

The Classic of Touch Solution!

# GREENCHIP

---

## GreenTouch™ Evaluation Kit Capacitive Touch Sensor

v3.2  
User Manual

## REVISION HISTORY

Version	Date	Revision Contents
V3.0	April 2015	Release version
V3.1	November 2016	Typing error
V3.2	January 2018	Revised Tool Kit

Copyright © 2009 by GreenChip Inc. - All Rights RESERVE.

GreenChip owns all right, title and interest in the property and products described herein, unless otherwise indicated. No part of this document may be translated to another language or produced or transmitted in any form or by any information storage and retrieval system without written permission from GreenChip.

GreenChip reserves the right to change products and specifications without written notice. Customers are advised to obtain the latest versions of any product specifications.

GREENCHIP MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OTHER THAN COMPLIANCE WITH THE APPLICABLE GREENCHIP SPECIFICATION SHEET FOR THE PRODUCT AT THE TIME OF DELIVERY. IN NO EVENT SHALL GREENCHIP BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES AS A RESULT OF THE PRODUCT'S PERFORMANCE OR FAILURE TO MEET ANY ASPECT OF SUCH SPECIFICATION. GREENCHIP PRODUCTS ARE NOT DESIGNED OR INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS WHERE A MALFUNCTION OF A GREENCHIP DEVICE COULD RESULT IN A PERSONAL INJURY OR LOSS OF LIFE. CUSTOMERS USING OR SELLING GREENCHIP DEVICES FOR USE IN SUCH APPLICATIONS DO SO AT THEIR OWN RISK AND AGREE TO FULLY INDEMNIFY GREENCHIP FOR ANY DAMAGES RESULTING FROM SUCH IMPROPER USE OR SALE.

Information contained herein is presented only as a guide for the applications of our products. GreenChip does not warrant this product to be free of claims of patent infringement by any third party and disclaims any warranty or indemnification against patent infringement. No responsibility is assumed by GreenChip for any patent infringement resulting from use of its products by themselves or in combination with any other products. No license is hereby granted by implication or otherwise under any patent or patent rights of GreenChip.

The GreenChip logo is a registered trademark of GreenChip.

[www.greenchip.co.kr](http://www.greenchip.co.kr)

## Table of Contents

Chapter 1. Evaluation Kit Contents .....	4
Chapter 2. Get Started .....	5
2-1. Installation VCP Device Driver ( COM Driver ) .....	5
2-2. Installation Microsoft Visual C++ 2008 Redistributable .....	10
2-3. Hardware Description.....	13
Chapter 3. Application Program Quick Manual.....	14
3-1. Main Window Description.....	14
3-2. Set Auto Sensitivity .....	15
3-3. How to write a data into the register.....	17

## Chapter 1. Evaluation Kit Contents

The GreenTouch™ Evaluation Kit(EVKit) is a compact and versatile evaluation platform for the GreenTouch™ series. The EVKit allows users to evaluate, prototype, and create application-specific designs.

### 1. Evaluation Kit Contents

The EVKit contains everything needed to develop and run applications for GreenTouch™ controllers including:

- GreenTouch™ Evaluation Kit (EVKit)
- USB cable
- 4-pin I<sup>2</sup>C target cable

### 2. Evaluation Board Specifications

- Board supply voltage: 4.37–5.25 Vdc from USB connector
- Board supply current: 80 mA typical (fully active, CPU at 50 MHz)
- Break-out power output: 3.3 Vdc (100 mA max)
- **Dimensions: 101mm x 76mm x 22mm” (LxWxH)**
- RoHS status: Compliant



### 3. System Requirements

- Platform(s): Microsoft Windows XP, Windows 7, Windows10
- 32Bit windows environment file (vcredist\_x86.exe )
- Minimum 128 MB of RAM (512 MB recommended)
- 110 MB hard-disk space
- USB port

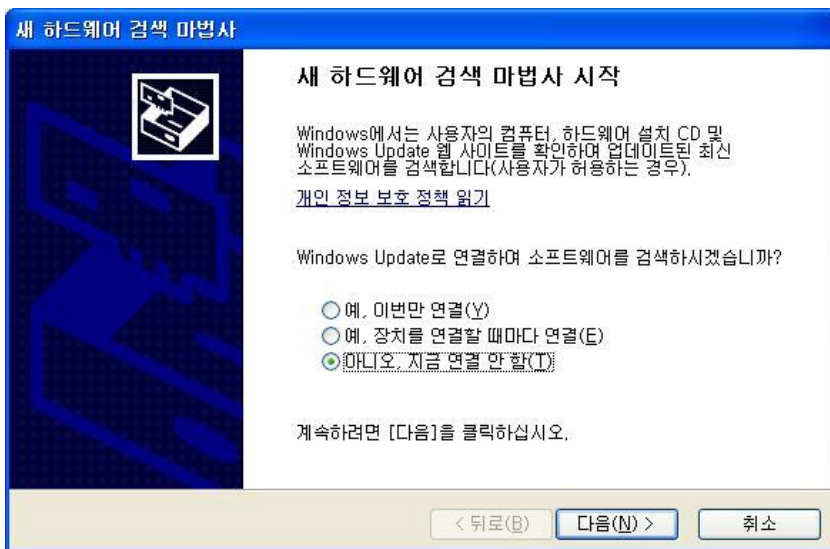
## Chapter 2. Get Started

GreenTouch™ Sensor Evaluation Kit Quick start provides step-by-step instructions for getting started with your GreenTouch™ Sensor Evaluation Kit. For your convenience, these instructions are summarized below.

