The Embedded-based Teach Pendant optimized for industrial robots.

DTP10-D
User's Manual

DAINCUBE Corp.
Display type

FORM 140108F – 2018.01.11

DTP10-D User's manual
Form 140108F-171206— January, 2018

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

Preface

Copyright notice

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.

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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.

Safety precautions

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.

Revision history

Revision	Data	Comment
Version 0.1 (Preliminary)	2018.01.11	Preliminary version
Version 0.2 (Preliminary)	2018.01.16	Change OSD key mapping
Version 0.3	2018.05.10	Change Touch method (Serial -> USB HID)

Contents

1. Introduction

This document is a manual document that describes how to set up the DTP10-D Host PC environment for Daincube. The DTP10-D is equipped with a 1280 x 800 LCD. Touch controller are configured USB HID and keypad, LED, and Buzzer are configured as RS-232 type. (Virtual Com Port)

To use DTP10-D, you need the following configuration procedure.

A. Host PC to target (DTP10-D) connection.
B. Install Virtual COM Port driver.
C. Touch driver installation & calibration.
D. Host PC resolution setting.
E. How to test Keypad, LED and buzzer.

※ This document is based on Windows 7 32bit, 64bit environment.

1.1. Host PC to target (DTP10-D) connection

As a connection method between Host PC and DTP10-D, Host PC is based on Windows7 32bit, 64bit.

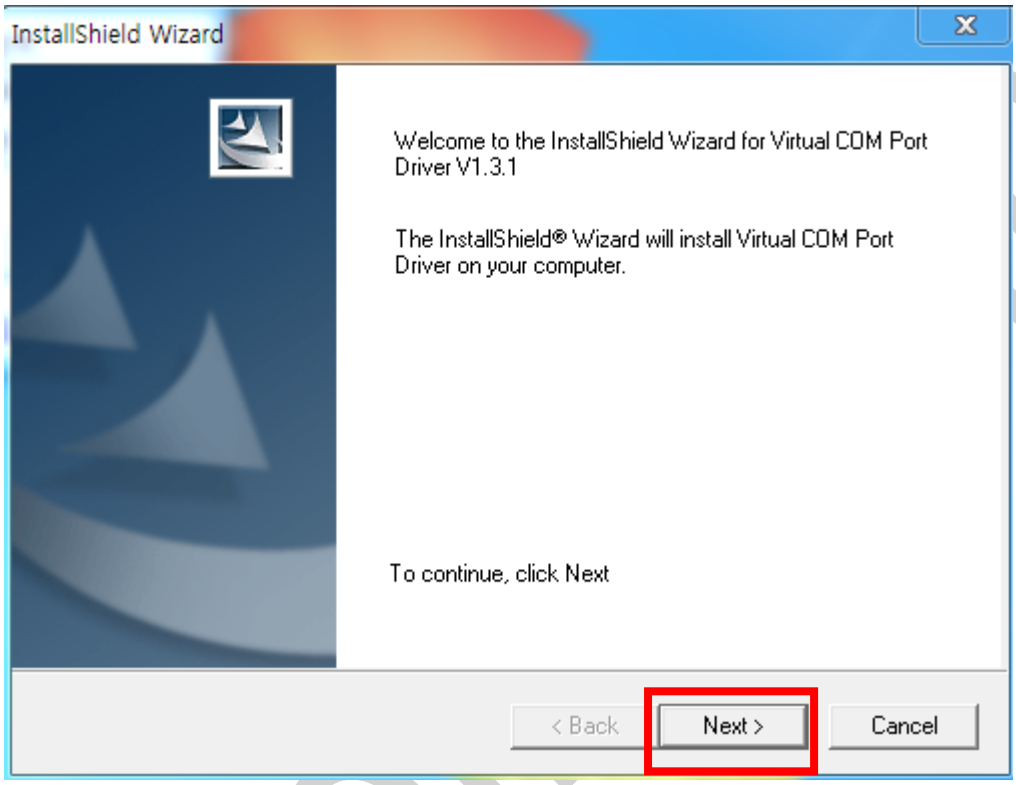
2. Virtual Com Port driver

2.1. Install Virtual COM Port driver

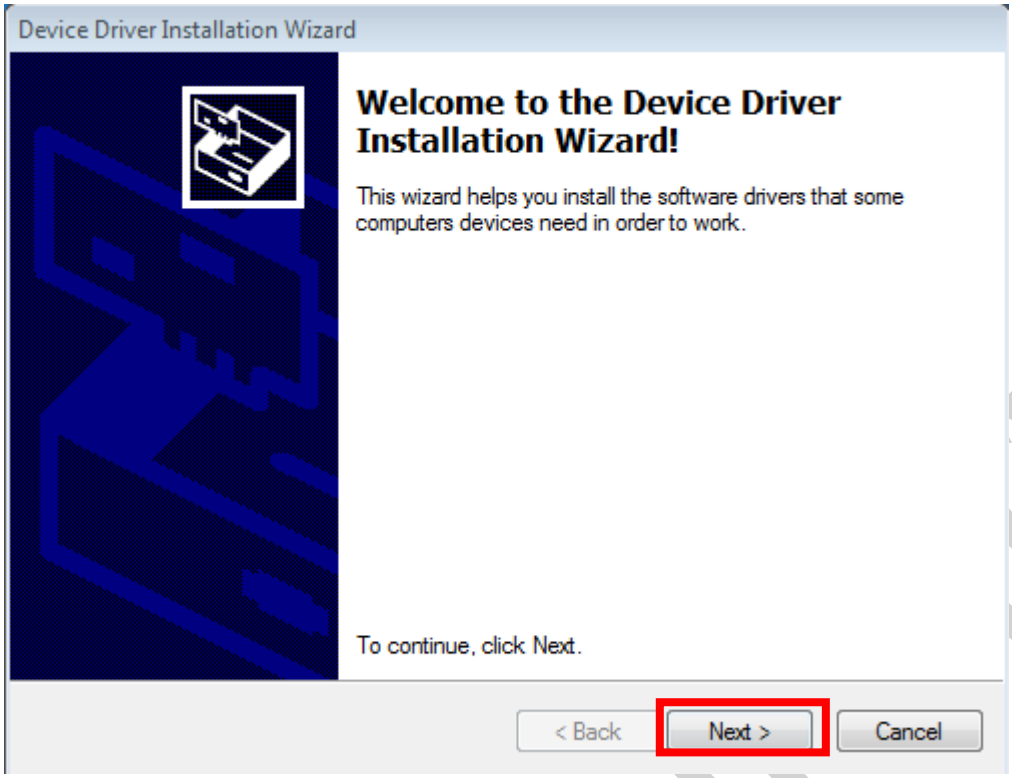
DTP10-D uses Virtual COM Port when controlling Touch, Key, LED and buzzer using USB Mini-AB type. Therefore, you need to install Virtual COM Port driver on your Host PC.

Execute .exe files when 02_Driver₩01_VCP_Driver folder. If your Host PC is 32bit, excute "VCP_V1.3.1_Setup.exe". If your Host PC is 64bit, excute "VCP_V1.3.1_Setup_x64.exe"

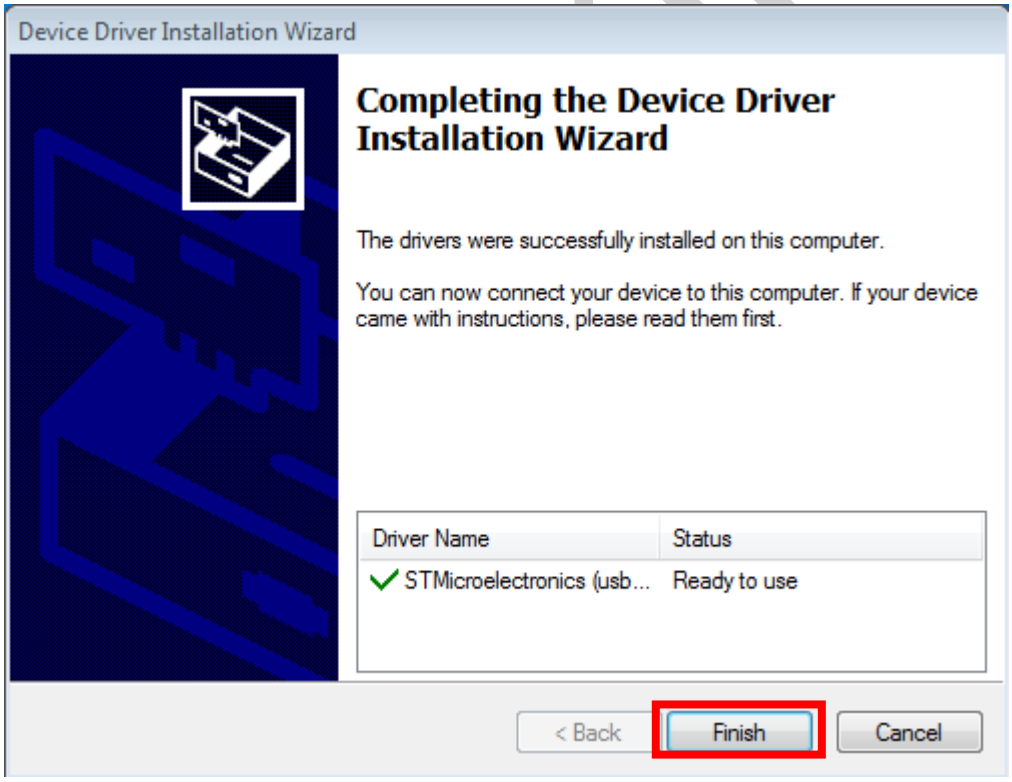
When you execute .exe files, following screen appear. Click to "Next".



