roll_ap

Design Description

syoon

roll_ap: Design Description

syoon

Publication date 12-Apr-2013 17:54:49

차례

그림 목록

표 목록

1장. Model Version

Version: 1.163

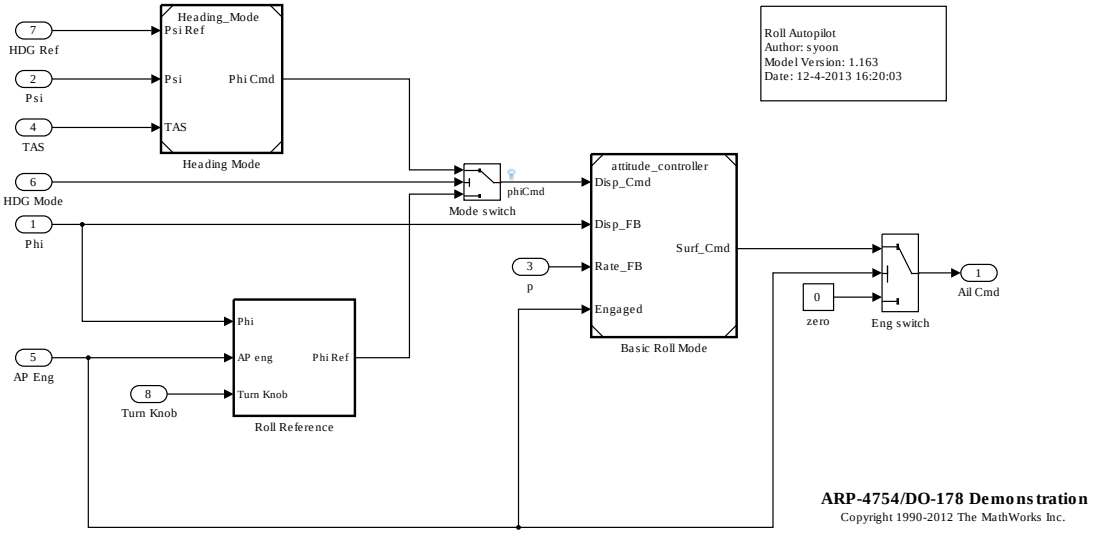
Last modified: Fri Apr 12 16:20:03 2013

Checksum: 2844023924 4267259254 1078230651 3047273249

2장. Root System

차례

그림 2.1. roll_ap



2.1. Interface

2.1.1. Input Signals

표 2.1.

Description:

Data Type: boolean

Width: 1

Dimensions: [1 1]

표 2.2.

Description:

Data Type: boolean

Width: 1

Dimensions: [1 1]

표 2.3.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 2.4.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 2.5.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 2.6.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 2.7.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 2.8.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

2.1.2. Output Signals

표 2.9.

Description:

Data Type: double
Width: 1
Dimensions: [1 1]

2.2. Blocks

2.2.1. Parameters

2.2.1.1. "Ail Cmd" (Outport)

표 2.10. "Ail Cmd" Parameters

Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]
Data type	double
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	1
Variable-size signal	Inherit
Sample time (-1 for inherited)	1/40
Signal type	real
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

2.2.1.2. "AP Eng" (Inport)

표 2.11. "AP Eng" Parameters

Parameter	Value
Port number	5

Parameter	Value
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	boolean

2.2.1.3. "Basic Roll Mode" (ModelReference)

표 2.12. "Basic Roll Mode" Parameters

Parameter	Value
Model name	attitude_controller
	attitude_controller.slx
	attitude_controller
Model arguments	dispGain,dispLim,rateGain,rateLim,intGain,intLim,cmdLim
Model argument values (for this instance)	dispGain,30,rateGain,6,intGain,5,15
Simulation mode	Normal
Variant	off
Generate Preprocessor Conditionals	off

2.2.1.4. "Eng switch" (Switch)

표 2.13. "Eng switch" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule

Parameter	Value
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

2.2.1.5. "HDG Mode" (Inport)

표 2.14. "HDG Mode" Parameters

Parameter	Value
Port number	6
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	boolean

2.2.1.6. "HDG Ref" (Inport)

표 2.15. "HDG Ref" Parameters

Parameter	Value
Port number	7
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40

Parameter	Value
Minimum	-180
Maximum	180
Data type	double

2.2.1.7. "Heading Mode" (ModelReference)

표 2.16. "Heading Mode" Parameters

Parameter	Value
Model name	Heading_Mode
	Heading_Mode.slx
	Heading_Mode
Model arguments	hdgGain
Model argument values (for this instance)	hdgGain
Simulation mode	Normal
Variant	off
Generate Preprocessor Conditionals	off

2.2.1.8. "Mode switch" (Switch)

표 2.17. "Mode switch" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off

Parameter	Value
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

2.2.1.9. "p" (Inport)

표 2.18. "p" Parameters

Parameter	Value
Port number	3
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	-180
Maximum	180
Data type	double

2.2.1.10. "Phi" (Inport)

표 2.19. "Phi" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	-180
Maximum	180
Data type	double

2.2.1.11. "Psi" (Inport)

표 2.20. "Psi" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	-180
Maximum	180
Data type	double

2.2.1.12. "TAS" (Inport)

표 2.21. "TAS" Parameters

Parameter	Value
Port number	4
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	0
Maximum	1000
Data type	double

2.2.1.13. "Turn Knob" (Inport)

표 2.22. "Turn Knob" Parameters

Parameter	Value
Port number	8
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	-45
Maximum	45
Data type	double

2.2.1.14. "zero" (Constant)

표 2.23. "zero" Parameters

Parameter	Value
Constant value	0
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	double
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

2.2.2. Block Execution Order

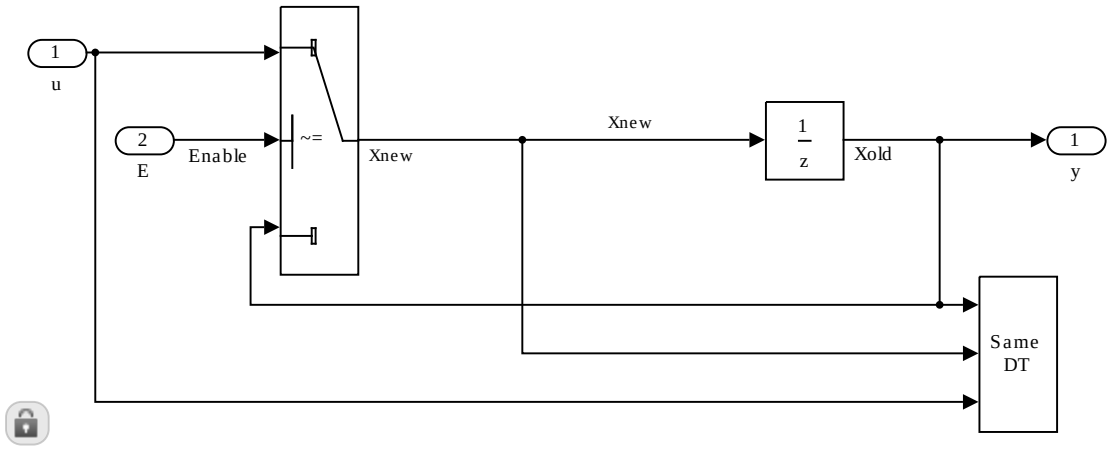
1. Heading Mode [7] (ModelReference)
2. Roll Reference [64]
3. Mode switch [7] (Switch)
4. Basic Roll Mode [5] (ModelReference)
5. zero [9] (Constant)
6. Eng switch [5] (Switch)
7. Ail Cmd [4] (Outport)

3장. Subsystems

차례

3.1. Latch Phi

그림 3.1. roll_ap/Roll Reference/Latch Phi



3.1.1. Blocks

3.1.1.1. Parameters

3.1.1.1.1. "E" (Inport)

표 3.1. "E" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.1.1.1.2. "Enable" (Switch)

표 3.2. "Enable" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via back propagation
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	off
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

3.1.1.1.3. "FixPt Data Type Duplicate1" (DataTypeDuplicate)

표 3.3. "FixPt Data Type Duplicate1" Parameters

Parameter	Value
Number of input ports	3

3.1.1.1.4. "FixPt Unit Delay1" (UnitDelay)

표 3.4. "FixPt Unit Delay1" Parameters

Parameter	Value
Initial condition	vinit
Input processing	Inherited
Sample time (-1 for inherited)	tsamp
State name must resolve to Simulink signal object	off

3.1.1.1.5. "u" (Inport)

표 3.5. "u" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.1.1.1.6. "y" (Outport)