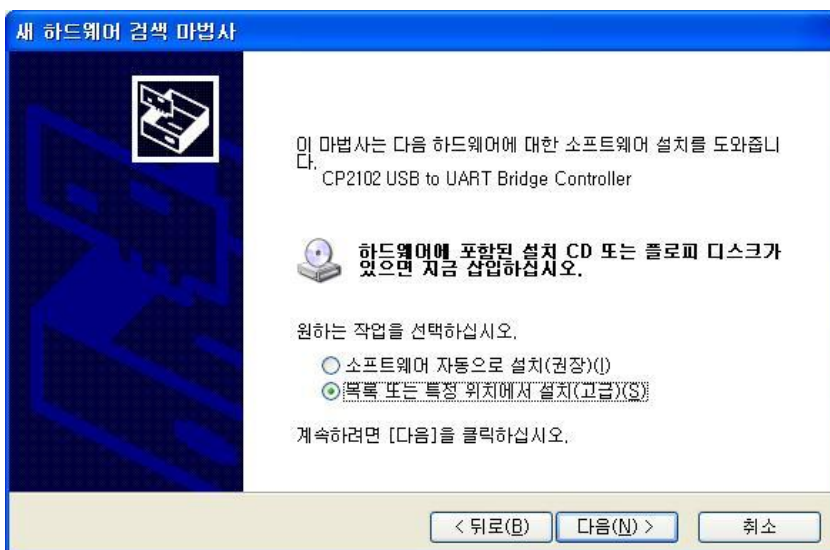
### 2-1. Installation VCP Device Driver ( COM Driver )

When the EVB is first connected to a USB port, Windows automatically starts a driver installation wizard. The following steps guide you through the installation wizard.

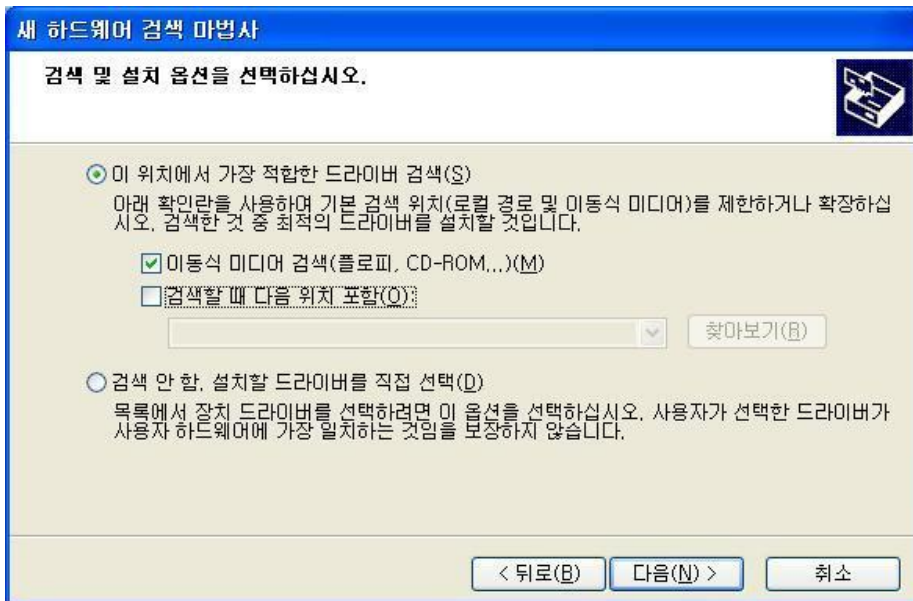
<STEP 1> Connect the EVB to an available USB port using the USB cable provided in the kit. In the Found New Hardware Wizard window, select “No, not this time” and click Next.



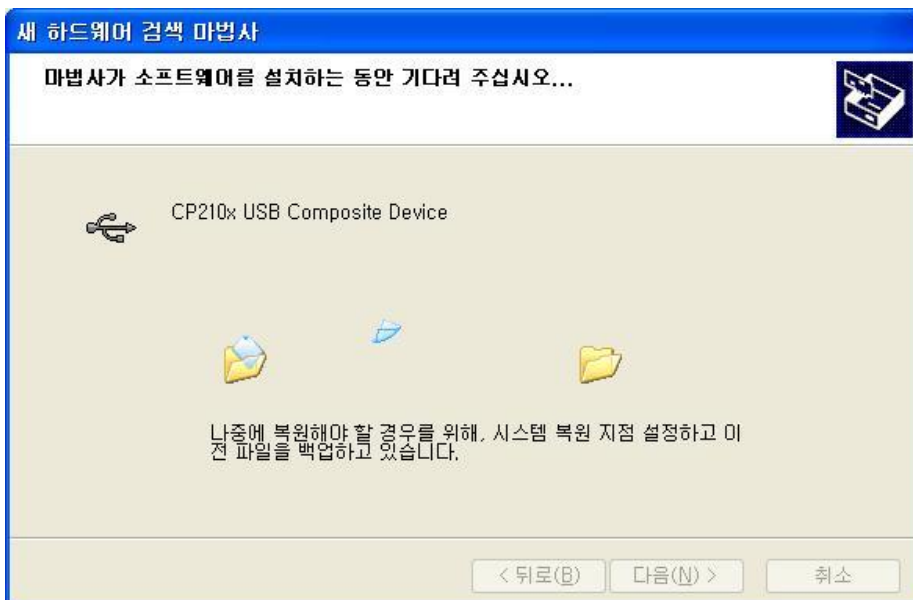
<STEP 2> Select “Install from a list or specific location (Advanced)” and click Next.



