

# EPSON

Programming tool for Epson programmable devices

## **F-WRITER**

### **User Manual**

# Important Safety Information

This document is the manual for F-WRITER, a programming tool for programmable products. To ensure safe use of this product, please read this manual thoroughly before use. Handling the product in a manner contrary to the instructions in this document may cause malfunction or accidents. Please keep this document within reach so that you can resolve any questions about the product at any time.

## Explanation of Symbols

The symbols shown below are used in this manual to ensure safety and proper use of this product, and to prevent danger to you and others, as well as damage to property. The symbols are classified by their level of importance, as defined below.

Be sure that you completely understand their meanings before reading this manual.



### WARNING:

Indicates a potentially hazardous situation which, if the instructions are ignored and the product is handled incorrectly, could result in death or serious injury.



### CAUTION:

Indicates a potentially hazardous situation which, if the instructions are ignored and the product is handled incorrectly, could result in personal injury or damage to property.

## Safety Precautions



### WARNING

- The product described in this document is a programming device for Epson programmable products intended for general consumer use. Do not use this product in life support systems or any other applications requiring extremely high reliability.
- The F-WRITER shield is a shield board designed exclusively for the Arduino® UNO R4 Minima. Do not connect it to any other electronic boards.
- Do not insert or remove the F-WRITER shield, UNO R4 Minima, or USB cable with wet hands. Doing so may result in electric shock.
- Do not use any power source other than USB. Doing so may result in electric shock or fire.
- Do not use a damaged USB cable. Doing so may result in electric shock or fire.
- If metal objects or flammable materials are attached to the F-WRITER shield, UNO R4 Minima, or F-WRITER socket, do not continue to use the product. Doing so may result in electric shock or fire.
- If foreign objects or liquids such as water come into contact with or get inside the F-WRITER shield, UNO R4 Minima, or F-WRITER socket, do not continue to use the product. Doing so may result in electric shock or fire. Immediately disconnect the USB cable and consult the distributor from whom you purchased the product or the nearest Epson Sales Representative.
- Do not touch any areas other than those specified in this document. Doing so may result in electric shock or fire.
- Do not disassemble or modify any parts other than those specified in this document. Doing so may result in electric shock or fire.
- If you notice any abnormal signs such as smoke, unusual odors, or strange noises coming from the product, stop using it immediately. Doing so may result in electric shock or fire. Disconnect the USB cable immediately and consult the distributor from whom you purchased the product or the nearest Epson Sales Representative.
- Never attempt to repair the product yourself. Doing so is dangerous.



## CAUTION

- Do not place or store the product in unstable locations or in locations subject to vibration from other equipment. Doing so may cause the product to fall or tip over, resulting in injury.
- Do not place the product in locations exposed to oil smoke or excessive dust, or in humid locations where it may become wet. Doing so may result in electric shock or fire.
- Do not stand on the product or place heavy objects on it. Doing so may cause the product to fall or break, resulting in injury.
- When using the product in locations where static electricity is likely to occur, use an anti-static mat or similar measure to prevent static discharge.
- When not in use, disconnect the USB cable for safety.

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## Revision History

| Revision | Date        | Description                                                                                                                                                  |
|----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0      | April 2026  | First issue                                                                                                                                                  |
| 1.1      | August 2026 | Added Item 5 to “Important Notes” to clarify prohibited applications, export-control requirements, and authorized countries and regions for sale and/or use. |

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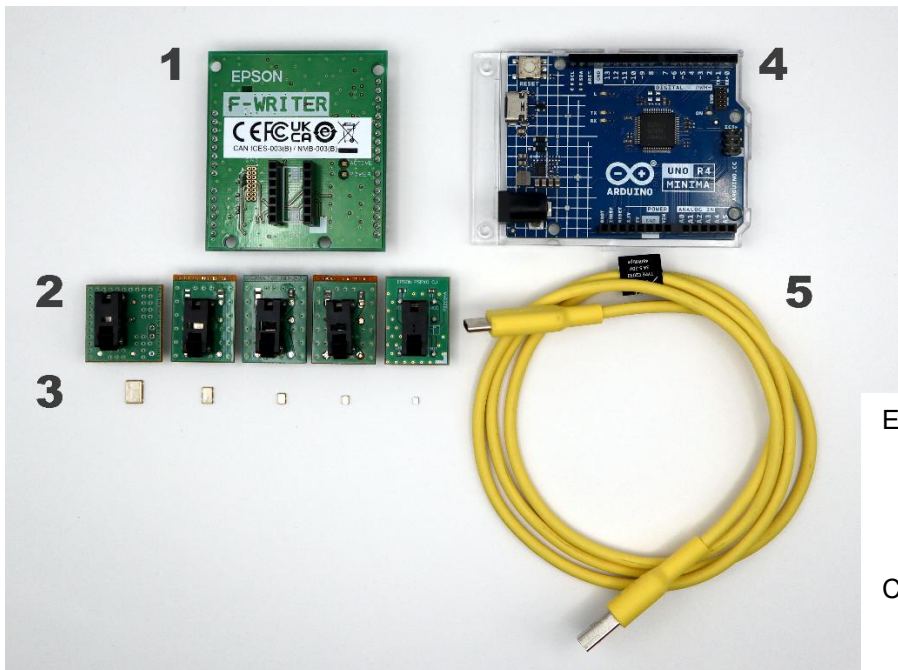
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## 1. Overview

F-WRITER is a programming kit designed to program settings and embedded software into Epson programmable devices. By connecting the F-WRITER shield to an Arduino® UNO R4 Minima (hereinafter referred to as UNO R4 Minima) and a Windows® PC, you can freely customize and evaluate Epson programmable products.

## 2. Components

- Epson F-WRITER shield 1 unit
- Epson programmable device socket 1 per device package type, sold separately from the F-WRITER shield
- UNO R4 Minima 1 unit
- Windows PC (hereinafter referred to as PC) 1 unit
  - ◆ Windows 11 Home/Pro (64-bit, x64)
- USB-C to USB-A/USB-C cable 1 unit



### Epson Products:

1. F-WRITER Shield
2. SMD Sockets (sold separately)
3. Programmable Devices (sold separately)

### Customer-Supplied Items:

4. Arduino UNO R4 Minima
5. USB Cable

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### 3. Hardware and Software Requirements

#### Hardware Requirements

| Item                | Minimum Requirement                                                               |
|---------------------|-----------------------------------------------------------------------------------|
| CPU                 | 2 GHz or faster processor (x64)                                                   |
| RAM                 | 4 GB or more                                                                      |
| Disk Space          | 1 GB or more of available space                                                   |
| Display             | 1920 x 1080 or higher                                                             |
| I/O                 | USB 2.0 or later x 1 port (Type-A / Type-C)                                       |
| Internet Connection | Required (for software installation and updates)                                  |
| Arduino Board       | UNO R4 Minima<br>(Operation via power supply from the DC jack is not guaranteed.) |
| USB Cable           | Must support data transfer (charge-only cables are not supported)                 |

#### Software Requirements

| Item         | Supported                            | Details                                                                                                                                                                                                     |
|--------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OS           | Windows 11 Home/Pro<br>(64-bit, x64) | -                                                                                                                                                                                                           |
| .NET Runtime | .NET 8.0                             | If .NET 8.0 is not installed on your Windows PC, a dialog box will appear prompting you to install .NET 8.0 when launching the F-WRITER application. Follow the on-screen instructions to install .NET 8.0. |

---

## 4. Initial Setup

### 4.1. Software Installation

1. Download the F-WRITER application installer from <https://md.epson.jp/en/f-writer>.
2. Run the installer downloaded in step 1. You will be prompted to review and accept the software license agreement during the installation process. Please read the agreement carefully and proceed with the installation.

### 4.2. Firmware Programming

#### 4.2.1. Installing the USB Driver for UNO R4 Minima

**Note:** If Arduino IDE or Arduino CLI is already installed along with the "Arduino UNO R4 Boards (Renesas UNO)" board package, you may skip this section (4.2.1).

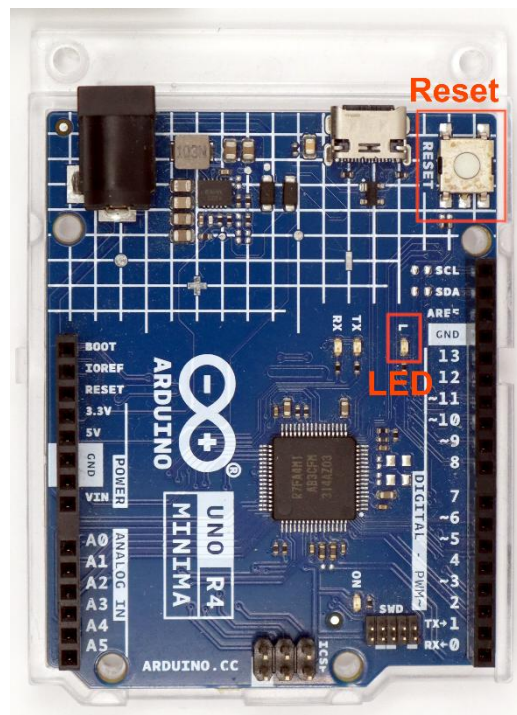
1. **Download Zadig**

Download the latest Zadig from the official website (<https://zadig.akeo.ie/>).