표 3.6. "y" Parameters

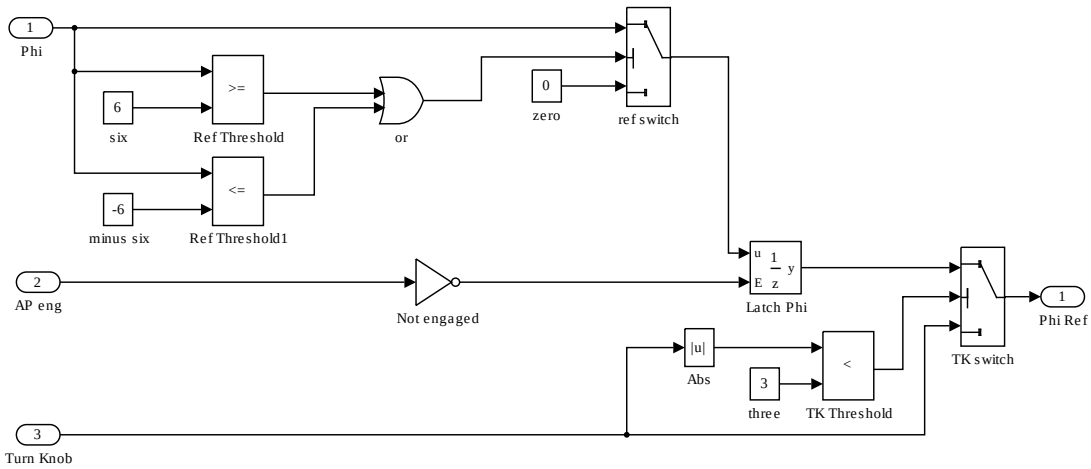
Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]

Parameter	Value
Data type	Inherit: auto
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	-1
Variable-size signal	Inherit
Sample time (-1 for inherited)	-1
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

3.2. Roll Reference

Checksum: 1699270887 789388817 368512324 3401908792

그림 3.2. roll_ap/Roll Reference



Roll Reference

3.2.1. Interface

3.2.1.1. Input Signals

The following tables describe external signals used to compute the subsystem's inputs.The name of the input signal is the name of the input port that accepts the signal. The number in angle brackets is the number of the input port. A dimension of [1 1] indicates a scalar signal.

표 3.7.

Description:

Data Type: boolean

Width: 1

Dimensions: [1 1]

표 3.8.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

표 3.9.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

3.2.1.2. Output Signals

The following tables describe the signals output by this system. The name of the output signal is the name of the signal's parent block, i.e., the block that computes the signal. The number in angle brackets is the number of the port that emits the signal.

표 3.10.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

3.2.2. Blocks

3.2.2.1. Parameters

3.2.2.1.1. "Abs" (Abs)

표 3.11. "Abs" Parameters

Parameter	Value
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Output minimum	[]

Parameter	Value
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off

3.2.2.1.2. "AP eng" (Inport)

표 3.12. "AP eng" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.2.2.1.3. "minus six" (Constant)

표 3.13. "minus six" Parameters

Parameter	Value
Constant value	-6
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf

Parameter	Value
Frame period	inf

3.2.2.1.4. "Not engaged" (Logic)

표 3.14. "Not engaged" Parameters

Parameter	Value
Operator	NOT
Number of input ports	2
Icon shape	distinctive
Require all inputs and output to have the same data type	off
Output data type	boolean
Sample time (-1 for inherited)	-1

3.2.2.1.5. "or" (Logic)

표 3.15. "or" Parameters

Parameter	Value
Operator	OR
Number of input ports	2
Icon shape	distinctive
Require all inputs and output to have the same data type	on
Output data type	boolean
Sample time (-1 for inherited)	-1

3.2.2.1.6. "Phi" (Inport)

표 3.16. "Phi" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1

Parameter	Value
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.2.2.1.7. "Phi Ref" (Outport)

표 3.17. "Phi Ref" Parameters

Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]
Data type	Inherit: auto
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	-1
Variable-size signal	Inherit
Sample time (-1 for inherited)	-1
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

3.2.2.1.8. "ref switch" (Switch)

표 3.18. "ref switch" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]

Parameter	Value
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

3.2.2.1.9. "Ref Threshold" (RelationalOperator)

표 3.19. "Ref Threshold" Parameters

Parameter	Value
Relational operator	>=
Require all inputs to have the same data type	on
Output data type	boolean
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1

3.2.2.1.10. "Ref Threshold1" (RelationalOperator)

표 3.20. "Ref Threshold1" Parameters

Parameter	Value
Relational operator	<=
Require all inputs to have the same data type	on

Parameter	Value
Output data type	boolean
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1

3.2.2.1.11. "six" (Constant)

표 3.21. "six" Parameters

Parameter	Value
Constant value	6
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

3.2.2.1.12. "three" (Constant)

표 3.22. "three" Parameters

Parameter	Value
Constant value	3
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	double
Lock output data type setting against changes by the fixed-point tools	off

Parameter	Value
Sample time	inf
Frame period	inf

3.2.2.1.13. "TK switch" (Switch)

표 3.23. "TK switch" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

3.2.2.1.14. "TK Threshold" (RelationalOperator)

표 3.24. "TK Threshold" Parameters

Parameter	Value
Relational operator	<
Require all inputs to have the same data type	on

Parameter	Value
Output data type	boolean
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1

3.2.2.1.15. "Turn Knob" (Inport)

표 3.25. "Turn Knob" Parameters

Parameter	Value
Port number	3
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.2.2.1.16. "zero" (Constant)

표 3.26. "zero" Parameters

Parameter	Value
Constant value	0
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

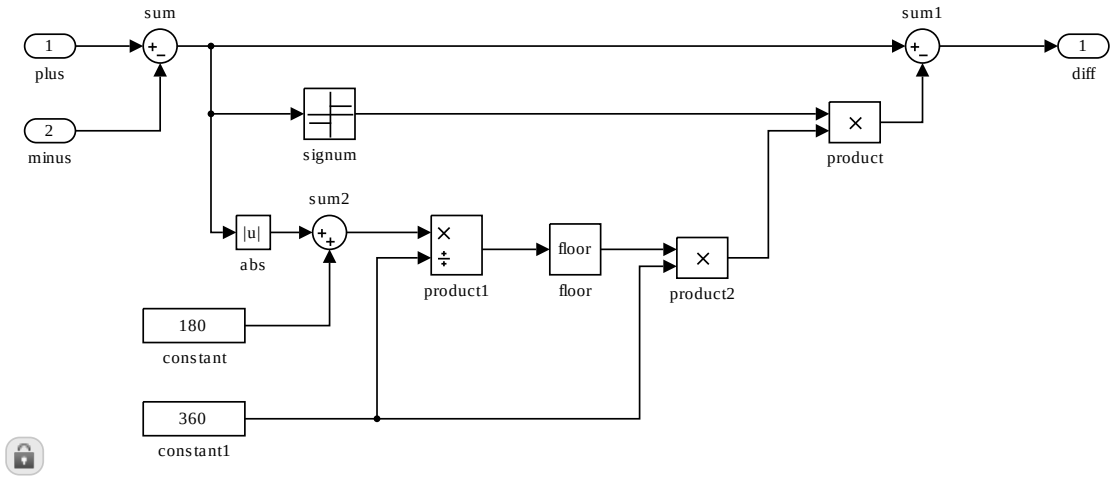
3.2.3. Block Execution Order

1. Abs [15] (Abs)

2. FixPt Data Type Duplicate1 [12] (DataTypeDuplicate)
3. six [20] (Constant)
4. Ref Threshold [19] (RelationalOperator)
5. minus six [16] (Constant)
6. Ref Threshold1 [19] (RelationalOperator)
7. or [17] (Logic)
8. zero [22] (Constant)
9. ref switch [18] (Switch)
10. Not engaged [17] (Logic)
11. FixPt Unit Delay1 [13] (UnitDelay)
12. Enable [12] (Switch)
13. three [20] (Constant)
14. TK Threshold [21] (RelationalOperator)
15. TK switch [21] (Switch)

3.3. Angle_Diff

그림 3.3. Heading_Mode/Angle_Diff



3.3.1. Blocks

3.3.1.1. Parameters

3.3.1.1.1. "abs" (Abs)

표 3.27. "abs" Parameters

Parameter	Value
Enable zero-crossing detection	off
Sample time (-1 for inherited)	-1

Parameter	Value
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off

3.3.1.1.2. "constant" (Constant)

표 3.28. "constant" Parameters

Parameter	Value
Constant value	180
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

3.3.1.1.3. "constant1" (Constant)

표 3.29. "constant1" Parameters

Parameter	Value
Constant value	360
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]

Parameter	Value
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

3.3.1.1.4. "diff" (Outport)

표 3.30. "diff" Parameters

Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]
Data type	Inherit: auto
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	-1
Variable-size signal	Inherit
Sample time (-1 for inherited)	-1
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

3.3.1.1.5. "floor" (Rounding)

표 3.31. "floor" Parameters

Parameter	Value
Function	floor

Parameter	Value
Sample time (-1 for inherited)	-1

3.3.1.1.6. "minus" (Inport)

표 3.32. "minus" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	double

3.3.1.1.7. "plus" (Inport)

표 3.33. "plus" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	double

3.3.1.1.8. "product" (Product)

표 3.34. "product" Parameters

Parameter	Value
Number of inputs	2
Multiplication	Element-wise(.*)

Parameter	Value
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as first input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.3.1.1.9. "product1" (Product)

표 3.35. "product1" Parameters

Parameter	Value
Number of inputs	*/
Multiplication	Element-wise(.*)
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as first input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off

