone." To use it by yourself, select "Just me" and click "Next."

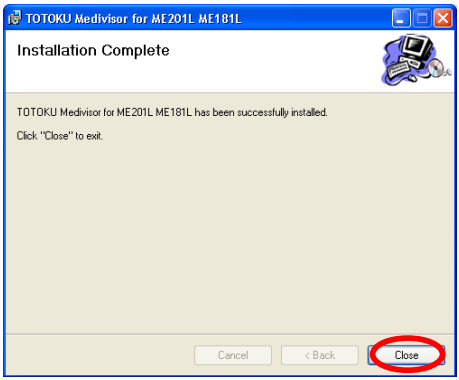


By default, the destination is **C:\ProgramFiles\TOTOKU Medivisor for ME201L ME181L**.

6. When the Confirmation Installation screen appears, click "Next" to start installation.



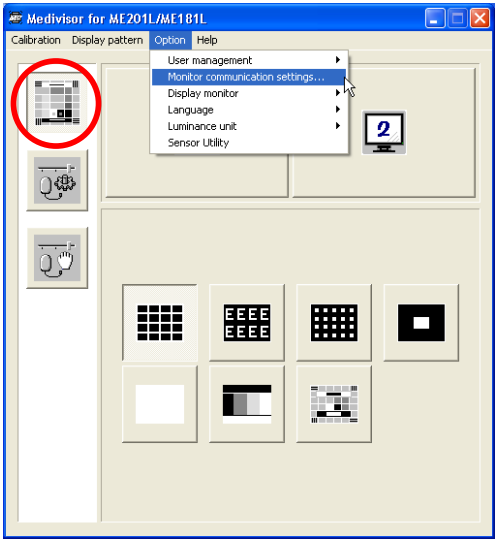
7. When the Installation Complete screen appears, click "Close" to complete installation. Remove the CD-ROM from the CD drive.



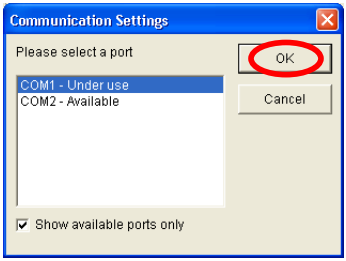
3 Initial Setup

Make sure to follow the instructions in this chapter upon initial use and after the display configuration has changed. Otherwise, calibration may not be carried out properly.

1. Select **TOTOKU Medivisor for ME201L ME181L>Calibration** from the **Start** menu.
2. Select **Option>Monitor communication settings...** on the menu bar.



3. Select a serial port to use and click "OK."



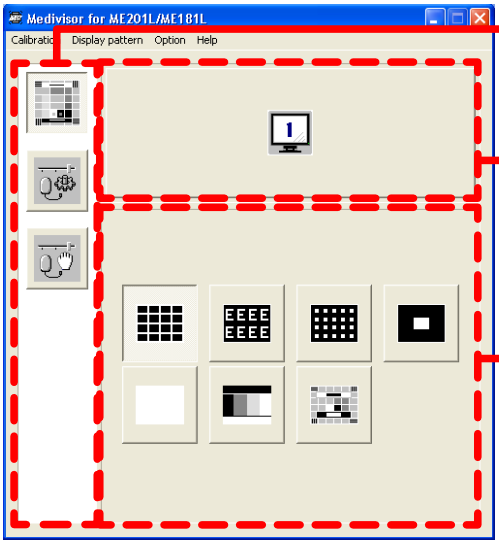
The currently used port will not be shown.

4 Adjustment

Before starting to use this software, please close all other applications. Calibrate displays at least after 60 minutes of warm-up time, excluding the time during which the screen is blacked-out because of the power save function or the screensaver.

Upon initial use in VGA mode and after changing the input timing on ME201L or ME181L, adjust the display using the program called "LCD Check" supplied with the display prior to performing the adjustment explained in the following sections in this chapter. Otherwise, proper calibration may not be carried out. For detailed instructions, see the display user's manual. The adjustment using LCD Check is not necessary when ME201L and ME181L are used in DVI mode.

The screen consists of the following three sections.



Adjustment Menu Area
Contains adjustment buttons. See the table below for more information.

Display Icon Area
Contains the same number of display icons as connected displays. Use the icons to select displays.

