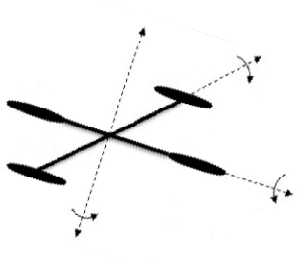
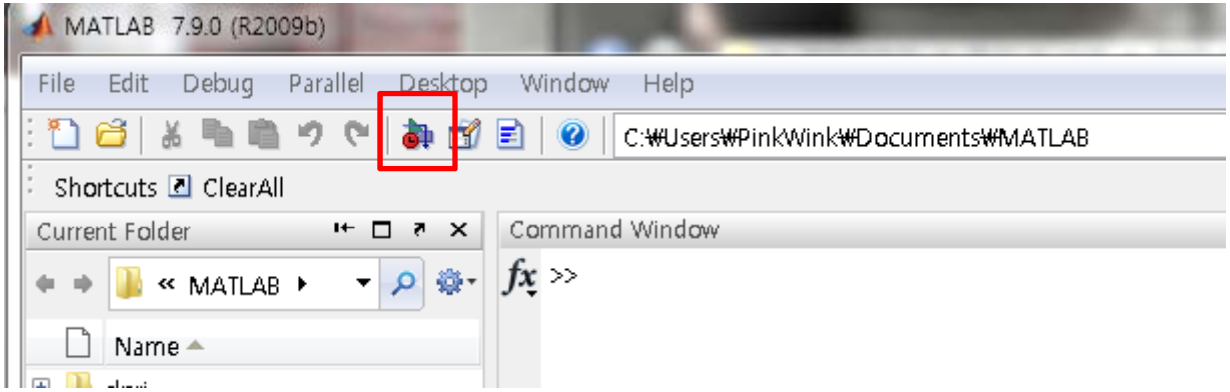
M A T L A B