Parameter	Value
Sample time (-1 for inherited)	-1

3.3.1.1.10. "product2" (Product)

표 3.36. "product2" Parameters

Parameter	Value
Number of inputs	2
Multiplication	Element-wise(.*)
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as first input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.3.1.1.11. "signum" (Signum)

표 3.37. "signum" Parameters

Parameter	Value
Enable zero-crossing detection	off
Sample time (-1 for inherited)	-1

3.3.1.1.12. "sum" (Sum)

표 3.38. "sum" Parameters

Parameter	Value
Icon shape	round
List of signs	|+-
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Accumulator data type	Inherit: Same as first input
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as first input
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.3.1.1.13. "sum1" (Sum)

표 3.39. "sum1" Parameters

Parameter	Value
Icon shape	round
List of signs	|+-
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Accumulator data type	Inherit: Same as first input
Output minimum	[]
Output maximum	[]

Parameter	Value
Output data type	Inherit: Same as first input
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.3.1.1.14. "sum2" (Sum)

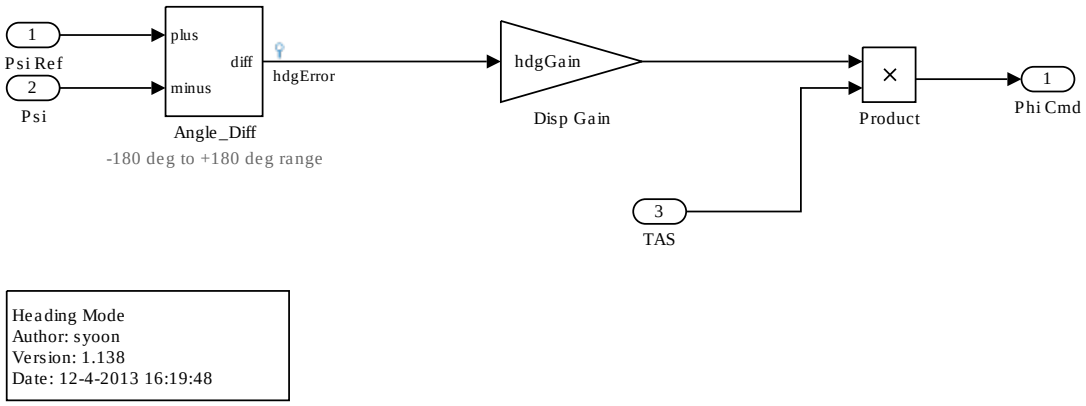
표 3.40. "sum2" Parameters

Parameter	Value
Icon shape	round
List of signs	|++
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	on
Accumulator data type	Inherit: Same as first input
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as first input
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.4. Heading_Mode

Checksum: 2185817241 4123551413 3244465799 2035995537

그림 3.4. Heading_Mode



3.4.1. Interface

3.4.1.1. Input Signals

The following tables describe external signals used to compute the subsystem's inputs.The name of the input signal is the name of the input port that accepts the signal. The number in angle brackets is the number of the input port. A dimension of [1 1] indicates a scalar signal.

표 3.41.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 3.42.

Description:
Data Type: double
Width: 1
Dimensions: [1 1]

표 3.43.

Description:
Data Type: double
Width: 1

Dimensions: [1 1]

3.4.1.2. Output Signals

The following tables describe the signals output by this system. The name of the output signal is the name of the signal's parent block, i.e., the block that computes the signal. The number in angle brackets is the number of the port that emits the signal.

표 3.44.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

3.4.2. Blocks

3.4.2.1. Parameters

3.4.2.1.1. "Disp Gain" (Gain)

표 3.45. "Disp Gain" Parameters

Parameter	Value
Gain	hdgGain
Multiplication	Element-wise(K.*u)
Parameter minimum	[]
Parameter maximum	[]
Parameter data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.4.2.1.2. "Phi Cmd" (Outport)

표 3.46. "Phi Cmd" Parameters

Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]
Data type	double
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	1
Variable-size signal	Inherit
Sample time (-1 for inherited)	1/40
Signal type	real
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

3.4.2.1.3. "Product" (Product)

표 3.47. "Product" Parameters

Parameter	Value
Number of inputs	2
Multiplication	Element-wise(.*)
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule

Parameter	Value
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.4.2.1.4. "Psi" (Inport)

표 3.48. "Psi" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	double

3.4.2.1.5. "Psi Ref" (Inport)

표 3.49. "Psi Ref" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	double

3.4.2.1.6. "TAS" (Inport)

표 3.50. "TAS" Parameters

Parameter	Value
Port number	3
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	double

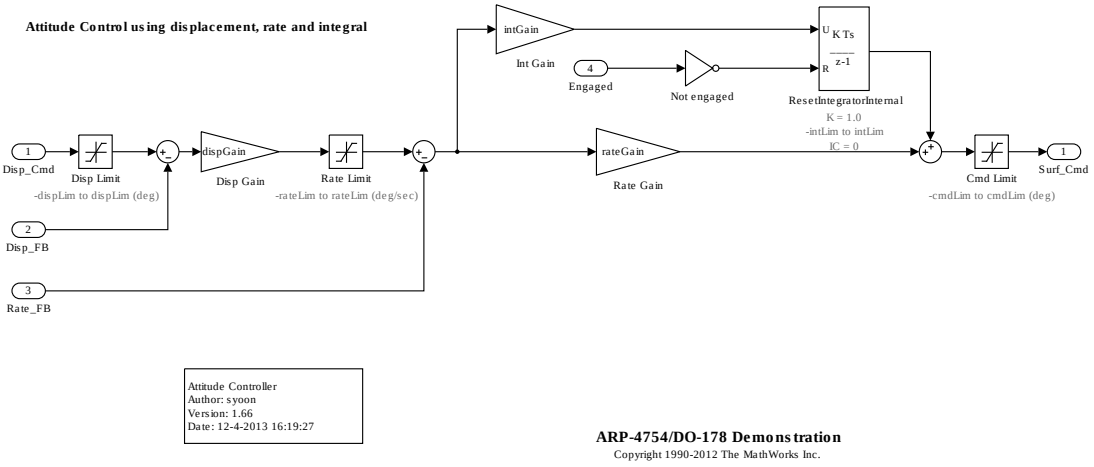
3.4.3. Block Execution Order

1. sum [28] (Sum)
2. abs [23] (Abs)
3. constant [24] (Constant)
4. constant1 [24] (Constant)
5. sum2 [30] (Sum)
6. product1 [27] (Product)
7. floor [25] (Rounding)
8. signum [28] (Signum)
9. product2 [28] (Product)
10. product [26] (Product)
11. sum1 [29] (Sum)
12. Disp Gain [32] (Gain)
13. Product [33] (Product)

3.5. attitude_controller

Checksum: 2637969531 1838232869 1045555082 2600936105

그림 3.5. attitude_controller



3.5.1. Interface

3.5.1.1. Input Signals

The following tables describe external signals used to compute the subsystem's inputs.The name of the input signal is the name of the input port that accepts the signal. The number in angle brackets is the number of the input port. A dimension of [1 1] indicates a scalar signal.

표 3.51.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

표 3.52.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

표 3.53.

Description:

Data Type: boolean

Width: 1

Dimensions: [1 1]

표 3.54.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

3.5.1.2. Output Signals

The following tables describe the signals output by this system. The name of the output signal is the name of the signal's parent block, i.e., the block that computes the signal. The number in angle brackets is the number of the port that emits the signal.

표 3.55.

Description:

Data Type: double

Width: 1

Dimensions: [1 1]

3.5.2. Blocks

3.5.2.1. Parameters

3.5.2.1.1. "Cmd Limit" (Saturate)

표 3.56. "Cmd Limit" Parameters

Parameter	Value
Upper limit	cmdLim
Lower limit	-cmdLim
Treat as gain when linearizing	on
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor

3.5.2.1.2. "Disp Gain" (Gain)

표 3.57. "Disp Gain" Parameters

Parameter	Value
Gain	dispGain
Multiplication	Element-wise(K.*u)
Parameter minimum	[]
Parameter maximum	[]
Parameter data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against	off

Parameter	Value
changes by the fixed-point tools	
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.3. "Disp Limit" (Saturate)

표 3.58. "Disp Limit" Parameters

Parameter	Value
Upper limit	dispLim
Lower limit	-dispLim
Treat as gain when linearizing	on
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor

3.5.2.1.4. "Disp_Cmd" (Inport)

표 3.59. "Disp_Cmd" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]

Parameter	Value
Maximum	[]
Data type	double

3.5.2.1.5. "Disp_FB " (Inport)

표 3.60. "Disp_FB " Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	double

3.5.2.1.6. "Engaged" (Inport)

표 3.61. "Engaged" Parameters

Parameter	Value
Port number	4
Port dimensions (-1 for inherited)	1
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	boolean

3.5.2.1.7. "Int Gain" (Gain)

표 3.62. "Int Gain" Parameters

Parameter	Value
Gain	intGain
Multiplication	Element-wise(K.*u)
Parameter minimum	[]
Parameter maximum	[]
Parameter data type	Inherit: Inherit via internal rule

Parameter	Value
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.8. "Not engaged" (Logic)