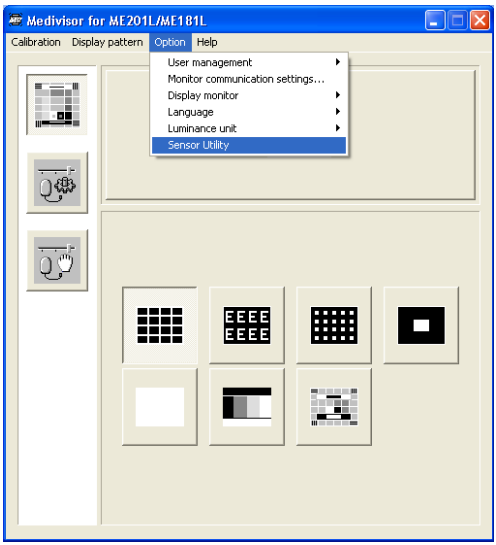
Adjustment Status Area
Shows related information and control buttons for the selected adjustment. In this example, the Test Pattern button is selected and all available patterns are shown.

Button	Name	Explanation
	Test Pattern	Displays test pattern icons. For more information, see 8.2.
	Auto Adjustment	Automatically calibrates the display.
	Manual Adjustment	Manually adjusts luminance.

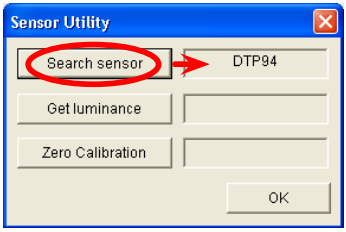
4.1 Zero calibration

Calibrate the luminance sensor (zero calibration) before starting adjustment. Zero calibration is to get the sensor recognize the darkest black. If it is not carried out properly, a margin of error increases.

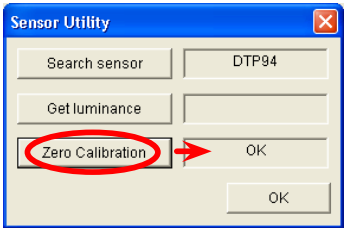
1. Select **Option>Sensor Utility** on the menu bar.

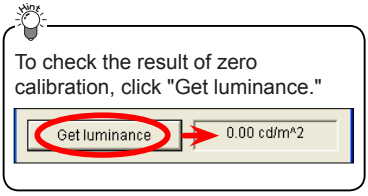


2. When the Sensor Utility appears, click "Search the Sensor." DTP94 will be detected.

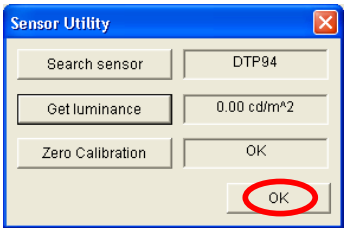


3. Lay the calibration sensor down on an even surface so that no light leaks into the light sensitive area and click "Zero Calibration." When "OK" appears, zero calibration is done.





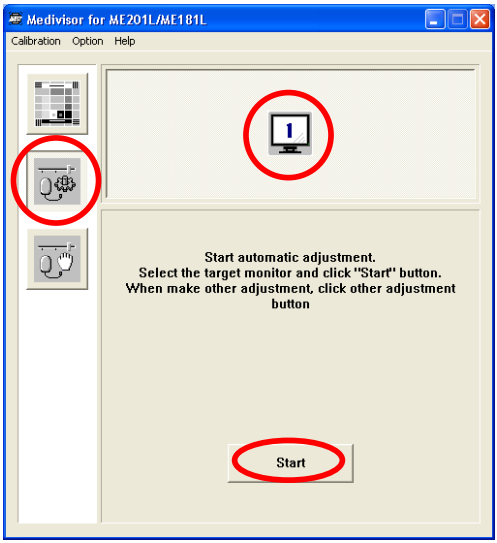
4. Click "OK" to complete zero calibration.