2. **Connect the UNO R4 Minima to your PC via USB.**

3. **Press the RESET button on the UNO R4 Minima twice in quick succession.**

The board will enter DFU (Device Firmware Update) mode, and the onboard LED will slowly fade in and out. The device will appear as "Santiago DFU" in Device Manager (Note 1).



4. **Run the downloaded Zadig executable with administrator privileges.**

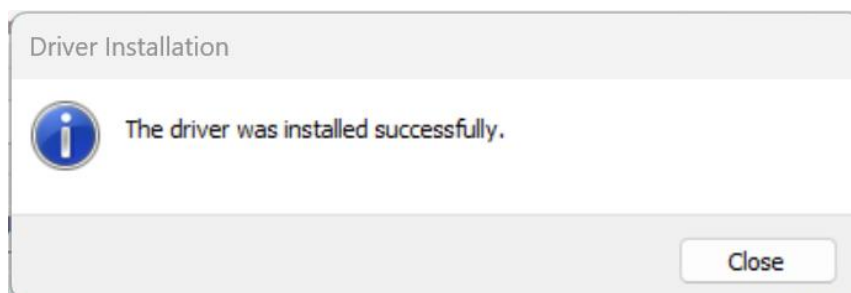
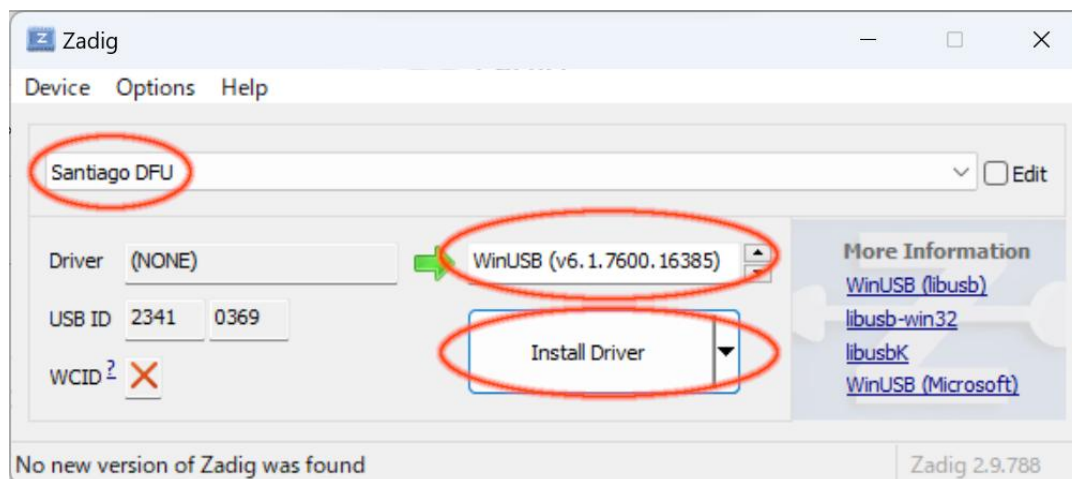
Zadig does not require installation. Simply double-click the downloaded executable to launch it.

5. **Enable Options → List All Devices.**

6. From the device list, select **Santiago DFU** (which may also appear as "USB DFU" or "Arduino... DFU").

7. Verify that the driver on the right side shows **WinUSB**, then click **Install Driver** (or **Replace Driver**) and wait for the process to complete.

8. **Disconnect the UNO R4 Minima from your PC.**



9. The downloaded Zadig executable can be deleted after use.

Note 1) If the above does not occur as expected, the UNO R4 Minima may not have entered DFU (Device Firmware Update) mode for firmware programming via USB. Please check the following:

- Ensure the USB cable supports data transfer.
- Try connecting to a different USB port on your PC.
- Check in Windows Device Manager that the device is not appearing as an unknown USB device.

If the LED does not fade in and out, the bootloader on the UNO R4 Minima may be corrupted or missing. In this case, use an SWD debugger and Renesas Flash Programmer to rewrite the bootloader. Note that this procedure is outside the scope of this manual and detailed instructions are not provided here.

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#### 4.2.2. Writing the F-WRITER Firmware to the UNO R4 Minima

**Note:** The operation described in this section (4.2.2) will overwrite the firmware currently on the UNO R4 Minima with the F-WRITER firmware.

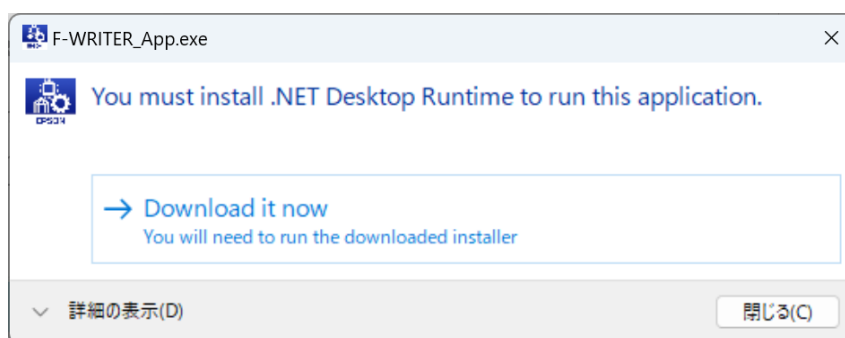
**1. Ensure that no shield boards are attached to the UNO R4 Minima.**

If any shield boards (including the F-WRITER shield) are attached, remove them from the UNO R4 Minima.

**2. Connect the UNO R4 Minima to your PC via USB.**

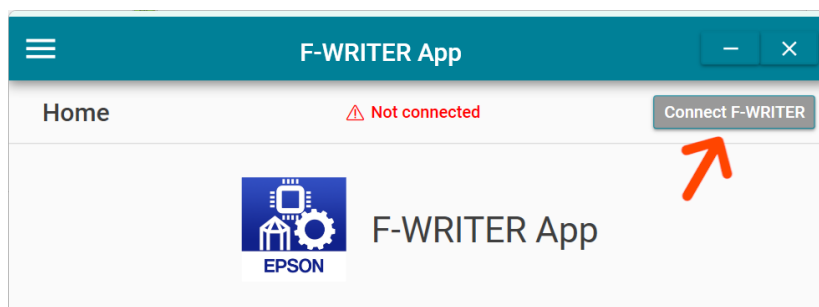
**3. Launch the F-WRITER application by clicking Start Menu > Epson F-WRITER > F-WRITER App.**

If .NET 8.0 is not installed on your Windows PC, a dialog box will appear prompting you to install the .NET Desktop Runtime, as shown below. Follow the on-screen instructions to download and run the runtime installer. After installing the runtime, launch F-WRITER again.

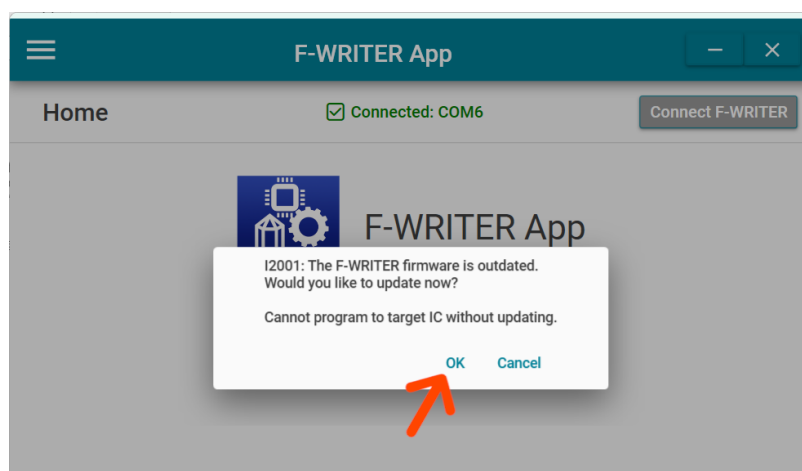


If a newer version of the F-WRITER application is available online, a dialog box will appear prompting you to update the application. Follow the on-screen instructions to download and run the F-WRITER updater to update the application.