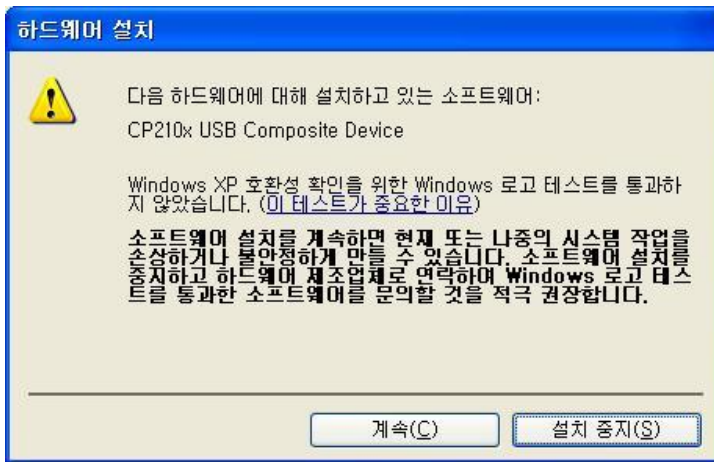
<STEP 3> Insert the Evaluation Kit Documentation and Software CD in the CD-ROM drive. Select “Search removable media (floppy, DR-ROM...)” and click Next.



<STEP 4> Windows locates the driver on the Documentation and Software CD and starts installing the driver.



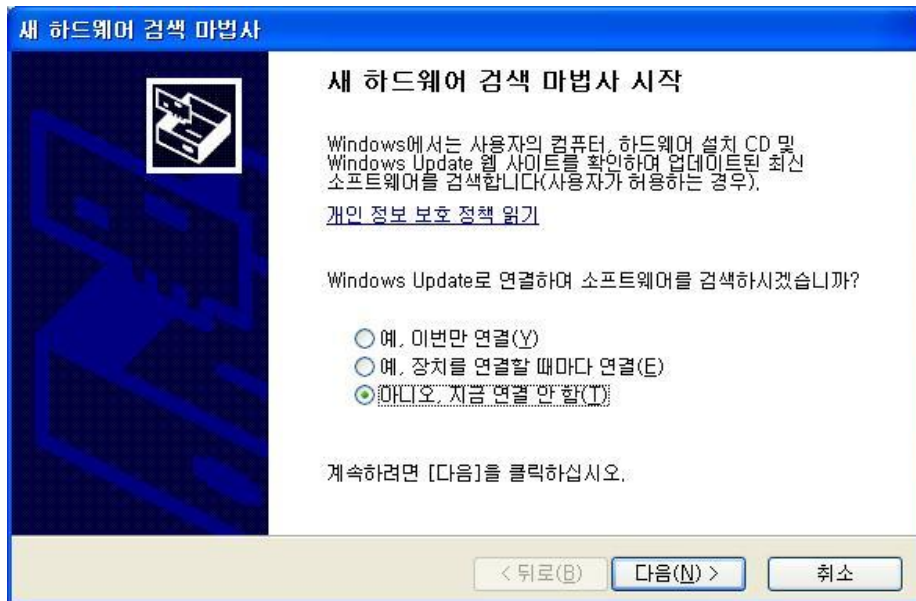
<STEP 4> A warning dialog like the one below might pop up depending on the operating system you installed. Click Continue Anyway.



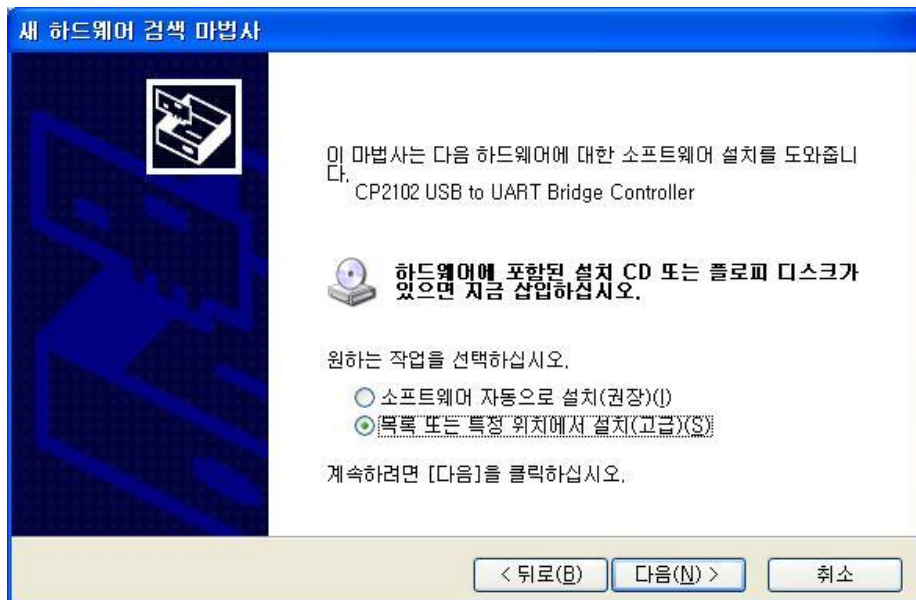
<STEP 5> VCP drivers are now installed. Click Finish.



<STEP 6> Windows will automatically start another installation wizard for CP2102 USB to UART Bridge Controller. Select “No, not this time” and click Next.

