Display type Teach Pendant

DTP7H-D
User's Guide Manual

(R1) Version

DAINCUBE Corp.
Display type

User Manual

FORM 170703F – 2017.07.03

DTP7H-P User's Guide manual
Form 170703F-170703— July, 2017

DAINCUBE Corp.
Web: www.daincube.com
E-mail: sales@daincube.com
Tel: 82-32-329-9783~4
Fax: 82-32-329-9785

#401-701, Bucheon TechnoPark 4-Danji,
655 Pyeongcheon-ro, Wonmi-gu, Bucheon-Si,
Gyeonggi-Do, Republic of Korea

Copyright © 2005–2018 Daincube
All rights reserved.
Printed in the Republic of Korea

Preface

Copyright notice
Copyright © 2005–2018 Daincube. All rights reserved.
Copying of this document, and giving it to others and the use or communication of the Contents thereof, is forbidden without express authority. Offenders are liable to the payment of damages.
All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

Important information
This documentation is intended for qualified audience only. The product described herein is not an end user product. It was developed and manufactured for further processing by trained personnel.

Disclaimer
Although this document has been generated with the utmost care no warranty or liability for correctness or suitability for any particular purpose is implied. The information in this document is provided “as is” and is subject to change without notice.

Trademarks
All used product names, logos or trademarks are property of their respective owners.

Product support
DAINCUBE Corp.
Web: www.daincube.com
E - MAIL: sales@daincube.com

Safety precautions

Be sure to observe all of the following safety precautions.

Strict observance of these warning and caution indications are a MUST for preventing accidents, which could result in bodily injury and substantial property damage. Make sure you fully understand all definitions of these terms and related symbols given below, before you proceed to the manual.

Symbols

The following symbols may be used in this specification:

Warning

Warnings indicate conditions that, if not observed, can cause personal injury.

Caution

Cautions warn the user about how to prevent damage to hardware or loss of data.

Note

Notes call attention to important information that should be observed.

User's Manual

Revision history

Revision	Data	Comment
Version 1.0	2018.03.30	Initial Version

User's Manual

Contents

1. Introduction 5

1.1. General precautions 5

2. Safety information 5

3. Warranty and warranty coverage 6

3.1. Warranty period 6
3.2. Scope of the warranty 6
3.3. Service coverage 6

4. Description 7

4.1. DTP7H-D Package List 7
4.2. DTP7H-D Connection 8

5. Serial Driver install 9

5.1. Virtual COM Port driver install 9

6. Touch Driver install & Calibration 12

6.1. Universal Pointer Device Driver install 12
6.2. Touch Calibration 14

7. Host PC resolution setting 18

7.1. Resolution Comparison 18
7.2. 1024 X 768 Resolution Setting 18

8. How to test Keypad, LED, Buzzer 25

8.1. Execute Serial Daemon Application 25

9. OSD function description 34

9.1. How to enter OSD 34
9.1.1. Support function description 35

10. FAQ 36

10.1. Error Solution 36
10.1.1. Serial.exe Error 36

11. General care and maintenance 38

11.1. Cleaning 38

12. EC directives and standards 38

12.1. EC directives 38
12.2. Standards 38

13. Reference list 39

User's Manual

1. Introduction

Thank you very much for purchasing our product.
Improper usage or mishandling may result in a product not only being unable to deliver full functions but also produce unexpected troubles or shorten the product's life.
Please read this manual carefully, and operate the product properly by paying attention to its handling. When operating the product, always keep this manual at hand and read the relevant items as required.

1.1. General precautions

- Be sure to read this Instruction Manual for proper use of this product.
- Part or all of this Instruction Manual may not be used or reproduced without permission.
- Please take note that we shall not be liable for any effects resulting from using this Instruction manual.
- This manual may be modified when necessary because of improvement of the product, modification or changes in specifications.
- Some drawings in this manual are shown as a typical example and may differ from the shipped product.

2. Safety information

- Before unpacking and installing the product or adding devices on it, carefully read all the manuals that came with the package.
- Avoid using product in extreme dust, humidity and temperature conditions. Do not place the product in wet area.
- Before carrying out assembly and adjustment work or maintenance and inspection work of the machine, be sure to disconnect the power cord. Otherwise, electric shock may result.
- After turning OFF power, wait at least five minutes before servicing the product. Otherwise, residual electric charges may result in electric shock.

⚠ Warning

- Be sure to check grounding before you use the unit. Danger of personal injury due to electric shock!
- Be sure to use the unit within the voltage range indicated.
- The operator must have a sufficient educational level and must know details of intended use described in the user's manual.
- Be sure to check the wiring to the main unit.
- When the user (customer) extends wiring, malfunction may occur due to faulty wiring. In this case, inspect wiring thoroughly and check it for properness before turning on the power.
- Before operating the unit, be sure to check that there is no danger in or around the operating range.
- Do not allow water or oil to get on the unit and the power cord.
- Install the unit in a place which can endure its weight and conditions while running.
- Take care not to squeeze and thus damage the cable with any object.
- Do not lay the cable over sharp edges to avoid damaging the cable sheath.
- Check the mounting screws regularly so that they are always firmly tightened.
- Never touch terminals directly or internal parts of controller.
- Do not disassemble or modify the product.
- Before carrying out assembly and adjustment work or maintenance and inspection work of the machine, be sure to disconnect the power cord.
- Connect the power supply after completing the adjustment of all the cables and switches.

⚠ Caution

- After the shutdown window, turn off the power supply. Otherwise the components could be destroyed or undefined signals could occur.
- To prevent the equipment from falling to the ground.
- Never lay the device onto unstable surfaces. It could fall to ground and thus be damaged.
- It is recommended to use the unit in an environment where no electrical noise is present. In noisy environments, use a filter fitted.
- Never lay the device close to heat sources or into direct sunlight.
- Avoid exposing the device to mechanical vibrations, excessive dust, and humidity or to strong magnetic fields.
- Make sure that no foreign objects or liquids can penetrate into the device.
- Wipe the power plug with a clean, dry cloth periodically to eliminate dust.

User Manual

■ Always pay special attention to the robot's movement in the Teaching Mode.

3. Warranty and warranty coverage

The Teaching pendant you purchased has been delivered upon completion of our strict shipping test.

3.1. Warranty period

The warranty period is as follows:

➢ 12 months after our shipment.

3.2. Scope of the warranty

Where a defective condition occurs during proper use conditions and obviously under the responsibility of the manufacturer, within the term above, we shall repair the product without charge.

However, any items that apply to the following are excluded from the warranty coverage.

■ The warranty is not valid if the defect is due to accidental damage, mishandling, misuse, voltage fluctuation, high/low voltage or natural disaster.
■ If the product is repaired or tried to repair from unauthorized personal/Repair Shop.
■ If the product serial number is tempered.
■ The product is defective due to wear of parts, which can be considered as consumable parts by the nature. (such as a cable)
■ Defects resulting from changes over time such as natural color fading of paint.
■ Defects resulting from mishandling or improper use.
■ Defects resulting from an inadequacy or error in maintenance and inspection.
■ Defects resulting from the use of any part other than our genuine parts.
■ Defects resulting from a modification not approved by us or our dealers.

Only a delivered product shall be singly warranted, and no damage induced by the defect of the delivery product can be warranted. For repair, transport the product to our factory.

3.3. Service coverage

The cost of a delivered product does not include expenses for program creation and engineer dispatching. Therefore, the following are charged separately even within the warranty term:

■ Maintenance and inspection.
■ Technical guidance and technical training in the operating instructions.
■ Technical guidance and technical training on program-related matters such as program creation.

User Manual

4. Description

This document is a manual document that describes how to set up the Host PC for the Daincube Teach Pendant Display (DTP7H-D) series.
DTP7H-D is equipped with 1024 x 600 LCD, Touch controller, Keypad, LED and Buzzer are configured as Virtual COM Port type.

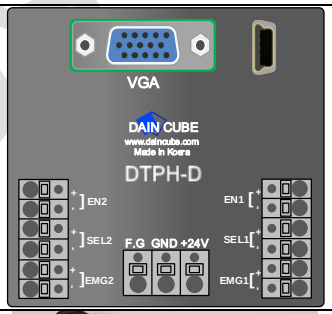
To use the DTP7H-D, the following configuration procedure is required.

A) Host PC to Target (DTP7H-D) connection.
B) Virtual COM Port driver install.
C) Touch Driver install & Calibration.
D) Host PC resolution setting.
E) How to test Keypad, LED and Buzzer.

※ The Host PC in this document is based on Windows 7 32bit, 64bit.

4.1. DTP7H-D Package List

The package structure of DTP7H-D is as follows.

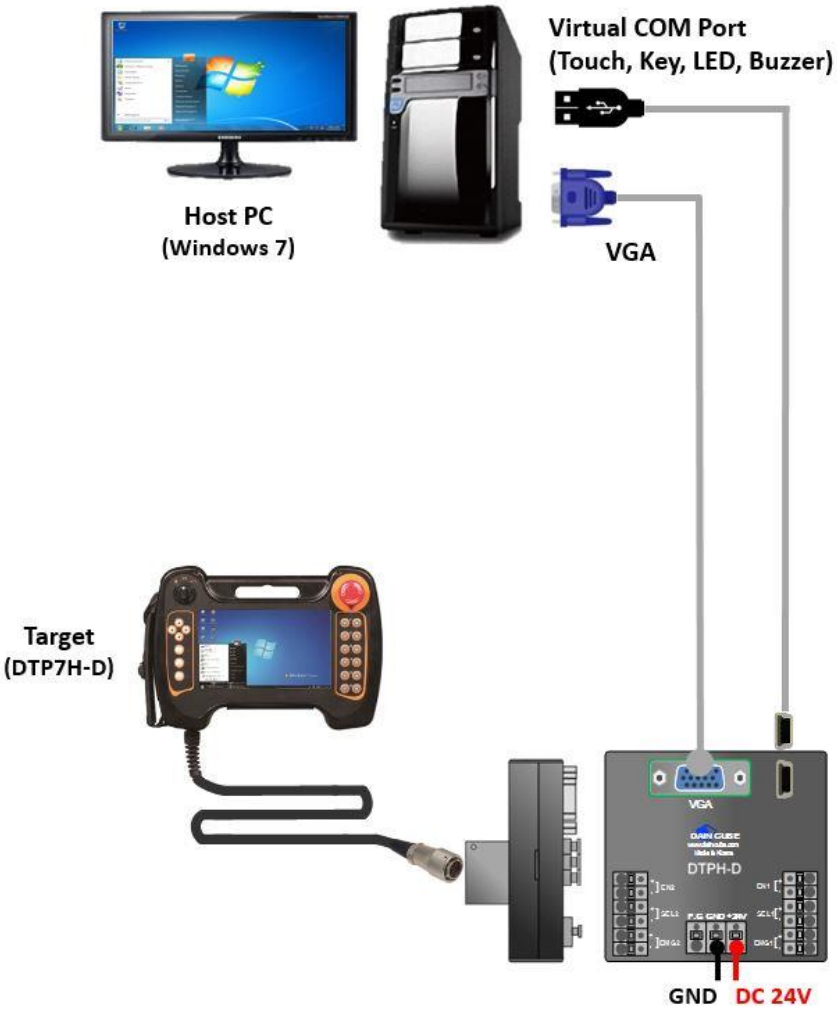
Item	Photo	Options	Quantity
DTP7H		Basic configuration System Cable: 1.5m USB Virtual COM Port (Key, LED, Buzzer, Touch) VGA Option System Cable: 1.5 ~ 3m	1
Junction Box		Option	-
VGA cable		Option	-

User Manual

Mini-B type cable		Option	-
SDK CD		Option	-

4.2. DTP7H-D Connection

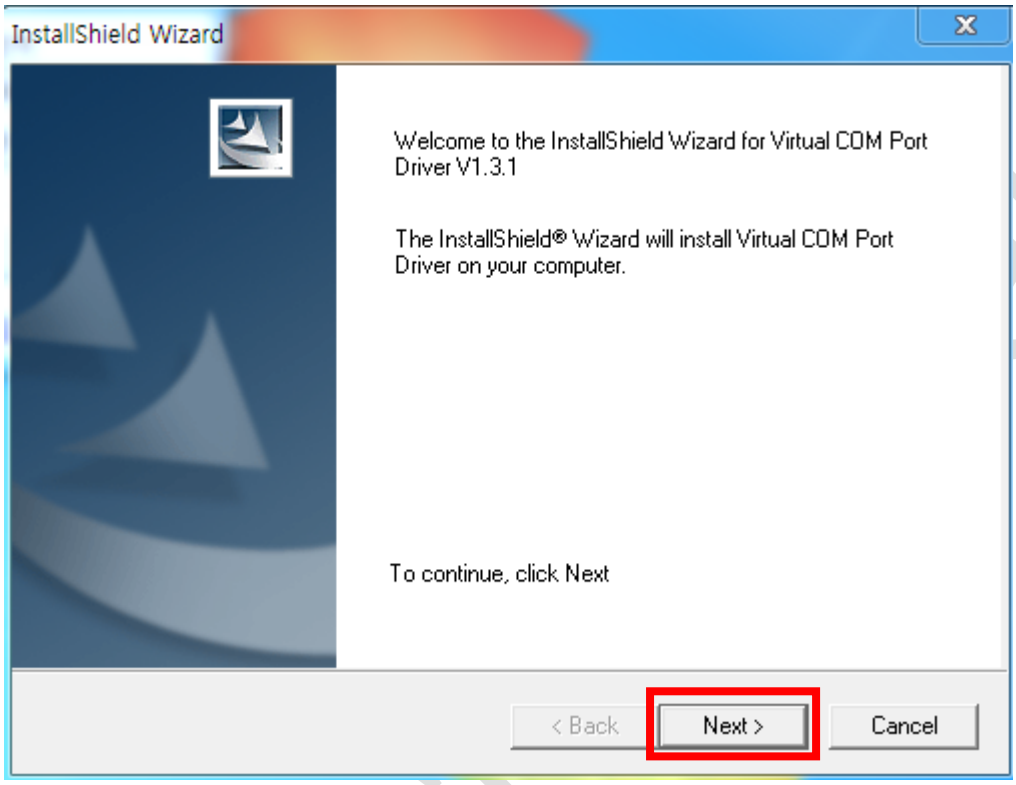
As a connection method between a Host PC and target, the Host PC is based on Windows 7 32bit and 64bit environments.



