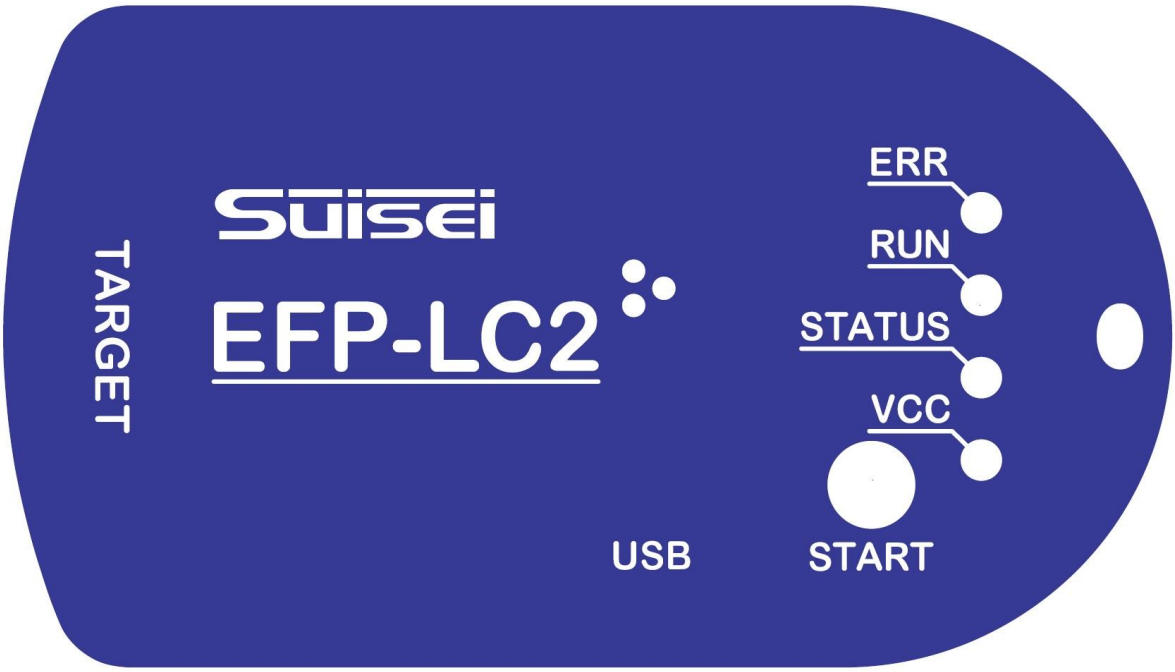
EFP-LC2 Instruction Manual



SUISEI ELECTRONICS SYSTEM CO., LTD.

If you have any questions about the product, please contact us or your distributor.

The contents of this manual are subject to change without notice.

Please refer to our website (https://www.suisei.co.jp) for the latest information.

Rev1.00 2025/06

Safety Precautions

This manual explains the precautions in the order of warning, caution, and importance in order to ensure that the product is used correctly and to prevent harm to the user and those around him, damage to property, etc.
Before using the product, please familiarize yourself with the contents of the precautions.

WARNING	If this indication is ignored and mishandled, it indicates that a person may be killed or seriously injured.
CAUTIONS	If this indication is ignored and mishandled, it indicates that it is likely that a person may be injured or that only property damage will occur.
IMPORTANT	In addition, it shows important information for using this product.

WARNING

＊ About installation
Do not install this product in places with high humidity or in places where it gets wet with water.
If water is spilled inside, it may cause an irreparable malfunction.

＊ Usage environment
The upper limit of the ambient temperature (maximum rated ambient temperature) when using this product is 30 [° C].
Be careful not to exceed this maximum rated ambient temperature.

＊ Regarding insertion and removal of cables, do not plug or unplug
the USB cable or the cable for connecting to the target system while the power of the EFP-LC2 main unit and the target system is on.

CAUTIONS

＊ Do not disassemble or modify this product. Failure to do so may result in a malfunction.
＊ Handle this product carefully and do not subject it to strong impact due to dropping, falling, etc.
＊ Do not touch the metal terminals of each connector directly with your hands.
＊ Do not use this product in an upright position.
＊ If you do not use it for a long time, put it in a plastic bag to keep the moisture down.
Store in a place with a temperature of 0 – 37[° C] away from direct sunlight.

Please read this first

Thank you very much for purchasing the EFP-LC2, a lightweight and compact stand-alone serial programmer.

- Please be sure to read the instruction manual carefully before using it.
- If you have any questions about the product, please contact us or your distributor.
- The EFP-LC2 manual consists of the following manuals:
  Please be sure to read the respective manuals before use.
  A) EFP-LC2 Manual: This document. EFP-LC2 hardware specifications, EFP operation applications
  B) Additional Manual: Connection information for each microcontroller family, available commands.
  C) Diff Manual: A) or B) Additional microcontroller difference information after issuance, etc.

  The contents of this manual are subject to change without notice.
  The latest information can be viewed on our website (https:/www.suisei.co.jp).

- This device is a dedicated programming device for Renesas Electronics' microcomputers(MCU) with built-in flash.
  It cannot be used to write to other devices or for other purposes.

- The warranty period of this device is one year from the date of purchase. During this time, defects caused by manufacturing problems will be repaired free of charge.
  Contact your distributor or us.
  However, in the following cases, you will be charged even within the warranty period.
  A) Defective consumables such as sockets and switches
  B) Fires, earthquakes, acts by third parties, and other accidents or natural disaster
  C) Intentional, negligent, misuse, or use under abnormal conditions by the customer
  D) Modification and repair of EFP-LC2 and accessories by the customer

- We cannot guarantee defects in the MCU device written by this device or problems caused by it.

- While we have carefully considered and taken measures to ensure safe use, we cannot fully anticipate all potential hazards and misuse.
- When using this equipment for mass production, please consider the usage environment and other factors by yourself in advance and check the reliability before using it. The warnings in this manual are not exhaustive, so it is your responsibility to understand and judge them and use them correctly and safely.

- When used in Japan, it is not subject to Electrical Appliances and Materials Safety Act or electromagnetic wave interference countermeasures.
  In addition, this device does not have safety standards such as UL or IEC standards.
  Therefore, please note this point when taking it out of Japan overseas.

- The contents of this manual are subject to change without notice in the future due to performance improvements or other reasons. Please note that we are not responsible for the results of the operation of the described contents.

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- When disposing of this equipment, be sure to dispose of it as industrial waste in accordance with laws and regulations.

- For inquiries regarding this manual and the contents of the software, please contact us by e-mail or the following inquiry page.

  Inquiries
  SUISEI Electronics System Co., Ltd.
  6-5-24 Tsurumi, Tsurumi-ku, Osaka, 538-0053, Japan
  E-mail: support@suisei.co.jp
  Contact page: https://www.suisei.co.jp/contact/

Table of contents

1. Product Details

The EFP-LC2 is a lightweight and compact stand-alone serial programmer that performs operations such as erasing and writing to Renesas Electronics microcontrollers on the target system.
It is used in conjunction with the control software LC2-Download Manager.

<Features of LC2-Download Manager>

- Download/upload/command execution function to EFP-LC2
- Security setting function for EFP-LC2
- Simplified command creation function (PBT file) for EFP-LC2

1.1 Packaging Contents

This product consists of the following boards and components. When you open the package, make sure you have everything.
Table 1.1shows the list of packing contents.

Table 1.1 EFP-LC2 Packaging Contents List

name	explanation	Number
EFP-LC2	Serial programmer	1 unit
EF1TGCB-16WX	Connection cable between EFP-LC2 and target system (loose wire)	1piece
Attachments	EFP-LC2 Product Description	1piece

* A USB cable (Type-C) for connection to the host machine is not included. Please prepare a commercially available product.

1.2 Terminology

The terms used in this document are defined and used as follows:

- Main unit: Refers to EFP-LC2.
- Host Machine: Refers to a personal computer for controlling control software.
- Control Software: Refers to LC2-Download Manager.
  The settings in this software may be abbreviated as GUI (Graphical User Interface).
- Target MCUs: Refers to a microcontroller operated via EFP-LC2. It may be referred to as MCU.
- Target System: It refers to the customer's application system in which the target microcontroller is implemented.
- User Programs: It refers to the customer's application program that writes to the target microcontroller.

1.3 Specification

Table 1.2 EFP-LC2 Product Specifications

item		Contents		
Programmer Specifications	Write method	Renesas Electronics MCU Programming Mode (Boot Mode)		
	Writing target*1*2	RX Family RA Family (planned) RL78 Family (planned) R8C Family (planned)*3		
	Memory Region	Space for program files	(up to 4MByte)	x 6 Area
		Area for the [Read] command	(up to 4MByte)	x 1 Area
		PBT file area	(up to 64KByte)	x 1 Area
		Log Files (RESULT.TXT)	(up to 1.212MByte)	x 1 Area
	interface (Target system side)	Dual in-line connectors (2x8) *Table 1.6 Reference		
	interface (Host machine side)	Virtual COM port (USB Type-C connector)		
Host Machine Specifications	OS*4	Windows11*5		
	processor	Meet the requirements of Windows 11		
	memory			
	storage			
power	EFP-LC2	Powered by USB bus power		
	Target System	Within the range of 3.3-5.0[V] and the operating power supply voltage range of the target microcontroller		
Standby current		When supplied from the target system (+3.3[V]): 100[mA] When supplied by the target system (+5.0[V]): 80[mA] When supplied via USB bus power: 80[mA]		
Environmental conditions during use		10[° C] - +30[° C] (No condensation)		
Environmental conditions during storage		0[° C] - +37[° C] (No condensation)		
External dimensions		85 (W) x 47 (D) x 15 (H) [mm] (excluding protrusions)		
weight		40[g]		

*1 Please check our website for the latest device list.

*2 To support new devices, you may need to update the control software (Reference 4.1.3(1) Section) or firmware (Reference 4.9 Section).

*3 Excluding R8C/10 to R8C/13

*4 Microsoft .NET Framework 4.7.2 or later is required. Normally installed during installation.

*5 Windows 11 is a trademark or registered trademark of Microsoft Corporation in the United States and other countries.

1.3.1 Program File Format

The following program files are supported by EFP-LC2. Unsupported files will result in an error.

I. Intel Hex Format (extension: hex)

- The file ends at the end record
- There are no rows other than 00 – 05 type records

II. Motorola S format (extension: mot)

- The file ends with an end record (S7, S8, S9).
- There are no lines other than S0-S9 (excluding S4)

III. Suisei Electronics System HXW format (extension: hxw)

- HXW format generated by RC-Downloader or LC2-Download Manager manufactured by SUISEI Electronics System

1.3.2 Project file (extension: prj)

A project file is a file that contains the information required by LC2-Download Manager.
This file stores information such as target microcontroller, program file, PBT file, etc.

1.3.3 PBT file (extension: pbt)

A PBT file is a script file that controls the target microcontroller for erasing, writing, etc.
[Quick Creation] (Reference 4.3 Section) can be created by selecting the function you want to control. In addition, PBT files created for our products such as EFP-LC can be used (except for some commands).

IMPORTANT

* Do not edit the project file with an editor.
* Do not edit the setting file with an editor.
* If you edit a PBT file generated with [Quick Creation] using a text editor, etc., an error will occur when the control software loads it.
  In this case, the setting information in [Quick Creation] will be invalid, but you can register it with the [Reference] button.

1.4 System configuration

1.4.1 Connect the EFP-LC2 to the target system

When erasing, writing, etc. operations on the target system,Figure 1.1Connect the EFP-LC2 to the target system with the supplied cable as shown below. The connection between the EFP-LC2 and the target system isIt is recommended that the cable length be within 500 [mm].