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

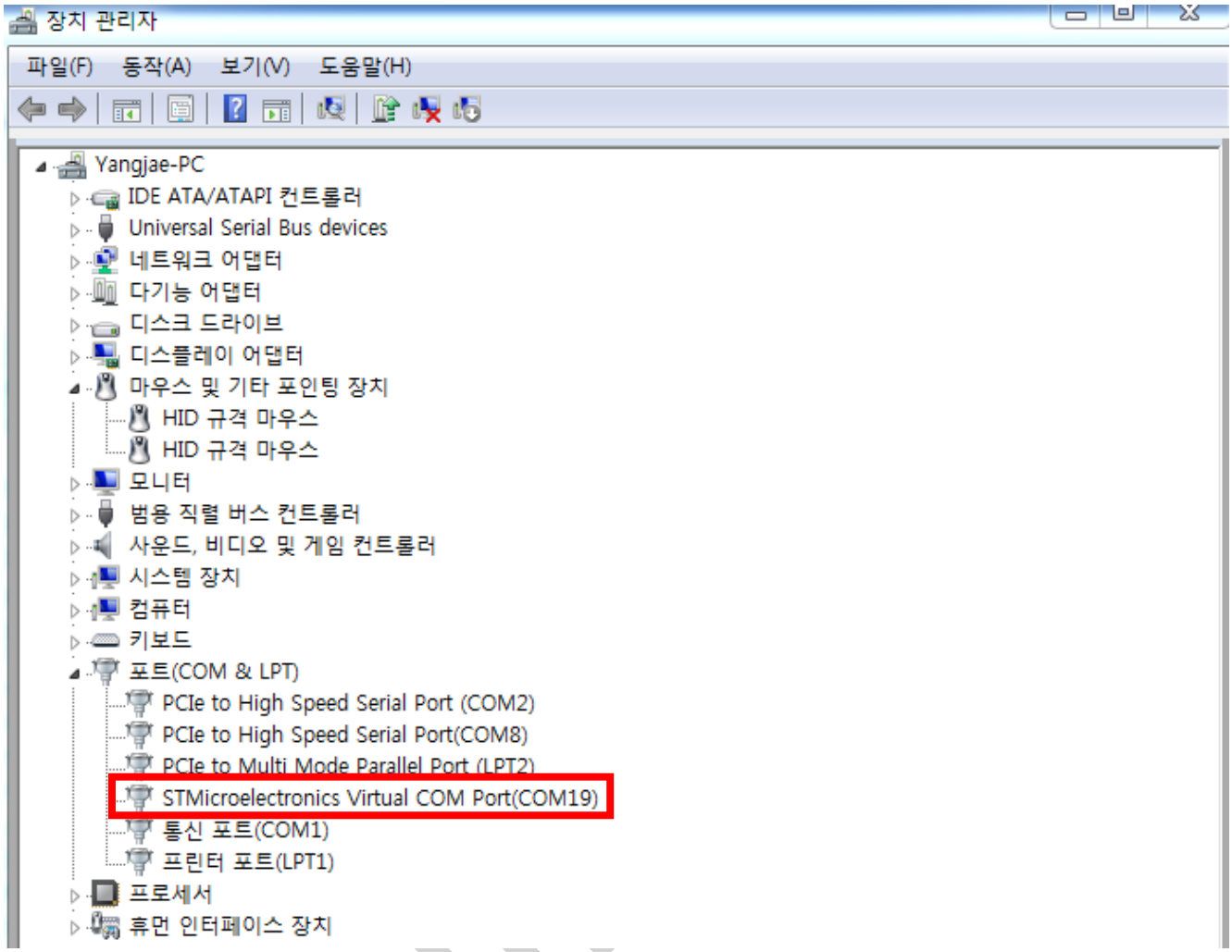


When the installation is complete, click "Finish".



If driver installation is completed, power on DTP10-D and driver installation will proceed.

If it completed, the following appears in "Control panel" -> "Device manager" -> "Port".

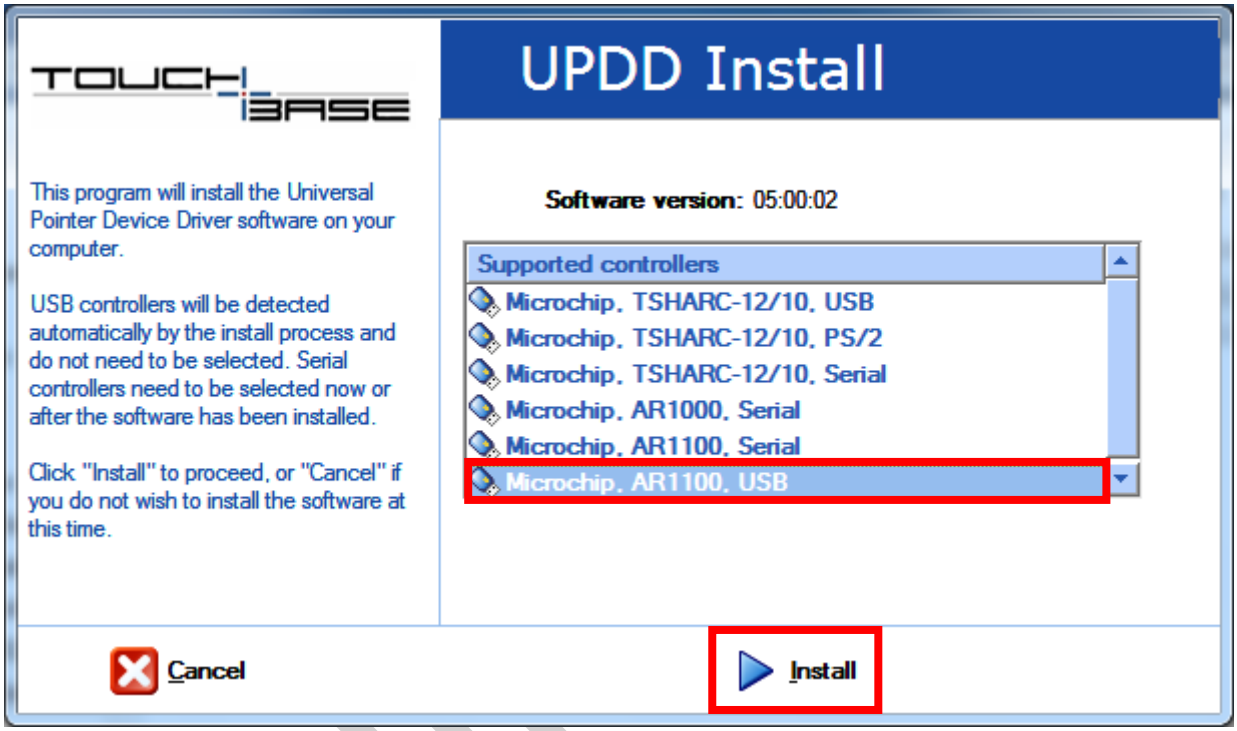


Also, if the connection is success, the right LED of DTP10-D will blue. (If the connection is fail, the right LED of DTP10-D will red. If this happens, reinstall the driver and unplug the USB Mini-AB and plug it back in.

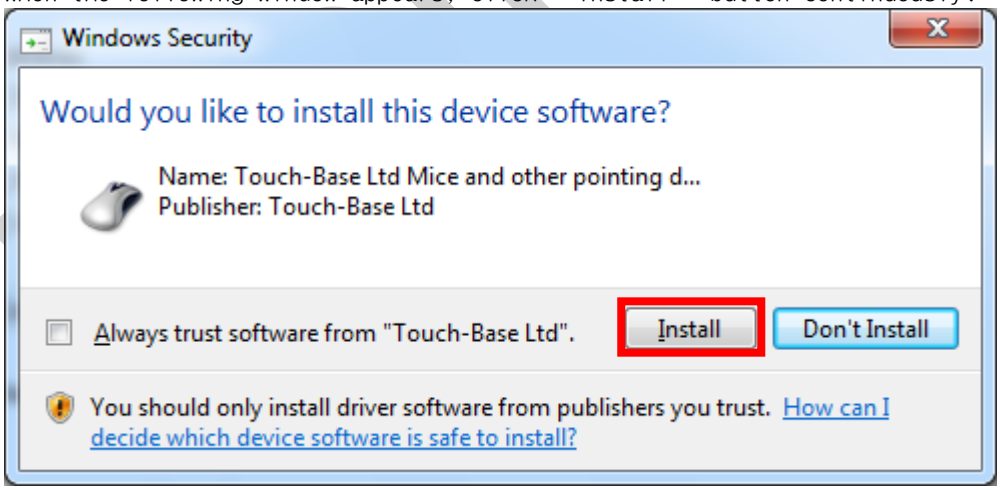
2.2. Universal Pointer Device Driver install

In order to control the Host PC in DTP10-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_DTP10-D_SW >> 02_Driver >> 02_Win8Win7XPUPDD" in the provided SDK, and can be installed on the Host PC by executing "setup32.exe" or "setup64.exe" file depending on the OS environment.

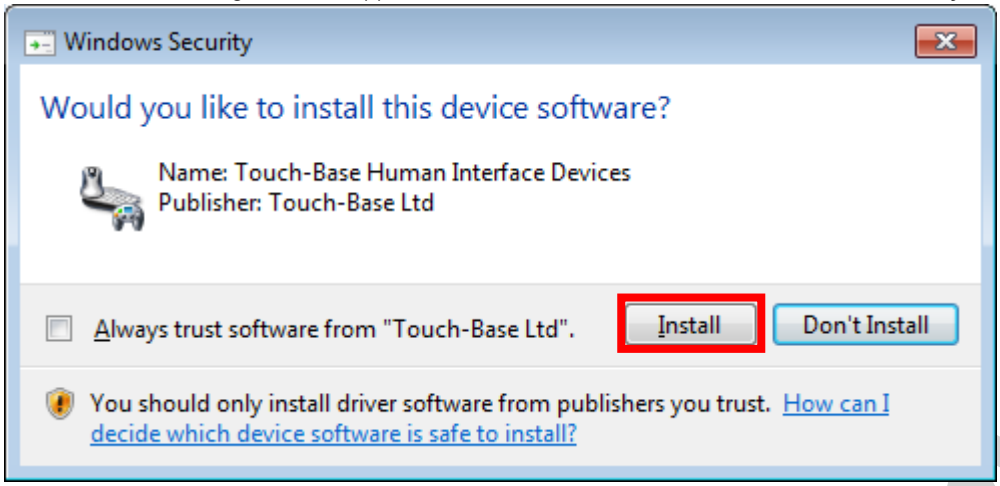
When the installation program is executed, select "Microchip, AR1100, USB", and click the "Install" button.