5. Serial Driver install

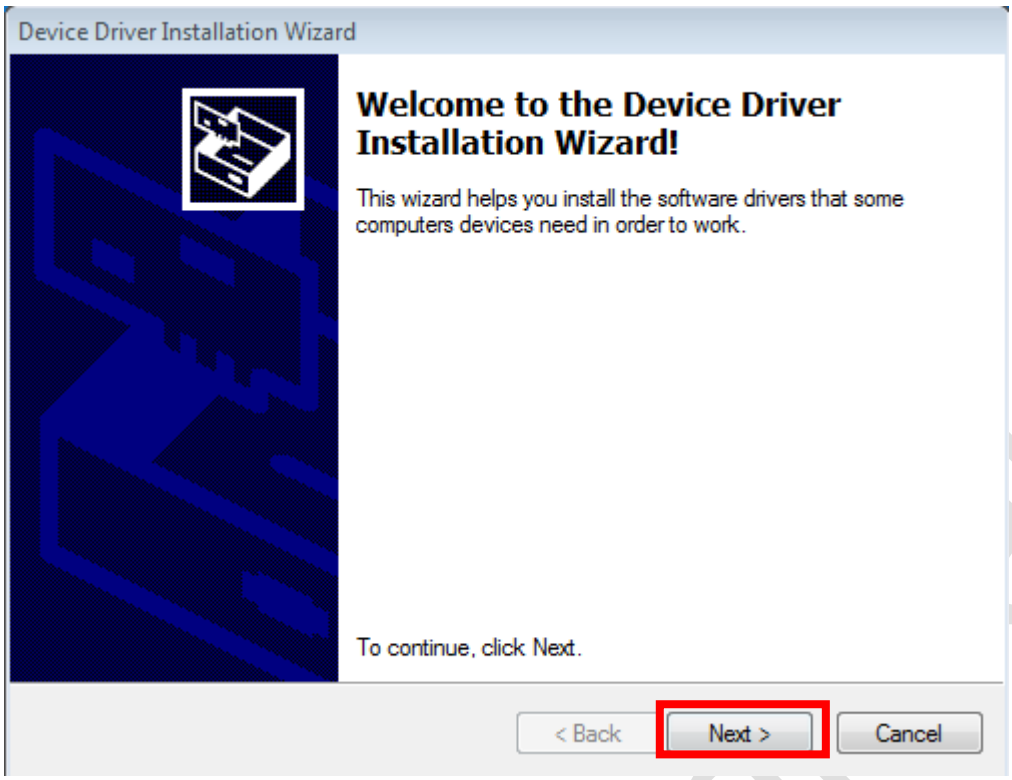
5.1. Virtual COM Port driver install

DTP7H-D uses Virtual COM Port to control PC, Touch, Key, LED, Buzzer using USB Mini-B type.
Therefore, you must install the Virtual COM Port driver on the Host PC.
Execute .exe file from the 02_DriverW01_VCP_Driver folder of the provided SDK. For 32bit, install VCP_V1.3.1_Setup.exe and for 64bit install VCP_V1.3.1_Setup_x64.exe.
When you execute the .exe file for the operating system bit, the following screen appears. Click "Next" to proceed with the installation.

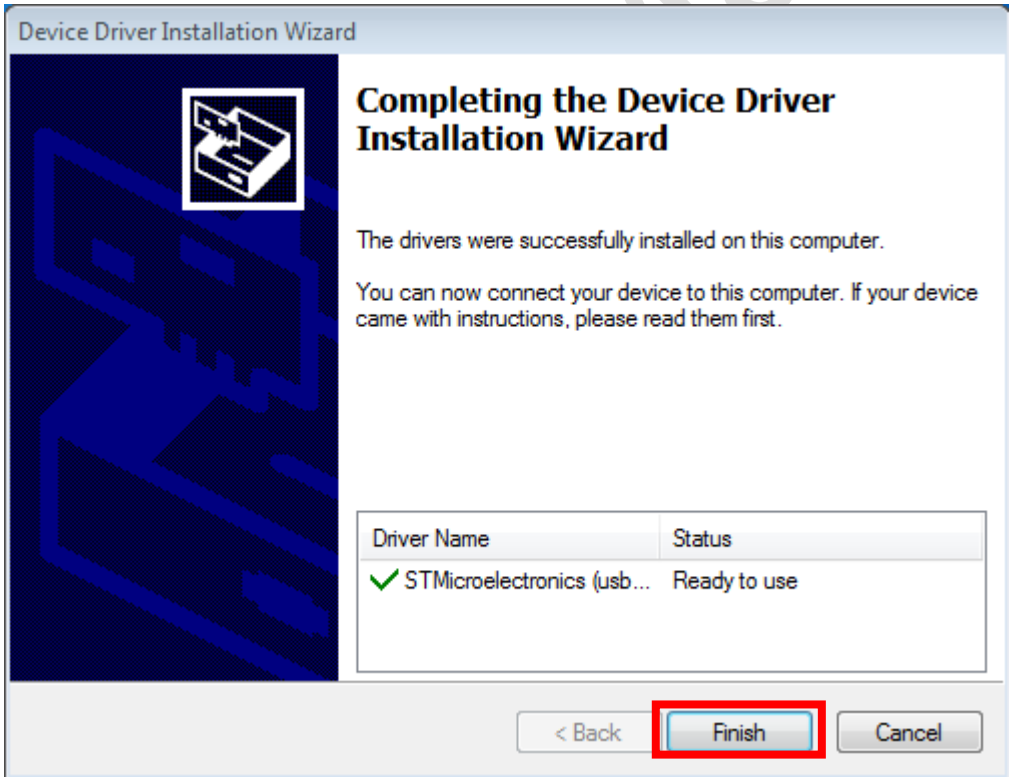


User Manual

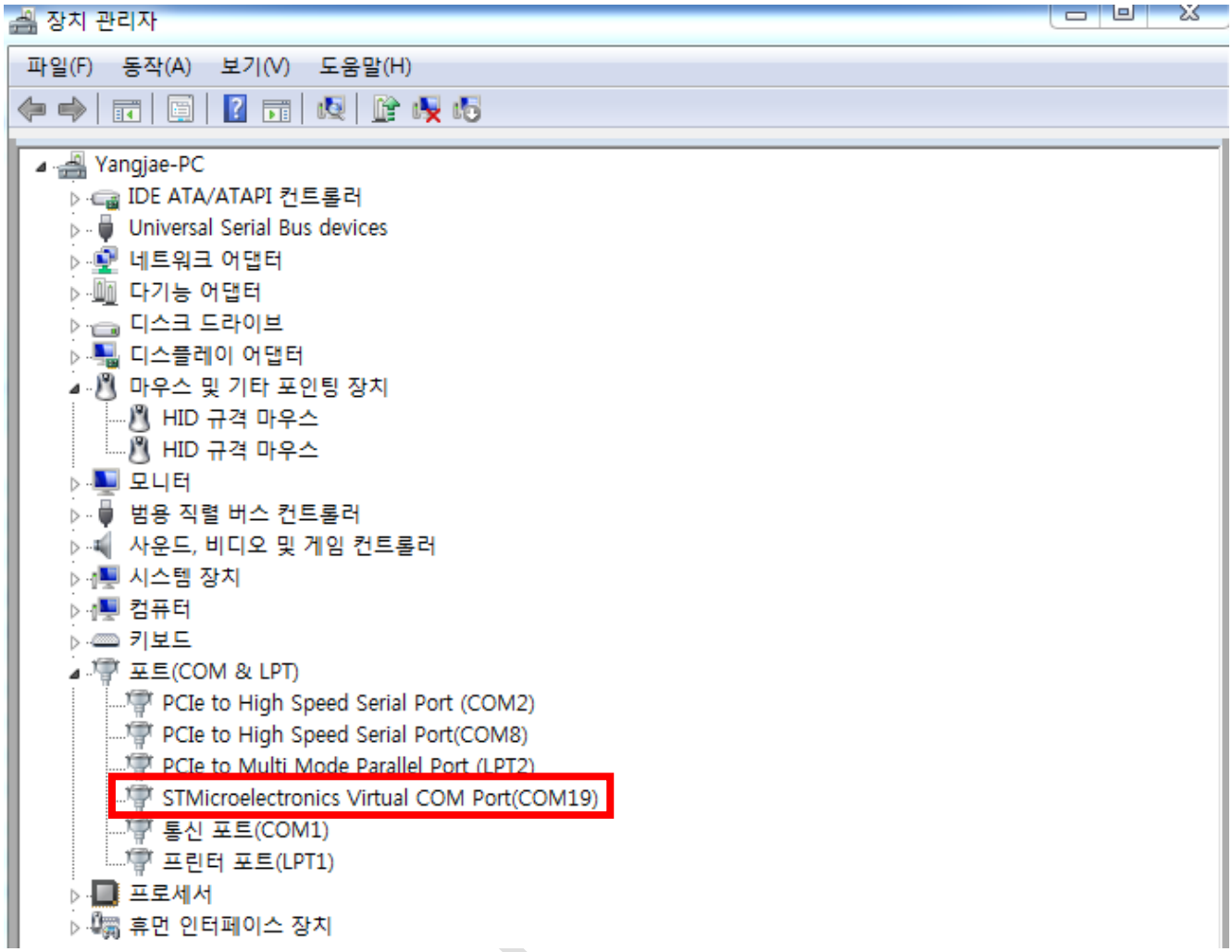
If the installation wizard for the device driver appears during the installation process, click "Next".



When the installation is complete, click "Finish".



If the driver installation is completed success, if you power on the DTP7H-D, the driver installation progresses. If completed, "Control Panel" -> "Device Manager" -> "Port" appears as follows.



If the connection is not successful, the right LED3 of DTP7H-D light up red. If not, reinstall the driver and unplug the USB Mini-B cable and plug it back in.

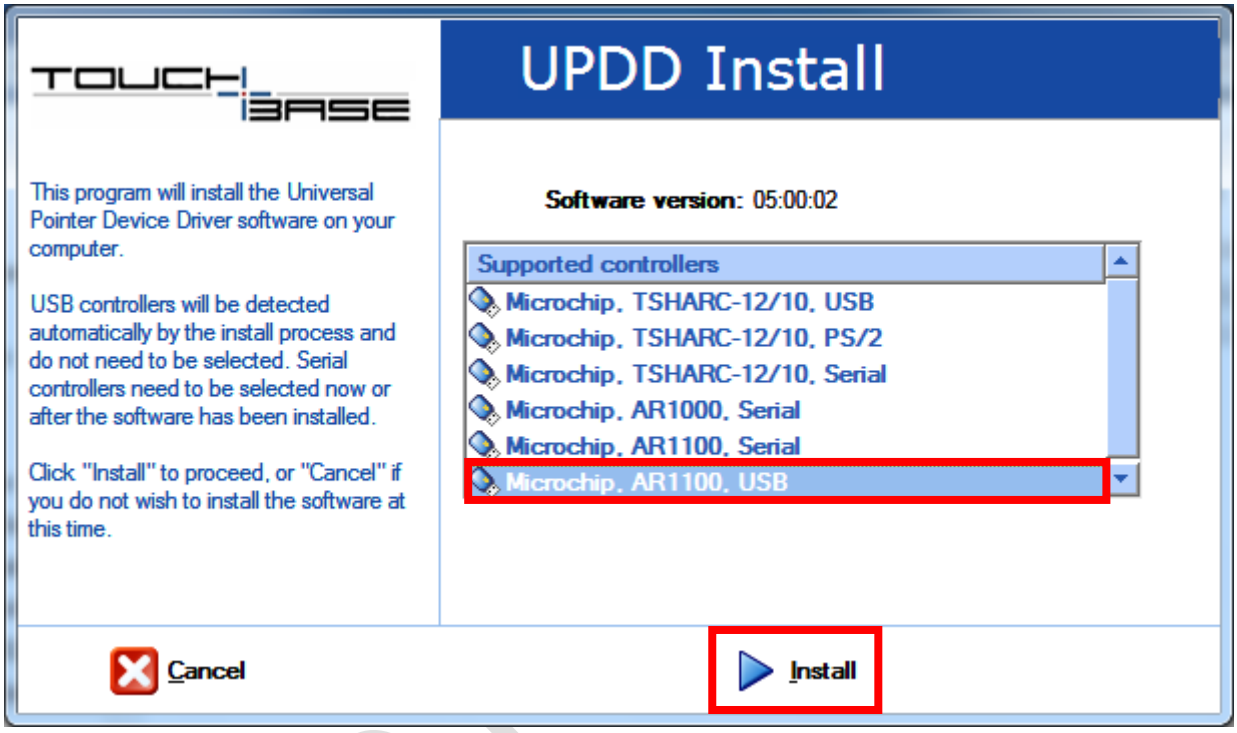
6. Touch Driver install & Calibration

6.1. Universal Pointer Device Driver install

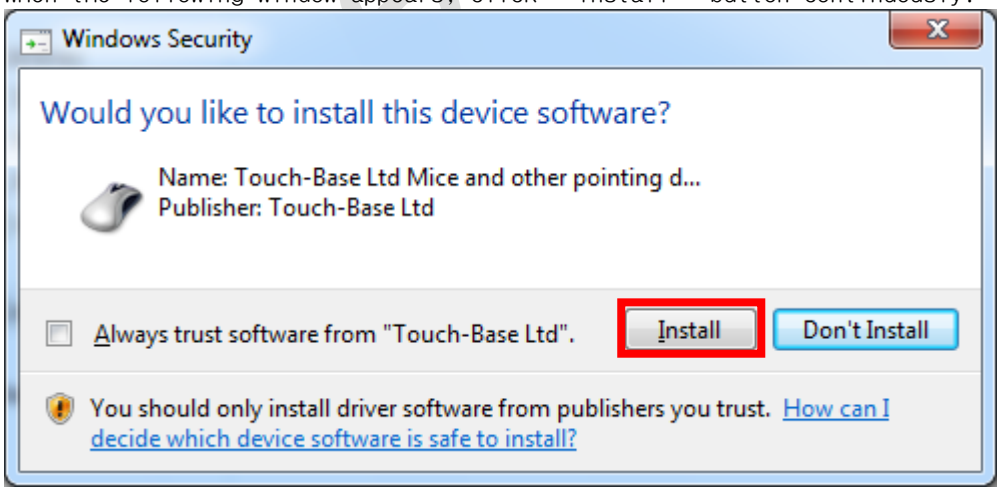
In order to control the Host PC in DTP7H-D, driver and UPDD Application are installed through Universal Pointer Device Driver (UPDD) install as a necessary procedure.

The UPDD install file is located in the folder "02_DTP7H-D_SW >> 02_Driver >> 02_Win8Win7XPUPDD" in the supplied CD and can be installed on the Host PC by executing "setup32.exe" or "setup64.exe" file depending on the OS environment.

