StarBoard R-70X

User's Guide

Manual request

To request this manual separately, specify **T225-2-001(E)**.

Read this manual thoroughly and store it carefully.
Before using this product, read the safety explanations and understand them well. Keep this manual on hand so that the user can refer to it at any time.

T225-2-001(E) Hitachi Software Engineering Co., Ltd.

Cautions

No part of this manual may be reproduced in any form without permission.
The contents of this manual may be altered without prior notice.
This manual is documented, making assurance doubly sure. If there are questions, e.g., obscure or erroneous portions, contact your sales shop.
We do not take responsibility for damage caused as a result of operating this product regardless of the items above.

LASER SEFETY

This device uses an infrared laser. It has been certified and found to comply with the specifications for a Class I laser device of Japanese Industrial Standards JIS C 6802 and Title 21, USA code of Federal Regulations, Subchapter J, of FDA rules. This means that this device is classified to produce the weakest level of laser radiation. It also means the device is safe for normal use, but please observe the instructions listed under “For safe operation and handling” to ensure safe use of the product.

CLASS I LASER PRODUCT

NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

FCC Warning

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

FCC ID: PJV-RX01
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning

This is a class A product•In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures•

The R&TTE Directive

We, the manufacturer (Hitachi Software Engineering Co., Ltd.) hereby declare that this equipment (digitizer), model K-W019-001 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Nous, le fabriquant (Hitachi Software Engineering Co., Ltd.) déclarons par le présent document que l'équipement (digitaliseur), modèle K-W019-001 est conforme avec l'ensemble des pré requis des directives 1999/5/EC.

Hiermit erklären wir, der Hersteller (Hitachi Software Engineering Co., Ltd.), daß dieses Gerät (Digitizer), Modell K-W019-001 germäß den wensentlichen Erfordernissen und anderen relevanten Vorschriften von Directive 1999/5/EC ist.

Wij, de fabrikant (Hitachi Software Engineering Co., Ltd.) verklaren hierbij dat deze apparatuur (digitizer), model K-W019-001 voldoet aan de essentiële vereisten en andere relevante bepalingen van de Richtlijn 1999/5/EC.

Industry Canada: ICES-003

- This class A digital apparatus complies with Canadian ICES-003.
- Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Industry Canada: RSS-210

" Operation is subject to the following two conditions;
(1)this device may not cause interference,
and (2) this device must accept any interference, including interference that may cause undesired operation of the device."

Exemption Clauses

Hitachi Software Engineering Co., Ltd. does not take responsibility for or guarantee the contents described in this user's guide explicitly and implicitly. Especially, it never assures the guarantee, product validity, and adaptability for a specific usage.
All software products of Hitachi Software Engineering Co., Ltd. described in this user's guide must be sold and used as they are.
Purchasers of these software products (excluding Hitachi Software Engineering Co., Ltd., its agencies, and sales shops) must bear the cost of all servicing (required to recover defects in these software products), repair, and unexpected or necessary damage.
They must also bear the cost of unexpected or necessary damage caused by hardware defects, and extensive damage.
In view of these contents, Hitachi Software Engineering Co., Ltd. may revise this user's guide and alter its contents without notice.

Product Guarantee

The contents of the guaranteed are explained in Appendix H at the end of this user's guide.

This manual is issued as the first edition (**T225-2-001(E)**)for the following products.

K-W019-001 (R-70X digitizer)
K-W019-002 (R-70X stand•
K-W019-004 (R-70X electronic pen•
K-W019-103 (LC rear projector: manufactured by Hitachi Limited.: NX70-1111S-DBW)

Manual created on
June 2001, First Edition **T225-2-001(E)**

Preface

Thank you for purchasing the **StarBoard R-70X** (**StarBoard**) of Hitachi Software Engineering Co., Ltd.
This manual is intended for persons who have knowledge of a personal computer (**PC**).
To operate this product correctly, understand the contents well.
We hope you will be able to use this product efficiently and for a long time.
The descriptions in this manual are for the Hitachi LC rear projector (NX70-1111S-DB).
When you want to attach this product to another rear projector, whiteboard, or blackboard, consult a Hitachi Software systems engineer.

Inquiry Destination

Contact the manufacturer for repairs, problems with use and technical questions about this product.
Contact your nearest sales shop for other questions.
To obtain technical support of the purchased product, give your name, product type, and serial number at the time of inquiry.

Manufacturer for Repairs

Contact the department below for technical questions concerning this product.

Multimedia Systems Dept., Multimedia Promotion Division
Hitachi Software Engineering Co., Ltd.
•231-0015 Onoe-cho 5-79, Naka-ward, Yokohama City
Tel : +81-45-681-2111 (general)
: +81-45-681-2146 (direct line)
Fax : +81-45-681-3062
E-mail : MMMeet@nem.hitachi-sk.co.jp

If a problem occurs when using this product, contact the Multimedia Systems Department or section below.

3rd Quality Guarantee Section, 3rd Quality Guarantee Dept.
Hitachi Software Engineering Co., Ltd.
•231-0015 Onoe-cho 5-79, Naka-ward, Yokohama City
Tel : +81-45-681-2111 (general)
: +81-45-681-3137 (direct line)
Fax : +81-45-681-4420

For safe operation and handling

Safety-related marks and symbols that appear in this manual are explained below. Please read these explanations carefully and understand them well.

Symbols

The notes are indicated by the following symbols, including the text.

Warning: Indicates that a person may die or suffer a serious injury if the equipment is used improperly.

Caution: Indicates that a person may suffer a slight injury if this product is used improperly.

Note: Indicates that physical damage or abnormal operation may result if this product is used improperly.

Examples of picture symbols

△Triangular symbols indicate cautionary information (including danger and warnings).
The basic nature of the reason for caution is indicated by a symbol that appears within the triangle (electrical shock in the case of the symbol shown at left).

⃠Circular symbols with a diagonal line drawn through them indicate forbidden actions.

●Filled circular symbols indicate actions that are strongly encouraged. (In the example show at left, the picture illustrates how the power cable plug should be removed from the outlet.)

Pay attention to operation

Although the notes displayed on the product and in this manual have been carefully checked, unexpected situations may occur.
To operate this product, follow the instructions described in this manual and also pay attention to the warnings and cautions.

For safe operation and handling (continued)

Caution: Notes on use

- **Safety of Class I laser**

  The StarBoard uses a digitizer that employs infrared-ray laser scanning.
  It has been certified and found to comply with the specifications for a Class I laser device of Japanese Industrial Standards JIS C 6802 and Title 21, USA code of Federal Regulations, Subchapter J, of FDA rules. This means that this device is classified to produce the weakest level of laser radiation. It also means the device is safe for normal use. However, be sure to observe the following warnings.

Warning: Do not look directly into the laser beam using optical equipment that condenses the beam and magnifies the image.

Warning: Do not adjust, repair, or modify this product.

Prohibited: Do not insert fingers or small tools in the clearance when the upper cover of the StarBoard is turned down.

Prohibited: Do not remove the upper cover of the StarBoard.

Caution Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

- **Temperature in use**

  The StarBoard may be adjusted abnormally depending on the change of temperature.
  If the StarBoard is adjusted abnormally, it may not recognize the electronic pen and infrared-ray laser correctly. The recommended range is 10• to 30•.

Note: Stabilize the room temperature to that required to use the StarBoard, and leave it for about 15 minutes. To adjust the level of

the StarBoard, use the leveling bolt on the stand at the temperature at which the StarBoard is to be used.

For safe operation and handling (continued)

•The unexpected external noise

Note: When the apparatus gains the unexpected external noise, it may fix the cursor position during the noise impression. This is the normal functions of the hardware and software in order to avoid incorrect operations. As soon as the noise is gone, the cursor follows in the footsteps of the electronic pen.

Warning: Action to take when an abnormality occurs

•Emission of smoke, unusual odors, or unusual sounds

If the system is producing smoke, strange odors or strange sounds, immediately turn off the power switch of the main unit and then remove the power plug from the outlet.
Check to make sure the smoke has stopped and then contact the manufacturer for repair.
Continuously using the equipment results in fire or electric shock.

•Water or foreign material has entered the equipment

If water or other foreign material gets inside the equipment, first turn off the power switch of the main unit, remove the power plug from the outlet, then contact the manufacturer for repair.
Continuously using the equipment results in fire or electric shock.

•Damage to the equipment or power cord

If the equipment or power cord has been damaged, immediately turn off the power switch of the main unit, remove the power plug from the outlet, then contact the manufacturer for repair.
Continuously using the equipment results in fire or electric shock.

For safe operation and handling (continued)

⚠Warning: Concerning handling of the equipment

⚠  **•Take care to ensure that no foreign materials get inside the equipment**

Do not insert foreign matter such as metallic materials or flammable substances into the matter equipment through openings (ventilation openings, etc.) or allow such substances to fall into the equipment.
If that should happen, immediately turn off the power switch of the main unit, remove the power plug from the outlet, then contact the manufacturer for repair.
Continuously using the equipment results in fire or electric shock.

⚠ **•Do not place the equipment where it may be exposed to flammable or corrosive gases**

Exposing this equipment to flammable or corrosive gases may result in damage or fire.
In the case of flammable gases, an explosion may result.
Do not put the equipment in a place exposed to flammable or corrosive gases.

⃠ **•Do not put water or chemical containers on the equipment**

Do not put water or chemical containers on or near the equipment.
If water or chemicals get inside the equipment, damage, fire, or electric shock occur.

⚠ **•Do not put heavy objects on the equipment**

Do not put heavy objects on the equipment.
Doing so will cause it to become unbalanced and fall over, resulting in injury.

For safe operation and handling (continued)

⚠ Warning: Concerning the power supply

•Do not connect the equipment to a power source whose voltage and frequency are different from those specified

Never use a power source of a voltage or frequency other than those displayed on the equipment.
Doing so may result in fire or damage.

•Do not damage the power cord

Take care not to damage the power cord.
Do not excessively bend, pull on, twist, or modify the power cord.
Doing so may result in fire or electric shock. If the power cord is damaged, request a replacement from the manufacturer.

•Remove the plug if the equipment is not to be used for a long time

If the equipment is not to be used for a long time, remove the power plug from the outlet for safety.
Not doing so may result in fire.

•Do not insert or remove the power cord plug with wet hands

Do not insert or remove the power cord plug with wet hands.
Doing so may result in electric shock.

•Be sure to hold the plug when removing it

When removing the power plug, do not pull the power cord.
Doing so damages the power code and results in fire or electric shock.
Be sure to hold the power plug when removing it.

For safe operation and handling (continued)

⚠Caution: Concerning periodical checks

Before periodical checks, be sure to turn off the power and remove the power plug from the outlet.

⚠ **•Request the manufacturer to perform periodical checks and internal cleaning at least once a year**

If the equipment is not cleaned for a long time and the inside becomes dusty, fire or damage may result.
For details on the periodical check and cleaning costs, consult the manufacturer.

