How to Design Second Order Model

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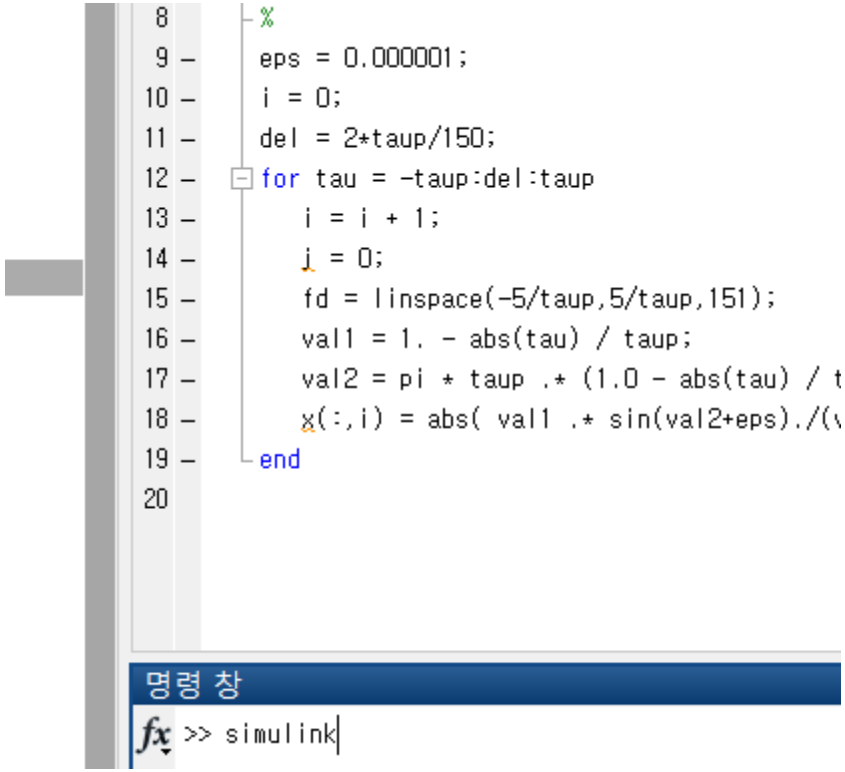
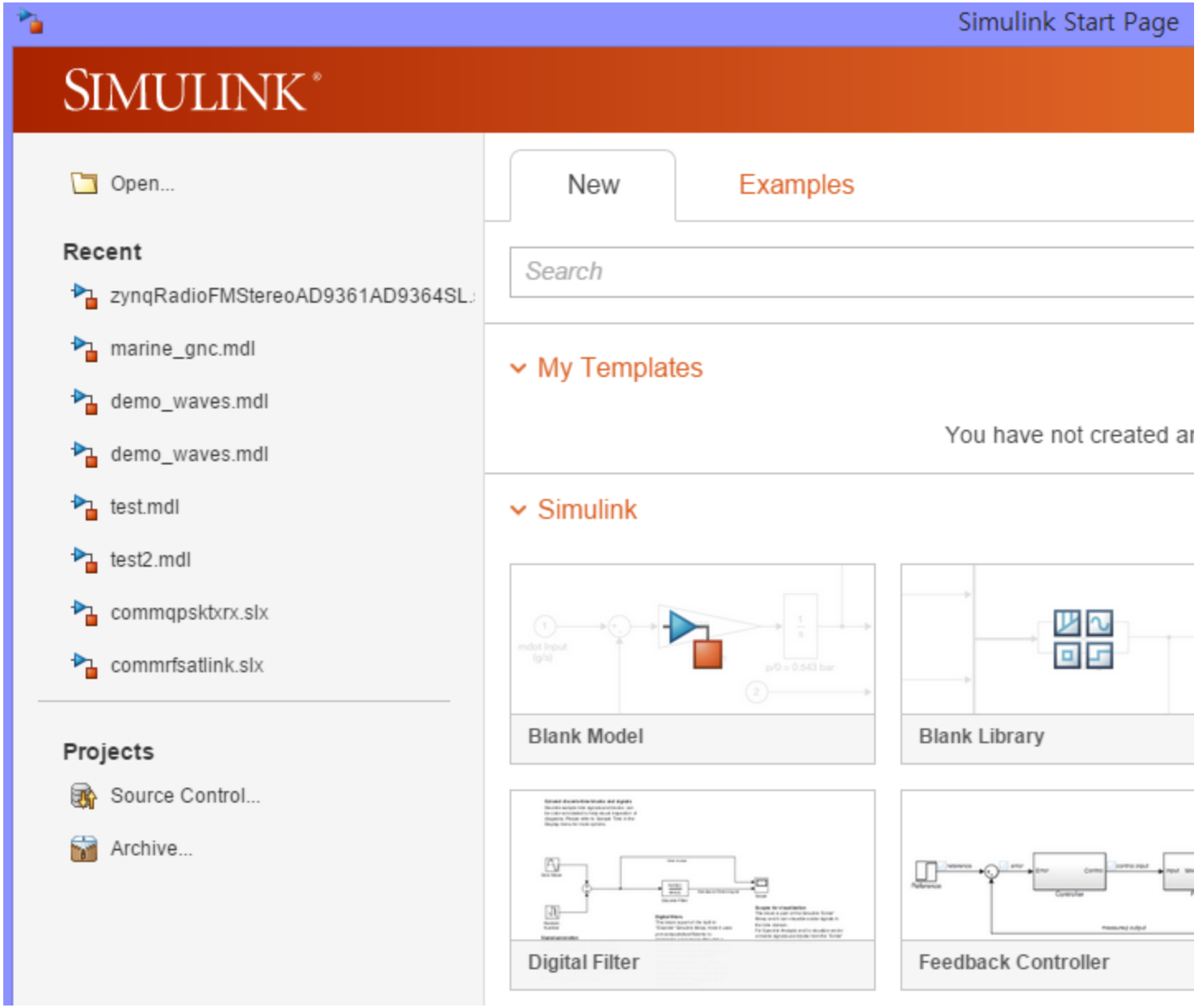