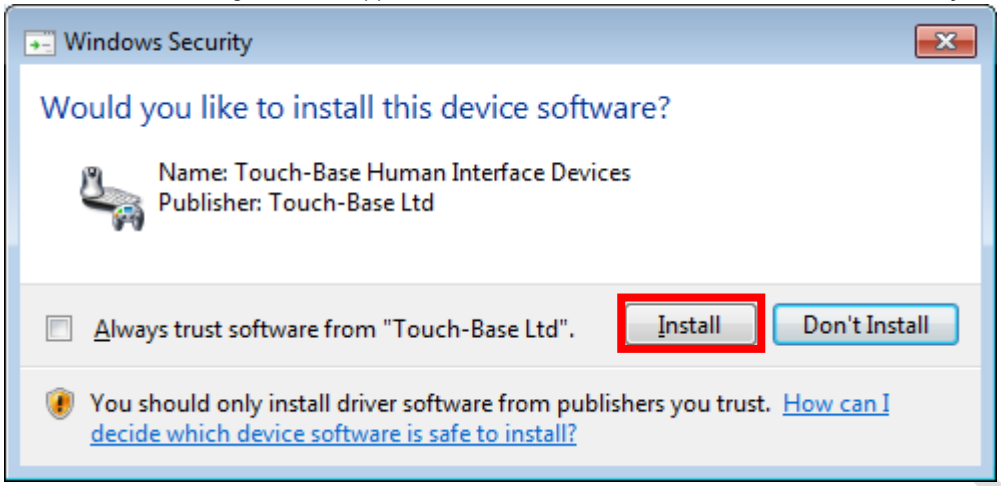
When the installation program is executed, select "Microchip, AR1100, USB", and click the "Install" button.



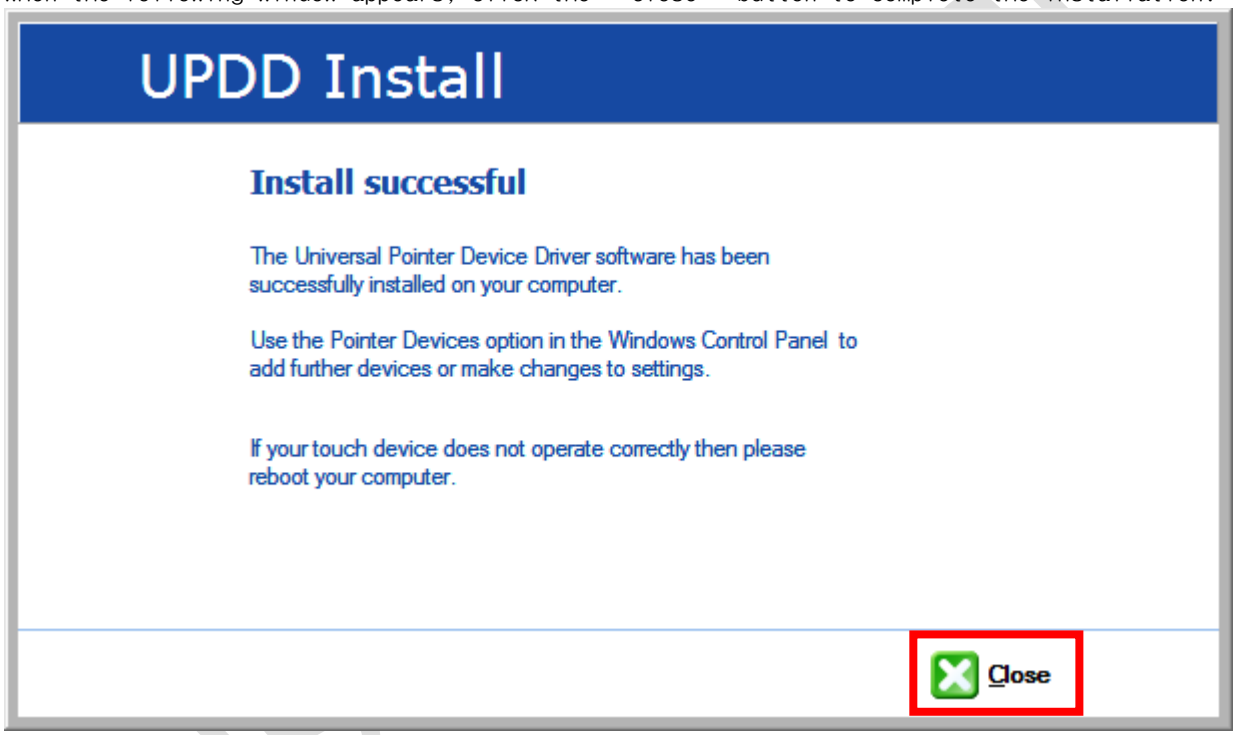
When the following window appears, click "Install" button continuously.



When the following window appears, click "Install" button continuously.

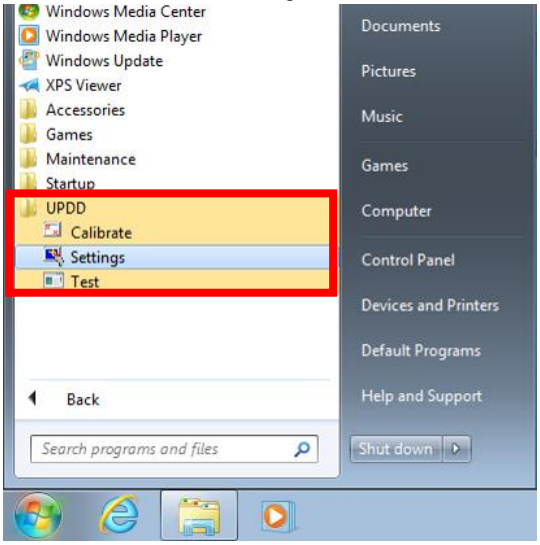


When the following window appears, click the "Close" button to complete the installation.



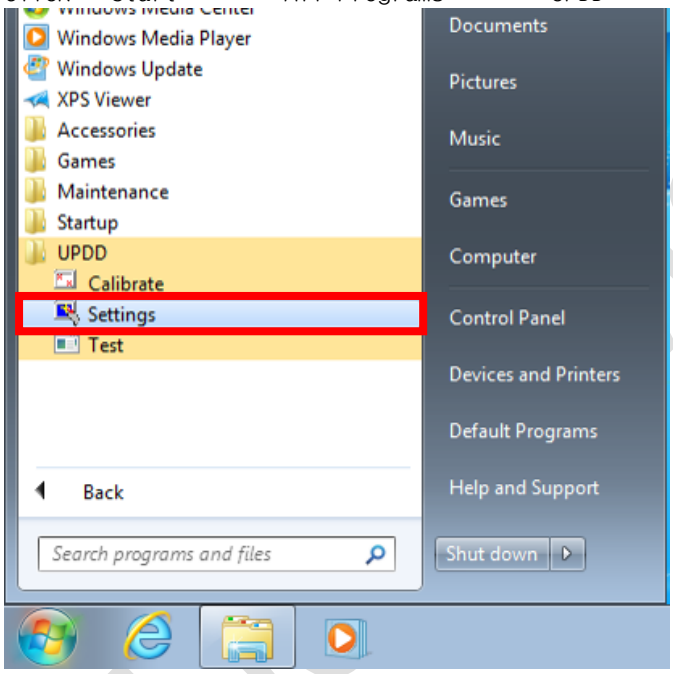
After installation is complete, check that the "UPDD" icon has been created in the notification area to the right of the taskbar.

"Start" -> "All Programs" -> "UPDD" folder is created.



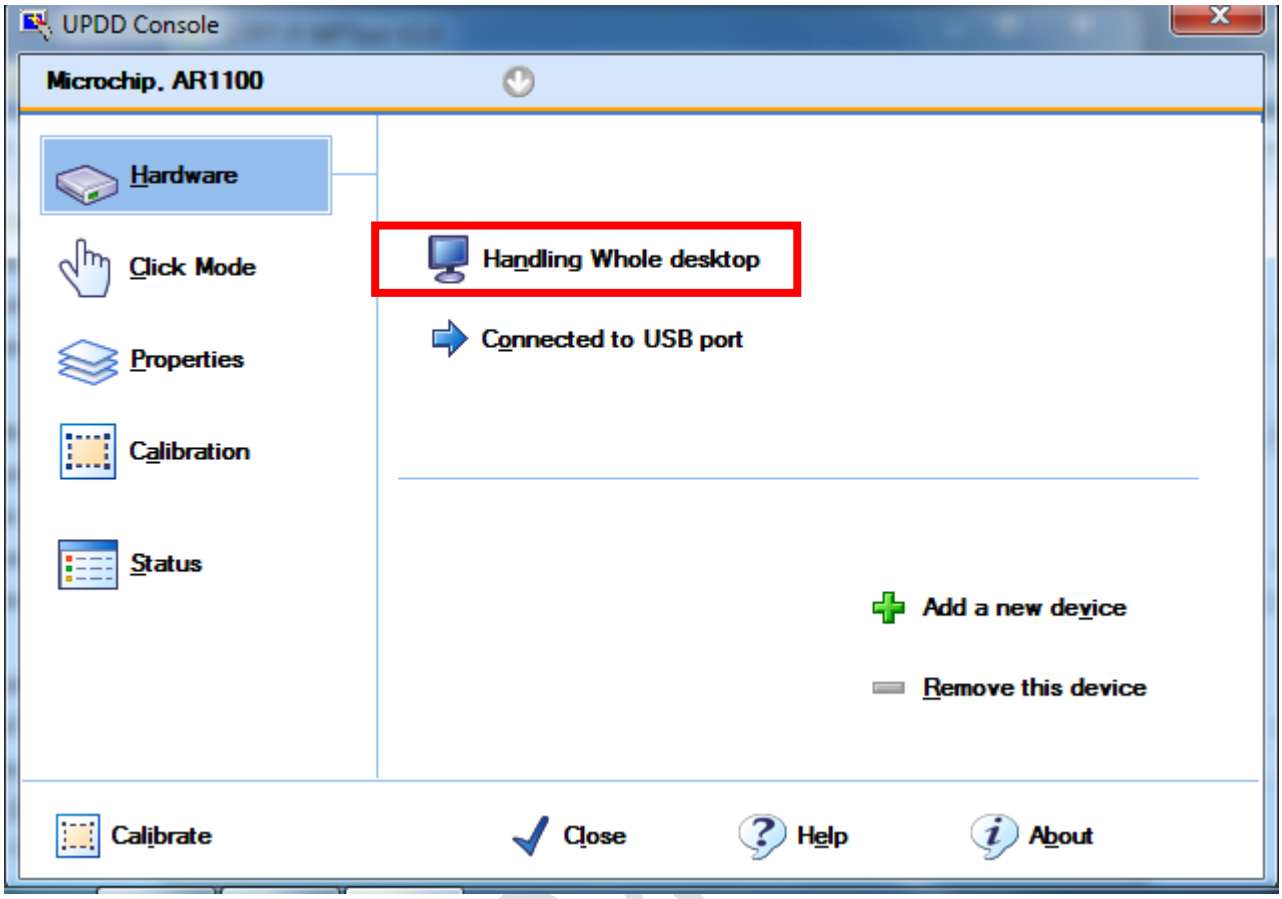
6.2. Touch Calibration

Click "Start" -> "All Programs" -> "UPDD" -> "Settings".

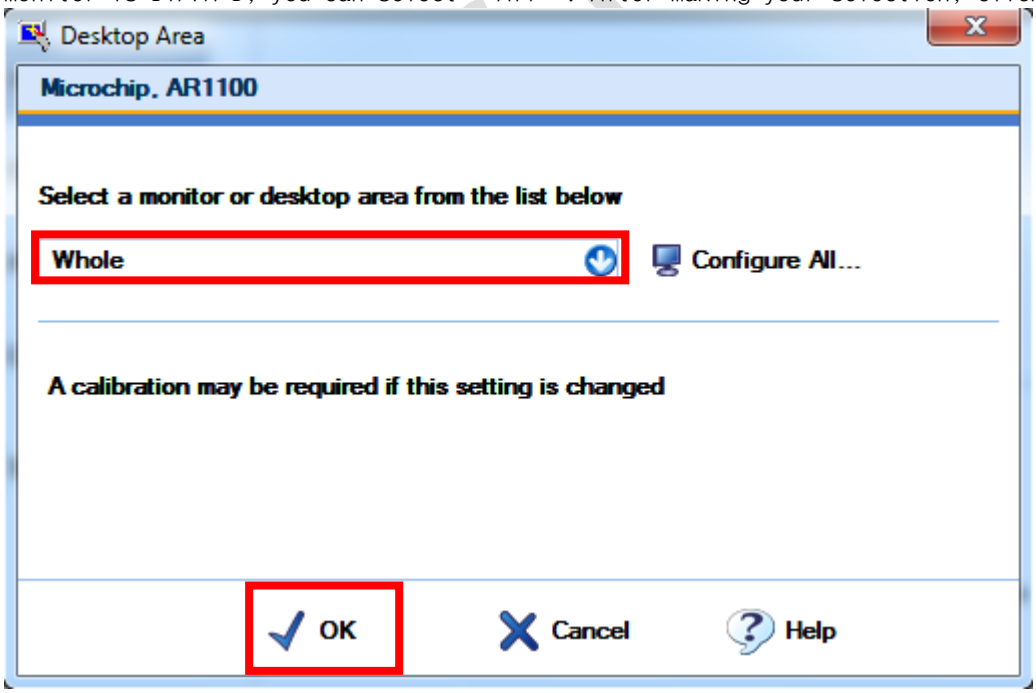


User Manual

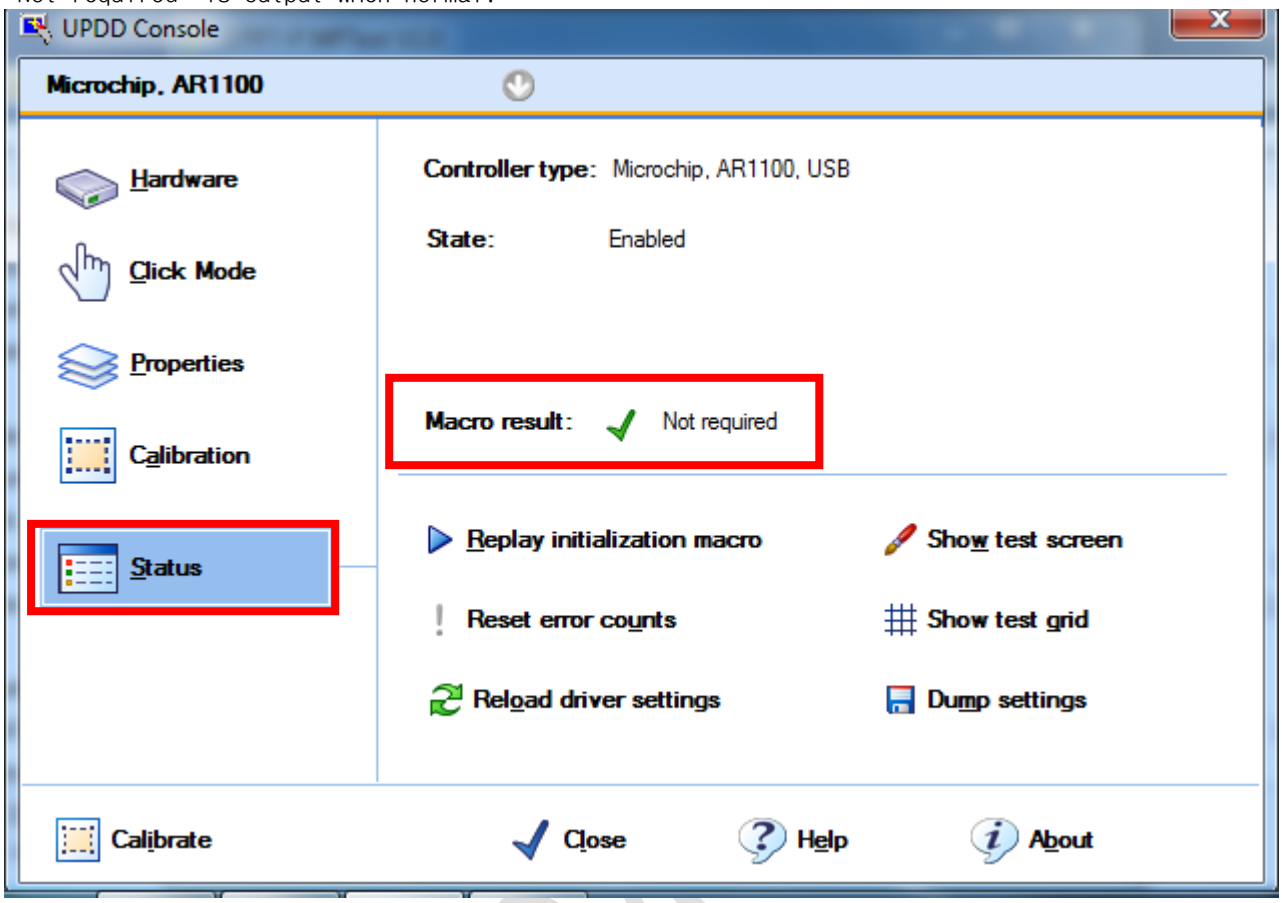
This is "Settings" execution screen. "Connected to USB port" is output when normal.
Click the "Monitor icon" to select a monitor.