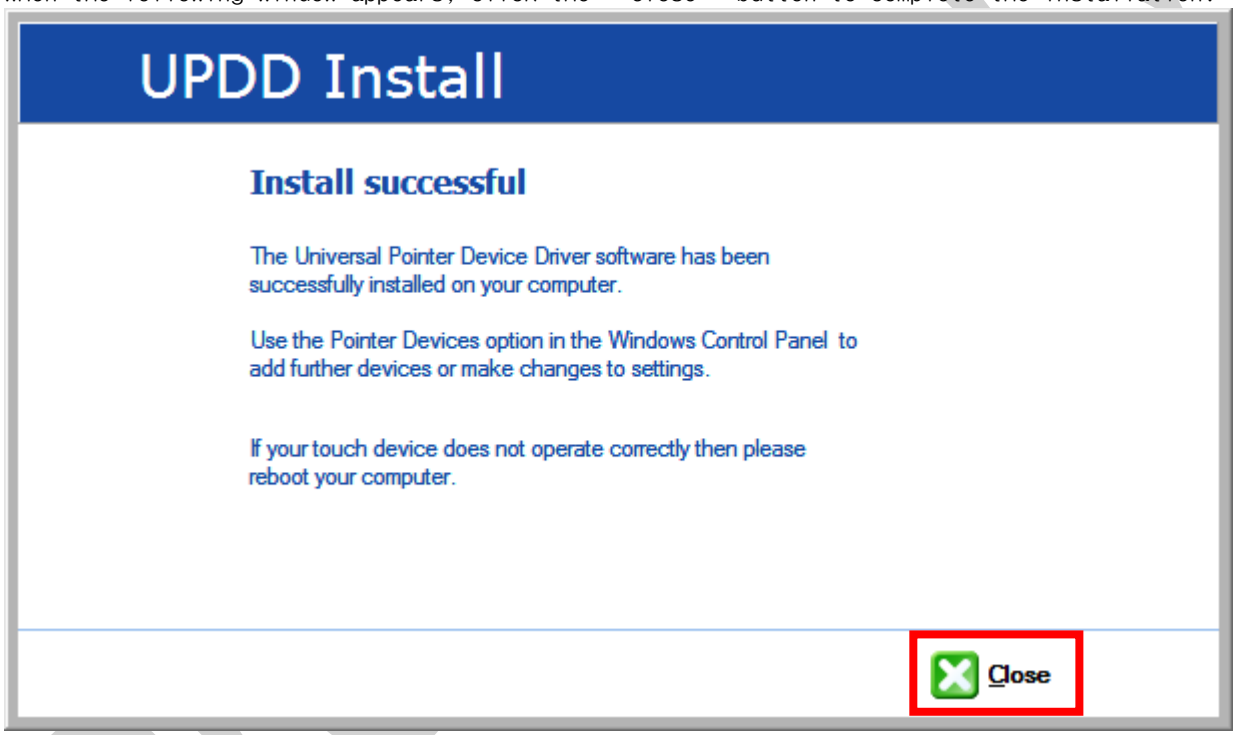
When the following window appears, click "Install" button continuously.



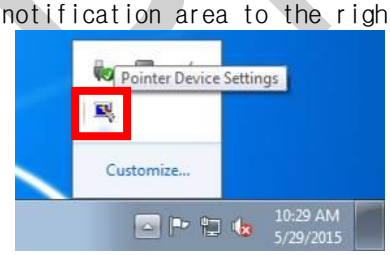
When the following window appears, click "Install" button continuously.



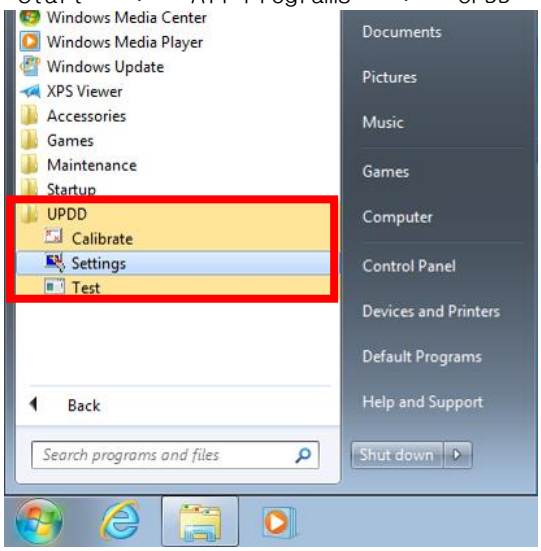
When the following window appears, click the "Close" button to complete the installation.



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

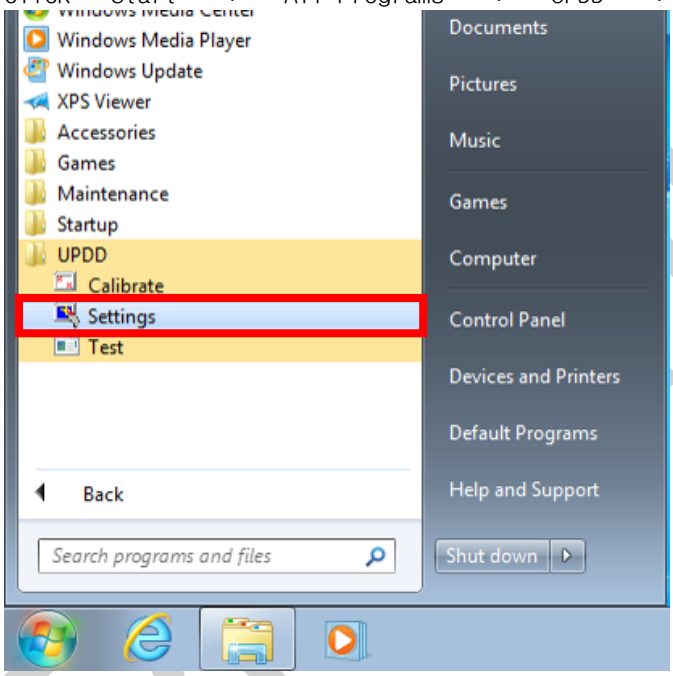


"Start" -> "All Programs" -> "UPDD" folder is created.