8 %
9 eps = 0.000001;
10 i = 0;
11 del = 2*taup/150;
12 for tau = -taup:del:taup
13 i = i + 1;
14 j = 0;
15 fd = linspace(-5/taup,5/taup,151);
16 val1 = 1. - abs(tau) / taup;
17 val2 = pi * taup .* (1.0 - abs(tau) / t
18 x(:,i) = abs(val1 .* sin(val2+eps)./(
19 end
20
명령 창
>> simulink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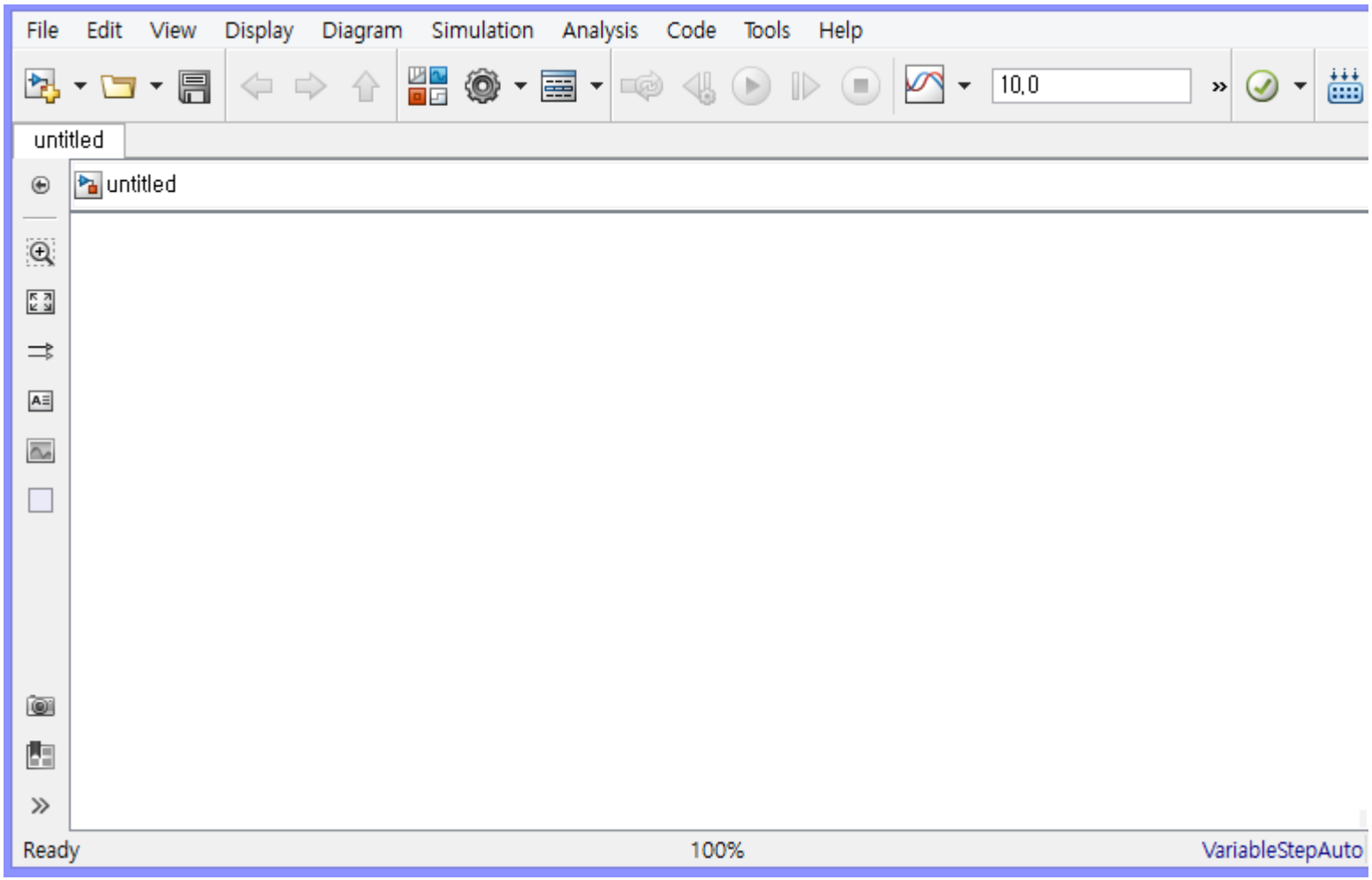
File
Edit
View
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Diagram
Simulation
Analysis
Code
Tools
Help
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Ready
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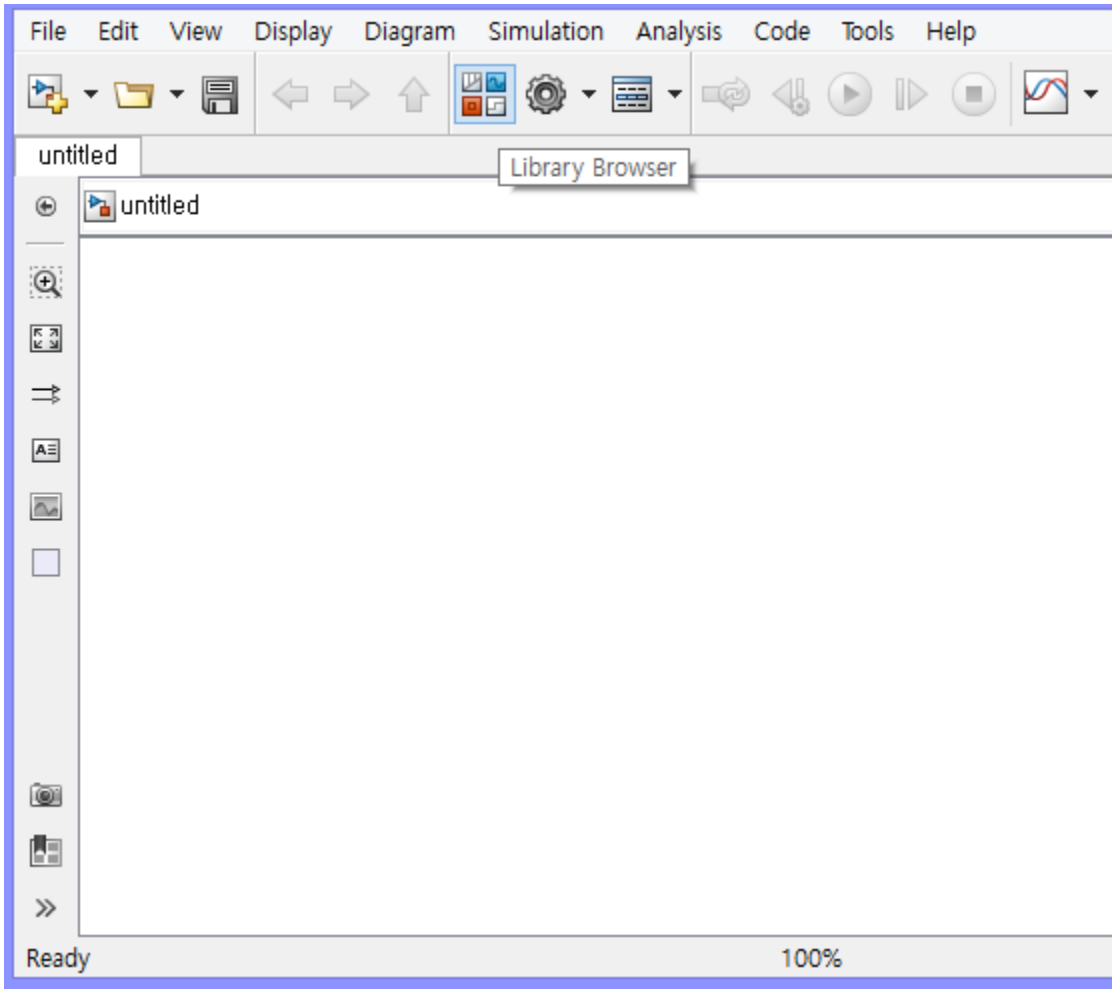
VariableStepAuto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Workspace

Aerospace Blockset/Flight Instruments

- Simulink
  - Commonly Used Blocks
  - Continuous
  - Dashboard
  - 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
  - Actuators
  - Aerodynamics
  - Animation
  - Environment
  - Equations of Motion
  - Flight Parameters
  - Flight Instruments
  - GNC
  - Mass Properties
  - Pilot Models
  - Propulsion
  - Utilities
- Audio System Toolbox
  - Dynamic Range Control
  - Effects
  - Filters
  - Sinks
  - Sources
- Communications System Toolbox
  - Channels
  - Comm Filters
  - Comm Sinks
  - Comm Sources
  - Equalizers
  - Error Detection and Correction