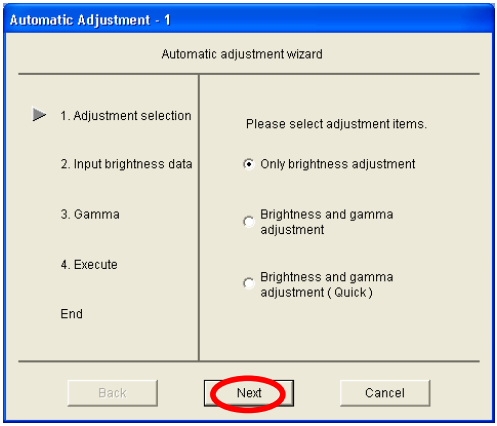
4.2 Auto Adjustment

1. Click the Auto Adjustment button in the adjustment menu area or select **Adjustment> Auto Adjustment** on the menu bar.

2. Select a display to calibrate in the Display Icon Area and click "Start."

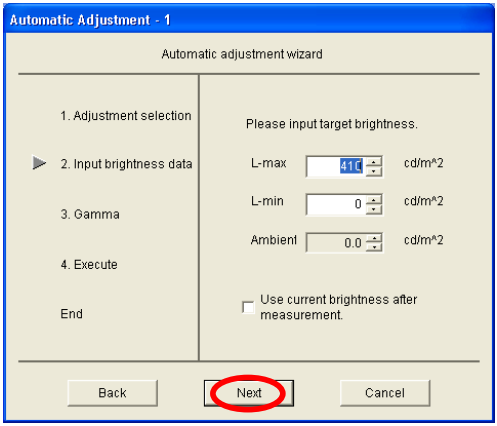


3. The Auto Adjustment Wizard appears. Select "Brightness and gamma adjustment" and click "Next."



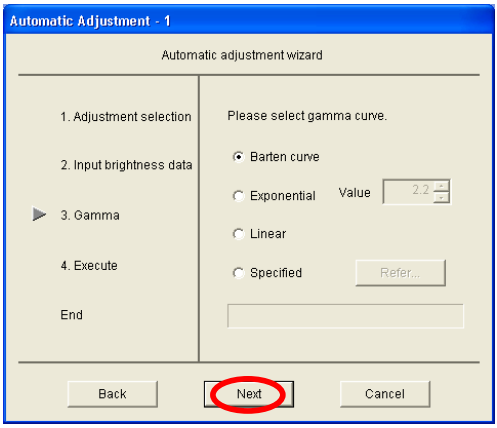
- Though there are 3 adjustment types, perform regular calibration "Brightness and gamma adjustment" for initial adjustment.
- The Quick adjustment proceeds the same way as the regular (above) adjustment, except that the number of luminance measuring points are only half of the above, requiring less time. For more accurate result, select the regular adjustment.
- See 4.3 for instructions on the brightness adjustment.

4. Set maximum and minimum luminance and ambient light by directly entering values or using the spin buttons and click "Next."



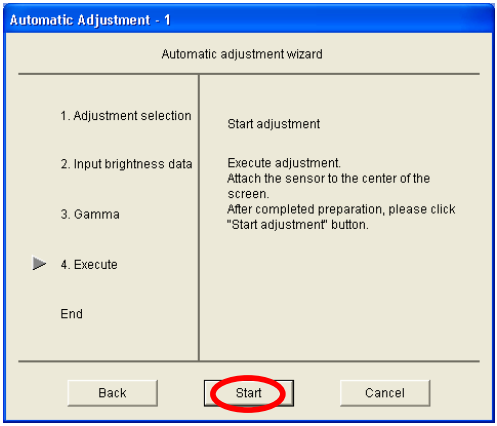
- **L-max:** Maximum luminance. Set this to the default 410 cd/m^2 unless otherwise necessary.
- **L-min:** Minimum luminance. Set this to 0.0 cd/m^2.
- **Ambient:** Enter a value only if it is known, otherwise leave it as is.
- **Use current brightness after measurement.:** When checked, current measured maximum and minimum luminance values are applied. The above settings become invalid and locked.

5. Select a gamma curve. Unless otherwise required, select "Barten" and click "Next."



Type	Explanation
Barten	A commonly used DICOM compliant curve for medical image display devices. The DICOM standard curve was developed to match display output to the perceptual capabilities of the human visual system.
Exponential	An exponential curve of $y = x^n$. Set a value for "n."
Linear	A linear curve of y = nx. Set a value for "n."
Specified	User-defined curve **Hint:** User-defined gamma can be created and modified using **Sample.usg** located in the directory where this software is installed. Open the file in a text editor and change values.

