

## Appendix E – User's Manual

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## FCC NOTICE

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 UNDERSIRED  
OPERATION.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE : This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

## **WINDOWTOUCH USER MANUAL**

Attention : Apply this product to a flat CRT monitor only for the proper use.

Otherwise, touch accuracy will be out of acceptable level  
due to the curvature of monitor display surface.

Supplier : Windowtouch Division(Department)

Touchside... here we're

### **Copyright**

The department of Windowtouch has the right of the patent, trademark, copyright, and intellectual property for all the information on this manual.

We are not allowed to use the patent, trademark, copyright, and intellectual property in this manual, except for the right that is accepted by the written agreement otherwise.

The information of manual is subject to change for the improvement of product without the advanced notice..

On using windowtouch, we are not liable to any damage to the computer caused by user's fault, or carelessness, and to any data loss in the computer including Windowtouch module that might occur during the repair.

It is strongly recommended to preserve the important data before the repair by any method available.

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## 1. Product Overview

- List of components enclosed.

1. Windowtouch (Connected the Controller and Cable)	1 pc
2. Stylus Pen	1 pc
3. CD Driver	1 pc
4. Holder	1 Set
5. Dual Lock (W 44mm x L 20mm x T 5mm)	1 Set
6. Velcro (W 44mm x L 20mm x T 3mm)	1 Set
7. Velcro (W 50mm x L 16mm x T 3mm)	1 Set
8. Windowtouch User Manual	1 copy

### 1) Windowtouch

Windowtouch is an input device operated by displayed image on the monitor with finger or stylus pen.

Windowtouch consists of a touch screen, touch screen housing, a built-in controller, and cable. touch screen is an assembled sheet of transparent glass and film.

Built-in controller is connected to communication port of the computer and thru cable.

### 2) Stylus Pen

Stylus Pen is provided for increasing touch accuracy.

It can be used for selecting small image.

### 3) CD Driver

The CD Driver has installation program and user manual.

### 4) Holder

The Holders support the Windowtouch in front of the monitor.

You can adjust the Windowtouch up and down for matching the monitor screen with it properly.

### 5,6) Dual Lock & Velcro

It fixes the holder to the monitor.

Select Dual Lock or Velcro, depending on the active area size of the monitor.

### 7) Velcro

It attaches the housing of the Windowtouch to monitor.

## 8) User Manual

This manual describes the product features, specifications, how to install the program, etc.

\* If you can't find any part, which is shown the above, or have any problem, please contact our service center (Telephone No. 82-2-2068-7755).

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## 2. Product Features

### 1) Convert ordinary monitor to touch monitor...

Windowtouch allows anyone to adopt touch method as interfacing tool easily, for ordinary flat CRT monitor in which touch screen is not built in.

The expertise is not required for installation.

### 2) Improve the interfacing speed and accuracy

Windowtouch allows one to interact with computer visually, which naturally means faster and more accurate interfacing compared to mouse or keyboard.

Windowtouch is found to be very effective for computer gaming such as Starcraft.

### 3) Anyone can use easily

Windowtouch is an intuitive input device operated by touching the selected image appeared on the screen. One doesn't have to have specific knowledge about the computer for touch operation.

### 4) Save the money

Existing built-in touch screen monitor was used to be too expensive for an individual consumer to afford.

Windowtouch is an economic solution that can meet the customer's satisfaction.

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## 3. Product Specification

### 1) Specification

Rating	1. Voltage	DC 5Volts
	2. Operating Temperature Range	0°C to 50°C (Humidity 20% to 90%RH)