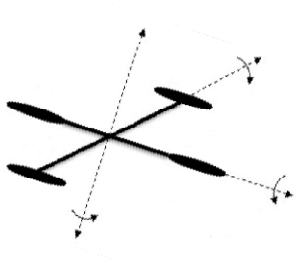
Simulink의 기초

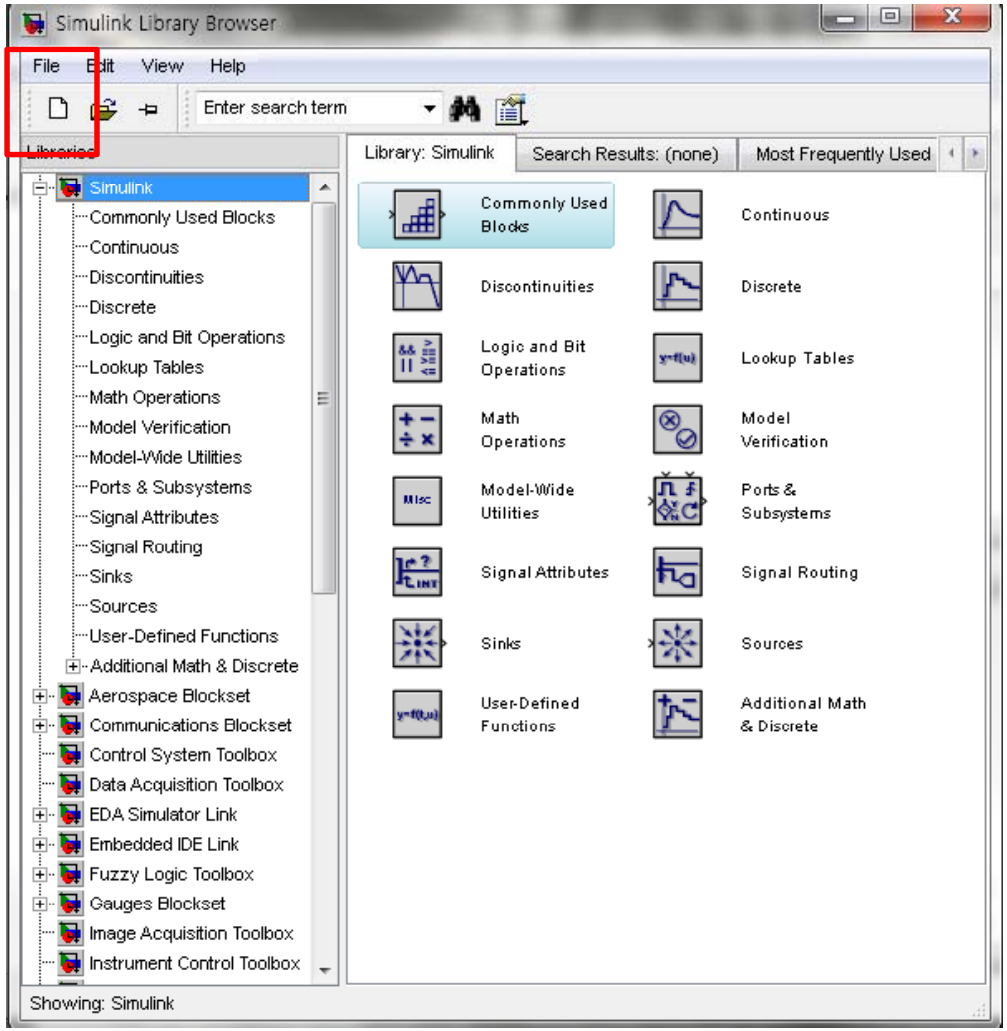


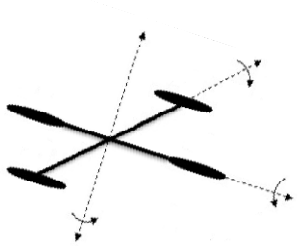
- Simulink 실행하기

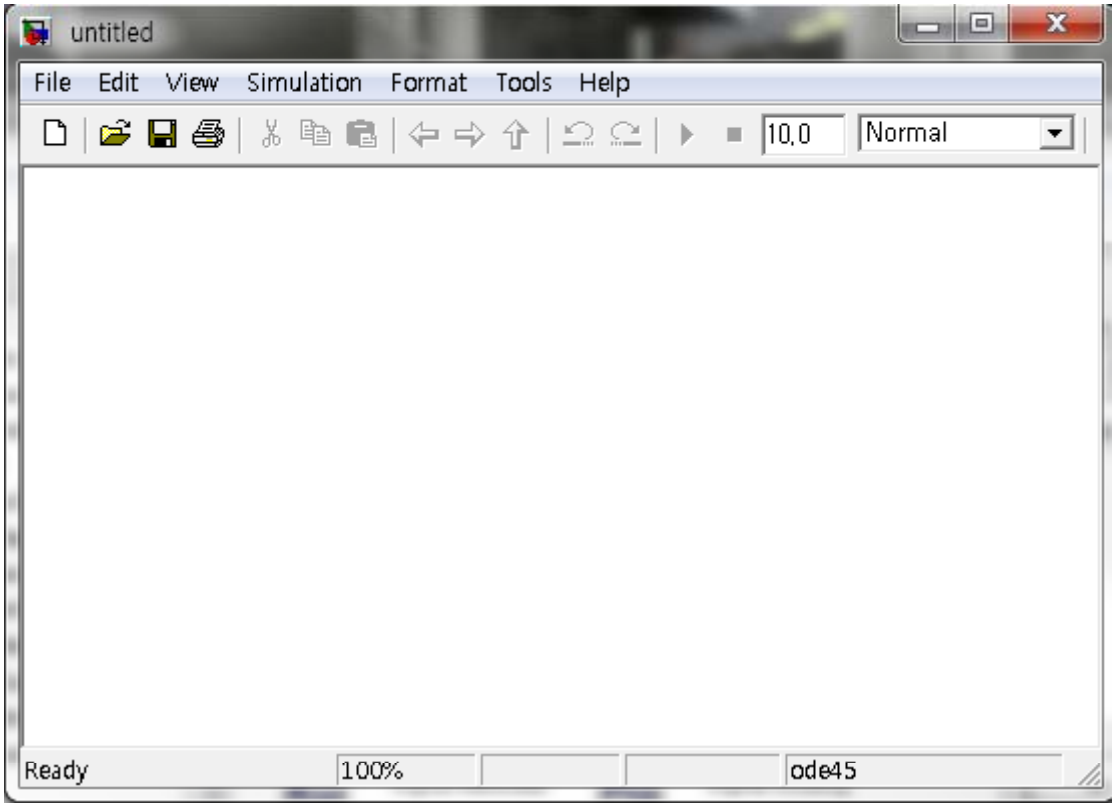


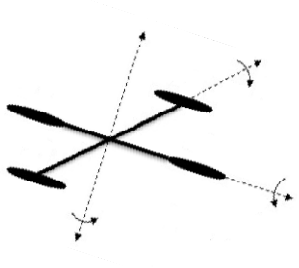

```
>> simulink
```



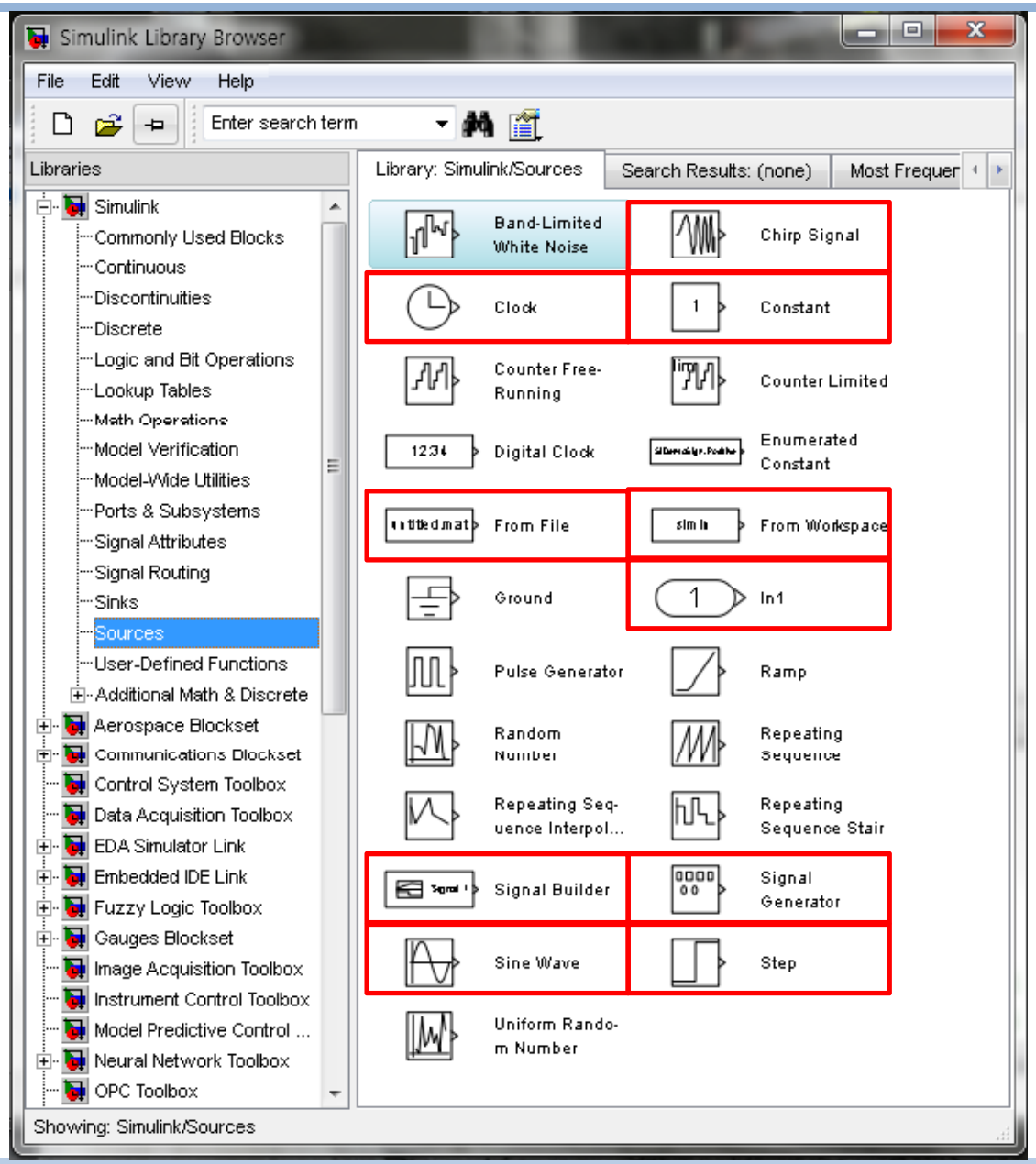

Simulink Library Browser
File
Edit
View
Help
Enter search term
Libraries
Library: Simulink
Search Results: (none)
Most Frequently Used
Simulink
Commonly Used Blocks
Continuous
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Aerospace Blockset
Communications Blockset
Control System Toolbox
Data Acquisition Toolbox
EDA Simulator Link
Embedded IDE Link
Fuzzy Logic Toolbox
Gauges Blockset
Image Acquisition Toolbox
Instrument Control Toolbox
Commonly Used Blocks
Continuous
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Showing: Simulink

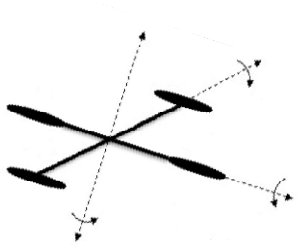



untitled
File Edit View Simulation Format Tools Help
10.0
Normal
Ready
100%
ode45

