

QE for Capacitive Touch V1.1.0

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Release Note

Thank you very much for using the QE for Capacitive Touch V1.1.0.

This release note covers product installation, restrictions, and so on.

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1. About QE for Capacitive Touch

1.1 Summary

QE for Capacitive Touch is an assistance tool for applications and operates under the e² studio integrated development environment. In the development of an embedded system based on an RX-family MCU that incorporates the capacitive touch sensing unit (hereafter the CTSU), this product facilitates the easy initialization of touch interfaces and tuning of their sensitivity, thus reducing development times.

1.2 Functions

The three functions below make it easy to develop applications that involve capacitive touch sensors.

1. Creating touch interface configurations
2. Tuning
3. Monitoring and parameter adjustment

1.3 Supported Environment

Microsoft Windows 7, Windows 8.1, and Windows 10

Renesas e² studio V7.0.0 (or later)

* If you are using a version of the e² studio earlier than V 7.0.0, please update it to V 7.0.0 or later.

1.4 Supported Microcontrollers

- RX Family (only MCUs that incorporate the CTSU)
 - RX100 Group: RX113, RX130
 - RX200 Group: RX230, RX231

1.5 Supporting FIT Modules

- FIT modules for the CTSU
 - CTSU driver: r_ctsu_qe V1.0.0 (or later)
 - Touch middleware: r_touch_qe V1.0.0 (or later)

2. Installation and Uninstallation

2.1 Installing This Product

Follow the procedure below to install this product.

1. Activate the e² studio.
2. Click on [Help], and then click on the [Install New Software...] menu item to open the [Install] dialog box.
3. Click on the [Add...] button to open the [Add Repository] dialog box.
4. Click on the [Archive...] button, select the installation file (zip file) in the opened file selection dialog box, and then click on the [Open] button.
5. Click on the [OK] button in the [Add Repository] dialog box.
6. Expand the [Renesas QE] item shown in the [Install] dialog box, select the [Renesas QE for Capacitive Touch] check box, and then click on the [Next>] button.
7. Confirm that the installation target is correct, and then click on the [Next>] button.
8. After checking the license, select the [I accept the terms of the license agreements] radio button, and then click on the [Finish] button.
9. When the dialog box for selecting a trusted certificate appears, check the displayed certificate, and then click on the [OK] button to continue installation.
10. Restart the e² studio by following the instructions on the screen.
11. Start this product from the [Renesas Views] - [Renesas QE] menu of the e² studio.
For details about how to use this product, see the [Help] menu of the e² studio.

2.2 Updating This Product

If you have already installed this product, you can update it in the same way as the procedure for installation.

2.3 Uninstalling This Product

Follow the procedure below to uninstall this product.

1. Start the e² studio.
2. Select [Help -> Installation Details] to open the [e2 studio Installation Details] dialog box.
3. Select [Renesas QE for Capacitive Touch] displayed on the [Installed Software] tabbed page and click on the [Uninstall...] button to open the [Uninstall] dialog box.
4. Check the displayed information and click on the [Finish] button.
5. When you are prompted to restart the e² studio, restart it.

3. Notes / Restrictions

3.1 Usage Considerations

Please pay attention to the following items.

3.1.1 Notes on Tuning

1. If there are multiple debugging configurations in the target project, automatic tuning may fail. Delete debugging configurations that are not in use.
2. When the [Automatic Tuning Processing] dialog box is waiting for key input, pressing the [Cancel] / [Help] button is not possible.
3. Even in a configuration in which only self-capacitance buttons are defined, if the number of configurations (methods) is two or more, tuning to improve robustness against noise cannot proceed.

3.1.2 Note on the Limit of CTSU Sensor Offset Adjustment Number

The CTSUSO[9:0] (CTSUSO sensor offset adjustment) bits in the CTSU are used to reduce the effect of stray capacitance by offsetting the input current. In V1.1.0 of the touch middleware (r_touch_qe), a limit applies to the number of times the value of these bits can be adjusted. When the limit has been reached and a suitable value has still not been achieved, the R_TOUCH_Open() function for initializing the touch middleware returns the QE_ERR_OT_MAX_ATTEMPTS error.

The number of times the value of the CTSUSO[9:0] bits can be adjusted vary with items such as the stray capacitance in relation to the surrounding environment. Suitable initial values of CTSUSO and OT_MAX_SCAN_ATTEMPTS (the maximum number of attempts to adjust the current offset) should be specified for the given target system.

3.2 Functional Restrictions

The following restrictions apply to QE for Capacitive Touch V1.1.0.

3.2.1 Restrictions on Creating Touch Interface Configurations

1. You cannot disable a keypad button of a mutual-capacitance keypad.
2. Mutual-capacitance buttons are not usable.

3.2.2 Restriction on Monitoring and Parameter Adjustment

1. If there is only a single configuration (method), operations involving (rewriting the value of) the CTSU register in the [Parameters] view are not possible.

3.2.3 Other Restriction

1. ~~If you are using Windows such as German (a language that uses a comma instead of a period as the decimal symbol), QE may fail an automatic tuning processing.~~

This restriction is no longer applicable with QE for Capacitive Touch V1.1.0.

Website and Support

Renesas Electronics Website

<https://www.renesas.com/>

Inquiries

<https://www.renesas.com/contact>

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