표 3.63. "Not engaged" Parameters

Parameter	Value
Operator	NOT
Number of input ports	2
Icon shape	distinctive
Require all inputs and output to have the same data type	off
Output data type	boolean
Sample time (-1 for inherited)	-1

3.5.2.1.9. "Rate Gain" (Gain)

표 3.64. "Rate Gain" Parameters

Parameter	Value
Gain	rateGain
Multiplication	Element-wise(K.*u)
Parameter minimum	[]
Parameter maximum	[]
Parameter data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]

Parameter	Value
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.10. "Rate Limit" (Saturate)

표 3.65. "Rate Limit" Parameters

Parameter	Value
Upper limit	rateLim
Lower limit	-rateLim
Treat as gain when linearizing	on
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor

3.5.2.1.11. "Rate_FB" (Inport)

표 3.66. "Rate_FB" Parameters

Parameter	Value
Port number	3
Port dimensions (-1 for inherited)	1

Parameter	Value
Sample time (-1 for inherited)	1/40
Minimum	[]
Maximum	[]
Data type	double

3.5.2.1.12. "Sum" (Sum)

표 3.67. "Sum" Parameters

Parameter	Value
Icon shape	round
List of signs	|+-
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Accumulator data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.13. "Sum1" (Sum)

표 3.68. "Sum1" Parameters

Parameter	Value
Icon shape	round
List of signs	|+-
Sum over	All dimensions

Parameter	Value
Dimension	1
Require all inputs to have the same data type	off
Accumulator data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.14. "Sum2" (Sum)

표 3.69. "Sum2" Parameters

Parameter	Value
Icon shape	round
List of signs	++|
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Accumulator data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Floor

Parameter	Value
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.5.2.1.15. "Surf_Cmd" (Outport)

표 3.70. "Surf_Cmd" Parameters

Parameter	Value
Port number	1
Icon display	Port number
Minimum	[]
Maximum	[]
Data type	double
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	1
Variable-size signal	Inherit
Sample time (-1 for inherited)	1/40
Signal type	real
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

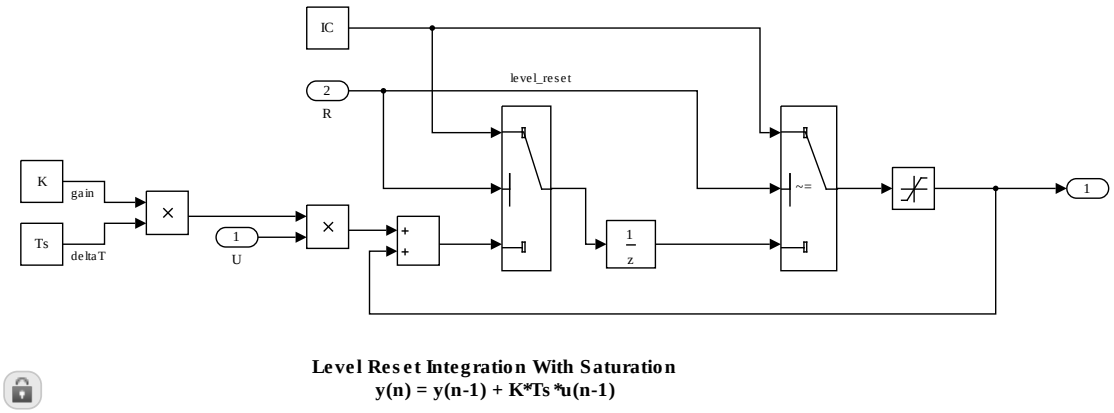
3.5.3. Block Execution Order

1. Constant2 [46] (Constant)
2. Not engaged [40] (Logic)
3. X [51] (UnitDelay)
4. Switch [49] (Switch)
5. Saturation [48] (Saturate)
6. Disp Limit [38] (Saturate)
7. Sum [42] (Sum)
8. Disp Gain [37] (Gain)
9. Rate Limit [41] (Saturate)
10. Sum1 [42] (Sum)

11. Rate Gain [40] (Gain)
12. Sum2 [43] (Sum)
13. Cmd Limit [37] (Saturate)
14. Constant [45] (Constant)
15. Constant1 [46] (Constant)
16. Product [46] (Product)
17. TmpAtomicSubsysAtSwitch1Inport3
18. Switch1 [50] (Switch)

3.6. ResetIntegratorInternal

그림 3.6. attitude_controller/ResetIntegratorInternal



3.6.1. Blocks

3.6.1.1. Parameters

3.6.1.1.1. "Constant" (Constant)

표 3.71. "Constant" Parameters

Parameter	Value
Constant value	K
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf

Parameter	Value
Frame period	inf

3.6.1.1.2. "Constant1" (Constant)

표 3.72. "Constant1" Parameters

Parameter	Value
Constant value	Ts
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

3.6.1.1.3. "Constant2" (Constant)

표 3.73. "Constant2" Parameters

Parameter	Value
Constant value	IC
Interpret vector parameters as 1-D	on
Sampling mode	Sample based
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit from 'Constant value'
Lock output data type setting against changes by the fixed-point tools	off
Sample time	inf
Frame period	inf

3.6.1.1.4. "Product" (Product)

표 3.74. "Product" Parameters

Parameter	Value
Number of inputs	2
Multiplication	Element-wise(.*)
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.6.1.1.5. "Product1" (Product)

표 3.75. "Product1" Parameters

Parameter	Value
Number of inputs	2
Multiplication	Element-wise(.*)
Multiply over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against	off

Parameter	Value
changes by the fixed-point tools	
Integer rounding mode	Zero
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.6.1.1.6. "R" (Inport)

표 3.76. "R" Parameters

Parameter	Value
Port number	2
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.6.1.1.7. "Saturation" (Saturate)

표 3.77. "Saturation" Parameters

Parameter	Value
Upper limit	UL
Lower limit	-UL
Treat as gain when linearizing	on
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Same as input
Lock output data type setting against changes by the fixed-point tools	off

Parameter	Value
Integer rounding mode	Floor

3.6.1.1.8. "Sum" (Sum)

표 3.78. "Sum" Parameters

Parameter	Value
Icon shape	rectangular
List of signs	++
Sum over	All dimensions
Dimension	1
Require all inputs to have the same data type	off
Accumulator data type	Inherit: Inherit via internal rule
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock data type settings against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Sample time (-1 for inherited)	-1

3.6.1.1.9. "Switch" (Switch)

표 3.79. "Switch" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off

Parameter	Value
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

3.6.1.1.10. "Switch1" (Switch)

표 3.80. "Switch1" Parameters

Parameter	Value
Criteria for passing first input	u2 ~= 0
Threshold	0
Require all data port inputs to have the same data type	off
Output minimum	[]
Output maximum	[]
Output data type	Inherit: Inherit via internal rule
Lock output data type setting against changes by the fixed-point tools	off
Integer rounding mode	Floor
Saturate on integer overflow	off
Enable zero-crossing detection	on

Parameter	Value
Sample time (-1 for inherited)	-1
Allow different data input sizes (Results in variable-size output signal)	off

3.6.1.1.11. "U" (Inport)

표 3.81. "U" Parameters

Parameter	Value
Port number	1
Port dimensions (-1 for inherited)	-1
Sample time (-1 for inherited)	-1
Minimum	[]
Maximum	[]
Data type	Inherit: auto

3.6.1.1.12. "X" (UnitDelay)

표 3.82. "X" Parameters

Parameter	Value
Initial condition	IC
Input processing	Elements as channels (sample based)
Sample time (-1 for inherited)	Ts
State name must resolve to Simulink signal object	off

3.6.1.1.13. "Y" (Outport)

표 3.83. "Y" Parameters

Parameter	Value
Port number	1
Icon display	Port number

Parameter	Value
Minimum	[]
Maximum	[]
Data type	Inherit: auto
Lock output data type setting against changes by the fixed-point tools	off
Output as nonvirtual bus in parent model	off
Port dimensions (-1 for inherited)	-1
Variable-size signal	Inherit
Sample time (-1 for inherited)	-1
Source of initial output value	Dialog
Output when disabled	held
Initial output	[]

4장. System Design Variables

차례

4.1. Design Variable Details

표 4.1. dispGain

Property	Value
Value	1
CoderInfo	dispGain.CoderInfo [53]
Description	
DataType	auto
Min	
Max	
DocUnits	
Complexity	real
Dimensions	[1 1]

표 4.2. dispGain [53].CoderInfo

Property	Value
StorageClass	Auto
Alias	
Alignment	-1
CustomStorageClass	Default
CustomAttributes	dispGain.CoderInfo.CustomAttributes [53]

dispGain.CoderInfo.CustomAttributes (SimulinkCSC.AttribClass_Simulink_Default,)

Note: this object has no unfiltered properties.

Used by Blocks:

- roll_ap/Basic Roll Mode [5]

Workspace: model (roll_ap)

표 4.3. hdgGain

Property	Value
Value	0.0150
CoderInfo	hdgGain.CoderInfo [54]
Description	
DataType	auto
Min	0
Max	
DocUnits	
Complexity	real
Dimensions	[1 1]

표 4.4. hdgGain [53].CoderInfo

Property	Value
StorageClass	Auto
Alias	
Alignment	-1
CustomStorageClass	Default
CustomAttributes	hdgGain.CoderInfo.CustomAttributes [54]

hdgGain.CoderInfo.CustomAttributes (SimulinkCSC.AttribClass_Simulink_Default,)

Note: this object has no unfiltered properties.