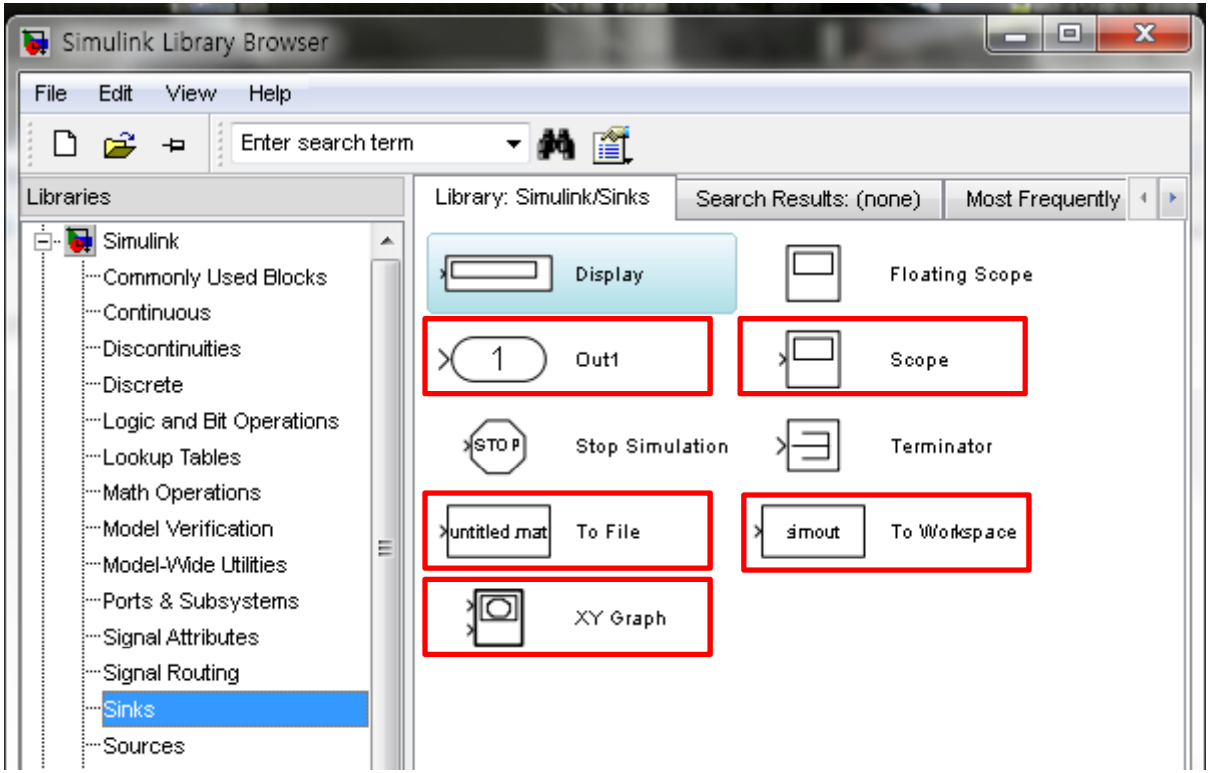


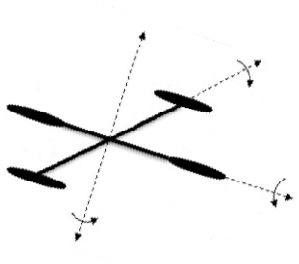
- Sources


Simulink Library Browser
File Edit View Help
Enter search term
Libraries
Simulink
Commonly Used Blocks
Continuous
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Aerospace Blockset
Communications Blockset
Control System Toolbox
Data Acquisition Toolbox
EDA Simulator Link
Embedded IDE Link
Fuzzy Logic Toolbox
Gauges Blockset
Image Acquisition Toolbox
Instrument Control Toolbox
Model Predictive Control ...
Neural Network Toolbox
OPC Toolbox
Library: Simulink/Sources
Search Results: (none)
Most Frequer
Band-Limited White Noise
Chirp Signal
Clock
Constant
Counter Free-Running
Counter Limited
1234
Digital Clock
Enumerated Constant
untitled.mat
From File
simin
From Workspace
Ground
1
In1
Pulse Generator
Ramp
Random Number
Repeating Sequence
Repeating Seq-uence Interpol...
Repeating Sequence Stair
Signal Builder
Signal Generator
Sine Wave
Step
Uniform Rando-m Number
Showing: Simulink/Sources