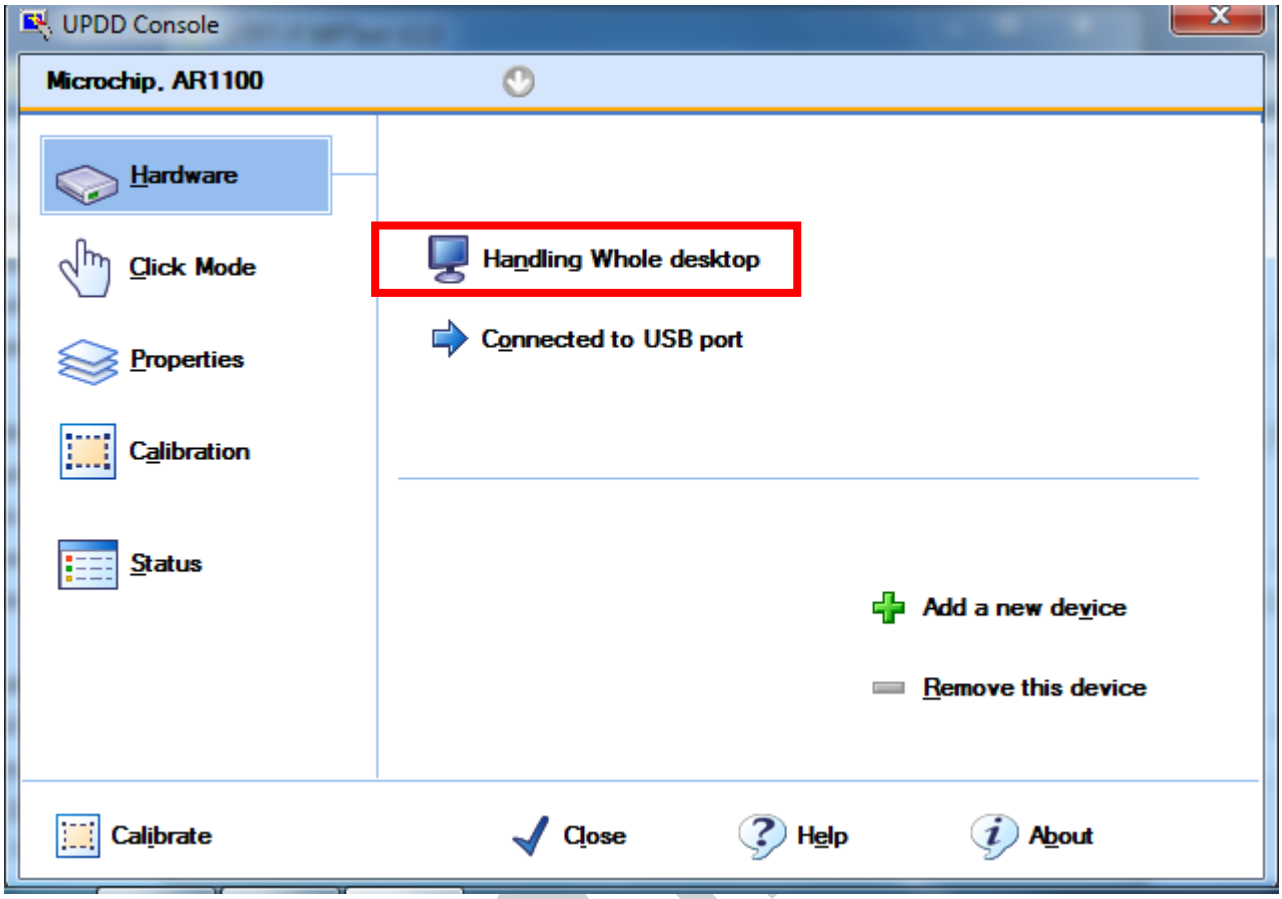


2.3. Touch Calibration

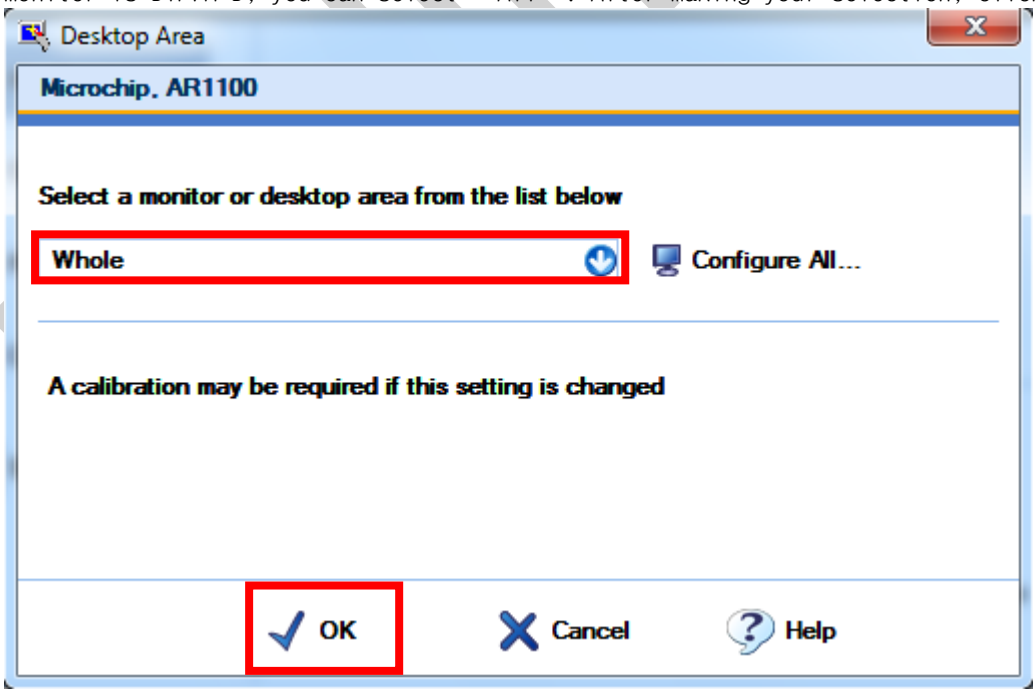
Click "Start" -> "All Programs" -> "UPDD" -> "Settings".



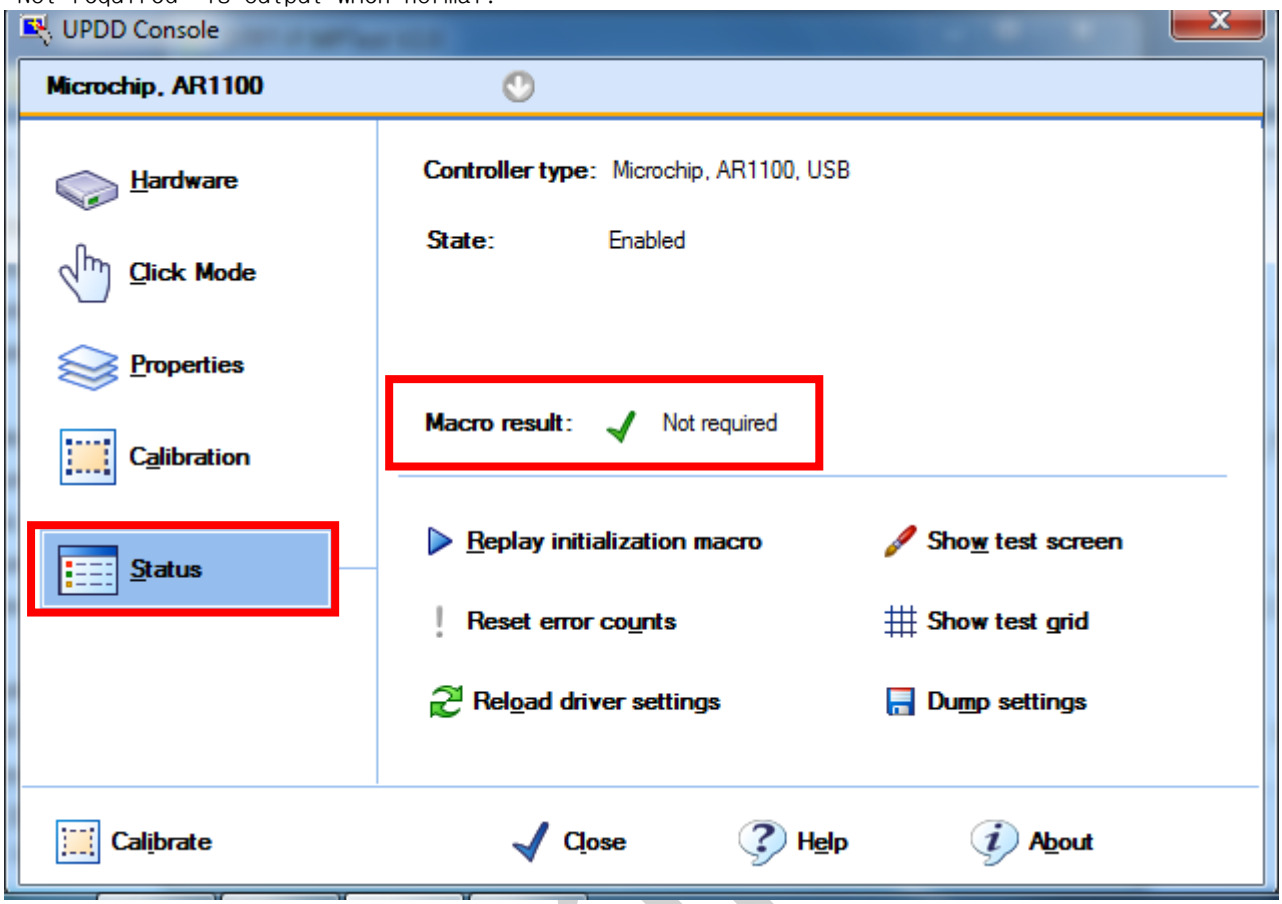
This is “Settings” execution screen. "Connected to USB port" is output when normal.
Click the “Monitor icon” to select a monitor.



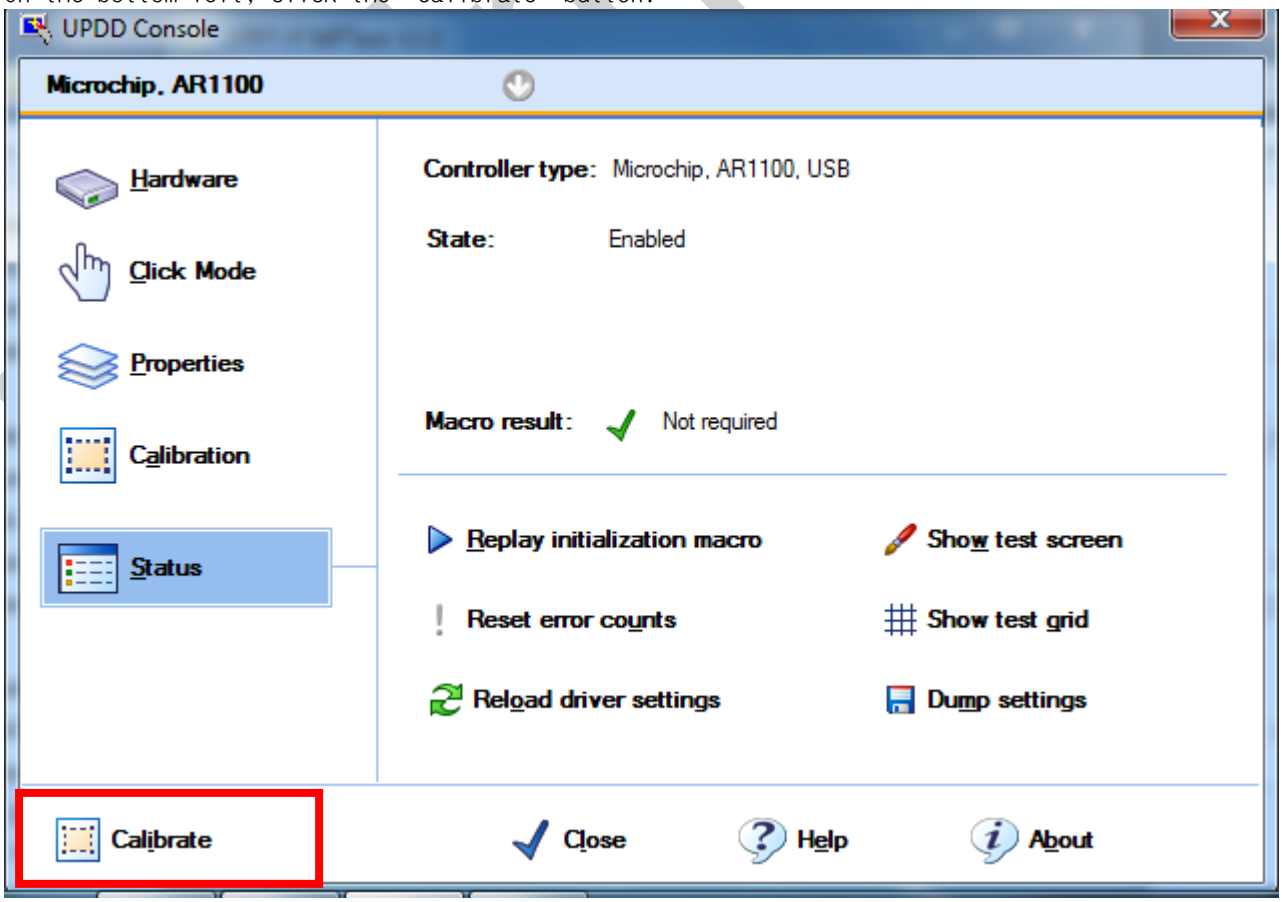
Press the down arrow to select the monitor to which DTP7H-D is connected. If only the connected monitor is DTP7H-D, you can select “All”. After making your selection, click “OK”.