Airspeed Indicator

Altimeter


Artificial Horizon

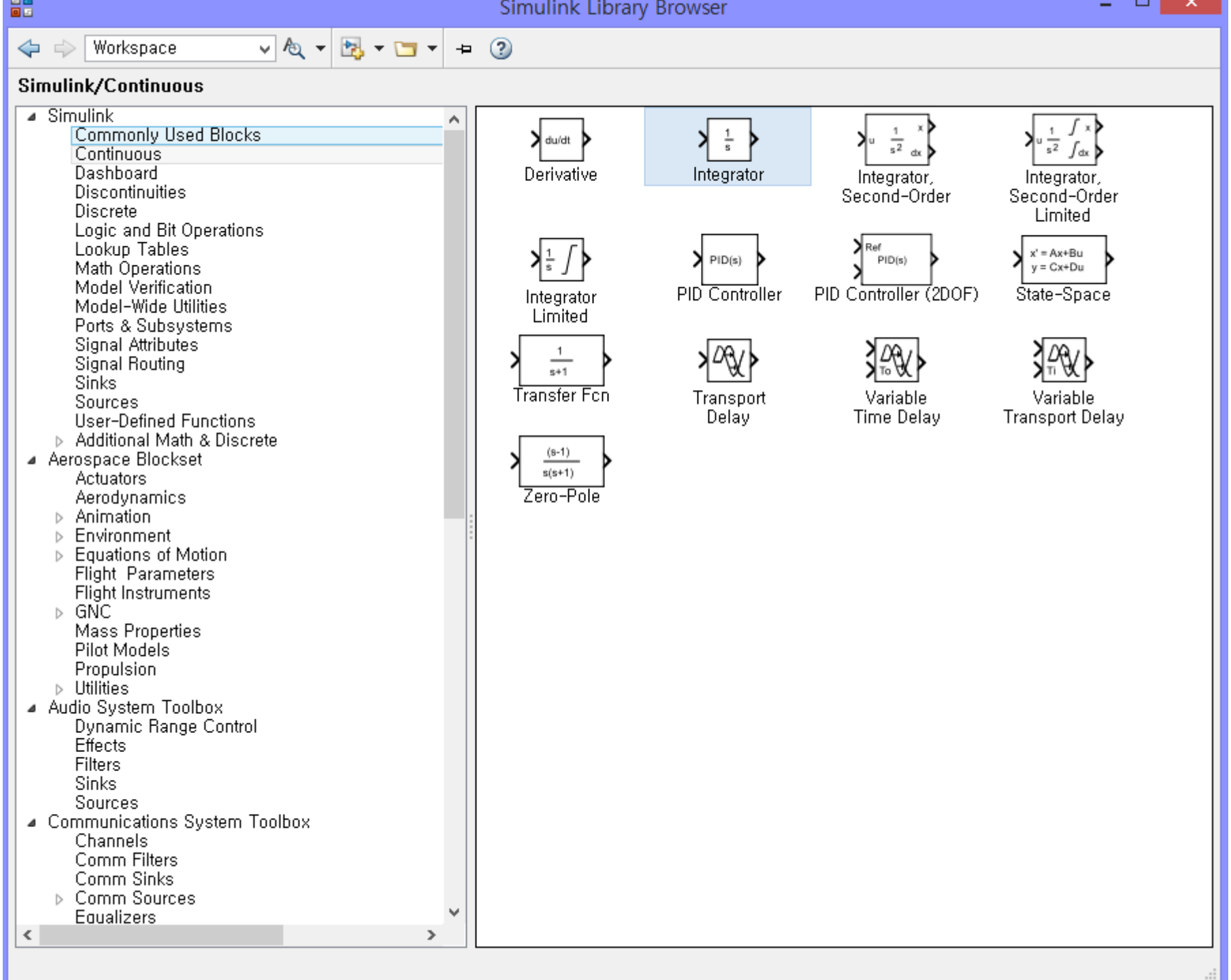
Climb Rate Indicator

EGT Indicator


Heading Indicator

RPM Indicator

Turn Coordinator


Simulink Library Browser
Workspace
Simulink/Continuous
Simulink
Commonly Used Blocks
Continuous
Dashboard
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Discrete
Logic and Bit Operations
Lookup Tables
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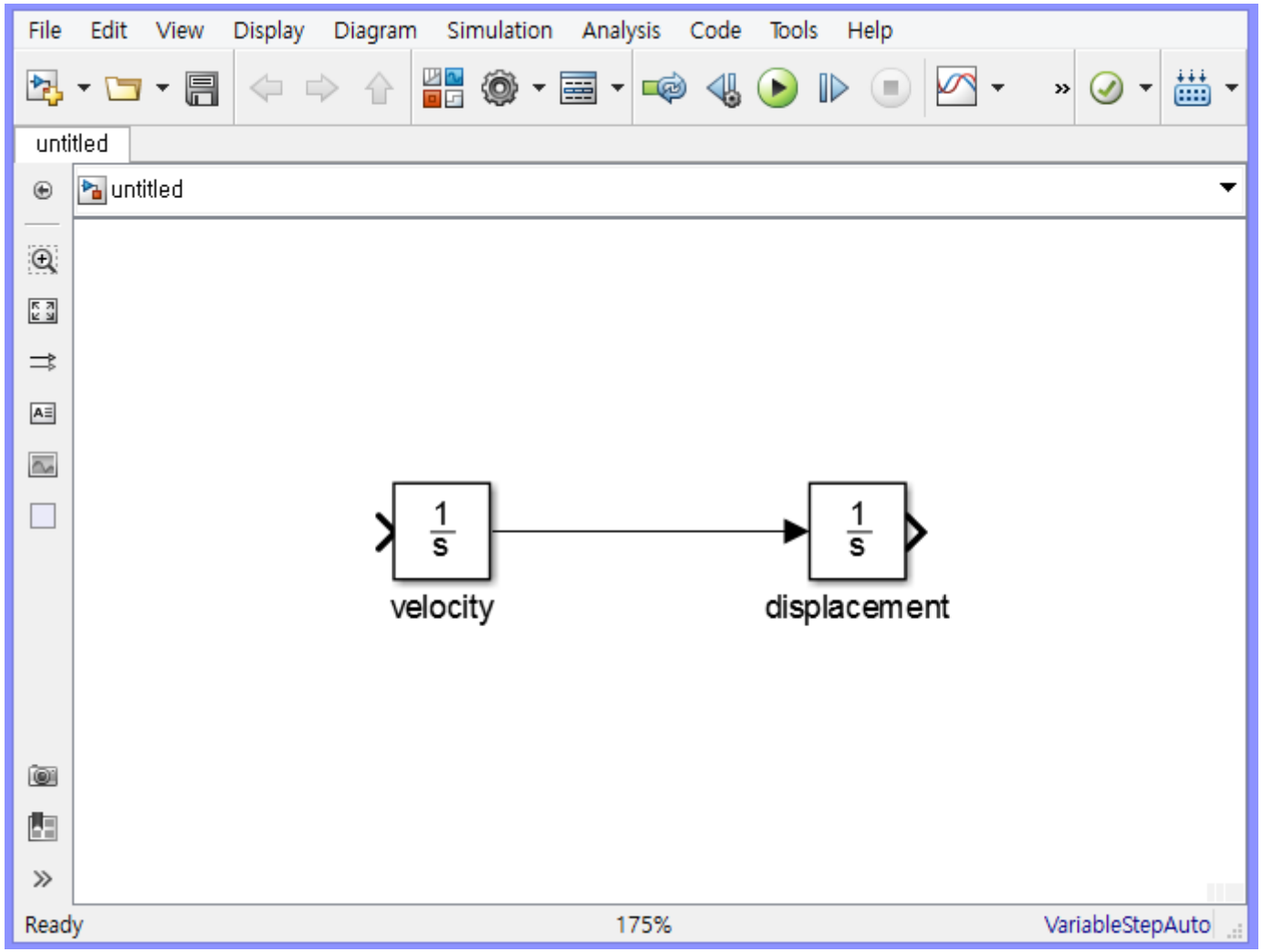
Audio System Toolbox
Dynamic Range Control
Effects
Filters
Sinks
Sources
Communications System Toolbox
Channels
Comm Filters
Comm Sinks
Comm Sources
Equalizers
Derivative
Integrator
Integrator, Second-Order
Integrator, Second-Order Limited
Integrator Limited
PID Controller
PID Controller (2DOF)
State-Space
Transfer Fcn
Transport Delay
Variable Time Delay
Variable Transport Delay
Zero-Pole