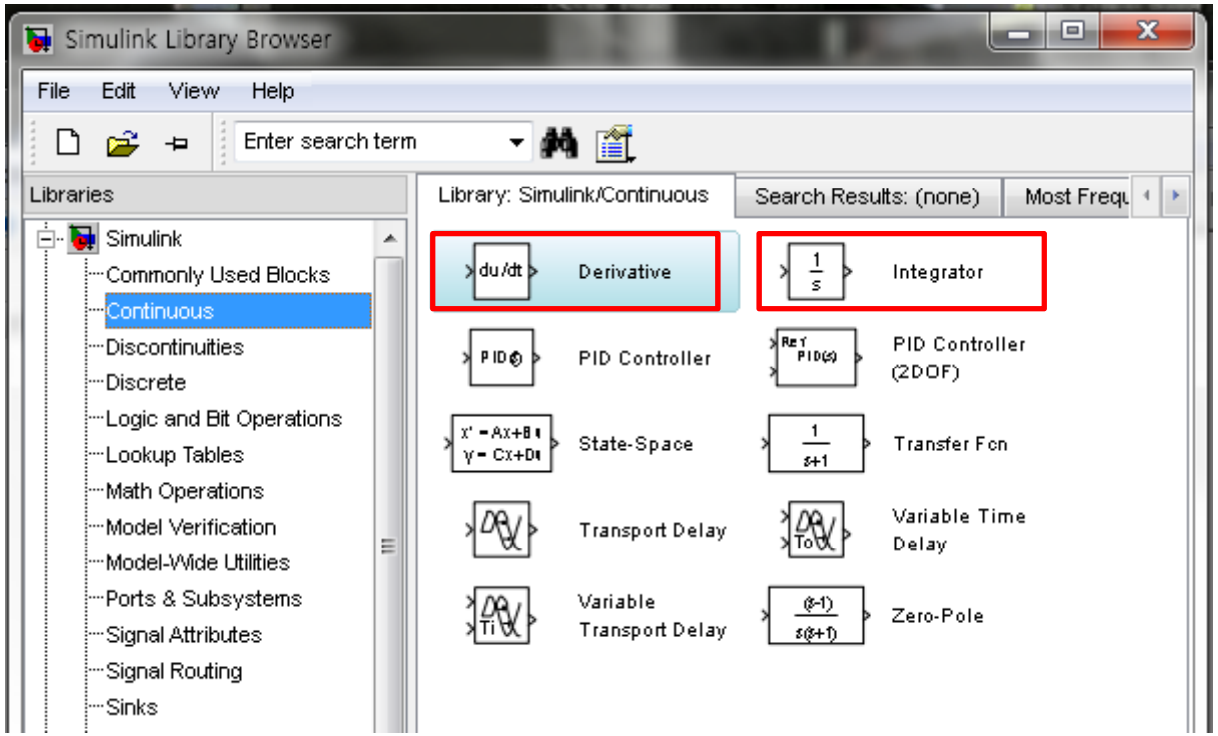


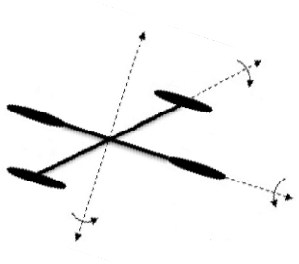
- Sinks


Simulink Library Browser
File Edit View Help
Enter search term
Libraries
Library: Simulink/Sinks
Search Results: (none)
Most Frequently
Simulink
Commonly Used Blocks
Continuous
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
Display
Floating Scope
1
Out1
Scope
STOP
Stop Simulation
Terminator
untitled.mat
To File
simout
To Workspace
XY Graph

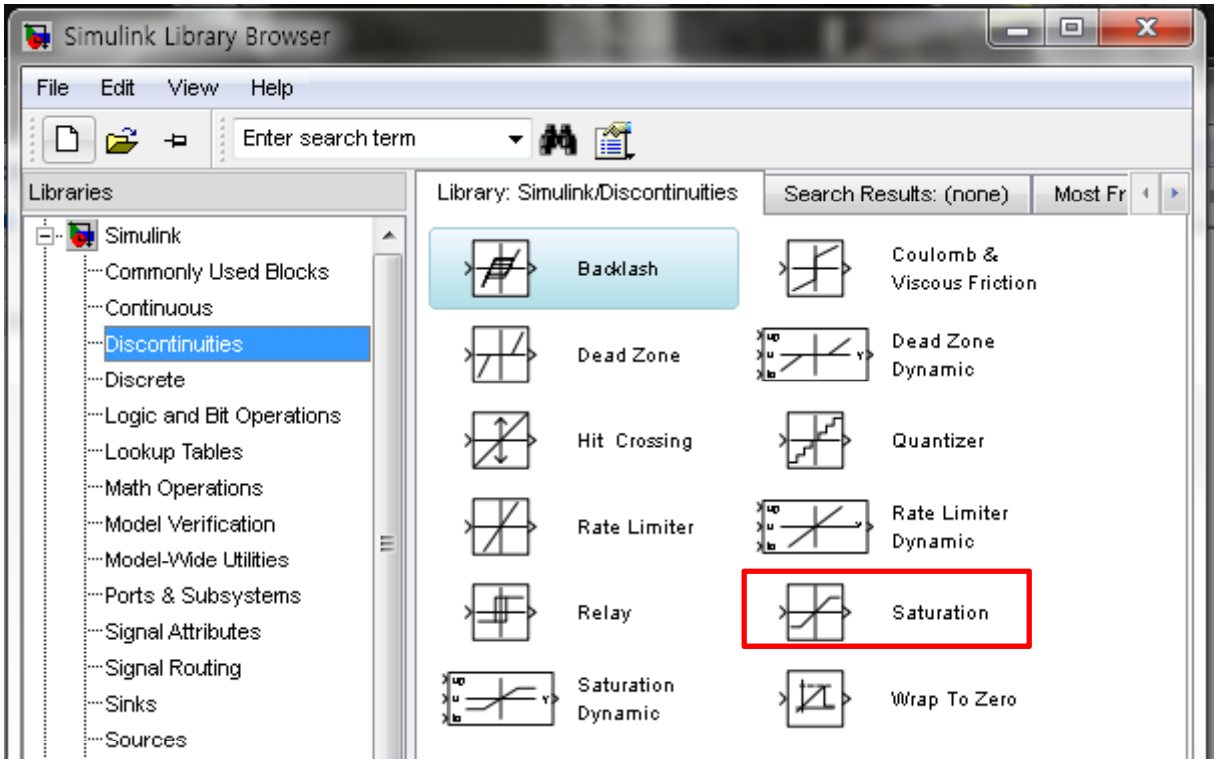


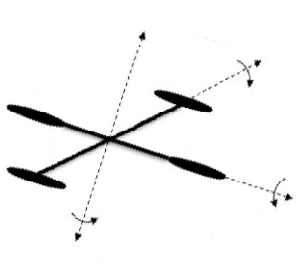
- Continuous


Simulink Library Browser
File Edit View Help
Enter search term
Libraries
Library: Simulink/Continuous
Search Results: (none)
Most Frequ
Simulink
Commonly Used Blocks
Continuous
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
du/dt
Derivative
1/s
Integrator
PID
PID Controller
PID Controller (2DOF)
State-Space
1/(s+1)
Transfer Fcn
Transport Delay
Variable Time Delay
Variable Transport Delay
Zero-Pole