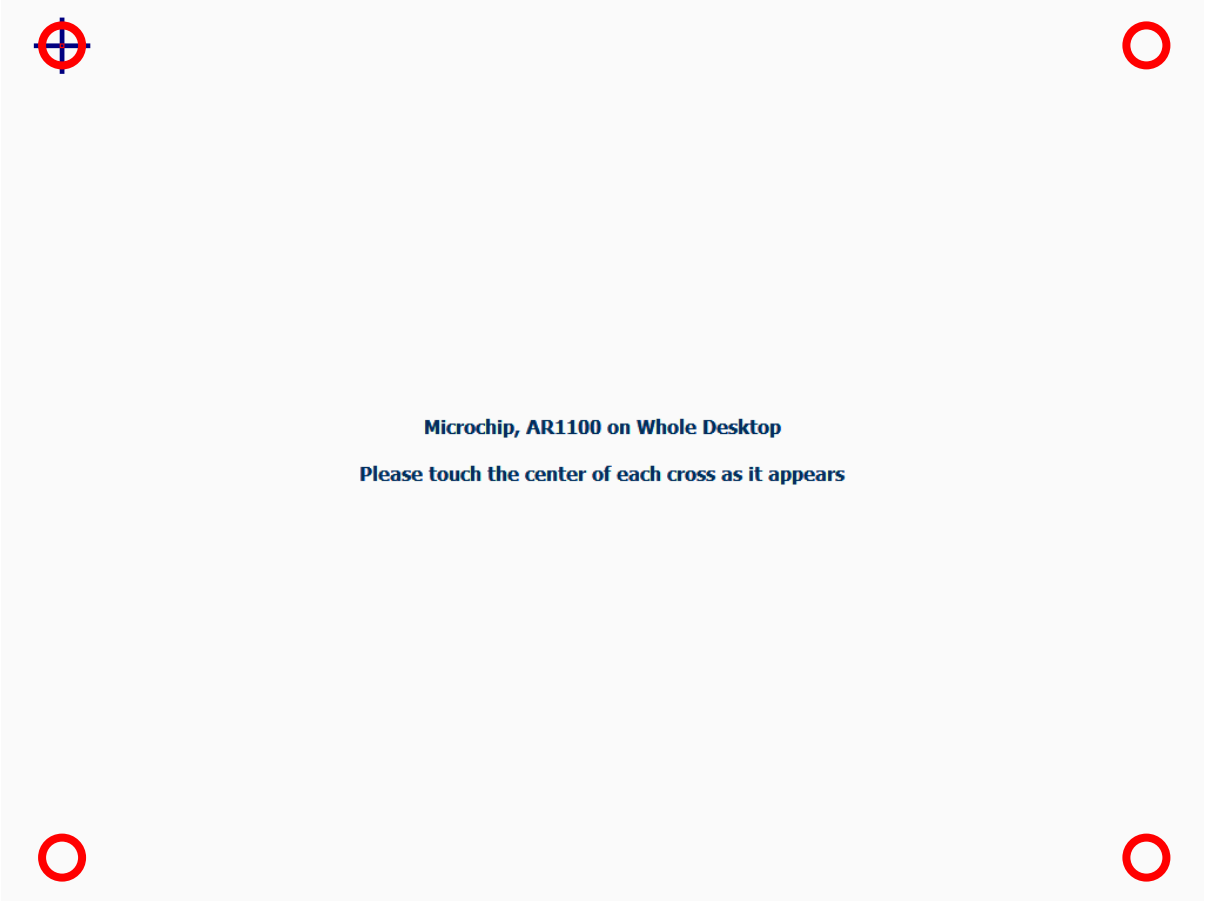
"Not required" is output when normal.



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.



3. Set the Host PC resolution

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.

The DTP100-D supports multiple resolutions, but in Windows 7 32bit and 64bit environments, it is confirmed that the resolution is supported, and the optimal resolution value is confirm to be 1280 x 800 resolution. Therefore, this manual also describes the setting method based on the resolution of 1280 x 800 and recommends using 1280 x 800 resolution.

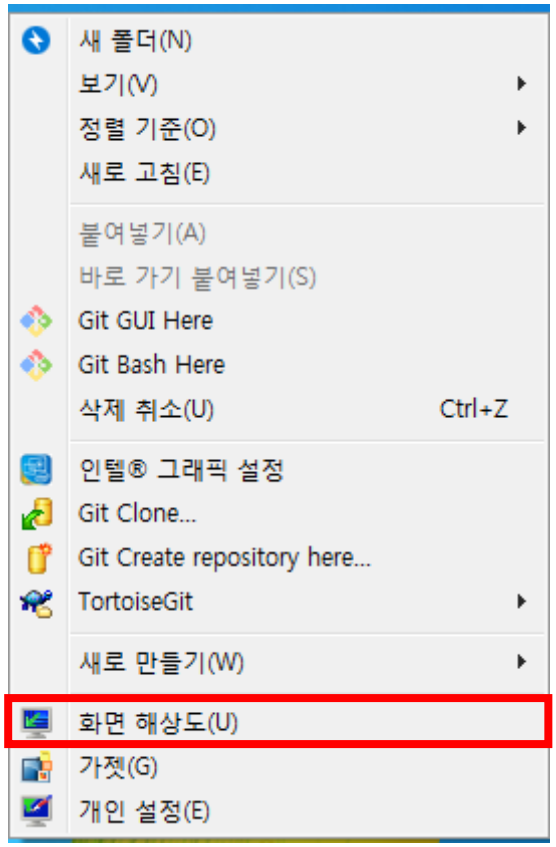
For the resolution setting, the cable must be connected as shown in "1.1 DTP10-D Connection".

3.1. Supported resolution

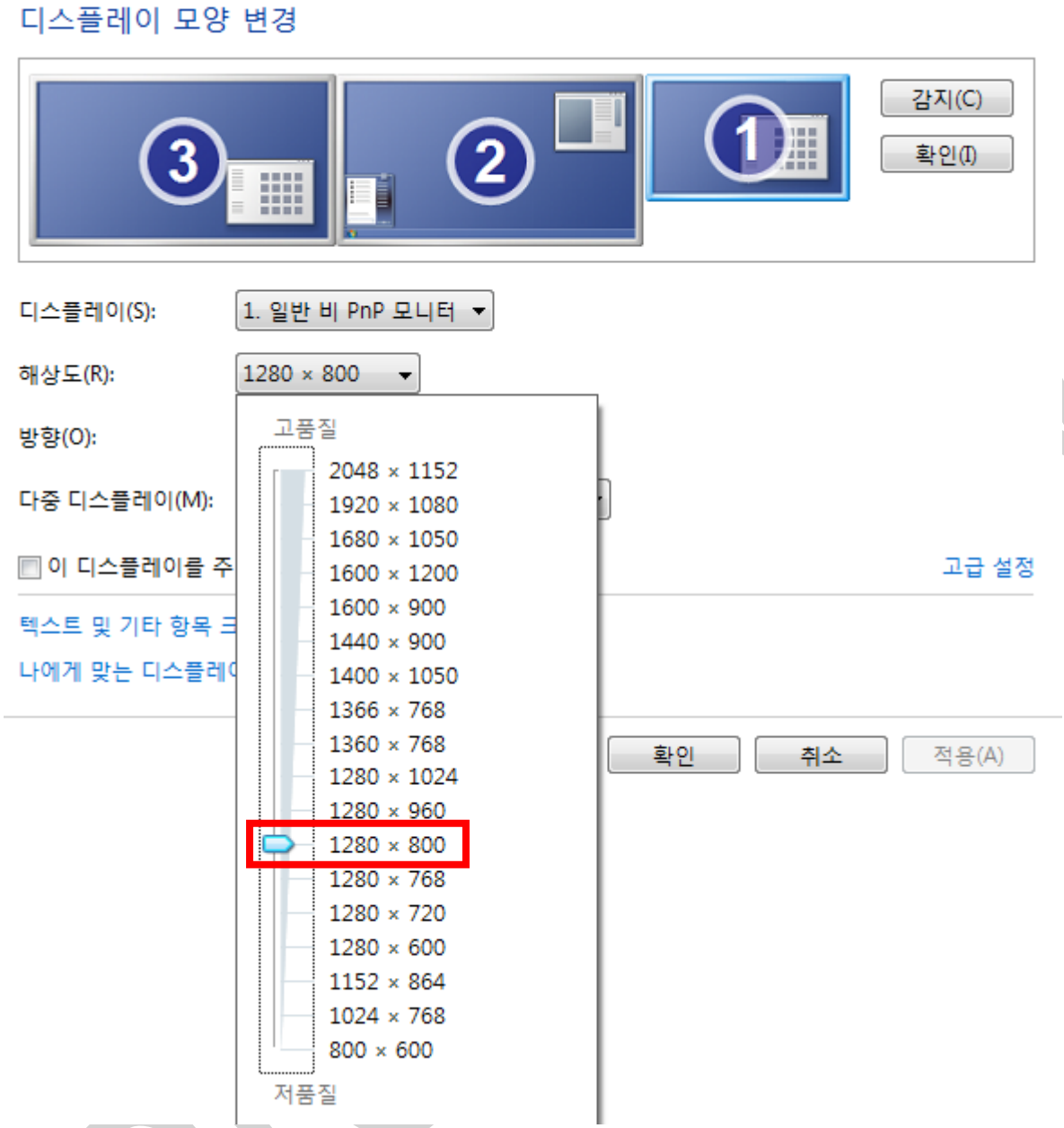
DTP10-D supports VESA standard resolution. However, optimized resolution is 1280 x 800 60Hz, so we recommend 1280 x 800 60Hz.

3.2. Resolution setting to 1280 x 800

Right-click on the desktop and click "Screen resolution".