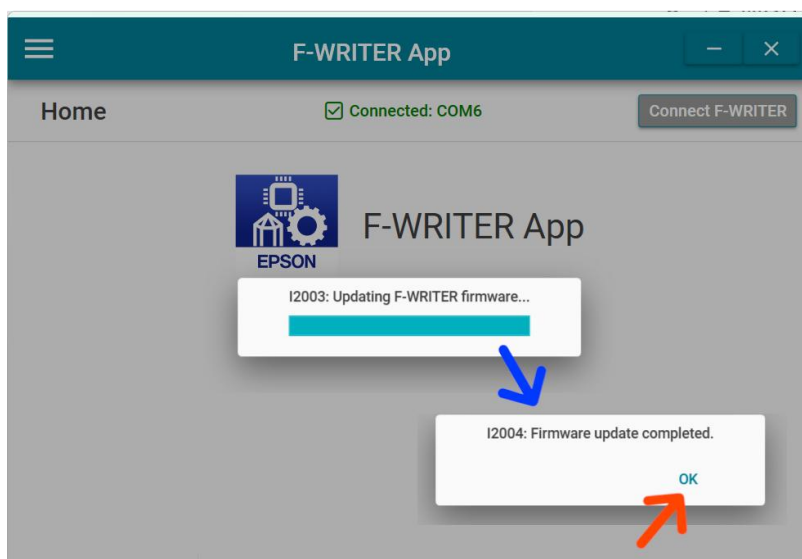
- Click the "Connect F-WRITER" button in the F-WRITER App.



- A notification will appear prompting you to update the firmware on the UNO R4 Minima. Click OK to write the F-WRITER firmware to the UNO R4 Minima.



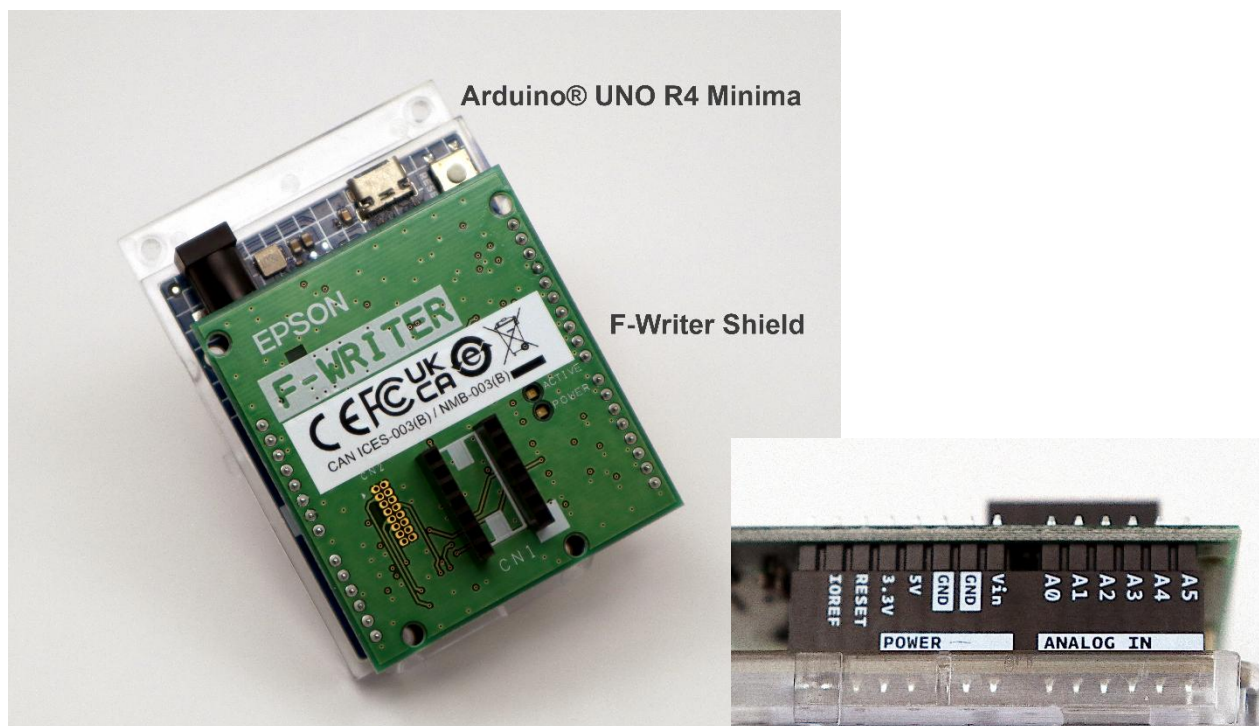
The F-WRITER App will automatically write the F-WRITER firmware to the UNO R4 Minima.



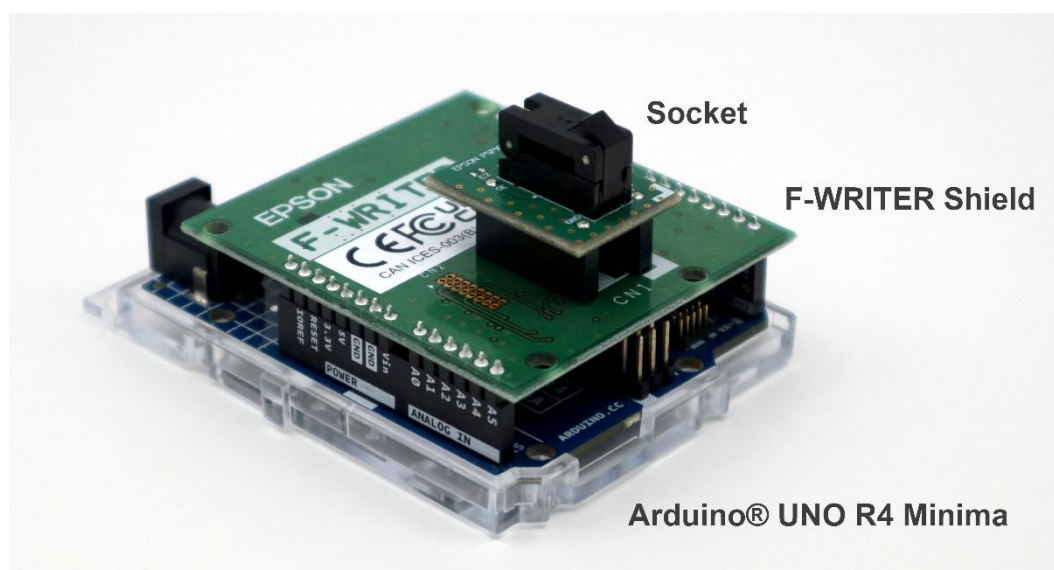
- Exit the F-WRITER App and disconnect the USB cable from the UNO R4 Minima.

### 4.3. Assembling the F-WRITER Hardware

1. **Disconnect the USB cable from the UNO R4 Minima.**
2. **Connect the UNO R4 Minima and the F-WRITER shield.**  
Press the boards together firmly until there is no gap between the UNO R4 Minima and the F-WRITER shield (as shown in the right image below).



3. **Connect the Epson programmable product socket (sold separately) to the F-WRITER shield.**  
As the socket varies depending on the device package type, please refer to Chapter 8 for details.



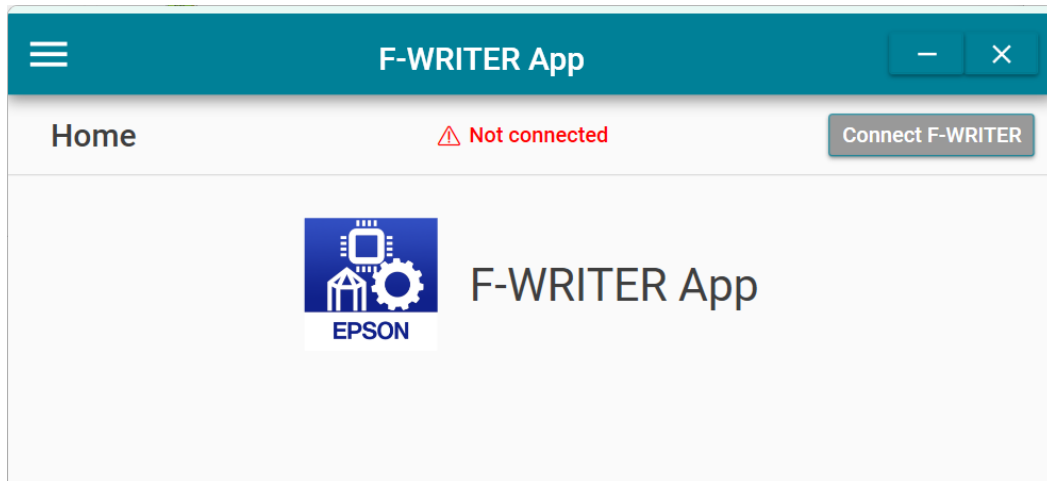
4. **Connect the UNO R4 Minima to your PC via USB cable.**  
The **POWER LED** (green) will illuminate, confirming that the board is receiving power.