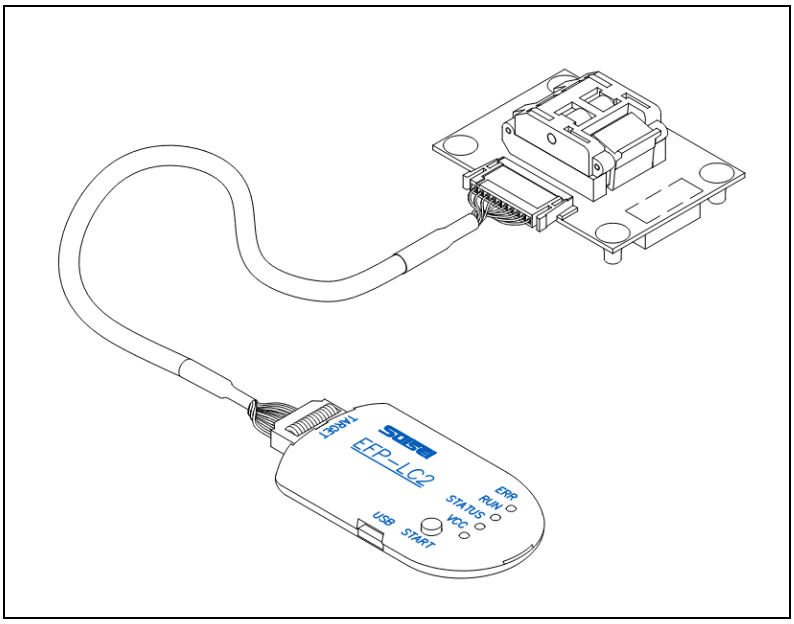


Figure 1.1 Connecting to the target system

1.4.2 Connect the EFP-LC2 to the host machine

When downloading/uploading from the control software LC2-Download Manager,Figure 1.2 Connect the EFP-LC2 to the host machine with a USB cable as described below.

When using the EFP-LC2 standalone to write to a target microcontroller, there is no need to connect the host machine to the target system.

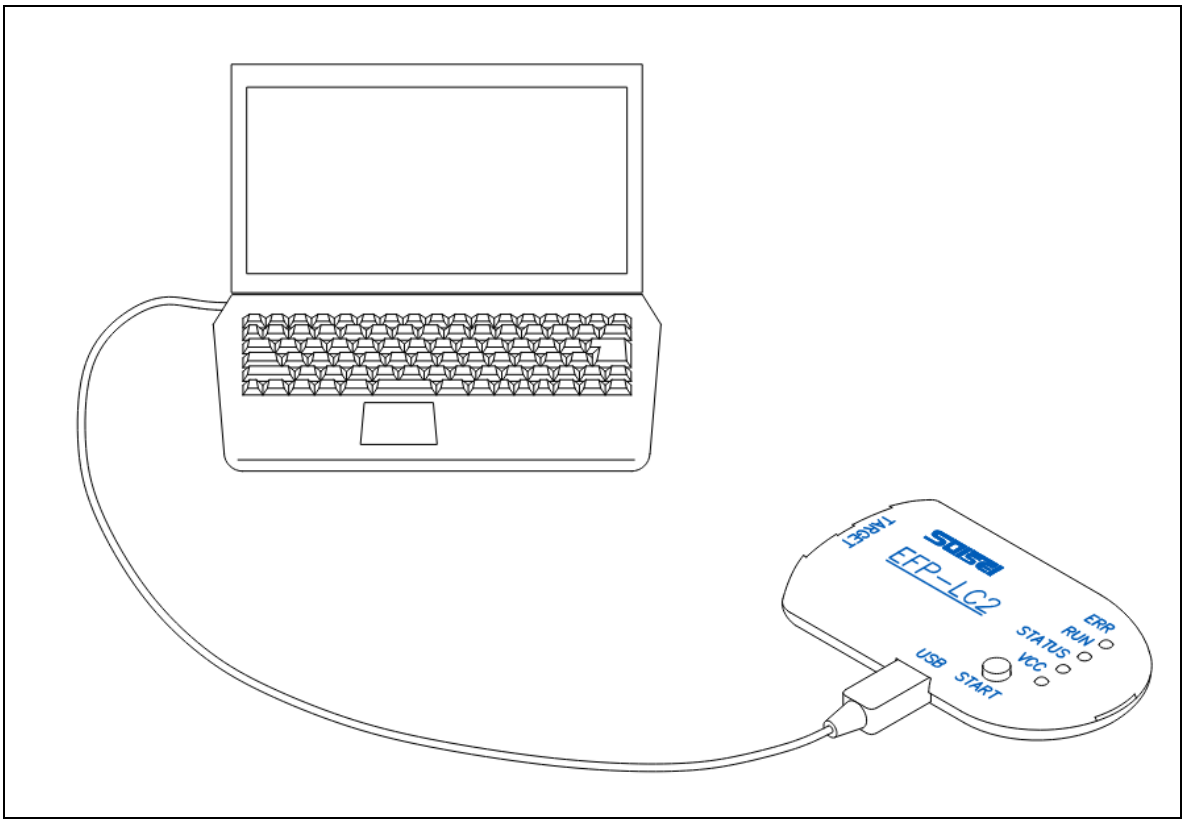


Figure 1.2 Connecting to the host machine

1.4.3 Powering the target system

The power supply to the target microcontroller is connected to the target system (Reference 1.4.3.1 Section) or EFP-LC2 (Reference 1.4.3.2 Section).

For details on how to connect to the target system, refer to the separate instruction manual for each microcontroller family.

1.4.3.1 Supplying power from the target system to the target microcontroller

When supplying power from the target system to the target microcontroller, the [VDD supply] command is not required.

In addition, it is possible to run PBT without a host machine connection (standalone).

WARNING

* Regarding insertion and removal of cables

Do not reconnect or unplug the USB cable or the cable used to connect to the target system while the target system is powered on.

* Connecting the EFP-LC2 to the host machine while the power supply to the target system may cause a malfunction

If you want to connect to the target system, follow the steps below.

I. Connect the EFP-LC2 to the target system with the target system connection cable
II. Connect the EFP-LC2 to the host machine with a USB cable
III. Externally powered

1.4.3.2 EFP-LC2 to power the target system

It can be supplied from the host machine to the target system*1 via EFP-LC2.

*1 Supplied from the connector (CN5-4: T_VDD) for connecting to the target system with the [VDD supply] command.

WARNING

* Regarding insertion and removal of cables

Do not disconnect or unplug the USB cable or the cable used to connect to the target system while the power of the EFP-LC2 unit is on.

* When using this command, do not supply power from the target system to the target microcontroller.

When the power supply voltage (T_VDD pin) on the target system side is detected to be +2 [V] or more when using this command, the EFP-LC2 does not supply power (output) to prevent power collisions.

1.5 LED Specifications

Table 1.3 EFP-LC2 LED Specification(Other than VCC LED)

state	condition	LED status		
		STATUS (green)	RUN (Yellow)	ERR (red)
When the power is turned on	PBT file/program file not downloaded	Lighting	Lights out	Lights out
	PBT File & Program File Download	flashing	Lights out	Lights out
	[START] SWITCH ON	Lighting	Lighting	Lights out
PBT file running	usually	Lighting	Lighting	Lights out
	Wait for input on the [Wait] command	flashing	Lighting	Lights out
	A device error occurred	flashing	Lights out	Lighting
	A download error occurred	lighting	Lights out	flashing
	Other errors occur	lighting	Lights out	Lighting
PBT file execution completed Secure Settings (Level2) Executed a specified number of times	All except logs have been deleted and no errors were found when running PBT	flashing	Lights out	Lights out
	All except logs have been deleted and an error occurred when running PBT	flashing	Lights out	Lighting
	Waiting for Erase to Start	flashing	Lighting	Lights out
	Erasing	Lights out	flashing	Lights out
Setting/Canceling the Secure Function	When an error occurs	flashing	Lights out	flashing
firmware Updating...	–	flashing	flashing	Lights out

*For details on the LED display when an error occurs, see Chapter 5.

Table 1.4 EFP-LC2 LED specifications (VCC LED: Blue)

Condition	Conditions	LED status
No VCC	No power supply:	Lights out
VCC present	Power supply from target system:	Lighting
	5V supply from EFP-LC2:	Fast flashing
	3.3V supply from EFP-LC2:	Slow flashing

1.6 Names of EFP-LC2

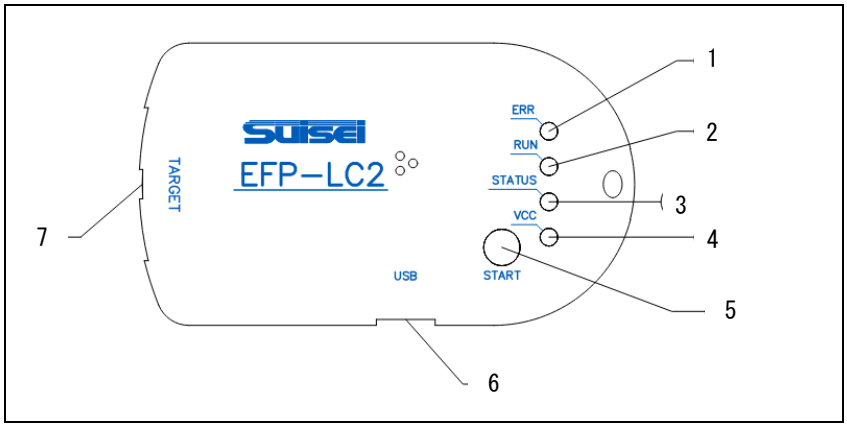


Figure 1.3 EFP-LC2 Part names

Table 1.5 List of names of each part

	name	classification	explanation
1	ERR	LED (red)	Lights up and flashes in case of error
2	RUN	LED (Yellow)	Lights up when running
3	STATUS	LED (green)	It lights up and flashes depending on the type of error and the state such as waiting for input
4	VCC	LED (blue)	Target system power state (see Table 1.4)
5	START	switch	PBT run (Reference 3.2 Section) and to erase data in the EFP-LC2 (Reference 5 Section)
6	USB I/F (CN3)	I/F	Connect to the host machine with a USB Type-C cable (Reference 1.4.1 Section)
7	TARGET I/F (CN5)		Connect the cable to the target system (Reference Table 1.6)

* Detailed LED specifications other than [VCC] LEDs are 1.5 Section.

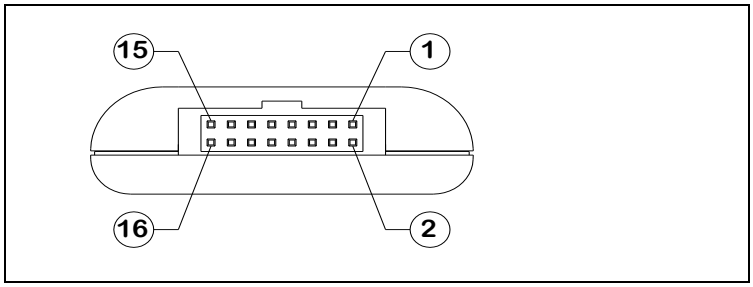


Figure 1.4 Connector pinout diagram for connecting to the target system

Table 1.6 Connector for connecting to the target system (CN5)

	Signal Name	I/o	explanation
1	GND	-	Circuit GND
2	PC+	input	External Start Optocoupler: TLP291 Input (Positive Voltage)
3	(NC)	-	Unused
4	T_VDD	output	Target System Power Input/Output
5	PC-	input	External Start Optocoupler: TLP291 Input (Negative Voltage)
6	Err	output	[ERR] LED(Table 1.5-1)
7	Exec	output	[RUN] LED(Table 1.5-2)
8	(NC)	-	Unused
9	T_SCLK	output	Synchronous communication clocks for target microcontrollers
10	T_TXD	output	Serial transmission data for target microcontroller
11	T_RXD	input	Serial Reception Data for Target microcontroller
12	(NC)	-	Unused
13	Start	input	External start signal (Reference 1.7 Section)
14	T_Reset	output	Target microcontroller Reset Control Signal
15	(NC)	-	Unused
16	GND		Circuit GND

*For information on how to connect to the target system, refer to the separate instruction manual for your microcontroller family.

1.7 EFP-LC2 External Control Signal

The EFP-LC2 has control signals on the target system connector (CN5), and these signals can be used to control the writing operation from outside. Figure 1.5 shows an example of connecting an external control signal.

- CN5-13 (Start), CN5-2 (PC+), and CN5-5 (PC-) can be used as external start signals.
  Either can be selected depending on the circuit condition of the target system.

