Report Generated by Test Manager

Title: FSM Test: Results report
Author: Team 2 (CoDeAS 20/21)
Date: 26-Feb-2021 09:35:47

Test Environment

Platform: PCWIN64
MATLAB: (R2020b)

Summary

Name	Outcome	Duration (Seconds)
Results: 2021-Feb-26 09:34:31	27 ✓	28.226
FSM_test	27 ✓	28.226
DEAD	5 ✓	14.777
Dead-Dead	✓	11.431
Dead-Regen	✓	0.996
Dead-ED	✓	0.815
Dead-NoCharge	✓	0.675
Dead-Combined	✓	0.794
No Charge	6 ✓	3.745
NoCharge-DEAD	✓	0.582
NoCharge-Regen	✓	0.656
NoCharge-ED	2 ✓	1.256
Iteration1	✓	0.606
Iteration2	✓	0.632
NoCharge-Combined	✓	0.582
NoCharge-NoCharge	✓	0.613
ED	6 ✓	3.642
ED-ED	✓	0.576
ED-Regen	✓	0.583
ED-DEAD	✓	0.587
ED-NoCharge	✓	0.58
ED-Combined	2 ✓	1.263
Iteration1	✓	0.62
Iteration2	✓	0.625
Combined	5 ✓	2.985

Combined-Combined		0.607
Combined-Regen		0.577
Combined-DEAD		0.592
Combined-ED		0.583
Combined-NoCharge		0.571
Regen	5	2.973
Regen-Regen		0.562
Regen-DEAD		0.589
Regen-ED		0.586
Regen-NoCharge		0.583
Regen-Combined		0.594

Results: 2021-Feb-26 09:34:31

Result Type:	Result Set
Parent:	None
Start Time:	26-Feb-2021 09:34:33
End Time:	26-Feb-2021 09:35:01
Outcome:	Total: 27, Passed: 27

Back to Report Summary

FSM_test

Test Result Information

Result Type:	Test File Result
Parent:	Results: 2021-Feb-26 09:34:31
Start Time:	26-Feb-2021 09:34:33
End Time:	26-Feb-2021 09:35:01
Outcome:	Total: 27, Passed: 27

Test Suite Information

Name: FSM_test

Back to Report Summary

DEAD

Test Result Information

Result Type:	Test Suite Result
Parent:	FSM_test
Start Time:	26-Feb-2021 09:34:33
End Time:	26-Feb-2021 09:34:48
Outcome:	Total: 5, Passed: 5
Description:	

This suite contains all the test performed with DEAD as main state. It includes also the transitions from dead to other states.

Test Suite Information

Name: DEAD

Back to Report Summary

Dead-Dead

Test Result Information

Result Type:	Test Case Result
Parent:	DEAD
Start Time:	26-Feb-2021 09:34:33
End Time:	26-Feb-2021 09:34:44
Outcome:	Passed
Description:	

State under test: DEAD (0)

Transition under test: DEAD-DEAD

INPUTS:

- AccPedal: uniformely increasing request

- BrakePedal: 0

- SOC: 0%

- fuelLevel: 0 lt

- SOC: 50%

EXPECTED OUTPUT:

The state should be DEAD for all the testing time.

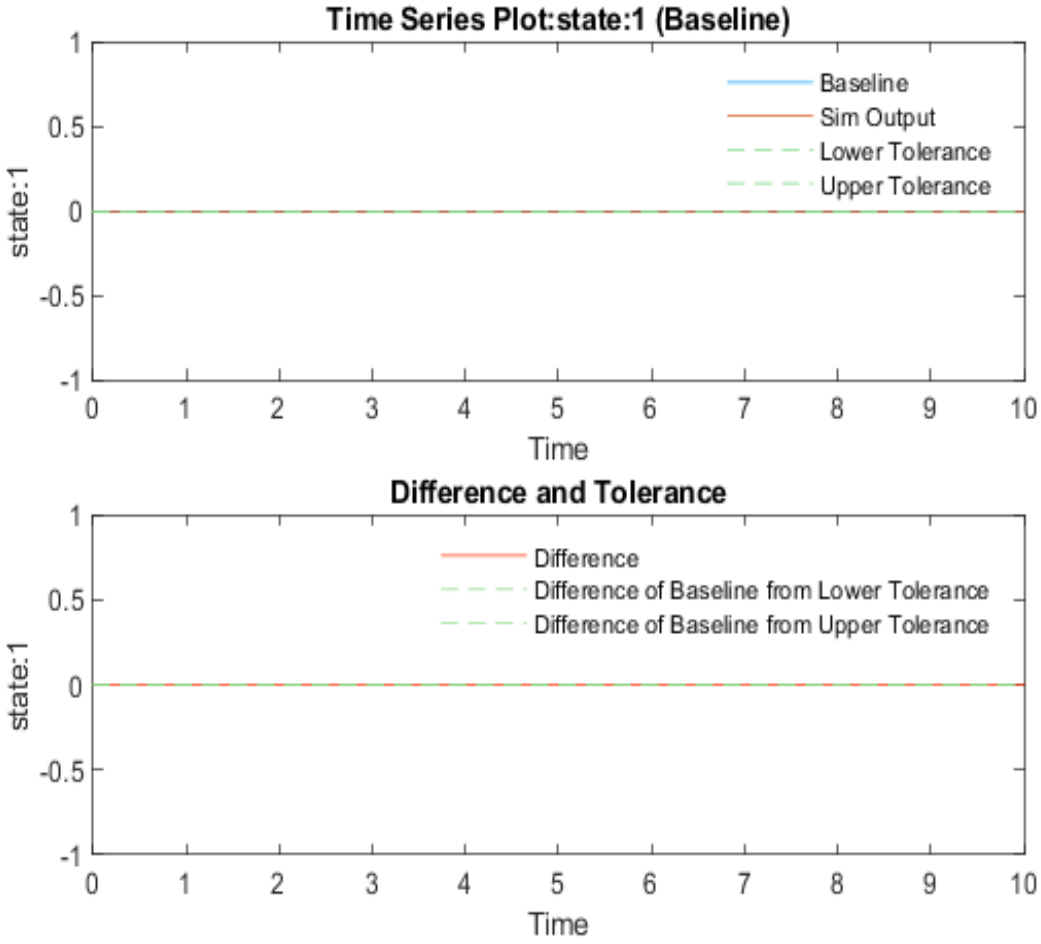
Test Case Information

Name: Dead-Dead
Type: Baseline Test
Baseline Name: Dead_Dead_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Dead_Dead_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

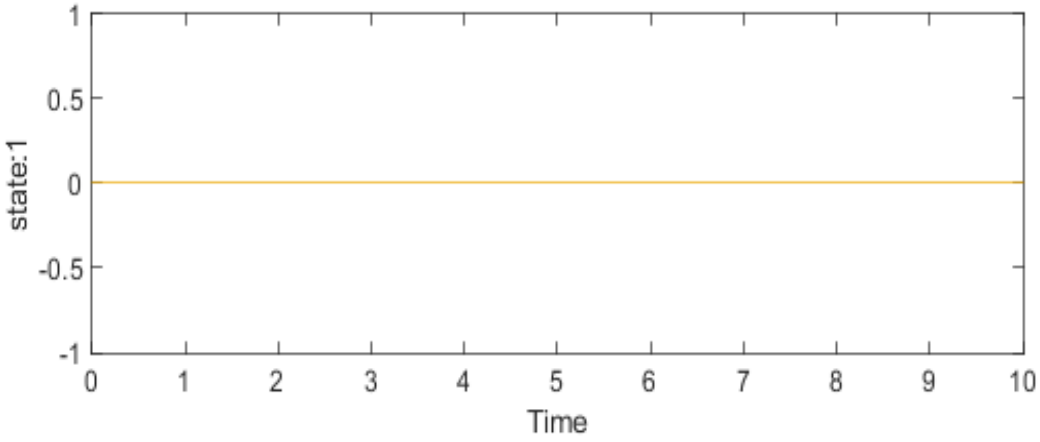
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	Dead1.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead1.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:33
Simulation Stop Time:	2021-02-26 09:34:44
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Dead-Regen

Test Result Information

Result Type:	Test Case Result
Parent:	DEAD
Start Time:	26-Feb-2021 09:34:44

End Time: 26-Feb-2021 09:34:45
Outcome: Passed
Description:

State under test: DEAD (0)

Transition under test: DEAD (0) - REGENERATIVE_BRAKING (4)

INPUT conditions:

- BrakePedal: != 0 at t = 5s

- Fuel < fuelMin

- SOC< SOCMin

EXPECTED OUTPUT:

The state should change to REGENERATIVE_BRAKING (4).

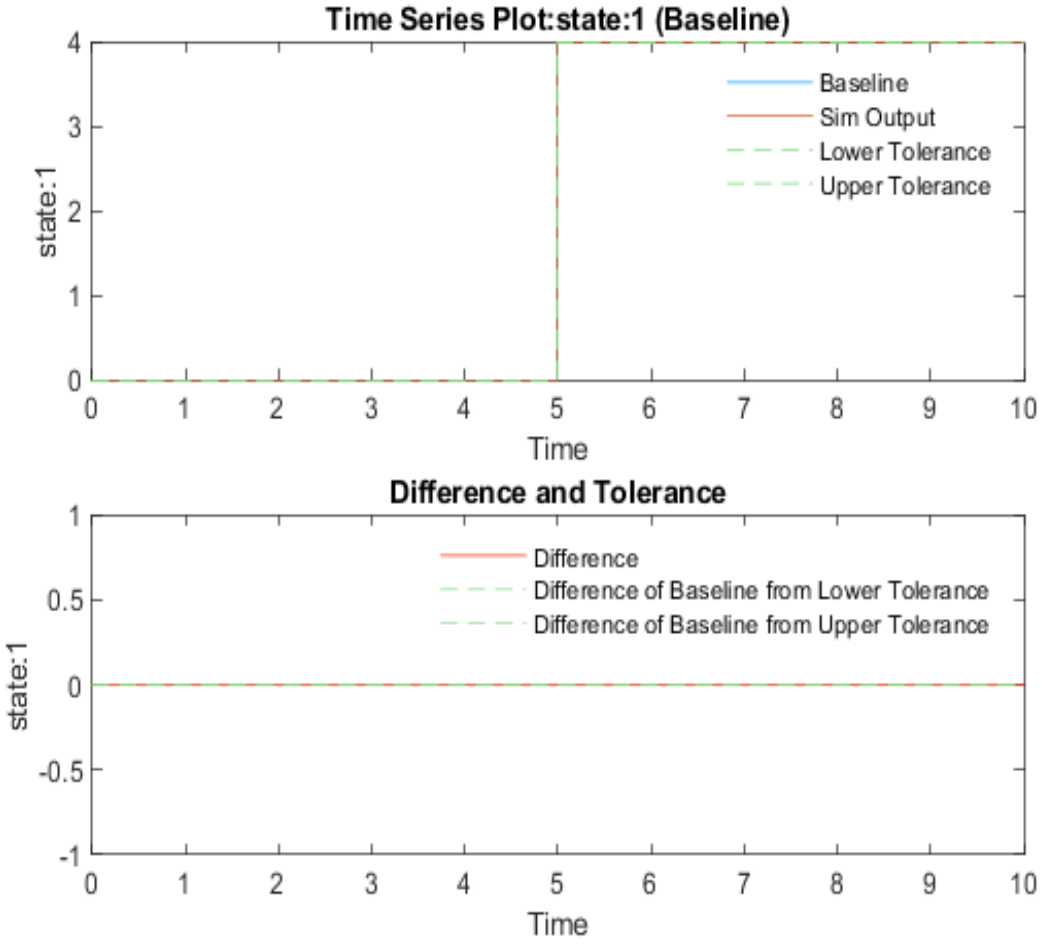
Test Case Information

Name: Dead-Regen
Type: Baseline Test
Baseline Name: Dead_Regen_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Dead_Regen_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

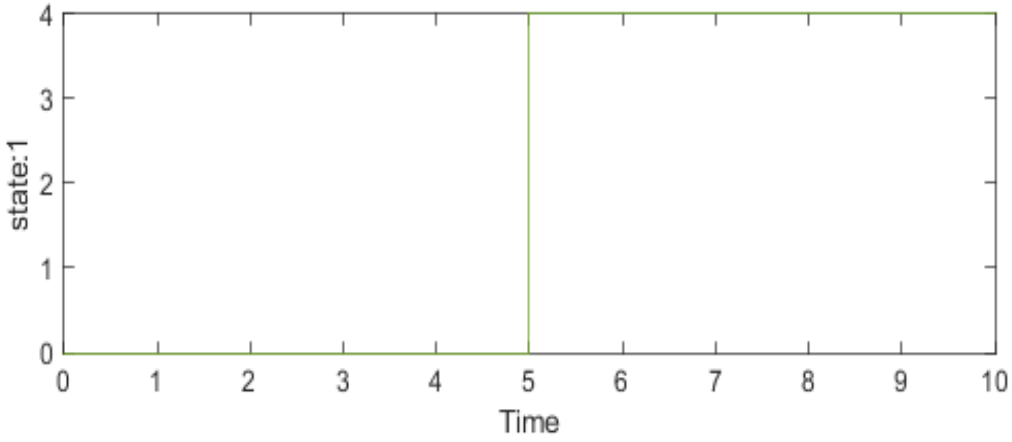
Model: FSM_Model
Release: Current

Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Dead2.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead2.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:44
Simulation Stop Time:	2021-02-26 09:34:45
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Dead-ED

Test Result Information

Result Type:	Test Case Result
Parent:	DEAD
Start Time:	26-Feb-2021 09:34:45

End Time: 26-Feb-2021 09:34:46
Outcome: Passed
Description:

State under test: DEAD (0)

Transition under test: DEAD (0) - ELECTRIC_DRIVE (ED, 2)

INPUT conditions:

- AccPedal < maxAccMGU

- SOC> SOCMin

- fuelLevel: 10 lt

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to ELECTRIC_DRIVE (ED, 2).