Used by Blocks:

- roll_ap/Heading Mode [7]

Workspace: model (roll_ap)

표 4.5. intGain

Property	Value
Value	1
CoderInfo	intGain.CoderInfo [55]
Description	
DataType	auto
Min	
Max	

DocUnits	
Complexity	real
Dimensions	[1 1]

표 4.6. intGain [54].CoderInfo

Property	Value
StorageClass	Auto
Alias	
Alignment	-1
CustomStorageClass	Default
CustomAttributes	intGain.CoderInfo.CustomAttributes [55]

intGain.CoderInfo.CustomAttributes (SimulinkCSC.AttribClass_Simulink_Default,)

Note: this object has no unfiltered properties.

Used by Blocks:

- roll_ap/Basic Roll Mode [5]

Workspace: model (roll_ap)

표 4.7. rateGain

Property	Value
Value	3
CoderInfo	rateGain.CoderInfo [55]
Description	
DataType	auto
Min	
Max	
DocUnits	
Complexity	real
Dimensions	[1 1]

표 4.8. rateGain [55].CoderInfo

Property	Value
StorageClass	Auto

Alias	
Alignment	-1
CustomStorageClass	Default
CustomAttributes	rateGain.CoderInfo.CustomAttributes [56]

rateGain.CoderInfo.CustomAttributes (SimulinkCSC.AttribClass_Simulink_Default,)

Note: this object has no unfiltered properties.

Used by Blocks:

- roll_ap/Basic Roll Mode [5]

Workspace: model (roll_ap)

5장. Requirements Traceability

차례

5.1. Model Information for "roll_ap"

표 5.1. roll_ap Version Information

ModelVersion	1.163	ConfigurationManager	Microsoft Visual SourceSafe
Created	Thu Apr 06 16:59:31 2006	Creator	bpotter
LastModifiedDate	Fri Apr 12 16:20:03 2013	LastModifiedBy	syoon

5.2. Document Summary for "roll_ap"

표 5.2. Requirements documents linked in model

ID	Document paths stored in the model	Last modified	# links
DOC1	..₩requirements ₩do178b_autopilot_requirements.docx [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx]	12-Apr-2013 16:53:16	45

.

5.3. System - roll_ap

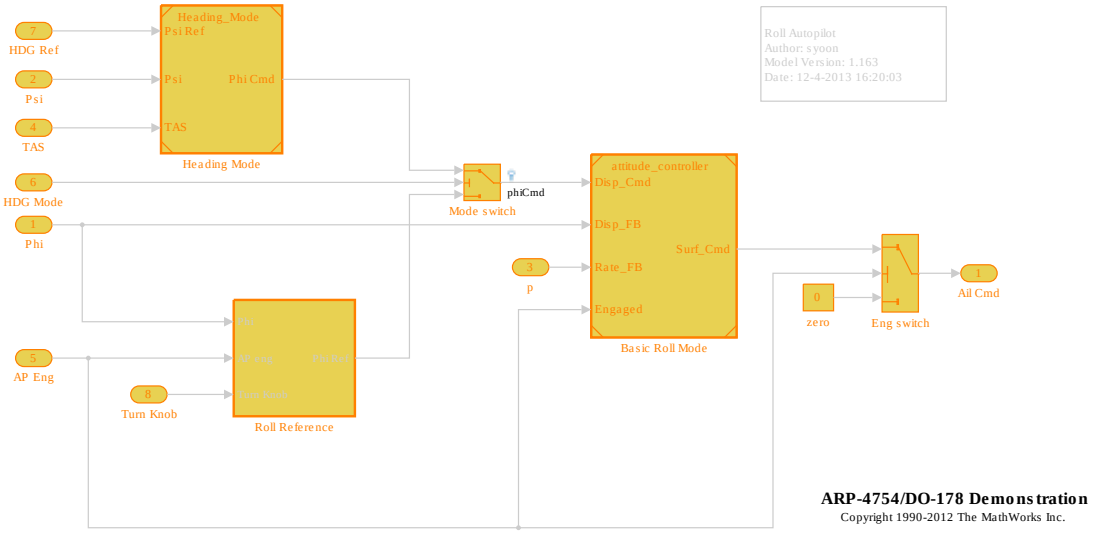


표 5.3. roll_ap Requirements

Link#	Description		Target (document name and location ID)
1	Label:	1. Roll Autopilot Requirements	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_11' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Simulink_requirer

표 5.4. Blocks in "roll_ap" that have requirements

Name	Requirements		
Ail Cmd	Link#1	label: Target:	"1.1. Roll Autopilot Engage Control" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_1' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
	Link#2	label: Target:	"1.4. Roll Performance" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/Applications/Seminars/MBD_Autopilot/

Name	Requirements		
			requirements/ do178b_autopilot_requirements.docx#Si
AP Eng	Link#1	label: Target:	"1.1. Roll Autopilot Engage Control" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_1' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
	Link#2	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
	Link#3	label: Target:	"1.4. Roll Performance" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
Basic Roll Mode	Link#1	label: Target:	"1.4. Roll Performance" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
	Link#2	label: Target:	"1.5. Roll Rate Limit" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_5' [file:///c:/Applications/Seminars/

Name	Requirements		
	Link#3	label: Target:	MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si "1.6. Roll Angle Limit" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_6' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#4	label: Target:	"1.7. Aileron Angle Limit" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_7' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Eng switch	Link#1	label: Target:	"1.1. Roll Autopilot Engage Control" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_1' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#2	label: Target:	"1.4. Roll Performance" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
HDG Mode	Link#1	label: Target:	"1.2. Roll Hold Mode" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_2' [file:///c:/

Name	Requirements		
			Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#2	label:	"1.8. Heading Hold Mode"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_8' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
HDG Ref	Link#1	label:	"1.9. Heading Hold Reference"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_9' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#2	label:	"1.10. Heading Performance"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_10' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Heading Mode	Link#1	label:	"1.10. Heading Performance"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_10' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Mode switch	Link#1	label:	"1.2. Roll Hold Mode"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx,

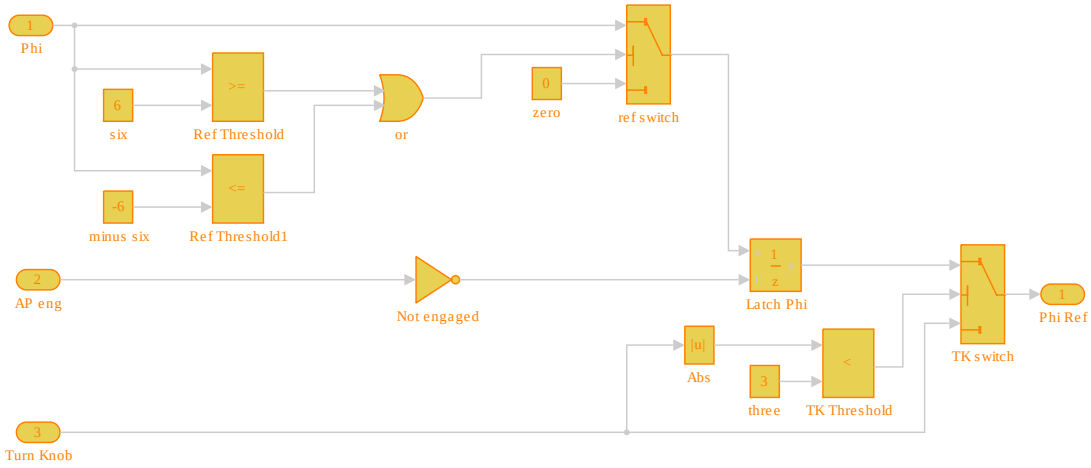
Name	Requirements		
			at 'Simulink_requirement_item_2' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#2	label: "1.4. Roll Performance" Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#3	label: "1.8. Heading Hold Mode" Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_8' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
p	Link#1	label: "1.4. Roll Performance" Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Phi	Link#1	label: "1.3. Roll Hold Reference" Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
	Link#2	label: "1.4. Roll Performance"	

Name	Requirements		
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_4' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Psi	Link#1	label:	"1.10. Heading Performance"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_10' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
TAS	Link#1	label:	"1.10. Heading Performance"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_10' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Turn Knob	Link#1	label:	"1.3. Roll Hold Reference"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
zero	Link#1	label:	"1.1. Roll Autopilot Engage Control"
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_1' [file:///c:/ Applications/Seminars/ MBD_Autopilot/

Name	Requirements
	requirements/ do178b_autopilot_requirements.docx#Si

.

