

# Base Operation Library Instructions

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# 1 Summary

When generating code, recommend to use the module of Base Operation Library. Base Operation Library meet the requirement of building HCU control model, base module use to building model can find in Base Operation Library, and calibration parameter have been determined, Code generation is accurate. Please use the module in Base Operation Library and Stateflow to build model.

## 2 Use Instructions

### 2.1 summary

The module in Base Operation Library mainly divided into two categories:

First is no change, include:

- 1) Sources & Sinks
- 2) Math Operations Unchanged
- 3) Discontinuities Unchanged
- 4) Discrete Unchanged
- 5) Signal Routing Unchanged
- 6) Ports &Subsystems Unchanged
- 7) Others Unchanged

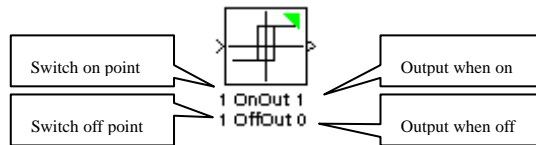
Second is change parameter and reseal, include:

- 1) Math Operations Changed
- 2) Discontinuities Changed
- 3) Logic Operations Changed
- 4) Signal Routing Changed
- 5) Lookup Tables Changed

For the First module, Model design engineer can change the internal parameters, for the second module, model design engineer can change the parameter under the Main label, but please do not change the parameter under the Signal Attributes label.

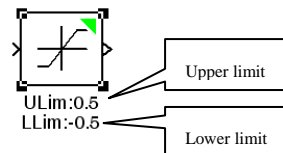
## 2.2 Part Module Instructions

### 2.2.1 Relay module



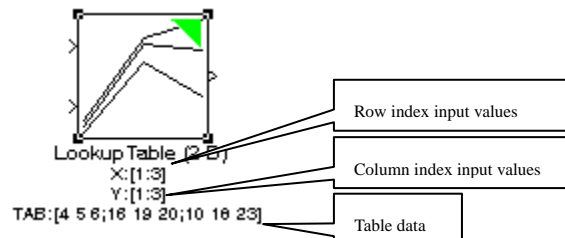
Relay module in Base Operation Library show four parameters under module, e.g. Switch on point, Switch off point, Output when on, Output when off, in order to read convenient.

### 2.2.2 Saturation module



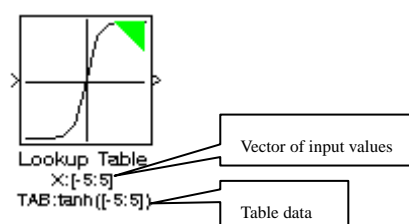
Saturation module in Base Operation Library show two parameters under module, e.g. Upper limit, Lower limit, in order to read convenient.

### 2.2.3 Lookup Table (2-D) module



Lookup Table(2-D) module in Base Operation Library show three parameters under module, e.g. Row index input values, Column index input values, Table data, in order to read convenient.

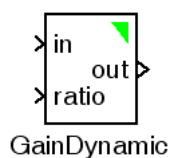
### 2.2.4 Lookup Table module



Lookup Table module in Base Operation Library show two parameters under module, e.g. Vector of input values, Table data, in order to read convenient.

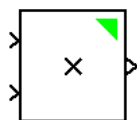
## 2.2.5 Gain Dynamic module

Gain Dynamic module in Base Operation Library can not configure parameters, The module is used for physical signal and the dynamic coefficient of multiplication, for example, Torque \* speed ratio, torque for physical signal, the ratio of coefficient of variation, e.g.



The physical signal input from the in port, coefficient input from ratio port.

Gain Dynamic module in Base Operation Library can distinguish the multiplication of physical signal and coefficient and the multiplication of two physical signals, also can distinguish the multiplication of physical signals and dynamic coefficient and the multiplication of physical signals and constant coefficients. The multiplication of two physical signals use multiplication module in Math Operations Changed, the multiplication of physical signals and constant coefficients use Gain module. This way you can guarantee the accuracy of the code generation and calibration.



## 3 Base Operation Library Load Steps

1. Put <BaseOperationLib\_Browser.mdl> 、 <slblocks.m> 、 <BaseOperationLib\_Browser.mat> , under the work path.
2. In MATLAB, do File->Set Pat->Add Folder, and then add this path, open Simulink and press F5 to refresh, then you can see <BaseOperation\_Library >under Simulink catalog.
3. Load <BaseOperationLib\_Browser.mat>to Workspace. Now, You can use the module in <BaseOperationLib\_Browser.mat>to build model.