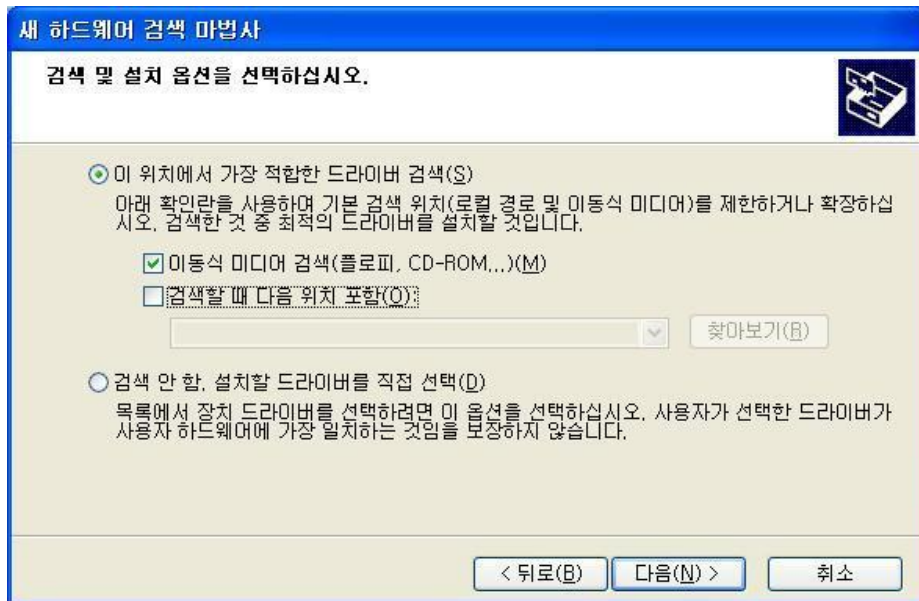


<STEP 7> Select “Install from a list or specific location (Advanced)” and click Next.

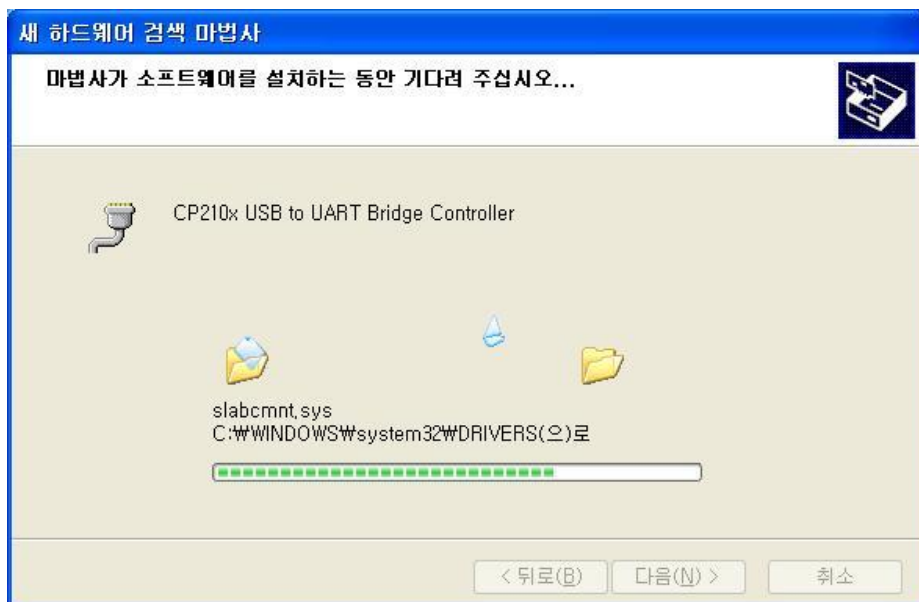




<STEP 8> Insert the GreenChip EV-Kit Tools CD in the CD-ROM drive. Select “Search removable media (floppy, DR-ROM...)” and click Next.

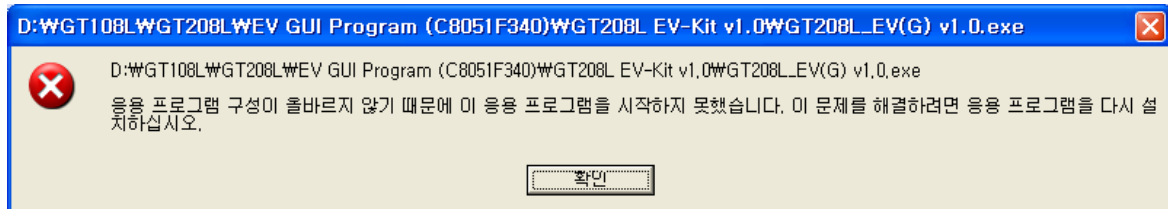


<STEP 9> Windows locates the driver on the Documentation and Software CD and starts installing the driver.

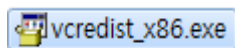


## 2-2. Installation Microsoft Visual C++ 2008 Redistributable

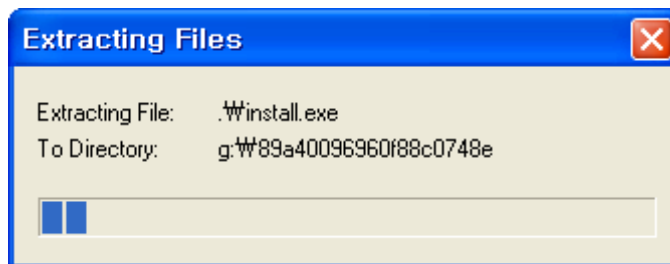
The [GUI]GC\_EVK application program requires an environment Microsoft Visual C++ 2008 Redistributable. An vcredist\_x86.exe file is offered in the directory. The file should be installed if the below dialog box pop-up when the application program is executed.