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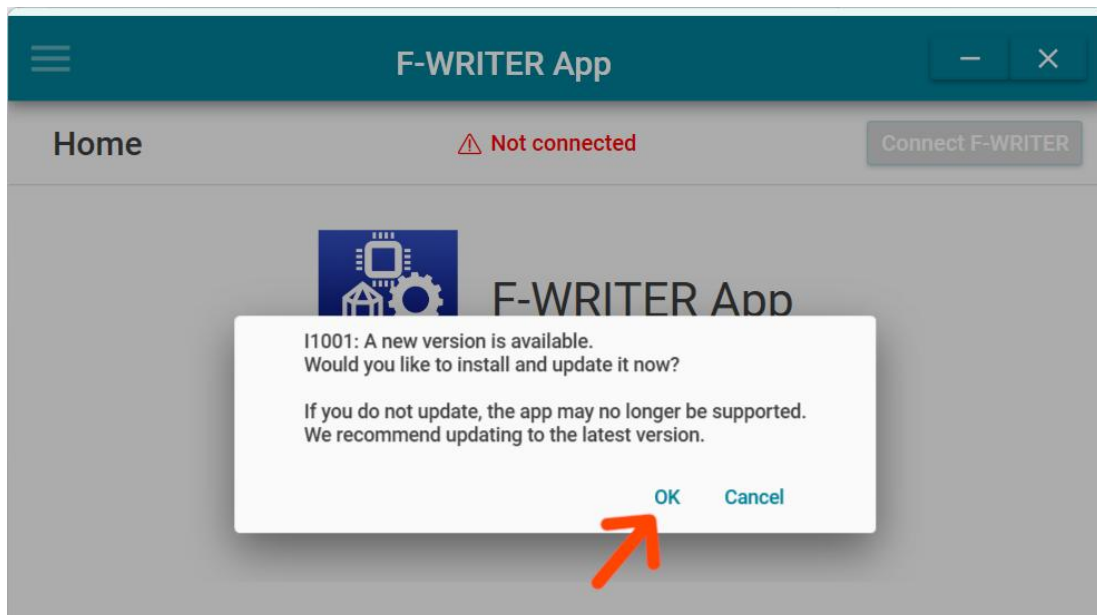
## 5. Regular Use

### 5.1. Launching the Software

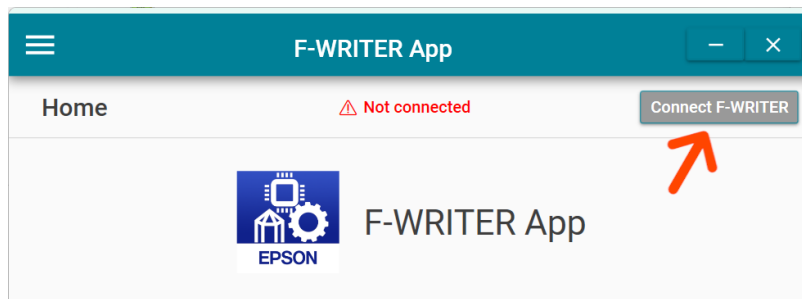
1. Connect the UNO R4 Minima with the F-WRITER shield attached to your PC using a USB cable.
2. Launch the F-WRITER application by clicking **Start Menu > Epson F-WRITER > F-WRITER App**.



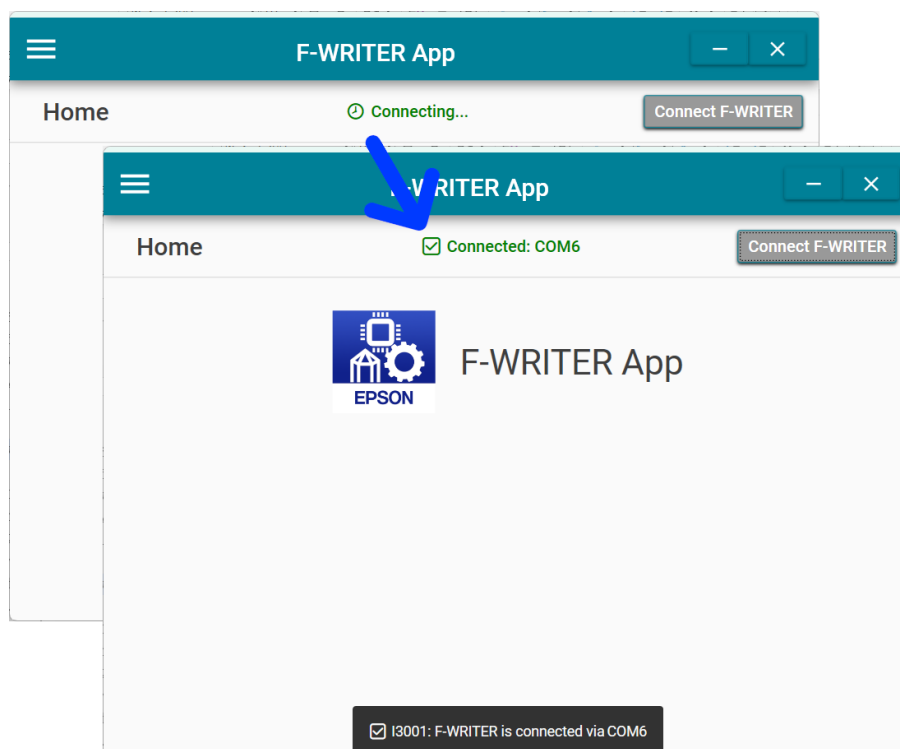
3. If an updated version of the application is available online, a notification will appear prompting you to update the application. Click **OK** to proceed with the update. Note that if you choose not to update the application, writing settings and customizations to Epson programmable products using F-WRITER will not be guaranteed.



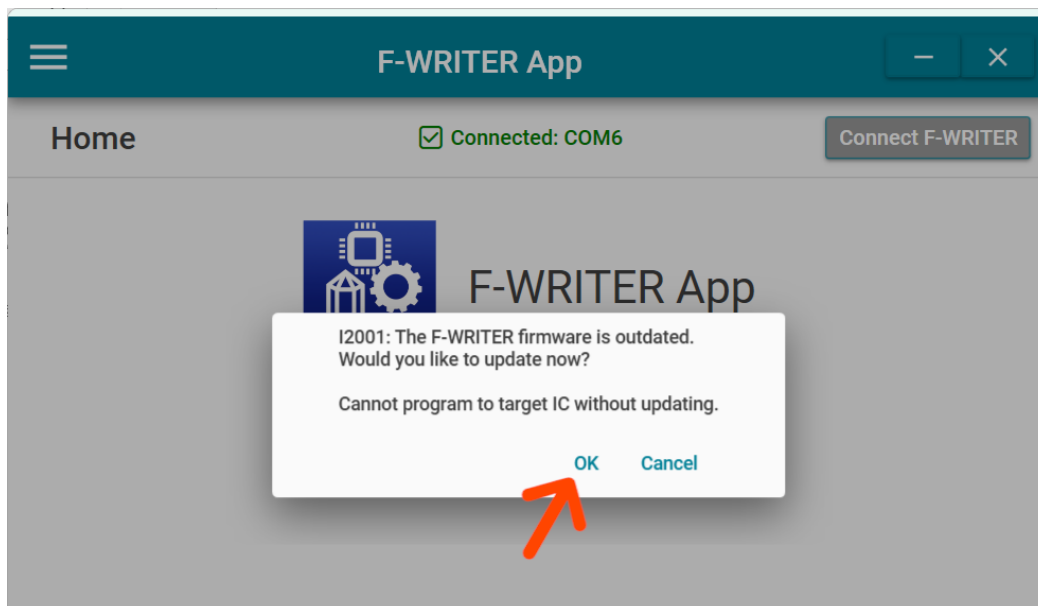
- Click the **"Connect F-WRITER"** button in the F-WRITER App.



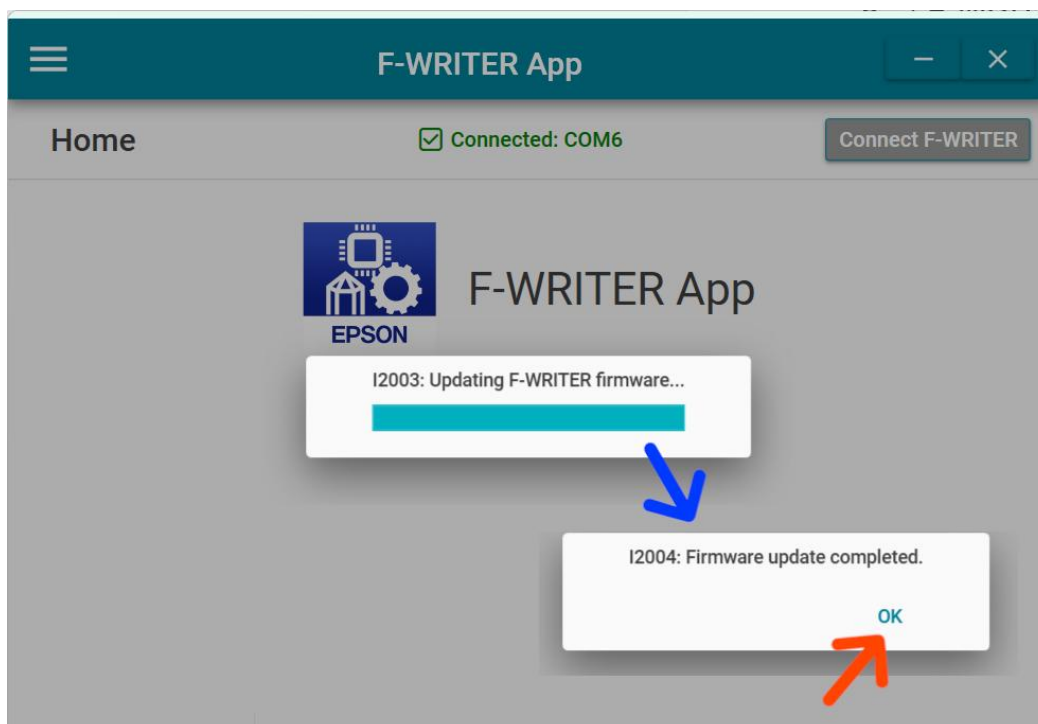
- The F-WRITER App will automatically search for and connect to the COM port of the UNO R4 Minima running the F-WRITER firmware. The COM port number may vary depending on the environment in which F-WRITER is running.