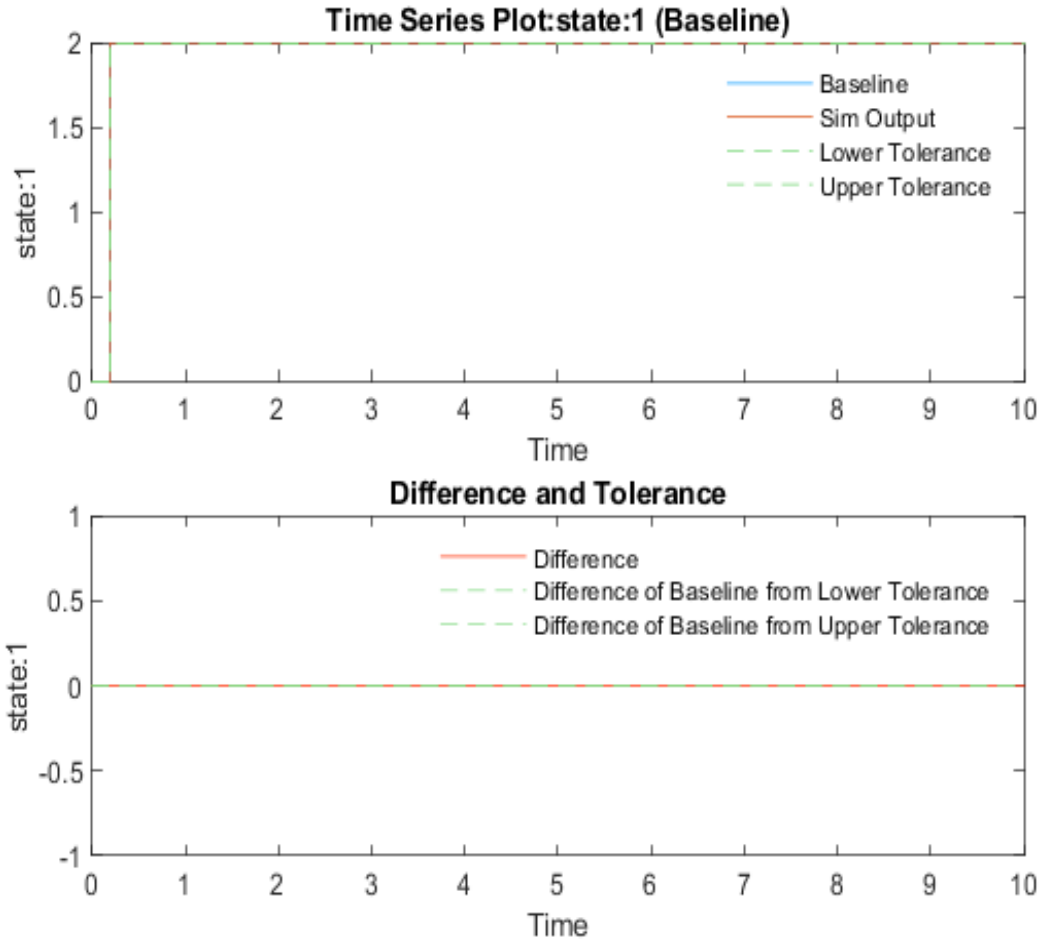
Test Case Information

Name: Dead-ED
Type: Baseline Test
Baseline Name: Dead_ED_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Dead_ED_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

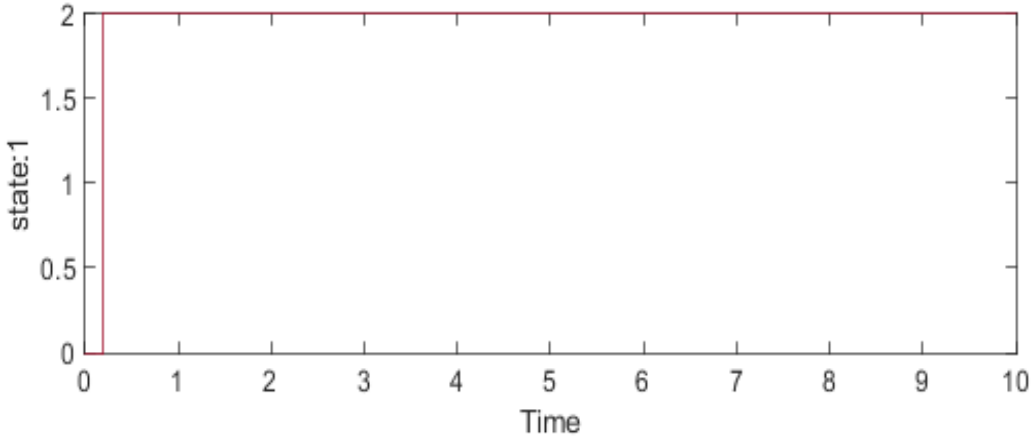
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Dead3.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead3.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:45
Simulation Stop Time:	2021-02-26 09:34:46
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Dead-NoCharge

Test Result Information

Result Type:	Test Case Result
Parent:	DEAD
Start Time:	26-Feb-2021 09:34:46

End Time: 26-Feb-2021 09:34:47
Outcome: Passed
Description:

State under test: DEAD (0)

Transition under test: DEAD (0) - NO_CHARGE (1)

INPUT conditions:

- AccPedal < maxAccICE

- SOC < SOCMin

- Fuel > fuelMin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to NO_CHARGE (1).

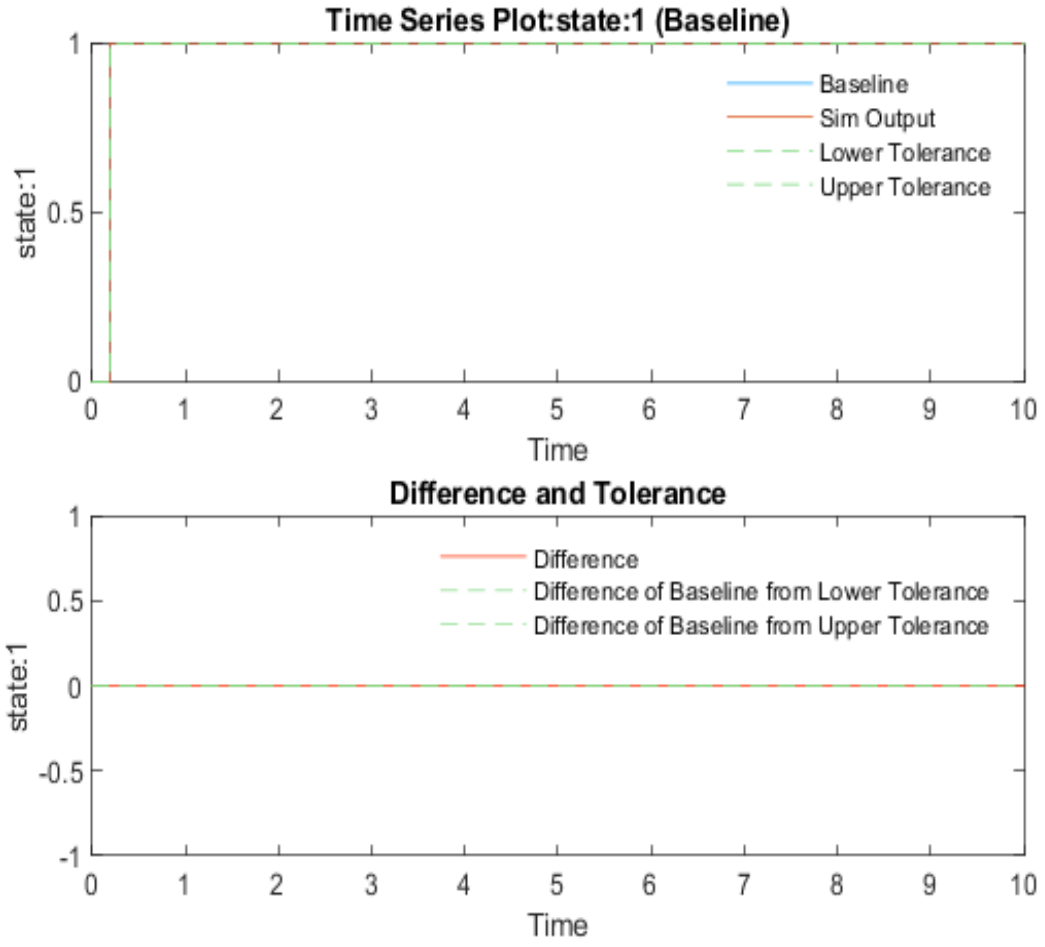
Test Case Information

Name: Dead-NoCharge
Type: Baseline Test
Baseline Name: Dead_NoCharge_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Dead_NoCharge_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

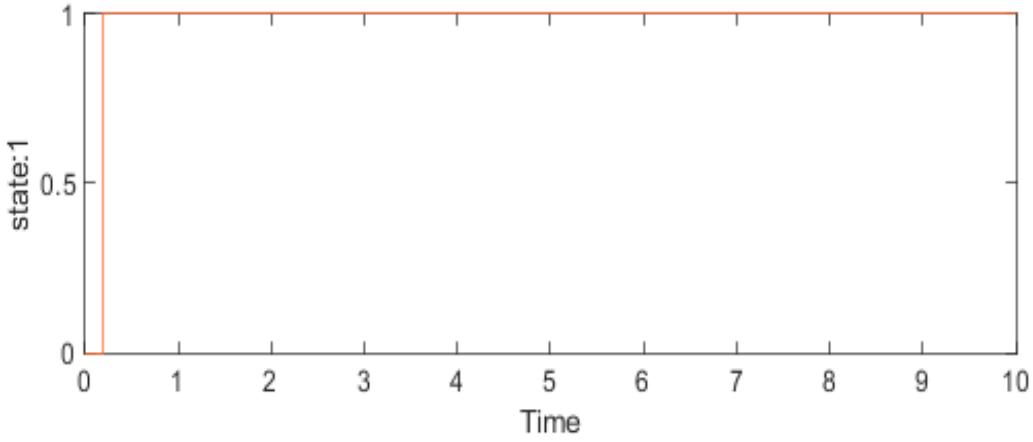
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Dead4.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead4.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:46
Simulation Stop Time:	2021-02-26 09:34:47
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Dead-Combined

Test Result Information

Result Type:	Test Case Result
Parent:	DEAD
Start Time:	26-Feb-2021 09:34:47

End Time: 26-Feb-2021 09:34:48
Outcome: Passed
Description:

State under test: DEAD (0)

Transition under test: DEAD (0) - COMBINED(3)

INPUT conditions:

- AccPedal>maxAccMGU

- SOC > SOCMin

- fuel > fuelMin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to COMBINED (3).