File Edit View Display Diagram Simulation Analysis Code Tools Help
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velocity
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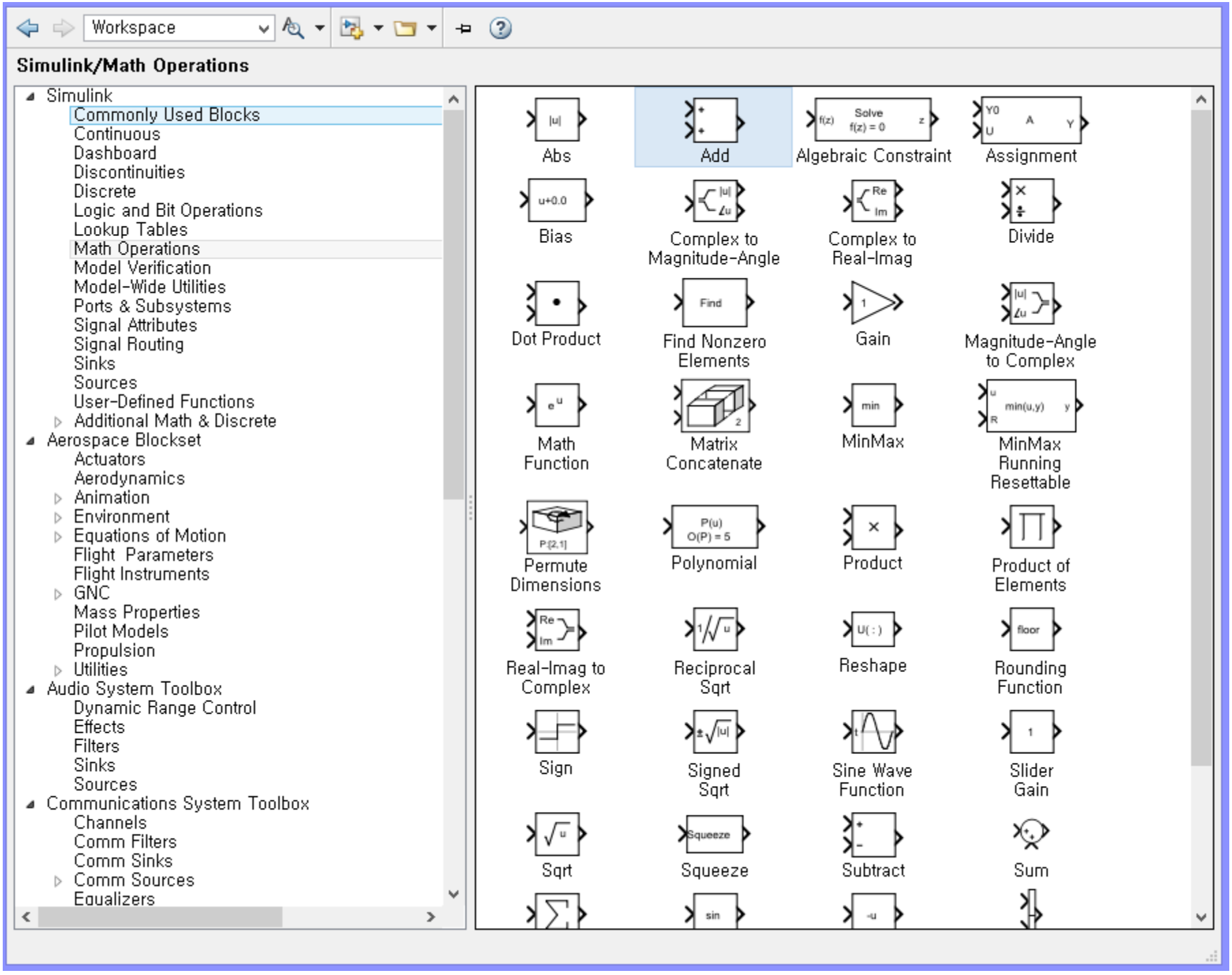
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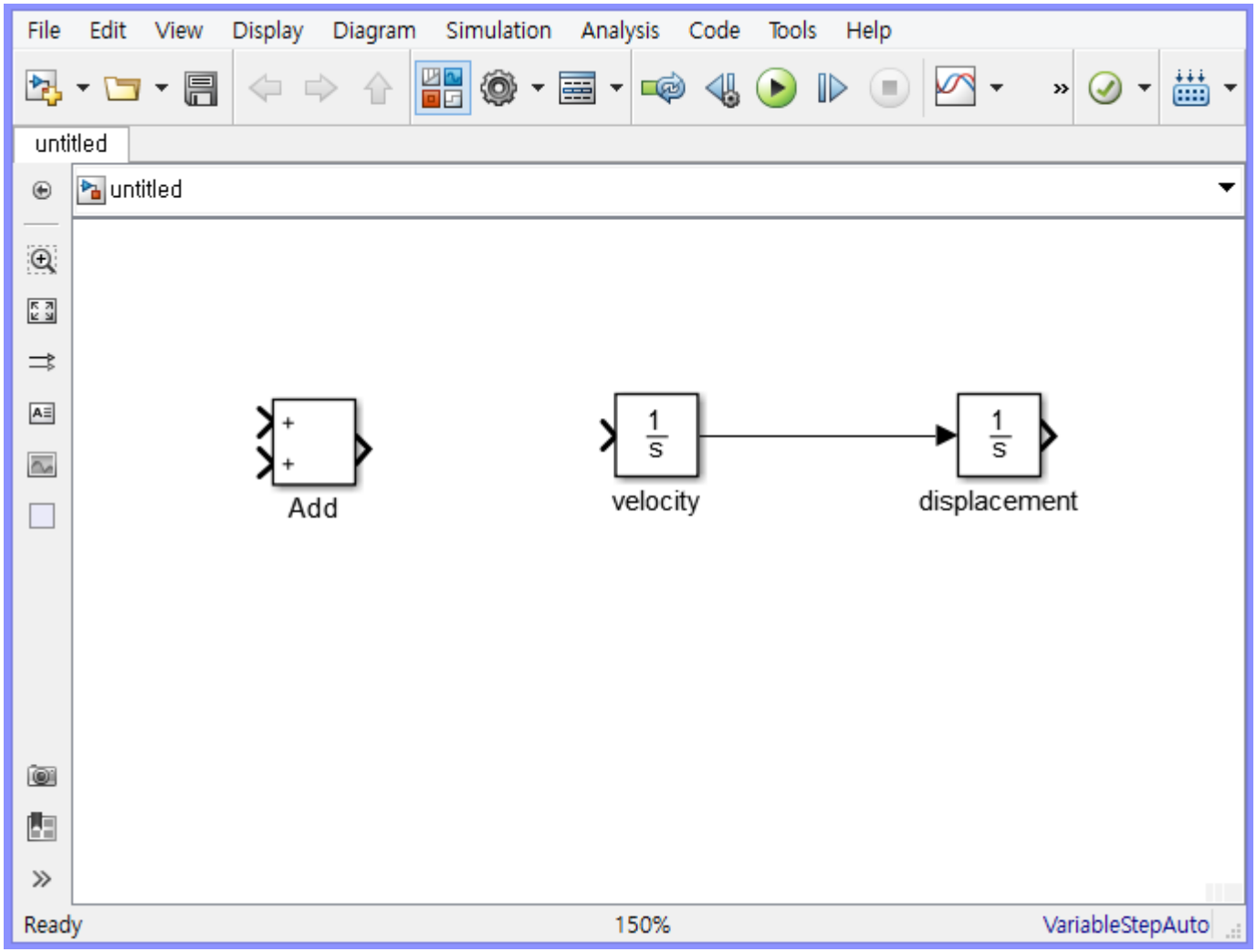
Channels
Comm Filters
Comm Sinks
Comm Sources
Equalizers
Abs
Add
Algebraic Constraint
Assignment
Bias
Complex to Magnitude-Angle
Complex to Real-Imag