6. If the F-WRITER firmware on the UNO R4 Minima is outdated or incompatible with the current F-WRITER application, a notification will appear prompting you to update the firmware. Click **OK** to write the updated F-WRITER firmware to the UNO R4 Minima. Note that if you choose not to update the firmware, writing settings and customizations to Epson programmable products using F-WRITER will no longer be possible.

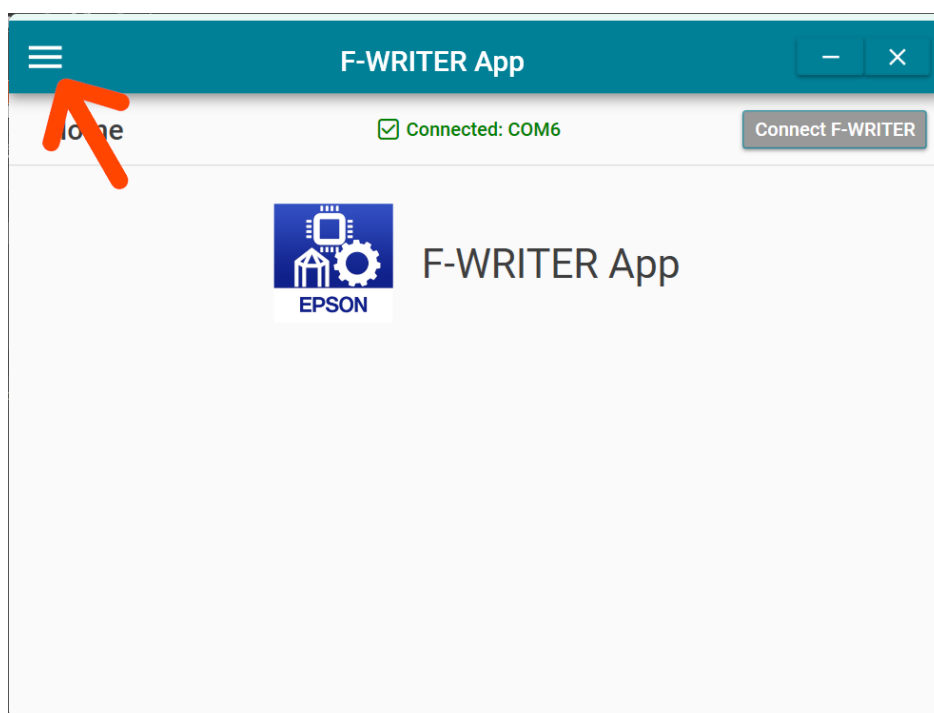


7. The F-WRITER App will automatically update the F-WRITER firmware on the UNO R4 Minima.

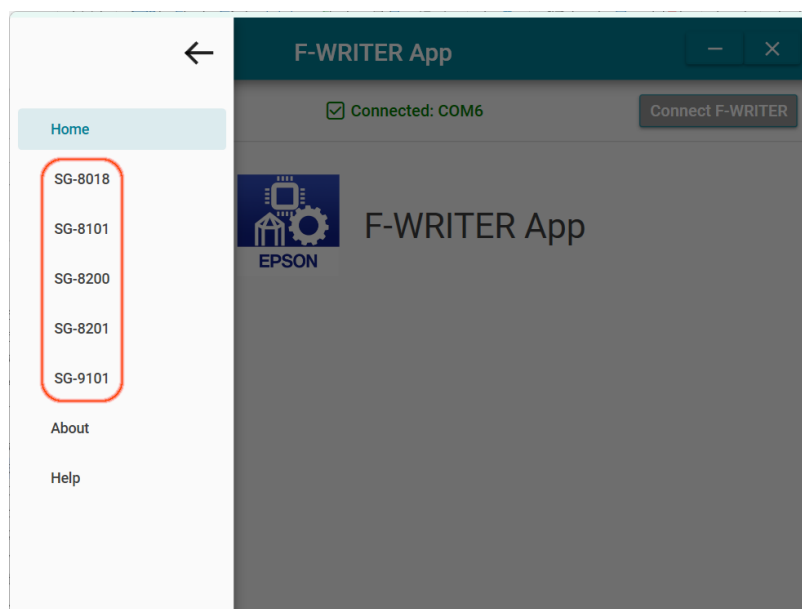


## 5.2. Selecting the Product Series to Program

1. Click the menu icon in the upper left corner of the F-WRITER App.



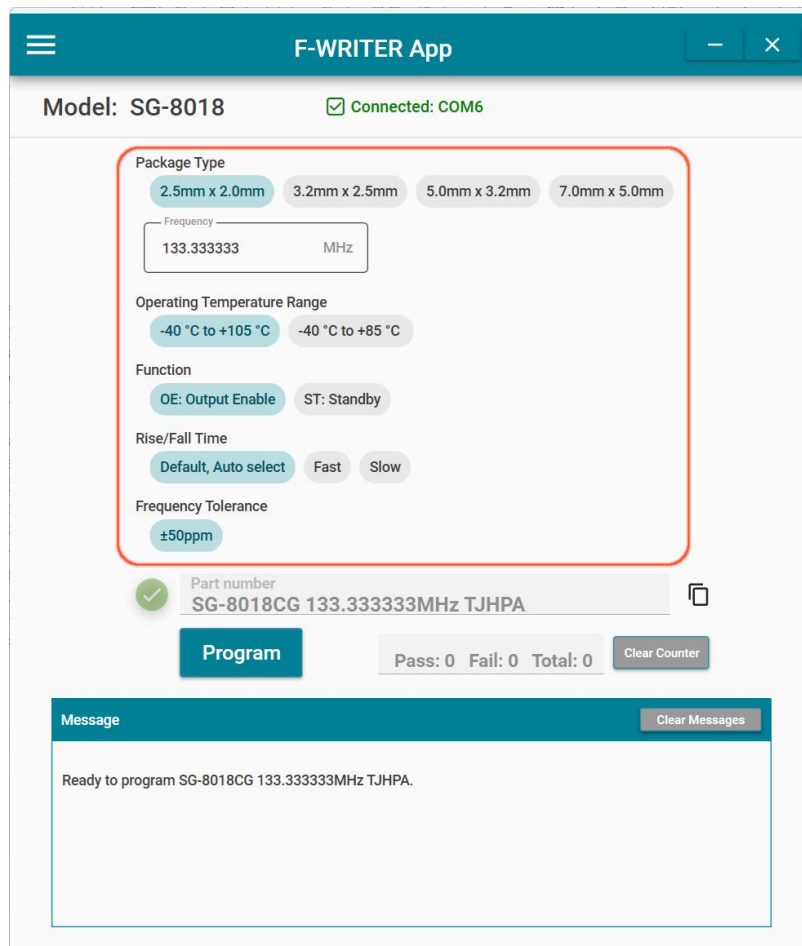
2. From the menu, select the product series indicated by the red box in the figure below.



The following sections starting from Section 5.3 describe the programming procedures for each product series.

### 5.3. Programming the SG-8018 / SG-8101 Series

1. **Product Options:** Select the package type, output frequency, operating temperature range, OE pin function, slew rate, and frequency tolerance from the options indicated by the red box in the figure below.



F-WRITER App

Model: SG-8018 Connected: COM6

Package Type  
2.5mm x 2.0mm 3.2mm x 2.5mm 5.0mm x 3.2mm 7.0mm x 5.0mm

Frequency  
133.333333 MHz

Operating Temperature Range  
-40 °C to +105 °C -40 °C to +85 °C

Function  
OE: Output Enable ST: Standby

Rise/Fall Time  
Default, Auto select Fast Slow

Frequency Tolerance  
±50ppm

Part number  
SG-8018CG 133.333333MHz TJHPA

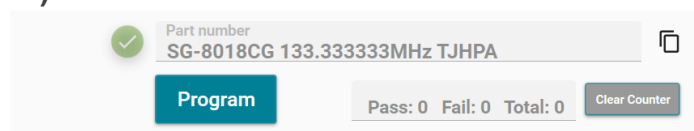
Program Pass: 0 Fail: 0 Total: 0 Clear Counter

Message  
Ready to program SG-8018CG 133.333333MHz TJHPA.