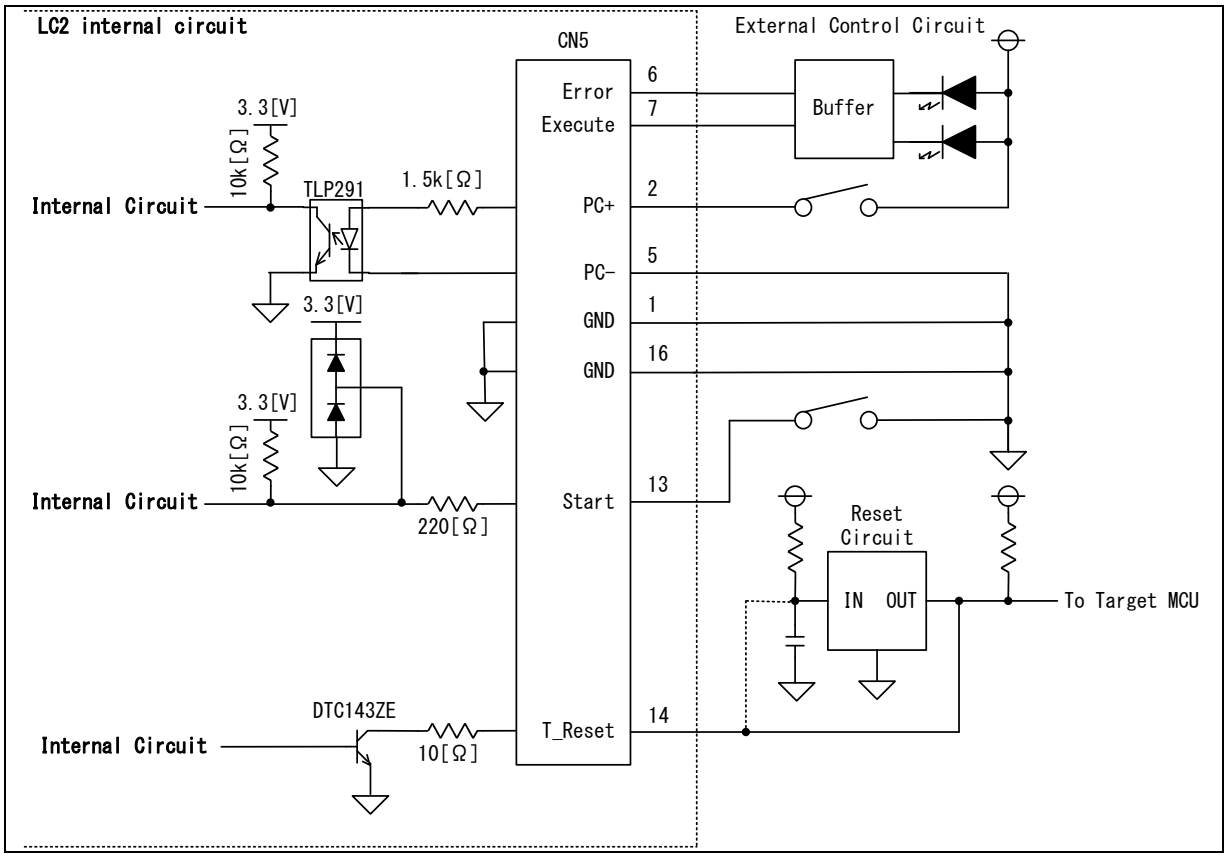


Figure 1.5 Example of external control signal connection

CAUTIONS

* The signals in the EFP-LC2 are internally pulled up to 3.3V as shown above.
  When pulling up on the target system, use a voltage of 3.3V or less.
  The EFP-LC2 may be damaged if connected to a target system that is pulled up to a voltage exceeding 3.3V.
* Make sure that the current between CN5-2 (PC+) and CN5-5 (PC-) of the EFP-LC2 does not exceed the rated value of the TLP291 in the EFP-LC2 internal circuit.
* Please note that the terminal specifications of CN5-2 (PC+) and CN5-5 (PC-) may differ when replacing another product made by Suisei Electronics Systems.
* The RESET output of the EFP-LC2 is an open collector.
  If the RESET circuit has an open collector output, connect the RESET terminal with a 1kΩ pull-up.
  If the RESET circuit has a CMOS output, either disconnect it with a jumper, or connect the T_RESET signal on the EFP-LC2 side to the input of the RESET circuit.

Figure 1.6 shows the time chart after turning on the "Start" key or "Start" once after powering up.

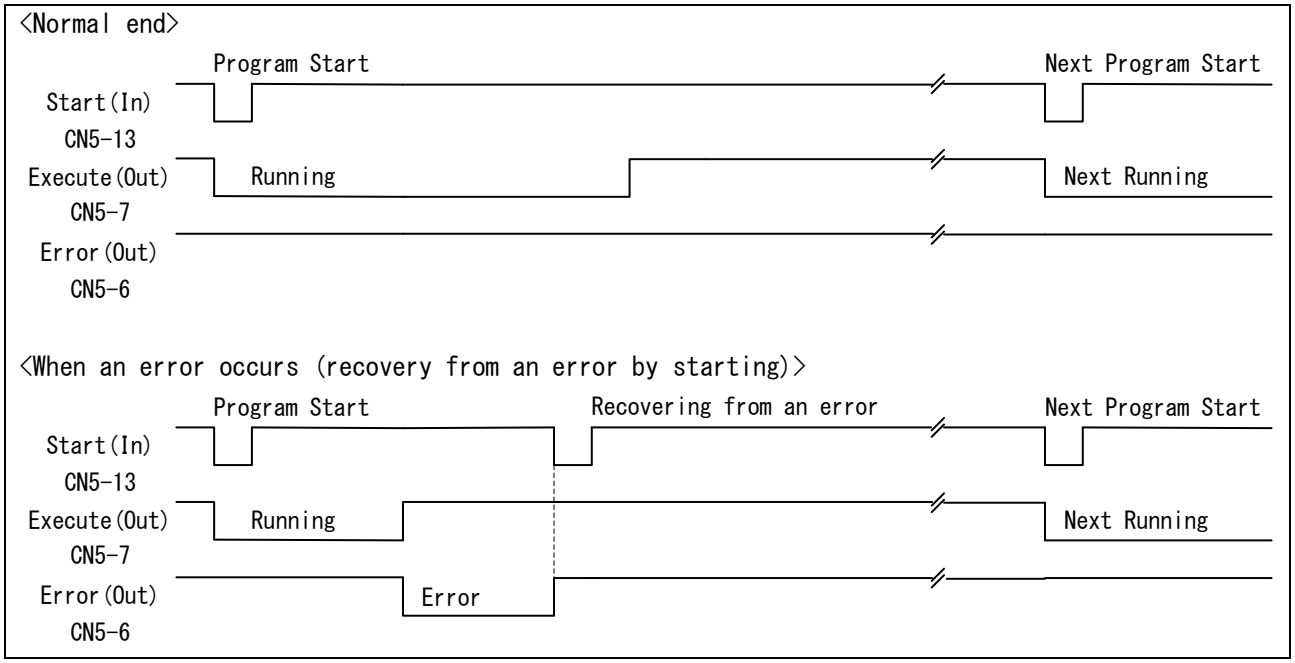


Figure 1.6 External Control Signal Sequences

2. Control Software Installation

LC2-Download Manager is an application that operates on the EFP-LC2.
At startup, the latest version information is obtained via the Internet and the presence of an updater is checked.

2.1 Control Software Installation Instructions

Follow the steps below to install the control software LC2-Download Manager for the operation of the EFP-LC2.

- Install the software with an account that has administrator privileges.

(1)When you run "setup.exe", the following screen will be displayed, so click the "Next" button.

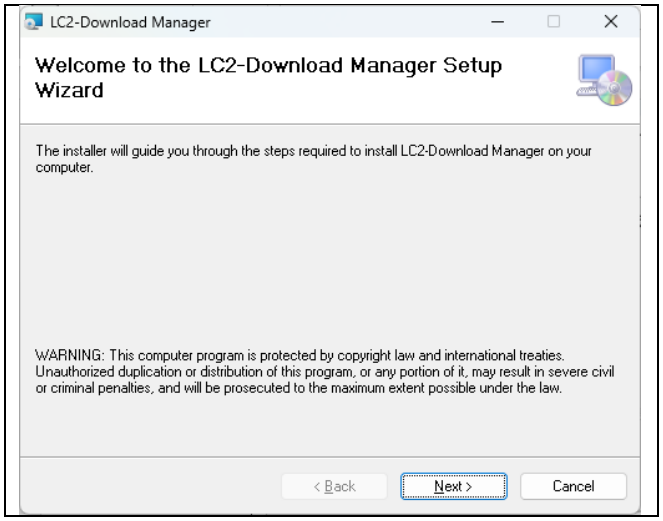


Figure 2.1 Setup screen (1/4)

(2)The following installation folder input screen will be displayed. If you want to select a folder that is different from the screen notation, click Browse and select the folder according to the screen. With the destination folder indicated, click Next.

- When "Just me" is selected, only the user who installed the installation is registered, and when "Everyone" is selected, all users are registered.

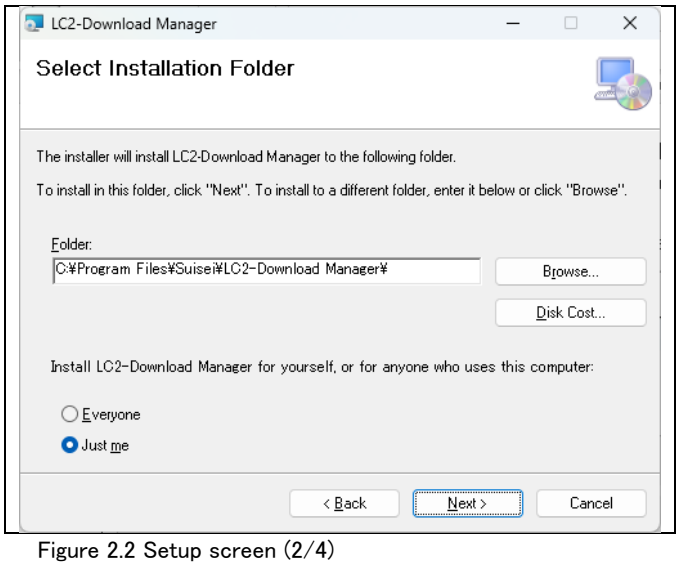


Figure 2.2 Setup screen (2/4)

(3)The installation start screen appears. Confirm the displayed contents and click Next.

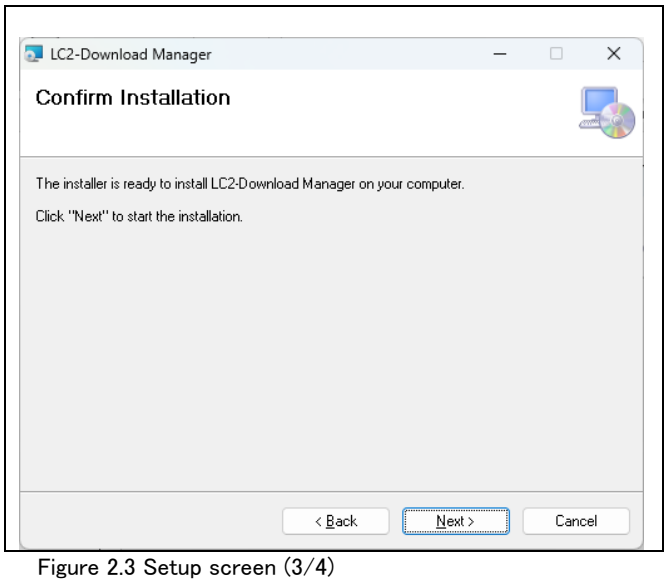


Figure 2.3 Setup screen (3/4)

(4)The User Account Control screen may appear.
If you select "Yes", a progress bar will be displayed and the installation will begin.