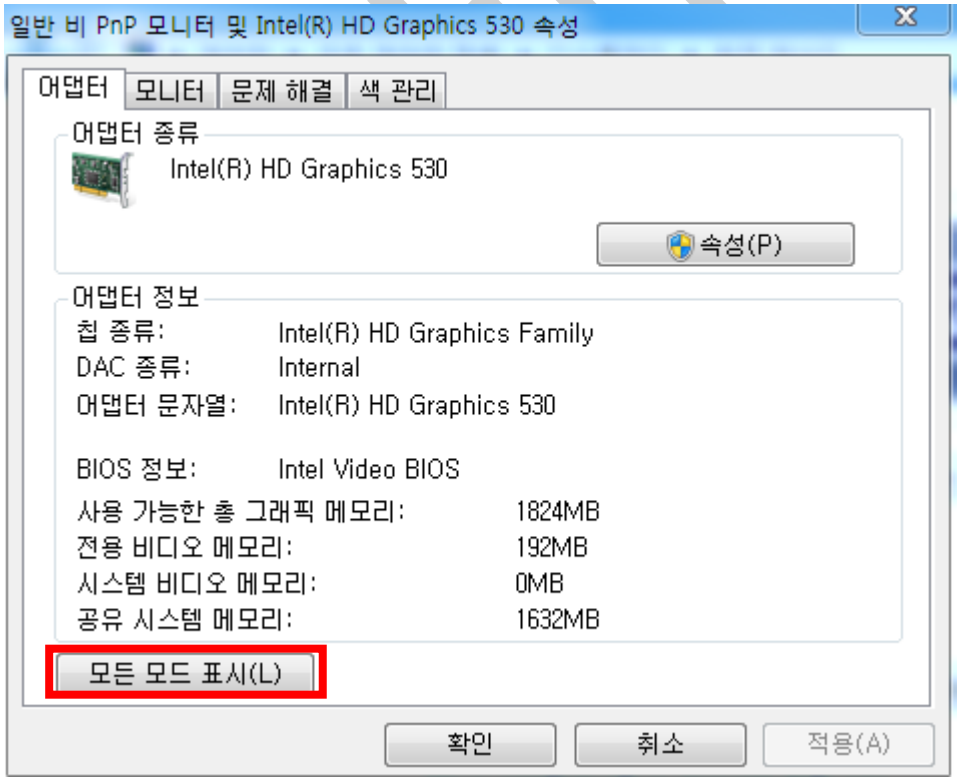


On the resolution tab, select a resolution of 1280 x 800.

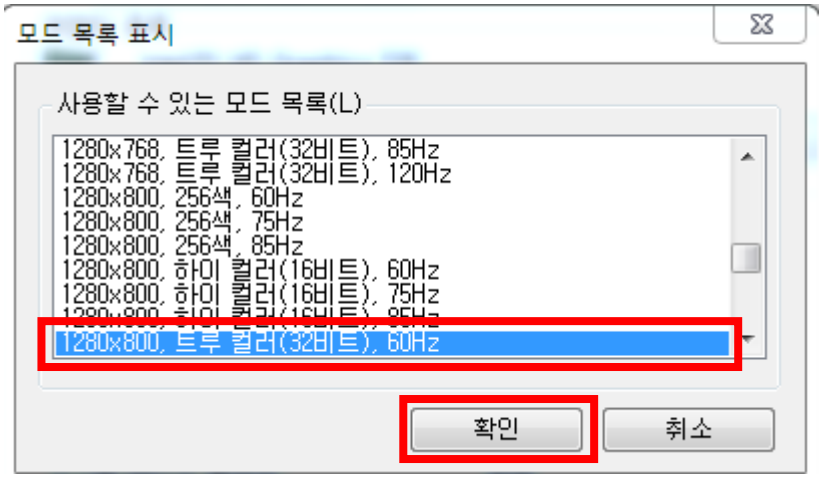


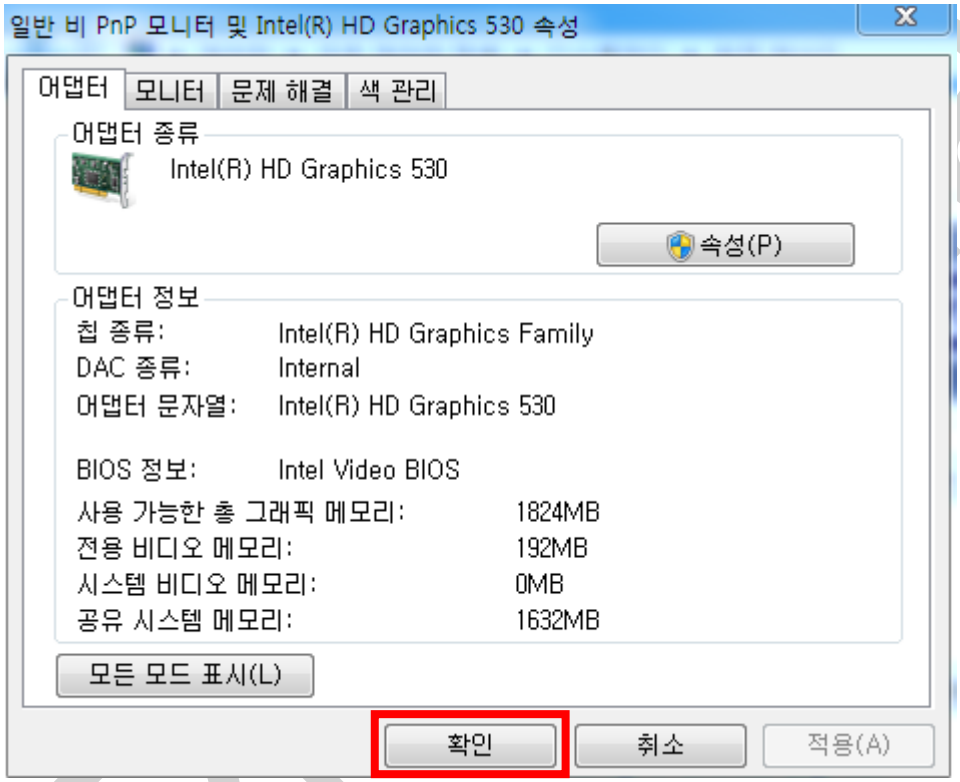
After selecting the resolution, click “advanced settings”.

In the properties of the graphics card, click “Show all modes”.

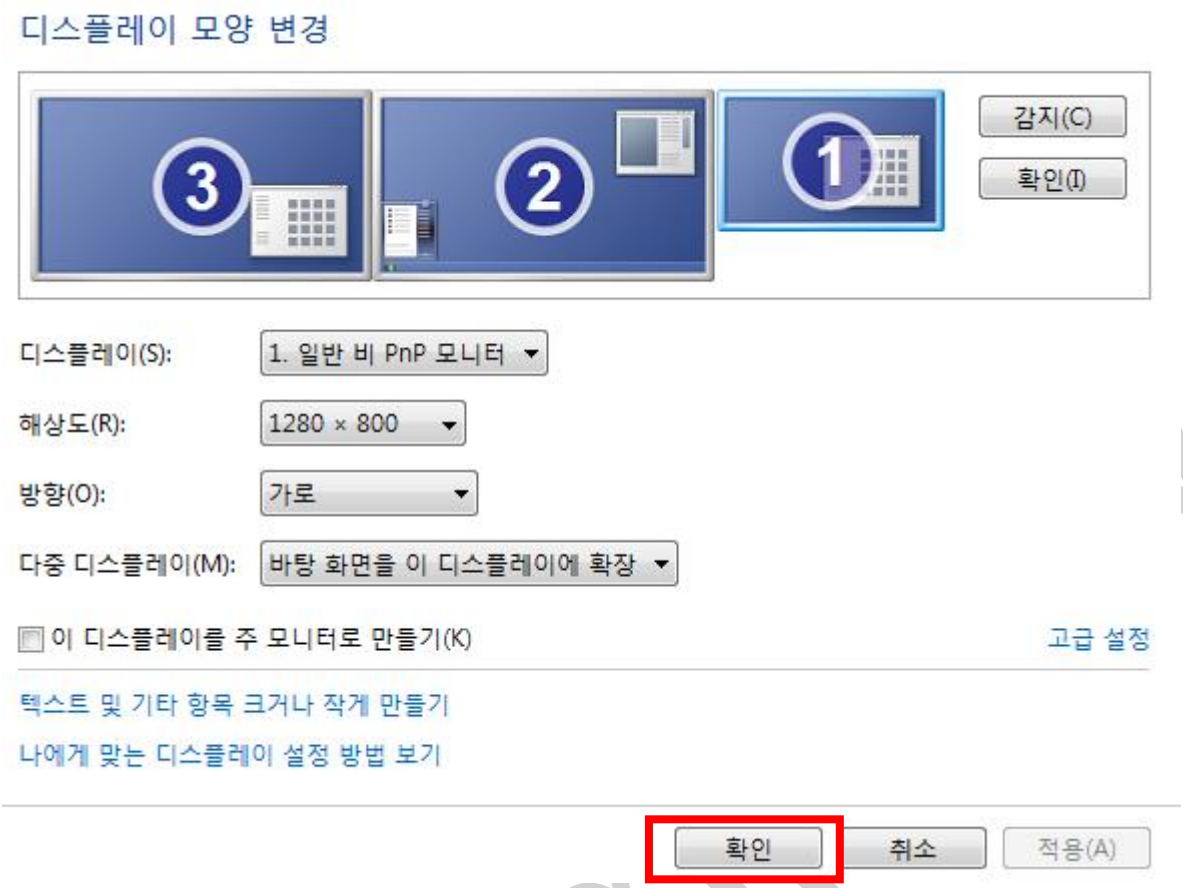


Select “1280 x 800, True color (32bit), 60Hz” and press OK and then “OK” in the graphics card properties.





After all settings are completed, press “OK” on the screen resolution screen.

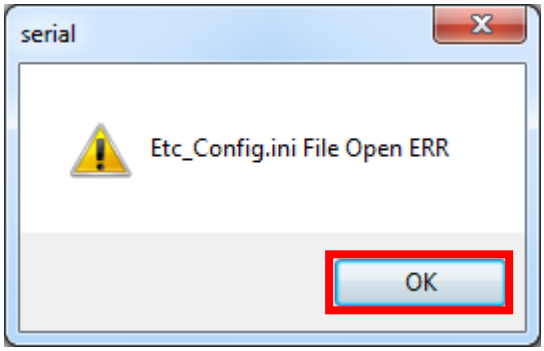


4. How to use Keypad, LED, Buzzer

4.1. Execute Serial daemon application.

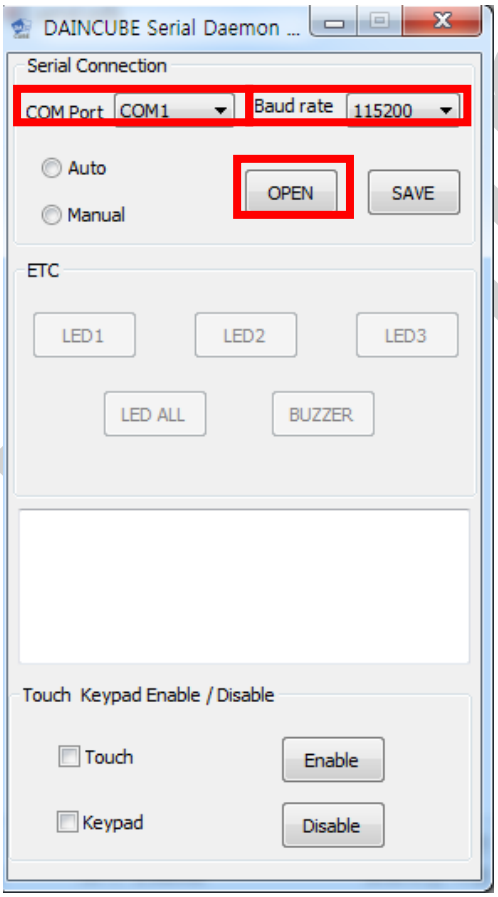
Execute the file "serial.exe" in the folder "02_DTP10-D_SW >> 03_Example >> 01_DTP10-D_SerialDaemon_V1.0 >> Release" in the provided SDK.