If the selected combination of product options is valid, a checkmark will appear to the left of the part number field, and the **Program** button will become active.

If the combination is invalid, a warning mark will appear, and the **Program** button will be disabled. Please review your selected product options to ensure a valid combination is selected.

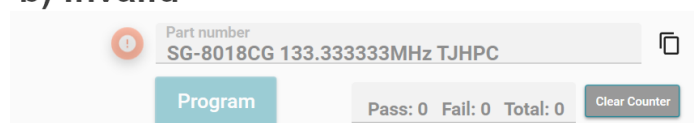
#### a) Valid



Part number  
SG-8018CG 133.333333MHz TJHPA

Program Pass: 0 Fail: 0 Total: 0 Clear Counter

#### b) Invalid



Part number  
SG-8018CG 133.333333MHz TJHPC

Program Pass: 0 Fail: 0 Total: 0 Clear Counter

2. **Place the programmable product (SG-8018 / SG-8101) into the socket.**

- Confirm that the ACTIVE LED (red) is not illuminated and that no VCC is being applied to the device (as shown in the left figure below). Once confirmed, open the socket lid, place the device into the socket, and close the lid.
- To prevent electrostatic discharge damage to the device, do not touch the device directly with your hands. Handle the device only after discharging static electricity using a wrist strap or similar means.

3. **Click the Program button** (as shown in the left figure below).



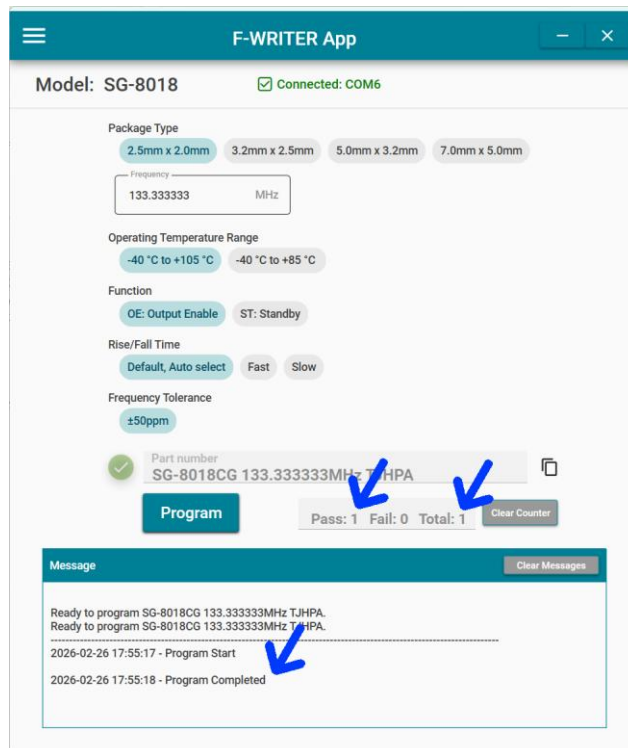
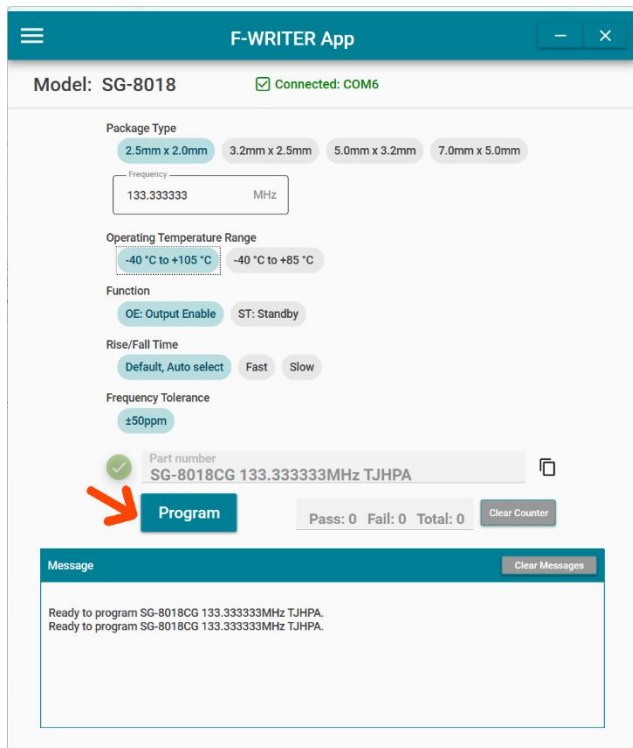
VDD/VCC Off



VDD/VCC On

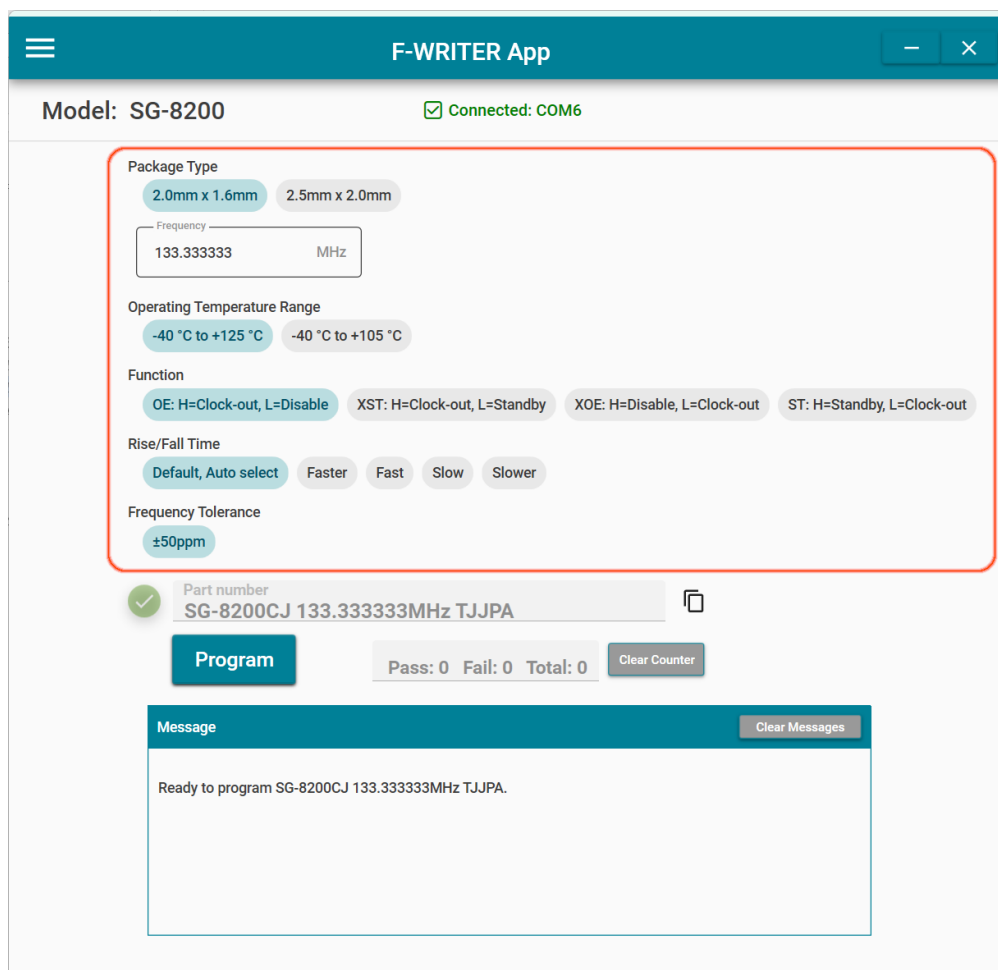
4. **Verify that the Pass count has incremented and that "Program Completed" is displayed in the message field** (as shown in the right figure below).

If "Program Completed" is not displayed and the Pass count does not increment after clicking the Program button, the programming operation may have been cancelled or may not have completed successfully. Please refer to the message window for details.



## 5.4. Programming the SG-8200 / SG-8201 Series

1. **Product Options:** Select the package type, output frequency, operating temperature range, OE pin function, slew rate, and frequency tolerance from the options indicated by the red box in the figure below.