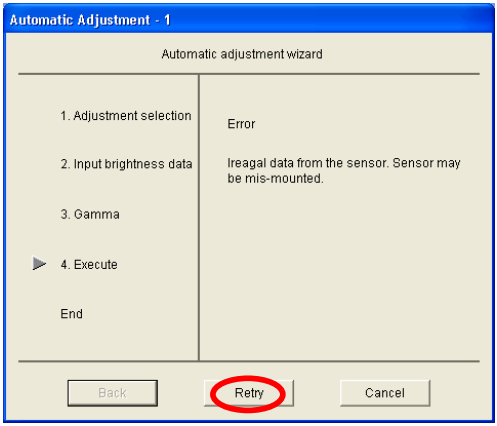
6. Attach the luminance sensor at the center of the screen and click "Start."



Important

- Make sure to disable the power save function on the computer.
- To stop the process, press the ESC key on the keyboard or click "Cancel" on the wizard. Otherwise, do not touch the keyboard or use the mouse. Accurate results may not be obtained otherwise.

When an error occurs, an error message appears on the wizard. Follow the on-screen instructions. To retry the adjustment, click "Retry." To cancel it, click "Cancel."

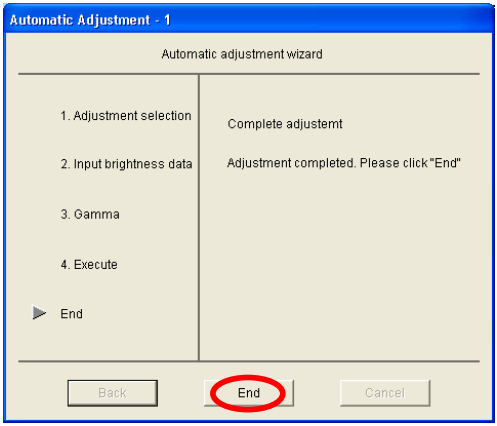


Important

Check the followings as well:

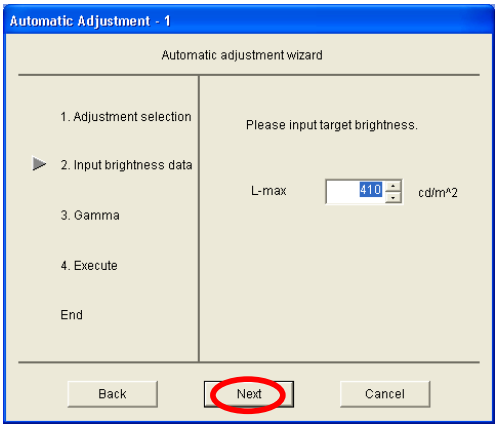
- Is the calibration sensor properly placed in the center of the display? (For adjustments that require the calibration sensor.)
- Are the computer and the display connected with the serial signal cable (RS-232C)?
- Is the serial cable connected to the right port on the display? (Make sure **PC-LINK** and **SENSOR** are not mixed up.)

7. The following screen appears at the end of the adjustment. Click "End" to end the wizard.

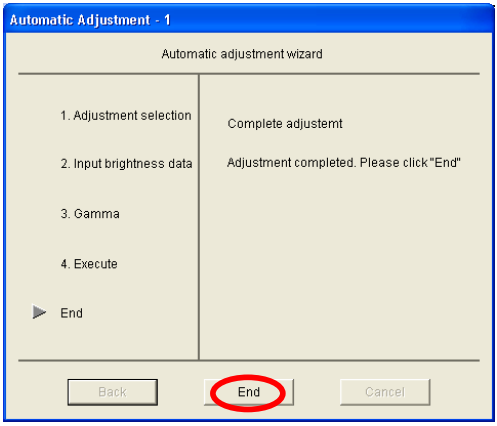


4.3 Brightness adjustment

1. When "only brightness adjustment" is selected at Step 3 in the previous section, the following screen appears. Set the maximum luminance by directly entering the value or using the spin buttons and click "Next."