Divide
Dot Product
Find Nonzero Elements
Gain
Magnitude-Angle to Complex
Math Function
Matrix Concatenate
MinMax
MinMax Running Resettable
Permute Dimensions
Polynomial
Product
Product of Elements
Real-Imag to Complex
Reciprocal Sqrt
Reshape
Rounding Function
Sign
Signed Sqrt
Sine Wave Function
Slider Gain
Sqrt
Squeeze
Subtract
Sum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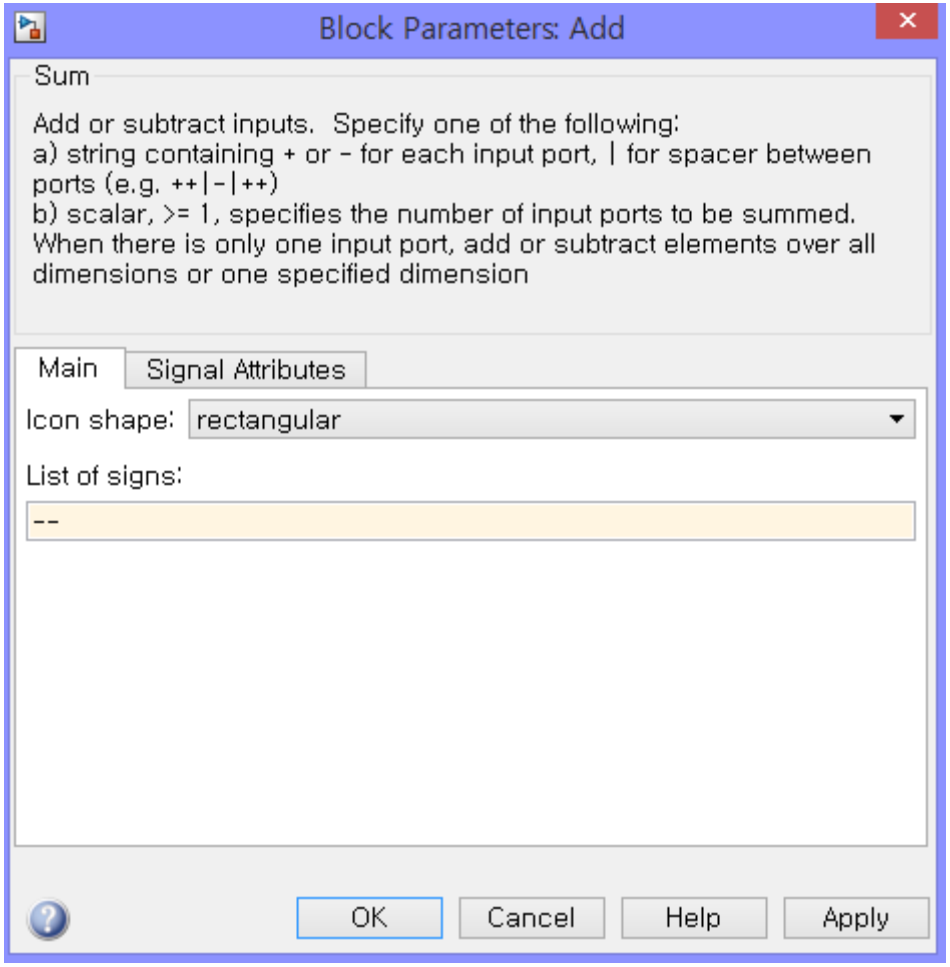
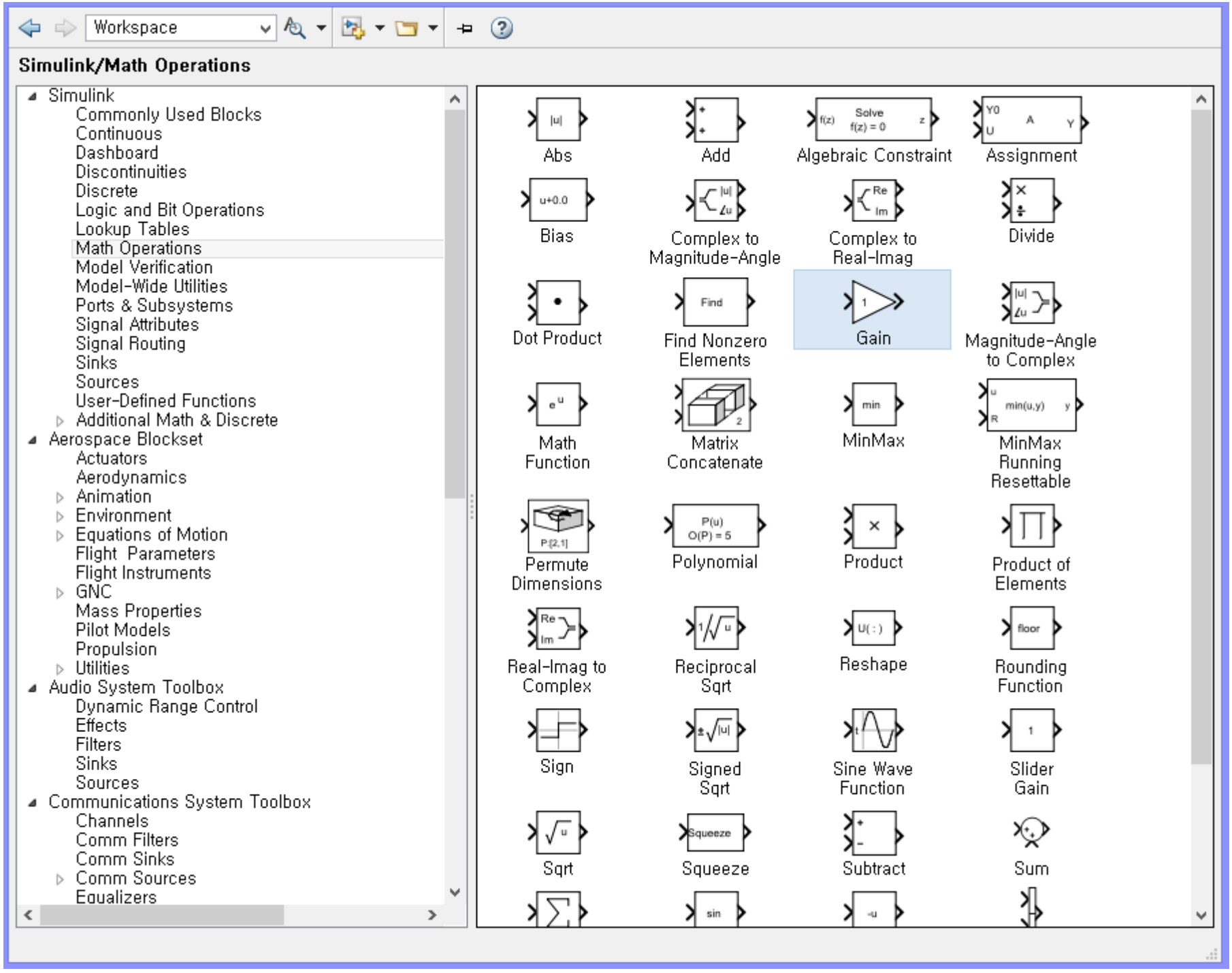