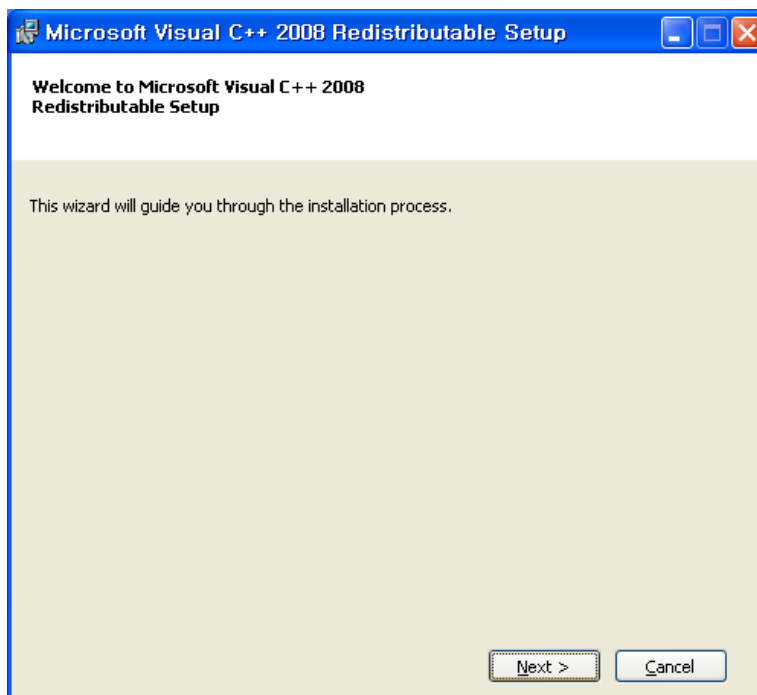
<STEP 1> Double click 'vcredist\_x86.exe'