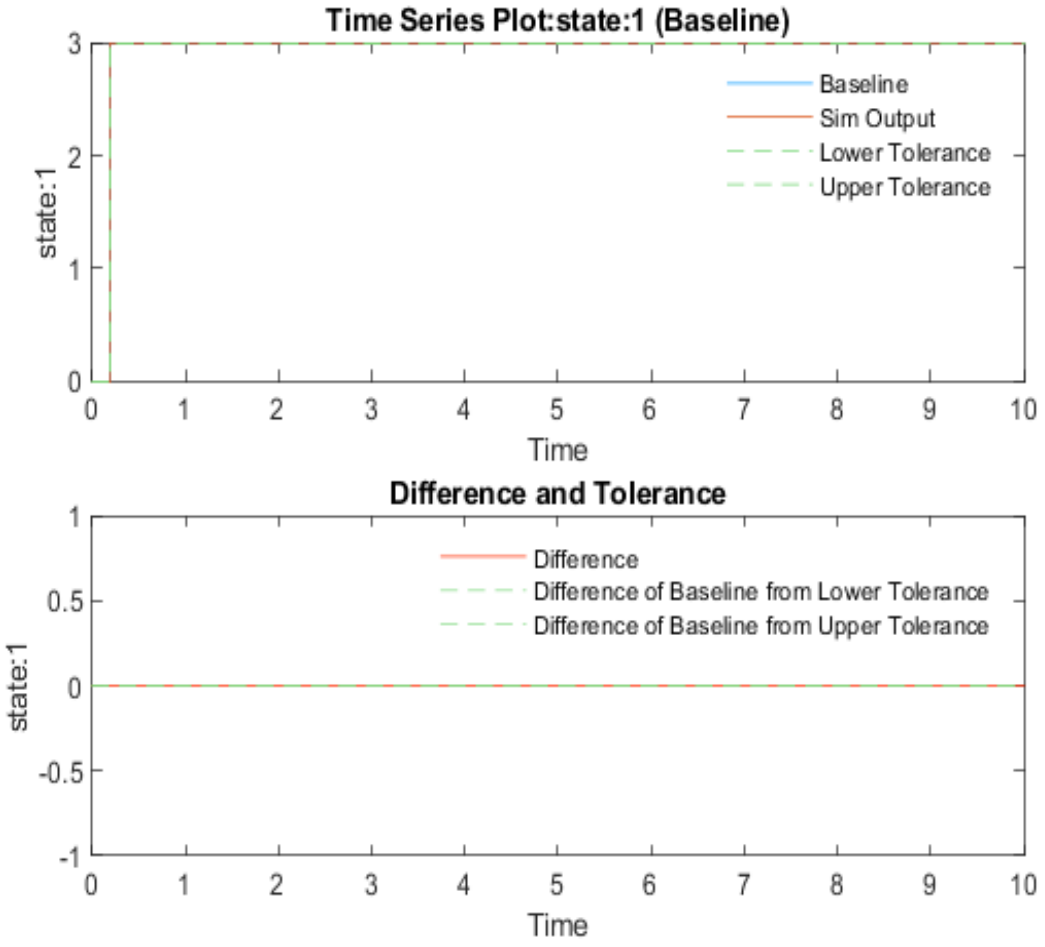
Test Case Information

Name: Dead-Combined
Type: Baseline Test
Baseline Name: Dead_Combined_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Dead_Combined_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

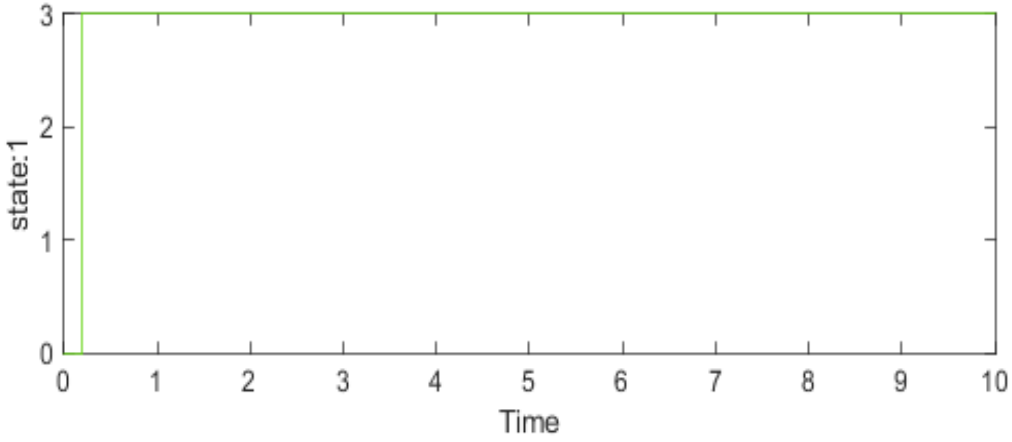
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Dead5.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead5.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:47
Simulation Stop Time:	2021-02-26 09:34:47
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

No Charge

Test Result Information

Result Type:	Test Suite Result
Parent:	FSM_test
Start Time:	26-Feb-2021 09:34:48

End Time: 26-Feb-2021 09:34:51
Outcome: Total: 6, Passed: 6
Description:

From No Charge to all other states. Initially, the FSM starts from DEAD, but soon enters the No Charge state at the first sampling instant.

Test Suite Information

Name: No Charge

Back to Report Summary

NoCharge-DEAD

Test Result Information

Result Type: Test Case Result
Parent: No Charge
Start Time: 26-Feb-2021 09:34:48
End Time: 26-Feb-2021 09:34:48
Outcome: Passed
Description:

State under test: NO_CHARGE (1)

Transition under test: NO_CHARGE (1) - DEAD (0)

INPUT conditions:

- fuel > fuelMin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to DEAD (0).

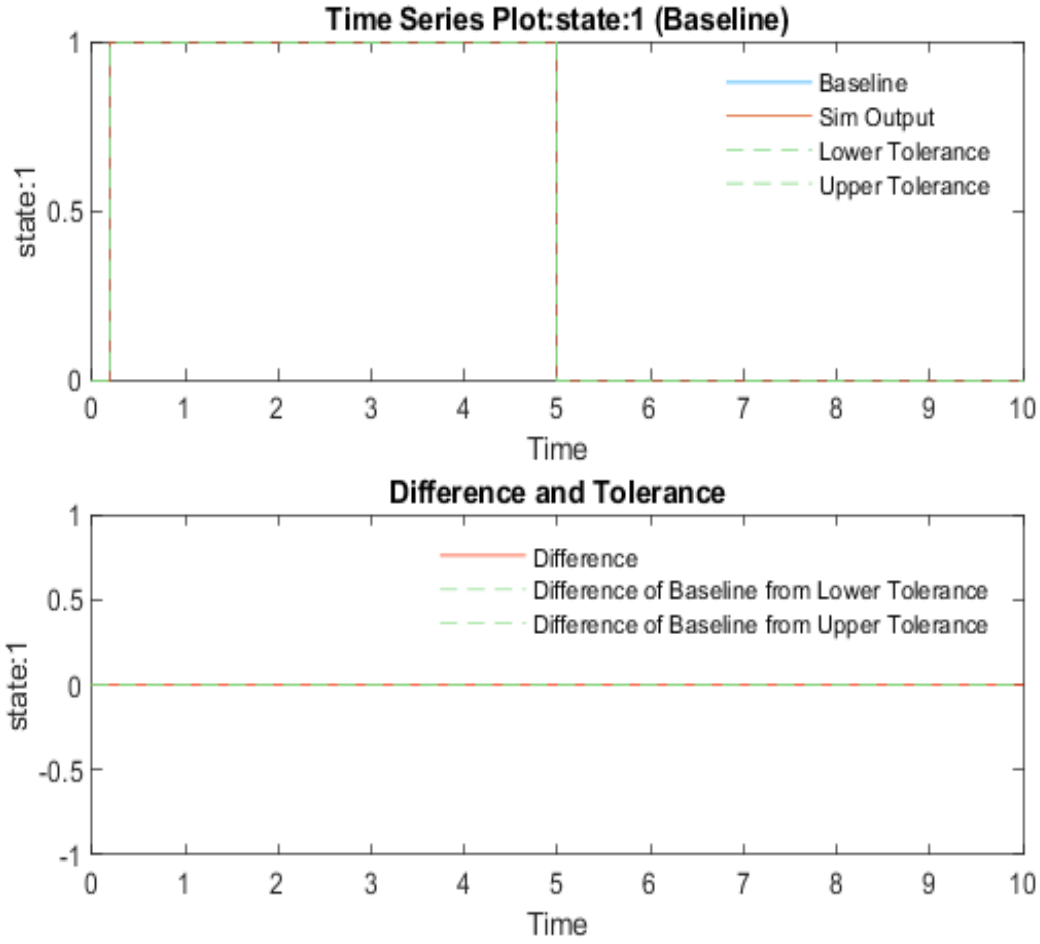
Test Case Information

Name:	NoCharge-DEAD
Type:	Baseline Test
Baseline Name:	NoChargeToDEAD_baseline.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoChargeToDEAD_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

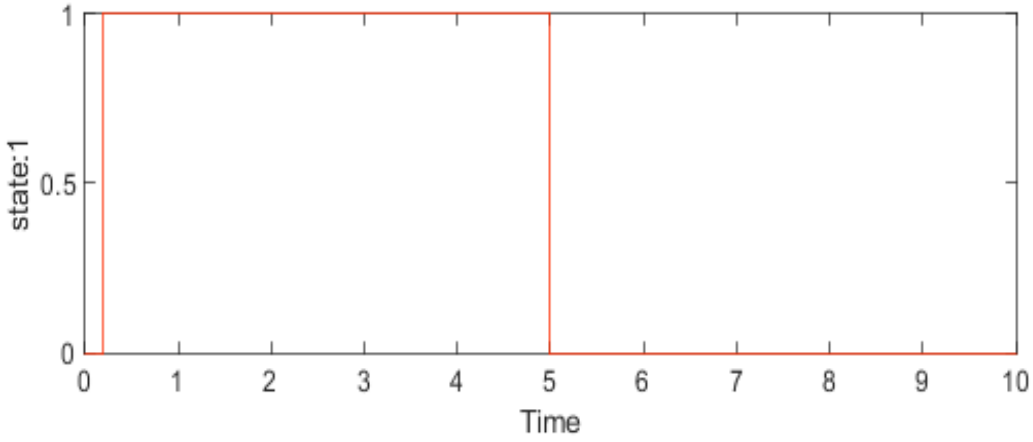
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	NoCharge1.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge1.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:48
Simulation Stop Time:	2021-02-26 09:34:48
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

NoCharge-Regen

Test Result Information

Result Type:	Test Case Result
Parent:	No Charge
Start Time:	26-Feb-2021 09:34:48

End Time: 26-Feb-2021 09:34:49
Outcome: Passed
Description:

State under test: NO_CHARGE (1)

Transition under test: NO_CHARGE (1) - REGENERATIVE_BRAKING (4)

INPUT conditions:

- Fuel > fuelMin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to REGENERATIVE_BRAKING (4).

Test Case Information

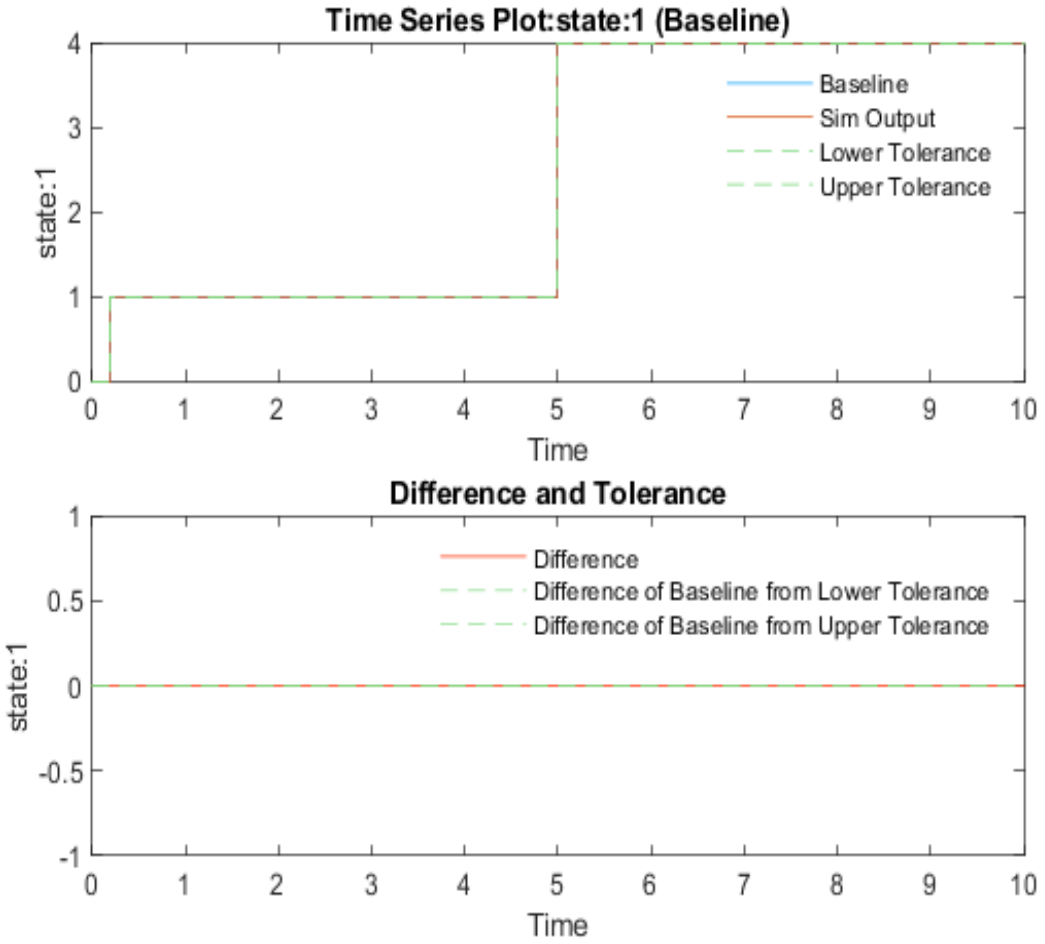
Name: NoCharge-Regen
Type: Baseline Test
Baseline Name: NoChargeToRegen_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoChargeToRegen_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync

state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

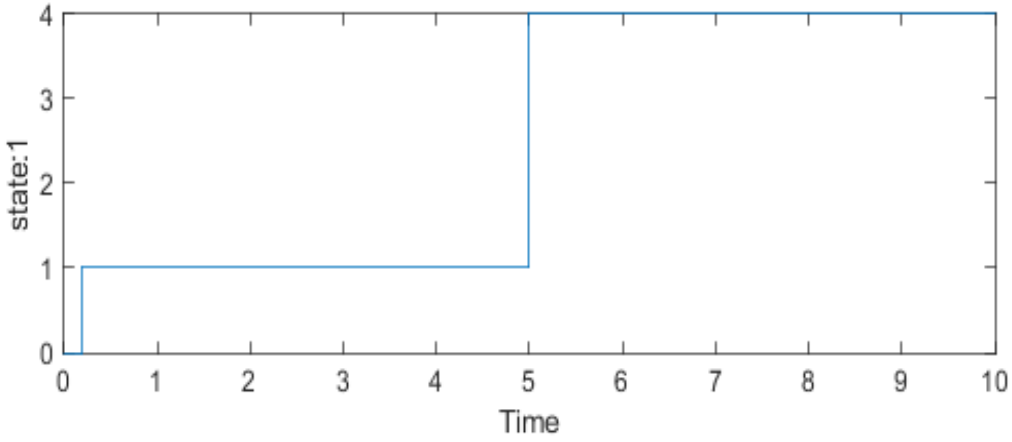
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal

Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	NoCharge2.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge2.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:48
Simulation Stop Time:	2021-02-26 09:34:49
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

NoCharge-ED

Test Result Information

Result Type:	Test Case Result
Parent:	No Charge
Start Time:	26-Feb-2021 09:34:49

End Time: 26-Feb-2021 09:34:50
Outcome: Passed
Description:

State under test: NO_CHARGE (1)

Transition under test: NO_CHARGE (1) - ELECTRIC_DRIVE (ED, 2)

INPUT conditions:

- Fuel > fuelMin

- BrakePedal: 0

- SOC < SOCmin for a while, then SOC>SOCmin

- RealSpeed<SpeedEDMax OR Fuel<fuelMin after a while

EXPECTED OUTPUT:

The state should change to ELECTRIC_DRIVE (ED, 2).

NOTE:

This test is done in two iterations due to the presence of an OR among input conditions.

Test Case Information

Name: NoCharge-ED
Type: Baseline Test

Iteration1

Test Result Information

Result Type:	Test Iteration Result
Parent:	NoCharge-ED
Start Time:	26-Feb-2021 09:34:49
End Time:	26-Feb-2021 09:34:50
Outcome:	Passed

Test Case Information

Name:	Iteration1
Type:	Baseline Test
Baseline Name:	NoCharge_ED_baseline_Iteration1.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoCharge_ED_baseline_Iteration1.mat

Iteration Settings

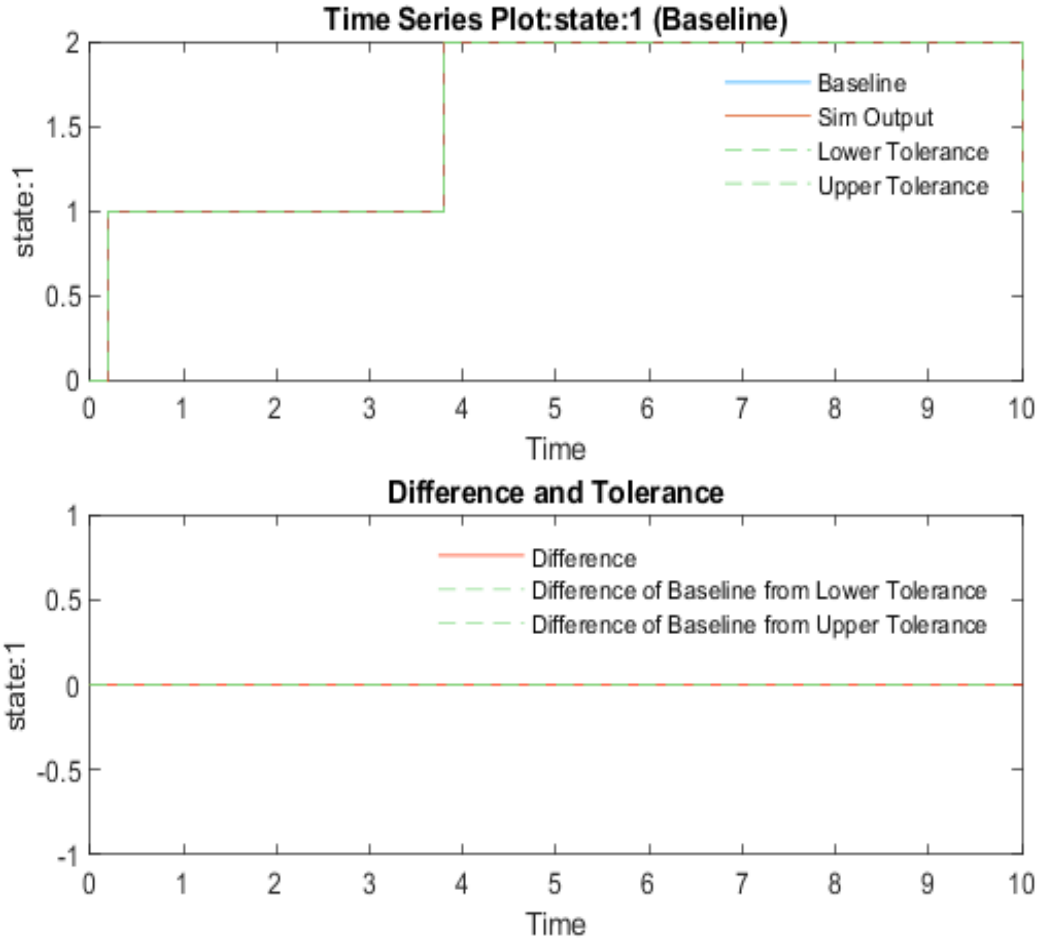
Test Overrides

Parameter Name	Value
ExternalInput	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge3.mat
Baseline	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoChargeToED_baseline2.mat\SLBaselineFiles\Iteration1.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

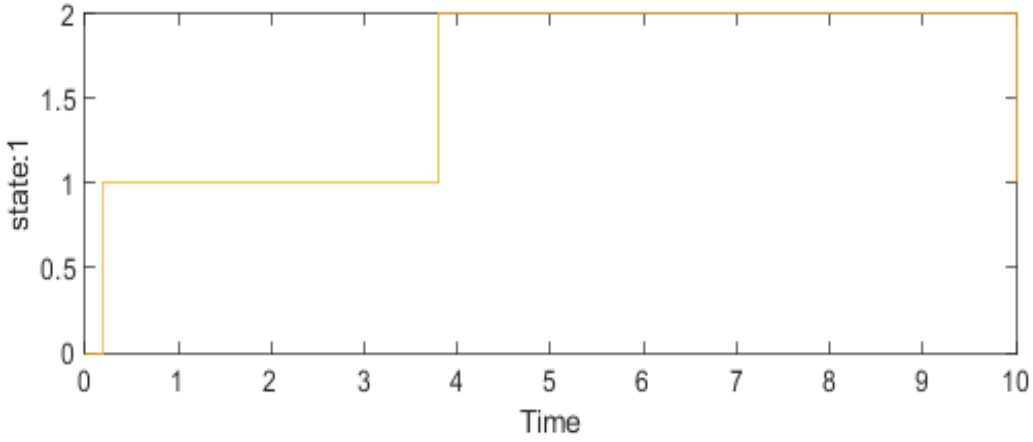
Model: FSM_Model
Release: Current

Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	NoCharge3.mat
External Input File:	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge3.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:49
Simulation Stop Time:	2021-02-26 09:34:49
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Iteration2

Test Result Information

Result Type:	Test Iteration Result
Parent:	NoCharge-ED
Start Time:	26-Feb-2021 09:34:50

End Time: 26-Feb-2021 09:34:50
Outcome: Passed

Test Case Information

Name: Iteration2
Type: Baseline Test
Baseline Name: NoCharge_ED_baseline_Iteration2.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoCharge_ED_baseline_Iteration2.mat

Iteration Settings

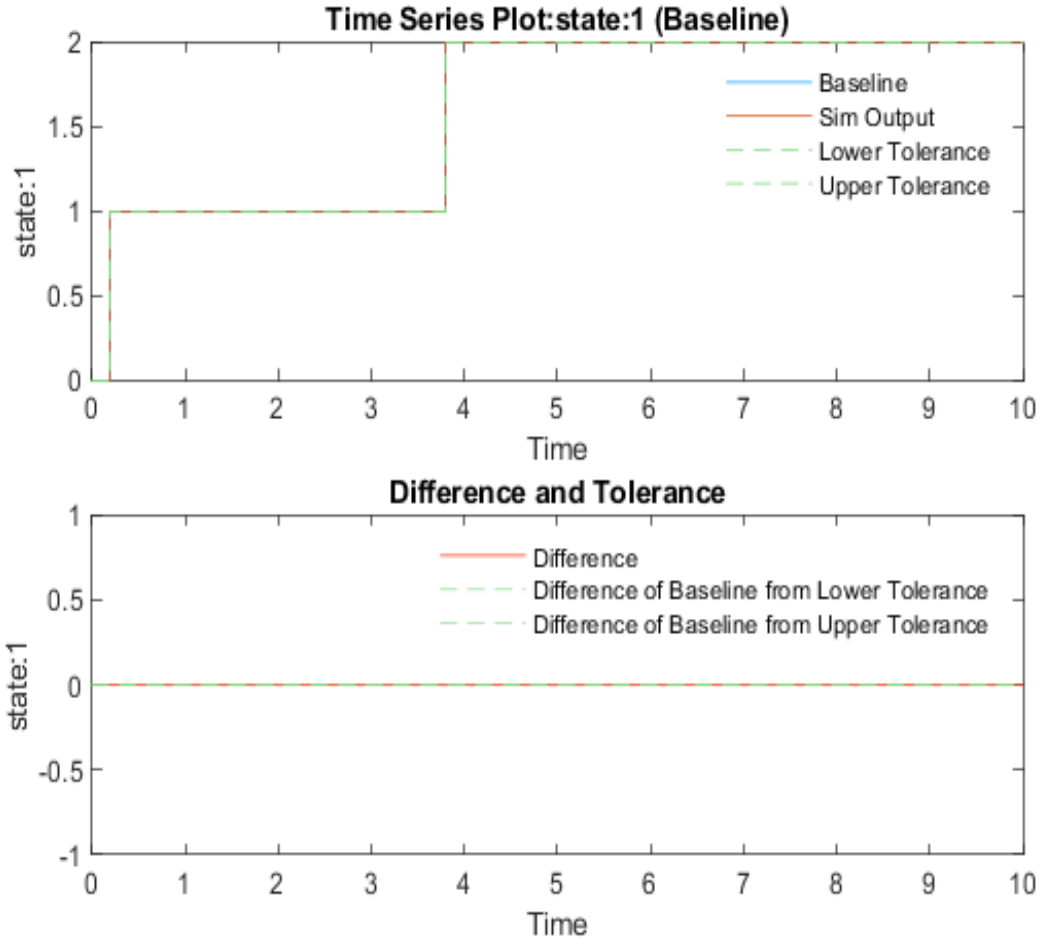
Test Overrides

Parameter Name	Value
ExternalInput	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge4.mat
Baseline	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoChargeToED_baseline2.mat\SLBaselineFiles\Iteration2.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

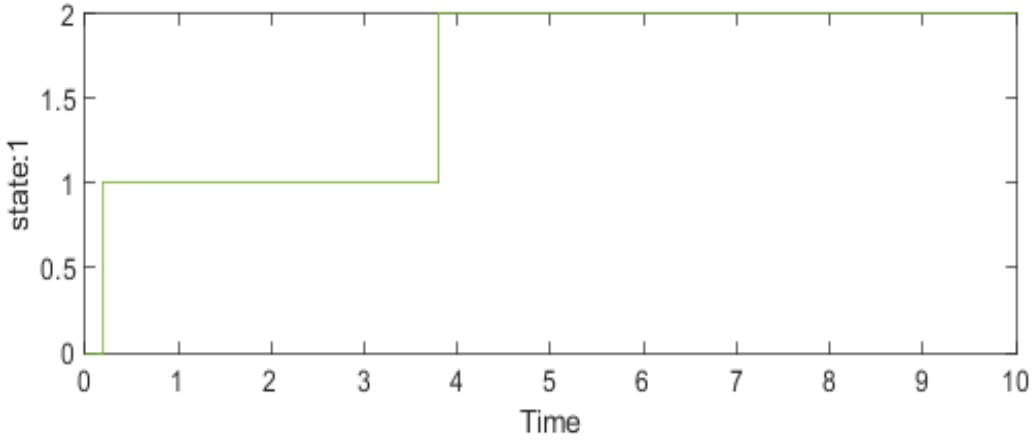
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	NoCharge4.mat
External Input File:	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge4.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:50
Simulation Stop Time:	2021-02-26 09:34:50
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

NoCharge-Combined

Test Result Information

Result Type:	Test Case Result
Parent:	No Charge
Start Time:	26-Feb-2021 09:34:50

End Time: 26-Feb-2021 09:34:51
Outcome: Passed
Description:

State under test: NO_CHARGE (1)

Transition under test: NO_CHARGE (1) - COMBINED (3)

INPUT conditions:

- BrakePedal: 0

- AccPedal> MaxAccICE

- Fuel > fuelMin

- SOC > SOCmin

EXPECTED OUTPUT:

The state should change to COMBINED (3).