Block Parameters: Add
Sum
Add or subtract inputs. Specify one of the following:
a) string containing + or - for each input port, | for spacer between ports (e.g. ++|-|++)
b) scalar, >= 1, specifies the number of input ports to be summed.
When there is only one input port, add or subtract elements over all dimensions or one specified dimension
Main
Signal Attributes
Icon shape:
rectangular
List of signs:
--
OK
Cancel
Help
Apply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MinMax Running Resettable
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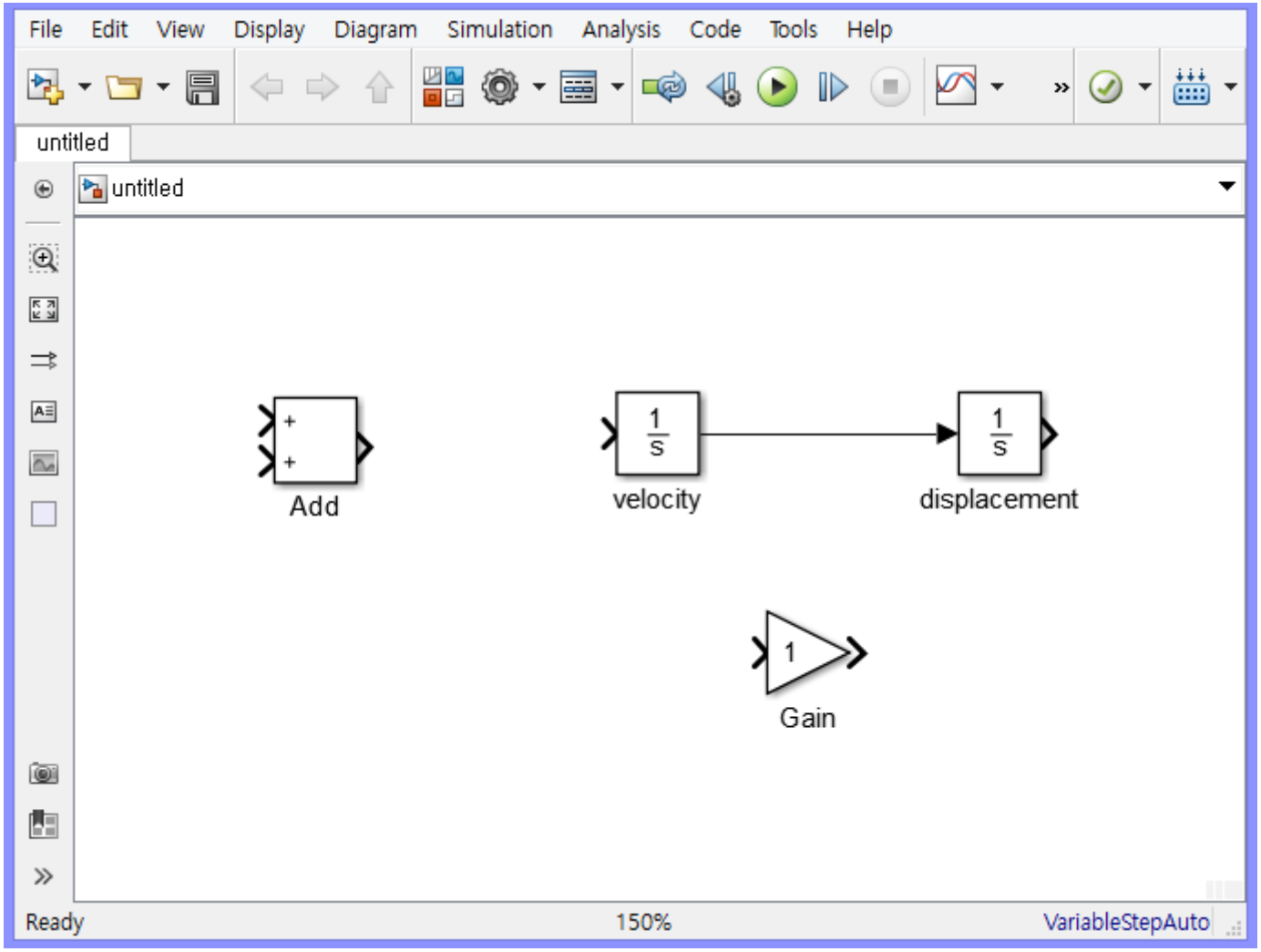
Product
Product of Elements
Real-Imag to Complex
Reciprocal Sqrt
Reshape
Rounding Function
Sign
Signed Sqrt
Sine Wave Function
Slider Gain
Sqrt
Squeeze
Subtract