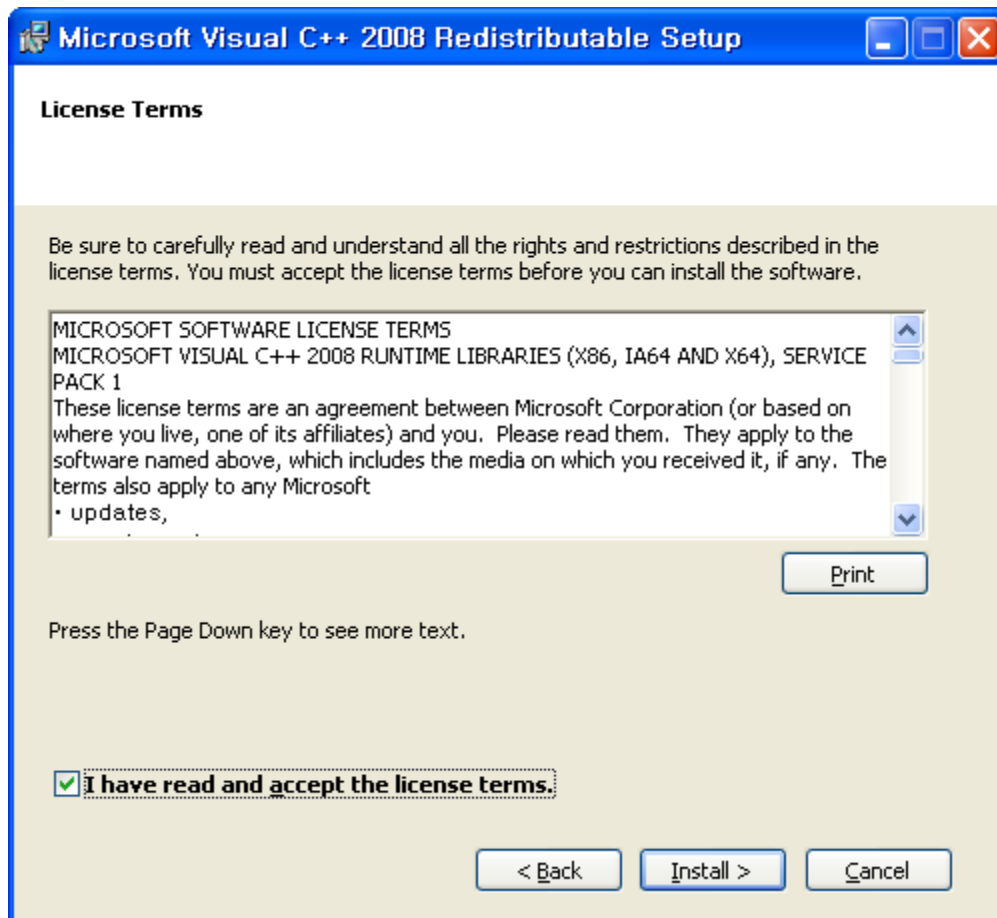
<STEP 2> Please wait it for completed



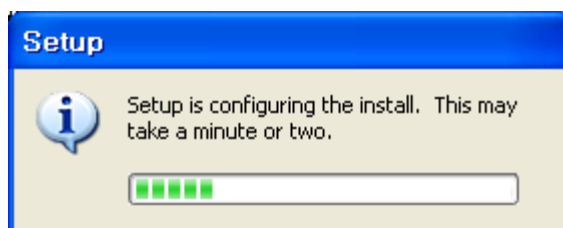
<STEP 3> Click [Next > ] button



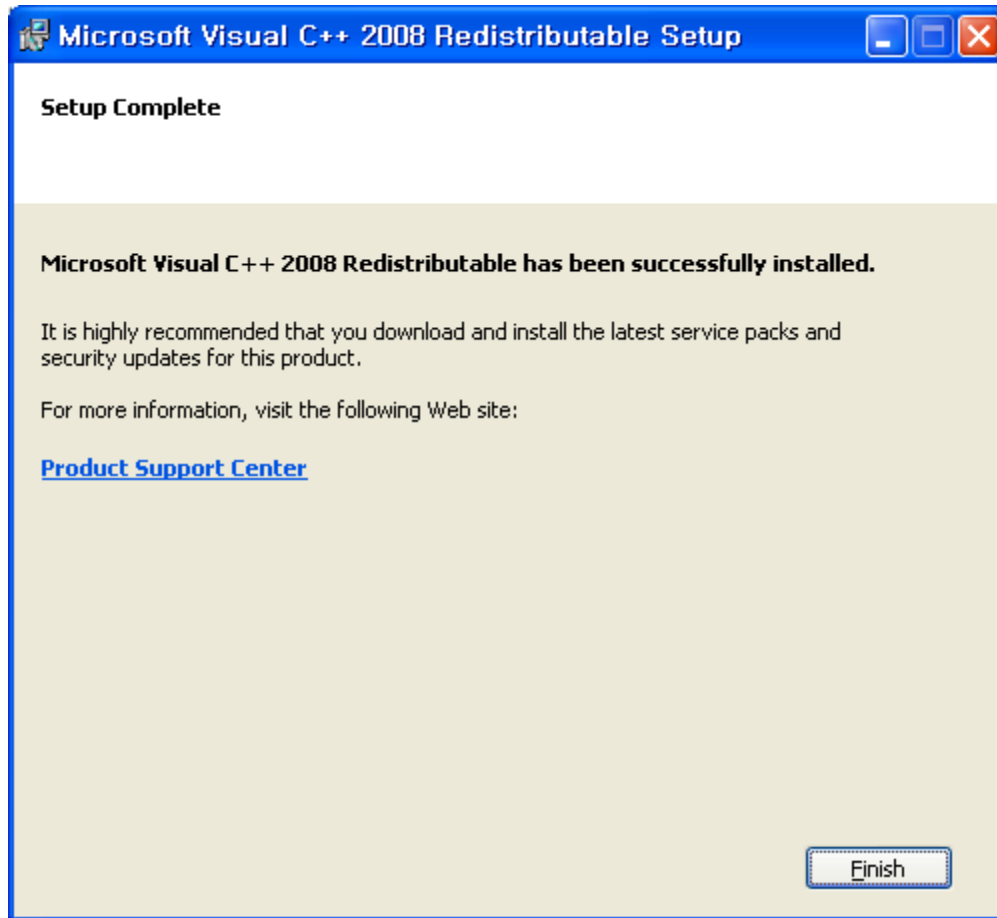
<STEP 4> Check the box and click [Install > ] button



<STEP 5> Setup will start.



<STEP 6> Click [Finish] button and the set-up complete



## 2-3. Hardware Description

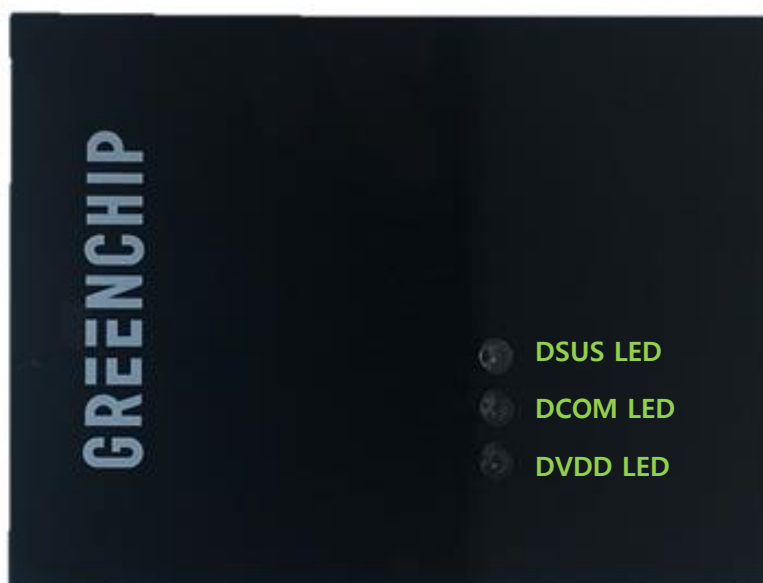
This chapter provides the hardware description for the GreenTouch™ evaluation kit.

Table 1. Connector Pin Map

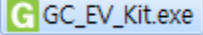
Connector Number	Pin Function
1	VDD
2	N.C
3	SCL (I <sup>2</sup> C Clock)
4	SDA (I <sup>2</sup> C Data)
5	GND
6	N.C