The screenshot shows the F-WRITER App interface for programming the SG-8200 series. The app is connected to COM6. The settings are as follows:

- Package Type:** 2.0mm x 1.6mm (selected), 2.5mm x 2.0mm
- Frequency:** 133.333333 MHz
- Operating Temperature Range:** -40 °C to +125 °C (selected), -40 °C to +105 °C
- Function:** OE: H=Clock-out, L=Disable (selected), XST: H=Clock-out, L=Standby, XOE: H=Disable, L=Clock-out, ST: H=Standby, L=Clock-out
- Rise/Fall Time:** Default, Auto select (selected), Faster, Fast, Slow, Slower
- Frequency Tolerance:** ±50ppm (selected)

Below the settings, the part number is displayed as SG-8200CJ 133.333333MHz TJJPA. A **Program** button is visible, along with a status bar showing Pass: 0, Fail: 0, Total: 0. A message box at the bottom indicates "Ready to program SG-8200CJ 133.333333MHz TJJPA."

The remaining steps are the same as for the SG-8018 / SG-8101 series. Please refer to Section 5.3 for details.

## 5.5. Programming the SG-9101 Series

1. **Product Options:** Select the package type, output frequency, operating temperature range, OE pin function, slew rate, spread spectrum modulation width, modulation frequency, and modulation profile from the options indicated by the red box in the figure below.

The screenshot shows the F-WRITER App interface for programming the SG-9101 series. The app is connected to COM6. The configuration options are as follows:

- Package Type:** 2.5mm x 2.0mm, 3.2mm x 2.5mm, 5.0mm x 3.2mm, 7.0mm x 5.0mm
- Frequency:** 133.333333 MHz
- Operating Temperature Range:** -40 °C to +105 °C, -40 °C to +85 °C
- Function:** OE: Output Enable, ST: Standby
- Rise/Fall Time:** Default, Auto select, Fast, Slow
- Spread Width:**
  - Center Spread: ±0.25%, ±0.5%, ±0.75%, ±1.0%, ±1.5%, ±2.0%
  - Down Spread: -0.5%, -1.0%, -1.5%, -2.0%, -3.0%, -4.0%
- Spreading Modulation Frequency:** 25.4kHz, 12.7kHz, 8.5kHz, 6.3kHz
- Modulation Profile:** Hershey-Kiss, Sine-Wave, Triangular

The 'Product Options' section, including Package Type, Frequency, Operating Temperature Range, Function, Rise/Fall Time, Spread Width, Spreading Modulation Frequency, and Modulation Profile, is highlighted by a red box.

Below the configuration options, the Part number is displayed as SG-9101CG 133.333333MHz C05PHBAA. A green checkmark indicates the configuration is valid. A 'Program' button is available, along with a 'Pass: 0 Fail: 0 Total: 0' status and a 'Clear Counter' button.

The Message section shows the status: Ready to program SG-9101CG 133.333333MHz C05PHBAA.

The remaining steps are the same as for the SG-8018 / SG-8101 series. Please refer to Section 5.3 for details.

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## 6. Hardware Specifications

- Shield board designed for Arduino UNO R4 Minima
- Powered via USB connection to the UNO R4 Minima (operation via power supply from the UNO R4 Minima's DC jack is not guaranteed)
- Operates using dedicated firmware written to the UNO R4 Minima by the F-WRITER application
- Operating temperature range: +10 °C to +40 °C

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## 7. System Messages

### 7.1. Message Code Structure

Format: <Prefix><Category><Number>

- Prefix: E (Error), W (Warning), I (Info)
- Category: Single digit indicating the component
- Number: Three-digit zero-padded number (000–999)

Category Definitions

| Code | Category        | Description                                                             |
|------|-----------------|-------------------------------------------------------------------------|
| 1    | Application     | GUI operations, settings, and update-related messages                   |
| 2    | Firmware        | Version and update-related messages                                     |
| 3    | F-WRITER Shield | Power supply circuit (VDD/VCC, VPP)                                     |
| 4    | Target Device   | ID mismatch, incorrect insertion orientation, programming failure, etc. |
| 5    | Other           | -                                                                       |

### 7.2. Application Messages (x1xxx)

| Code  | Message                                                                                                                                                                                 | Recommended Action                                                  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| W1001 | Internet connection not detected. Unable to check for software updater availability.                                                                                                    | Check your Ethernet or Wi-Fi connection. Check your proxy settings. |
| I1001 | A new application is available. Would you like to install and update now?<br><br>If you do not update, the app may no longer be supported. We recommend updating to the latest version. | Click OK to download and apply the updater.                         |
| E1001 | F-WRITER App is already running. Click OK to exit.                                                                                                                                      | Close one of the running instances.                                 |

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### 7.3. Firmware Messages (x2xxx)

| Code  | Message                                                                                                                    | Recommended Action                                                                                                                                                                                                                                      |
|-------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I2001 | The F-WRITER firmware is outdated. Would you like to update now?<br>Cannot program to the target device without updating.  | Click OK to update the firmware.                                                                                                                                                                                                                        |
| I2002 | The F-WRITER firmware is outdated. An update is recommended. You may continue after reviewing the risks.                   | Click OK to update the firmware.                                                                                                                                                                                                                        |
| I2003 | Updating F-WRITER firmware...                                                                                              | -                                                                                                                                                                                                                                                       |
| I2004 | Firmware update completed.                                                                                                 | -                                                                                                                                                                                                                                                       |
| I2005 | The F-WRITER firmware is not found. Would you like to update now?<br><br>Cannot program to the target IC without updating. | Click OK to overwrite the firmware.                                                                                                                                                                                                                     |
| E2002 | F-WRITER firmware update failed. Please restart the application and try updating again.                                    | Close and restart the application, then retry the firmware update. If the firmware update still fails, close the application, disconnect the UNO R4 Minima from your PC, reconnect it via USB, relaunch the application, and retry the firmware update. |
| E2003 | The software required for updating the F-WRITER firmware is not installed.                                                 | Uninstall and reinstall the application.                                                                                                                                                                                                                |

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## 7.4. F-WRITER Shield Messages (x3xxx)

| Code  | Message                                                                                                                                                     | Recommended Action                                                                                                                            |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| I3001 | F-WRITER is connected via COMxx.                                                                                                                            | -                                                                                                                                             |
| E3001 | F-WRITER is not connected. Please check the USB connection.                                                                                                 | Close the application. Disconnect the UNO R4 Minima from your PC, then reconnect it. Restart the application.                                 |
| E3002 | Failed to communicate with F-WRITER. Please restart "Program".                                                                                              | Close the application. Disconnect the UNO R4 Minima from your PC, then reconnect it. Restart the application.                                 |
| E3003 | Abnormal VDD/VCC voltage detected. Please check the connection between the F-WRITER shield and Arduino. For safety, close the application and run it again. | Close the application. Disconnect the UNO R4 Minima from your PC and verify the connection between the UNO R4 Minima and the F-WRITER shield. |
| E3004 | Multiple F-WRITER devices are connected. Please reduce the connection to a single F-WRITER and try again.                                                   | Disconnect all connected UNO R4 Minima boards, then reconnect a single UNO R4 Minima (F-WRITER) and relaunch the application.                 |

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## 7.5. Target Device Messages (x4xxx)

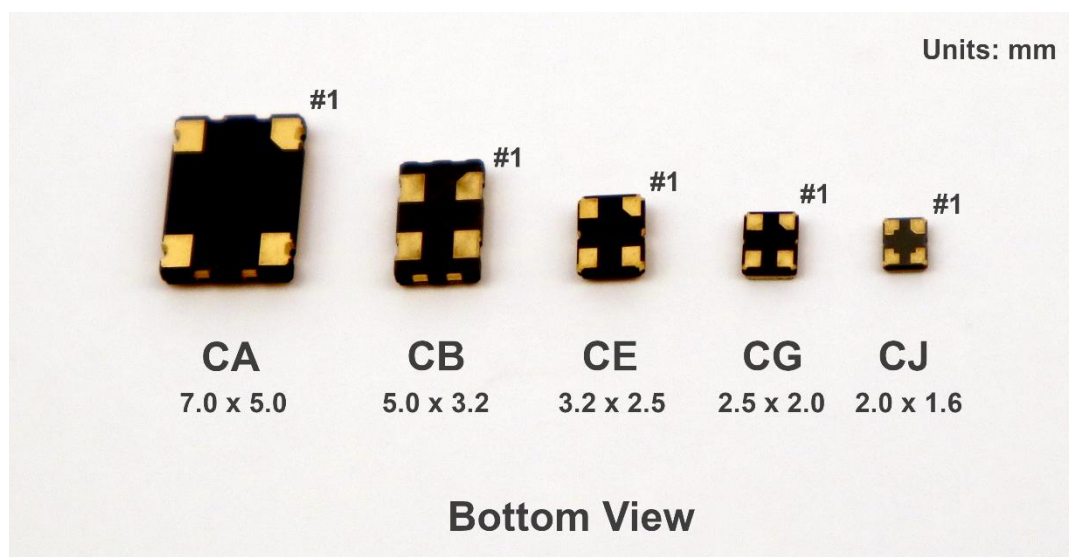
| Code  | Message                                                                                                                       | Recommended Action                                                                                                        |
|-------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| E4001 | Incorrect orientation of the target device detected.<br>Please check the insertion direction in the socket.                   | Remove the target device from the socket and reinsert it in the correct orientation.                                      |
| E4002 | The selected device type does not match the target device.<br>Please check that the device inserted in the socket is correct. | Remove the target device from the socket, insert the correct target device, and retry the programming operation.          |
| E4003 | Failed to read memory. Please restart "Program" again.                                                                        | Click the "Program" button in the application to retry the operation from the beginning.                                  |
| E4004 | Cannot write to this target device (already programmed). Please insert an unprogrammed target device into the socket.         | Remove the already-programmed device from the socket and insert a blank device.                                           |
| E4005 | Calibration error detected. Reinsert the target device and try again.                                                         | Remove the target device from the socket, reinsert it, and click the "Program" button to retry the programming operation. |
| E4006 | Failed to write to the target device. Please insert an unprogrammed target device into the socket.                            | Discard the target device and replace it with a new one.                                                                  |
| E4007 | Verification error detected in the written data. The affected device may not function correctly.                              | Discard the target device and replace it with a new one.                                                                  |