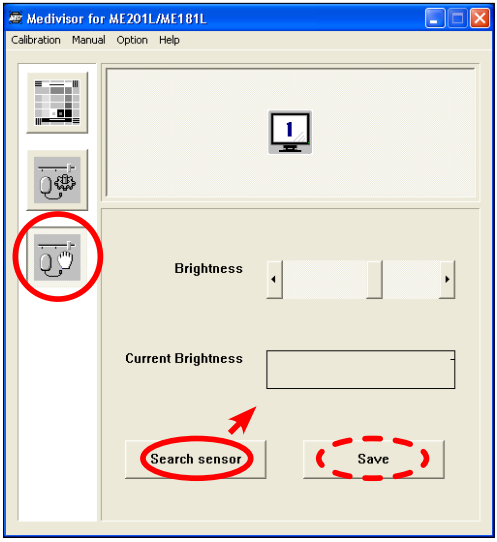
2. The following screen appears at the end of the adjustment. Click "End" to end the wizard.



4.4 Manual adjustment

Luminance can be changed instantly by sliding the slider (Note that gamma changes in concert with luminance.). However, the method explained in 4.2 is recommended for more accurate results.

1. Click the Manual Adjustment button in the adjustment menu area or select **Adjustment>Manual Adjustment** on the menu bar.
2. The Center White pattern automatically appears on the subject display.
3. Attach the calibration sensor to the center of the display.
4. Click "Search Photometer," and the calibration sensor gets detected and the current brightness value is measured automatically.
5. Adjust luminance by dragging the scroll bar handle for **Brightness**.
6. Click "Save current value."



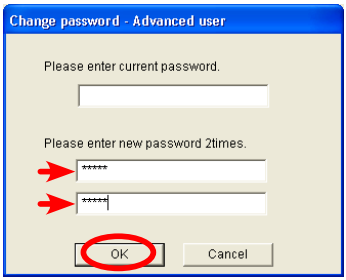
- The Center White pattern mentioned in Step 2 can be customized (see 5.2).
- Luminance can be changed without using the calibration sensor (Steps 3 and 4 can be skipped). However, accurate adjustment cannot be achieved.

5 Other Functions

5.1 Setting up a user password

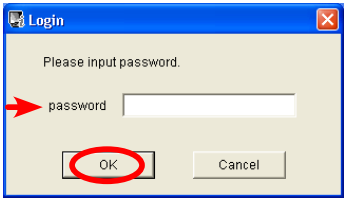
Setting up a user password limits the access to the software.

1. Select **Options>User settings>Change user password** on the menu bar.
2. When setting a password for the first time, enter the password twice in the bottom half of the screen and click "OK."



- There is no limit to the length of a password or expiration date.
- Write down the password in case you forget it. And keep it in a secure place.

Once a user password is set, the login screen appears every time **TOTOKU Medivisor for ME201L ME181L>Calibraton** is selected from the **Start** menu. Enter the password and click "OK" to log in.



5.2 Customizing the Center White pattern

The Center White pattern that appears during manual adjustment, can be customized.

• Windows size:
When resolution scaling of the subject display is 1:1, the size of the white area (measuring area) can be resized into 5%, 10% (default), 15%, 20%, and 25% of the test pattern.

Select **Manual Brightness>Window size** on the menu bar.

• Background brightness:
The brightness level of the dark area can be changed to 0% (pitch black), 20% (default), and 50%.

Select **Manual Brightness>Background** on the menu bar.

• All white:
The Center White pattern can be turned into the All White pattern.

Select **Manual Brightness>All White** on the menu bar.

• To default

Select **Manual Brightness>Return to default value** to reset to default settings.

6 Uninstallation

To uninstall Medivisor for Medivisor for ME201L/ME181L, select **Control Panel>Add/ Remove Programs** from the **Start** menu and remove **TOTOKU Medivisor for Medivisor for ME201L ME181L**. After uninstallation, the TOTOKU Medivisor for Medivisor for ME201L ME181L folder may remain in the directory where it was installed. Delete the folder manually.

7 Troubleshooting

7.1 General

Problem	Cause	Solution
A communication error occurs.	The communication cable is not connected.	Connect the communication cable (see 2.2).
	The communication cable is not correctly connected.	Refer to the display user's manual and 2.1 and check if the connections are correct.
	Another application is running.	A communication error may occur when other application is running. Shut down all the other applications.
Black isn't dark enough: It appears gray.	The display has not been calibrated.	Calibrate the display.
	The L-min value is set high upon calibration.	Check the L-min setting. To make black darker, lower the value.