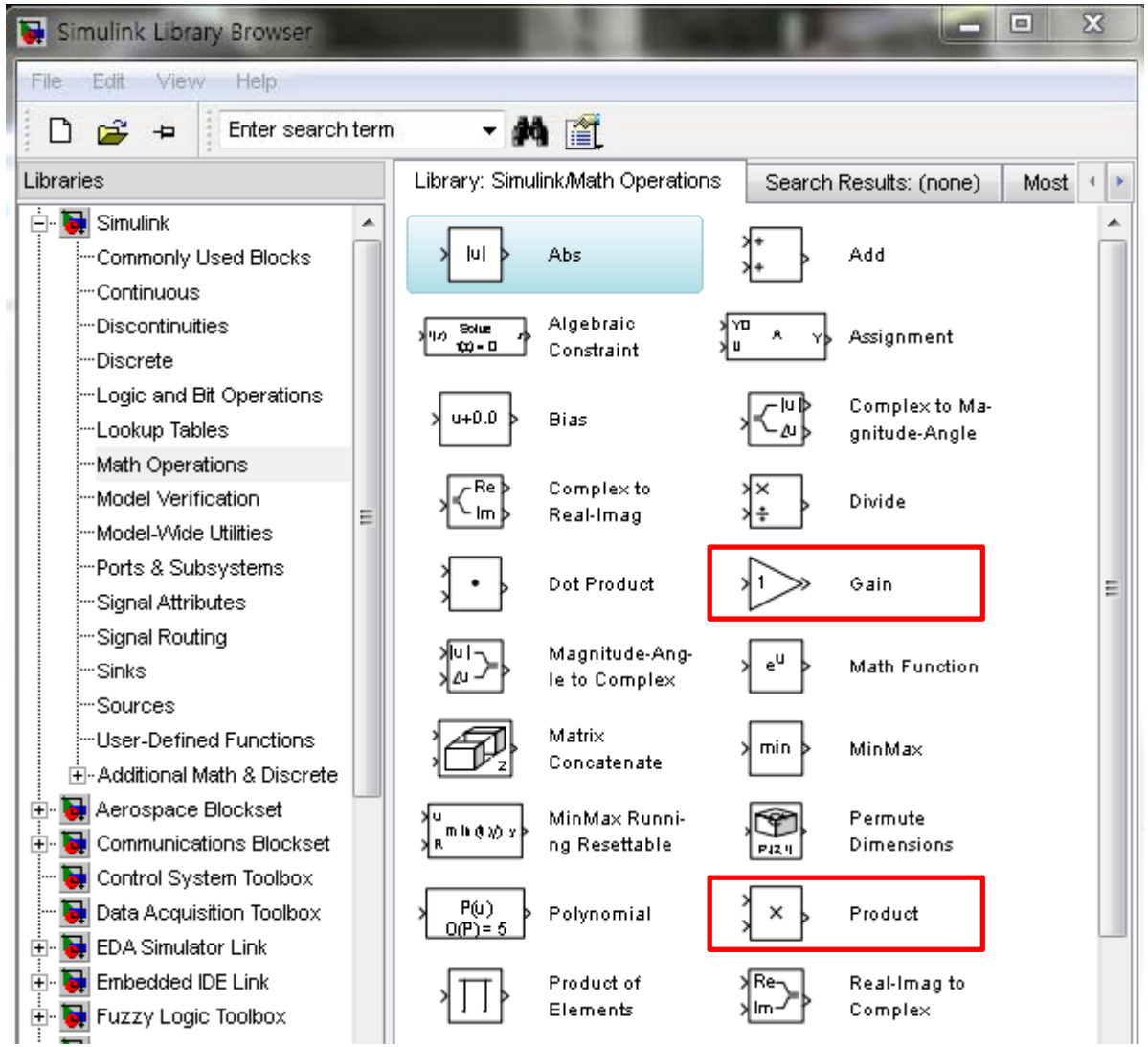


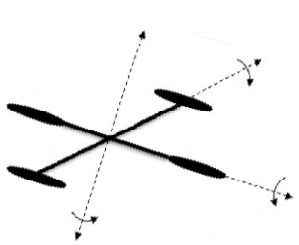
- Discontinuities

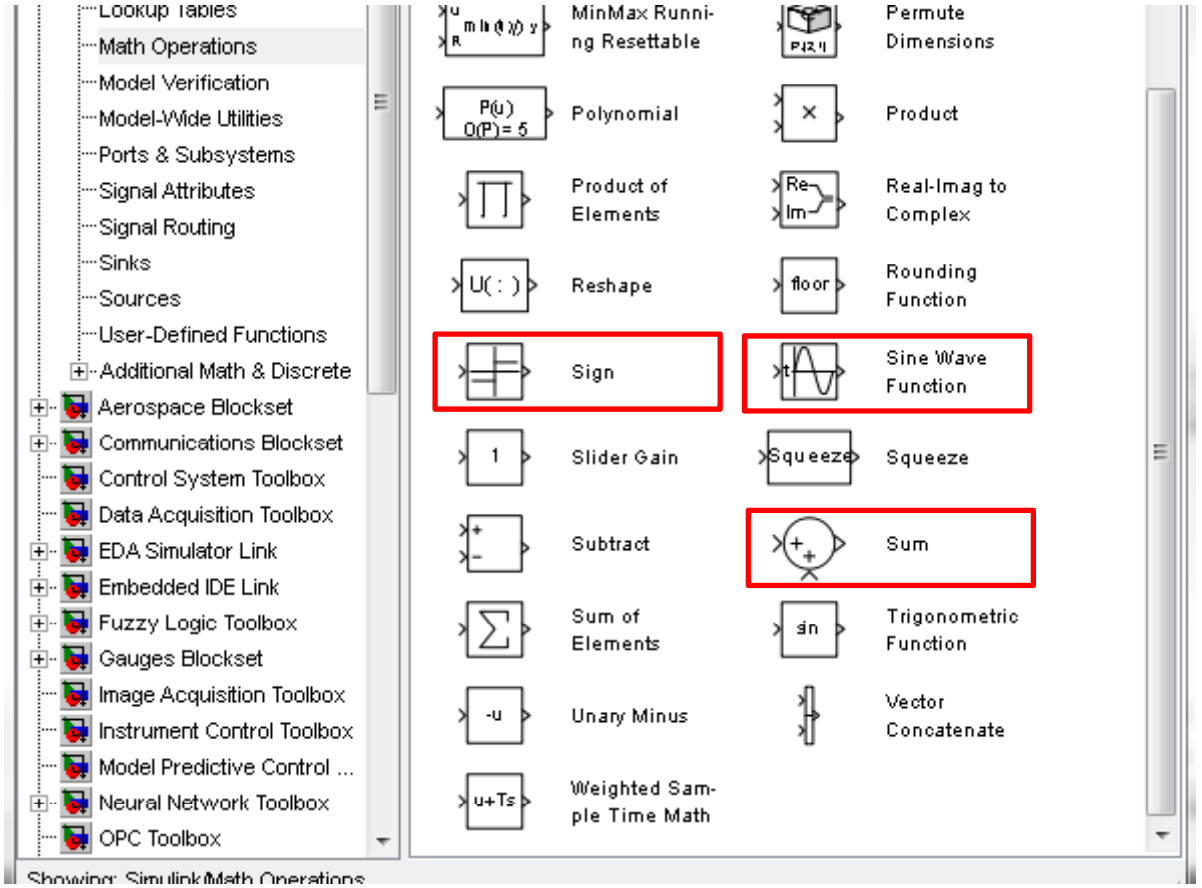


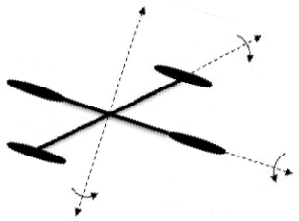


- Math Operation

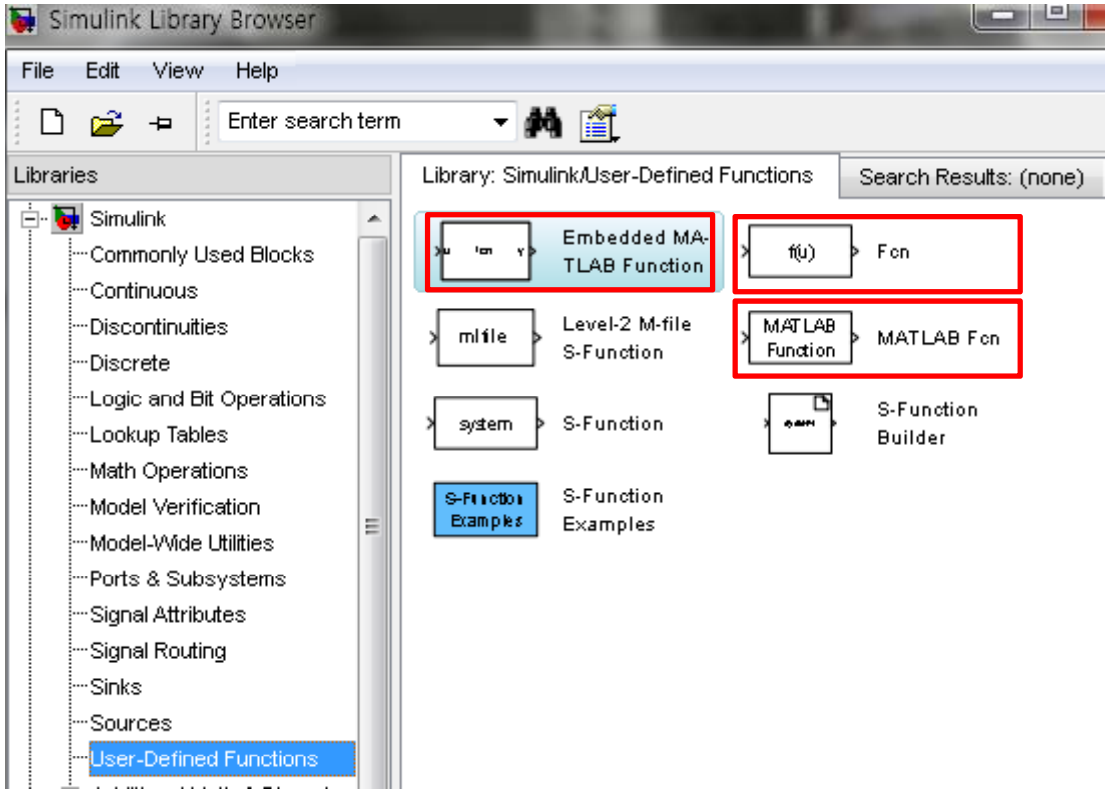


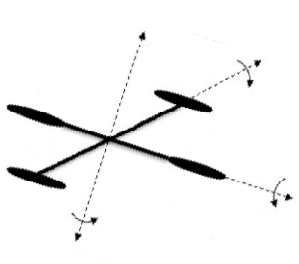



Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Aerospace Blockset
Communications Blockset
Control System Toolbox
Data Acquisition Toolbox
EDA Simulator Link
Embedded IDE Link
Fuzzy Logic Toolbox
Gauges Blockset
Image Acquisition Toolbox
Instrument Control Toolbox
Model Predictive Control ...
Neural Network Toolbox
OPC Toolbox
MinMax Runni-
ng Resettable
Permute
Dimensions
P(u)
O(P)= 5
Polynomial
Product
Product of
Elements
Re
Im
Real-Imag to
Complex
U(:)
Reshape
floor
Rounding
Function
Sign
Sine Wave
Function
1
Slider Gain
Squeeze
Squeeze
Subtract
Sum
Sum of
Elements
sin
Trigonometric
Function
-u
Unary Minus
Vector
Concatenate
u+Ts
Weighted Sam-
ple Time Math