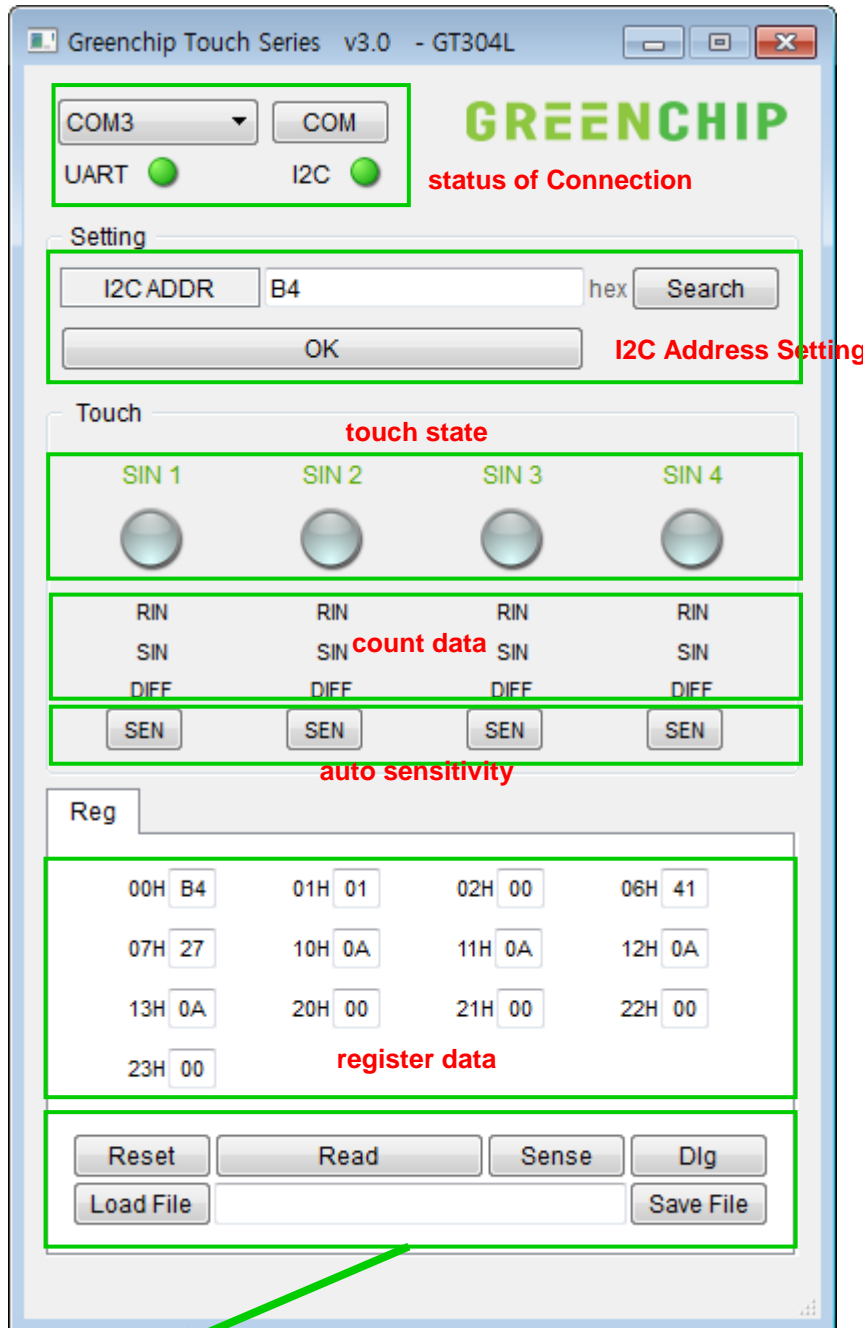
- DSUS LED will be turn on when the USB cable is plugged, if all the drivers are installed correctly.
- DCOM LED will blink whenever the communication is made between MICOM and the target device.
- DVDD LED indicates that the power is on.



## Chapter 3. Application Program Quick Manual

 Double Click GC\_EV\_Kit.exe for start application program. You can write and read the register involved in GreenTouch™ series and monitor the status of device with I<sup>2</sup>C communication.

### 3-1. Main Window Description

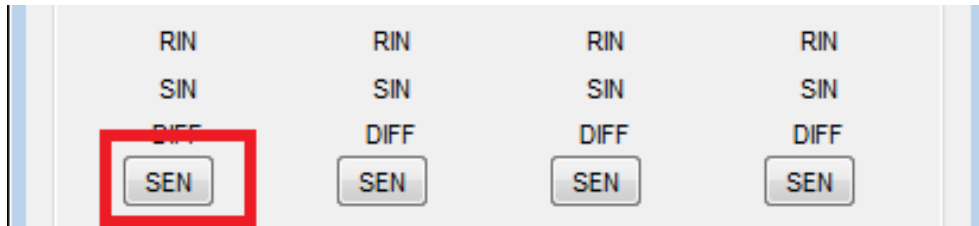


- [Reset] to reset the touch device by RST Pin and software
- [Read] to read all register of touch device.
- [Sense] to start reading the count of touch device
- [Dlg] to open monitoring (sense count, reference count, diff count) dialog
- [Load File] to load a register file and write
- [Save File] to save the register data at the file

## 3-2. Set Auto Sensitivity

\* Note. It is a function that automatically sets the sensitivity of the application. In this program, the sensitivity is set when the touch is based on the detection of the adult. Therefore, the user is recommended to fine-tune the manual precisely to meet its own standards.

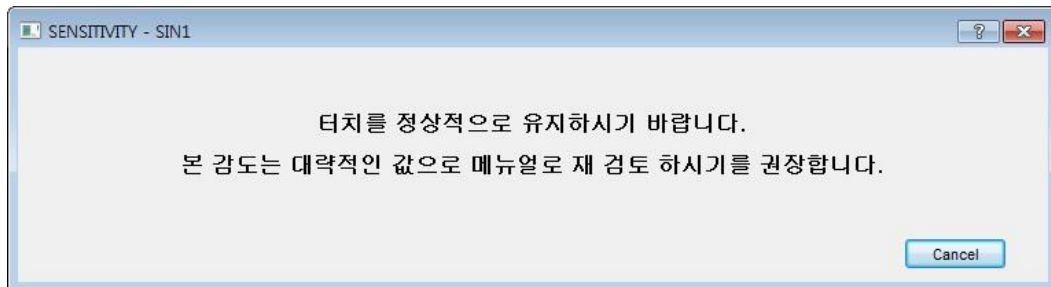
<STEP 1> In the main screen, click the [SEN] button of the desired channel.