⚠ **•Clean the power plug**

If the power plug remains inserted for a long time, the inserted part will become dusty, resulting in fire.
Remove the power plug once a year to eliminate any dust, etc.

⚠ **•Wipe the outside face**

When the surface becomes dirty, moisten a cloth with a light neutral detergent, and wipe the surface with it.
Do not use a liquid cleaner or spray-type benzine, thinner, or alcohol cleaner.

For safe operation and handling (continued)

⚠ Caution: Maintaining safety during movement

⚠ **•When moving the equipment, it should be moved by at least two persons working together**

This device is large, heavy precision machine.
When it becomes necessary to move it, be sure to have two or more persons do it.

⚠ **•When reinstalling the equipment:**

This device is a large, heavy precision machine.
To reinstall it on a different floor, contact Hitachi or your nearest sales shop.
Since reinstallation requires disassembly and reassembly, experience personnel are required. Doing so by yourself may result in a serious accident.

For safe operation and handling (continued)

⚠Caution: Concerning installation and setup

⚠ **•Installation**

Install the equipment on a flat floor (floor-loading 200 kg/$m^{2)}$ that is made of material that will not be transformed or damaged by casters. After the installation place is determined, lower and fix the leveling bolt on the stand, then attach the fall-down prevention fittings to the equipment.

⚠**Warning**: Be sure to attach the fall-down prevention fittings. Failure to do so may result in the device falling down, causing serious injury.

⚠ **•Use this equipment within the temperature and humidity limits specified in the operating environment conditions**

Place the equipment in a location where it can be used within the prescribed operating environment.
If the internal components of the equipment are exposed to high temperature or humidity, fire or malfunction may result.

⚠ **•Do not place this equipment in a dusty environment**

Do not place this equipment in a location where it is exposed to a large amount of dust, soot, or steam. Doing so may result in malfunction, fire or electric shock.

⚠**Warning**: Be sure to ground the power cable. If the power cable is not grounded, electric shock or fire results.

⚠Caution: Concerning discarding

When discarding various units used in the StarBoard, follow the laws and ordinances defined in the region where the equipment is used. For PCs, follow the recycling law and ask the PC manufacturer to discard them.

For safe operation and handling (continued)

Warning indications in manual

This manual uses the warning items below.
Observe the prohibited items and notes described so as to always use this product with safely.

Warning symbols

• **Warning:** Be sure to attach the fall-down prevention fittings. Failure to do so may result in the device falling down, causing serious injury.

(Page 3)

Warning: Be sure to ground the power cable. If the power cable is not grounded, electric shock or fire results.

(Page 4•

• **Warning:** Connect the power plug to the specified power source (AC 100-240V). Otherwise, damage or fire results.

(Page 13)

Warning: Do not mistake the positive (+) for the negative (-) battery terminals or use a battery other than the type specified. Also, do not leave the charger unattended. Fire or explosion may result.

(Page 26)

Caution symbols

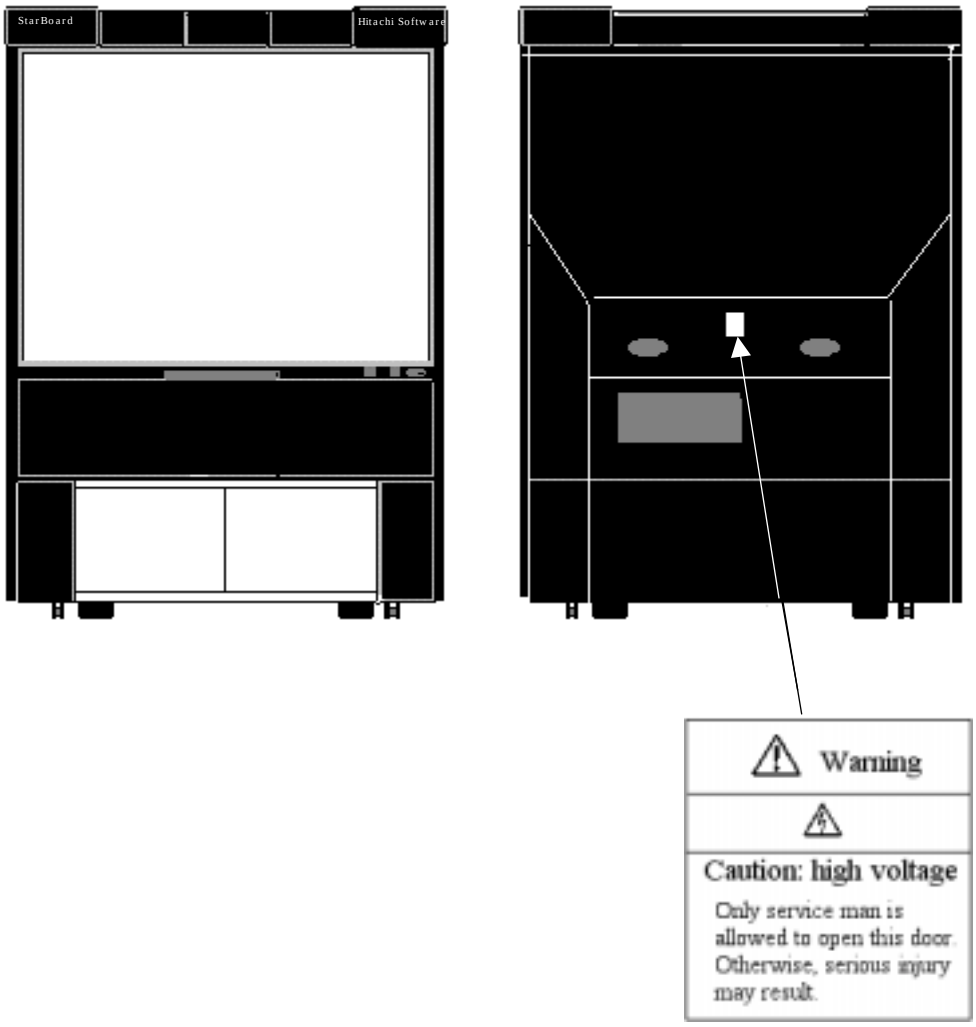
Caution: Do not mistake the positive (+) for the negative (-) battery terminals or use a battery other than the type specified. Otherwise, heat or damage may result.

(Pages 15 and 26)

For safe operation and handling (continued)

Warning label

The warning label is attached to this product.
Read the contents written on the label so as to always use this product safely.



Contents

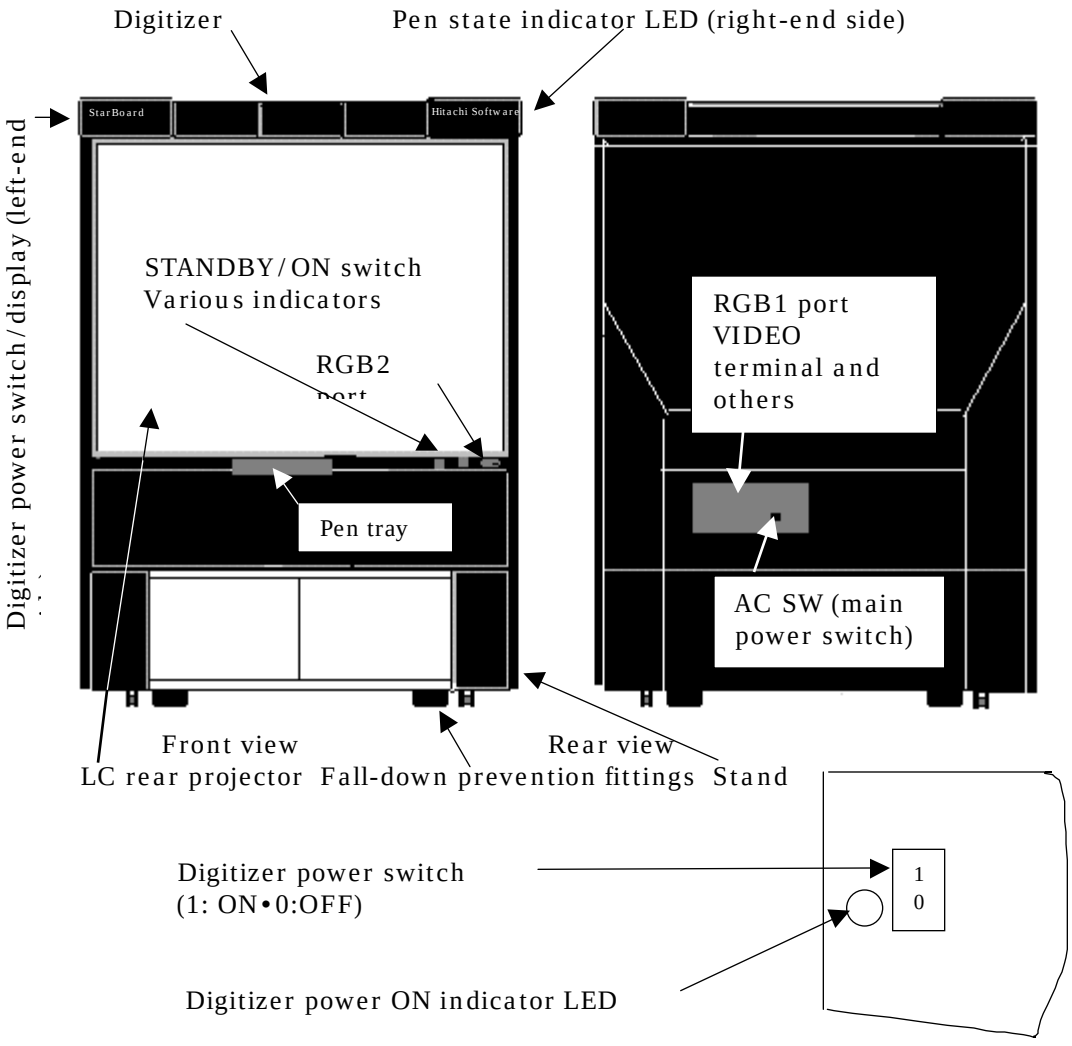
1. StarBoard

The StarBoard is an infrared-ray scan-type drawing device.
Use the electronic pen to enter or draw data at any position in the projection screen according to the projection screen of the computer image output projector.

To perform this operation, the following equipment is required in addition to the StarBoard.

PC (DOS/V) having RS-232C (serial) port and an RGB port

The appearance of the StarBoard and the assignment of major operation switches are as follows.



For details on the electronic pen, see Section 5, "Using Electronic Pen."

2. StarBoard Components

The StarBoard consists of the following components.

- Digitizer

StarBoard control unit.
The components are as follows.