## 8. Appendix: Programmable Devices and Compatible Sockets

### 8.1. Programmable Devices and Package Types

Part number

| Category                           | Model   | Package Type, Size [mm] |                 |                 |                 |                 |
|------------------------------------|---------|-------------------------|-----------------|-----------------|-----------------|-----------------|
|                                    |         | CA<br>7.0 x 5.0         | CB<br>5.0 x 3.2 | CE<br>3.2 x 2.5 | CG<br>2.5 x 2.0 | CJ<br>2.0 x 1.6 |
| Programmable<br>SPXO               | SG-8200 | -                       | -               | -               | X1G0062010001   | X1G0062110001   |
|                                    | SG-8201 | -                       | -               | -               | X1G0061910001   | X1G0059810001   |
|                                    | SG-8018 | X1G0055710001           | X1G0055810001   | X1G0055910001   | X1G0056010001   | -               |
|                                    | SG-8101 | X1G0051910001           | X1G0052010001   | X1G0052110001   | X1G0051810001   | -               |
| Spread Spectrum<br>Programmable XO | SG-9101 | X1G0053010001           | X1G0053110001   | X1G0053210001   | X1G0052910001   | -               |

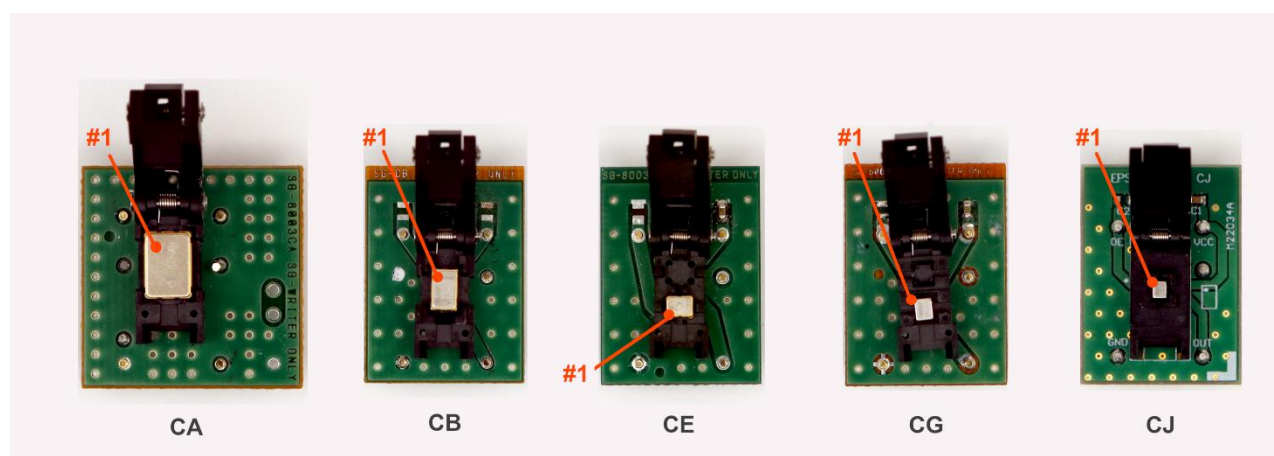


### 8.2. Compatible Sockets for Programmable Devices

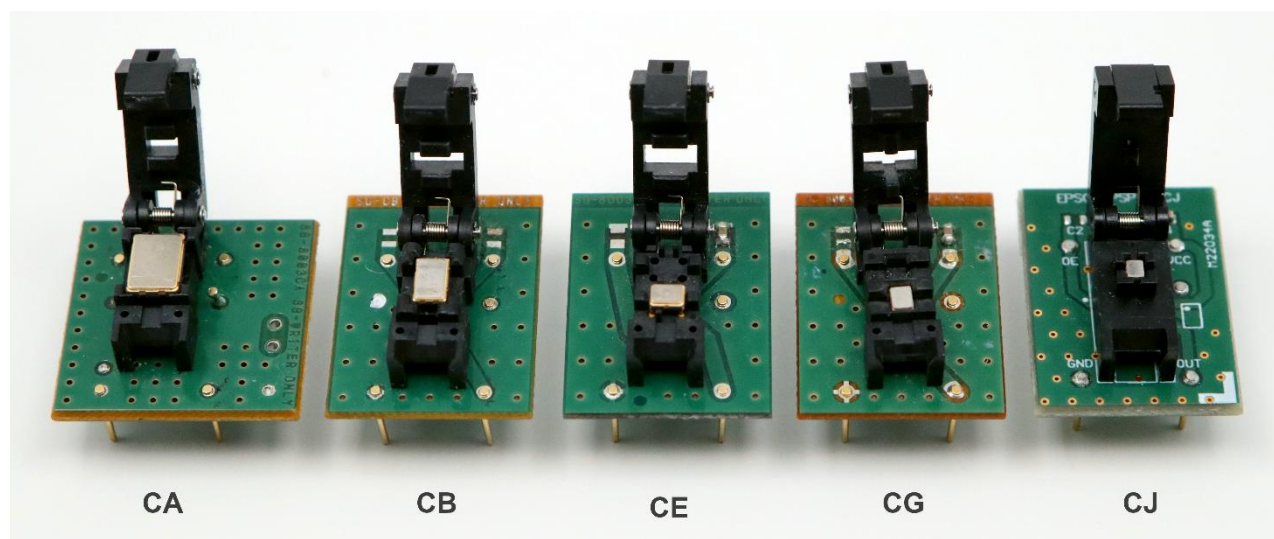
| Package Type | Package Size [mm] | Socket Part Number |
|--------------|-------------------|--------------------|
| CA           | 7.0 x 5.0         | Q91PR10W00021      |
| CB           | 5.0 x 3.2         | Q91PR10W00025      |
| CE           | 3.2 x 2.5         | Q91PR10W00018      |
| CG           | 2.5 x 2.0         | Q91PR10W00024      |
| CJ           | 2.0 x 1.6         | Q91PR10W00030      |

## 8.3. Inserting Programmable Products into the Socket

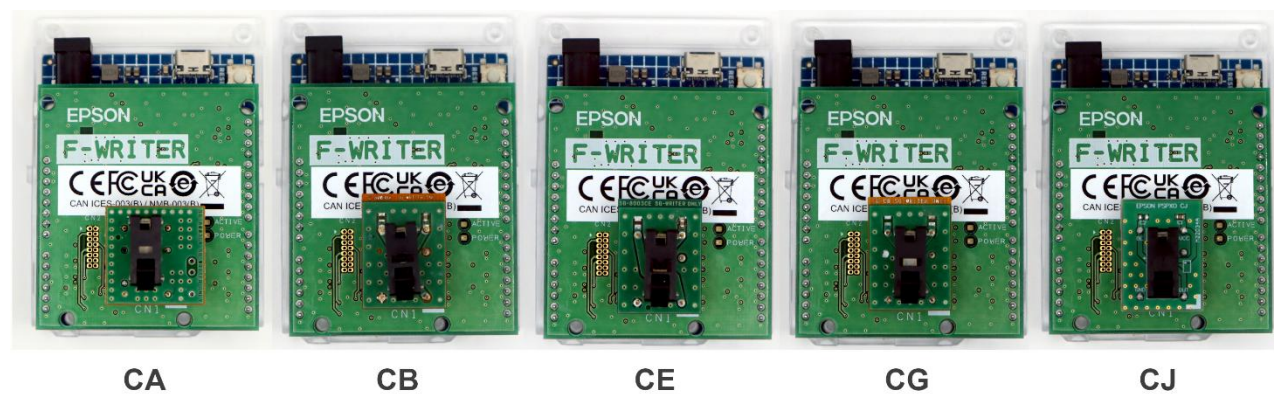
### 8.3.1. Device Insertion Orientations



### 8.3.2. Device Insertion Positions



### 8.3.3. Socket Insertion Directions onto the F-WRITER Shield



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