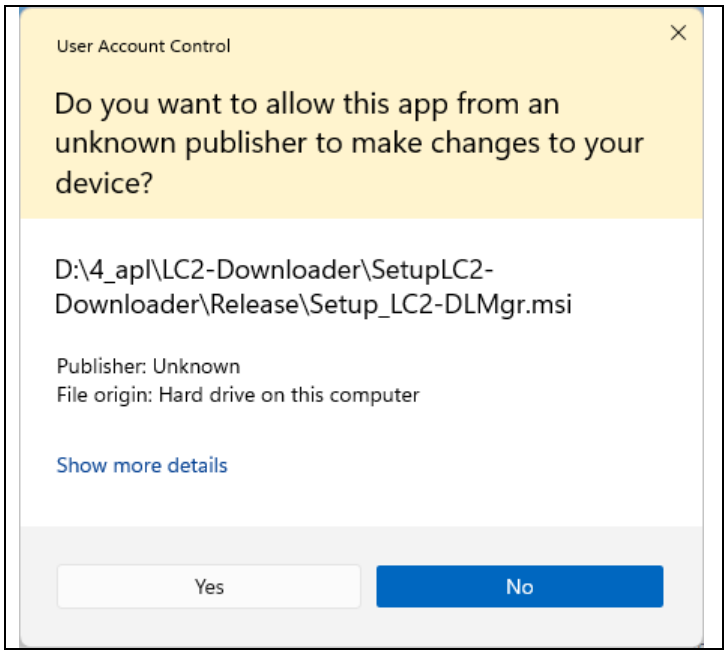


Figure 2.4 Setup screen (4/4)

(5)The installation completion screen is displayed. Select Close to exit the installer.

2.2 Control Software Uninstall Instructions

To uninstall the control software, follow the steps below.

I. Select Settings from the Start menu and select "Apps" → Installed apps.
II. From the list of installed applications, click "..." to the right of "LC2-Download Manager" and select "Uninstall".
III. Please wait for the control software to be uninstalled.
*Figure 2.4 Screen may be displayed.
IV. Make sure that "LC2-Download Manager" does not appear in the list of applications.

3. Basic Operation

3.1 Downloading data to EFP-LC2

After the installation is complete, the procedure from creating a user program to downloading it to EFP-LC2 is shown below.

procedure	Operation/Settings	References
1	- Creation of user programs (HEX/MOT) ＊Create a program file with a compiler	-
2	- Create projects with control software 1) Project name/target microcontroller setting 2) Program Files 3) Create a PBT file with the [Quick Creation] function (You can also register a PBT file that has already been created by you by clicking the [Reference] button.) ＊Set by control software	4.1
3	- Connection of the host machine, EFP-LC2, and target system ・Power on	1.4.1
4	- COM port settings between the host machine and the EFP-LC2 ＊Set by control software	4.2.5
5	- Download PBT/program files to EFP-LC2 ＊Controlled by control software	4.10

IMPORTANT

＊Be careful not to unplug the USB cable while the EFP-LC2 and the control software are communicating.
＊When connecting via USB via a USB hub, it is recommended to use a self-powered USB hub.
＊In the event of instability in operation due to insufficient voltage, supply power from the target system.

3.2 PBT file execution (writing to the target microcontroller, etc.)

When the program files and PBT files have been downloaded to the EFP-LC2 (PBT ready to run), the [STATUS] LED on the EFP-LC2 flashes slowly. In that state, execute the PBT file by one of the following methods.

(1)[START] switch ON on the EFP-LC2
＊At this time, stand-alone operation (not connected to the host machine) is possible.
Power must be supplied from the EFP-LC2 or the target system via a USB cable.
(2)In the control software, click the PBT Run button (Reference 4.10.2 Section)
(3)Start signal input CN5-13(Start)、CN5-2(PC+)/CN5-5(PC-) (Reference 1.7 Section)

I. The [RUN] LED on the EFP-LC2 will light up while the PBT file is running, and a "beep" buzzer will sound every time the command is executed.
＊The buzzer sound during command execution can be turned off (Reference 4.7 Section).
II. When the execution of the PBT file is completed, the LEDs of the EFP-LC2 are as follows.
A) Normal [RUN] LED: Off, [STATUS] LED: Blinking (fast)
B) In case of abnormality [ERR] LED: Blinking or solid (Reference 4.12 Section)

4. Control Software Details

Select "LC2-Download Manager" from the Windows Start menu to start the control software and display the following screen.

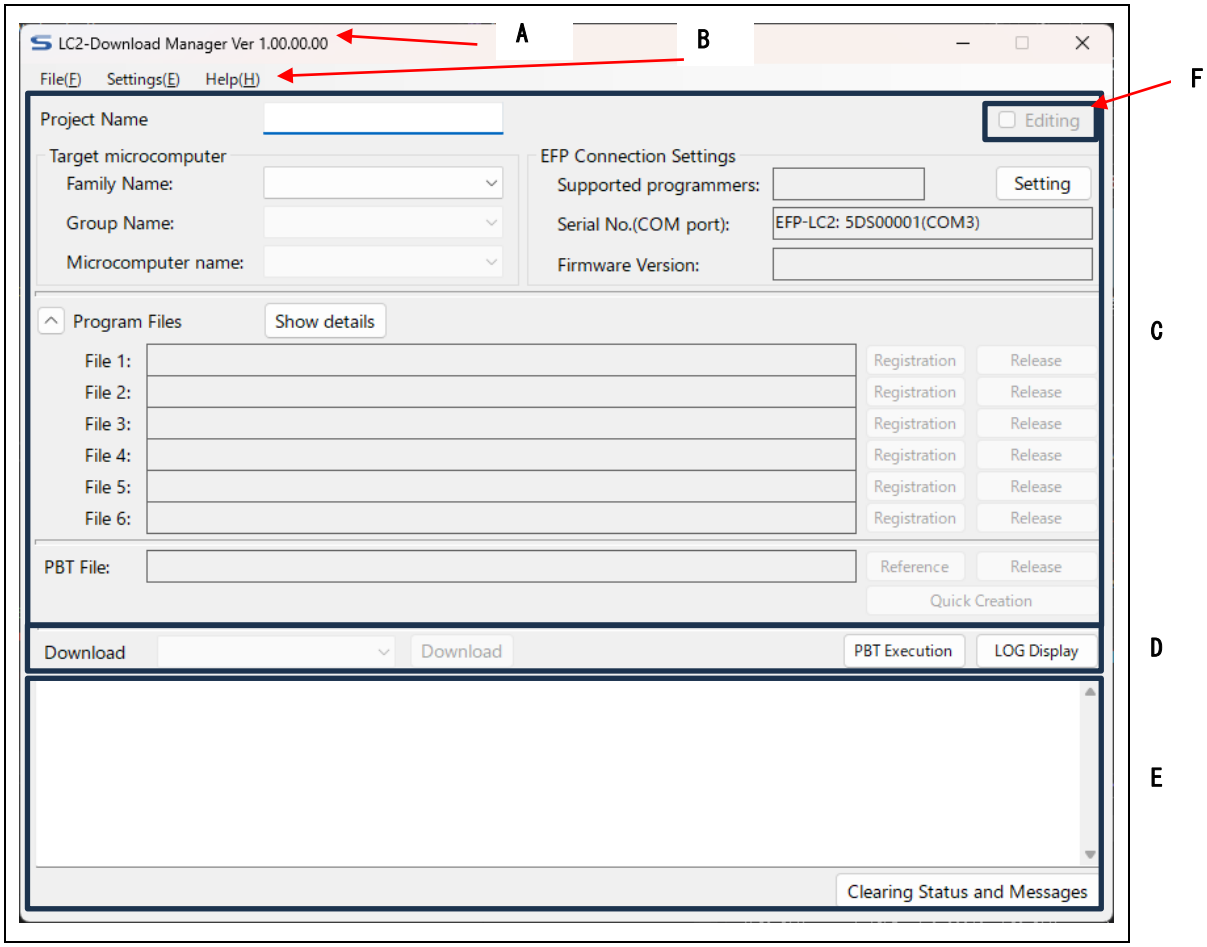


Figure 4.1 Main screen immediately after installation

Layout of the main screen

A)	Menu bar (top view)	Displaying Software Names and Versions
B)	toolbar	4.1 Section
C)	Project Information	4.2 Section
D)	Operating Information	4.10 Section
E)	Log information	4.11 Section
F)	Editing/Locked	4.12 Section

4.1 Toolbar

4.1.1 File Menu

When you click on the File menu, you will see a menu similar to the following:
The File menu performs file-related operations.

(1)Create a new project (N)
Create a new project (Reference 4.2 Section).

(2)Saving a Project(S)
Saves the project you are currently working on.

(3)Opening a Project(O)
Open an existing project file.

(4)EFP internal data upload(U)
Upload each file in the EFP-LC2 to the host machine and save it as a file. For more information, see 4.4 Section

(5)File Checksum calculation(C)
Calculates the checksum of the program file. For more information, see 4.5 Section

(6)Project History
View the five most recent saved projects and select them to open them.

(7)Exit (X)
Close the app.

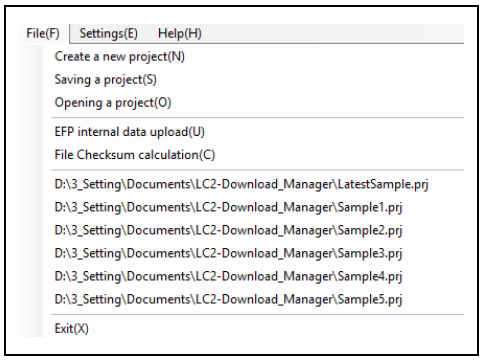


Figure 4.2 File menu example

4.1.2 Settings menu

When you click on the Settings menu, you will see a menu like this:

(1)EFP Secure Settings(S) 4.6 Section
(2)EFP Buzzer Settings(B) 4.7 Section
(3)Update Check Settings(A) 4.8 Section

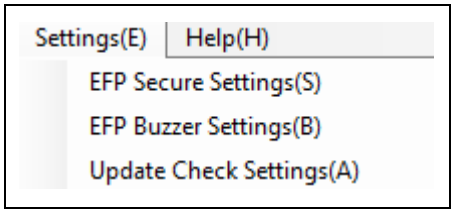


Figure 4.3 Settings menu

4.1.3 Help Menu

In the Help menu, you will see a menu similar to the following:

(1)Software Updates(L)

If a new version of LC2-Download Manager is available, it will update.

- Only when updates are disabled (Reference 4.8 Section)
  The latest version information will be obtained via the Internet and a check will be made to see if an update is available.
- The installer will download and the installer setup will begin (if a new version is available).

(2)EFP Firmware Update(F)

Update the firmware of the EFP-LC2. For more information, Reference 4.9 Section.

(3)Suisei Electronics System Home Page(S)

The homepage of SUISEI Electronics System will open in your default browser.

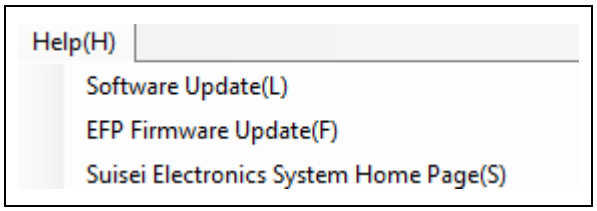


Figure 4.4 Help Menu

4.2 Create a new project

To create a project, follow the steps below.
When the control software starts, the previously saved project file is read (when the project has been saved).

I.	[Project Name] setting	Enter the name of the project in the Project Name field.
II.	[Target microcomputer] setting	Set the Target microcontroller.
III.	[Program Files] Registration	Register the [Program Files] to be downloaded to the EFP-LC2.
IV.	Register [PBT File]	Register the [PBT File] to be downloaded to the EFP-LC2.

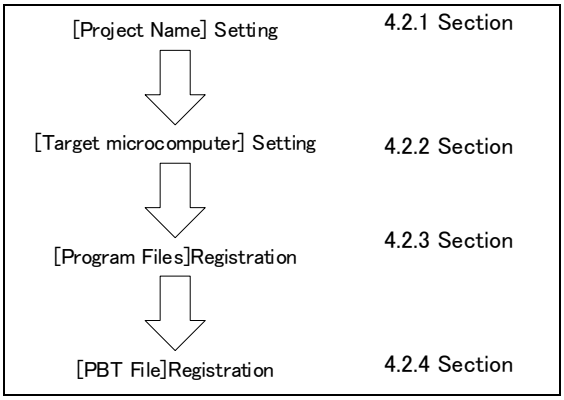


Figure 4.5 To create a new project

4.2.1 [Project Name]

Enter the [Project Name] to be created.