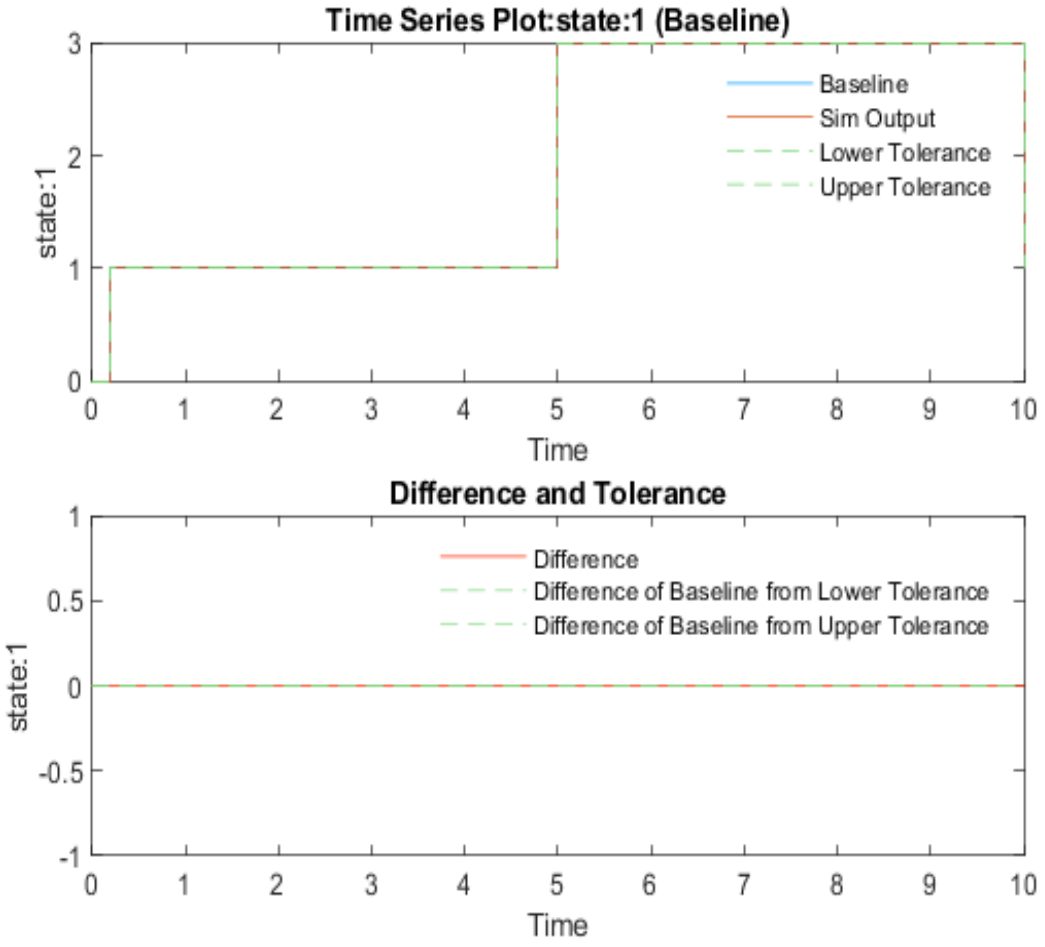
Test Case Information

Name: NoCharge-Combined
Type: Baseline Test
Baseline Name: NoChargeToCombined_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoChargeToCombined_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

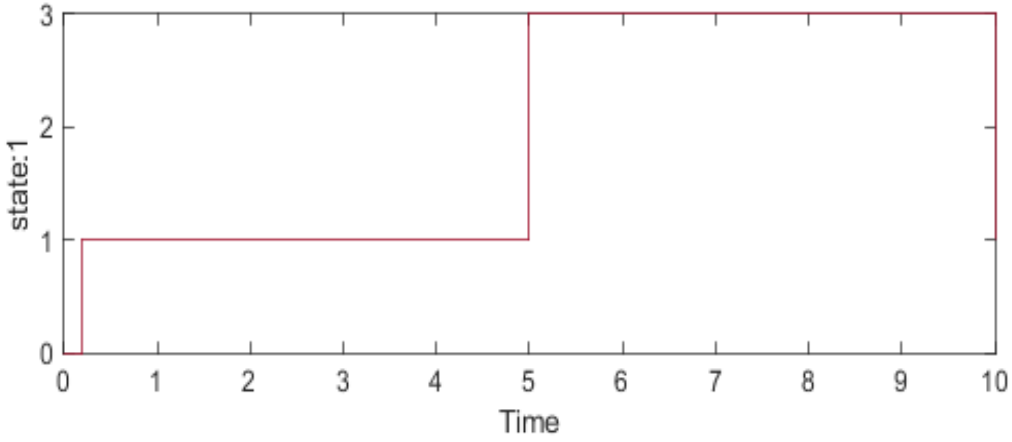
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	NoCharge5.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge5.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:50
Simulation Stop Time:	2021-02-26 09:34:50
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

NoCharge-NoCharge

Test Result Information

Result Type:	Test Case Result
Parent:	No Charge
Start Time:	26-Feb-2021 09:34:51

End Time: 26-Feb-2021 09:34:51
Outcome: Passed
Description:

State under test: NO_CHARGE (1)

Transition under test: NO_CHARGE (1) - NO_CHARGE (1)

INPUT conditions:

- BrakePedal: 0

- AccPedal: uniformly increasing

- Fuel > fuelMin

- SOC < SOCmin

EXPECTED OUTPUT:

The state should remain to NO_CHARGE (1).

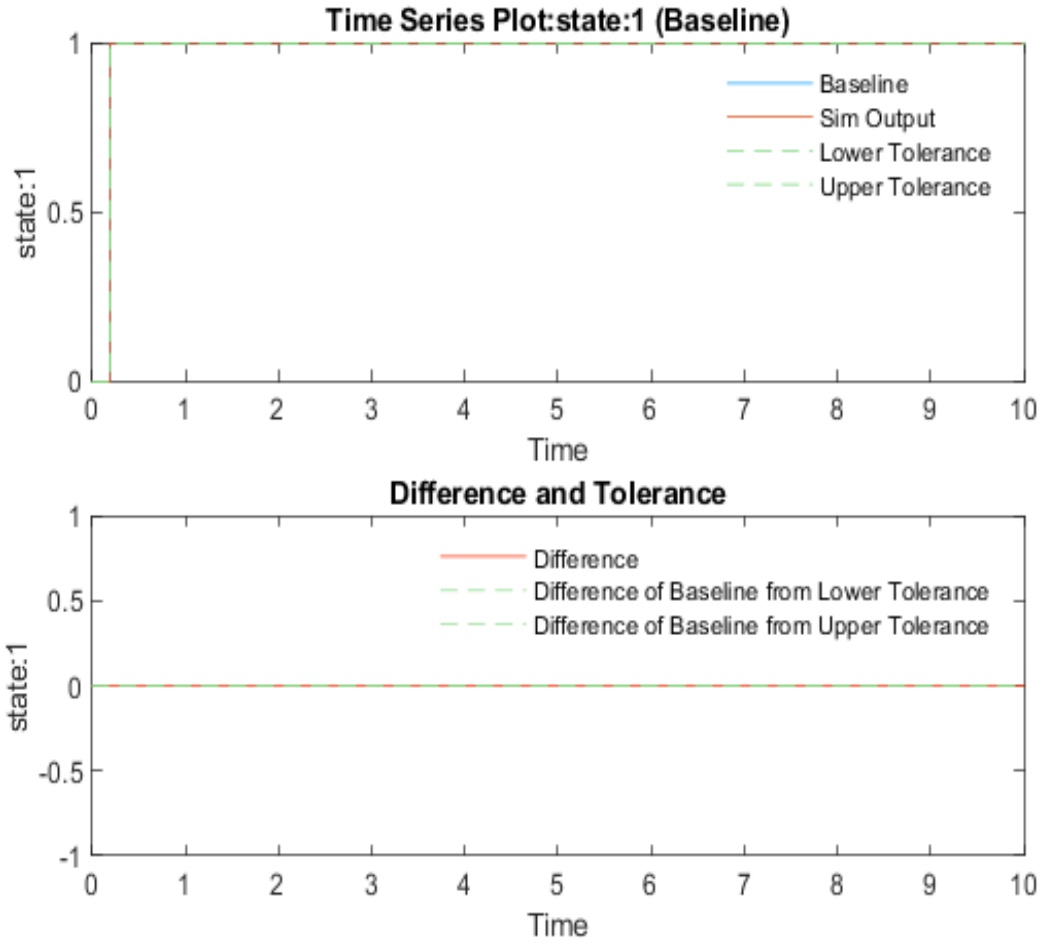
Test Case Information

Name: NoCharge-NoCharge
Type: Baseline Test
Baseline Name: NoCharge_NoCharge_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\NoCharge_NoCharge_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

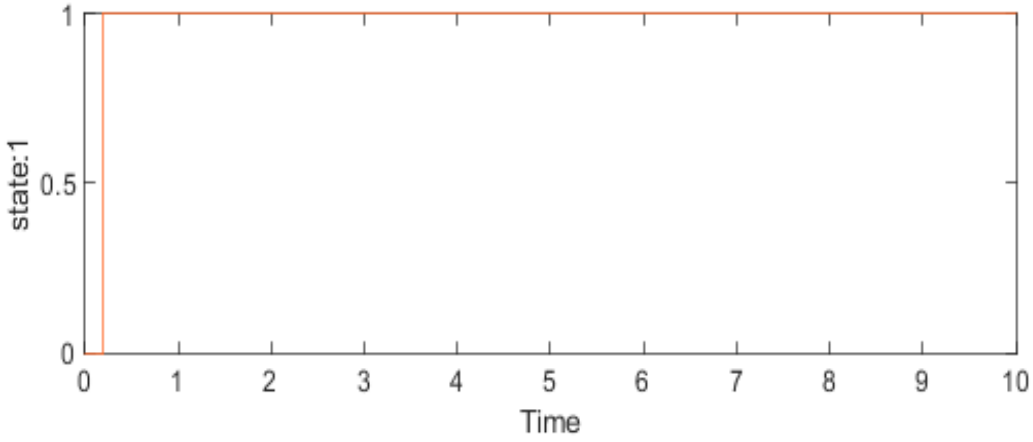
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	NoCharge6.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge6.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:51
Simulation Stop Time:	2021-02-26 09:34:51
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

ED

Test Result Information

Result Type:	Test Suite Result
Parent:	FSM_test
Start Time:	26-Feb-2021 09:34:51

End Time: 26-Feb-2021 09:34:55
Outcome: Total: 6, Passed: 6
Description:

From Electrical Drive to all other states. Initially, the FSM starts from DEAD, but soon enters the ED state at the first sampling instant.

Test Suite Information

Name: ED

Back to Report Summary

ED-ED

Test Result Information

Result Type: Test Case Result
Parent: ED
Start Time: 26-Feb-2021 09:34:51
End Time: 26-Feb-2021 09:34:52
Outcome: Passed
Description:

State under test: ELECTRIC_DRIVE (ED, 2)

Transition under test: ELECTRIC_DRIVE (ED, 2) - ELECTRIC_DRIVE (ED, 2)

INPUT conditions:

- RealSpeed < SpeedEDMax

- AccPedal < MaxAccMGU

- Fuel > fuelMin

- SOC > SOCmin

EXPECTED OUTPUT:

The state should remain to ELECTRIC_DRIVE (ED, 2).