- **Main unit..... 1 set**
  Left and right control units
  Joint
  Package cover
  Electronic pen (with pen tip)..... 1
  Connection cable (RS-232C D sub9 pins:5m)..... 1
  Power cable (ground-type 2 poles :4.5m)..... 1
  Charge-type batteries (battery type × 4 Ni-MH)..... 2
  Battery charger..... 1
  Pen tip set..... 1 set
  Screw set..... 1 set
  Hexagon wrench..... 1
- **Accessories (sent separately)..... 1 set**
  StarBoard Software Suite CD-ROM..... 1
  User's guide (this manual)

- Stand
  - **Main stand unit..... 1 set**
    Shelf..... 1 unit
    Left and right glass doors (with key)
    Pen tray..... 1
    Pen tray fixing screws..... 2
    Fall-down prevention fittings..... 2
    Metallic fixing bolts..... 4
    Joint bolts..... 4

- LC rear projector

This manual explains only the portions required to use this device as the StarBoard. For details on the operation and functions of the LC rear projector (projector), refer to the projector manual.

3. StarBoard Setup

3.1 Assembly and Installation of StarBoard

A special worker assembles and installs the digitizer, projector, and stand. A person other than a trainee cannot perform the assembly and installation. You must not install and set up the StarBoard.

Warning: Be sure to use the fall-down prevention fittings.
Failure to do so may result in the device falling down, causing serious injury.

Note: •Install this device on a horizontal floor. If the floor is not horizontal, malfunction may result.
•Malfunction may result depending on the illumination at the installation place. When the ceiling light is too bright, adjust the light source.
•Do not install this device in a place exposed directly to sunlight or by a window, or shade the sunlight with curtains. Failure to do so may result in malfunction.
•When multiple devices are installed in the same room or adjacently, malfunction may result.
If necessary, consult the manufacturer.

3.2 StarBoard Setup

After installation is completed, follow the procedure below to set up the StarBoard.

(1) Connect the StarBoard to a PC.
⇨See "• Connection of StarBoard to PC" (page 4)

(2) Install the StarBoard Driver.
⇨ See "• Setup of StarBoard Driver" (page 5)

(3) Activate the StarBoard Driver.
⇨ See "• Activation of StarBoard" (page 9)

(4) Calibration.
⇨ See "• Calibration" (page 11)

• Connection of StarBoard to PC

Note: Before connection, be sure to turn off all the power switches of the equipment. If they are not turned off, damage results.

Follow the procedure below to connect the StarBoard to a PC. Refer to Appendix F, "Cable Connection Diagram."

(1) Connect the serial interface cable(RS-232C) from the StarBoard to the serial point (COM1 port) of the PC, and then fasten the cable screws. (When the serial port of the PC was 25 pins, attach a 9-25-in conversion connector available on the market.)
Even if a serial port other than the COM1 port is used, the StarBoard Driver automatically changes the setting of the serial port.

(2) Use the RGB cable (D sub 15-pin) that comes with this product to connect the StarBoard to the RGB port of the PC, and fasten the cable screws.
When using a BNC cable for connection, prepare one or consult the manufacturer.

(3) Insert the power cable plug into an outlet with an AC 2-wire-system earth.

⚠**Warning**: Be sure to ground the power cable. If the power cable is not grounded, electric shock or fire results.

Note: When reinstalling this device, the laser beam must be readjusted. Consult the manufacturer.

• Setup of StarBoard Driver

•Before setting up the StarBoard Driver, be sure to connect the StarBoard to a PC correctly.
•If an old version StarBoard Driver is installed, uninstall it beforehand.

• Installation of StarBoard Driver

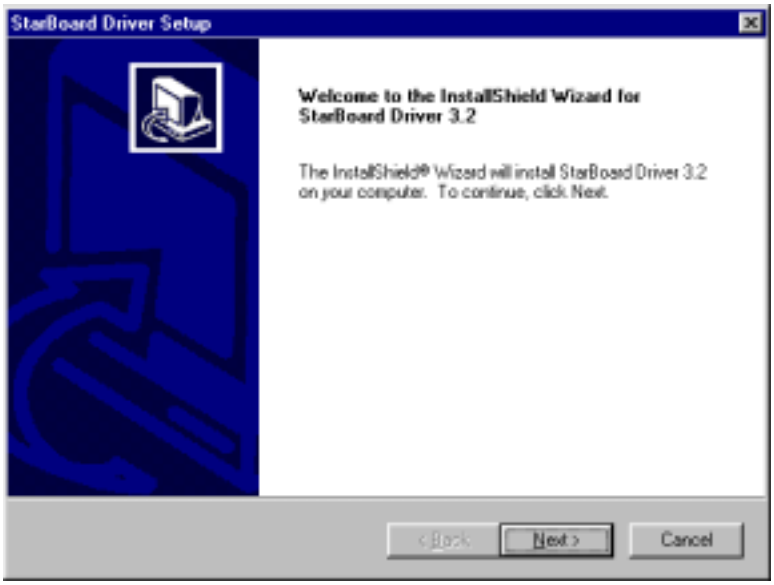
To operate the StarBoard with the electronic pen, install the StarBoard Driver (driver) in the PC. This section explains the procedure for installing the driver under Windows 98.

(1) Activate Windows 98, and then insert the StarBoard CD-ROM accessory in the CD-ROM drive.

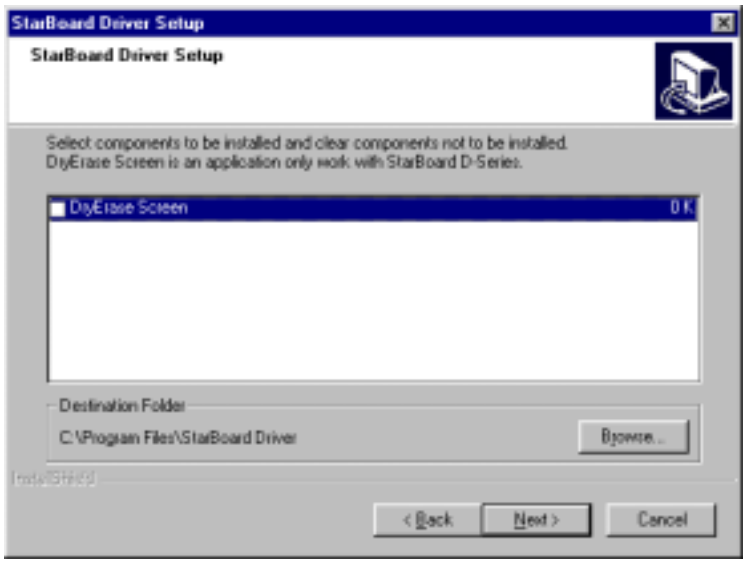
(2) The setup program is activated automatically. Position the mouse cursor on the [StarBoard Driver] item of the setup program, and click it; the driver installer starts.

(3) The required files are first copied. Wait a while and follow the instructions on the screen.

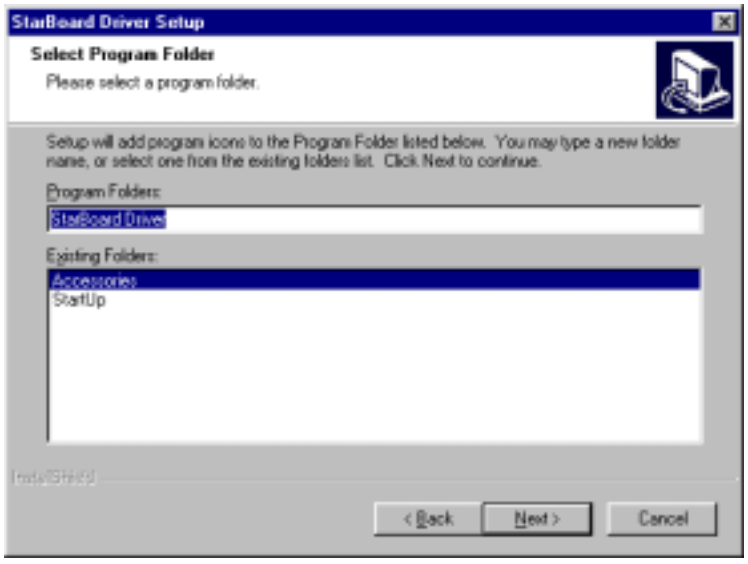
(4) Press the [Next] button in the [Welcome] dialog box; the driver setup starts.



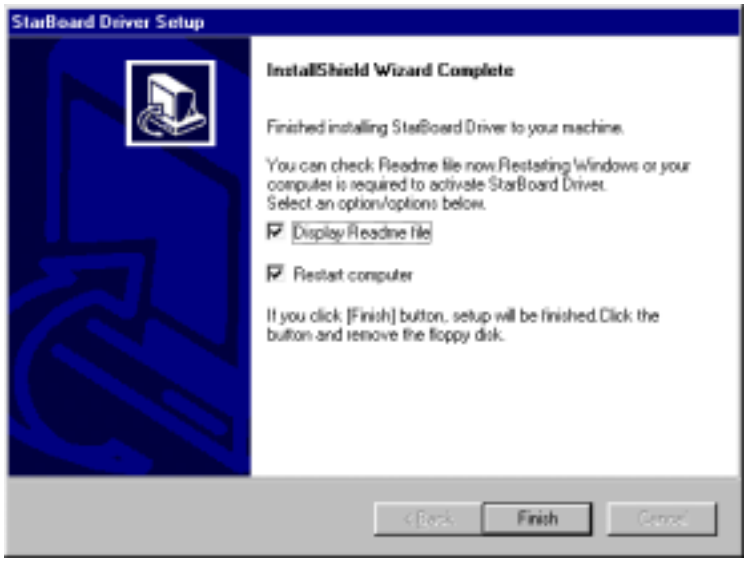
(5) The [Select Component and Installation Destination Folder] dialog box appears. Release the selection of [DryErase Screen], and press the [Next] button. (The DryErase Screen is a StarBoard D series application, so some functions cannot be used with StarBoard R-70X.) If necessary, press the [Browse] button and change the installation destination folder.



(6) Press the [Next] button in the [Select Program Folder] dialog box; the program folder of [StarBoard Driver] is added to the start menu. To change the program folder name, enter a new program folder name. The program icon of the driver is automatically added to the start-up menu.



(7) Press the [Finish] button in the [Wizard Complete] dialog box; the setup is completed. If the Readme file is not displayed, uncheck [Display Readme file].
When not reactivating the PC immediately, uncheck [Restart computer]. If the computer is not restarted, setup does not end normally.
(At setup of WindowsNT 4.0/2000, the restarted item is not displayed.)



(8) After the setup ends, the driver is automatically activated each time Windows 98 is activated.

• Uninstallation of StarBoard Driver

Follow the procedure below to uninstall the driver.

(1) If the StarBoard Driver icon below is displayed in the Windows task tray, double-click it to display the driver screen. Otherwise, execute steps (3) and after.

(2) Press the [Stop Driver] button on the driver screen to end the driver.

(3) Select [Setup] ••Control Panel•on the start menu.

(4) Select the [Add/Remove Programs] icon.

(5) Select the [Install/Uninstall] tab in the [Add/Remove Programs Property] dialog box. Then select [StarBoard Driver] on the software product list, and press the [Remove] button.

