**SIMULINK MODELING TOOL**

EPLICS TRAINING

**Simulink Modeling Tool**

**Content**

[1. Introduction 1](#_Toc118463479)

[2. Basics features 1](#_Toc118463480)

[3. Simulink Modeling Tool Design 2](#_Toc118463481)

[4. Getting started 3](#_Toc118463482)

[4.1. Starting toolbox 3](#_Toc118463489)

[4.2. Add block 5](#_Toc118463490)

[4.3. Delete block 6](#_Toc118463491)

[4.4. Connect block 8](#_Toc118463492)

[4.5. Delete line 10](#_Toc118463493)

[4.6. Display block information 12](#_Toc118463494)

[5. Examples – Using Simulink Modeling Tool 15](#_Toc118463495)

[5.1. Add block 16](#_Toc118463501)

[5.2. Connect block 20](#_Toc118463502)

[5.3. Display block info 27](#_Toc118463503)

[5.4. Delete line 28](#_Toc118463504)

[5.5. Delete block 31](#_Toc118463505)

[6. Note 33](#_Toc118463506)

## Introduction

The Simulink Modeling Tool is used to perform basic operations in Simulink, such as adding/ deleting blocks in models, connecting blocks, deleting lines between two blocks and displaying block information.

**Advantage**

* Toolbox has interface easy-to-use for users.
* Allow users to connect or delete multiple lines at one time.
* Easy-to-read info about the block in the model.

**Disadvantages:**

* Operations that take more time than directly processing in Simulink.
* Can not adjust the position of blocks.

## Basics features

|  |  |
| --- | --- |
| **Add block** | adding any block in the library to the model by typing the block’s name. |
| **Delete block** | deleting the blocks in the current model by choosing layer contain block and block name. |
| **Connect block** | connect two blocks in the model, allow the user to select the amount of pins they want to connect at each time, and specify the pins of each block. |
| **Delete line** | delete one or multiple lines in the model by choosing the number of lines the user wants to delete and specifying the pins of each block. |
| **Display block information** | display all information about the block, such as the block type, block name, source block, destination block, and port in/out of this block. |

## Simulink Modeling Tool Design

|  |
| --- |
| Diagram  Description automatically generated |

|  |
| --- |
| Diagram  Description automatically generated |

## Getting started



### Starting toolbox

Open file "main.m" in the current folder to start using the tool. Press "F5" to run the main file.

Enter the name of your Simulink system:

|  |
| --- |
| Graphical user interface, text, application  Description automatically generated |

Mode 1: Allow user to open available models in the current folder.

|  |
| --- |
| Text  Description automatically generated |

Mode 2:Create a new Simulink model

|  |
| --- |
| Graphical user interface, application  Description automatically generated |

On the command window, you will see the list of options.

|  |
| --- |
| Graphical user interface, text, application  Description automatically generated |

### Add block

* Select Mode 1 in the main menu to start Add Block mode.

|  |
| --- |
| Graphical user interface, application  Description automatically generated |

**Mode 1:** Choose the path you want to add a block to.

|  |
| --- |
| Graphical user interface, application  Description automatically generated |

**Mode 2:** Choose mode 2 in the add block menu to add a block to the model.

|  |
| --- |
| Graphical user interface  Description automatically generated |

* Enter the block type in the library and the name you want to set for the new block.

**Note** that the program will request that the user retype the block type or block name if it isn’t correct.

**Mode 3:** Exit, back to main menu.

**Note:** Be aware of the path you want to add a block to. If the user doesn’t select Mode 1 to choose a path, the program will choose the current workspace as the default path.

### Delete block

* Choose mode 2 in the main menu to open the delete block mode.

|  |
| --- |
| Graphical user interface, application  Description automatically generated |

**Mode 1:** Allow the user to choose the path that contains the block they want to delete in the model.

|  |
| --- |
| Graphical user interface, text  Description automatically generated with medium confidence |

**Mode 2:** Allow the user to enter the name of the block they want to delete.

|  |
| --- |
| Graphical user interface, application  Description automatically generated |

**Note** that if the user types the wrong block’s name, the program will request that the user type the block’s name again until it is correctly entered.

|  |  |
| --- | --- |
| Graphical user interface, application  Description automatically generated | Graphical user interface  Description automatically generated with low confidence |

**Mode 3:** Exit.

### Connect block

* Choose mode 3 in the main menu to open the connect block mode.