IMPORTANT

* Since the project name is used for the file name, characters that cannot be used in the file name cannot be used.
* The file name can be up to 183 characters (including extensions) and up to 247 characters including the path.

4.2.2 [Target microcomputer] Setting

Select [Family Name]→, [Group Name]→ [Microcontroller name] according to the [Target microcomputer] to be used.
The selected [Target microcontroller] information is used when checking program file registration and creating a PBT file.

(1)Family Name

- By selecting [Family Name], you can select [Group Name].
  In addition, the contents of Supported Programmers will be updated.

(2)Group Name

- By selecting [Group Name], you can select [Microcontroller name].

(3)Microcontroller name

- The selectable model name is the model name excluding package information/operating ambient temperature, etc.
  For microcontrollers that have package information in the middle of the model name, the corresponding part will be "x" (e.g. R5F104xF)

4.2.3 [Program Files] Registration

Register the [Program Files] to be downloaded to the EFP-LC2.

- Files can be registered after selecting the [Microcontroller name].
- Up to 6 program files can be registered.
- Files that can be registered are in mot/hex/hxw format. *See section 1.3.1 for usable files.

4.2.3.1 Procedure for registering program files

I. Click the [Registration] button and specify the program file to be registered.

II. The program file registration screen is displayed (Reference Figure 4.6).

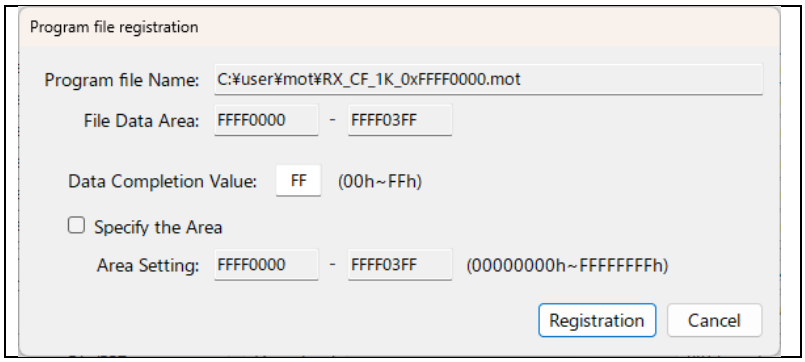


Figure 4.6 Program file registration screen

III. When a program file in MOT/HEX format is specified, the [Specify the Area] check box is enabled.
When [Registration] is executed, the program file information is registered in the address range of [Area Setting] entered.

IV. Any parts of the selected file outside the range will be filled in with the entered [Data Completion Value].

	Program File	Setting Address	
Example 1:	0xC000-0xFFFF	0xB000-0xFFFF	=> 0xB000-0xBFFF is the data completion value 0xC000-0xFFFF is the value of the program file.
Example 2:	0xC000-0xFFFF	0xD000-0xFFFF	=> 0xD000-0xFFFF is the value of the program file
Example 3:	0xC000-0xFFFF	0x8000-0xBFFF	=> 0x8000-0xBFFF is the data completion value

V. If there is no mistake in the specified contents, click the [Registration] button.

VI. The registered file name is displayed in the target file field on the main screen.

IMPORTANT

*Program file registration unit
- If a program file other than the selected microcontroller resource is selected, an error will occur.
- Program files consisting of multiple resources, such as Code Flash and Data Flash, cannot be used.
  Please make each area into a separate file.

* Registration unit of the program file
- The minimum unit of EFP-LC2 program file registration is 256 bytes.
  If the minimum unit is not met at the time of registration, or if there is no data, it will be automatically completed with [Data Completion Value] and registered.
  e.g. Specified program file 0xC010-0xDFF0
  → At the time of registration 0xC000-0xDFFF *0xC000-0xC00F and 0xDFF1-0xDFFF are [data Completion values]

* Precautions when using the PBT simple creation function
- When registering multiple files, the area of the program file registered earlier and the area of the program file to be added are duplicated.Files cannot be registered.
- If you create/register a PBT file using the PBT simple creation function and then add/remove a program file, the PBT file will be unregistered.

4.2.3.2 Unregistering Program Files

You can cancel a registered program file by following the steps below.

I. Click the [Release] button of the target file.

II. A confirmation message will appear asking if you want to unregister the file. Click the [OK] button to unregister it.

IMPORTANT

* If you create/register a PBT file using the PBT simple creation function and then add/remove a program file, the PBT file will be unregistered.

4.2.3.3 Show details

Click the [Show details] button Figure 4.7 form opens, displaying information about the registered program files.

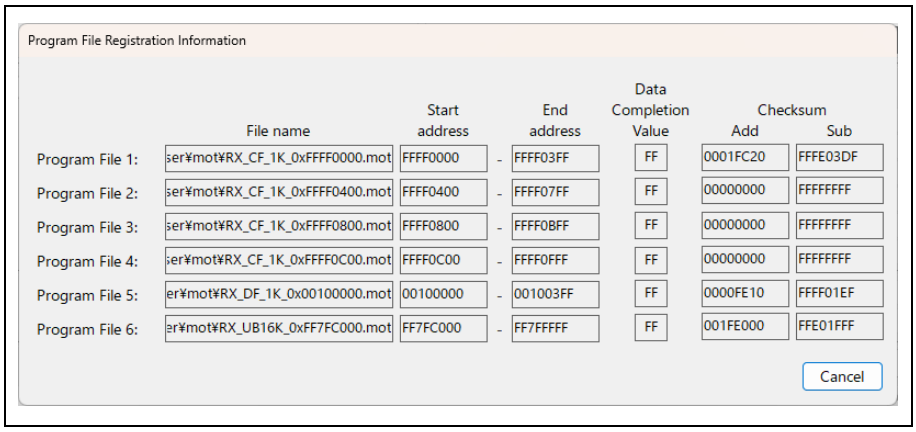


Figure 4.7 Detailed display

4.2.4 Register [PBT File]

Register the PBT file (script file) to be downloaded to the EFP-LC2.

Files can be created/registered using files created for existing models such as EFP-LC, or using the PBT simple creation function of LC2-Download Manager. For details on [Quick Creation], Reference 4.2.5 Section.

- Files can be registered/created after selecting [Microcontroller name].

(1)Selecting a pre-created PBT file

- A created PBT file can be registered by clicking the [Reference] button and selecting the target file.
- The [Baud-rate set] command (S or N) for EFP-LC, etc. cannot be used with EFP-LC2, so an error will be displayed.

(2)Create and select a PBT file in [Quick Creation]

- When creating/registering a PBT file, click the [Quick Create] button.
  * For details, refer to section 4. 3 or the separate instruction manual for each microcontroller family.

(3)Unregistering the PBT file

- Clear with the [Release] button.

IMPORTANT

* If a created PBT file is selected, the PBT simple creation function cannot be used.

4.2.5 [EFP Connection Settings]

Follow the steps below to register the COM port when connecting the host machine to the EFP-LC2.

I. Click the [Settings] button on the main screen to display the EFP connection settings screen (Reference Figure 4.8).

II. The COM port of the EFP-LC2 connected to the host machine is displayed as a selection from the pull-down menu, so select the COM port of the EFP-LC2 to be connected.

III. Click the "OK" button to return to the main screen, and the selected COM port is displayed in [Serial No (COM Port)], and the firmware version of the EFP-LC2 connected to [Firmware Version] is displayed.

* The selected content will be saved in the project file when the project is saved.

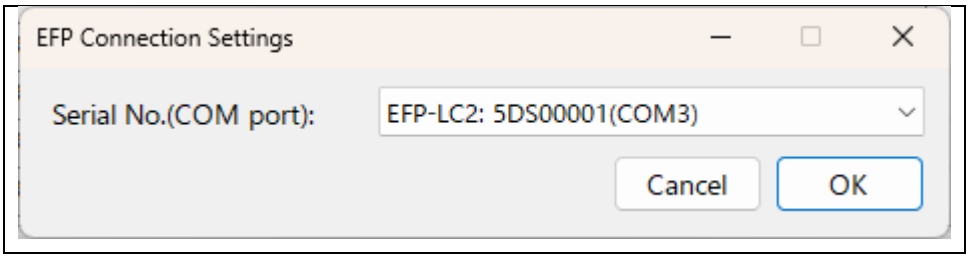


Figure 4.8 COM port selection screen

4.3 Quick Creation PBT

You can easily create a PBT file by simply checking or entering information in each item.
After completing the necessary settings, click the [Create] button to create a [PBT File].

* Some items will be hidden/disabled depending on the selected target microcontroller.
* This manual describes items that are common to all target microcontrollers.

For microcontroller family-specific settings and whether each command can be created on the target microcontroller, please refer to the separate instruction manual for each microcontroller family.

- Basic Setting Tab 4.3.1 Section
- Memory Map Tab 4.3.2 Section
- Security Tab 4.3.3 Section
- Option Tab 4.3.4 Section
- EFP Tab 4.3.5 Section

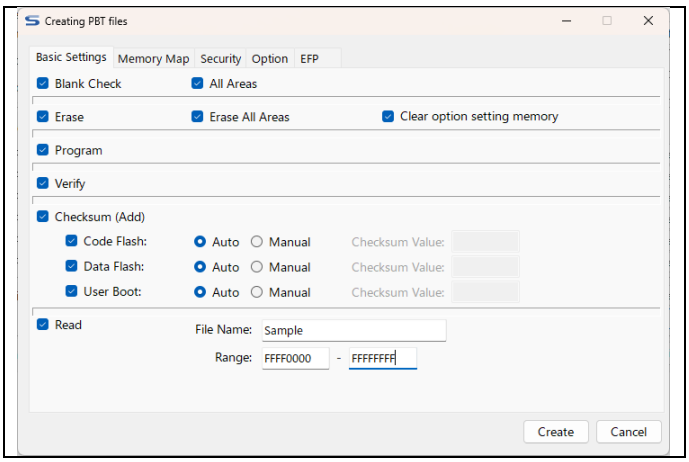


Figure 4.9 Basic Setting Tab

4.3.1 Basic Settings Tab

This tab is a setting for generating commands for programming operations such as [Blank], [Erase], [Program], and [Read] for the target microcontroller.

4.3.1.1 [Blank check]

- When this check box is checked ON, a [Blank] command will be generated for the areas that are checked ON for the target block in the [Blank] column on the [Memory Map] tab.
- If you want to generate a [Blank] command for the entire area of the target MCU resources, check [All Areas].

4.3.1.2 [Erase]

- When this checkbox is checked ON, an [Erase] command will be generated for the area that is checked ON for the target block in the [Erase] column of the [Memory Map] tab.
- To generate an [Erase] command for the entire area of the target MCU resources, check [Erase All Areas].

4.3.1.3 [Program]

- When this checkbox is checked, [Program] commands will be generated for all registered program files.

4.3.1.4 [Verify]

- When this checkbox is checked, a [Verify] command will be generated for all registered program files.

4.3.1.5 [Checksum]

- When this checkbox is checked, a [Check sum] command is generated for all registered program files.

4.3.1.6 [Read]

- When this checkbox is checked, a [Read] command is generated to create a file in the range specified by the specified file name.

4.3.2 Memory Map Tab

In this tab, you can set the target area when generating the [Blank], [Erase], and [Lock bit] commands for the target microcontroller.