(6) The [Confirm File Deletion] dialog box appears. Press the [OK] button; uninstallation starts.

(7) After uninstallation ends, the [Completion of Maintenance] dialog box appears. Press the [OK] button.

• Activation of StarBoard Driver

After the driver is installed, it is automatically activated each time Windows is activated. At activation of the driver, the following driver icon is displayed in the Windows task tray.

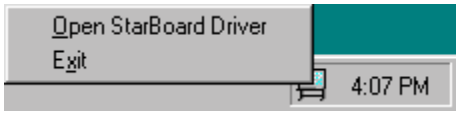
When manually activating the driver, perform the procedure below.

(1) Select [Program]••StarBoard Driver•••Driver• on the start menu.

(2) The driver screen appears. While the driver is activated, even if the driver screen is closed, the StarBoard can be operated using the electronic pen.
To close the driver screen, press the [OK] button or press the [x (Close Window)] button on the title bar.

(3) After the driver is activated, the driver icon is displayed in the Windows task tray. Double-click the driver icon; the driver screen appears.

Also, right-click the icon to bring up the pop-up menu. On the menu, the driver screen can be displayed.

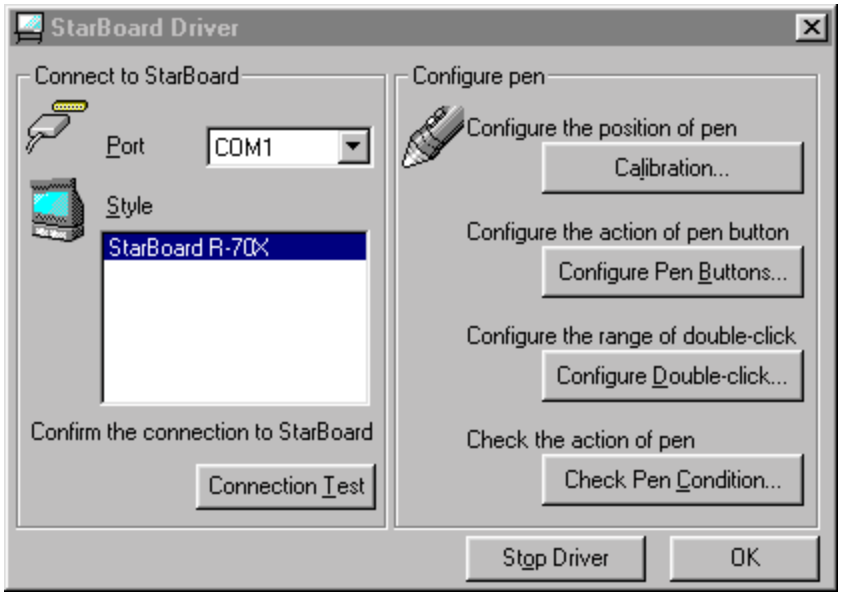


• Setup of Serial Port

Use the driver to match the serial port (COM port) number of the PC with one of the COM ports in [Connect to StarBoard].
The driver automatically detects the COM port to be used, so the user only has to confirm the serial port number, and need not set up it.

(1) If the driver icon below is displayed in the Windows task tray, double-click the driver icon to display the driver screen. Otherwise, select [Program] • [StarBoard Driver] • [Driver] on the start menu.

(2) Confirm that the COM port number in [Connect to StarBoard] matches the serial port (COM port) number of the PC connected to the serial interface cable(RS-232C).



(3) Press the [OK] button to close the driver screen.

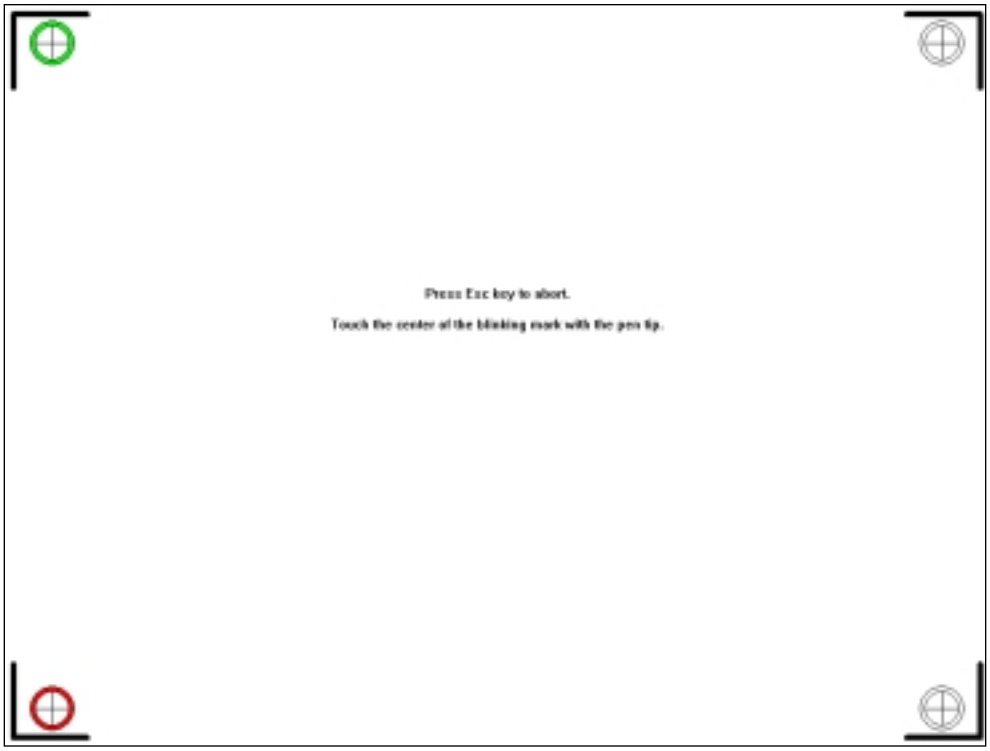
• Calibration

Calibration is needed to match the pen tip of the electronic pen with the cursor position displayed on the projector. Since it is adjusted on installation, the user does not normally have to do it, except when it becomes necessary to move the device or change the PC.
The procedure for calibration is as follows.

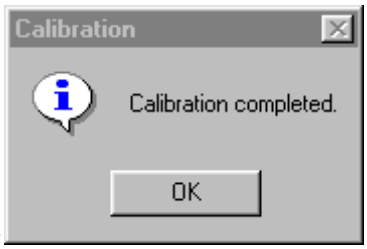
(1) If the driver icon below is displayed in the Windows task tray, double-click the driver icon to display the driver screen. Otherwise, select [Program] • [StarBoard Driver] • [Driver] on the start menu.

(2) Press the [Calibration] button; the [Calibration] screen appears.

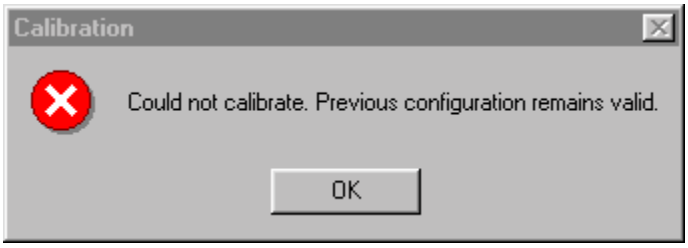
(3) Press the pen tip of the electronic pen in the center of the mark blinking in red according to the explanation on the [Calibration] screen. When the pen tip is recognized, the mark changes to green. In this case, apply the pen at right angles to the projector screen.



(4) After calibration is completed, the [Confirm End] dialog box appears. Press the [OK] button.



(5) When calibration fails, the next dialog box appears. Press the [OK] button. In this case, the contents of the calibration are not saved. The previous configuration is valid.



(6) Press the [ESC] key; calibration is ended forcibly. When calibration is forcibly ended, the contents are not saved. The previous configuration is valid.

4. Using StarBoard

This section explains how to use the StarBoard.
For details on how to operate the projector, refer to the projector manual.
For the positions of the switches, refer to the appearance on page 1.

• Activation of System

Follow the procedure below to activate the StarBoard.

(1) Set [AC SW (main power switch)] on the rear of the main projector to 1, and then turn on the projector power. (The ON indicator lights in orange.)

(2) Set the power switch on the left of the digitizer to 1 , and then turn on the digitizer power.

(3) Press the [STANDBY/ON] button ([POWER] button on the large button) on the operator panel on the lower right of the screen on the front of the main projector, or on the remote controller attached to the projector. After the lamp comes on (the ON indicator lights up in green), select the input port connected to the RDB cable.

(4) Turn on the PC power switch and activate Windows.
After Windows is activated, the driver is activated automatically. When the digitizer is recognized, the laser is activated, the electronic pen can be used on the screen. If the driver is not automatically activated, select [Program] • [StarBoard Driver] • [Driver] on the start menu to activate the driver manually.

⚠**Warning**: Connect the power plug to the specified power source(AC 100-240V). Otherwise, a fault or fire results.

Note: When using infrared rays or a strong light source, do not directly apply the light source to the left, right, upper, lower, or front sides of the StarBoard.

• Operation of System

To operate the StarBoard, use the electronic pen.
Display the PC screen on the rear projector. Then use the electronic pen instead of the mouse to switch the screen, operate Windows, and write characters and lines on the screen in pen mode. For details on how to use the electronic pen, refer to Chapter 5, "Using Electronic Pen."

• End of System

Follow the procedure below to end the StarBoard.

(1) End Windows, and turn off the PC power.

(2) Set the power switch on the left of the digitizer to 0 , then turn off the power of the digitizer.

(3) For one second, hold down the [STANDBY/ON] button ([POWER] button on the large remote controller) on the operation panel on the lower right of the screen on the front of the main projector, or on the remote controller attached to the projector to enter standby mode. The ON indicator begins blinking in orange.

(4) When the indicator changes from blinking to on after about one minute, set the [AC SW (main power switch)] on the rear of the main projector to 0 , then turn off the power of the projector.

Important: If the power is turned on before 1 minute has lapsed, or turned on immediately, the screen does not appear. So, wait for a while.

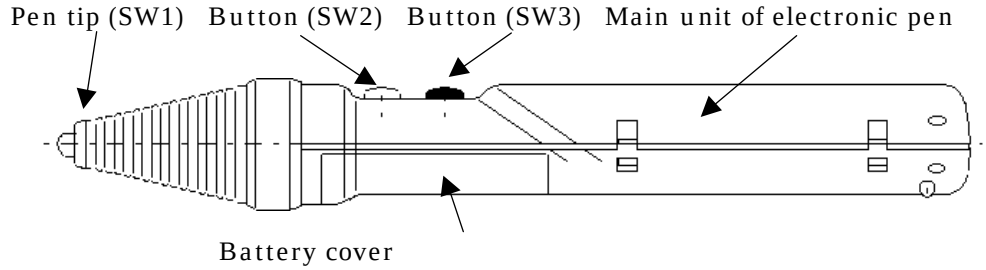
Important: To turn on the digitizer power again and use the PC without changing it, perform the action explained in "When the StarBoard Cannot be Detected" on page 26.