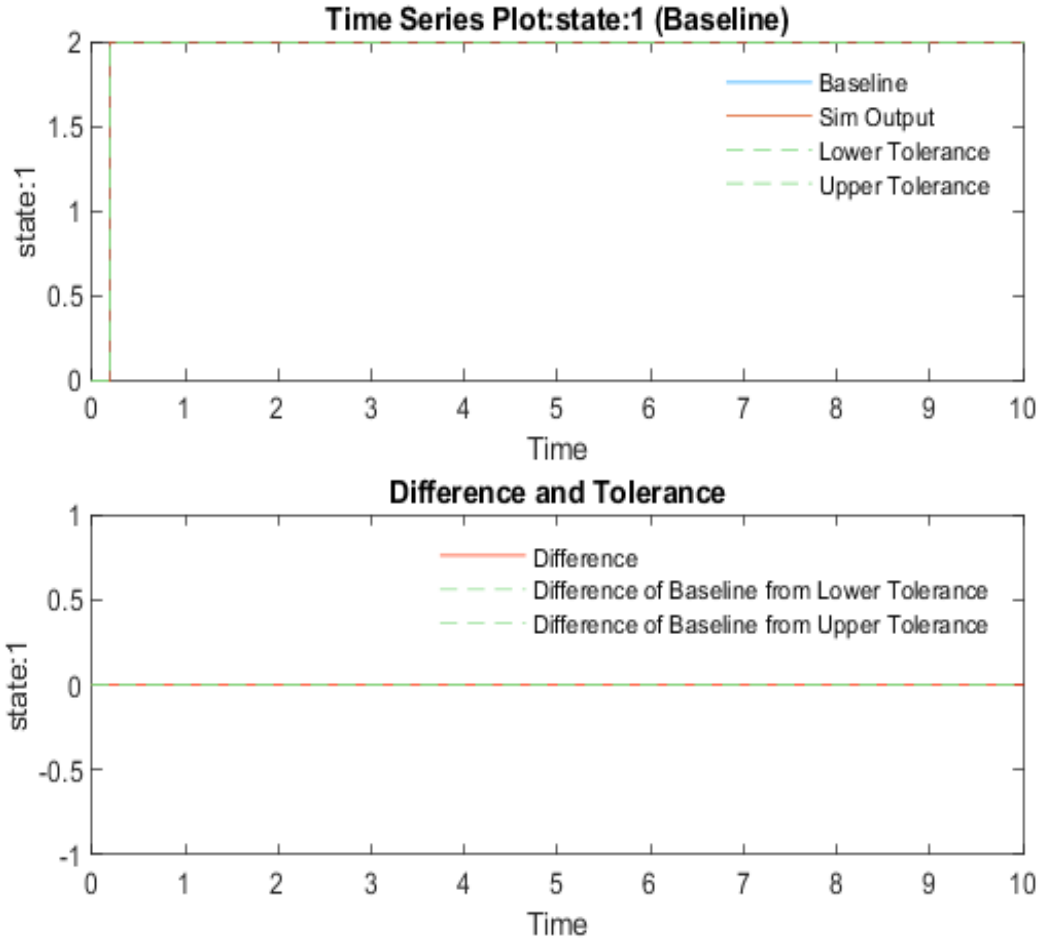
Test Case Information

Name:	ED-ED
Type:	Baseline Test
Baseline Name:	ED_ED_baseline.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_ED_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

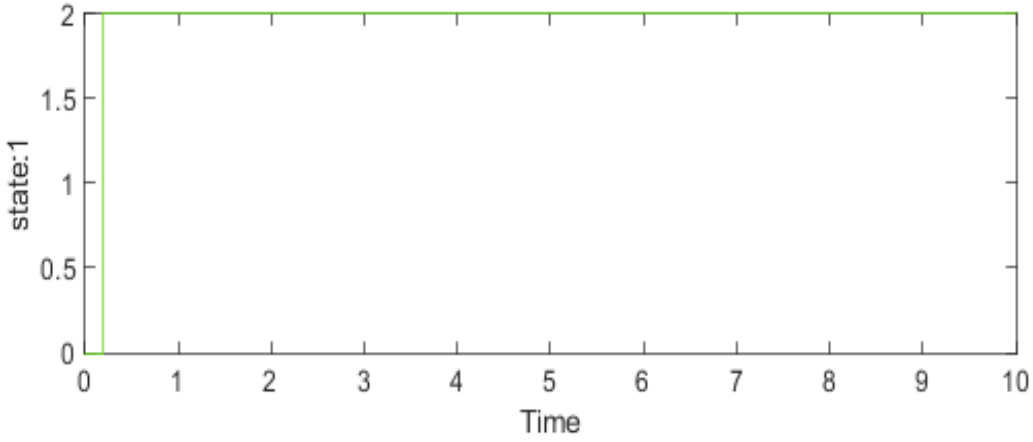
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	ED1.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED1.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:51
Simulation Stop Time:	2021-02-26 09:34:52
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

ED-Regen

Test Result Information

Result Type:	Test Case Result
Parent:	ED
Start Time:	26-Feb-2021 09:34:52

End Time: 26-Feb-2021 09:34:53
Outcome: Passed
Description:

State under test: ELECTRIC_DRIVE (ED, 2)

Transition under test: ELECTRIC_DRIVE (ED, 2) - REGENERATIVE_BRAKING (4)

INPUT conditions:

- RealSpeed < SpeedEDMax

- AccPedal < MaxAccMGU

- Fuel > fuelMin

- SOC > SOCmin

- BrakePedal: !=0 after 5s

EXPECTED OUTPUT:

The state should change to REGENERATIVE_BRAKING (4).

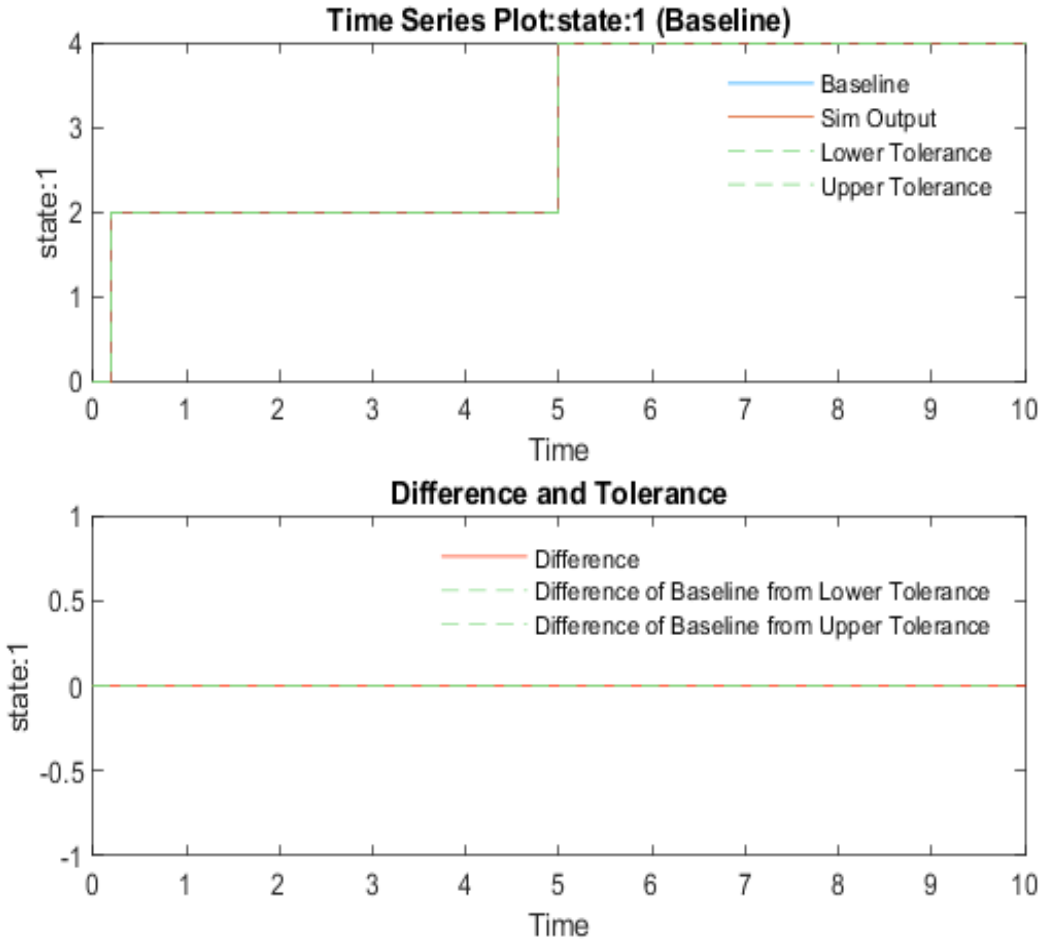
Test Case Information

Name: ED-Regen
Type: Baseline Test
Baseline Name: ED_Regen_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Regen_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

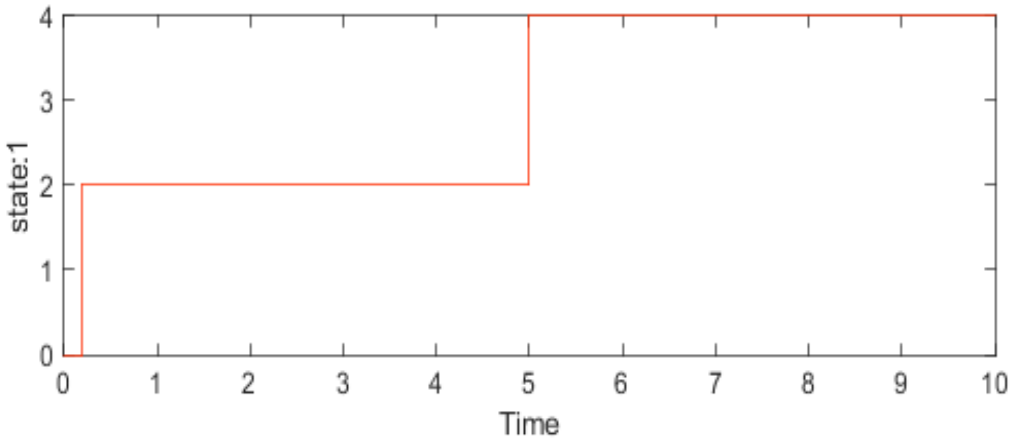
System Under Test Information

Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	ED2.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED2.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:52
Simulation Stop Time:	2021-02-26 09:34:52
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

ED-DEAD

Test Result Information

Result Type:	Test Case Result
Parent:	ED
Start Time:	26-Feb-2021 09:34:53
End Time:	26-Feb-2021 09:34:53
Outcome:	Passed
Description:	

State under test: ELECTRIC_DRIVE (ED, 2)

Transition under test: ELECTRIC_DRIVE (ED, 2) - DEAD (0)

INPUT conditions:

- AccPedal: uniformely increasing request

- Fuel < fuelMin

- SOC < SOCmin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to DEAD (0).

Test Case Information

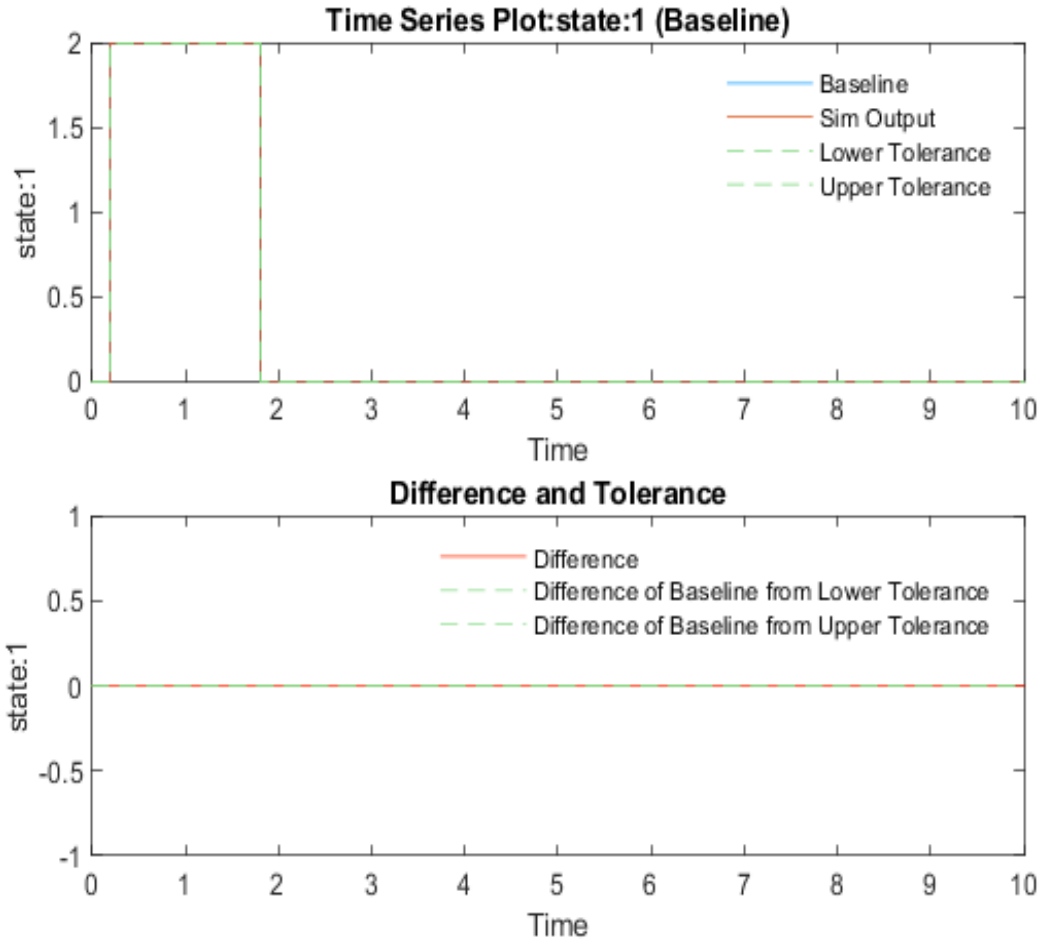
Name:	ED-DEAD
Type:	Baseline Test
Baseline Name:	ED_Dead_baseline.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Dead_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot

state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

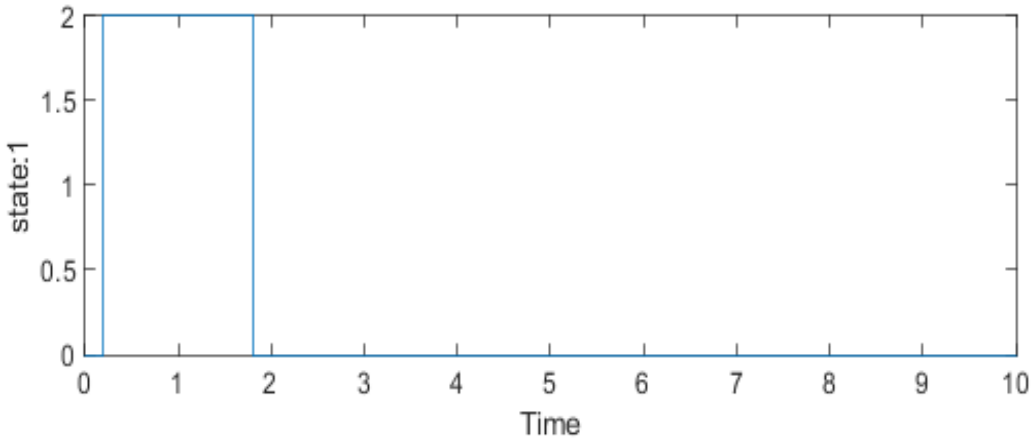
System Under Test Information

Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	ED3.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED3.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:53
Simulation Stop Time:	2021-02-26 09:34:53
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

ED-NoCharge

Test Result Information

Result Type:	Test Case Result
Parent:	ED
Start Time:	26-Feb-2021 09:34:53
End Time:	26-Feb-2021 09:34:54
Outcome:	Passed
Description:	

State under test: ELECTRIC_DRIVE (ED, 2)

Transition under test: ELECTRIC_DRIVE (ED, 2) - NO_CHARGE (4)

INPUT conditions:

- AccPedal < maxAccICE

- Fuel > fuelMin

- SOC < SOCmin

- BrakePedal: 0

EXPECTED OUTPUT:

The state should change to NO_CHARGE (1).

Test Case Information

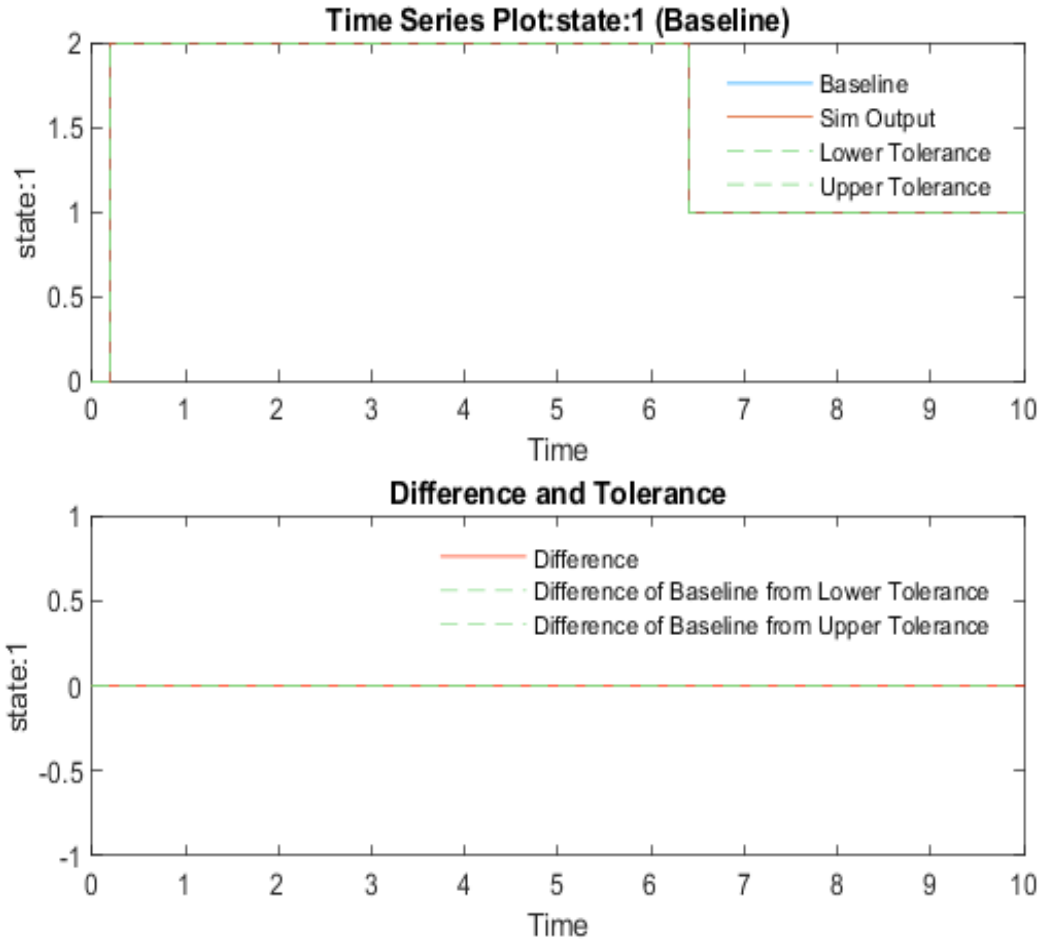
Name:	ED-NoCharge
Type:	Baseline Test
Baseline Name:	ED_NoCharge_baseline.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_NoCharge_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot

state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

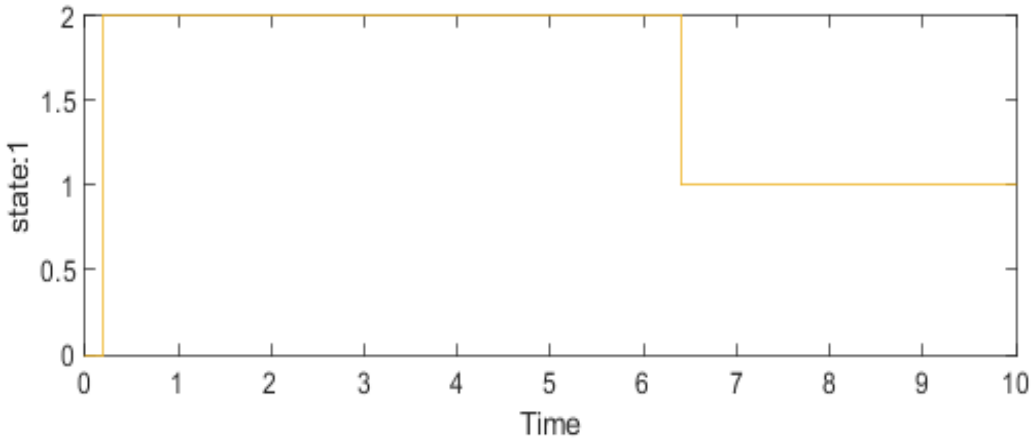
System Under Test Information

Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	ED4.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED4.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:53
Simulation Stop Time:	2021-02-26 09:34:53
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

ED-Combined

Test Result Information

Result Type:	Test Case Result
Parent:	ED
Start Time:	26-Feb-2021 09:34:54
End Time:	26-Feb-2021 09:34:55
Outcome:	Passed
Description:	

State under test: ELECTRIC_DRIVE (ED, 2)

Transition under test: ELECTRIC_DRIVE (ED, 2) - COMBINED (3)

INPUT conditions:

- AccPedal > MaxAccMGU OR RealSpeed > MaxSpeedMGU

- Fuel > fuelMin

- BrakePedal: 0

- SOC > SOCmin

EXPECTED OUTPUT:

The state should change to COMBINED (3).

NOTE:

This test is done in two iterations due to the presence of an OR among input conditions.

Test Case Information

Name:	ED-Combined
Type:	Baseline Test

Iteration1

Test Result Information

Result Type:	Test Iteration Result
Parent:	ED-Combined
Start Time:	26-Feb-2021 09:34:54
End Time:	26-Feb-2021 09:34:54
Outcome:	Passed

Test Case Information

Name:	Iteration1
Type:	Baseline Test
Baseline Name:	ED_Comb_baseline1.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Comb_baseline1.mat

Iteration Settings

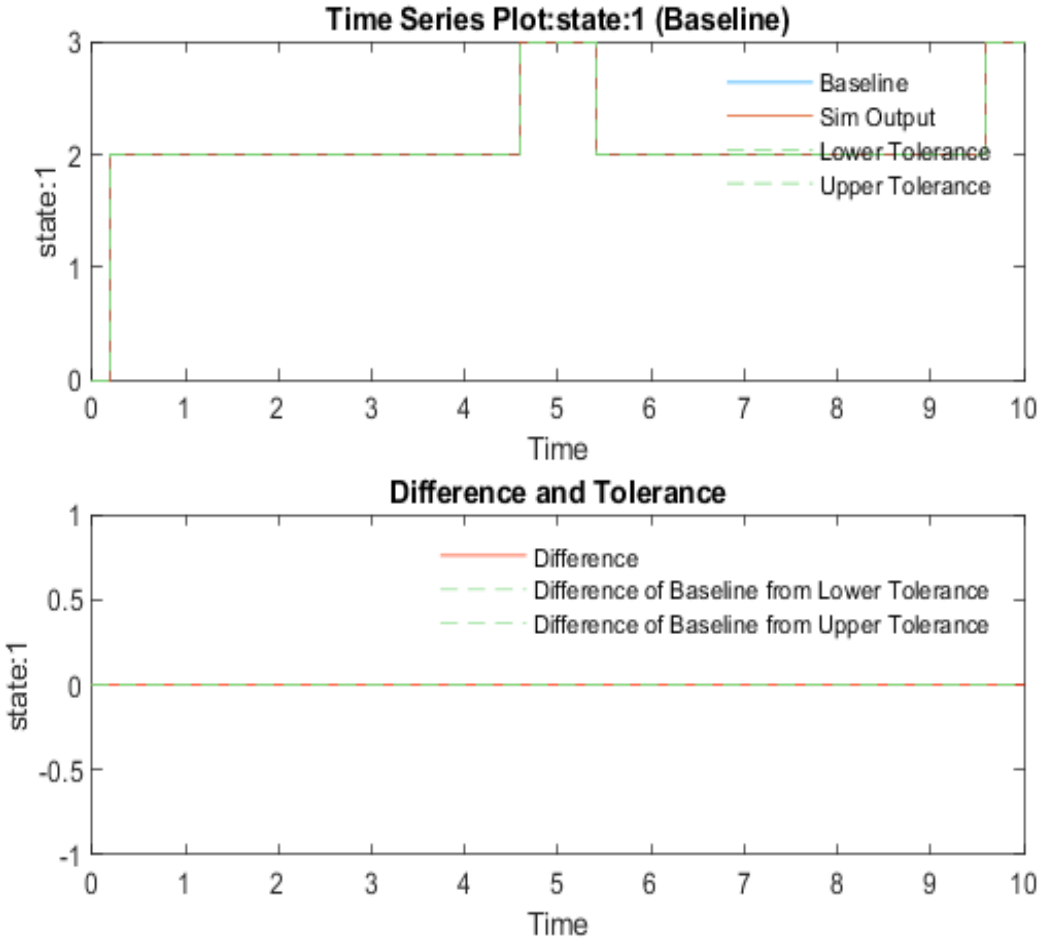
Test Overrides

Parameter Name	Value
ExternalInput	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED5.mat
Baseline	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Comb_baseline1.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