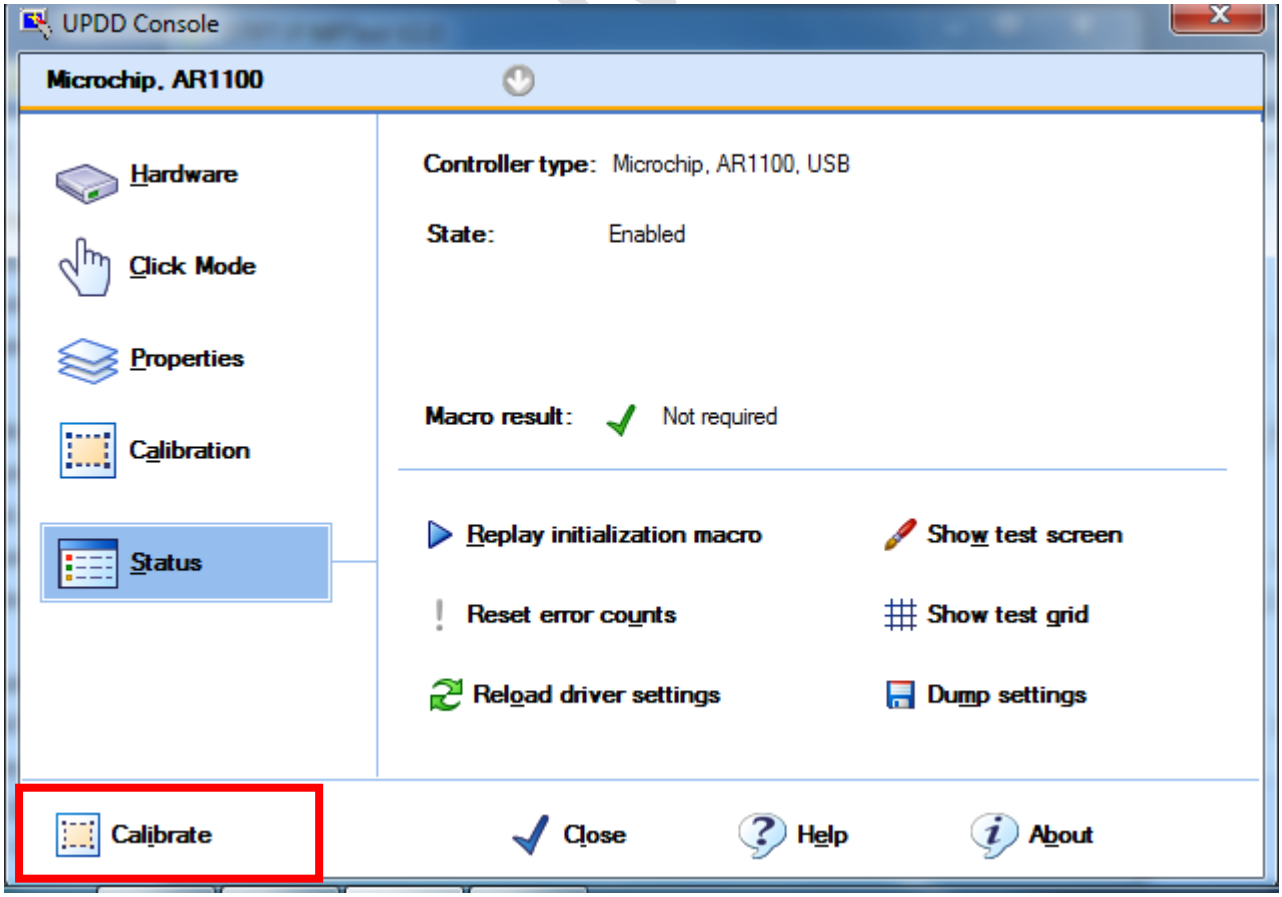
Press the down arrow to select the monitor to which DTP7H-D is connected. If only the connected monitor is DTP7H-D, you can select "All". After making your selection, click "OK".



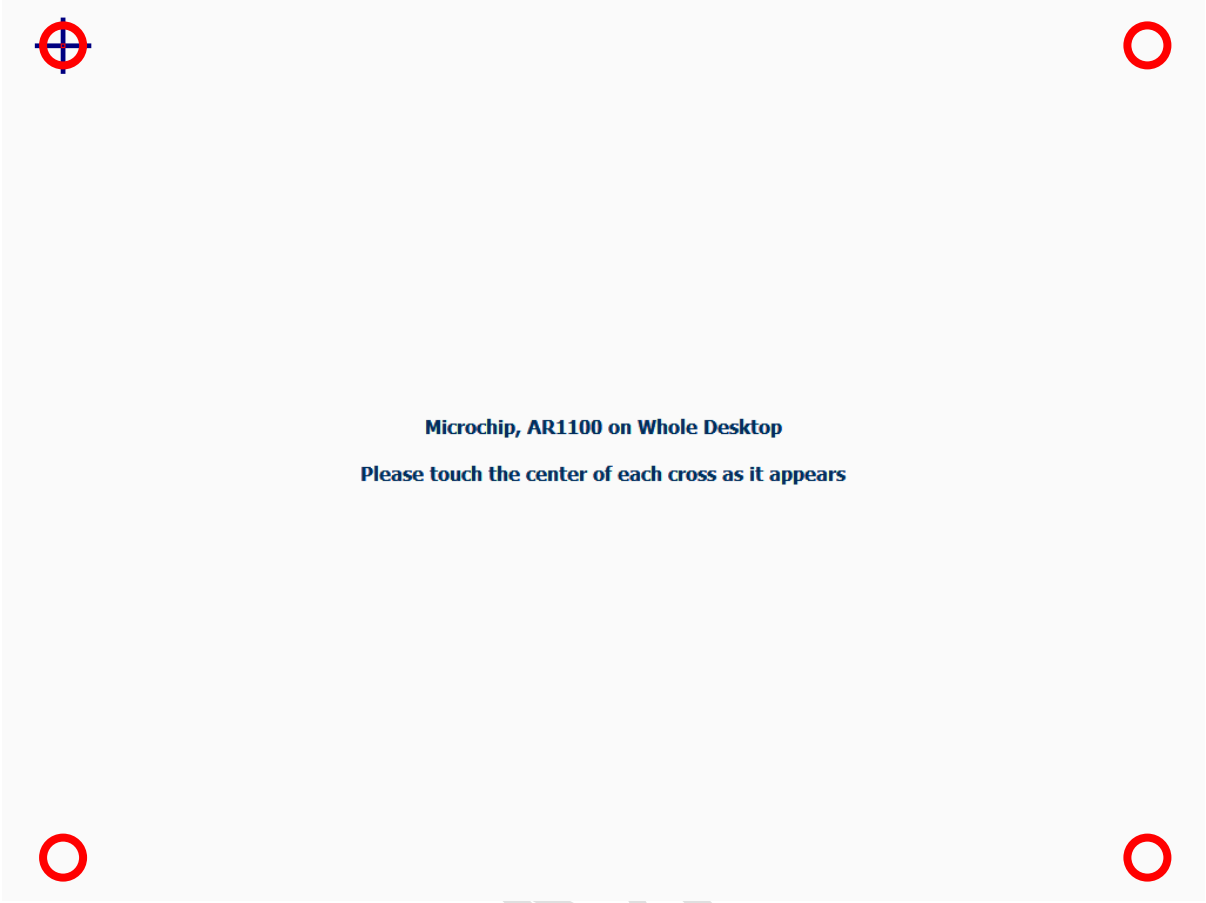
"Not required" is output when normal.



On the bottom left, click the "Calibrate" button.



Touch the center of the cross. Touching the upper left, lower left, center, upper right, lower right 5times to complete the calibation.



User's M

7. Host PC resolution setting

The resolution setting of this manual is based on Windows7 32bit and 64bit environment, and may differ depending on the user's PC and graphic environment.

Although the DTP7H-D supports multiple resolutions, it has been confirmed that the resolution is supported in Windows7 32bit and 64bit environments. As a result, the optimal resolution value is confirmed to be 1024 x 768 resolution.
Therefore, this manual also describes the setting method based on 1024 x 768 resolution, and it is recommended to use 1024 x 768 resolution.

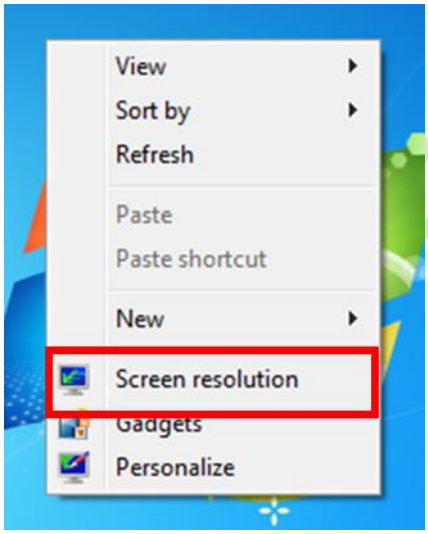
To set the resolution, the cable must be connected as shown in "1.2 DTP7H-D Connection".

7.1. Resolution Comparison

Resolution	Remark
800 x 600	It has a stable aspect ratio, but it has a drawback that the resolution is too low.
1024 x 600	Since the LCD resolution mounted on the DTP7H-D is 1026 x 600, it is the recommended resolution. (However, It is not confirmed whether it is supported in Windows 7 32bit or 64bit environment.)
1024 x 768	Resolution is 1024 x 600 if not recommended. (However, the upper and lower aspect ratios may look slightly distorted.)

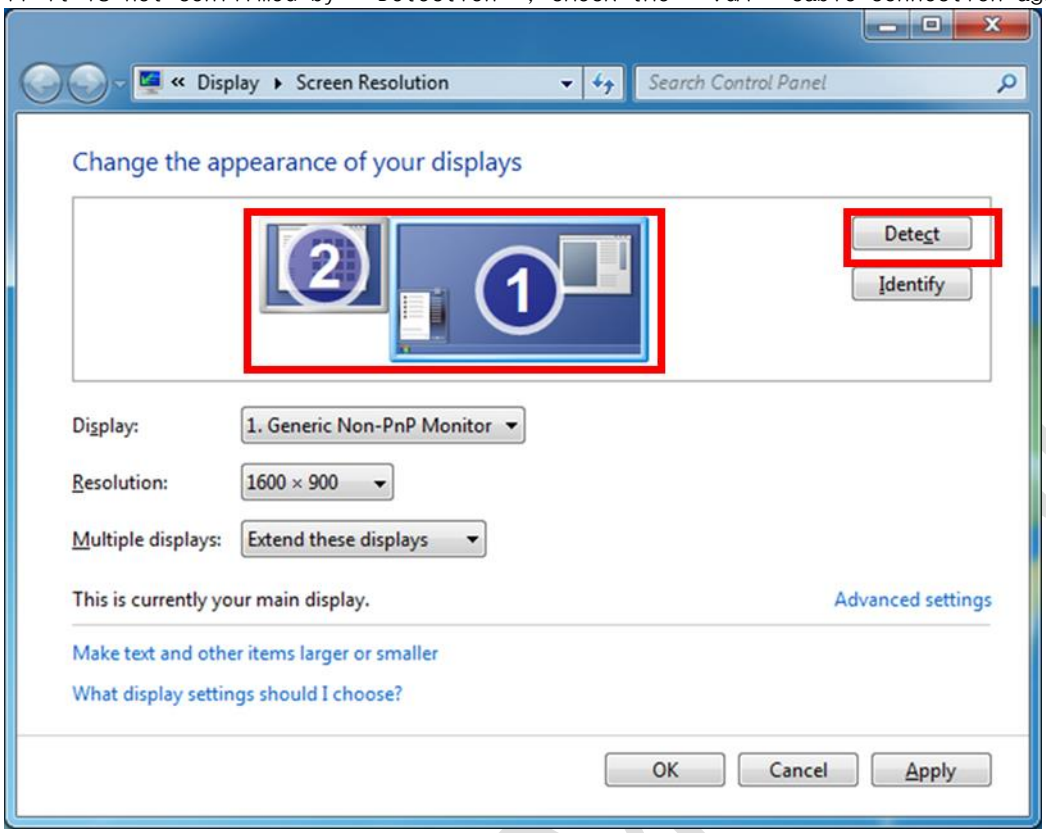
7.2. 1024 X 768 Resolution Setting

If you right-click on an empty space on the desktop, the following screen is displayed and click "Screen resolution".