• When the Digitizer Function is Not Used:

When not using the digitizer function, do not turn on the digitizer power. By switching the input terminals and connecting the VTR signals to the VIDEO terminals. VTR images can be displayed on the projector and the projector used as a large TV set.
Also, by connecting the RGB cable of the PC to the RGB terminals and switching the input terminals, the projector can be used as a large display unit like the PC screen.

5. Using Electronic Pen

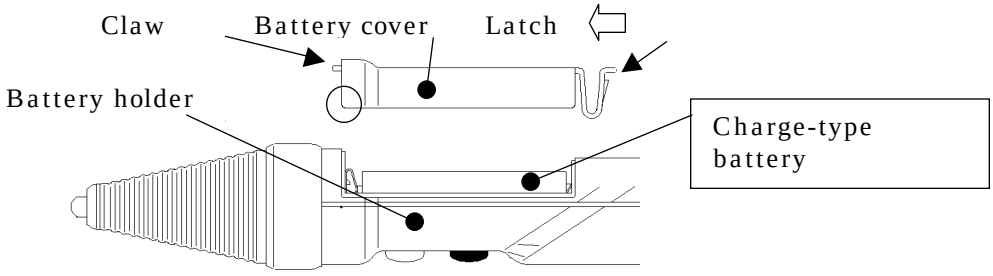
Use the electronic pen to operate the StarBoard.
The pen tip of the electronic pen has a switch (SW1).
The main unit of the electronic pen has two buttons (SW2 and SW3).



Note: The pen tip of the electronic pen is a consumable. Periodically replace if, referring to Chapter 6, "Maintenance and Operation." Repairs or replacements resulting from erroneous operation is billed for even under the terms of the guarantee.

• Removing and Attaching Electronic Pen

Before using the electronic pen, insert the battery and remove it for charging.
The procedure for removing and inserting the battery is as follows.



(1) Press the battery cover latch toward the pen tip, and remove the battery cover.

(2) If a battery is inserted in the holder, remove it. (To remove the battery, press the end (• part in the figure) of the battery cover against the negative (-) terminal and remove it.)

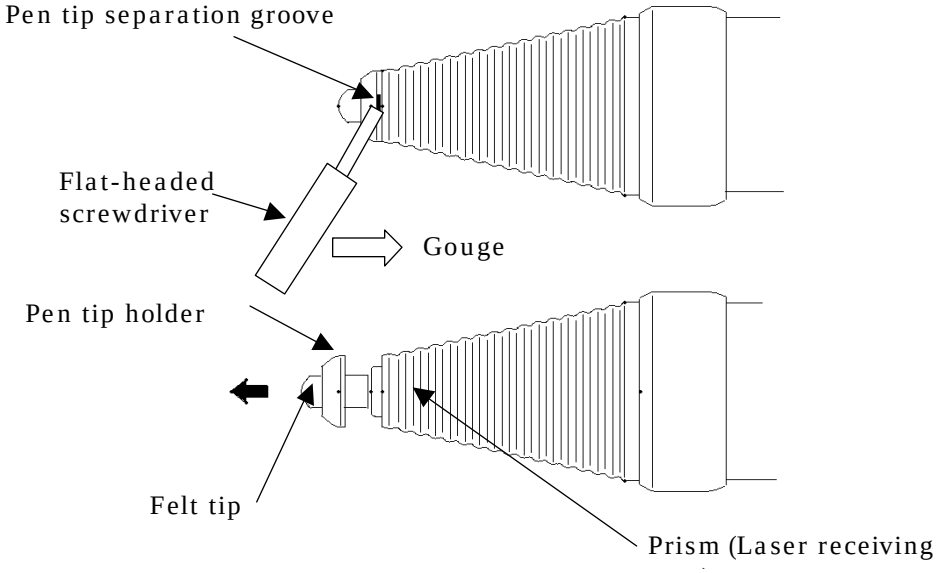
(3) Insert the recharged battery in the battery holder, observing its polarity indicated inside the holder.

(4) Insert the battery into the main unit of the electronic pen from the claw end of the battery cover, press the battery cover latch lightly, and then close the cover.

⚠**Note**: Do not mistake the positive (+) for the negative (-) battery terminals or use a battery other than the type specified. Otherwise, heat or damage may result.

- Replacing Pen Tip of Electronic Pen

The pen tip is a consumable. Periodically replace it with a new one. If the pen tip is abraded half or more during daily checking, replace it using the procedure below.



(1) Insert the flat end of a thick bar (small screwdriver, etc.) in the "pen tip separation groove" shown in the figure, and gouge it in the direction of the arrow. Then pull out the pen tip holder and felt tip.

(2) Pull out the abraded felt tip from the pen tip holder, then insert a new felt tip.

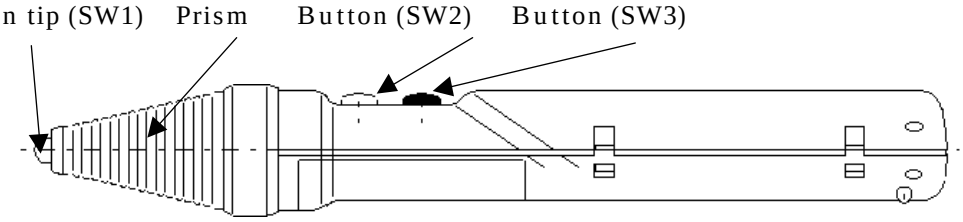
(3) Insert the flat side of the felt tip in the hole in the pen tip prism, then press it in and fix the pen tip holder.

Important: When the pen tip holder cannot be removed or it is abraded too much and worn out, contact the manufacturer for repair.

• Basic Operation of Electronic Pen

When the electronic pen is ready, operate it using the procedure below.

When the electronic pen is placed too long against the projector screen, the pen tip may not move smoothly or the entry position may be dislocated.
Apply the electronic pen to the screen in the range of right angle to 45 degrees while applying a pressure of about 150 to 200 g to the pen tip.



Note: The transparent part of the pen tip is the part that receives the infrared-ray laser. Do not allow it to become dirty or stick anything on it. Otherwise, malfunction will result.

• Operating pen button

By using the electronic pen, the following windows operations can be performed, instead of using the mouse by simply pressing the buttons (SWs).

•Clicking left button of mouse

Press an icon on the screen with appropriate force using the pen tip (SW1), then quickly release it.

•Double-clicking left button of mouse

Repeat the action of pressing and releasing an icon on the screen with appropriate force using the pen tip (SW1) twice at the same position.
Otherwise, place the pen tip on the screen, and press the SW2 when the cursor reaches the target(default setting).

•Clicking right button of mouse

Place the pen tip on the screen, and press the SW3 when the cursor reaches the target(default setting).

•Dragging

Press the pen tip (SW1) on the screen with appropriate force, and while holding it down, move the electronic pen keeping the pen tip in scene contact to perform dragging.

•**Memo**

Using "StarBoard Pen" attached together with the electronic pen, you can enter memo on any screen. Change the mouse mode to the pen mode, and use the pen tip (SW1) like dragging to enter memo at any position on the screen. For details on how to use "StarBoard Pen" refer to the online help for " StarBoard Pen".

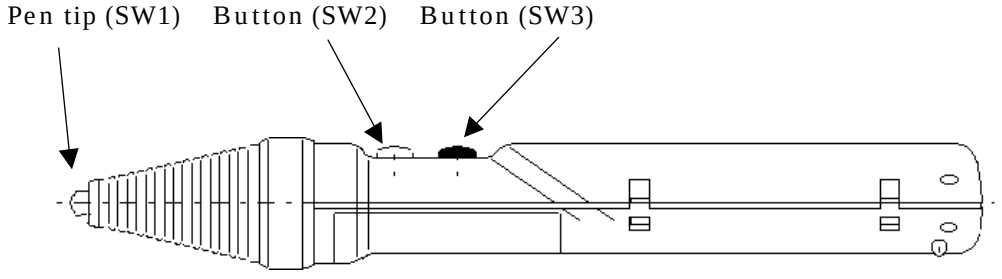
“Pen Button Configuration” can be used to customize the SW2 and SW3 operations on the driver screen. The SW1 is fixed for the left-click.
The entry priority for each button is determined by the order of SW3, SW2 and SW1. When the SW2 or SW3 button is pressed together with the pen tip (SW1), the SW2 or SW3 operation is valid.

Notes: Only use the electronic pen to operate the projector screen. Otherwise, the surface of the screen will be damaged, and the pen operation hindered.

- If the electronic pen is pressed on the screen too strongly, the screen may be damaged, or the pen tip (SW1) may become faulty.
- If the electronic pen (SW2 or SW3) is pressed too strongly, it may be damaged.
- Since the electronic pen is made of plastic, if it is dropped, it may be damaged. So handle it with care.
- The electronic pen has electronic circuits. Do not open the cover except when replacing the battery.

• Sleep Function of Electronic Pen

The electronic pen is automatically reverts to the sleep state for power saving if it is not used for a specified time (about 10 minutes), and the power is turned off.
To release the sleep state, apply the pen tip to the screen or press the SW2 or SW3 button of the electronic pen.



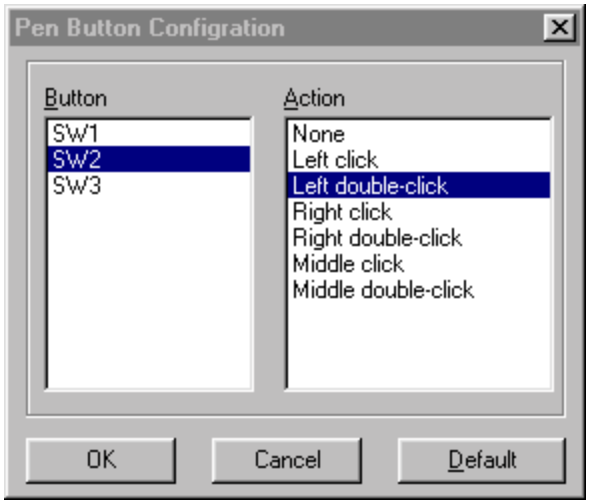
• Setting Electronic Pen Buttons

The electronic pen has one button at the pen tip and two buttons on the cylinder. These buttons is equivalent to the mouse operation.
The procedure for customizing the setting of the buttons of the electronic pen is shown below. To do this, the driver must be installed.

(1) If the driver icon below is displayed in the Windows task tray, double-click it; the driver screen appears. Otherwise, select [Program•••StarBoard Driver•••Driver•on the start menu.

(2) Press the [Configure Pen Buttons] button on [Configure Pen]; the [Pen Button Configuration] dialog box appears.

(3) Set up the buttons in the [Pen Button Configuration] dialog box. Select a button to be set up in the button list box, and specify the required operation in the operation list box. The SW1 is used only for the pen tip, and it cannot be changed.