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

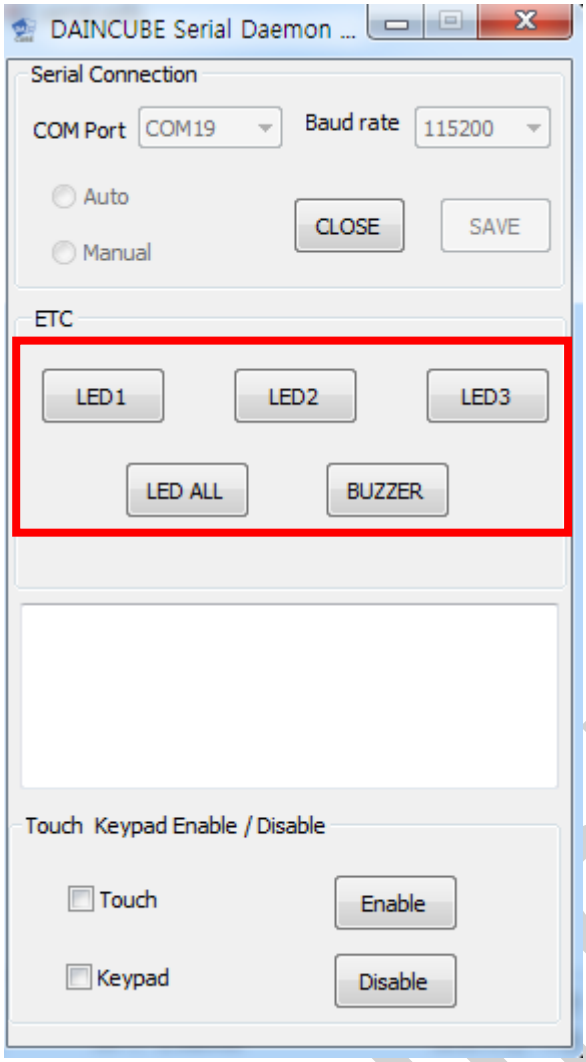


Serial Daemon application execution screen. The following icon appears on the right task bar and click "Daemon show".

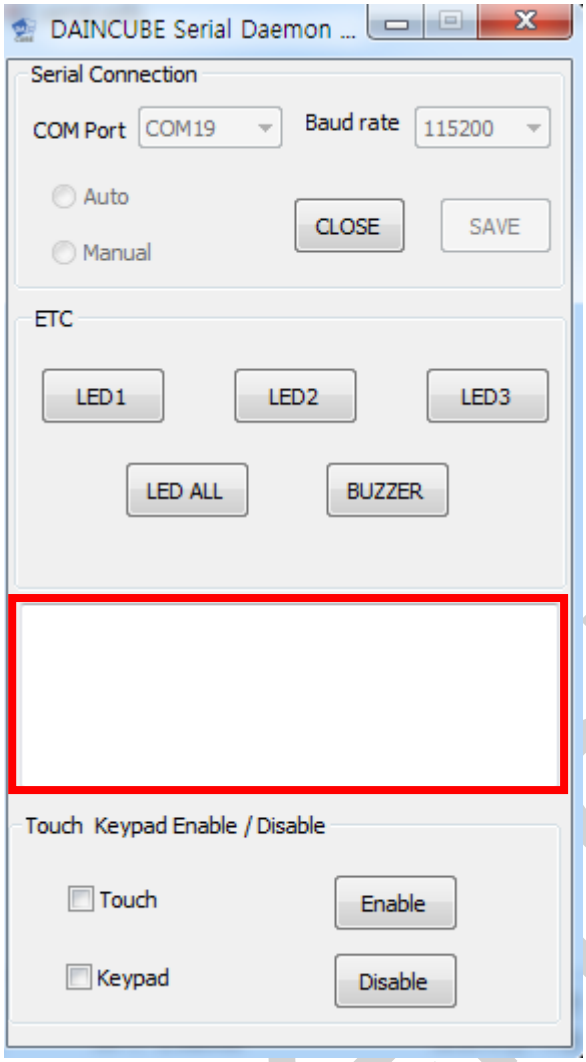
After setting COM port for Key, LED and Buzzer, set Baud rate to 115200 and press "OPEN" button.



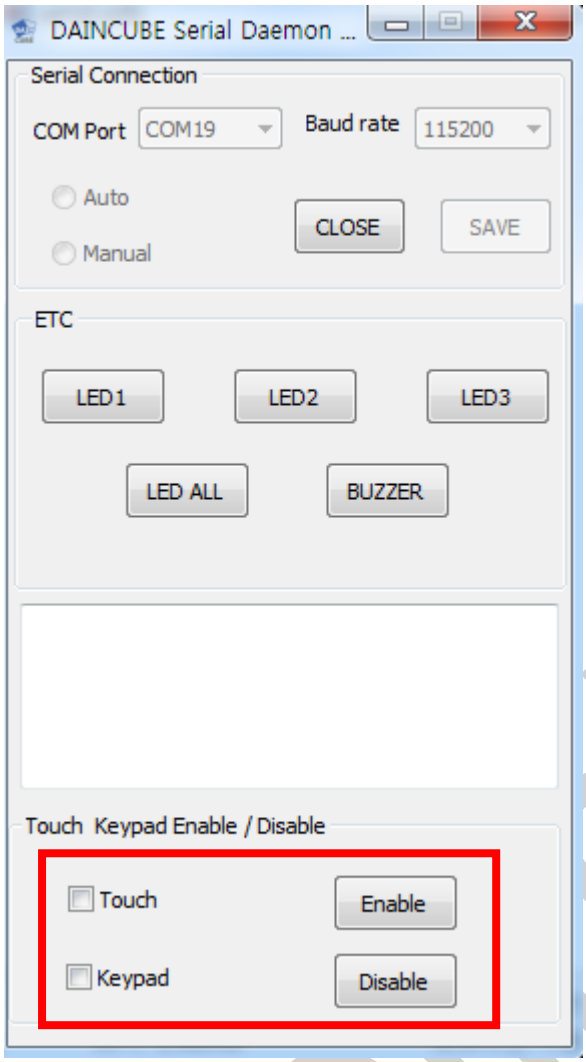
You can check the LED and Buzzer controls by pressing the button.



If you press the key, it will be output to the edit window. Since the function key and the motor switch are function keys, the corresponding action is performed. Key value are refer to API 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".



5. OSD function description

5.1. How to enter OSD

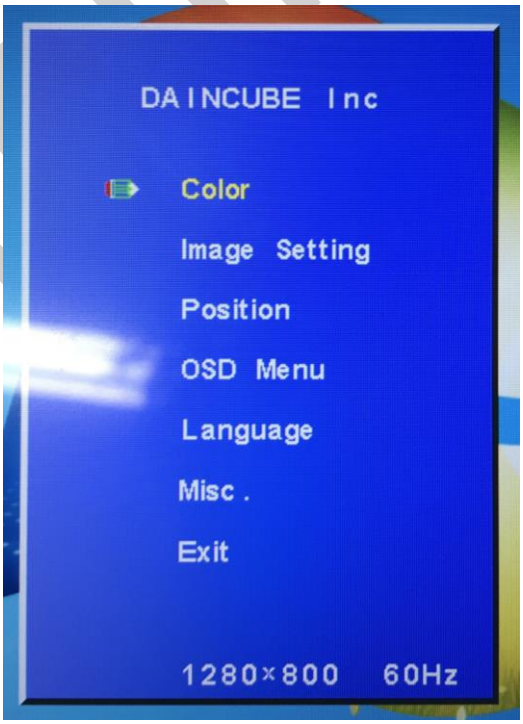
OSD is an on-screen display that allows you to adjust the display options. Brightness, contrast, horizontal or vertical position setting and many other features are supported.

When using OSD function, you must stop the robot or device before proceeding.

The keys to enter and use the OSD are shown below.

Key	Function	Others
F1,F2	Enter to OSD	Press F1 and F2 keys simultaneously and wait for about 3 seconds.
F1	Move down	
F2	Move up	
-8	OK	
+8	Back	

Press F1 and F2 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.

5.1.1. 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 English, French, German, Spanish)

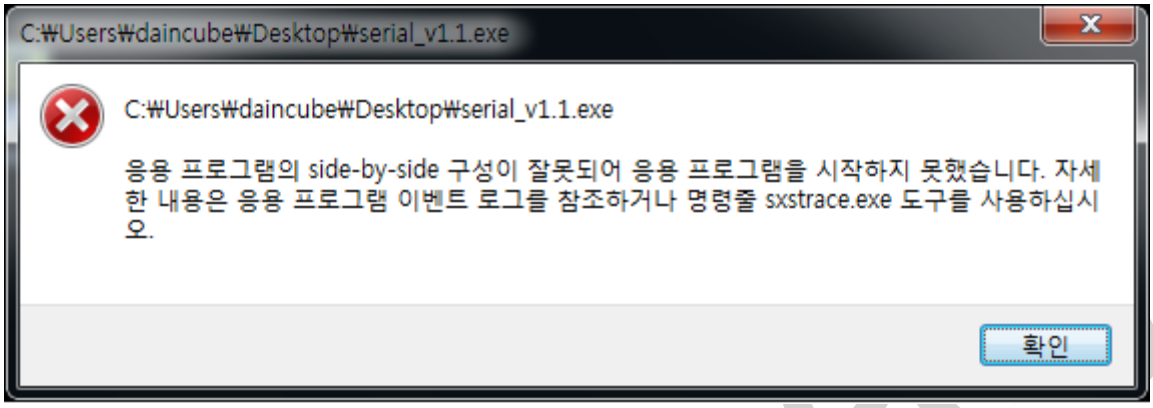
In addition to the support functions, access to menus is possible, but changes are not recommended.