Sum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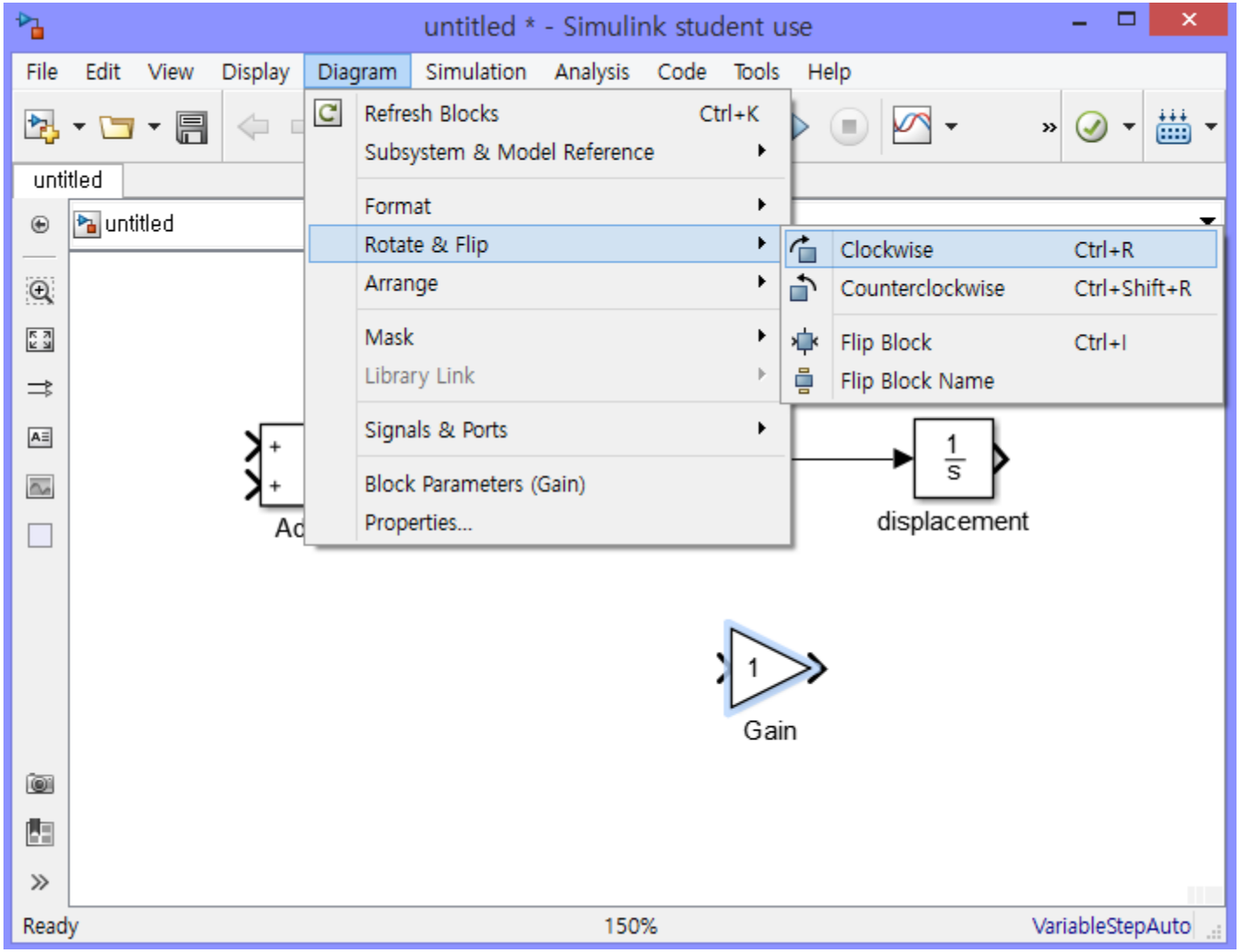
Add
1
s
velocity
1
s
displacement
1
Gain
Ready
150%
VariableStepAuto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Help
Refresh Blocks Ctrl+K
Subsystem & Model Reference
Format
Rotate & Flip
Arrange
Mask
Library Link
Signals & Ports
Block Parameters (Gain)
Properties...
Clockwise Ctrl+R
Counterclockwise Ctrl+Shift+R
Flip Block Ctrl+I
Flip Block Name
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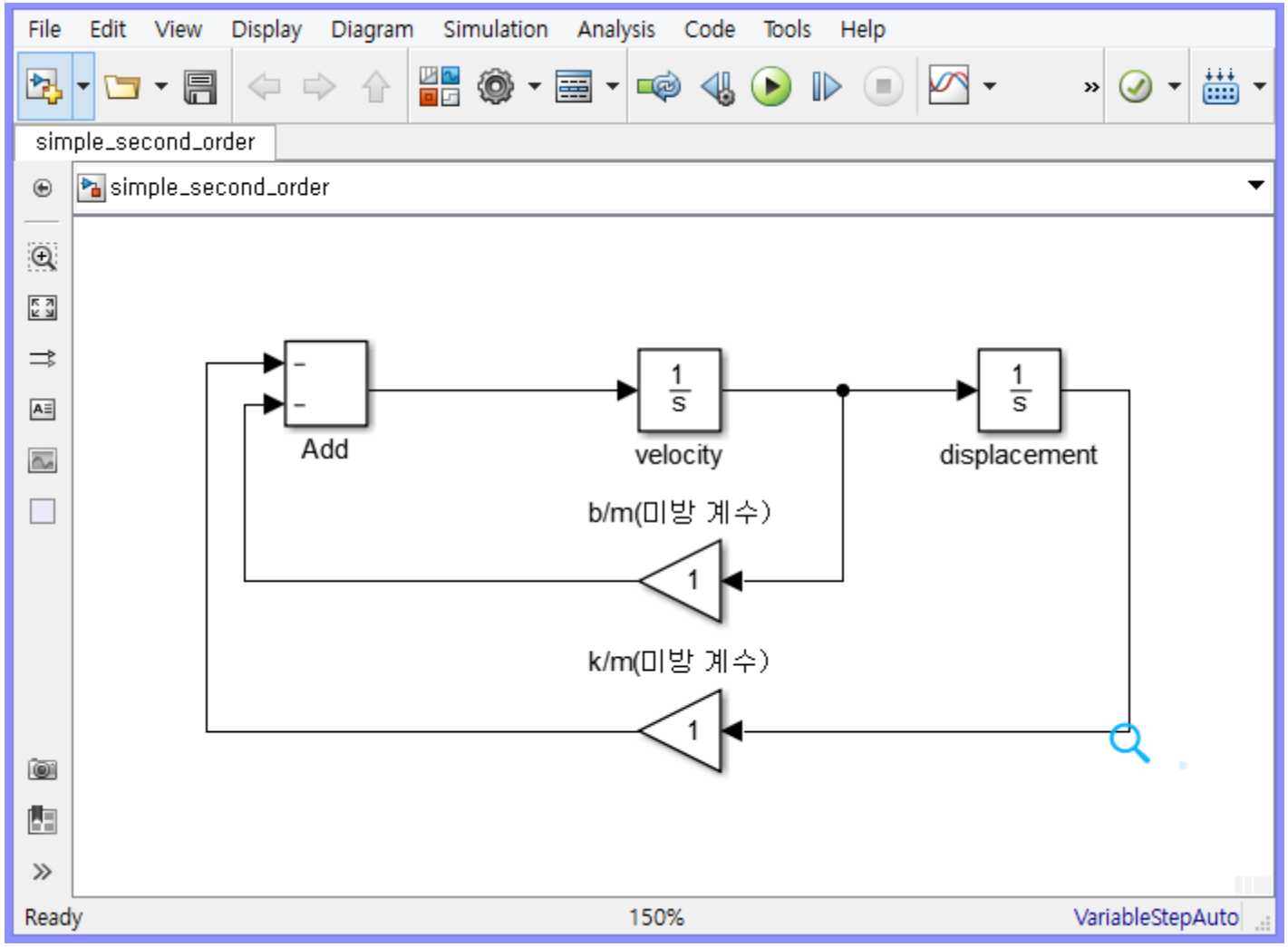
displacement
Gain
Ready
150%
VariableStepAuto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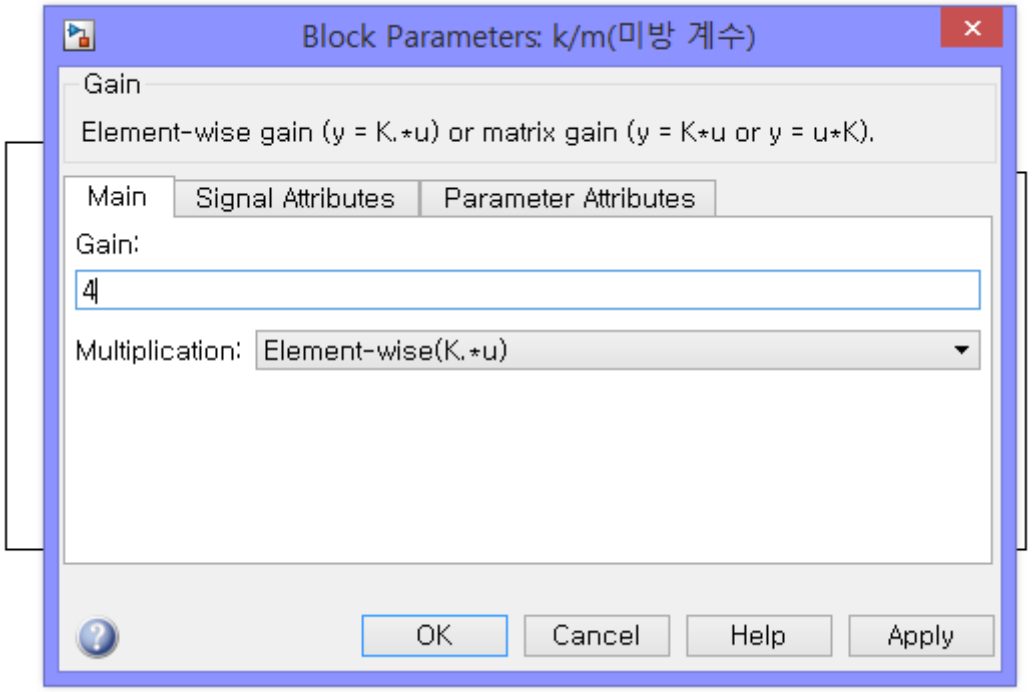
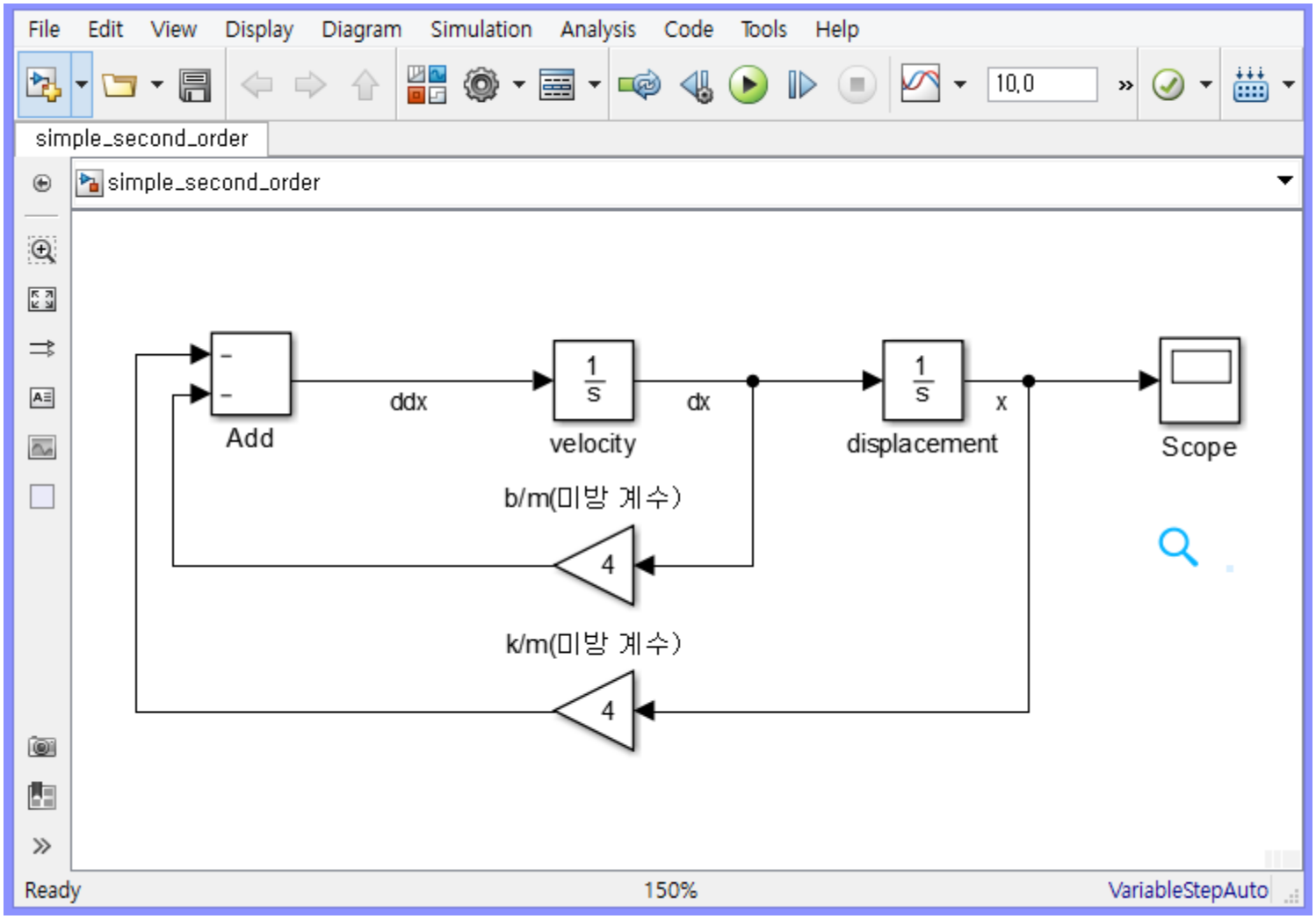
simple_second_order
simple_second_order
Add
1
s
velocity
1
s
displacement
b/m(미방 계수)
1
k/m(미방 계수)
1
Ready
150%
VariableStepAuto