7.2 Setup

Problem	Cause	Solution
Medivisor won't install.	The Medivisor CD-ROM is not inserted in the CD driver on your computer.	Insert the Medivisor CD-ROM in the CD drive on the computer and run **setup.exe** from the CD. See 2.2 for instructions.
	The operating system doesn't meet the hardware requirements.	See 1.2 for the supported operating environments. Proper operation is not guaranteed if they are not fulfilled.
	You didn't accept the license agreement.	You must accept the License Agreement to install Medivisor.

7.3 Test pattern

Problem	Cause	Solution
The gradation is not smooth.	The display color setting is set to 8-bit color.	Check **Display Properties>Settings** and change the color setting to 32-bit color.
	The gamma setting was not appropriate.	Change the luminance and gamma settings if necessary and recalibrate the display.

7.4 Auto Adjustment

Problem	Cause	Solution
A communication error occurs.	An error is occurring.	If an error message appears in the wizard, follow the instructions.
	The calibration sensor is not connected or it is not connected properly.	The calibration sensor is required for the following adjustments: • Only brightness • Brightness and gamma • Brightness and gamma (Quick) Connect the calibration sensor when making one of the above adjustments.
	The calibration sensor is not attached properly.	Attach the calibration sensor properly (see 8.5).
The title bar flashes during calibration.	It is a feature of this software.	It is a feature to reproduce correct colors and not a failure.

7.5 Manual adjustment

Problem	Cause	Solution
The adjusted luminance won't stay applied.	The adjusted luminance may not be saved.	Make sure to click "Save data" after adjusting luminance.

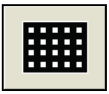
8 Appendix

8.1 Menu items and hierarchy

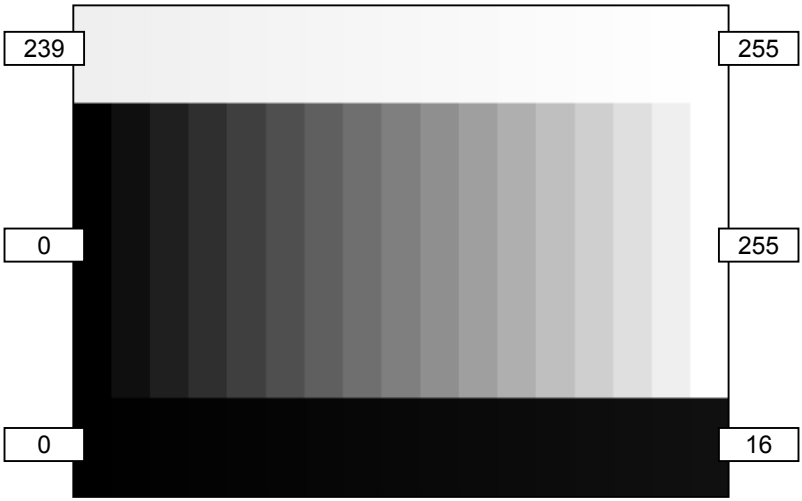
Adjustment	**Test Pattern**	Displays the test patterns.	
	Auto Adjustment	Adjusts the display automatically.	
	Manual Adjustment	Manually adjusts luminance.	
	Exit	Closes the software.	
Test Patterns	**Cross-hatching**	Displays the cross-hatched pattern full-screen.	
	Letter	Displays a screen full of equally spaced letter E's.	
	Dots	Displays a screen full of equally spaced dots.	
	Center White	Displays a white square in the center of the screen against the black background. Useful for calibration.	
	All White	Displays plain white	
	Grayscale	Displays shades of gray from black to white	
	SMPTE	Displays the SMPTE pattern, usually used on medical image display devices	
	Reversed	Reverses the test patterns into negative images	
Manual Brightness	**Window Size**	Resizes the white area of the Center White pattern for manual adjustment. The available sizes: 5%, 10% (default), 15%, 20%, and 25% of the pattern	
	Background	Changes the background brightness level of the Center White pattern to 0% (black), 20% (default), and 50% of maximum luminance	
	All White	Turns the Center White pattern into the All White pattern	
	Return to Default Value	Resets to factory default settings	
	User Setting	**Change user password**	To change the user password for this software.
	Communication Setting for the display	To change the communication setting	
	Show displays	**Show display ID**	Displays the display ID in the upper right corner of the screen
	Language	Switches display languages. • Default • English • Japanese "Default" is English, except when your OS is in Japanese. After switching to another language, restart the software.	
	Brightness Unit	To change the luminance unit between cd/m2 and ft-L	
	Sensor Utility	Zero calibrates the sensor	
Help	**Version Information**	Displays the version information of this software	