(4) When the•OK•button is pressed, the changed contents become valid. When the [Cancel] button is pressed, the changed contents become invalid. If the [Default] button is pressed, the function returns to the default. The default for each button is as follows.

SW1 : Left-click (Clicks the left button.)
SW2 : Left double-click (Double-clicks the left button.)
SW3 : Right-click (Clicks the right button.)

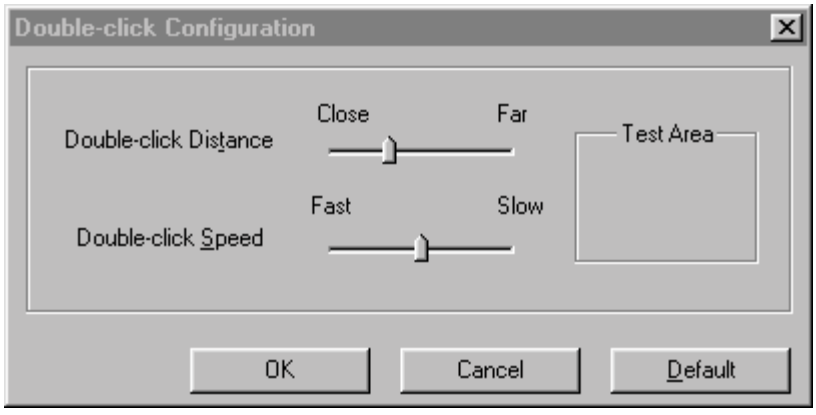
• Double-click by Electronic Pen

Using the electronic pen, you can specify the recognition distance and speed used to double-click with the pen tip button (SW1).
The procedure for customizing the double-click setting is shown below. To do this, however, the driver must be installed in advance.

(1) If the driver icon below is displayed in the Windows task tray, double-click it; the driver screen appears. Otherwise, select [Program•••StarBoard Driver•••Driver•on the start menu.

(2) Press the [Configure Double-click] button on [Configure pen]; the [Double-click Configuration] dialog box appears.

(3) In the [Double-click Configuration] dialog box, set up the double-click operation. The double-click recognition distance indicates the distance between clicks that can be recognized by double-click. The double-click recognition speed indicates the speed between clicks that can be recognized by double-click. While actually testing double-click in a test area, move the slider and adjust the distance and speed.



(4) When the•OK•button is pressed, the changed contents become valid. When the [Cancel] button is pressed, the changed contents become invalid. If the [Default] button is pressed, the function returns to the default. The default is shown in the figure above.

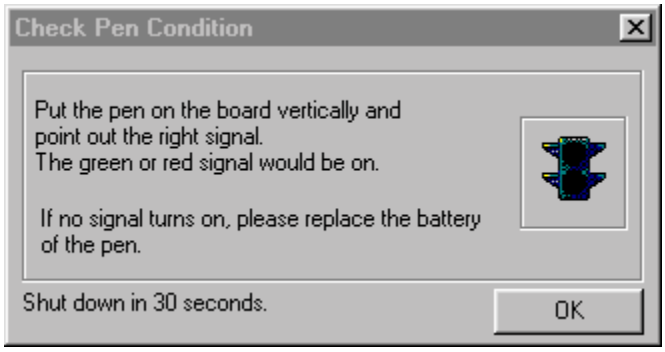
• Confirming Operation State of Electronic Pen

The procedure for confirming the operation state of the electronic pen is shown below.
To do this, the driver must be installed in advance.
Using this function, you can also check the state of the electronic pen battery and whether signals are output even while the pen status indicator LED (see page 1) is on.

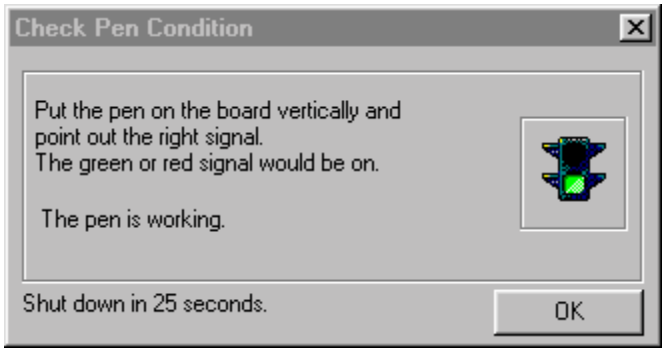
(1) If the driver icon below is displayed in the Windows task tray, double-click it; the driver screen appears. Otherwise, select [Program•••StarBoard Driver•••Driver•on the start menu.

(2) Press the [Check Pen Condition] button on [Configure pen]; the [Check Pen Condition] dialog box is displayed.

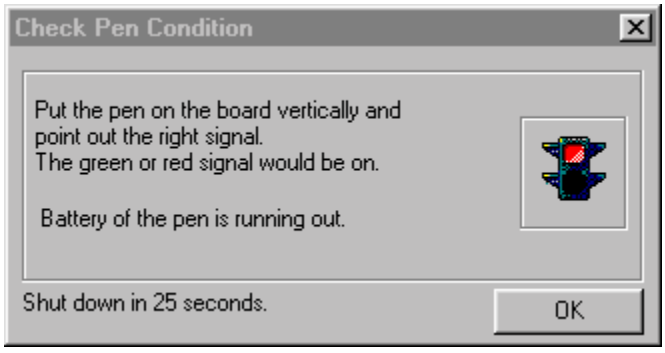
(3) In the [Check Pen Condition] dialog box, confirm the state of the electronic pen battery. Use the electronic pen to point to the signal displayed on the right of the dialog box, applying it to the screen at right angles.
While the dialog box is displayed, the mouse operation cannot be performed using the electronic pen. Wait about 30 seconds until the dialog box is automatically closed or use the keyboard or mouse to close it.



(4) If the operation state and battery capacity of the electronic pen are ok, the green signal comes on. In which case, the electronic pen can continue to be used.



(5) When the battery capacity is insufficient, the red signal comes on. When it has expired, the signal does not come on.



In these cases, replace the battery with a new one. For details on how to do this, refer to Chapter 5, "Using Electronic Pen," - "Removing and Attaching Electronic Pen Battery." For details on the action to be taken at occurrence of an electronic pen error, refer to Chapter 6, "Maintenance and Operation."

• Electronic Pen Battery Capacity Report Function

The driver has a function which reports insufficient electronic pen capacity.
This section explains how to report insufficient capacity after the driver detects it.
Using this function, you can also check the state of the electronic pen battery and whether signals are output even while the pen status indicator LED (see page 1) is on.

In any case, when driver issues a battery insufficiency report, replace the battery of the electronic pen.
For details on how to replace the battery of the electronic pen, refer to Chapter 5, "Using Electronic Pen," - "Removing and Attaching Electronic Pen Battery." For details on the action to be taken at occurrence of an electronic pen error, refer to Chapter 6, "Maintenance and Operation."

(1) Report by change of icon

When the driver icon is displayed in the Windows task tray, the battery mark blinks on the icon as follows.

(2) Report by message box

The following message box is displayed to report that the battery capacity is insufficient.

This message box is displayed periodically until the battery is replaced after
the battery insufficient state is detected. However, it is not redisplayed if [Don't display this message again] box is checked. If the battery insufficient state is detected after a new battery is replaced, this message box appears even if the box is checked.

6•Maintenance and Operation

• Cleaning and Handling StarBoard

The StarBoard has sufficient durability, however, in order to continue stable operation, correct cleaning and handling are necessary.
This chapter explains the notes on cleaning and handling of StarBoard.

- •Do not punctuate the StarBoard.
- •Do not allow the StarBoard to become wet.
- •Do not move the StarBoard to prevent impact.
- •Do not drop or hit the electronic pen.
- •For details on how to clean the projector, refer to the projector manual.

Note: Before cleaning this product, remove the power plug from the outlet. Lightly wipe with a dry, soft cloth. Do not moisten with water. Otherwise, faults may result.

• Action to be Taken at Occurrence of StarBoard Error

When an error occurs in the StarBoard, follow the procedure below.

(1) If StarBoard operation seems to be abnormal, confirm that all cable connections are correct.

(2) If the system does not recover after step (1), turn the power switch of the digitizer off and on again. Then reactivate the system using the procedure described in Chapter 4, "Using StarBoard - Activation of System."

(3) If the system still does not recover after step (2), turn off the power switch and contact the manufacturer for repair.

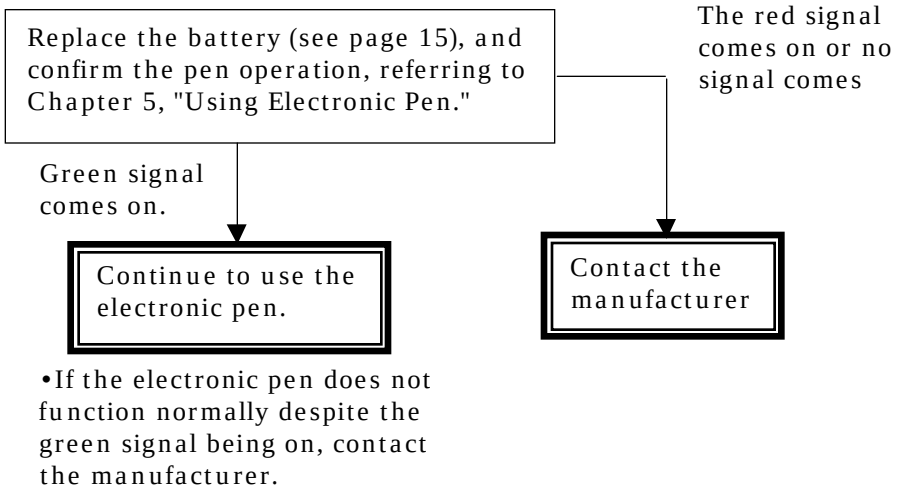
• Action to be Taken at Occurrence of Electronic Pen Error

When the electronic pen does not function normally, confirm the following items.

(1) Confirmation by pen status indicator LED
1 Press a pen button and operate on the screen.
2 Confirm that the LED on the right of the digitizer comes on.
3 Follow the table below to recover from the error.

Item No.	LED state	Assumed problem	Action
1	Neither LED comes on.	Battery has expired.	Replace the battery (see page 15) or charge the battery (see the procedure below).
2	The green and orange LEDs come on.	The battery voltage is low.	Replace the battery (see page 15) or charge the battery (see the procedure below).
3	The green LED only comes on.	Pen is normal.	Contact the manufacturer.

(2) Confirmation by driver function



Note: Do not mistake the positive (+) for the negative (-) battery terminals or use a battery other than the type specified. Otherwise, heat or damage may result.

- Battery Charging

• To remove the battery, refer to Chapter 5, "Using Electronic Pen," (page 15).
• Insert the removed battery (nickel-hydrogen battery or nickel-cadmium battery) in the charger provided or available on the market, connect the charger to a 100 to 240 VAC outlet, and begin charging. (Refer to the Charger Handbook.)
• After the charging time indicated on the equipment has elapsed, remove the charger from the outlet, and take out the battery.