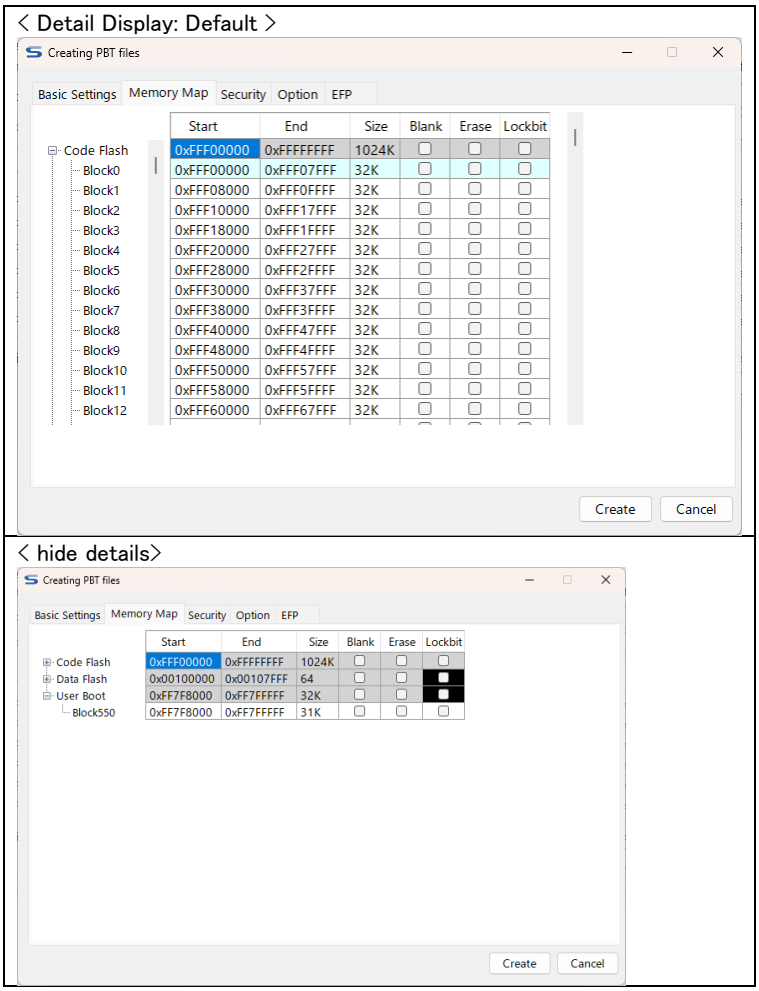
< Block List>

- Blocks for each resource (Code Flash/Data Flash/User Boot) of the selected target microcontroller are displayed on the left side.

< View Details>

- Start: Indicates the starting address of the target block (the first line is the target resource).
- End: Indicates the end address of the target block (the first line is the target resource).
- Size: Indicates the size of the target block (the first line is the target resource).
- Blank: Check the block to be the target of the [Blank] command.
- Erase: Check the block to be the target of the [Erase] command.
- Lockbit: Check the block to be the target of the [Lock bit] command.

< Detail Display: Default >



< hide details>

Figure 4.10 Memory Map Tab

4.3.3 Security Tab

In this tab, you can configure the settings for generating security-related commands such as [ID-collation], [Security Set], and [Signature] for the target microcontroller.

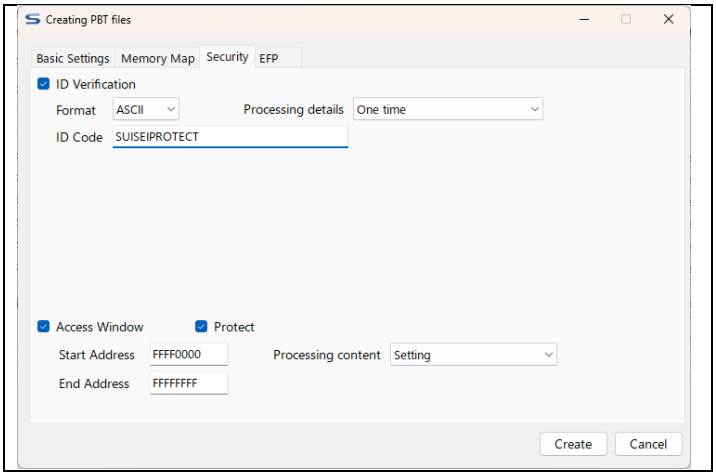


Figure 4.11 Security Tab

4.3.3.1 [ID Verification]

- By checking it, the [ID Verification] command is generated.
- The display content differs depending on the selected target microcontroller.

(1)Format

- "ASCII" or "HEX" can be selected.

(2)ID Code

- Enter the ID code that is set on the target microcontroller or the ID code that you want to set.
- "ASCII" or "HEX" can be selected.

IMPORTANT

*ID Verification

- The ID verification function differs depending on the selected target microcontroller, so please refer to the separate instruction manual for each microcontroller family.

4.3.4 [Option] Tab

Use this tab to configure the [Option] command generation settings for the target microcontroller. Each setting is enabled by turning on the [Optional Commands] check box.

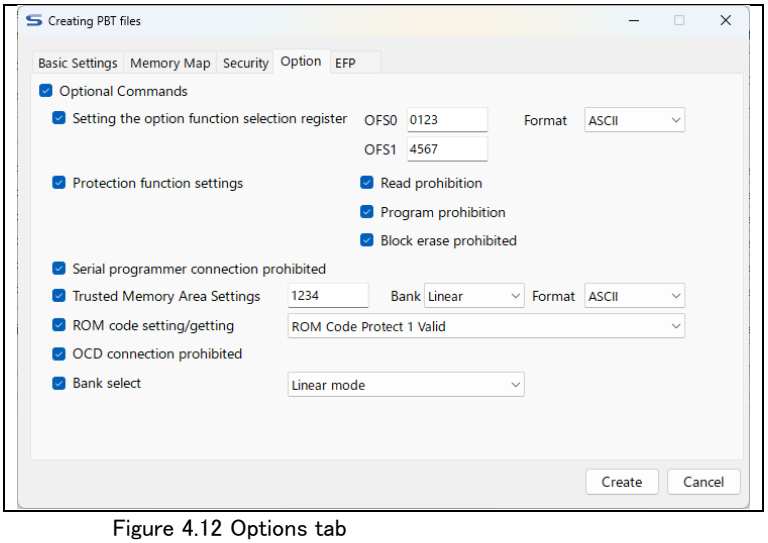


Figure 4.12 Options tab

4.3.5 [EFP]

In this tab, you can generate commands such as the [VDD supply] command, the [Baud-rate set] command, and the [Mode entry] command for the target microcontroller before executing the EFP-LC2 programming operation command.

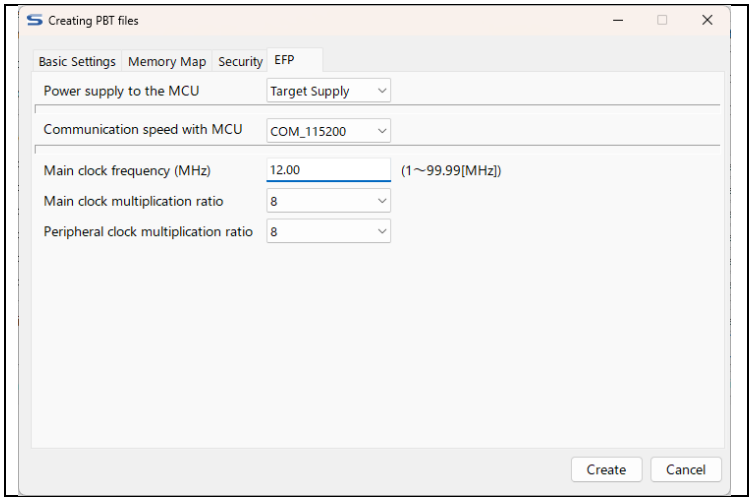


Figure 4.13 EFP Tab

4.3.5.1 [Power supply to the MCU]

Create a [VDD supply] command to indicate whether or not the EFP-LC2 can supply power to the target system.
When supplying power to the target system from an external power supply, there is no need to select (default = Target Supply).
In this case, you do not create a [VDD Supply] command.

IMPORTANT

* When using this command, do not supply power from the target system to the target microcontroller.
When using this command, if the power supply voltage (T_VDD terminal) on the target system is detected to be +2 [V] or higher, the EFP-LC2 will not supply (output) power to prevent a power supply collision.

4.3.5.2 [Communication speed with MCU]

Generate the [Baud-rate Set] command, which is the communication speed setting between the target microcontroller and the EFP-LC2.

IMPORTANT

* Communication speed with MCU
- The communication speed that can be set varies depending on the target microcontroller, so please refer to the separate instruction manual for each microcontroller family.
- Communication may not be possible even at a selectable communication speed. In this case, set the communication speed to a lower speed.

4.4 EFP Internal data upload

Upload each file in the EFP-LC2 to the host machine and save it as a file.

I. Select [EFP Internal data upload] from the File menu to read all file information in the EFP-LC2.
II. Figure 4.14 form opens and displays the retrieved file information.
* If the target file is not available on the connected EFP-LC2, it will be blank and the upload selection will be invalid.
* In a state where there is a security restriction (Reference 4.6 Section), the Upload Select is disabled.

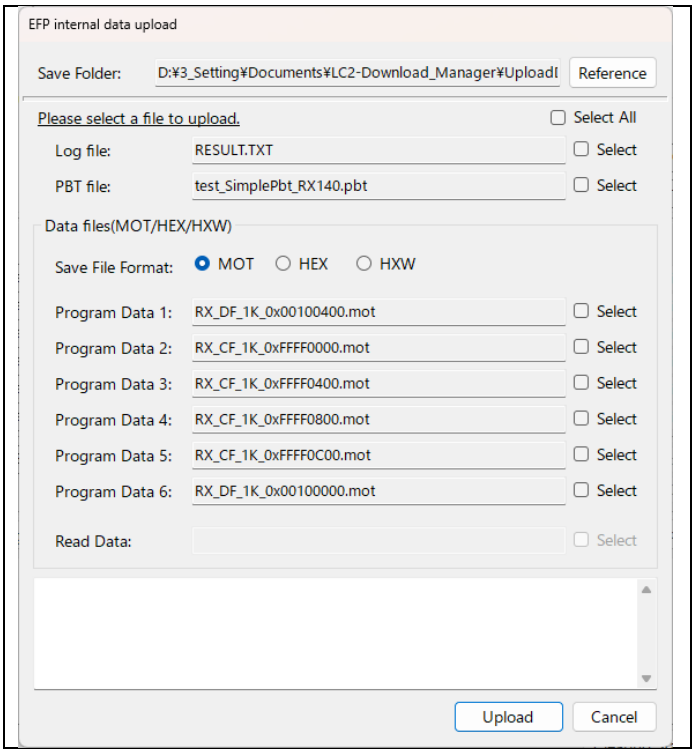


Figure 4.14 EFP Internal Data Upload

(1)Storage Folder

- Specify the destination folder for the uploaded file.

(2)Log files

- The log file is created when PBT is executed on the connected EFP-LC2.
- The following information can be confirmed in the log file (RESULT.TXT). Figure 4.16 shows a sample.
  - Script command execution result
  - firmware version
  - PBT file execution result and error count
  - number of program files and PBT file downloads
  - program file name in EFP-LC2
  - EFP-LC2 status information

(3)Data files

- You can select the save format for program files, MOT/HEX/HXW.
- Read data is created by executing the [Read] command in PBT execution.