8.2 Test patterns

The Test Pattern button provides eight different test patterns. The test patterns can be reversed into the negative images by selecting **Patterns>Reversed** on the menu bar.

Button	Pattern	Explanation
	Crosshatch	Useful to check: • Linearity of vertical and horizontal lines • Misalignment of colors on color displays
	Character	Useful to check the focus.
	Dot	Useful to check the focus.
	Center White	Useful to check brightness.
	All White	Useful to check color and luminance uniformity.
	Grayscale	Useful to check for a smooth transition of gradations from black to white (see 8.3).
	SMPTE	Commonly used on medical image display devices (see 8.4).

8.3 Grayscale pattern



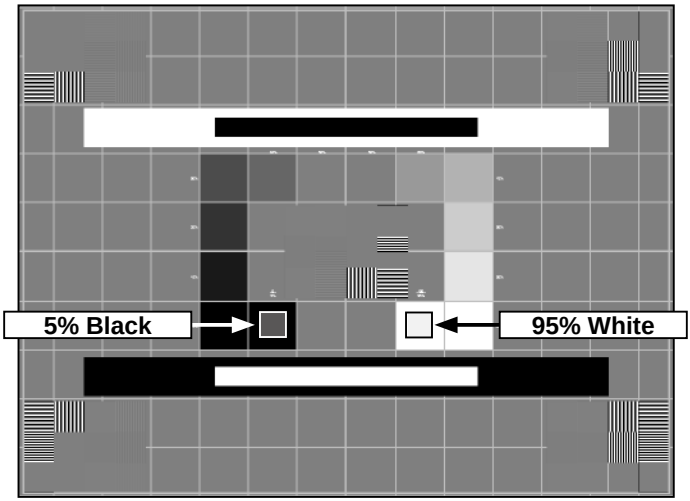
The grayscale pattern consists of 3 horizontal sections containing gray levels from black (0) to white (255). Each section is further divided into 17 cells. The table below shows what grayscale level each cell represents.

Grayscale Pattern

239	240	241	…	254	255
0	16	32	…	240	255
0	1	2	…	15	16

Top : Gray levels from 239 to 255 in increments of 1
Middle : Black (0) to white (255) in increments of 16.
Bottom : Gray levels from 0 to 16 in increments of 1.

8.4 SMPTE pattern



Grayscale:
The middle section of the pattern contains gray levels from 0% to 100% in increments of 10%. You can check the smoothness or continuity of grayscale. Check to see if there is:

- Clear distinction between 100% and 95% whites (The small 95% square within the 100% white square should be visible.), and
- Clear distinction between 0% and 5% blacks (The small square within the 0% black square should be visible.).

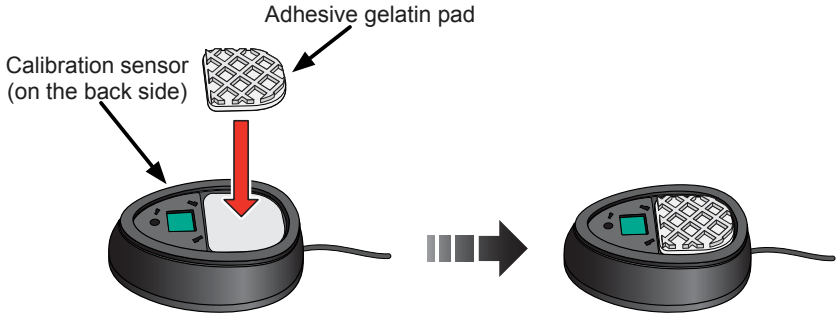
Resolution:
Each line in vertical and horizontal stripes in the squares in the center and four corners should be distinguishable.