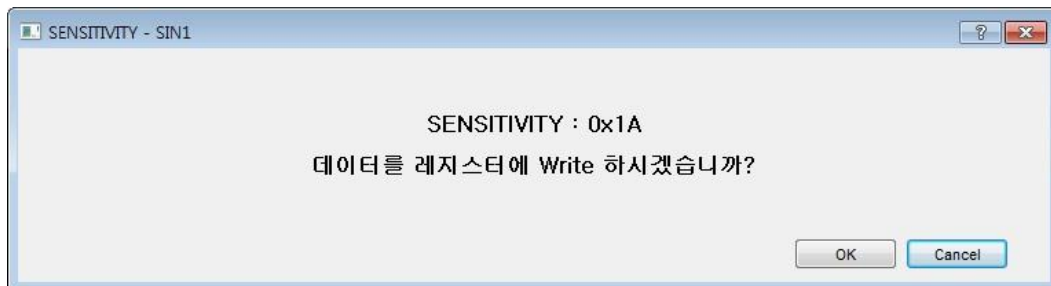
<STEP2> The following message window appears and the user should keep the touch for several seconds.

Go to STEP3, if the touch is normal.

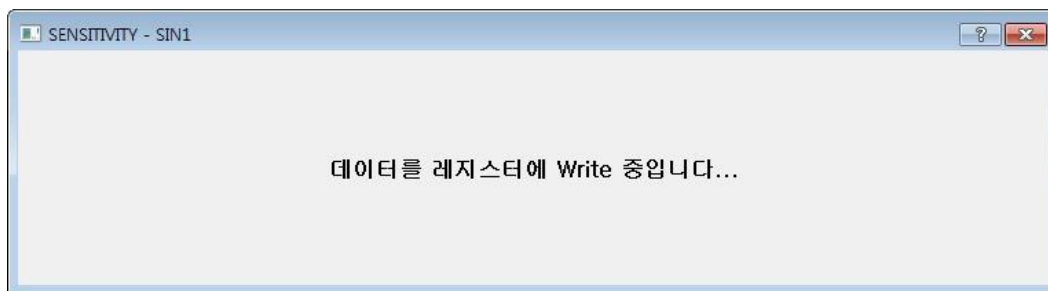
But go to STEP6, if the amount of change of touch is insufficient or the touch is not correct.



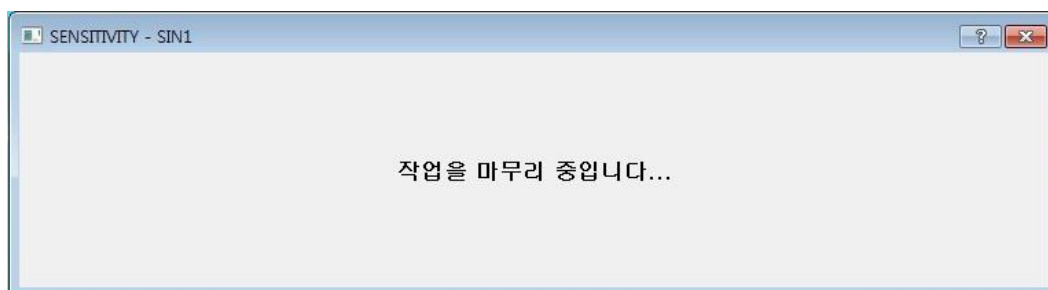
<STEP3> Click the [OK] button if you want to write the auto detected sensitivity to the register.



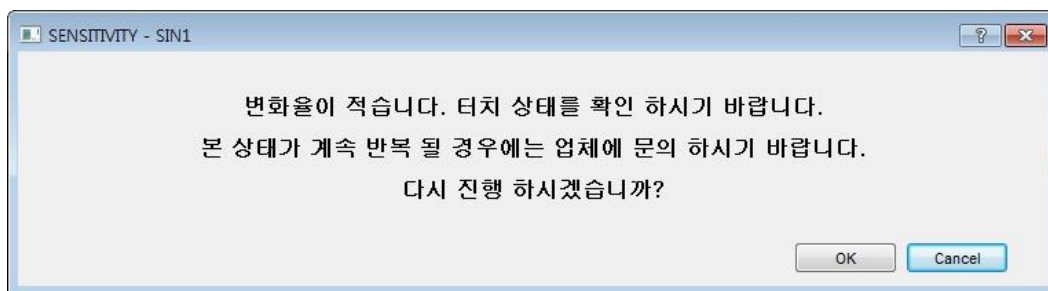
<STEP4> Write Sensitivity as follows.



<STEP5> Reset the settings that were changed for the Auto Sensitivity setting to the previous state.

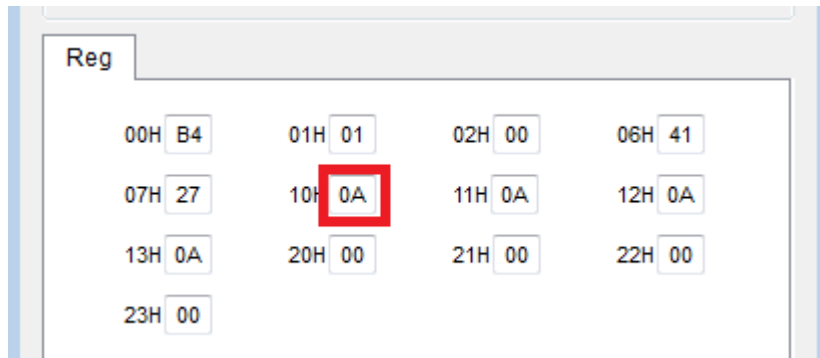


<STEP6> Click the [OK] button to return to SETP2 and perform the operation again. Click the [Cancel] button to finish with SETP5.





### 3-3. How to write a data into the register



Reg							
00H	B4	01H	01	02H	00	06H	41
07H	27	10H	0A	11H	0A	12H	0A
13H	0A	20H	00	21H	00	22H	00
23H	00						

<STEP1> In the Editor window, write the desired data in hexadecimal.

<STEP2> Press 'Enter' key, the data is written to the corresponding register.