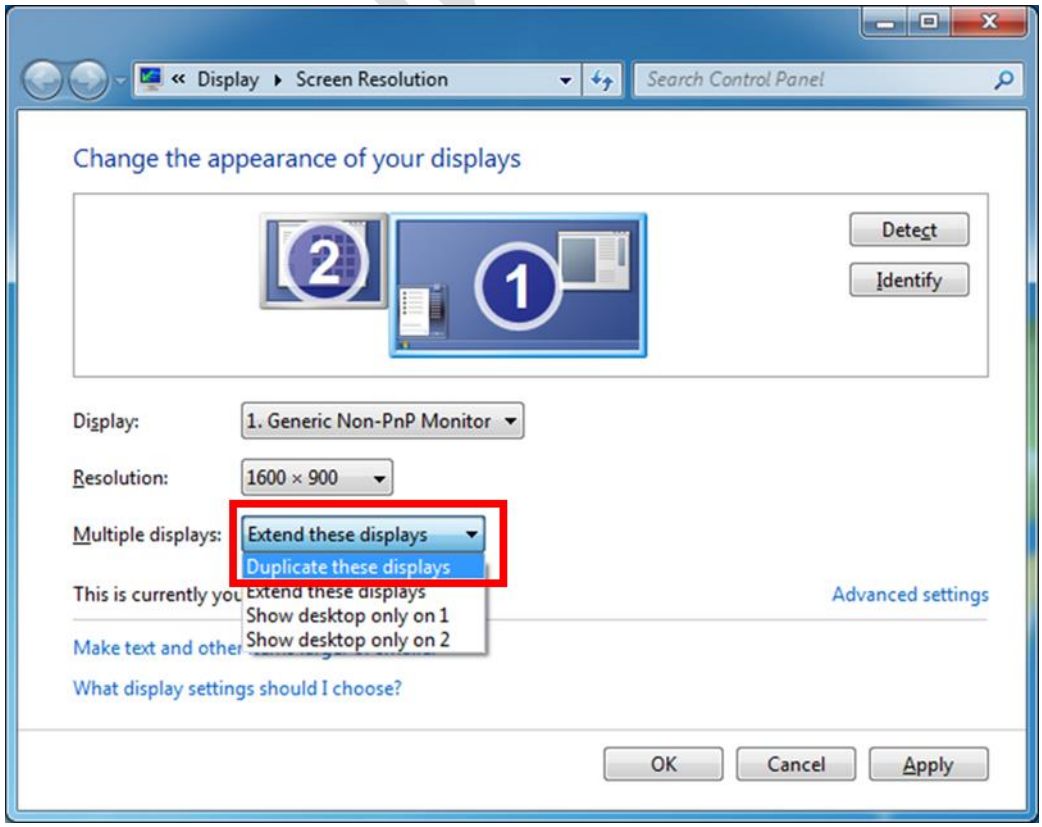


User Manual

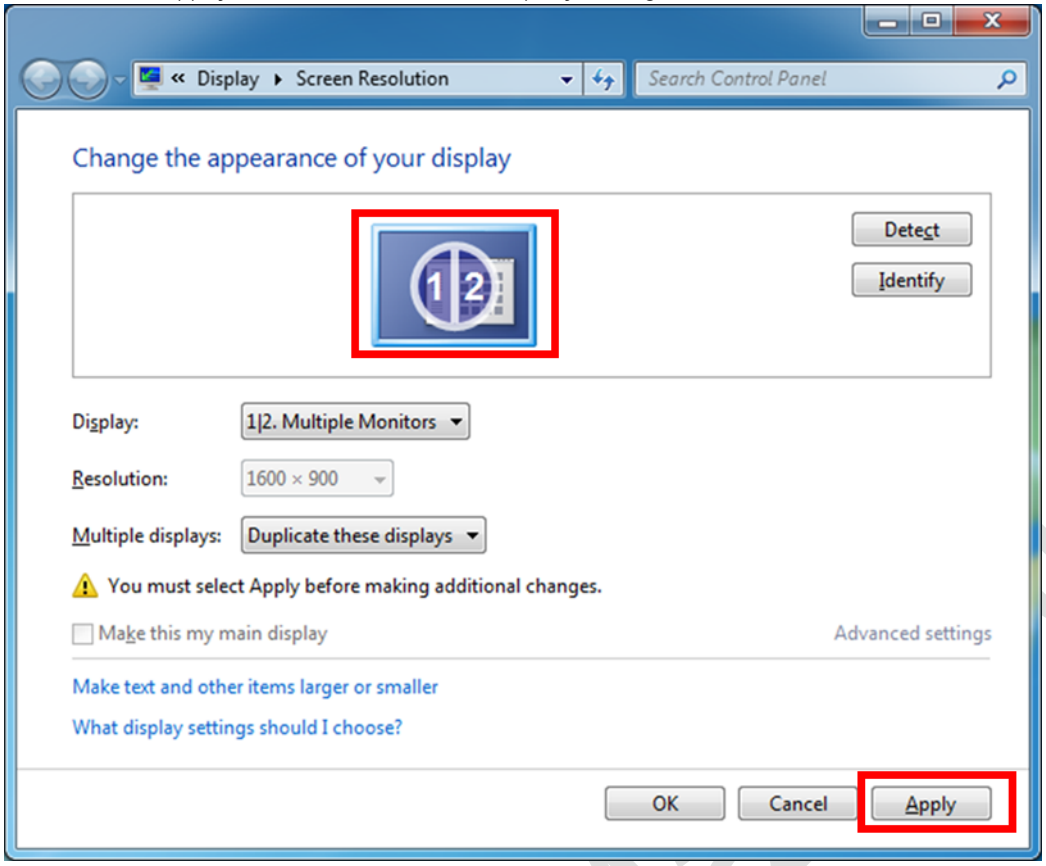
When the resolution setting window is displayed, the connected display is displayed as bellow, and when the connected display is not displayed, it can be confirmed by the "detection" button.
If it is not confirmed by "Detection", check the "VGA" cable connection again.



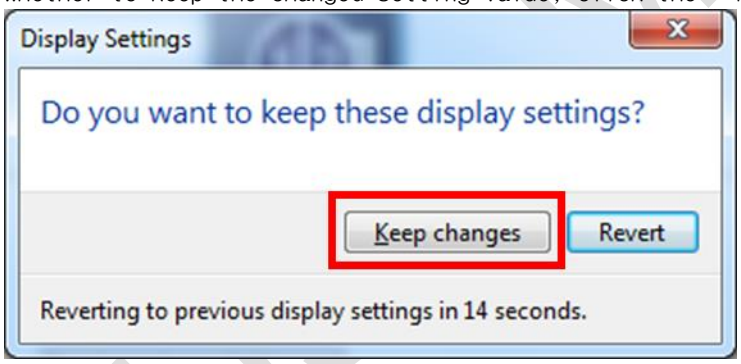
In the "Multiple display" setting, select "Duplicate display" instead of "Display extension".



Click the "Apply" button when the display changes as shown below.

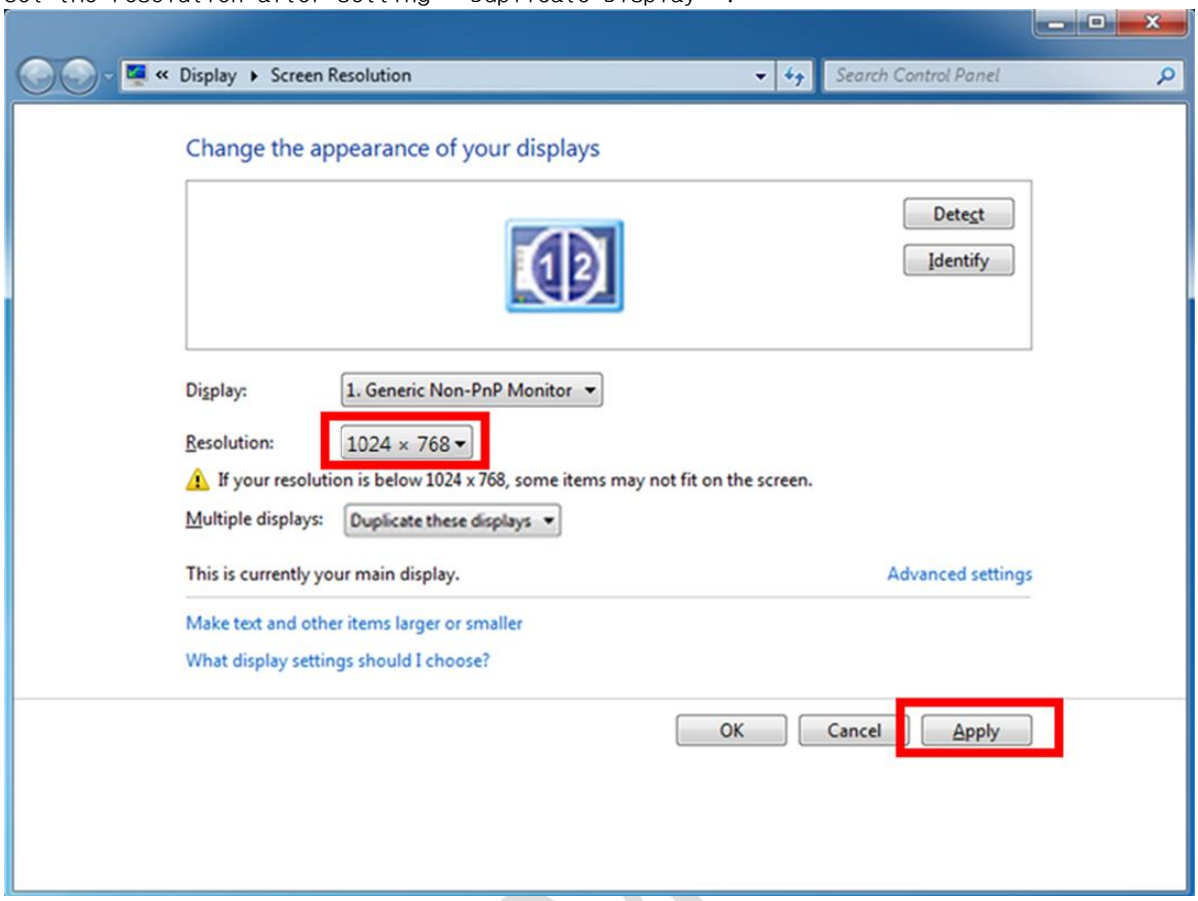


When the "Apply" button is clicked, the screen flickers for a while, and when a window asks whether to keep the changed setting value, click the "Keep changed setting" button.

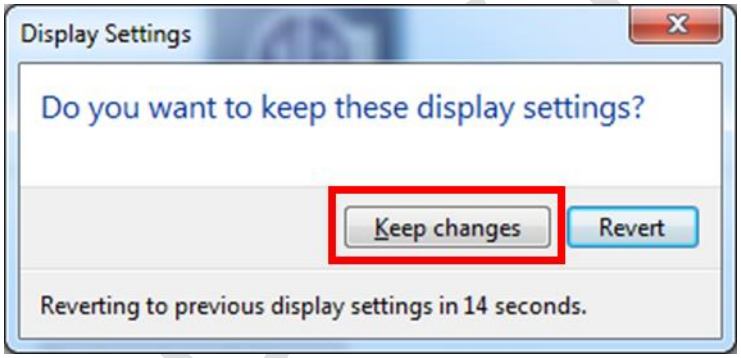


.

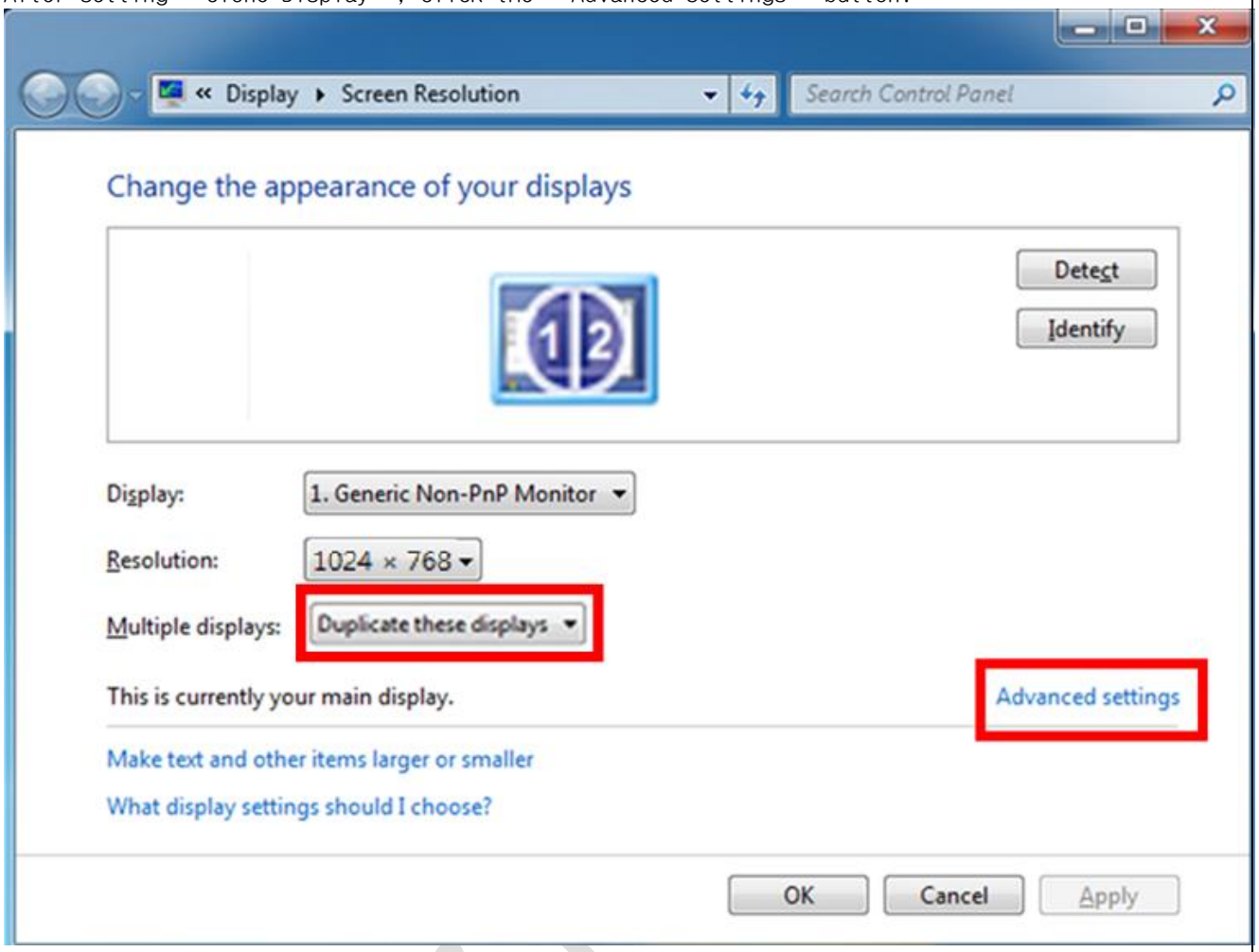
Set the resolution after setting "Duplicate Display".



When the "Apply" button is clicked, the screen flickers for a while, and when a window asks whether to keep the changed setting value, click the "Keep changed setting" button.