Warning: Do not mistake the positive (+) for the negative (-) battery terminals or use a battery other than the type specified. Also, use leave the charger unattended. Otherwise, fire or explosion may result.

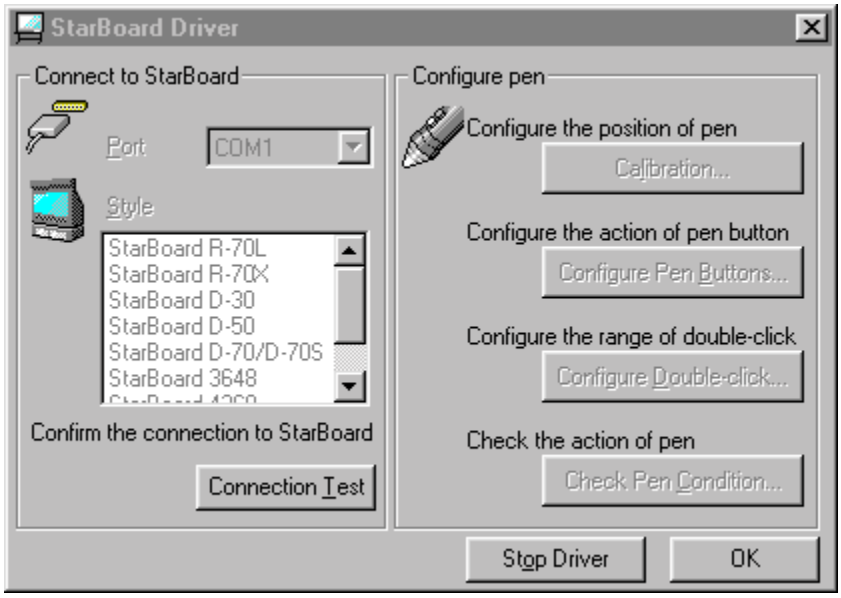
• Action to be Taken at Occurrence of StarBoard Driver Error

When the driver is not activated, the following causes are assumed.

• When the StarBoard Cannot be Detected:

When the warning message below is displayed at activation of the driver, it is assumed that driver operation is abnormal or that connection to the PC cannot be detected.

When driver operation is abnormal, press the [Stop Driver] button on the driver screen to end the driver.
After this, select [Program] ••StarBoard Driver•••Driver•on the start menu to reactivate the driver.
After the driver is reactivated, if the same warning message appears again, confirm whether the digitizer is turned on and whether the serial interface cable(RS-232C) is correctly connected to the serial port (COM port).
After confirming the connection of the serial interface cable(RS-232C), press the [Connection Test] button on the driver screen and confirm the connection with the StarBoard again.



When the port number of the COM port in [Connect to StarBoard] is displayed in black on the driver screen or "StarBoard R-70X" is displayed in black in the type item, the connection is assumed to be correct.

- When the Driver is Not Installed Correctly:

When the driver is not activated automatically when Windows (the driver icon does not appear in the task tray) is opened, the driver is assumed to be installed incorrectly.
In this case, uninstall and install the driver again.
For details on how to uninstall and install the driver, refer to Chapter 3, " StarBoard Setup."

- When the Program File is Destroyed:

When the warning message below appears on activation of the driver, the program file of the driver may be destroyed.
Similarly, when a warning message such as "Incorrect application" is displayed on Windows, the program file of the driver may be destroyed.

In this case, uninstall and install the driver again.
For details on how to uninstall and install the driver, refer to Chapter 3, " StarBoard Setup."

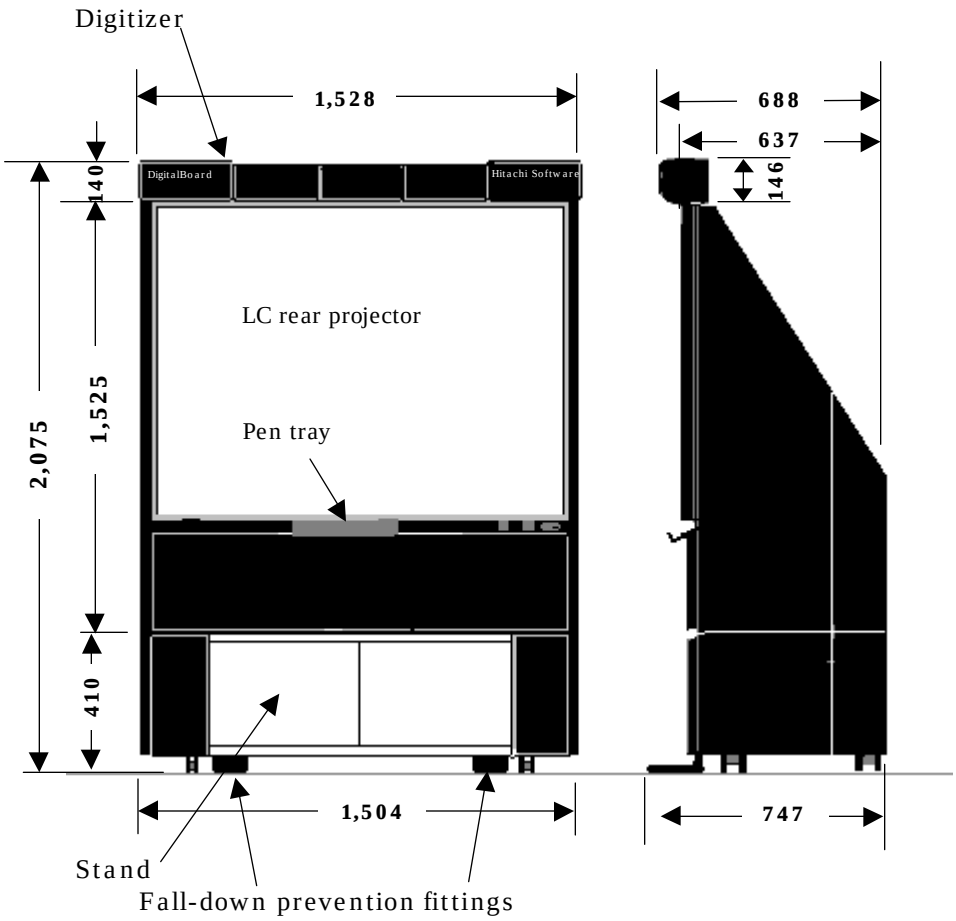
Appendix

• Appendix A General Hardware Specifications

(Using Hitachi NX70-1111S-DBW LC rear projector)

No.	Item	Specifications
1	Digitizer system	Infrared-ray scanning system (for details, see page 30.)
2	Tracking speed	Max. 100 dots/sec.
3	Resolution	XGA (1,024 × 768)
4	Intensity	Approx. 700 cd/m^2
5	Contrast	500:1 (All white:All black)
6	Signal input terminal	RS-232C: Serial interface 1 (for digitizer) Serial interface 2 (Project control) RGB1: BNC terminal system-1 (rear) RGB2: D sub 15-pin shrink terminal system-1 (front) RGB3: Digital TMDS system (MDR20-pin) system -1 (rear) VIDEO : Composite (BNC) system-1 S pin/composite (BNC) selection, system-1 Component(Y,Pb,Pr)(BNC × 3), system-1 Voice: RCA pin 3 systems• stereo mini-jack 3 systems
7	Output terminal	RGB: Digital TMDS system (MDR20 -pin) system-1 Voice: Stereo mini-jack system-1
8	Speaker	2W + 2W (Amplifier built-in)
9	Valid range	1,414(W) × 1,061(H) mm
10	Lamp used	100W super-high pressure, mercury lamp
11	Outside dimensions	1,528(W) × 2,075 (H) × 637(D) mm (excluding projections)
12	Weight	Approx.180 kg
13	Power source	100 to 240 VAC•50/60 Hz
14	Power consumption	220W or less
15	Installation environment	1000 lux or less indoors
16	Operating temperature	5• to 35•(un-operating: 0• to 40•)
17	Operating humidity	20 to 80% RH(un-operating: 8 to 90% RH)
18	Components/accessories	Digitizer 1 LC rear projector 1 Stand 1 RGB cable 1 (sent separately) StarBoard Software Suite CD-ROM 1 (sent separately) User's guide 1 (sent separately)

• Dimensions



• All dimensions in mm

• Appendix B Digitizer Hardware Specifications

No.	Item	Specifications	Remarks
1	Infrared semiconductor laser	Wavelength: Approx. 980nm	Class I
2	Receiving part	CH1: 27.195MHz CH2: 26.995MHz CH3: 27.045MHz	Set on delivery
3	Number of polygon rotations	Approx. 6,000rpm (6 sides)	
4	Tracking speed	Max.100 dots/sec.	
5	Drawing range	Approx.70-inch all face (1,414 × 1,061mm)	
6	Drawing precision	Difference between pen tip and cursor position on the screen: 5mm or less (electronic pen at right angles)	
7	Electric resolution	•mm or less	
8	Electronic pen	With side switch (right-click, left-click) Power: Charge-type battery X4(Ni-MH) used. Battery life standard: Approx. 80 hours at continuous operation Size: 198.5mm ×•25mm(Max.•29mm) Weight: 80g or less Sleep function: Use the pen or SW on the side to activate this function. Approx. 10 min. until sleep Transmission: Fine radio system Standard: CH1	CH2 and CH3: options
9	Inclination of electronic pen	Inclination: 45 degrees or less, at right angles to board surface.	
10	Interface	Serial interface cable(RS-232C) length: Approx. 5m	
11	Outside dimensions	1,528(W)mm × 146(H)mm × 123(D)mm	
12	Color	AC black medium	
13	Weight	Approx. 8kg	
14	Power specifications	Power source: 100•240V AC±10% •50/60Hz Current: Approx. 0.21 – 0.11A	
15	Power consumption	20W or less	
16	Operating environment	1000 lux or less indoors	
17	Operating temperature	5• to 35•(un-operating: 0• to 40•)	
18	Operating humidity	20 to 80% RH(un-operating: 8 to 90% RH)	

19	Laser safety standard	Based on JIS C 6802, FDA. (Class I•	
20	Standard, etc.	Conforms to the UL, CSA and CE marking standard. FCC/CE/ICES-003 class A	
21	Attached parts	Electronic pen (with pen tip•× 1 Connection cable (RS-232C D sub-pin:5m•× 1 Power cable (Ground-type 2 poles:4.5••× 1 Charge-type battery (Battery type X4 Ni-MH) × 2 Battery charger × 1 Pen tip set × 1 Attachment screw set × 1 Hexagon wrench(3mm) × 1	
22	Accessories	StarBoard Software Suite CD-ROM × 1 User's Guide (this manual)	Sent separately

• Appendix C Consumables/Life-Expired Products

- Battery-type X4 secondary battery (Ni-MH)… available on the market
  The duration of life is approx. 500 charging times. (It may reduced to 500 times or less depending on conditions of use.)