**Step 1:** Choose path.

|  |
| --- |
| Graphical user interface  Description automatically generated with medium confidence |

**Step 2:** Enter the index of two blocks you want to connect following the list of block names displayed in the MATLAB command window.

|  |
| --- |
| Table  Description automatically generated |

**Step 3:** Enter the number of pins and the index of the pin output and input you want to connect for each block.

|  |
| --- |
| Table  Description automatically generated |
| Table  Description automatically generated |

**Note** that the index must not exceed the block’s total port. The user must not enter the port’s index, which is not displayed in the list of port tables. The program will request that the user retype the index until it is correct.

### Delete line

* Choose mode 4 in the main menu to open the delete line mode.

**Step 1:** Choosing path

|  |
| --- |
| Diagram  Description automatically generated |
| Graphical user interface, application  Description automatically generated with medium confidence |

**Step 2:** Enter the index of two blocks you want to connect following the list of block names displayed in the MATLAB command window.

|  |
| --- |
| Table  Description automatically generated |

**Step 3:** Enter the number of pins and the index of the pin you want to connect to for each block following the list port table.

|  |
| --- |
| Table  Description automatically generated |

**Note** that the index must not exceed the block’s total port. The user must not enter the port’s index, which is not displayed in the list of port tables. The program will request that the user retype the index until it is correct.

**Problem**: The list port table only shows which output pin and input pin were connected, not which output pin and input pin were connected together.

### Display block information

* Choose mode 5 in the main menu to open the display block information mode.

**Step 1:** Enter the block’s name. You will see the table in the Command Window.

|  |
| --- |
| A picture containing graphical user interface  Description automatically generated |
| Diagram  Description automatically generated |
| Table  Description automatically generated |
| Diagram  Description automatically generated |
| Table  Description automatically generated |

**Step 2:** Press Enter to exit.

**Note** that the program will return home if the block name is not correctly entered.

## Examples – Using Simulink Modeling Tool

**Before Starting:** make sure that you have completed these steps.

* Set path: …./Tool to <include folder>
* Split your screen into 2 section (the program and Simulink model) to achieve the highest working efficiency.

**Step 1:** Open and run file “main.m”

|  |
| --- |
| Graphical user interface, application  Description automatically generated with medium confidence |

**Step 2:** Select mode 2 to create a new model (you can choose mode 1 to open your Simulink model).

|  |
| --- |
| Graphical user interface  Description automatically generated with medium confidence |
| Graphical user interface  Description automatically generated |



### Add block

* Choose mode 1 to add new block

|  |
| --- |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface, text, application  Description automatically generated |
| * Choose mode 2 to add new blocks, and repeat those steps until you have added enough blocks. |
| A picture containing graphical user interface  Description automatically generated |
| Graphical user interface, text, application  Description automatically generated |
| Graphical user interface  Description automatically generated |
| Text  Description automatically generated with medium confidence |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface  Description automatically generated |
|  |
| * Choose mode 1 and another path to add a new block to the subsystem. |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface  Description automatically generated |
| Graphical user interface  Description automatically generated with medium confidence |
| A picture containing text  Description automatically generated |

### Connect block

* Choose mode 3 to connect two blocks

|  |
| --- |
| Graphical user interface, application  Description automatically generated |
| Graphical user interface, application, Teams  Description automatically generated |
| Table  Description automatically generated |
| Graphical user interface, application, Word  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Diagram  Description automatically generated |
| Graphical user interface, application  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Diagram  Description automatically generated |

### Display block info

|  |
| --- |
| Graphical user interface, text, application  Description automatically generated |
| Graphical user interface, application, website  Description automatically generated |
| Table  Description automatically generated |

### Delete line

* Choose mode 4 to delete line

|  |
| --- |
| Graphical user interface, text, application  Description automatically generated |
| Graphical user interface, application  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Table  Description automatically generated |
| Text  Description automatically generated with low confidence |

### Delete block

|  |
| --- |
| **Graphical user interface, text, application  Description automatically generated** |
| **Graphical user interface, application  Description automatically generated** |
| **Graphical user interface, application  Description automatically generated** |
| **Graphical user interface, application  Description automatically generated** |
| **Graphical user interface  Description automatically generated with medium confidence** |
| **Graphical user interface  Description automatically generated** |
| **Graphical user interface, text, application, email  Description automatically generated** |
| **Graphical user interface, application  Description automatically generated** |
| **Graphical user interface, application  Description automatically generated** |

## Note

* The Toolbox is created and tested with MATLAB R2017a. Suggested user use the same MATLAB version.