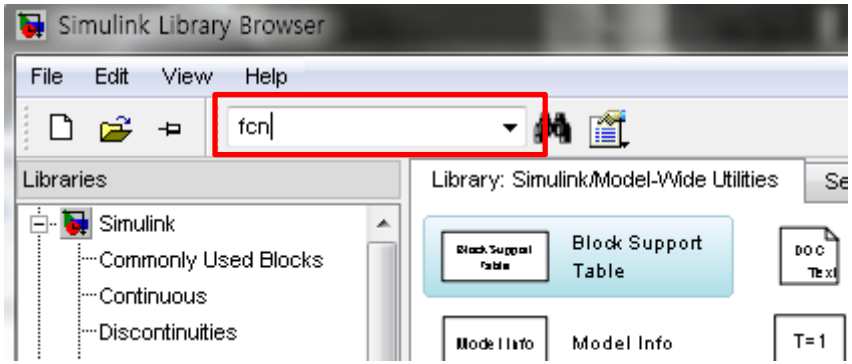


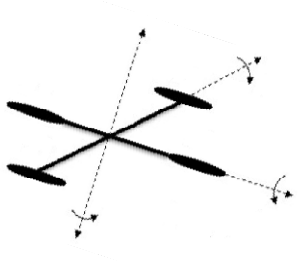
- User-Defined Fucntions

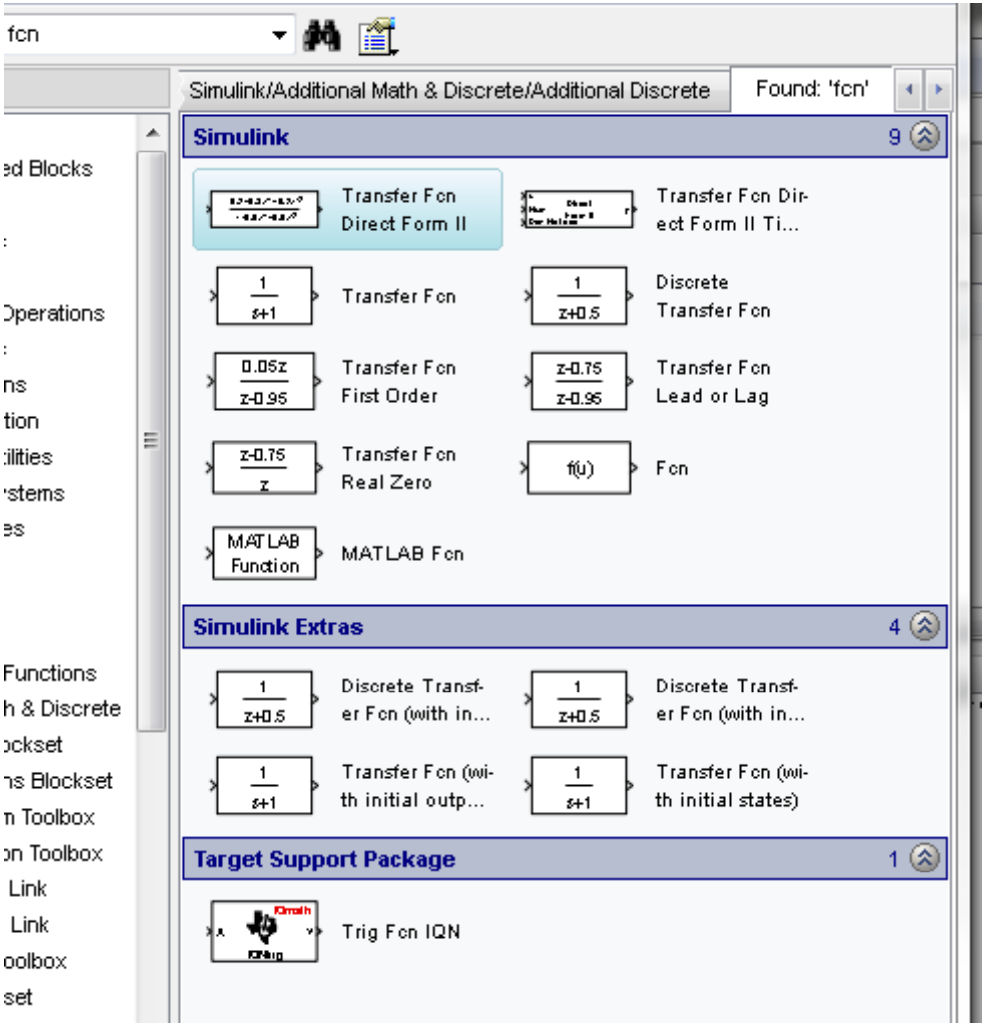


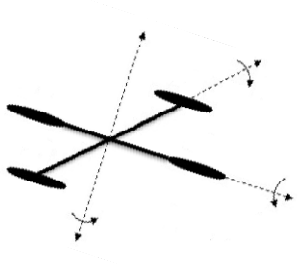


- 블록 찾기

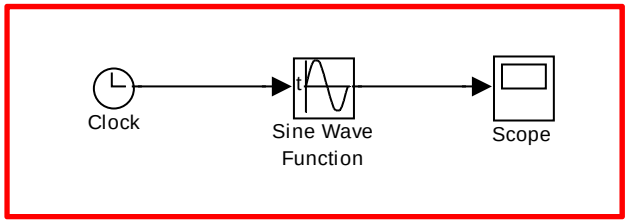

Simulink Library Browser
File
Edit
View
Help
fcn
Libraries
Simulink
Commonly Used Blocks
Continuous
Discontinuities
Library: Simulink/Model-Wide Utilities
Block Support Table
Model Info
T=1

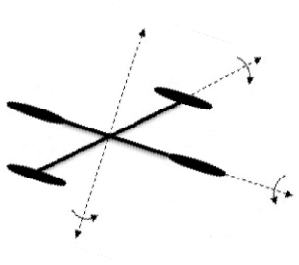


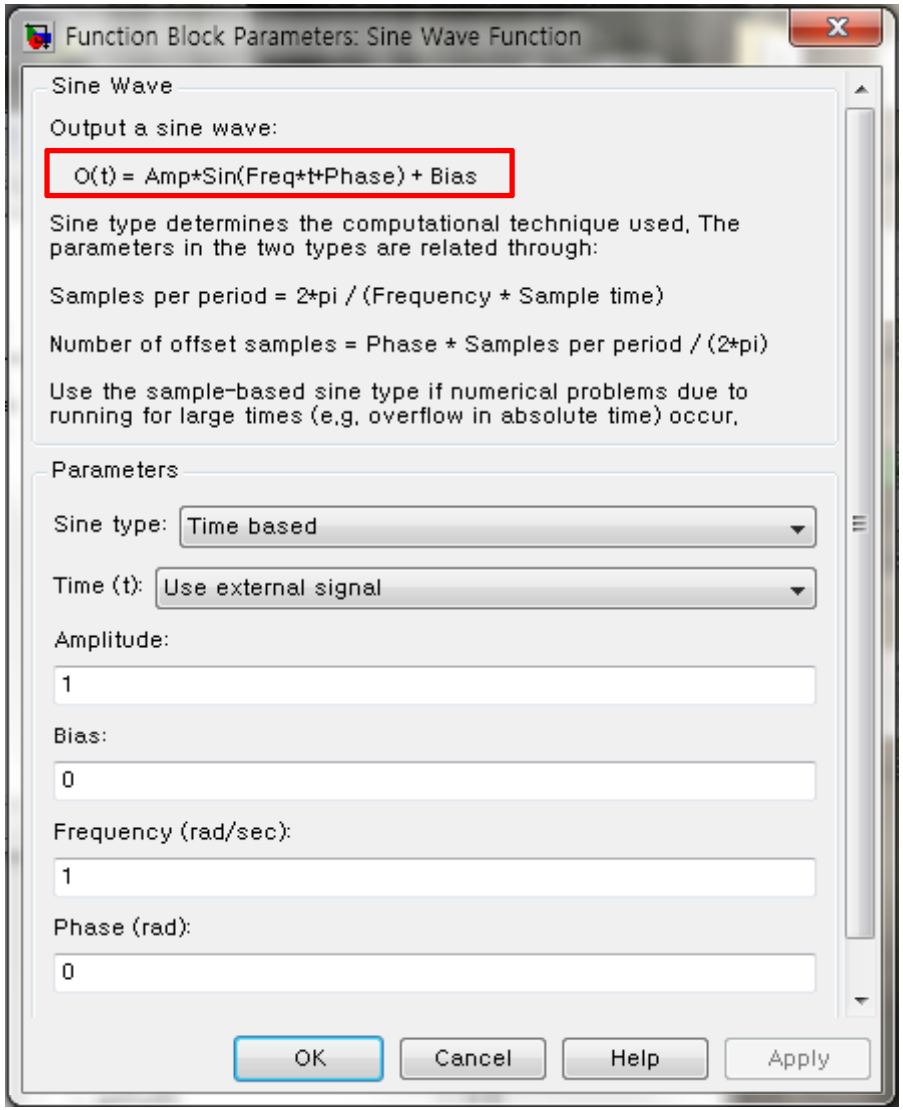

fcn
Simulink/Additional Math & Discrete/Additional Discrete
Found: 'fcn'
Simulink
9
Transfer Fcn Direct Form II
Transfer Fcn Dir- ect Form II Ti...
Transfer Fcn
Discrete Transfer Fcn
Transfer Fcn First Order
Transfer Fcn Lead or Lag
Transfer Fcn Real Zero
Fcn
MATLAB Function
MATLAB Fcn
Simulink Extras
4
Discrete Transf- er Fcn (with in...
Discrete Transf- er Fcn (with in...
Transfer Fcn (wi- th initial outp...
Transfer Fcn (wi- th initial states)
Target Support Package
1
Trig Fcn IQN