- Pen tip set
  For details on how to obtain this set, contact the manufacturer.

- Projector lamp
  The duration of life is approx. 6,000 operation hours. For details on how to obtain this lamp, contact the manufacturer.

• Appendix D Stand Hardware Specifications

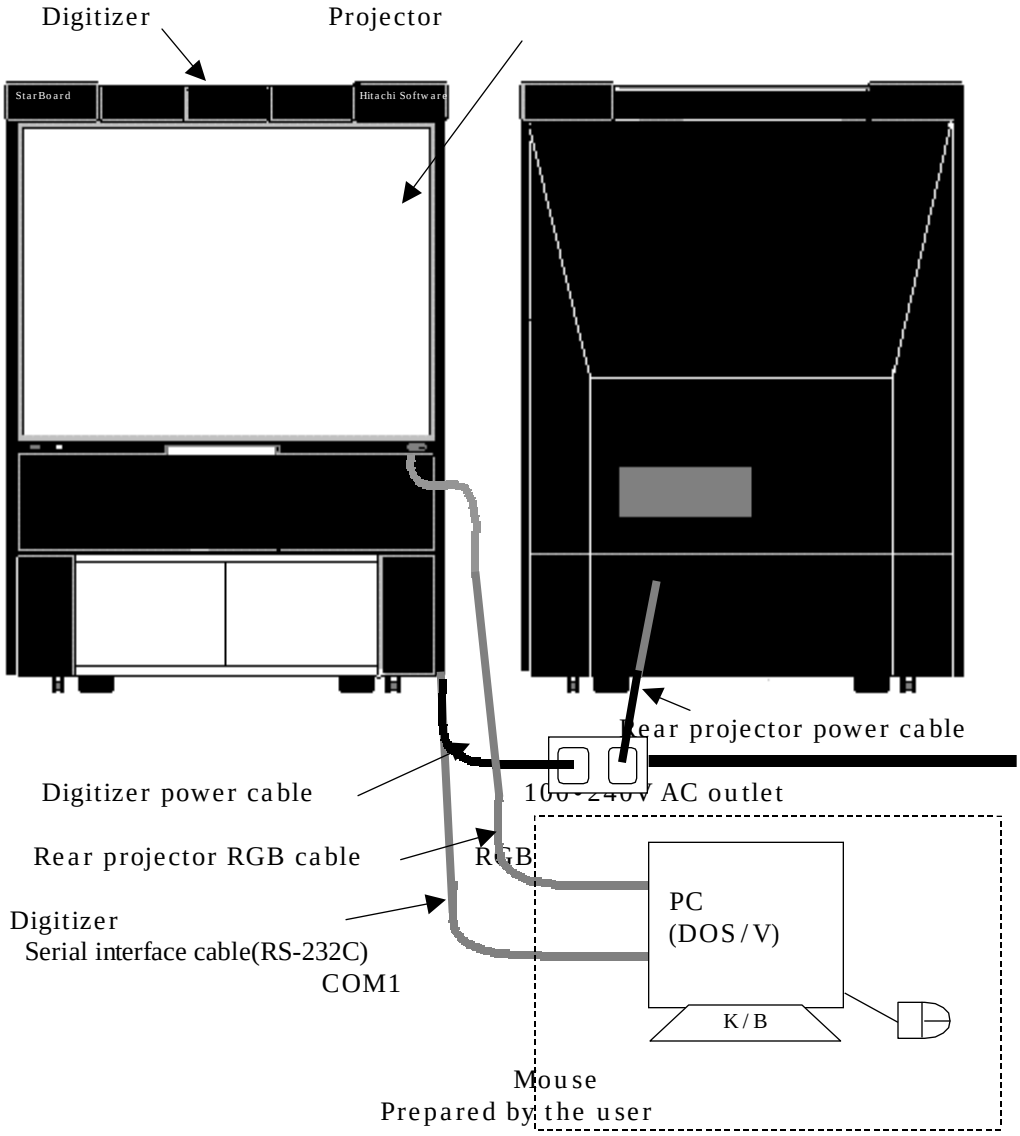
No.	Item	Specifications
1	Main stand unit/Color	Sheet metal/AC black medium
2	Front door	Made of reinforced flat glass (with key in one side•
3	Shelf	Sheet metal ×•
4	Pen tray	Sheet metal ×•
5	Outside dimensions	1,504(W)×410(H)×630(D) mm (excluding the fall-down prevention fittings)
6	Weight	Approx. 50kg

• Appendix E LC Rear Projector Hardware Specifications

For details on the LC rear projector hardware specifications, refer to the manual attached to the LC rear projector.

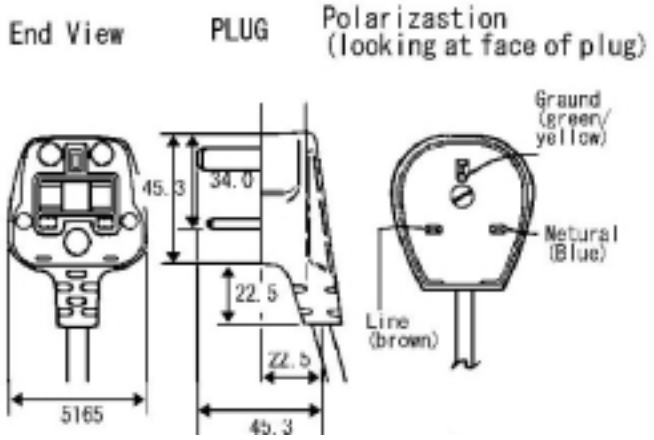
• Appendix F Cable Connection Diagram (Using LC Rear Projector)

The cables for connecting the projector to the digitizer as well as to other devices are already connected at the time of installation.

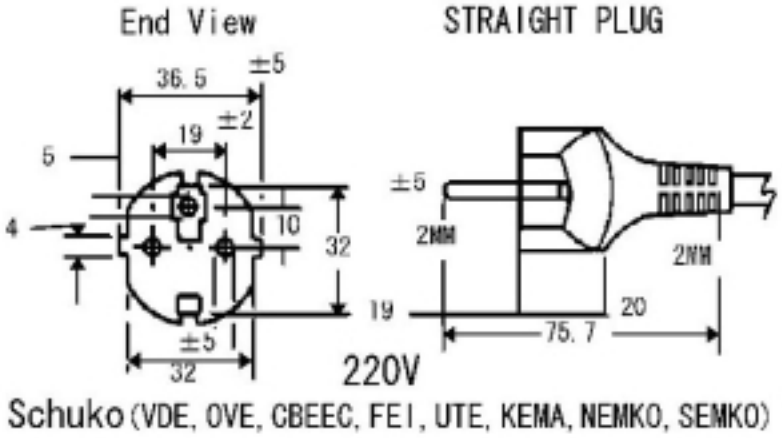


Digitizer power cable specifications

For U.K.:
Power cord which is approved according to:
For Plug: approved by BS1363
For Cord: H05VV-F,minimum 0.5mm^2
approved by CENELEC HD21, BASEC <HAR>, BS6500
color of wire:L-brown, N-blue, G-green/yellow
For Connector: approved by EN 60320,IEC320 or DIN VDE 0625
must be used.



The others(EU):
Power cord which is approved according to:
For Plug: CEE7-7
approved by EN60320 or DIN VDE 0620
For Cord: H05VV-F,minimum 0.5mm^2
approved by CENELEC HD21 or BASEC <HAR>
color of wire:L-brown, N-blue, G-green/yellow
For Connector: approved by EN60320,IEC320 or DIN VDE 0625
must be used.



• Appendix G USB-SERIAL Adapter

For PCs without a serial (COM) port, StarBoard can be connected via the USB port. In this case, a USB-SERIAL adapter is required.

Here, the setup procedure using a USB-SERIAL adapter is explained.

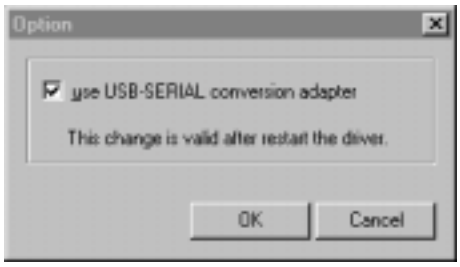
1. Install the adapter by referring to its manual.

2. Connect the USB-SERIAL adapter using the serial interface cable(RS-232C) from the StarBoard.

3. Install the driver in the PC according to description given in Chapter 3, "StarBoard Setup" Reboot the PC if required.

4. Display the driver screen and choose "Option" from the menu.

5. Choose, "use USB-SERIAL conversion adapter", and click on the [OK] button.



6. Click on the [Stop Driver] button on the driver screen to stop the driver. Then, restart it.

Notes: Do not unplug and reinsert the USB-SERIAL adapter while it is in use.
Since the driver only recognizes only COM 1-4 ports, choose among COM1 to COM4 for the virtual COM port for the adapter.

• Appendix H Product Guarantee

1. If this product is damaged in normal use during term of the guarantee, we will repair the damaged part free of charge. If the "Customer Registration Card" attached to the written guarantee is not returned to us, customer information is not registered and we may not repair the damaged part free of charge. After receiving this product, complete and return the "Customer Registration Card."
2. The term of this guarantee is **one year** from the day of purchase.
3. Repairs will be billed for even during the term of the guarantee when:
   (1) The "Customer Registration Card" attached to the written guarantee is not completed and returned;
   (2) the written guarantee is not presented;
   (3) no information is entered on the "Customer Registration Card" attached to the written guarantee or the contents have been changed;
   (4) free-of-charge repair applies only to the first purchaser (it does not apply to a third person the customer resold this product to);
   (5) the product becomes faulty or damaged due to improper handling, e.g., dropping or impact during transportation and movement by the customer;
   (6) the product becomes faulty due to handling that infringes on the notes described in this user's guide;
   (7) the product becomes faulty or damaged due to fire, earthquake, lightning strike, other act of God, pollution, or abnormal voltage;
   (8) the product becomes damaged due to use of a device other than our equipment;
   (9) a fault in a part other than this product;
   (10) consumables are naturally consumed, abraded, or deteriorated.
4. When this product does not function normally, review the contents of this user's guide. If the problem cannot yet be solved, contact the manufacturer. The manufacturer will decide whether or not the product should be repaired. If the product is sent to us without contacting the manufacturer, the guarantee may not apply.
5. When the customer sends a part or all of this product for repair, the postage shall be borne by the customer. The postage for returning the product to the customer shall be borne by us.
6. This written guarantee does not include the cost required to remove and install the equipment for repair.
7. This written guarantee does not include auxiliary damage (loss of profits obtained from the use of this product) caused by a fault detected in the product.
8. The above contents, that prescribe all the contents of the written guarantee, substitute all the explicit or implicit responsibility of guarantee, including the responsibility of secured damage under the law.