	3. Storage Temperature Range	-10°C to 60°C (Humidity 20% to 90%RH)
Optical	1. Transmittance	80% or more
	1. Resistance between Lead	200 ~ 900Ω
Electrical	2. Linearity	2% or less
	3. Insulation Resistance	20MΩ or more at DC 25V
	4. Chattering Time	10msec or less
	1. Input Method	A Special Stylus or Finger
Mechanical	2. Operating Force	Stylus : 80 g or less (R 0.8 Polyacetal Pen) Finger : 80 g or less (R 8.0 HS40°Silicon Rubber)
	3. Surface Hardness	2H or more (according to JIS-K5400)
	1. High Temperature Test	50°C for 120 hours
Reliability	2. Low Temperature Test	-10°C for 120 hours
	3. Humidity Test	60°C, 90%RH for 120 hours
	4. Thermal Shock Test	-10°C for 30min & 60°C for 30min (10cycles)
	1. Writing Friction Resistance	Write 100,000 times in 30mm (force:250 g , speed:60mm/sec)
Durability	2. Punching Life	Punch 1million times with R 3.0 Silicon Rubber (force:250 g , speed:2cycles/sec)
	3. Heat Seal Peeling Strength	400 g /cm or more (peeling up ward by 90°in direction of X, speed:50mm/min)
	1. Scratch	Width<0.05, 0.05≤Width<0.10 and Length<10mm
Criterion	2. Granular Object	Diameter≤0.25, 0.25≤Diameter≤0.35mm (4ea or less)
	3. Linear Object	Width≤0.05, 0.05≤Width≤0.10 and Length<3mm
	4. PET Bubbles	Diameter<0.2, 0.2≤Diameter<0.4mm(6ea or less) 0.4≤Diameter<0.6mm (2ea or less)

## 2) Dimension

	구	형	Width	Length	Thickness
Panel	Housing	401.0mm	309.0mm	10.0mm	
	Outer	348.9mm	265.9mm	2.1mm	
Panel	Active	327.2mm	245.4mm		
	View	330.2mm	248.4mm		

### **3. Screen Guide**

When you use a Mouse

When you use touch Screen

When you use Windowtouch

1. When you press the screen with a pen or finger, it could happen to press other icon around the touch position simultaneously. It would better to make the icon bigger to avoid this trouble.

(Recommend screen display : SVGA 800 x 600)

2. Make bright the monitor screen to protect from reflect light or finger print.

3. Match the height of monitor and a user's eyes to reduce the variation for doing Calibration.

When you use TouchTool or software

1. When you press the screen with a pen or finger, it could happen to press other icon around the touch position simultaneously. It would better to make the icon bigger to avoid this trouble.

(Recommend screen display : SVGA 800 x 600)

2. Make bright the monitor screen to protect from reflect light or finger print.

3. Match the height of monitor and a user's eyes to reduce the variation for doing Calibration.

4. Arrange the navigation button to easy to go first, former, or next screen.

5. Eliminate the curser or mouse point to keep the attention of user.

6. Show the conditions(Loading bar, clock icon, etc.) of screen..

7. Use more simple and easy program for everyone can use it.

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### **5. Installation**

① Place a set of Dual lock or Velcro to the top of monitor front bezel properly. Do not remove cover film yet. Then hook the Windowtouch to one of 5 holes in each holder (select the one with best guess.

② Place the holders on Dual Lock or Velcro, then adjust the Dual Lock or Velcro position and mark. Select the best one among 5 holes in each holder such that Windowtouch is properly

aligned to monitor and the Windowtouch housing is ready for attachment to the monitor; Windowtouch should be hooked on that hole later.

③ Choose which set is going to be used for fixing holders, Dual Lock or Velcro. Then attach these to each holder after removing cover film placed on the one side of Dual Lock or Velcro. After that, remove the cover film placed on the other side of Dual Lock or Velcro.

④ Attach Velcro to the grooves located at the rear side of Windowtouch bezel after removing cover films placed on one side of Velcro. Then remove the other cover film placed on the other side of Velcro.

⑤ Mount the Windowtouch bezel to the holders thru pre selected holes in each holder.

Now a whole assembled set is ready for attachment to the front bezel of monitor.

⑥ Press firm the holders against the pre determined area on the top side of monitor front bezel.

⑦ Press firm the Velcro attached area of Windowtouch bezel against the monitor front bezel.

⑧ And then, connect the cable to the RS 232 serial port(select com1 or com2)

⑨ Insert the CD Driver to install the program.

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## 6. How to install the Driver

The CD driver provided is a software needed for Windowtouch operation in Win 98/2000/NT environment. Hardware wise, Windowtouch interacts with computer through controller and serial port. Since touch position recognition thru Windowtouch is compatible with mouse driver system, touching thru Windowtouch provides several functions identical to what usually mouse does e.g., drag, select, click, and double click.