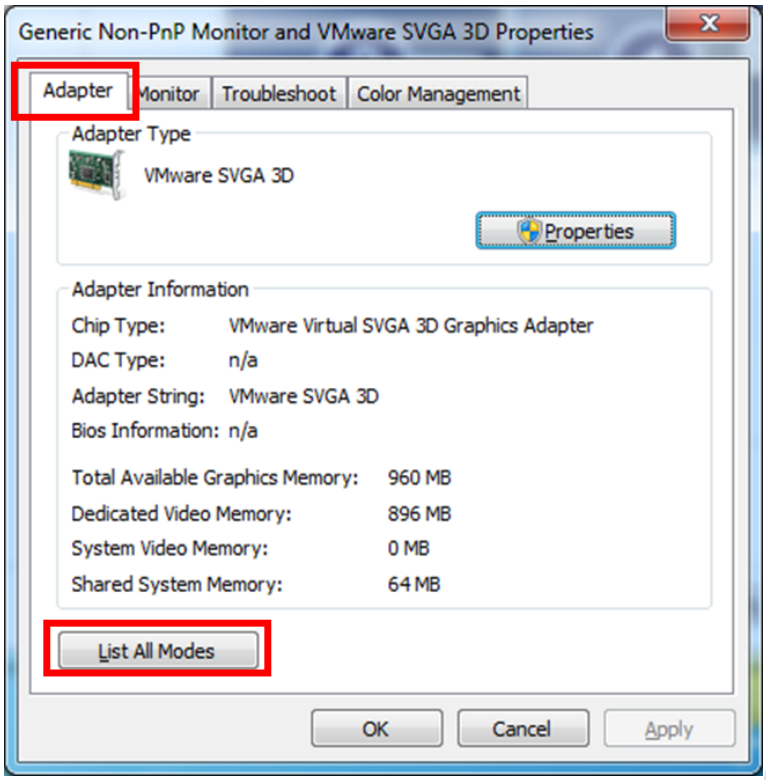


After setting "Clone Display", click the "Advanced Settings" button.

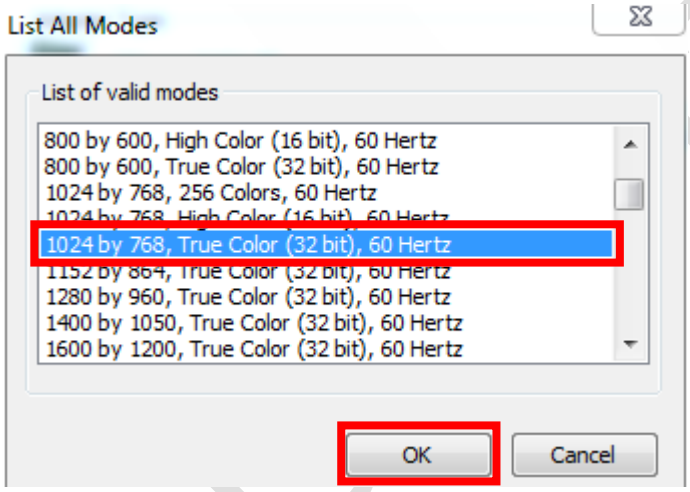


When the graphics properties window appears, click the "Show All Modes" button on the "Adapters" tab.
(The screen below may differ depending on the PC graphic environment.)

User

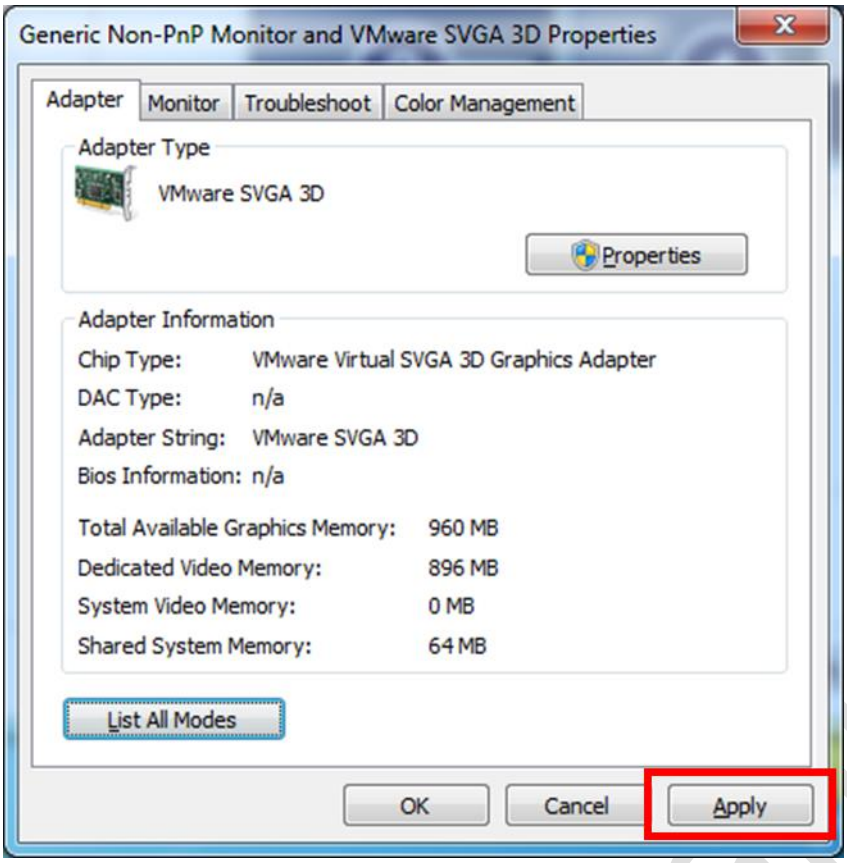


Select "1024 x 768, True Color (32bit), 60Hz" in "Show all modes" and click "OK" button.

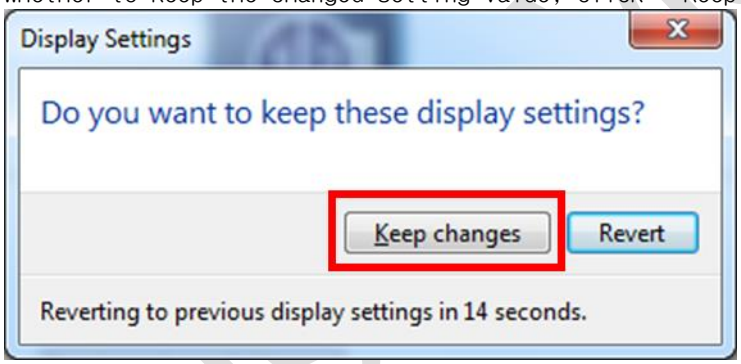


Click the "Apply" button in the graphics properties window.

User's Manual



When the "Apply" button is clicked, the screen flickers for a while, and when a window asks whether to keep the changed setting value, click "Keep changed setting" button.

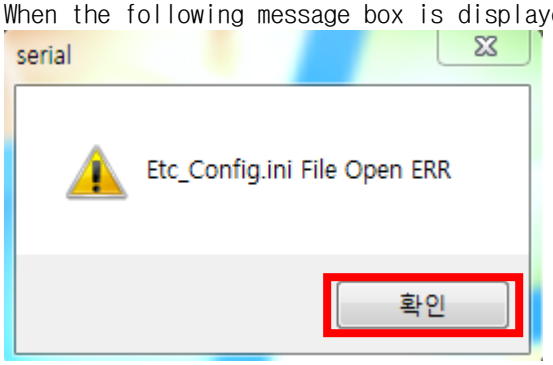


8. How to test Keypad, LED, Buzzer

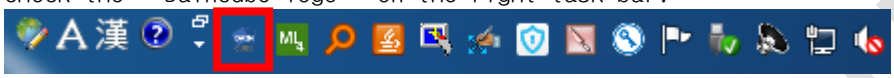
8.1. Execute Serial Daemon Application

Execute the "serial.exe" file in the provided CD "02_DTP7H-D_SW >> 03_Example >> 01_DTP7H-PD_SerialDaemon_V1.4.0 >> Release" folder.

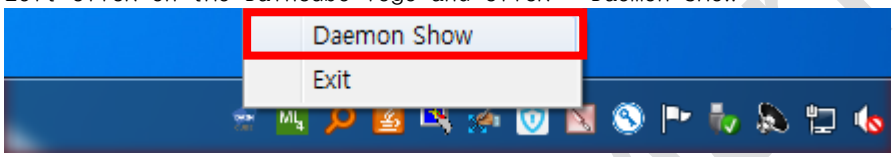
When the following message box is displayed, click "OK" button.



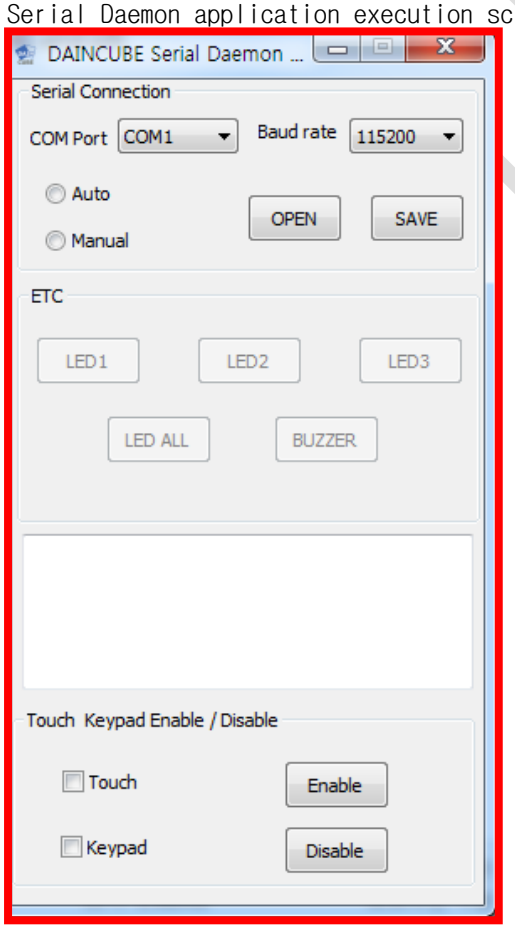
Check the "Daincube logo" on the right task bar.

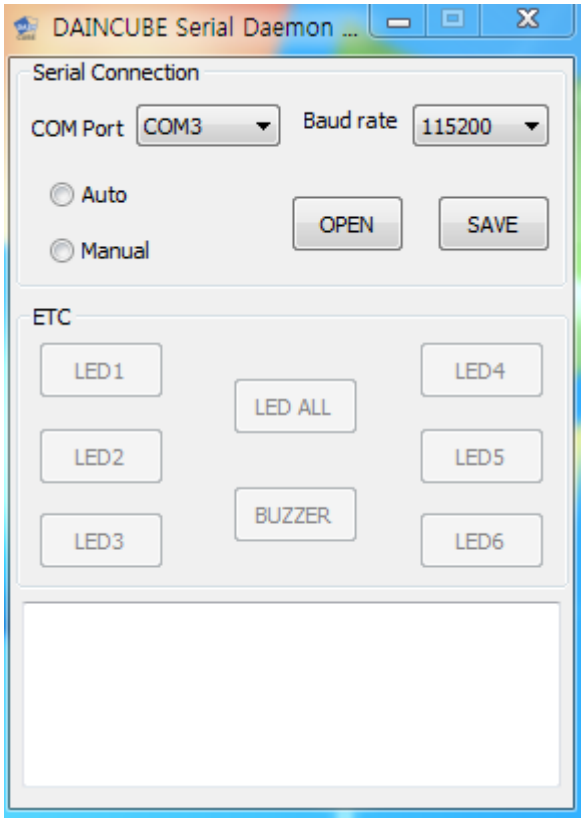


Left-click on the Daincube logo and click "Daemon Show"



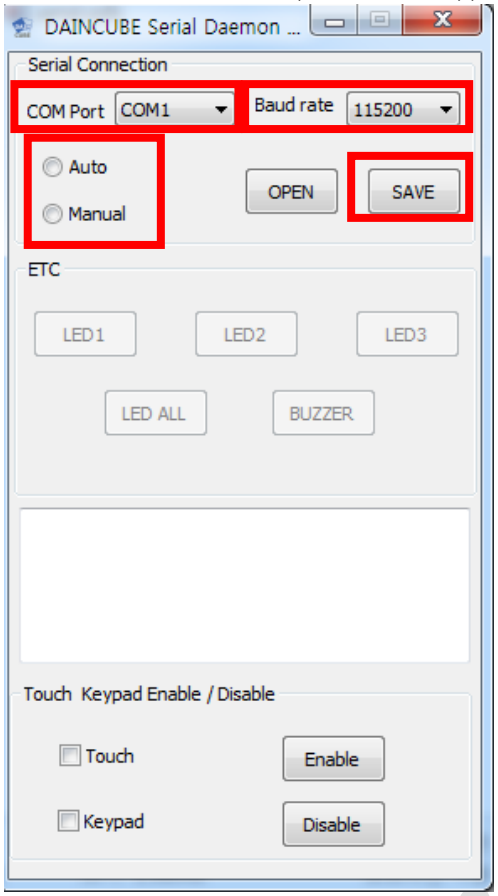
Serial Daemon application execution screen.





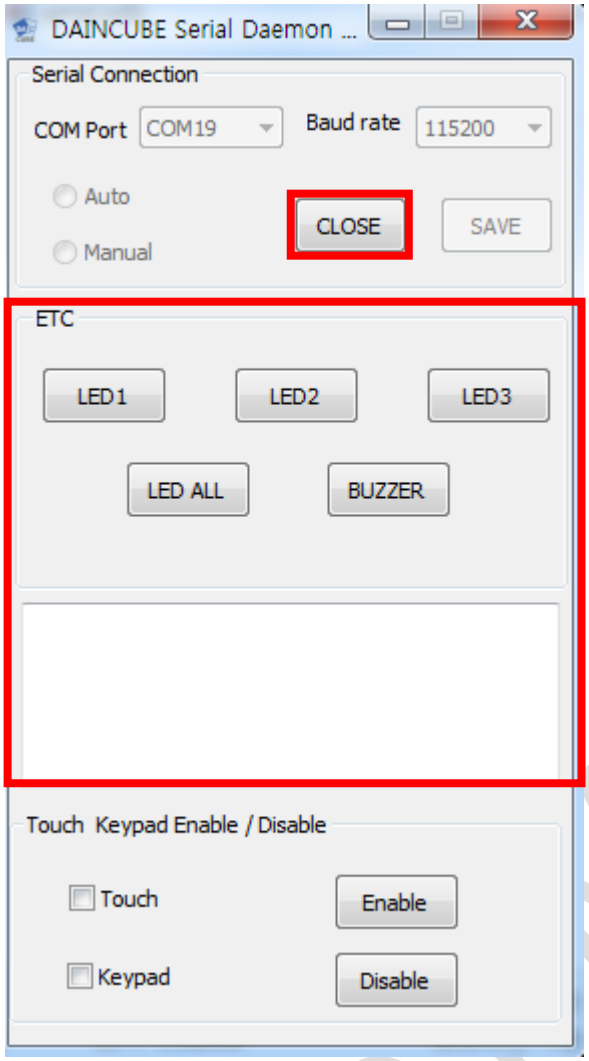
User's Manual

Select the COM port to which KEYPAD is connected, select Baudrate as "115200",select "Auto" and click "SAVE" button. The saved as "Etc_Config.ini" filename in C:₩ path.
Once auto is selected and saved, it will automatically open as COM Port saved at the next execution.
(If it fails to save, please run application as administrator.)