5.4. System - Roll Reference



Roll Reference

표 5.5. roll_ap/Roll Reference Requirements

Link#	Description		Target (document name and location ID)
1	Label:	1.3. Roll Hold Reference	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/ MBD_Autopilot/requirements/ do178b_autopilot_requirements.docx#Simulink_requirer

표 5.6. Blocks in "Roll Reference" that have requirements

Name	Requirements		
Abs	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
AP eng	Link#1	label:	"1.3. Roll Hold Reference"

Name	Requirements		
		Target:	..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Latch Phi	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
minus six	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Not engaged	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
or	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/

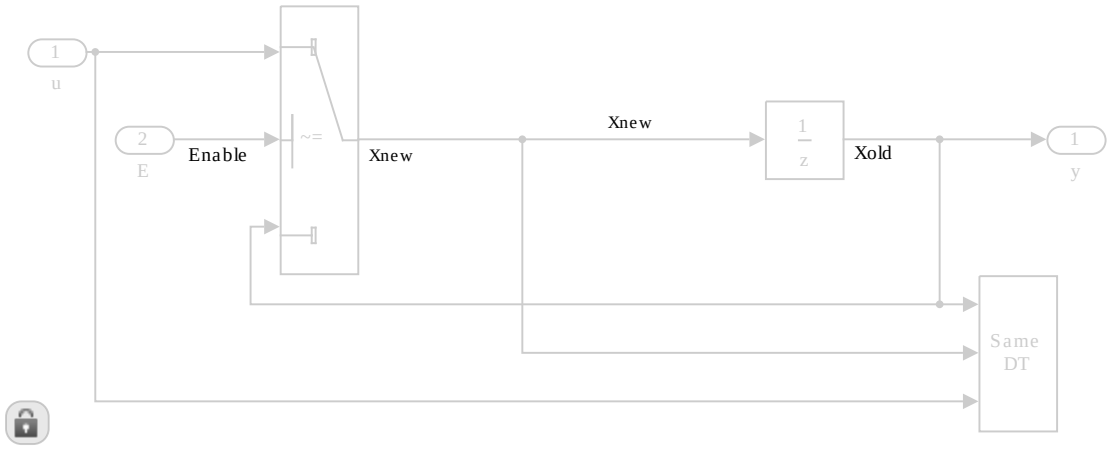
Name	Requirements		
			requirements/ do178b_autopilot_requirements.docx#Si
Phi	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Phi Ref	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
ref switch	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Ref Threshold	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
Ref Threshold1	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx,

Name	Requirements		
			at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
six	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
three	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
TK switch	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/requirements/do178b_autopilot_requirements.docx#Si
TK Threshold	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/Applications/Seminars/MBD_Autopilot/

Name	Requirements		
			requirements/ do178b_autopilot_requirements.docx#Si
Turn Knob	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si
zero	Link#1	label: Target:	"1.3. Roll Hold Reference" ..₩requirements ₩do178b_autopilot_requirements.docx, at 'Simulink_requirement_item_3' [file:///c:/ Applications/Seminars/ MBD_Autopilot/ requirements/ do178b_autopilot_requirements.docx#Si

.

5.5. System - Latch Phi



.

6장. System Model Configuration

표 6.1. roll_ap Configuration Set

Property	Value
Description	
Components	[roll_ap Configuration Set.Components(1) [69] , roll_ap Configuration Set.Components(2) [70] , roll_ap Configuration Set.Components(3) [71] , roll_ap Configuration Set.Components(4) [72] , roll_ap Configuration Set.Components(5) [74] , roll_ap Configuration Set.Components(6) [76] , roll_ap Configuration Set.Components(7) [76] , roll_ap Configuration Set.Components(8) [77]]
Name	DO-178B Config Set
SimulationMode	normal

표 6.2. roll_ap Configuration Set.Components [69](1)

Property	Value
Name	Solver
Description	
Components	
StartTime	0.0
StopTime	25
AbsTol	auto
FixedStep	1/40
InitialStep	auto
MaxNumMinSteps	-1
MaxOrder	5
ZcThreshold	auto
ConsecutiveZCsStepRelTol	10*128*eps
MaxConsecutiveZCs	1000
ExtrapolationOrder	4
NumberNewtonIterations	1
MaxStep	auto
MinStep	auto
MaxConsecutiveMinStep	1
RelTol	1e-3

SolverMode	SingleTasking
EnableConcurrentExecution	off
ConcurrentTasks	off
Solver	FixedStepDiscrete
SolverName	FixedStepDiscrete
SolverType	Fixed-step
SolverJacobianMethodControl	auto
ShapePreserveControl	DisableAll
ZeroCrossControl	UseLocalSettings
ZeroCrossAlgorithm	Nonadaptive
SolverResetMethod	Fast
PositivePriorityOrder	off
AutoInsertRateTranBlk	off
SampleTimeConstraint	Unconstrained
InsertRTBMode	Whenever possible
SampleTimeProperty	roll_ap Configuration Set.Components(1).SampleTimeProperty [78]

표 6.3. roll_ap Configuration Set.Components [69](2)

Property	Value
Name	Data Import/Export
Description	
Components	
Decimation	1
ExternalInput	rollIn
FinalStateName	xFinal
InitialState	xInitial
LimitDataPoints	off
MaxDataPoints	1000
LoadExternalInput	off
LoadInitialState	off
SaveFinalState	off
SaveCompleteFinalSimState	off
SaveFormat	StructureWithTime
SignalLoggingSaveFormat	Dataset
SaveOutput	off
SaveState	off
SignalLogging	on
DSMLogging	off

InspectSignalLogs	off
SaveTime	off
ReturnWorkspaceOutputs	off
StateSaveName	xout
TimeSaveName	tout
OutputSaveName	Ail_Cmd
SignalLoggingName	sigsOut
DSMLoggingName	dsmout
OutputOption	RefineOutputTimes
OutputTimes	[]
ReturnWorkspaceOutputsName	out
Refine	1

표 6.4. roll_ap Configuration Set.Components [69](3)

Property	Value
Name	Optimization
Description	
Components	
BlockReduction	off
BooleanDataType	on
ConditionallyExecuteInputs	on
InlineParams	on
UseIntDivNetSlope	off
UseFloatMulNetSlope	off
UseSpecifiedMinMax	off
InlineInvariantSignals	on
OptimizeBlockIOStorage	on
BufferReuse	on
EnhancedBackFolding	off
StrengthReduction	off
AdvancedOptControl	-SLCI
EnforceIntegerDowncast	on
ExpressionFolding	on
BooleansAsBitfields	off
BitfieldContainerType	uint_T
EnableMemcpy	on
MemcpyThreshold	64
PassReuseOutputArgsAs	Structure reference
PassReuseOutputArgsThreshold	12

FoldNonRolledExpr	on
LocalBlockOutputs	on
RollThreshold	5
SystemCodeInlineAuto	off
StateBitsets	off
DataBitsets	off
UseTempVars	off
ZeroExternalMemoryAtStartup	on
ZeroInternalMemoryAtStartup	on
InitFltsAndDblsToZero	off
NoFixptDivByZeroProtection	off
EfficientFloat2IntCast	on
EfficientMapNaN2IntZero	off
OptimizeModelRefInitCode	on
LifeSpan	inf
EvaledLifeSpan	Inf
MaxStackSize	inf
BufferReusableBoundary	on
SimCompilerOptimization	Off
AccelVerboseBuild	off
ParallelExecutionInRapidAccelerator	on

표 6.5. roll_ap Configuration Set.Components [69](4)

Property	Value
Name	Diagnostics
Description	
Components	
RTPrefix	error
ConsistencyChecking	none
ArrayBoundsChecking	none
SignalInfNanChecking	error
SignalRangeChecking	error
ReadBeforeWriteMsg	EnableAllAsError
WriteAfterWriteMsg	EnableAllAsError
WriteAfterReadMsg	EnableAllAsError
AlgebraicLoopMsg	error
ArtificialAlgebraicLoopMsg	error
SaveWithDisabledLinksMsg	error
SaveWithParameterizedLinksMsg	error

CheckSSInitialOutputMsg	on
UnderspecifiedInitializationDetection	Simplified
MergeDetectMultiDrivingBlocksExec	none
CheckExecutionContextPreStartOutputMsg	on
CheckExecutionContextRuntimeOutputMsg	on
SignalResolutionControl	UseLocalSettings
BlockPriorityViolationMsg	error
MinStepSizeMsg	warning
TimeAdjustmentMsg	none
MaxConsecutiveZCsMsg	warning
MaskedZcDiagnostic	warning
IgnoredZcDiagnostic	warning
SolverPrmCheckMsg	error
InheritedTsInSrcMsg	error
DiscreteInheritContinuousMsg	error
MultiTaskDSMMsg	error
MultiTaskCondExecSysMsg	error
MultiTaskRateTransMsg	error
SingleTaskRateTransMsg	error
TasksWithSamePriorityMsg	error
SigSpecEnsureSampleTimeMsg	error
CheckMatrixSingularityMsg	error
IntegerOverflowMsg	error
Int32ToFloatConvMsg	warning
ParameterDowncastMsg	error
ParameterOverflowMsg	error
ParameterUnderflowMsg	error
ParameterPrecisionLossMsg	error
ParameterTunabilityLossMsg	error
FixptConstUnderflowMsg	none
FixptConstOverflowMsg	none
FixptConstPrecisionLossMsg	none
UnderSpecifiedDataTypeMsg	error
UnnecessaryDatatypeConvMsg	warning
VectorMatrixConversionMsg	error
InvalidFcnCallConnMsg	error
FcnCallInpInsideContextMsg	EnableAllAsError
SignalLabelMismatchMsg	error
UnconnectedInputMsg	error