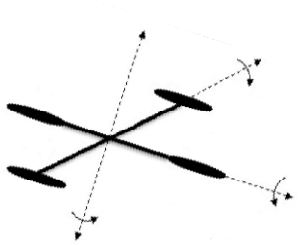


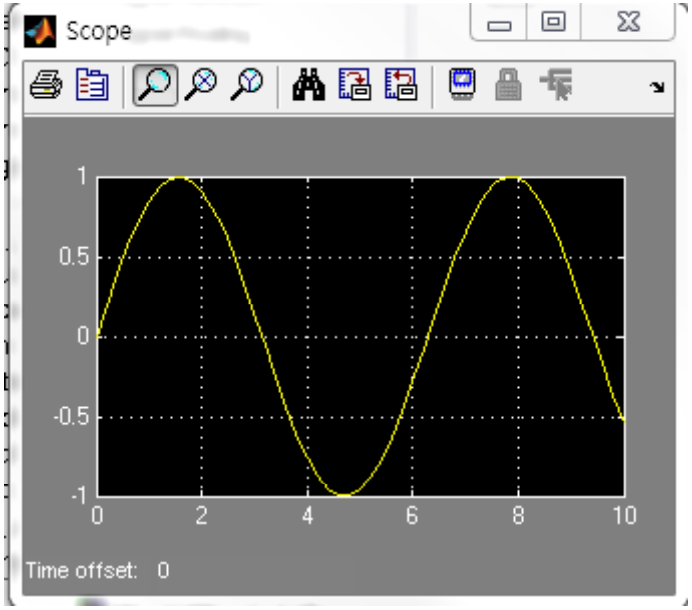
- 간단한 예제 1)

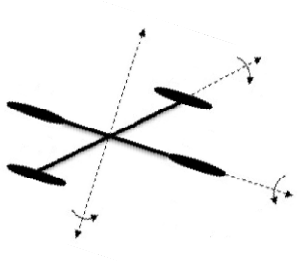


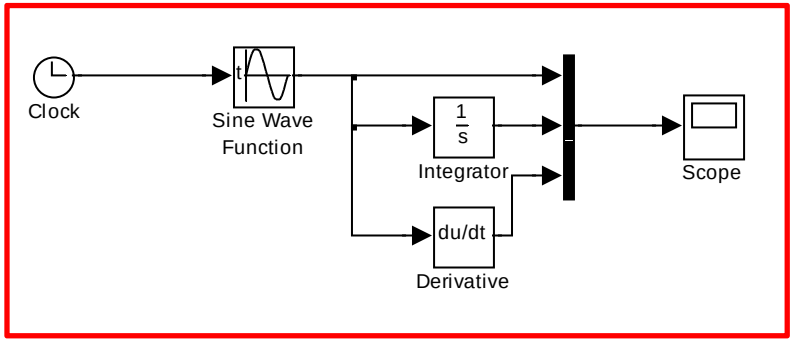


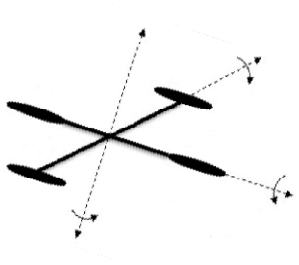

Function Block Parameters: Sine Wave Function
Sine Wave
Output a sine wave:
O(t) = Amp*Sin(Freq*t+Phase) + Bias
Sine type determines the computational technique used, The parameters in the two types are related through:
Samples per period = 2*pi / (Frequency * Sample time)
Number of offset samples = Phase * Samples per period / (2*pi)
Use the sample-based sine type if numerical problems due to running for large times (e.g, overflow in absolute time) occur,
Parameters
Sine type: Time based
Time (t): Use external signal
Amplitude:
1
Bias:
0
Frequency (rad/sec):
1
Phase (rad):
0
OK
Cancel
Help
Apply

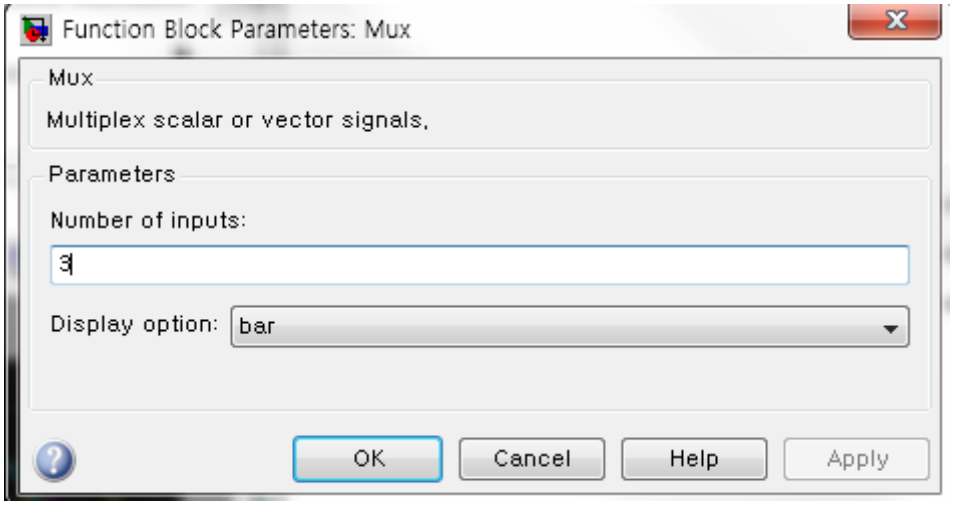


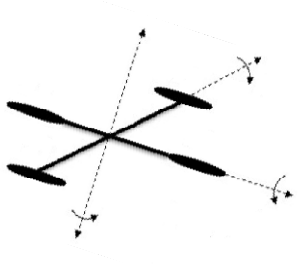

Scope
1
0.5
0
-0.5
-1
0
2
4
6
8
10
Time offset: 0

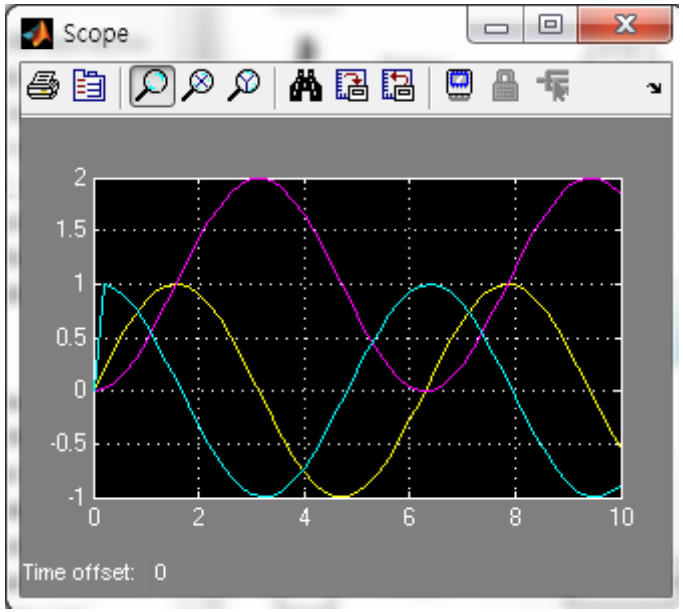



Clock
t
Sine Wave
Function
1
s
Integrator
du/dt
Derivative
Scope




Function Block Parameters: Mux
Mux
Multiplex scalar or vector signals,
Parameters
Number of inputs:
3
Display option:
bar
OK
Cancel
Help
Apply




Scope
2
1.5
1
0.5
0
-0.5
-1
0
2
4
6
8
10
Time offset: 0