4.4.1 File Upload Procedure

I. Connect the EFP-LC2 to the host machine and select the connected EFP-LC2 in [EFP Connection Settings] (Reference 4.2.5 Section).
II. From the File menu, select [EFP Internal data upload].
III. Select the file you want to upload.
IV. For the data file (Program Files/Data Files), select the format in which you want to save them.
V. Click the [Upload] button to start uploading the file.
VI. When the buzzer sound "beep" sounds, the upload is complete.
* It will continue until all selected files are uploaded.
VII. The read file will have the following file name to distinguish it from the downloaded file.
- The exported file format and the selected file format are the same: Up + Exported file name
Example: RX_DF_1K_0x00100000.mot → Up_RX_DF_1K_0x00100000.mot
- The file format you read and the selected file format are different: Up + Add the extension of the exported file name to the end
Example: RX_DF_1K_0x00100000.mot → Up_RX_DF_1K_0x00100000_mot.hxw

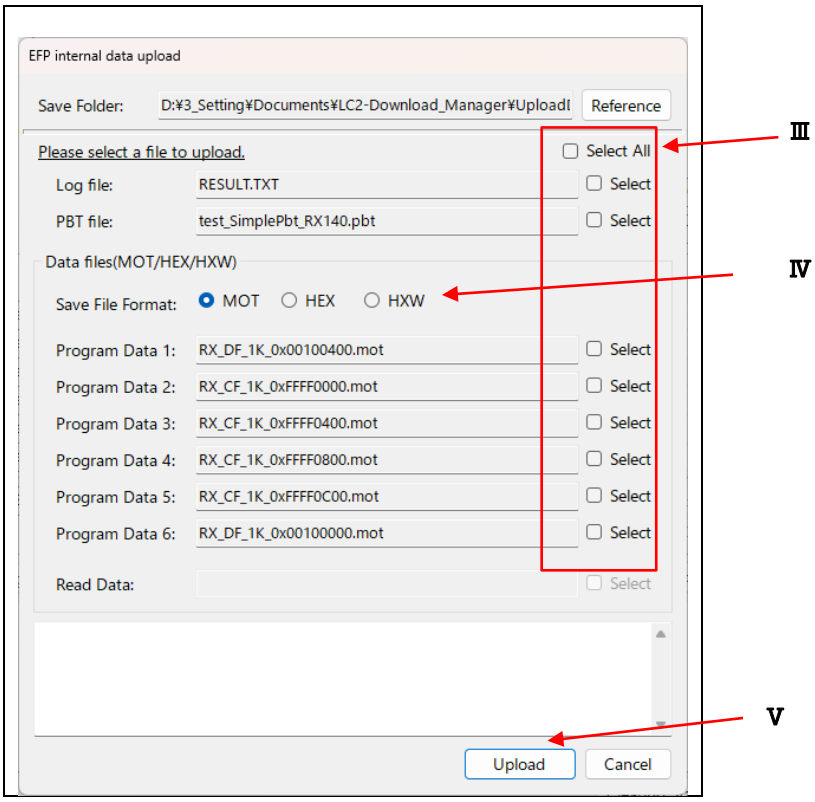


Figure 4.15 EFP Internal Data Upload Procedure

IMPORTANT

* If there is a file in the folder that is the same as the file that was read, it will be overwritten.
* Even if the downloaded file and the uploaded file have the same file format, they may not match due to [Data Completion Value] and [Specify the Area].
* Do not execute PBT with the button on the EFP-LC2 main unit while uploading a file.

Log result	Log result	
RX630_test.pbt [TRACE START] 1:<t=38> RX LittleEndian T command OK. Time = 0.000sec. 2:<x=2> MCU VDD(+3.3V) on. X command OK. Time = 0.009sec. 3:<s2=6> Set 500000Bps! S command OK. Time = 0.000sec. 4:<m,800,8,4> Set MCU Config. M command OK. Time = 3.609sec. 5:<i,1,FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF,1> Set to MCU ID. I command OK. Time = 0.000sec. 6:<e,,1> MCU erasing now. E command OK. Time = 0.697sec. 8:<p,Data32k.hxw,00100000,00107FFF,1> Data programing now. Check SUM=003FF1AB P command OK. Time = 3.485sec. 9:<v,Data32k.hxw,00100000,00107FFF> Data verifing now. Check SUM=003FF1AB V command OK. Time = 0.724sec. [TRACE END]	Execution result of PBT command	
--Machine Report -- EFP-LC2 Ver.1.00.00 Type-RX 32MB [Firmware] DATE: 2025/05/01	EFP-LC2 unit information	
[Counter] PBT executed: 3 ERR.occurred: 3 Total executed: 24 Counts	Number of PBT file executions (including the number of times an error occurred) *1 Number of errors*1	The number of times the PBT file is executed and Number of Errors *1 Reset with PBT file download
[Download count] PBT file 21 PRG file 15	Number of PBT File Downloads Number of Program File Downloads	
[Download file] 1:> RX_CF_1K_0xFFFF0000.mot 2: RX_CF_1K_0xFFFF0400.mot 3: RX_CF_1K_0xFFFF0800.mot 4: RX_CF_1K_0xFFFF0C00.mot 5: * 6: * R: RX630_READ.hxw PBT: RX630_test.pbt	HXW: Program Files File Name R: File name output by the [Read] command PBT: PBT file name	In EFP-LC2 Files that are being downloaded (*: Undownloaded space)
[SET STATE] Language = English Interval time = Non Auto check = On ----------	EFP-LC2 Status Information	

Figure 4.16 Sample log file (RESULT.TXT)

4.5 File Checksum calculation

Calculates the checksum of the program file.
When you select [File Checksum Calculation (C)] from the file menu, Figure 4.17 form opens.

I. Use the [Reference] button to select the program file to be checksummed.
   * The start/end address of the selected program file is displayed in the area settings.
II. When changing the area to be calculated, check [Specify area] and update the area setting of the start/end address.
III. Use the [Calculation] button to calculate the checksum.
   Addition: The 4-byte checksum value added byte by byte
   Subtract: The 4-byte checksum value minus bytes

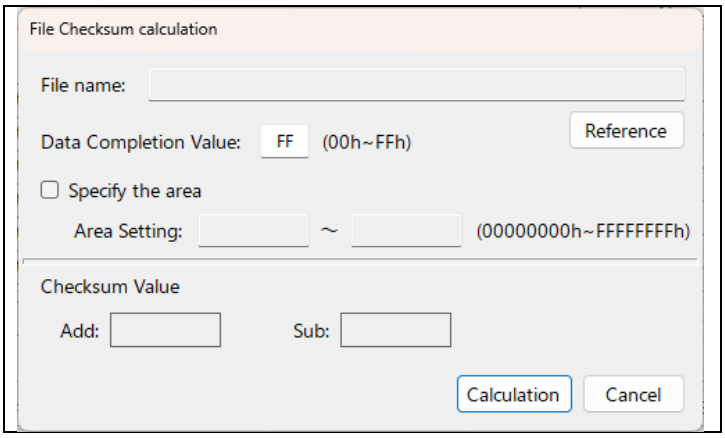


Figure 4.17 Checksum calculation

IMPORTANT

* If it is outside the range of the program file, the value of [Data Completion Value] is set.

4.6 EFP Secure Settings

Configure the secure settings for the EFP-LC2 and prohibit internal data uploads of the EFP-LC2.
Table 4.1 describes the secure status of each setting.

(1)Download/upload prohibition function

- Secure ID settings prohibit downloads and internal data uploads to the EFP-LC2.
  It also prohibits firmware updates.

(2)PBT execution limit function

- When PBT execution completes normal writing the number of times set in [Number of executions], the data in the EFP-LC2 is erased at the next execution and further writing is prohibited.

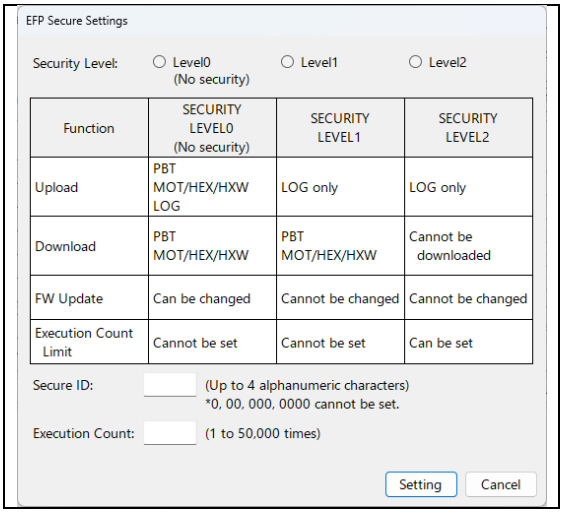


Figure 4.18 EFP Secure Settings

- Security Level: Select the level of security you want to restrict
- Secure ID: Set the ID for security settings (also required for unlocking).
  4-digit alphanumeric characters (uppercase and lowercase letters are sensitive)
- Execution Count: Set the maximum number of PBT executions in the range of 1-50,000.

Table 4.1 Functional restrictions by Secure Level

function		Security Levels		
		Level0 (No Security)	Level1	Level2
Upload	PBT file (*.pbt)	Yes	No	No
	Program File (*.mot/*.hex/*.hxw)	Yes	No	No
	Log File (RESULT.TXT)	Yes	Yes	Yes
Download	PBT file (*.pbt)	Yes	Yes	No
	Program File (*.mot/*.hex/*.hxw)	Yes	Yes	No
Firmware version update		Yes	No	No
Execution Limit		Not configurable	Not configurable	Configurable
Execution Result Log	Example of security level display	-- Machine report -- EFP-LC2 Ver.1.00.00 Type-RX 32MB	-- Machine report -- EFP-LC2 Ver.1.00.00 Type-RX 32MB Security level 1	-- Machine report -- EFP-LC2 Ver.1.00.00 Type-RX 32MB Security level 2
	Example of execution count counter display	[Counter] PBT executed: 3 ERR.occurred: 0 Total executed: 3 Counts	[Counter] PBT executed: 3 ERR.occurred: 0 Total executed: 3 Counts	[Counter] PBT remains: 9 PBT executed: 1 ERR.occurred: 0

4.6.1 Secure Configuration Procedure

I. Connect the EFP-LC2 to the host machine and select the connected EFP-LC2 in [EFP Connection Settings] (Reference 4.2.5 Section).

II. Select [EFP Secure Settings] from the settings menu.

III. Select the security level you want to set.

IV. Set an arbitrary ID code (up to 4 single-byte alphanumeric characters) in the [Secure ID] field.
* For EFP-LC2 with an ID code set, when updating to Security Level 0 or updating the number of executions, You will need to enter the ID code that has been set.
* "0", "00", "000", "" 0000" is invalid and will result in an error.
* Please note that the English characters that can be used for Secure ID are case-sensitive, so please be careful when setting.

V. When Security Level 2 is selected, enter the number of executions (1-50,000) in the [Execution Count] column.
* The maximum value of [Execution Count] is 50,000.

VI. Click the [Setting] button.

VII. The secure configuration information is transferred to the EFP-LC2.
An example of a buzzer when set from Security Level 0 is as follows.
When changing from another security level, the buzzer will be different.
A) Security Level0 A "Beep-beep" buzzer will sound and the settings are complete.
B) Security Level1 A "Beep-beep" buzzer will sound and the settings are complete.
C) Security Level2 A "Beep-beep-beep" buzzer will sound and the settings are complete.

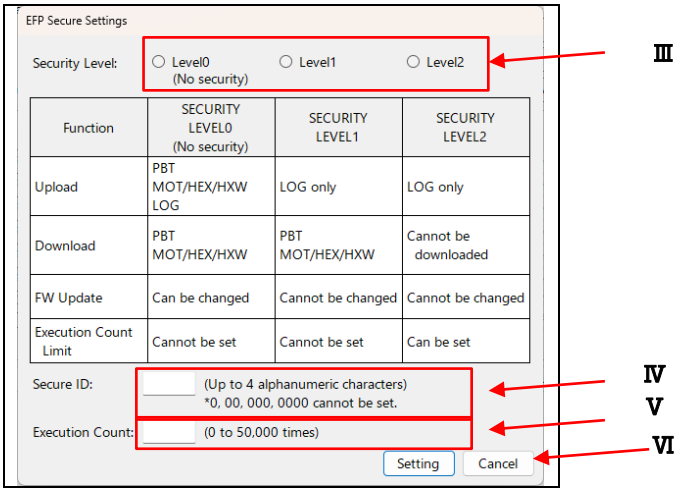


Figure 4.19 EFP Secure Configuration Procedure

(1)About the number of executions at Security Level 2

- After the set number of writes has been completed, a warning sound will be emitted the next time you execute PBT or upload the log file (RESULT.TXT).
  If you execute PBT again while the warning sound is being emitted, the LED will flash and the internal data of the EFP-LC2 will be erased, preventing any further writing.
- The warning sound will not be canceled until you press the [START] switch on the EFP-LC2.
- Do not turn off the power while erasing data. If the power is turned off during erasing, data cannot be restored.
- After erasing data, the [STATUS] LED on the EFP-LC2 will light up and the security settings will be disabled.
- The log file (RESULT.TXT) of the last execution result can only be uploaded for the first time while the warning sound is being generated or after data is deleted.