6. FAQ

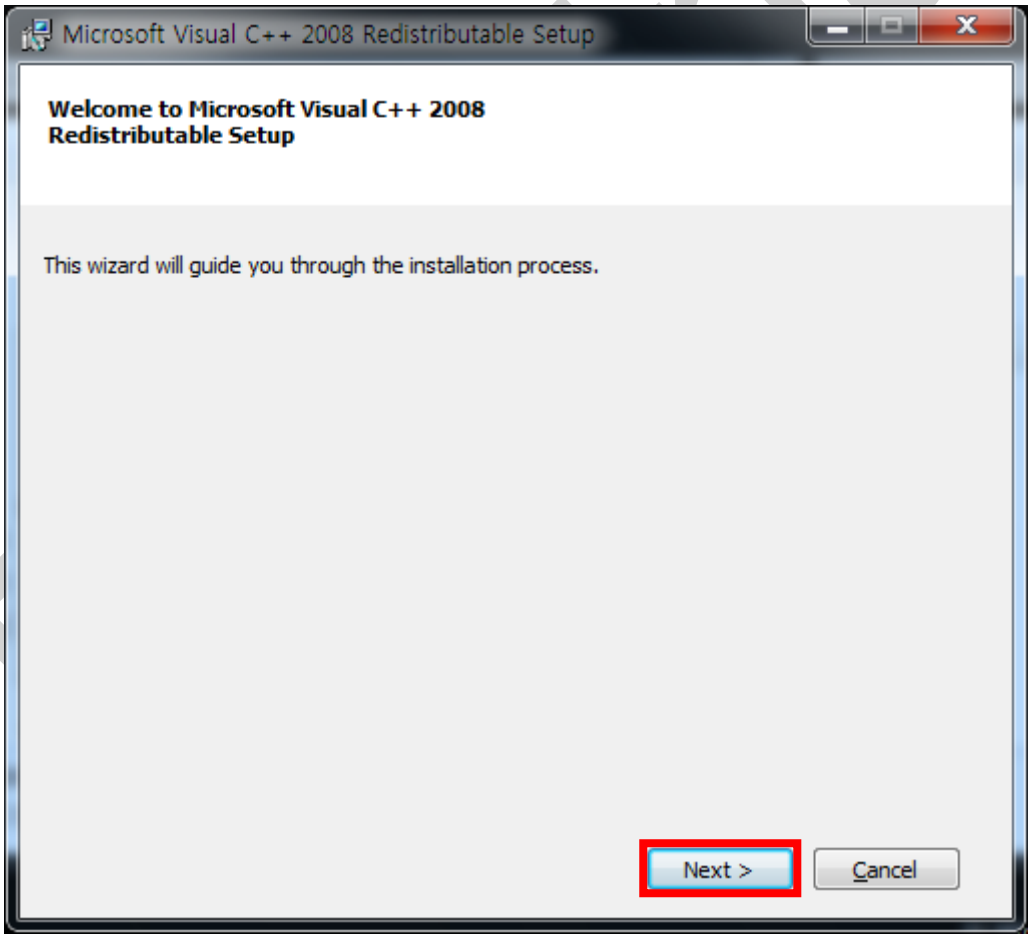
6.1. Solution of error

6.1.1. Fail to execute serial daemon

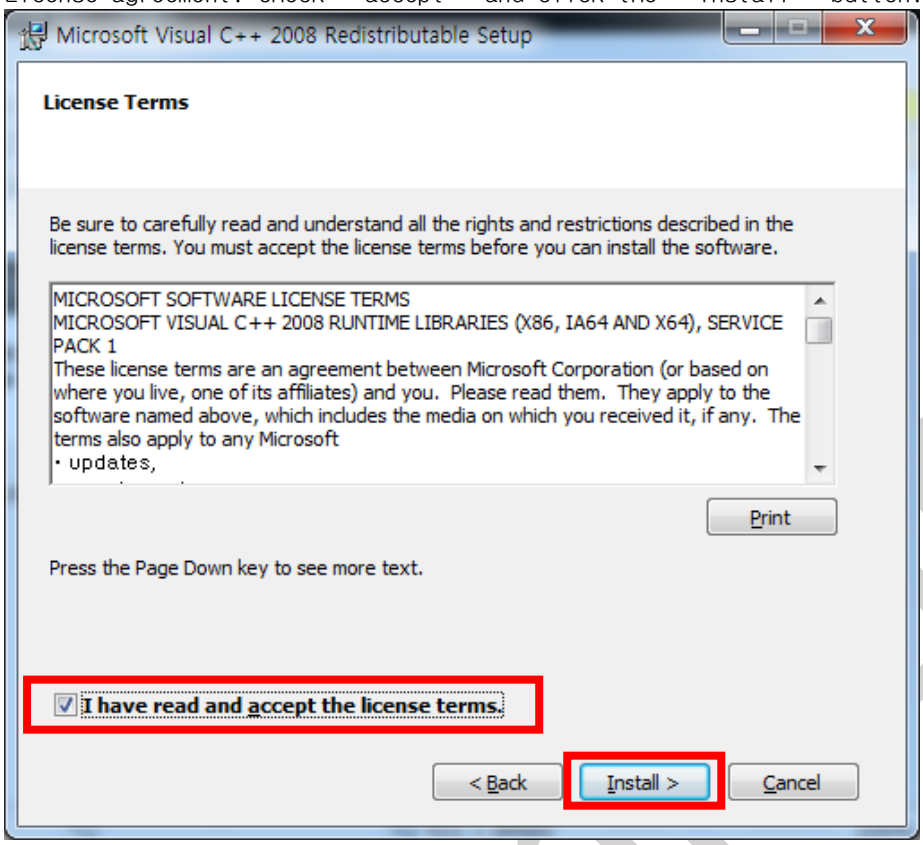
When the following error occurs, execute "10_vcredist_x86.exe" file in "02_DTP10-D_SW >> 02_Driver" folder.



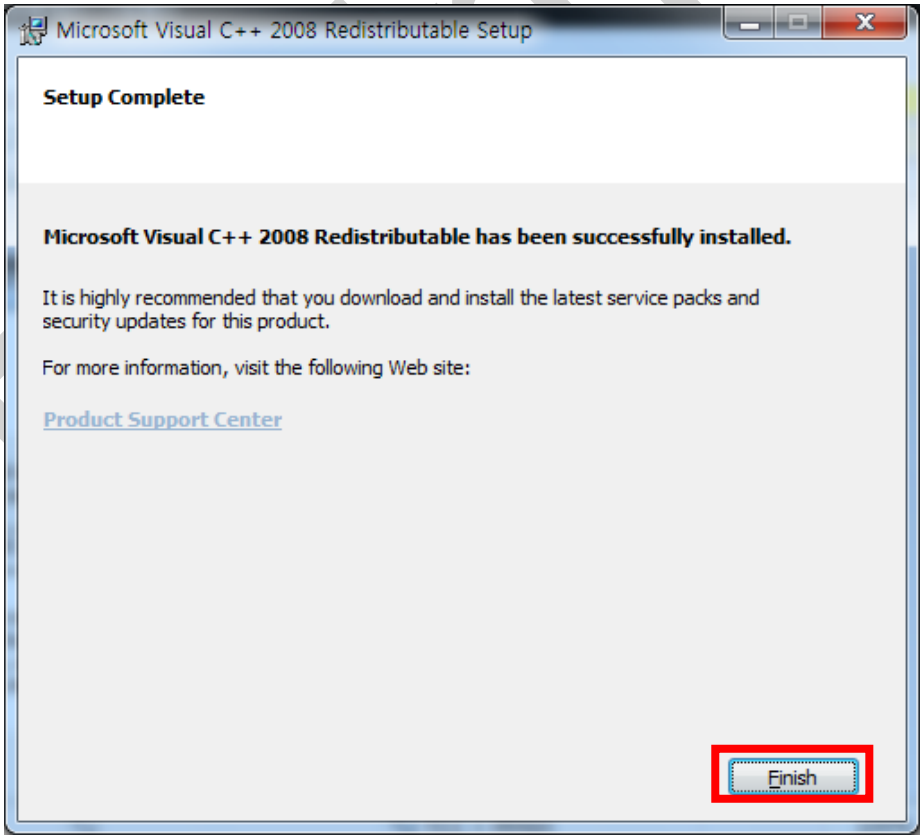
Click the "Next" button to start the installation.



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



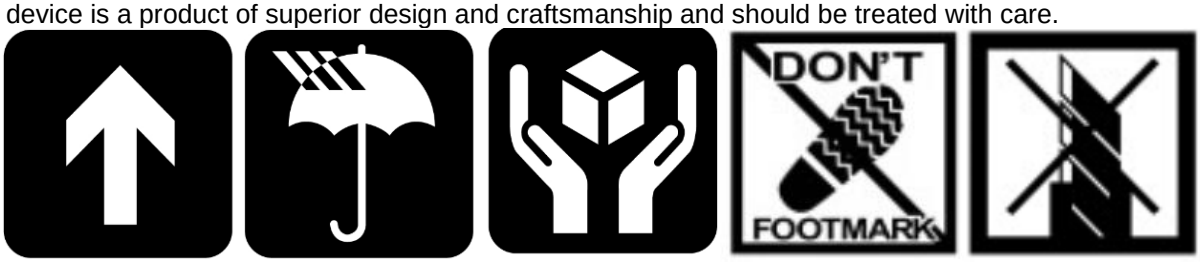
When the installation is complete, click the "Finish" button.



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

7. 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.

7.1. Cleaning

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

8. 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.

8.1. 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

8.2. 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

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

9. 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.

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