UnconnectedOutputMsg	error
UnconnectedLineMsg	error
SFcnCompatibilityMsg	error
FrameProcessingCompatibilityMsg	warning
UniqueDataStoreMsg	error
BusObjectLabelMismatch	error
RootOutportRequireBusObject	error
AssertControl	DisableAll
Echo	
EnableOverflowDetection	off
ModelReferenceIOMsg	error
ModelReferenceVersionMismatchMessage	none
ModelReferenceIOMismatchMessage	error
ModelReferenceCSMismatchMessage	warning
ModelReferenceSimTargetVerbose	off
UnknownTsInhSupMsg	error
ModelReferenceDataLoggingMessage	error
ModelReferenceSymbolNameMessage	warning
ModelReferenceExtraNoncontSigs	none
StateNameClashWarn	warning
SimStateInterfaceChecksumMismatchMsg	warning
SimStateOlderReleaseMsg	error
InitInArrayFormatMsg	warning
StrictBusMsg	ErrorOnBusTreatedAsVector
BusNameAdapt	WarnAndRepair
NonBusSignalsTreatedAsBus	error
LoggingUnavailableSignals	error
SFUnusedDataAndEventsDiag	warning
SFUnexpectedBacktrackingDiag	warning
SFInvalidInputDataAccessInChartInitDiag	warning
SFNoUnconditionalDefaultTransitionDiag	warning
SFTransitionOutsideNaturalParentDiag	warning
SFUnconditionalTransitionShadowingDiag	warning
SFUndirectedBroadcastEventsDiag	warning
SFTransitionActionBeforeConditionDiag	warning

표 6.6. roll_ap Configuration Set.Components [69](5)

Property	Value
Name	Hardware Implementation

Description	
Components	
ProdBitPerChar	8
ProdBitPerShort	16
ProdBitPerInt	32
ProdBitPerLong	32
ProdBitPerLongLong	64
ProdBitPerFloat	32
ProdBitPerDouble	64
ProdBitPerPointer	32
ProdLargestAtomicInteger	Char
ProdLargestAtomicFloat	None
ProdIntDivRoundTo	Undefined
ProdEndianess	Unspecified
ProdWordSize	32
ProdShiftRightIntArith	on
ProdLongLongMode	off
ProdHWDeviceType	32-bit Embedded Processor
TargetBitPerChar	8
TargetBitPerShort	16
TargetBitPerInt	32
TargetBitPerLong	32
TargetBitPerLongLong	64
TargetBitPerFloat	32
TargetBitPerDouble	64
TargetBitPerPointer	32
TargetLargestAtomicInteger	Char
TargetLargestAtomicFloat	None
TargetShiftRightIntArith	on
TargetLongLongMode	off
TargetIntDivRoundTo	Undefined
TargetEndianess	Unspecified
TargetWordSize	32
TargetTypeEmulationWarnSuppressLevel	0
TargetPreprocMaxBitsSint	32
TargetPreprocMaxBitsUint	32
TargetHWDeviceType	32-bit Generic
TargetUnknown	off
ProdEqTarget	on

표 6.7. roll_ap Configuration Set.Components [69](6)

Property	Value
Name	Model Referencing
Description	
Components	
UpdateModelReferenceTargets	IfOutOfDateOrStructuralChange
CheckModelReferenceTargetMessage	error
EnableParallelModelReferenceBuilds	off
ParallelModelReferenceErrorOnInvalidPool	on
ParallelModelReferenceMATLABWorkerInit	None
ModelReferenceNumInstancesAllowed	Multi
PropagateVarSize	Infer from blocks in model
ModelDependencies	
ModelReferencePassRootInputsByReference	on
ModelReferenceMinAlgLoopOccurrences	off
PropagateSignalLabelsOutOfModel	off
SupportModelReferenceSimTargetCustomCode	off

표 6.8. roll_ap Configuration Set.Components [69](7)

Property	Value
Name	Simulation Target
Description	
Components	
SimCustomSourceCode	
SimCustomHeaderCode	
SimCustomInitializer	
SimCustomTerminator	
SimReservedNameArray	
SimUserSources	
SimUserIncludeDirs	
SimUserLibraries	
SFSimEnableDebug	on
SFSimOverflowDetection	on
SFSimEcho	on
SimBlas	on
SimCtrlC	on
SimExtrinsic	on

SimIntegrity	on
SimUseLocalCustomCode	off
SimParseCustomCode	on
SimBuildMode	sf_incremental_build
SimDataInitializer	

표 6.9. roll_ap Configuration Set.Components [69](8)

Property	Value
Name	Code Generation
SystemTargetFile	ert.tlc
TLCOptions	
CodeGenDirectory	
GenCodeOnly	off
MakeCommand	make_rtw
GenerateMakefile	on
PackageGeneratedCodeAndArtifacts	off
PackageName	
TemplateMakefile	ert_default_tmf
PostCodeGenCommand	
Description	Embedded Coder
GenerateReport	on
SaveLog	off
RTWVerbose	off
RetainRTWFile	off
ProfileTLC	off
TLCDebug	off
TLCCoverage	off
TLCAssert	off
ProcessScriptMode	Default
ConfigurationMode	Optimized
ProcessScript	ert_make_rtw_hook
ConfigurationScript	
ConfigAtBuild	off
RTWUseLocalCustomCode	off
RTWUseSimCustomCode	off
CustomSourceCode	
CustomHeaderCode	
CustomInclude	

CustomSource	
CustomLibrary	
CustomInitializer	
CustomTerminator	
IncludeHyperlinkInReport	on
LaunchReport	on
PortableWordSizes	on
GenerateErtSFunction	off
CreateSILPILBlock	None
CodeExecutionProfiling	off
CodeExecutionProfileVariable	executionProfile
CodeProfilingSaveOptions	SummaryOnly
CodeProfilingInstrumentation	off
SILDebugging	off
TargetLang	C
IncludeRootSignalInRTWFile	off
IncludeVirtualBlocksInRTWFileBlockHierarchyMap	off
IncludeRegionsInRTWFileBlockHierarchyMap	off
IncludeERTFirstTime	off
GenerateTraceInfo	on
GenerateTraceReport	on
GenerateTraceReportSl	on
GenerateTraceReportSf	on
GenerateTraceReportEml	on
GenerateCodeInfo	off
GenerateWebview	off
GenerateCodeMetricsReport	off
GenerateCodeReplacementReport	off
RTWCompilerOptimization	Off
ObjectivePriorities	
RTWCustomCompilerOptimizations	
CheckMdlBeforeBuild	Off
CustomRebuildMode	OnUpdate
DataInitializer	
Components	[roll_ap Configuration Set.Components(8).Components(1) [79] , roll_ap Configuration Set.Components(8).Components(2) [80]]

표 6.10. roll_ap Configuration Set.Components(1) [69].SampleTimeProperty

Field	Value
SampleTime	1/40
Offset	0
Priority	1

표 6.11. roll_ap Configuration Set.Components(8).Components [78](1)

Property	Value
Name	Code Appearance
Description	
Components	
Comment	
ForceParamTrailComments	on
GenerateComments	on
IgnoreCustomStorageClasses	off
IgnoreTestpoints	off
IncHierarchyInIds	off
MaxIdLength	63
PreserveName	off
PreserveNameWithParent	off
ShowEliminatedStatement	on
OperatorAnnotations	off
IncAutoGenComments	off
SimulinkDataObjDesc	off
SFDataObjDesc	off
MATLABFcnDesc	off
IncDataTypeInIds	off
PrefixModelToSubsysFcnNames	on
MangleLength	4
CustomSymbolStr	RN$M
CustomSymbolStrGlobalVar	RN$M
CustomSymbolStrType	NR$M
CustomSymbolStrField	NM
CustomSymbolStrFcn	RNMF
CustomSymbolStrFcnArg	rt$I$N$M
CustomSymbolStrBlkIO	rtb_NM
CustomSymbolStrTmpVar	NM
CustomSymbolStrMacro	RN$M

CustomCommentsFcn	
DefineNamingRule	None
DefineNamingFcn	
ParamNamingRule	None
ParamNamingFcn	
SignalNamingRule	None
SignalNamingFcn	
InsertBlockDesc	off
InsertPolySpaceComments	off
SimulinkBlockComments	on
MATLABSourceComments	off
EnableCustomComments	off
InternalIdentifier	Classic
InlinedPrmAccess	Literals
ReqsInCode	on
UseSimReservedNames	off
ReservedNameArray	

표 6.12. roll_ap Configuration Set.Components(8).Components [78](2)