► This software drive uses a Serial port. If any other existing software has association with serial ports, you must delete the software before installation.

### - Driver Installation Procedure -

## 6-1 For Windows User

1) Insert the enclosed CD Driver to CD-ROM driver.

And Double click the setup.exe file. Then installation will start.

►► Note – Please check the computer O/S before installation, and choose a right setup file with the O/S. During installation, the installation wizard will guide the procedure.

\* The PC automatically restarts for itself before the installation in the case that install shield wizard setup was never performed previocisly.

2) A message “Touchside-Install Shield Wizard - Touch screen Version 1.2” will be appear on the screen.

3) Click the “Next”

4) “Install Shield Wizard Completed”

Click the “Finish” if message “The Install Shield Wizard has successfully installed Touchside, Click Finish to exit the Wizard” appears.

5) Click “YES” on screen if the message “Touchside Installer Information” appear.

Then, the computer reboots for itself and the installation completes.

►► Note – If there is no rebooting, the installation is not successful.

6) Click the “Confirm” after rebooting is completed.

7) Click “YES” for calibration when the message appears.

8) Then 2-point calibration procedures proceed.

Touch the center of blue target appeared on the top of the left side in the screen until the color changes to gray. (It takes about 1 ~ 2 seconds)

Repeat same procedure when the next target appears on the bottom of the right side in the screen.

Press “ESC” if you want to stop calibration, in such a case, the previous calibration result will

be still valid.

9) The icon named “Touch Tool” will appear when the calibration procedures is completed successfully.

## 6-2 For Linux User

►► Note – Please check the computer O/S before installation, and choose a right setup file with the O/S. During installation, the installation wizard will guide the procedure.

- Please check the installation program.

Check the program is named [Hantouch\_linux\_???.tar]  
(???? – Version)

- Open the program

[ \$ tar vxf Hantouch\_linux\_???.tar]

- Then create a “Hantouch” file

- Input a command

[ \$./Hantouch]

- The program shows on the screen.

Move the program with mouse that you want position and press the left mouse button to hold the position.

- Now you can use the Windowtouch to press the monitor screen with a stylus pen or finger.

>> Note – Before operate the Windowtouch, you should select the Calibration sheet

to match the touch position with cursor point.

Please check the how to calibrate on 7-2.

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## 7. How to use Touch Tool.

In order to utilize the Windowtouch properly, it is important to get familiar with the details about Touch Tool.

### 7-1 For Windows User

It consists of 4 sheets and the followings are the detailed descriptions.

#### 1) Hardware Configuration

This includes the menu for setting, automatic search, controller status, etc.

##### 1-1. Current Setting

###### ►► COM Port

Baud Rate = Select one among 2400/4800/9600/19200.

(In case of Window NT, 2400 bps is not available)

Port Name – Select a port COM1 or COM2

If you want to change, select the corresponding one and click it.

Then the setting will be changed automatically.

###### ►► Detect a Touch Screen

Auto Detect: The computer automatically searches if Windowtouch is installed

when you press this button.

If the computer finds it, it will show the setting status on the screen.

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#### 2) Calibration

This menu is for calibrating Windowtouch when the intended touch position doesn't match the cursor point appeared on the screen.

It is important proceed, Calibration before use of Windowtouch in order to avoid trouble.

Please calibrate Windowtouch in the case described as follows;

- ① First time driver installation.
- ② When the resolution of monitor is changed.
- ③ When the intended touch location doesn't match the cursor.

④ When a video card or monitor is replaced.

►► Note : Please maintain the same watching position relative to Windowtouch during calibration. Otherwise, the calibration result will be influenced by the changed view angle that is caused by the change in user's watching position. Such a limit stems from the fact that the gap, between Windowtouch surface and display surface cannot be zeroed due to the finite physical size of monitor/Windowtouch bezel.

If the touch point doesn't still match the cursor satisfactorily, please choose 2 or 5 point calibration option and proceed.

#### ►► Initial State

Reset the status to initial state.