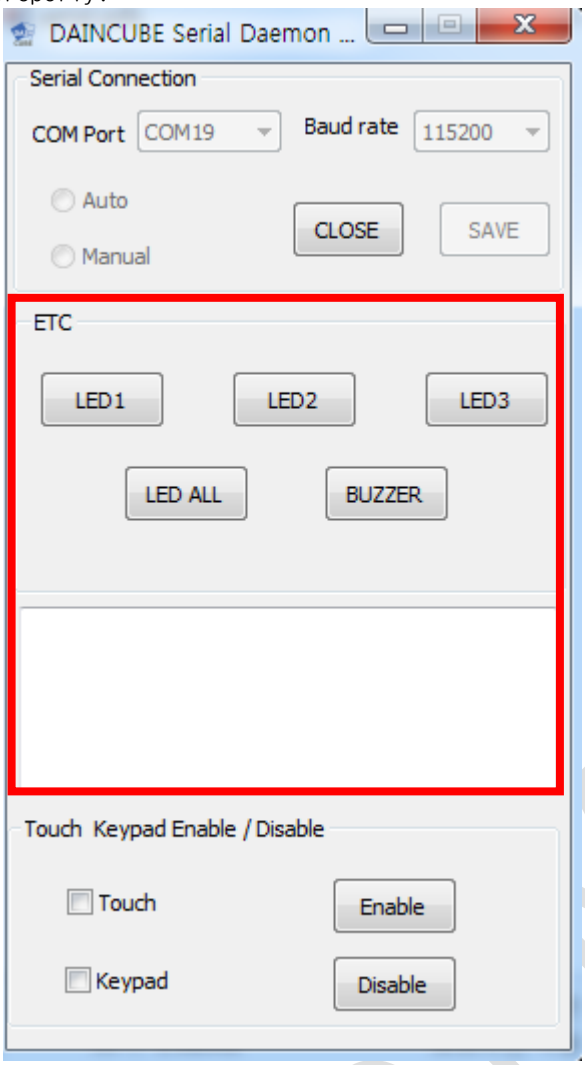
User's Manual

Click the "OPEN" button. The "OPEN" button is changed to the "CLOSE" button and the test buttons are activated.



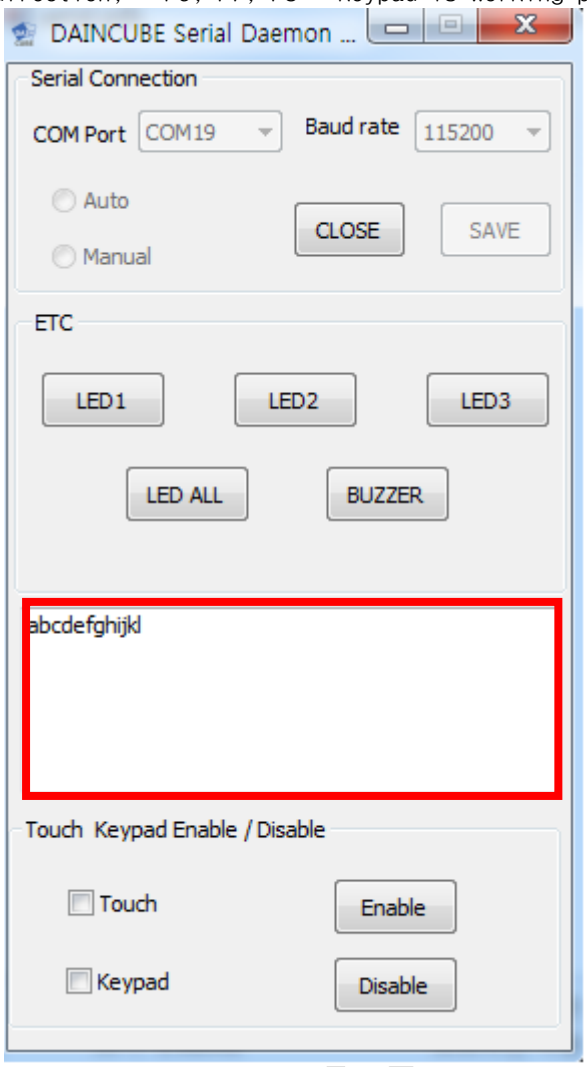
User Manual

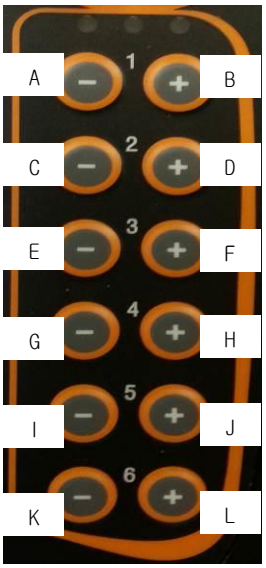
Click the "LED" and "Buzzer" buttons to see if the DTP7H-D LED and Buzzer are working properly.



User Manual

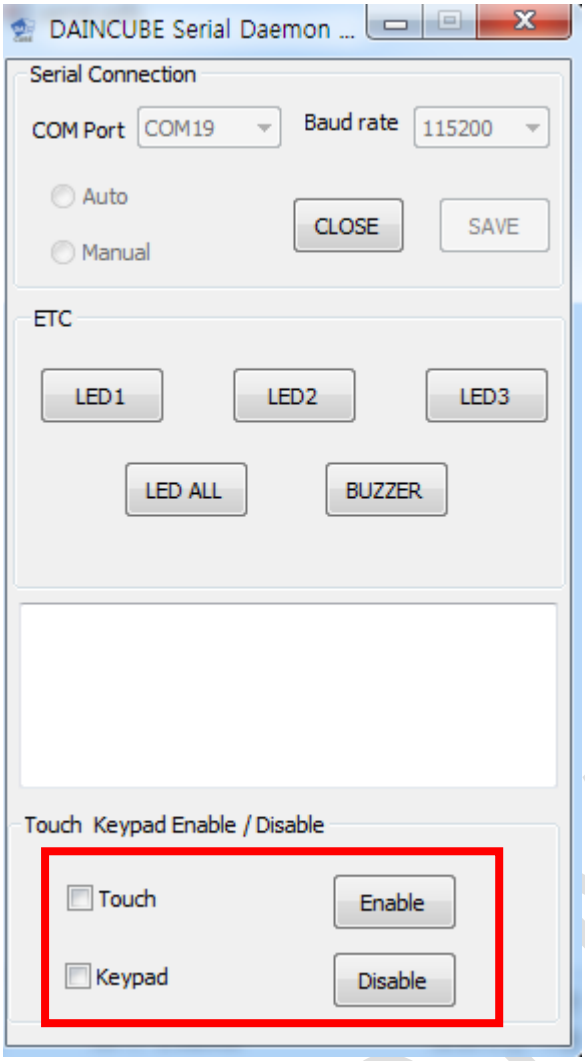
While Serial Daemon application is running, press the right KEYPAD of DTP7H-D to check whether "a ~ l" is normally input to the edit area. Also check if the left "Up,Down,Left,Right" direction, "F6, F7, F8" keypad is working properly.





Manual

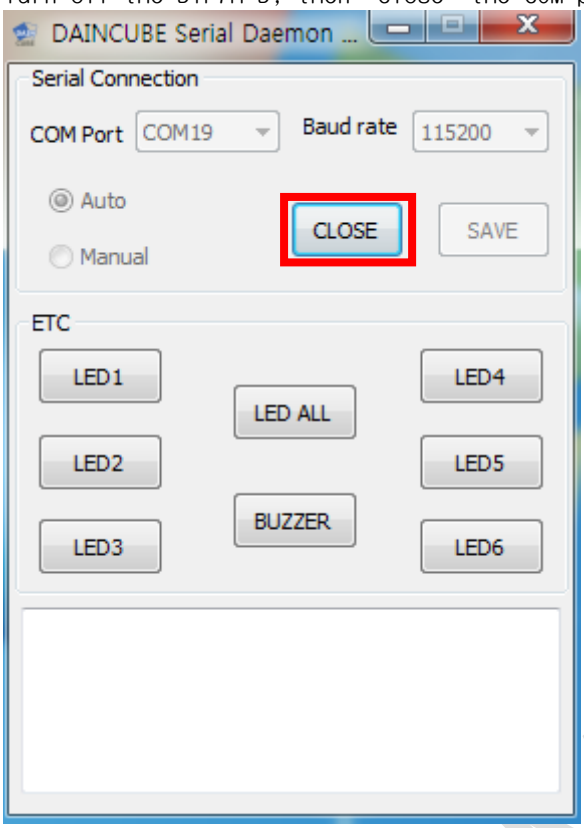
If you check "Check" in "Touch" or "Keypad" and press the "Enable" or "Disable" button, you can check the Enable, disable function of "Touch" and "Keypad" of "DTP10-D".



User Manual

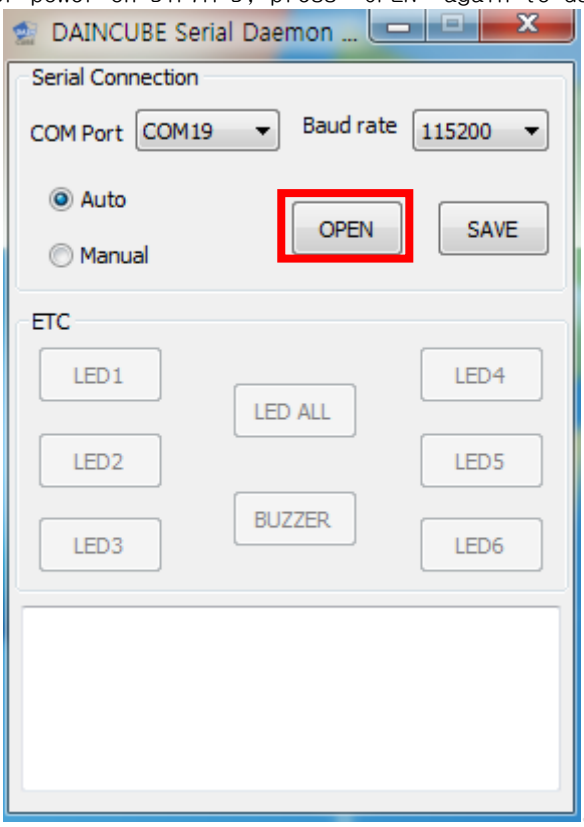
※If you turn off the T/P with the controller turned on and then power on the T/P again or remove the Mini-B USB.

Turn off the DTP7H-D, then "Close" the COM port on the Serial Daemon.



User's Manual

After power on DTP7H-D, press "OPEN" again to use normally.

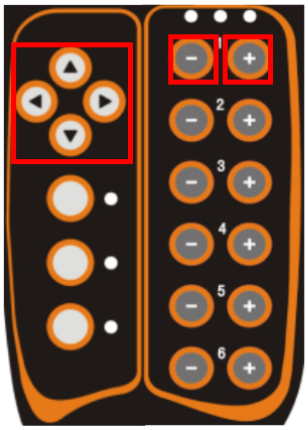


User Manual

9. OSD function description

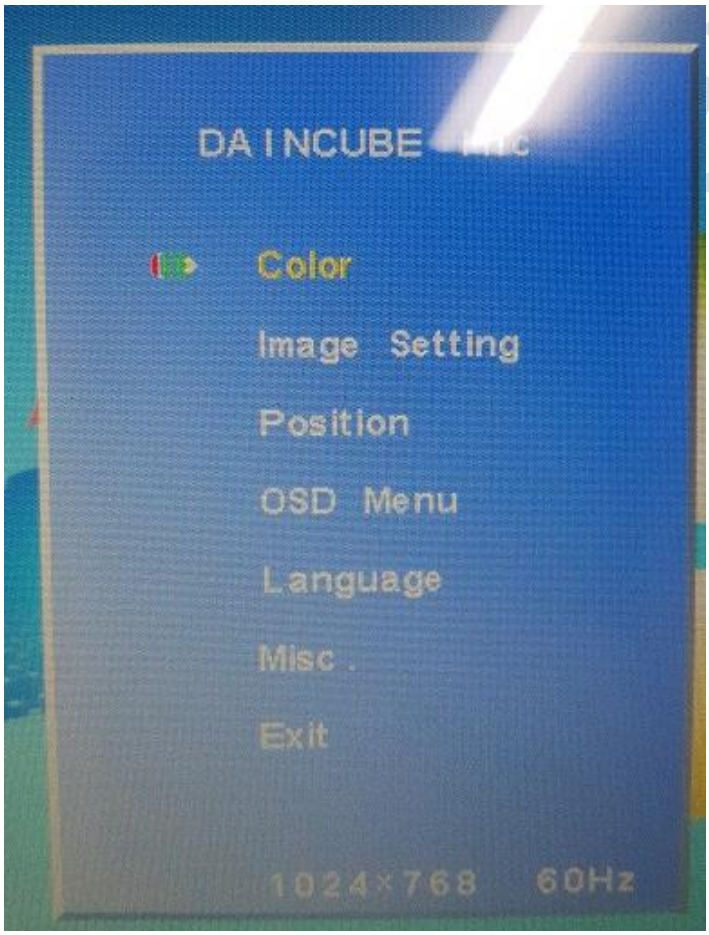
9.1. How to enter OSD

OSD is an on-screen display that allows you to adjust the display options. Brightness, contrast, horizontal or vertical position setting and many other features are supported. The keys to enter and use the OSD are shown below.



Key	Function	Remarks
Up, Down	Enter to OSD	Press Up and Down keys simultaneously and wiat for about 3 seconds.
Up, Down	Move up, down	
Left, Right	Move left, right	
-1	OK	
+1	Back	

Press Up and Down simultaneously and the OSD menu will appear as shown below for about 3 seconds.



Move to the desired menu in the menu and use the OK button to change the setting.

9.1.1.Support function description

Menu	Function
Contrast	Contrast function
Brightness	Brightness function
Color adjust	Red, Green, Blue ratio control
Color Temp	Use of preset values
Sharpness	Sharpness function
H.Position	Move to screen that horizontal position function
V.Position	Move to screen that vertical position function
OSD H.Pos	Move to OSD screen that horizontal position function
OSD V.Pos	Move to OSD screen that vertical position function
OSD Timer	OSD Timer function
Language	Language function (Support to Enblish, French, German, Spanish)

In addition to the support functions, access to menus is possible, but changes are not recommended.