Linearity:
Check for distortion and misalignment using the grids across the screen.

Video Characteristics:
Check for streaking in and around the white and the black rectangles.

8.5 Attaching the calibration sensor

1. Peel the paper off the adhesive gelatin pad (see the handling instructions below) and stick the smooth surface on the back of the calibration sensor so that the rough surface will be exposed as shown below. Peel the clear film off the rough surface.

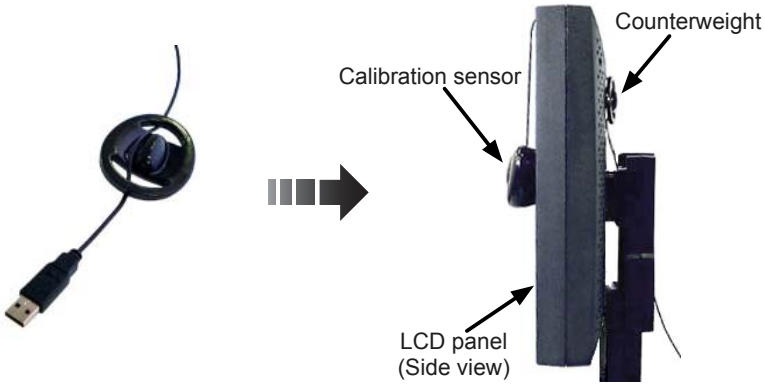


About the adhesive gelatin pad

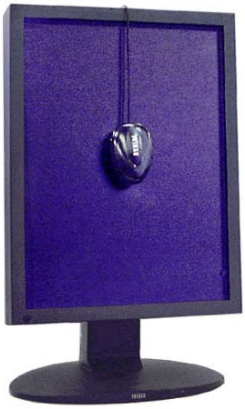
Please note the followings in handling the adhesive gelatin pad:

- The gelatin pad is double-sided, self-adhesive, and reusable.
- When adhesion is lost, wash it with water or wipe it off with diluted mild detergent.
- Do not rip it off. Peel off slowly. It is very stretchy.
- Keep it out of direct sunlight as it will degrade.
- Wipe the calibration sensor to remove dust and grease before sticking the gelatin pad to it.
- The gelatin pad is not food. Do not lick or eat it. Do not stick it on the human body.

2. Run the calibration sensor's USB plug through the counterweight: The counterweight is oval-shaped with one end being narrower than the other. Put the USB plug through the smaller opening first, and then run it through the bigger opening so that the wider end comes on the bottom when it is hung.



3. Attach the calibration sensor to the center of the measuring area by adjusting the position of the counterweight on the cord. Be careful not to damage the panel surface with either the calibration sensor or the counterweight.



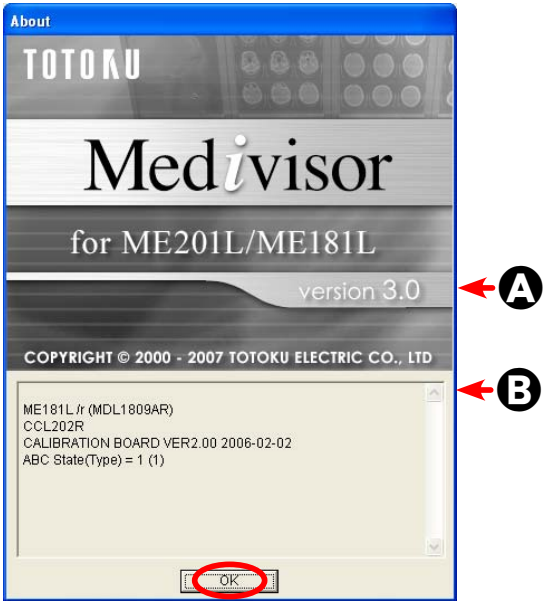
Note

Keep the LCD panel at the same tilt angle as it is in use. Do not further tilt or straighten the panel for calibration.

8.6 Version information

1. Select **Help>Version Information** on the menu bar, and the version information screen appears.

   A: Medivisor for ME201L/ME181L version information
   B: The display firmware version information



2. Click "OK" to close the screen.

TOTOKU
Medivisor for ME201L/ME181L Ver. 3.0 User's Manual
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Notes for the User's Manual

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