(Initial state is a setting done at the factory. Please do not change it.)

#### ►► 2-Points Calibration

Touch the center of blue target appeared on the top of the left side in the screen until the color changes to gray. (It takes about 1 ~ 2 seconds)

Repeat same procedure when the next target appears on the bottom of the right side in the screen.

Press “ESC” if you want to stop calibration, in such a case, the previous calibration result will be still valid.

#### ►► 5-Points Calibration

The 5 blue targets will appear in the sequential manner. When one appears, touch the center of it until the color changes to gray. Repeat the same procedures for the following rest of targets.

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### 3) Touch Setting

#### 3-1 Cursor Movement

This menu is for adjusting the speed of cursor movement responding to touching action.

If you set “Quick”, the speed is fast but the cursor trembling increases.

If you set “Slow”, the speed is low but the cursor trembling decreases.

Adjust the stroller as desired as you want.

### 3-2 Double-touch

Double-touch provides the same function as “Double-click” with mouse.

This option allows for you to optimize double-touching speed that might be different depending upon the touch habit of the individual. Using side bar, you can optimize a time interval between touches as favored. Also you can test the setting if it fits to you with “bulb” icon.

Double touch the icon. Bulb will go ON or OFF, if the setting works.

### 3-3 Mouse Button Select

This option provides the same functions as the ones that right or left button of mouse does. An icon showing mouse will appear on the screen if you select the option. You can choose left/right button of the mouse by touching one as desired.

※ Also touching with “Ctrl” key pressed will provide the same function as clicking the right button of mouse.

### 3-4 Display Cursor

“ON” – cursor appears.

“OFF” – cursor disappears.

### 3-5 Touch Sound

This option allows you to create a sound along with touch.

You can elect sound ON/OFF, and adjust frequency and duration as desired.

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## 4) Controller Information

- ① “Controller Version : 1.00” - It shows the version of Controller currently used.
- ② “Driver Version : 1.20” - It shows the version of Drive currently used.
- ③ “Application Version : 1.20” - It shows the version of Application currently used.
- ④ E-mail - It is the e-mail address.

## 5) Operation

When you touch the touch screen, the touch screen controller recognizes the touch as if only the

left button of mouse is clicked for mouse operation.

However, Windowtouch provide the same function that the right mouse button does touch with “Ctrl” key pressed.

Mouse	Windowtouch
Left Mouse Click	Touch(Only)
Right Mouse Click	Ctrl + Touch

## 7-2 For Linux User

The TouchTool consists of 4 sheets and the followings are the detailed descriptions.

### 7-2-1 Hardware Configuration

It is a menu to shows basic setting, automatic search, controller status, etc.

#### 1) Baud Rate Setting

Baud Rate = Select one among 2400/4800/9600/19200.

#### 2) COM Port

Port Name = /dev/ttys0 => com1 port  
/dev/ttys1 => com2 port  
/dev/ttys2 => com3 port  
/dev/ttys3 => com4 port

If you want to change, select the corresponding one and click it.

Then the setting will be changed automatically.

#### 3) AutoDetect Hantouch Controller

If you click this button, the computer automatically search a Windowtouch Driver installed.  
Then if it finds the program, it shows the current set up.

### 7-2-2 Calibration

This menu is for calibrating Windowtouch when the intended touch position doesn't match the cursor point appeared on the screen.

It is important proceed, Calibration before use of Windowtouch in order to avoid trouble.

Please calibrate Windowtouch in the case described as follows;

- ① First time driver installation.
- ② When the resolution of monitor is changed.
- ③ When the intended touch location doesn't match the cursor.
- ④ When a video card or monitor is replaced.

If the touch point doesn't still match the cursor satisfactorily, please choose 2 or 5 point calibration option and proceed.

#### ►► 2-Points Calibration

Touch the target( + or X mark) appeared on the top of the left side in the screen about 3 seconds, then repeat same procedure when the next target appears on the bottom of the right side in the screen.

#### ►► 5-Points Calibration

The 5 targets will appear in the sequential manner from the top of the left, bottom of the right, top of the right, bottom of the left and the center. When one appears, touch the target as the same as the above. Repeat the same procedures for the following rest of targets.