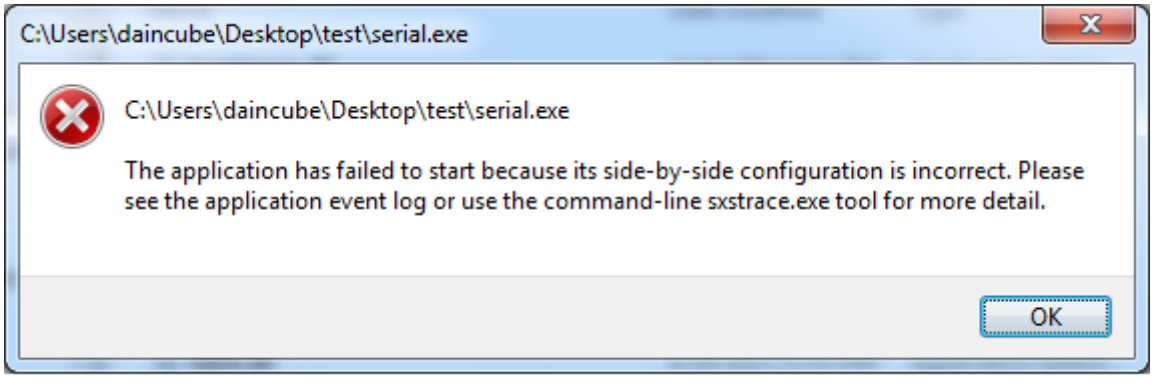
User's Manual

10. FAQ

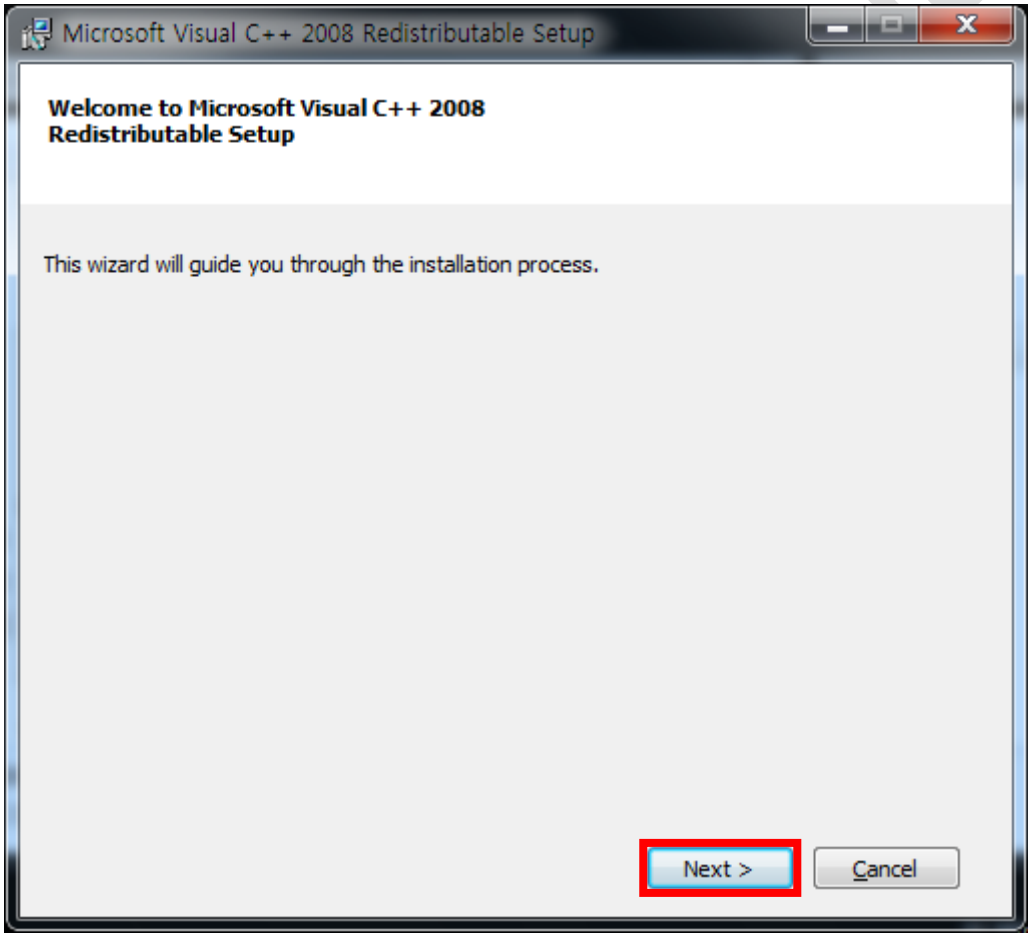
10.1. Error Solution

10.1.1. Serial.exe Error

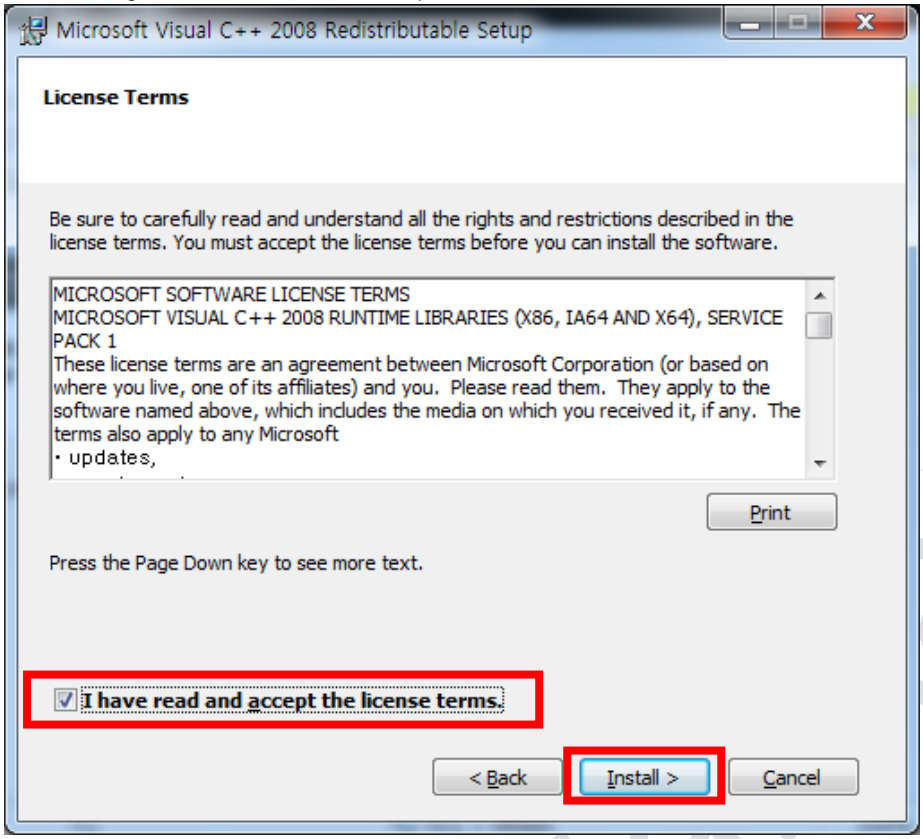
When the following error occurs, execute "10_vcredist_x86.exe" file in "02_DTP7H-D_SW >> 02_Driver" folder.



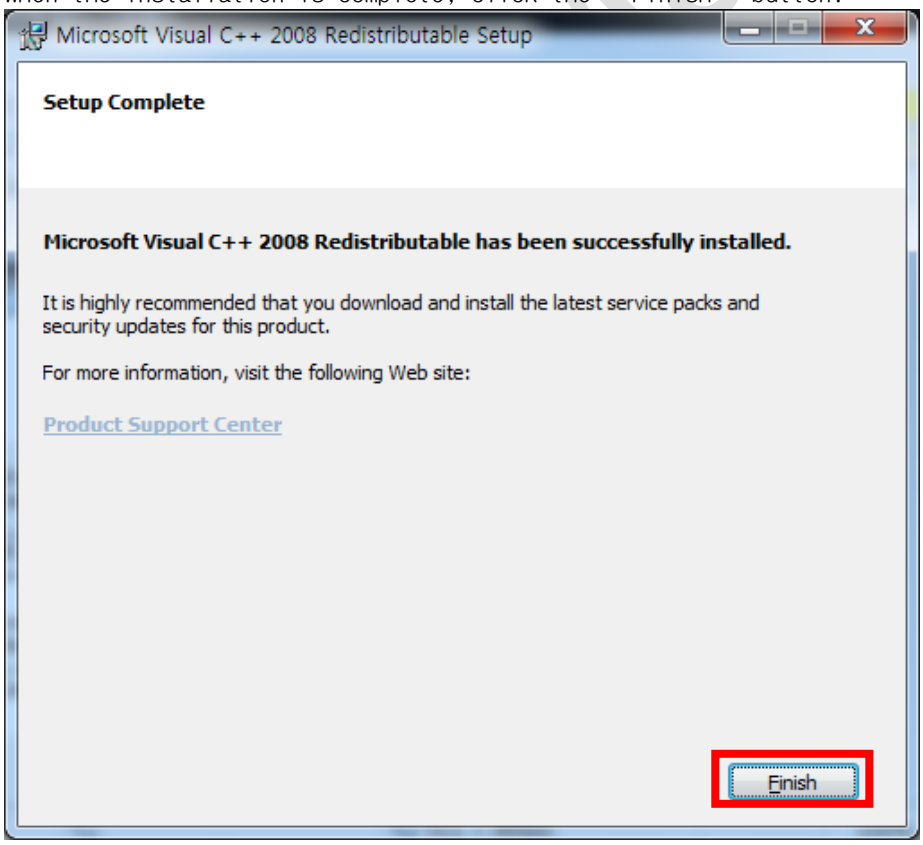
Click the "Next" button to start the installation.



License agreement. Check "accept" and click the "install" button.



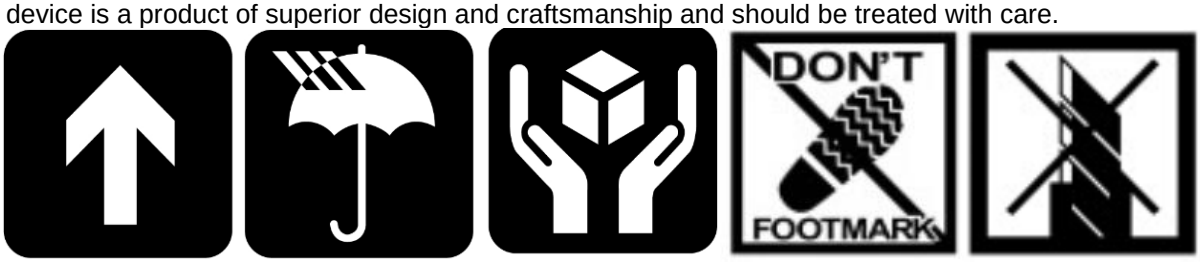
When the installation is complete, click the "Finish" button.



Once installation is complete, execute the Serial.exe program again.

11. General care and maintenance

Your device is a product of superior design and craftsmanship and should be treated with care.



The following suggestions will help you.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, allow it to dry completely.
- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage cable, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not paint the device. Paint can clog the moving parts and prevent proper operation.
- Unauthorized modifications or attachments could damage the device and may violate regulations governing radio devices.

11.1. Cleaning

To clean the pendant, use a soft cloth dampened with a small amount of water or a mild cleaning agent.

12. EC directives and standards

The list of safety standards on the robot. This section does not cover the safety design methods and safety equipment installation.

12.1. EC directives

2006/42/EC Directive for the safety of machinery with the application MD 2006/42/EC
2004/108/EC EMC directive
2011/65/EC RoHS directive

12.2. Standards

EN ISO 12100: Safety of machinery - General principles for design – Risk assessment and risk reduction
EN ISO 13849-1: Safety of machinery, safety related parts of control systems
-Part 1: General principles for design
EN ISO 13850: Safety of machinery - Emergency stop - Principles for design
EN ISO 10218-1: Robots for industrial environments - Safety requirements -Part1 Robot
EN ISO 9787: Robots and robotic devices -- Coordinate systems and motion nomenclatures
EN ISO 9283: Manipulating industrial robots, performance criteria, and related test methods
EN ISO 13732-1: Ergonomics of the thermal environment - Part 1

EN 61000-6-4(2007+A1:2011): Terminal disturbance voltage, Radiated disturbance
EN 61000-3-2:2014: Harmonic Distortion
EN 61000-3-3:2013: Voltage fluctuations & flicker
EN 61000-6-2:2005: Include below test types
EN 61000-4-2:2009: Electrostatic discharge
EN 61000-4-3:2006 +A1:2008+A2:2010: Radiated, radio-frequency, electromagnetic field
EN 61000-4-4:2004 +A1:2010: Electrical fast transient / burst
EN 61000-4-5:2006: Surge
EN 61000-4-6:2009: Conducted disturbances, induced by radio-frequency fields
EN 61000-4-8:2010: Power frequency magnetic field
EN 61000-4-11:2004: Voltage dips, short interruptions and voltage variations

User's Manual

Korea Standard
KN 61000-6-3 : Conducted tests (mains port), electromagnetic conduction test (communication ports)
KN 14-1 : Discontinuous disturbance test
KN 61000-6-3 : Electromagnetic radiation test
KN 61000-6-1, KN 61000-4-2: Electrostatic discharge immunity test
KN 61000-6-1, KN 61000-4-3: Radiated RF electromagnetic field immunity test
KN 61000-6-1, KN 61000-4-4: EFT/_Burst immunity test
KN 61000-6-1, KN 61000-4-5: Surge immunity test
KN 61000-6-1, KN 61000-4-6: Conducted immunity test
KN 61000-6-1, KN 61000-4-8: Power frequency magnetic field immunity test
KN 61000-6-1, KN 61000-4-11: Voltage drop and momentary power failure immunity test

13. Reference list

A list of installation related reference materials.
Please refer to the documents below for more details.

- Mitsubishi -EMC Installation Guidelines for General-Purpose AC Servo.
- YASKAWA: AC Servo Drive Technical Manual
- LS Industrial Systems: AC Servo Drive user's Manual
- Control Techniques: Motor Drives Installer's Guide.
- DELTA: EMC Standard Installation Guide for AC Motor Drives.
- Electrical design method considering EMC
- Rockwell Automation : Servo Drive Installation

Check the local regulations for disposal of electronic products.

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste.
Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment.
The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

CE

We hereby declare that the product is in compliance with the essential requirements and other relevant provisions of European Directive 2014/30/EC(The Electromagnetic Compatibility Directive).

We hereby declare that the product is in compliance with the essential requirements and other relevant provisions of Korea Directive (EMC standards)
Standard: Information Communication equipment such notice with regard to the assignment and management of the laboratory

User Manual