(2)How to remove security

- If you set it to Security Level 2, you will not be able to download.
  Data changes in the EFP-LC2 require an update to Security Level 0.
- Please note that if you make a mistake in the ID code three times in a row, you will not be able to authenticate the ID code for the next 1 hour (leave the EFP-LC2 in the power ON state).
  Even if the ID is prohibited, it is possible to execute PBT files and upload execution result logs regardless of security settings.

IMPORTANT

* To set up security, you need to download the program file and PBT file.
  If no files have been downloaded, no security features are configured.

4.7 EFP Buzzer Settings

When PBT is executed, a buzzer sound is heard for each command, but this ON/OFF can be set.
The operation when setting ON/OFF is as shown in the Table below. It cannot be turned off except when executing commands.

Table 4.2 EFP-LC2 Buzzer Settings

Buzzer setting	PBT Execution			LC2-Download Manager	
	beginning	Command Execution	end	Download	Upload
ON (default)	Rings	Rings	Rings	Rings	Rings
OFF	Rings	Does not ring	Rings	Rings	Rings

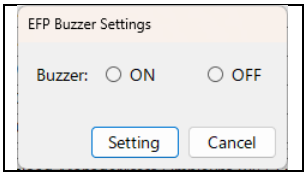


Figure 4.20 EFP Buzzer Settings

I. Connect the EFP-LC2 to the host machine and select the connected EFP-LC2 in [EFP Connection Settings] (Reference 4.2.5 Section).
II. Select [EFP Buzzer Settings] from the settings menu.
III. Check the [ON] or [OFF] checkbox, and then click the [Setting] button.
IV. The information from the EFP buzzer is transferred to the EFP-LC2.
V. Once the "beep" buzzer sounds, the settings are complete.

IMPORTANT

* When the [Settings] button is clicked without selecting the check box, an error message will be displayed.

4.8 Update Confirmation Settings

When the control software starts up, it obtains software update information (control software and EFP-LC2 firmware) via the Internet and checks for important or latest update files.

It also displays a message.

Here you can prohibit the acquisition of update information and set the display interval.

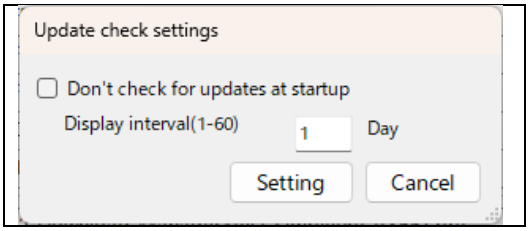


Figure 4.21 Update Confirmation Settings

(1)Don't check for updates at startup:

- OFF (default) Update information will be obtained when the control software is started.
- ON Prohibits obtaining update information.

(2)Display Interval (1-60 days):

When an important update is available but software update is not selected, set the period until the next message is displayed.

IMPORTANT

* When [Don't check for updates at startup] is ON, software update information will not be obtained.
  As a result, you will not be able to check whether there are any important updates.
  In this case, please check the software update information on our website to see if there are any important updates.
* When software update is not selected, a message will not be displayed until the [Display interval] has elapsed, but if there is an important update, please update your software as soon as possible.

4.9 EFP Firmware Update

The firmware of the EFP-LC2 can be updated. The procedure for rewriting the firmware in the EFP-LC2 is shown below.
Update enabled (Reference 4.8 Section) and when the control software is started or [EFP connection settings]
If there is an important update of F/W, you will be redirected to this screen.

- Please prepare a compatible type of firmware that is compatible with the EFP-LC2 you purchased.
- The corresponding type (Type-RX, etc.) is indicated on the surface of the EFP-LC2 housing.

Table 4.3 EFP-LC2 Compliant Firmware(For Type-RX)

type	Compatible Firmware
EFP-LC2 Type-RX	EFP-LC2_Type-RX_Ver.x.xx.xx.fzw

x.xx.xx of the compatible firmware contains the firmware version.

I. Connect the EFP-LC2 to the host machine and select the connected EFP-LC2 in [EFP Connection Settings] (see section 4.2.5 for details).
II. Select [EFP Firmware Update] from the Help menu.
III. Register the firmware using one of the following methods.
  A) Click [Download from Web] to download from the network (when update is enabled: see section 4.8).
  B) Save the firmware obtained from our website or email, etc., in the desired folder and click the [Reference] button to select the file.
IV. Click the [Update] button to start the update.
  * The [RUN] and [STATUS] LEDs of the EFP-LC2 light up.
V. When the download is complete, a "beep" buzzer will sound once and firmware rewriting will automatically begin.
VI. After the firmware data has been rewritten, the buzzer will beep twice, the EFP-LC2 unit will restart, and the update will be complete.

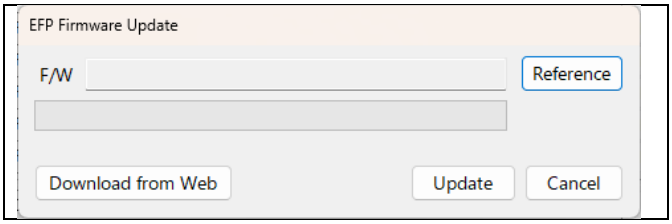


Figure 4.22 Firmware

IMPORTANT

* Program files and PBT files downloaded to the EFP-LC2 will be retained even after the firmware is rewritten.
* The [RUN] LED and [STATUS] LED on the EFP-LC2 will flash while the firmware is being rewritten, so do not turn off the power at this time.
If the power is turned off during rewriting, the EFP-LC2 will not start up and repair support will be required.

4.10 Operation-related

4.10.1 Download

Download the registered PBT/program file for the connected EFP-LC2.

At the time of this operation, connect the EFP-LC2 to the host machine and specify the EFP-LC2 to be used in [EFP connection settings].

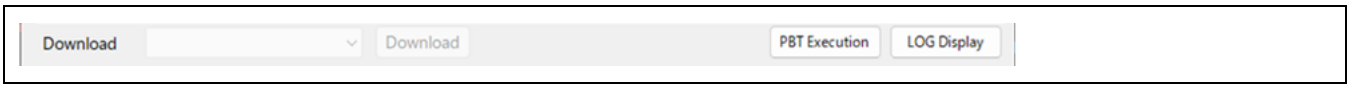


Figure 4.1 Operation related

4.10.1.1 Download Type

(1)[ProgramFile/PBT]

- Download all registered program files and PBT files (default).
- This can only be selected when both the PBT file and the program file are registered.

(2)[ProgramFile]

- Only all registered program files are downloaded.
- When only program files are registered, the selection is disabled in this display.

(3)[PBT]

- Only registered PBT files are downloaded.
- When only PBT files are registered, the selection is disabled in this display.

4.10.1.2 Download

I. Click the [Download] button to download the target file selected by download type to the EFP-LC2.

II. Files in [MOT/HEX] format are automatically converted to [HXW] format files when they are downloaded.
＊EFP-LC2 handles files in HXW format.

III. The [RUN] LED on the EFP-LC2 lights up and the progress bar indicates the progress.

IV. The download is complete when the buzzer beeps twice.*1.
*1 The first buzzer sound is the sound when the data transfer is complete, and the second buzzer sound is the sound when it is confirmed that there is no abnormality in the file.

V. When the download of both the program file and PBT is completed, the buzzer sound of the download is complete, followed by the buzzer sound of "bee", and the PBT is ready to run.
The [STATUS] LED on the EFP-LC2 will flash slowly when it is ready to execute PBT.
＊After running PBT, if you have downloaded only the program file or the PBT file, press the [START] switch on the EFP-LC2.
If you run [PBT Execution] without pressing the [START] switch, an error message will appear prompting you to download the files that were not downloaded.

IMPORTANT

＊When a program file is downloaded, the oldest area is erased first among the six areas in the EFP-LC2.

4.10.2 PBT Execution

Erasing, writing, etc. are performed by executing the PBT file downloaded to the EFP-LC2 to the target microcontroller. PBT file execution can be done via the control software or by pressing the EFP-LC2 main unit button (3.2It is possible to do any of the following. At the time of this operation, connect the EFP-LC2 to the host machine and specify the EFP-LC2 to be used in [EFP connection settings].

4.10.2.1 [PBT Execution]

Click the [PBT Execution] button to execute the command described in the PBT file for the EFP-LC2 connected to the host machine.

- An error occurs when PBT execution is not ready (both the program file and PBT file have been downloaded).
  At this time, the [STATUS] LED on the EFP-LC2 flashes slowly.
- While PBT is running, the [RUN] LED on the EFP-LC2 lights up, and a buzzer beeps each time a command is executed.
  When the script is executed successfully, the [ERR] LED on the EFP-LC2 will turn off, and when an error occurs*1, the LED will turn on or blink.
  *1 For information on how to deal with EFP-LC2 errors, see Chapter 5.

4.10.2.2 [LOG display]

The log file generated by [PBT Execution] can be displayed by clicking the [LOG display] button.

＊If PBT is not executed (log file is not created on EFP-LC2), an error will occur.

＊Log files can also be obtained using the upload function (see section 4.1.2).

4.11 Log Viewing

4.11.1 Log output screen

The status of the command issued to the EFP-LC2 and the result, as well as the contents of the error message, are displayed.

＊It will be cleared with the [Clearing Status and Messages] button or cleared at the start of the download.

4.11.2 [Clearing Status and Messages]

Clear the log screen.

4.12 Editing/Locked

In order to prevent the created project from being updated by an unintentional mistake, disable the setting of the target item.

- Target:
  [Project Name], [Target microcomputer], [Registration] / [Release] button (file 1-6 registration),
  [Reference] / [Quick Creation] (PBT file)

(1)Status: Editing

You can edit each item while creating the project.

(2)Status: Locked

When saving a project or loading a project (including when launching the app), if the [Target microcomputer], [PBT File], and [Register program files 1 to 6][*1] have been set, the project will transition to a locked state.

*1 One of the settings

5. Initialize the EFP-LC2 data

The EFP-LC2 can be erased by following the steps below.

I. Turn on the power while holding down the [START] switch on the EFP-LC2.
[STATUS] LED on→ [RUN] LED on
II. Confirm that the buzzer sounds repeatedly (beep beep beep) and release the [START] switch to blink the [STATUS] LED
III. [START] Press and hold the switch (for more than 2 seconds) to cause a buzzer to sound (beep beep) and automatically erase.
IV. When automatic erasure is complete, the [STATUS] LED will light up and the [RUN] LED and [ERR] LED will turn off.

6. Troubleshooting

When an error is detected, the error LED on the EFP-LC2 main unit lights up. Here are some of the errors that occur in EFP-LC2 and how to fix them

.

If the problem persists after rechecking the connection or restarting the EFP-LC2, refer to FAQ (https://www.suisei.co.jp/qa/). If this does not solve the problem, please contact us or your distributor.
For other questions, please contact us by e-mail (support@suisei.co.jp).

LED display		Causes and remedies
ERR	STATUS	
Lighting	Lighting	<PBT execution error> ● The start/end address in the program file and the PBT file may be different. ＊Except for [Quick Creation]
Lighting	flashing	< Target MCU-related errors> ● Is the power supply voltage of the target microcontroller being used within the normal range? (Refer to the hardware manual of the target microcontroller) ● Is there a mistake in the wiring between the target microcontroller and the EFP-LC2? (Refer to the separate instruction manual for each microcomputer family.) ● There is a possibility that the connector part of the EFP-LC2 is not in good contact or the target connection cable is damaged. Please review your connection. ● The communication baud rate may not match. Please review the settings, such as changing to a lower baud rate.

LED display		Causes and remedies
ERR	STATUS	
Lighting	Lights out	[Command Execution Error] ● Is there a mistake in the wiring between the target microcontroller and the EFP-LC2? (Refer to the separate instruction manual for each microcomputer family.) ● There is a possibility of poor contact between the EFP-LC2 connector and IC socket. Clean the connectors and IC sockets. ● Do you clear the data before executing the [Blank] command? ● If the lock bit is enabled and erased, erase it with the lock bit disabled.
Fast flashing	Slow flashing	[Security Feature Setting/Cancellation Error] ● Have you entered an ID code that is different from the ID code set on the EFP-LC2? Please re-enter the correct ID code (Reference 4.6 Section).

Revision Records

revision	date	Revision details
Rev.1.00	2025/06	First edition.