Property	Value
Name	Target
Description	
Components	
IsERTTarget	on
TargetFcnLib	ansi_tfl_table_tmw.mat
TargetLibSuffix	
TargetPreCompLibLocation	
GenFloatMathFcnCalls	ANSI_C
TargetFunctionLibrary	ANSI_C
CodeReplacementLibrary	ANSI_C
UtilityFuncGeneration	Shared location
ERTMultiwordTypeDef	System defined
ERTMultiwordLength	256
MultiwordLength	2048
GenerateFullHeader	on
GenerateSampleERTMain	off
GenerateTestInterfaces	off
IsPILTarget	off
ModelReferenceCompliant	on

ParMdlRefBuildCompliant	on
CompOptLevelCompliant	on
ConcurrentExecutionCompliant	on
IncludeMdlTerminateFcn	on
GeneratePreprocessorConditionals	Disable all
CombineOutputUpdateFcns	on
CombineSignalStateStructs	off
SuppressErrorStatus	on
ERTFirstTimeCompliant	on
IncludeFileDelimiter	Auto
ERTCustomFileBanners	on
SupportAbsoluteTime	off
LogVarNameModifier	rt_
MatFileLogging	off
MultiInstanceERTCode	off
SupportNonFinite	off
SupportComplex	off
PurelyIntegerCode	off
SupportContinuousTime	off
SupportNonInlinedSFcns	off
SupportVariableSizeSignals	off
ParenthesesLevel	Maximum
GenerateClassInterface	off
ModelStepFunctionPrototypeControlCompliant	on
CPPClassGenCompliant	on
AutosarCompliant	off
GRTInterface	off
GenerateAllocFcn	off
GenerateASAP2	off
ExtMode	off
ExtModeTransport	0
ExtModeStaticAlloc	off
ExtModeStaticAllocSize	1000000
ExtModeTesting	off
ExtModeMexFile	ext_comm
ExtModeMexArgs	
ExtModeIntrfLevel	Level1
InlinedParameterPlacement	Hierarchical
TargetOS	BareBoardExample

MultiInstanceErrorCode	None
RateGroupingCode	on
RootIOFormat	Individual arguments
RTWCAPISignals	off
RTWCAPIParams	off
RTWCAPIStates	off
RTWCAPIRootIO	off
ERTSrcFileBannerTemplate	ert_code_template.cgt
ERTHdrFileBannerTemplate	ert_code_template.cgt
ERTDataSrcFileTemplate	ert_code_template.cgt
ERTDataHdrFileTemplate	ert_code_template.cgt
ERTCustomFileTemplate	example_file_process.tlc
InitialValueSource	Model
ModuleNamingRule	Unspecified
ModuleName	
EnableDataOwnership	off
SignalDisplayLevel	10
ParamTuneLevel	10
GlobalDataDefinition	Auto
DataDefinitionFile	global.c
GlobalDataReference	Auto
ERTFilePackagingFormat	Modular
DataReferenceFile	global.h
PreserveExpressionOrder	on
PreserveIfCondition	on
ConvertIfToSwitch	off
PreserveExternInFcnDecls	on
SuppressUnreachableDefaultCases	off
EnableUserReplacementTypes	off
ReplacementTypes	roll_ap Configuration Set.Components(8).Components(2).ReplacementTypes [82
MemSecPackage	--- None ---
MemSecDataConstants	Default
MemSecDataIO	Default
MemSecDataInternal	Default
MemSecDataParameters	Default
MemSecFuncInitTerm	Default
MemSecFuncExecute	Default
MemSecFuncSharedUtil	Default

표 6.13. roll_ap Configuration Set.Components(8).Components(2) [80].ReplacementTypes

Field	Value
double	
single	
int32	
int16	
int8	
uint32	
uint16	
uint8	
boolean	
int	
uint	
char	

7장. Glossary

Atomic Subsystem. A subsystem treated as a unit by an implementation of the design documented in this report. The implementation computes the outputs of all the blocks in the atomic subsystem before computing the next block in the parent system's block execution order (sorted list).

Block Diagram. A Simulink block diagram represents a set of simultaneous equations that relate a system or subsystem's inputs to its outputs as a function of time. Each block in the diagram represents an equation of the form y = f(t, x, u) where t is the current time, u is a block input, y is a block output, and x is a system state (see the Simulink documentation for information on the functions represented by the various types of blocks that make up the diagram). Lines connecting the blocks represent dependencies amonng the blocks, i.e., inputs whose current values are the outputs of other blocks. An implementation of a design described in this document computes a root or atomic system's outputs at each time step by computing the outputs of the blocks in an order determined by block input/ output dependencies.

Block Parameter. A variable that determines the output of a block along with its inputs, for example, the gain parameter of a Gain block.

Block Execution Order. The order in which Simulink evaluates blocks during simulation of a model. The block execution order determined by Simulink ensures that a block executes only after all blocks on whose outputs it depends are executed.

Checksum. A number that indicates whether different versions of a model or atomic subsystem differ functionally or only cosmetically. Different checksums for different versions of the same model or subsystem indicate that the versions differ functionally.

Design Variable. A symbolic (MATLAB) variable or expression used as the value of a block parameter. Design variables allow the behavior of the model to be altered by altering the value of the design variable.

Signal. A block output, so-called because block outputs typically vary with time.

Virtual Subsystem. A subsystem that is purely graphical, i.e., is intended to reduce the visual complexity of the block diagram of which it is a subsystem. An implementation of the design treats the blocks in the subsystem as part of the first nonvirtual ancestor of the virtual subsystem (see Atomic Subsystem).

8장. About this Report

차례

8.1. Report Overview

This report describes the design of the roll_ap system. The report was generated automatically from a Simulink model used to validate the design. It contains the following sections:

Model Version. Specifies information about the version of the model from which this design description was generated. Includes the model checksum, a number that indicates whether different versions of the model differ functionally or only cosmetically. Different checksums for different versions indicate that the versions differ functionally.

Root System. Describes the design's root system.

Subsystems. Describes each of the design's subsystems.

Design Variables. Describes system design variables, i.e., MATLAB variables and expressions used as block parameter values.

System Model Configuration. Lists the configuration parameters, e.g., start and stop time, of the model used to simulate the system described by this report.

Requirements Traceability. Shows design requirements associated with elements of the design model. This section appears only if the design model contains requirements links.

Glossary. Defines Simulink terms used in this report.

8.2. Root System Description

This section describes a design's root system. It contains the following sections:

Diagram. Simulink block diagram that represents the algorithm used to compute the root system's outputs.

Description. Description of the root system. This section appears only if the model's root system has a Documentation property or a Doc block.

Interface. Name, data type, width, and other properties of the root system's input and output signals. The number of the block port that outputs the signal appears in angle brackets appended to the signal name. This section appears only if the root system has input or output ports.

Blocks. This section has two subsections:

- Parameters. Describes key parameters of blocks in the root system. This section also includes graphical and/or tabular representations of lookup table data used by lookup table blocks, i.e., blocks that use lookup tables to compute their outputs.
- Block Execution Order. Order in which blocks must be executed at each time step in order to ensure that each block's inputs are available when it executes.

State Charts. Describes state charts used in the root system. This section appears only if the root system contains Stateflow blocks.

8.3. Subsystem Descriptions

This section describes a design's subsystems. Each subsystem description contains the following sections:

Checksum. This section appears only if the subsystem is an atomic subsystem. The checksum indicates whether the version of the model subsystem used to generate this report differs functionally from other versions of the model subsystem. If two model checksums differ, the corresponding versions of the model differ functionally.

Diagram. Simulink block diagram that graphically represents the algorithm used to compute the subsystem's outputs.

Description. Description of the subsystem. This section appears only if the subsystem has a Documentation property or contains a Doc block.

Interface. Name, data type, width, and other properties of the subsystem's input and output signals. The number of the block port that outputs the signal appears in angle brackets appended to the signal name. This section appears only if the subsystem is atomic and has input or output ports.

Blocks. Blocks that this subsystem contains. This section has two subsections:

- Parameters. Key parameters of blocks in the subsystem. This section also includes graphical and/or tabular representations of lookup table data used by lookup table blocks, blocks that use lookup tables to compute their outputs.
- Block Execution Order. Order in which the subsystem's blocks must be executed at each time step in order to ensure that each block's inputs are available when the block executes .This section appears only if the subsystem is atomic.

State Charts. Describes state charts used in the subsystem. This section appears only if the root system contains Stateflow blocks.

8.4. State Chart Descriptions

This section describes the state machines used by Stateflow blocks to compute their outputs, i.e., Stateflow blocks. Each state machine description contains the following sections:

Chart. Diagram representing the state machine.

States. Describes the state machine's states. Each state description includes the state's diagram and diagrams and/or descriptions of graphical functions, Simulink functions, truth tables, and MATLAB functions parented by the state.

Transitions. Transitions between the state machine's states. Each transition description specifies the values of key transition properties. Appears only if a transition has properties that do not appear on the chart.

Junctions. Transition junctions. Each junction description specifies the values of key junction properties. Appears only if a junction has properties that do not appear on the chart.

Events. Events that trigger state transitions. Each event description specifies the values of key event properties.

Data. Data types and other properties of the Stateflow block's inputs, outputs, and other state machine data.

Targets. Executable implementations of the state machine used to compute the outputs of the corresponding Stateflow block.

MATLAB Supporting Functions. List of functions invoked by MATLAB functions defined in the chart.