Block Parameters: k/m(미방 계수)
Gain
Element-wise gain (y = K.*u) or matrix gain (y = K*u or y = u*K).
Main
Signal Attributes
Parameter Attributes
Gain:
4
Multiplication:
Element-wise(K.*u)
OK
Cancel
Help
Apply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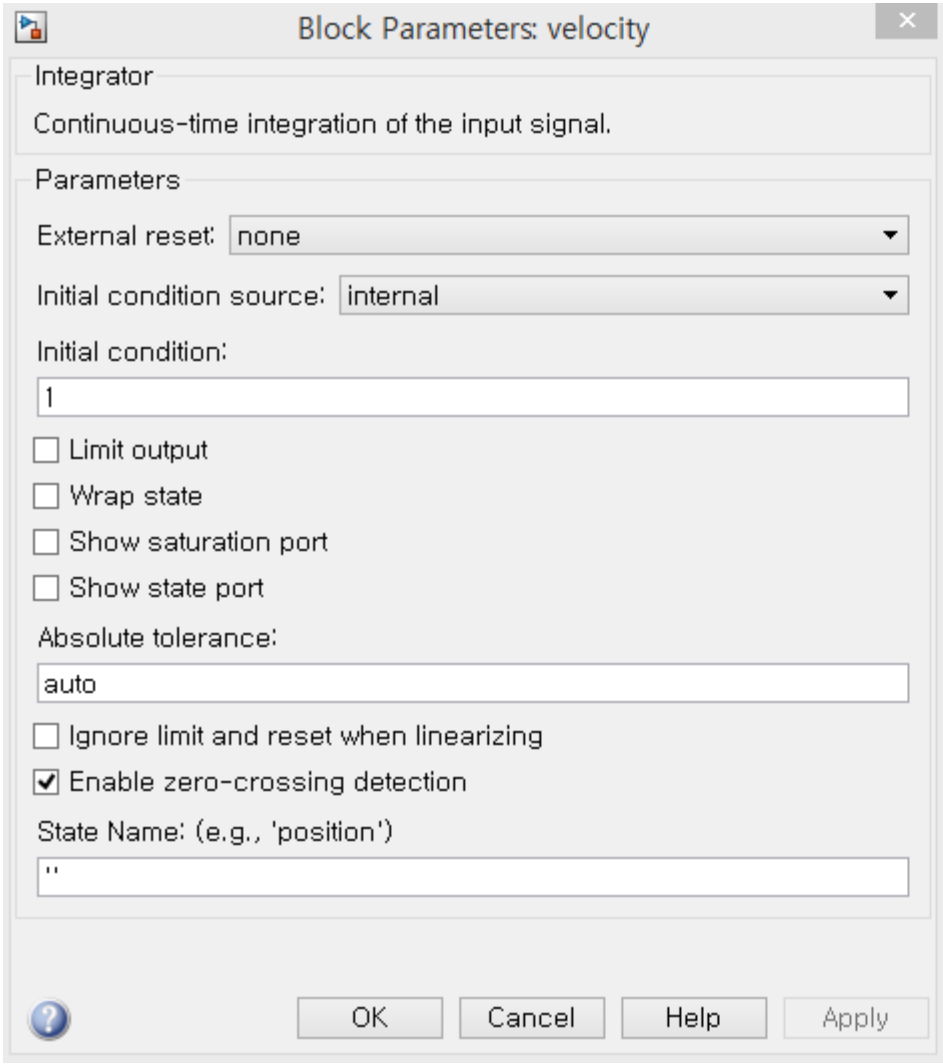
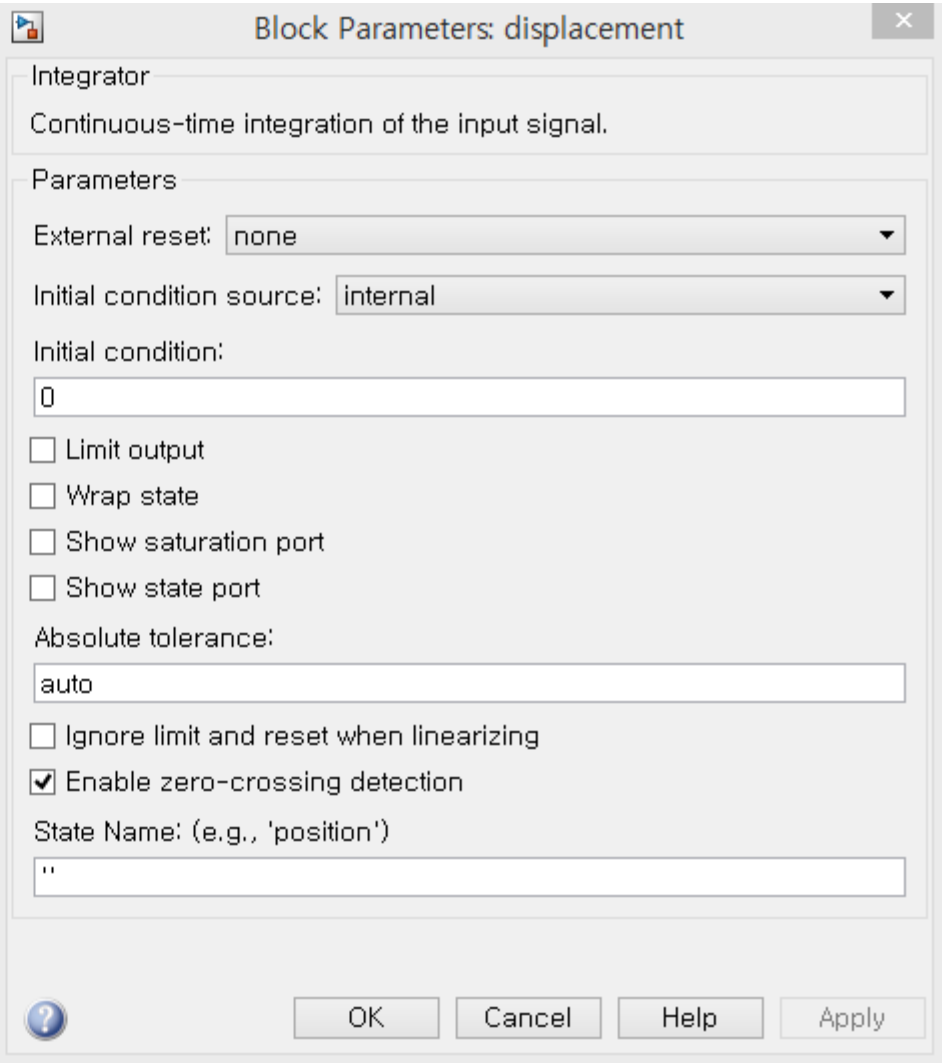
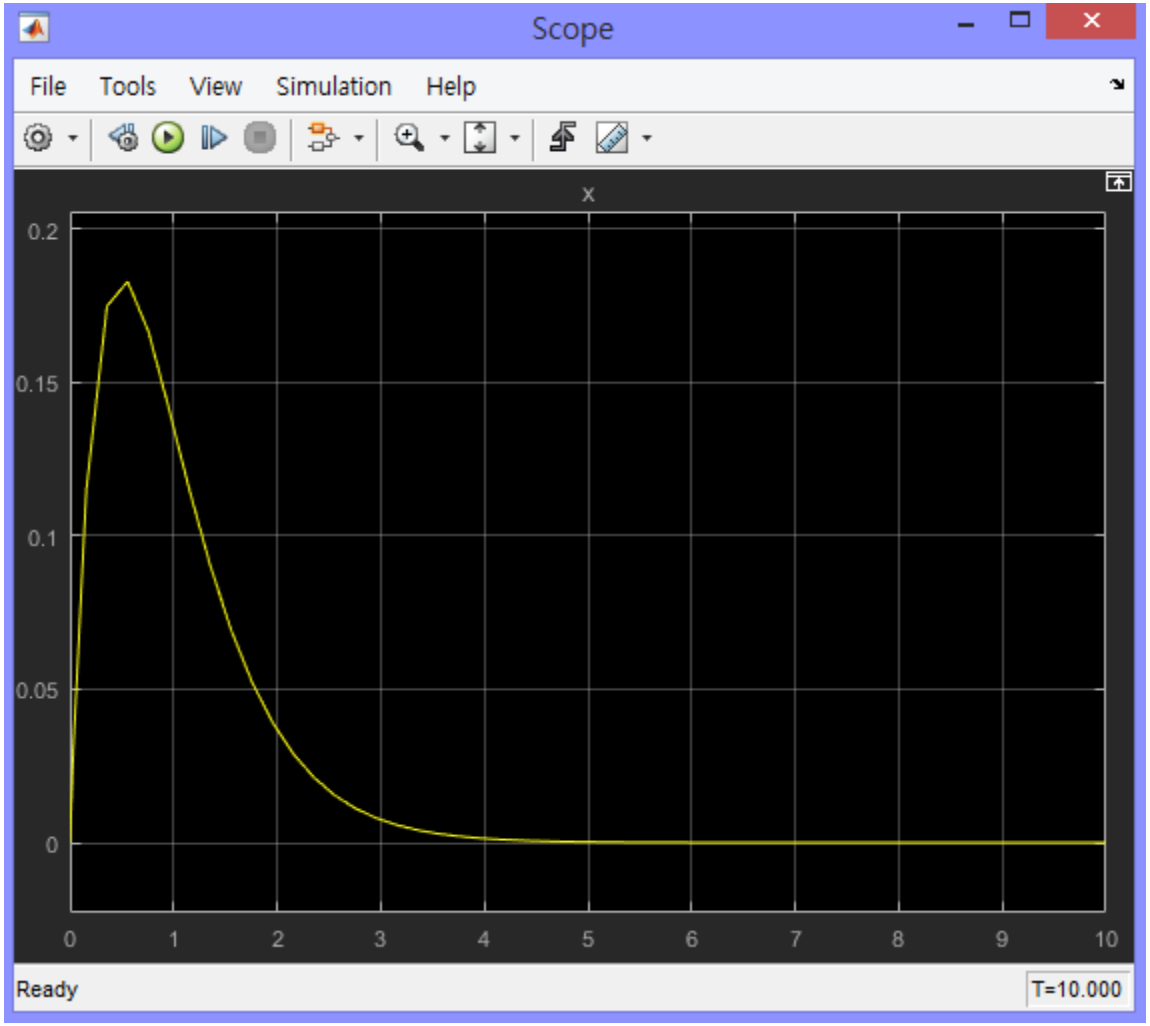
10.0
simple_second_order
simple_second_order
Add
ddx
1
s
velocity
dx
1
s
displacement
x
Scope
b/m(미방 계수)
4
k/m(미방 계수)
4
Ready
150%
VariableStepAuto


Block Parameters: velocity
Integrator
Continuous-time integration of the input signal.
Parameters
External reset: none
Initial condition source: internal
Initial condition:
1
Limit output
Wrap state
Show saturation port
Show state port
Absolute tolerance:
auto
Ignore limit and reset when linearizing
Enable zero-crossing detection
State Name: (e.g., 'position')
''
OK
Cancel
Help
Apply


Block Parameters: displacement
Integrator
Continuous-time integration of the input signal.
Parameters
External reset: none
Initial condition source: internal
Initial condition:
0
Limit output
Wrap state
Show saturation port
Show state port
Absolute tolerance:
auto
Ignore limit and reset when linearizing
Enable zero-crossing detection
State Name: (e.g., 'position')
''
OK
Cancel
Help
Apply


Scope
File
Tools
View
Simulation
Help
x
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
7
8
9
10
Ready
T=10.000