Press “ESC” if you want to stop calibration, in such a case, the previous calibration result will be still valid.

### 7-2-3 Touch Setting

#### - Noise Reduction Ratio

This menu is for adjusting the speed of cursor movement responding to touching action.

If you set “Quick”, the speed is fast but the cursor trembling increases.

If you set “Slow”, the speed is low but the cursor trembling decreases.

Adjust the stroller as desired as you want.

### 7-2-4 Controller Information

It shows the information of Controller currently used.

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## 8. How to use the Cyber Keyboard (Free Software)

What is Cyber Keyboard?

This is a software program that allows you to use a computer without the physical keyboard. The Cyber Keyboard provides all the functions as if you do with the real keyboard.

### 1) Activation

To activate Cyber Keyboard, proceed as following:

Start Button → Program → Touchside → Cyber Keyboard

### 2) Positioning

Position the Cyber keyboard as you want.

(Normally, it is recommended to locate this at the lower part of screen)

### 3) Operation

Select a window where you want to work on with Cyber Keyboard.

And touch the cyber keyboard, and then the selected characters will appear on the screen.

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## 9. Trouble Shooting

### 1) The screen stall or the system down

It could be a bug of Touch Drive or collision with other program.

Please, contact our after sale service center.

### 2) When the Windowtouch doesn't respond to touch

Check if cable is connected properly.

Check if the driver is correctly installed.

If the problem still remains, please call to our after sale service center or contact our engineer.

### 3) When the cursor trembles abnormally during touch

It would be caused by the irregular noise come from the system inside or the unoptimized frequency of the controller that might be vulnerable to the external source of interference..

Try to adjust the “Cursor Movement” in “Touch Setting”.

If the problem still persists, please call to our after sale service center or contact our engineer.

### 4) When the Windowtouch and mouse don't work at the same time

The controller of Windowtouch doesn't share the IRO with the other device.

Please change the COM address, which the other program might associate with.  
If the problem still remained, please call to our after sale service center or contact our engineer.

5) When Double-touch doesn't work

Try to adjust the "Double-touch Speed" and "Double-touch Area" in the "Touch Setting".

6) When the cursor doesn't appear

Check if "ON" is selected in the "Display Cursor" in "Touch Setting".

7) When a line or circle drawn with stylus pen doesn't look smooth even if those are intended to be smooth.

This also is caused by the irregular noise come from the system inside or the unoptimized frequency of the controller that might be vulnerable to the external source of interference.

Try to adjust the "Cursor Movement" in "Touch Setting".

If the problem still persists, please call to our after sale service center or contact our engineer.

## 10. Safety Precaution

Please, be cautious to avoid the following cases.

►► When Windowtouch works abnormal.

When water or other liquid permeated, it could cause a serious damage or abnormal operation.  
Immediately turn off the power and call to our after sale service center or contact our engineer

►► When Windowtouch has mechanical impact or shock

If you drop or impact the product, it could cause a serious damage.

►► Fire

Do not place Windowtouch near the fire or under direct the sun light.  
It might cause a breakdown or serious deformation of Windowtouch.

►► Disassembling, repair, and modification by user

These could malfunction of the product or irreparable.

Please try not to disassemble, repair, and replace by yourself.

## 11. Safety Caution

### ►► Handle Carefully

If you drop or press strong, glass in the panel could be broken.

Please be gentle for handling.

### ►► Clean Carefully

Do not use a cloth contaminated with volatile solvent like Thinner or Benzene.

Please clean the Windowtouch surface using spray glass cleaner as a soft cloth.

### ►► Touch Object

Please use a stylus pen or finger if possible.

Hard or sharp object like nail or knife would cause scratch/cut damage to the Windowtouch surface.

### ►► Storage

Please, avoid the place, where the humidity is high or dusty place for storage.

It might cause malfunction of Windowtouch.

### ►► Operation Environment

For Windowtouch operation(including storage), avoid the area where injurious chemical fume prevails, e.g., rubber processing factory.

Some chemical fume will cause the erosion of Windowtouch components and lead to irreparable damage.