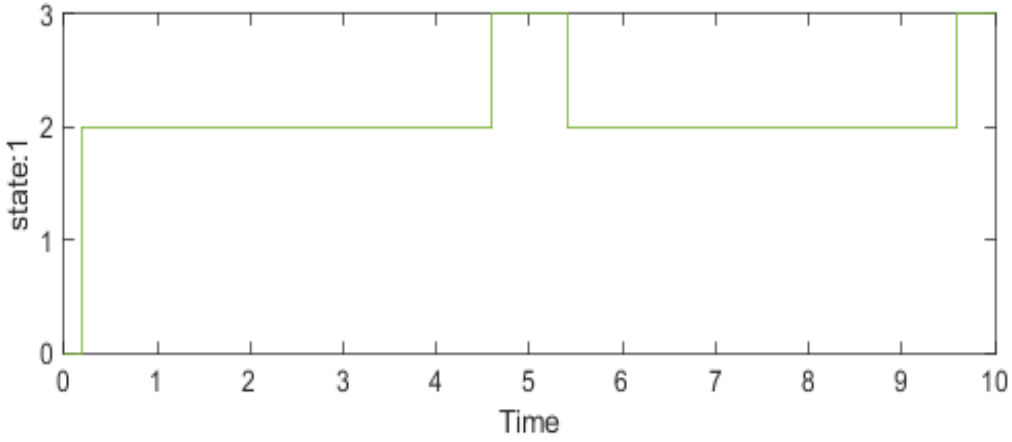
Model: FSM_Model
Release: Current

Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	ED5.mat
External Input File:	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED5.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:54
Simulation Stop Time:	2021-02-26 09:34:54
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Iteration2

Test Result Information

Result Type:	Test Iteration Result
Parent:	ED-Combined
Start Time:	26-Feb-2021 09:34:54

End Time: 26-Feb-2021 09:34:55
Outcome: Passed

Test Case Information

Name: Iteration2
Type: Baseline Test
Baseline Name: ED_Comb_baseline2.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Comb_baseline2.mat

Iteration Settings

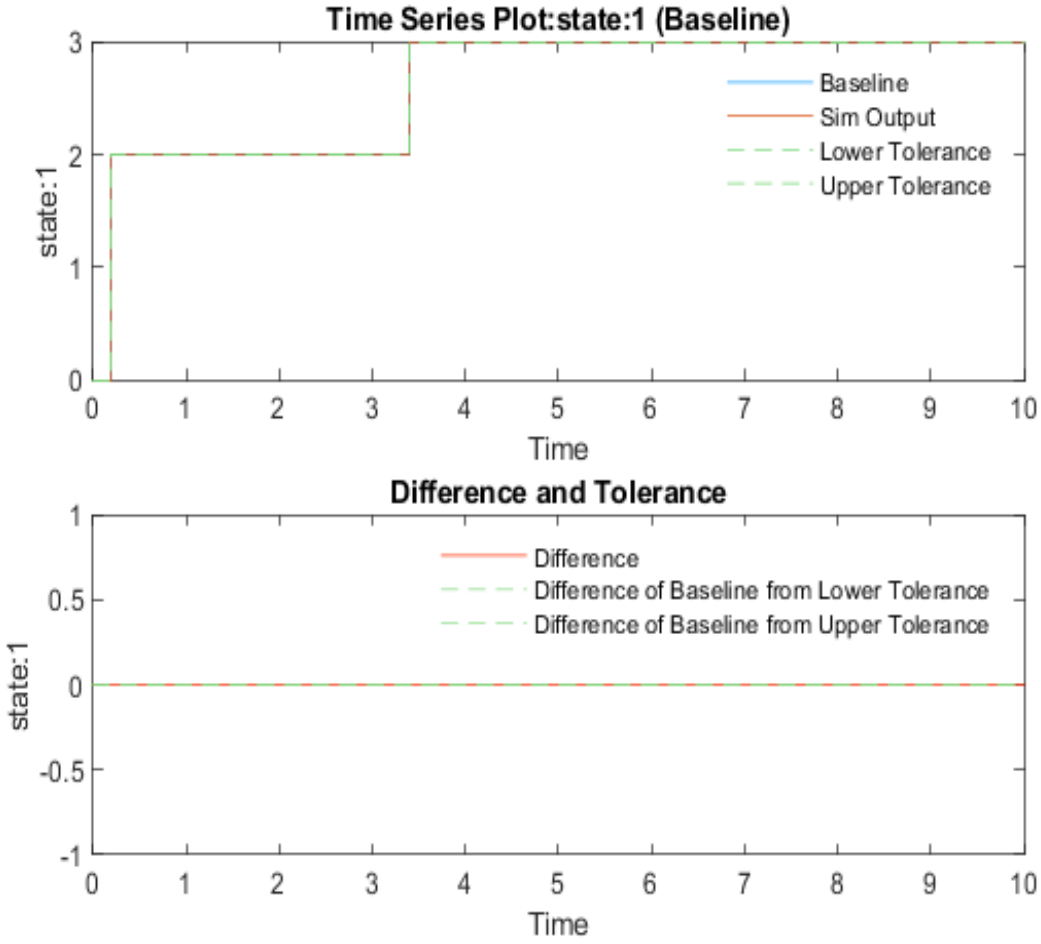
Test Overrides

Parameter Name	Value
ExternalInput	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED6.mat
Baseline	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\ED_Comb_baseline2.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

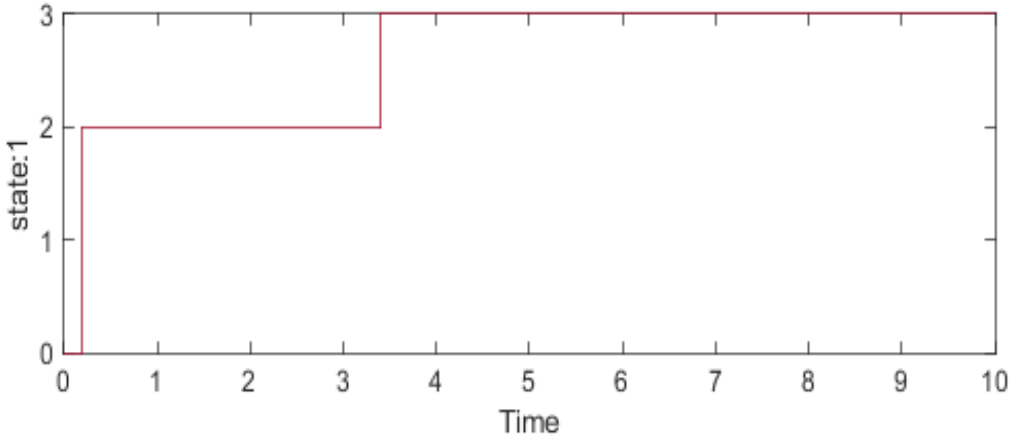
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	ED6.mat
External Input File:	C:\Users\mordi\Desktop\Materiale Università\Compliance\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED6.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:55
Simulation Stop Time:	2021-02-26 09:34:55
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Combined

Test Result Information

Result Type:	Test Suite Result
Parent:	FSM_test
Start Time:	26-Feb-2021 09:34:55

End Time: 26-Feb-2021 09:34:58
Outcome: Total: 5, Passed: 5
Description:

From Combined to all other states. Initially, the FSM starts from DEAD, but soon enters the Combined state at the first sampling instant.

Test Suite Information

Name: Combined

Back to Report Summary

Combined-Combined

Test Result Information

Result Type: Test Case Result
Parent: Combined
Start Time: 26-Feb-2021 09:34:55
End Time: 26-Feb-2021 09:34:56
Outcome: Passed
Description:

State under test: COMBINED (3)

Transition under test: COMBINED (3) - COMBINED (3)

INPUT conditions:

- RealSpeed>SpeedEDMax

- Fuel > fuelMin

- BrakePedal: 0

- SOC > SOCmin

EXPECTED OUTPUT:

The state should remain to COMBINED (3).

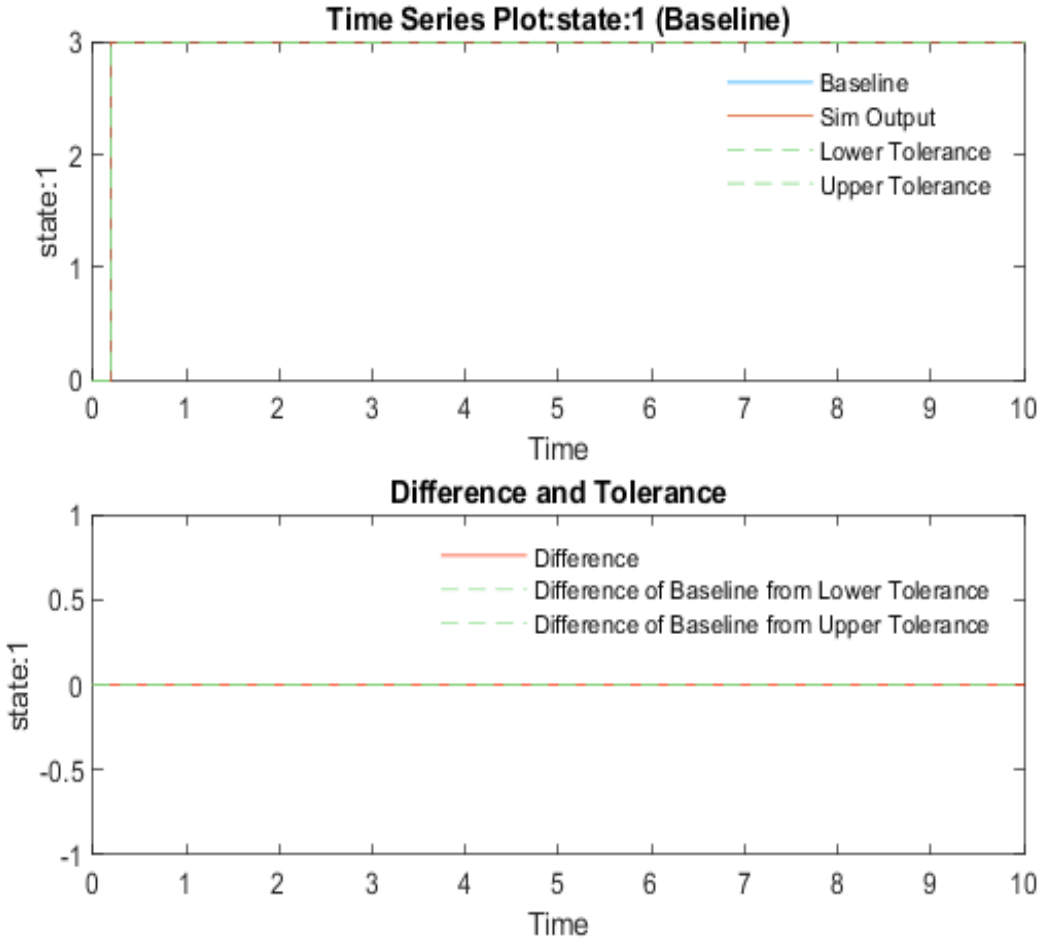
Test Case Information

Name:	Combined-Combined
Type:	Baseline Test
Baseline Name:	Comb_Comb_baseline.mat
Baseline File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Comb_Comb_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

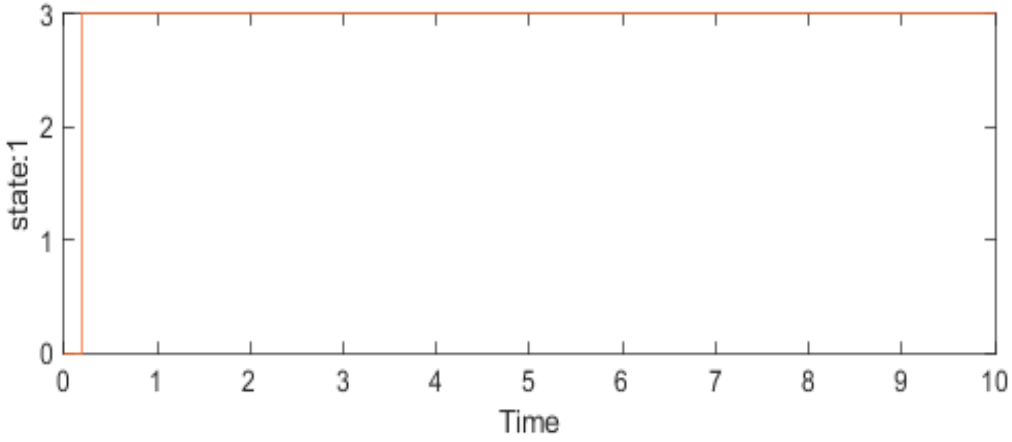
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	Comb1.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb1.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:55
Simulation Stop Time:	2021-02-26 09:34:55
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Combined-Regen

Test Result Information

Result Type:	Test Case Result
Parent:	Combined
Start Time:	26-Feb-2021 09:34:56

End Time: 26-Feb-2021 09:34:56
Outcome: Passed
Description:

State under test: COMBINED (3)

Transition under test: COMBINED (3) - REGENERATIVE_BRAKING(4)

INPUT conditions:

- RealSpeed > SpeedMaxED

- Fuel > fuelMin

- BrakePedal: != 0 after t = 5s

- SOC > SOCmin

EXPECTED OUTPUT:

The state should change to REGENERATIVE_BRAKING (4).

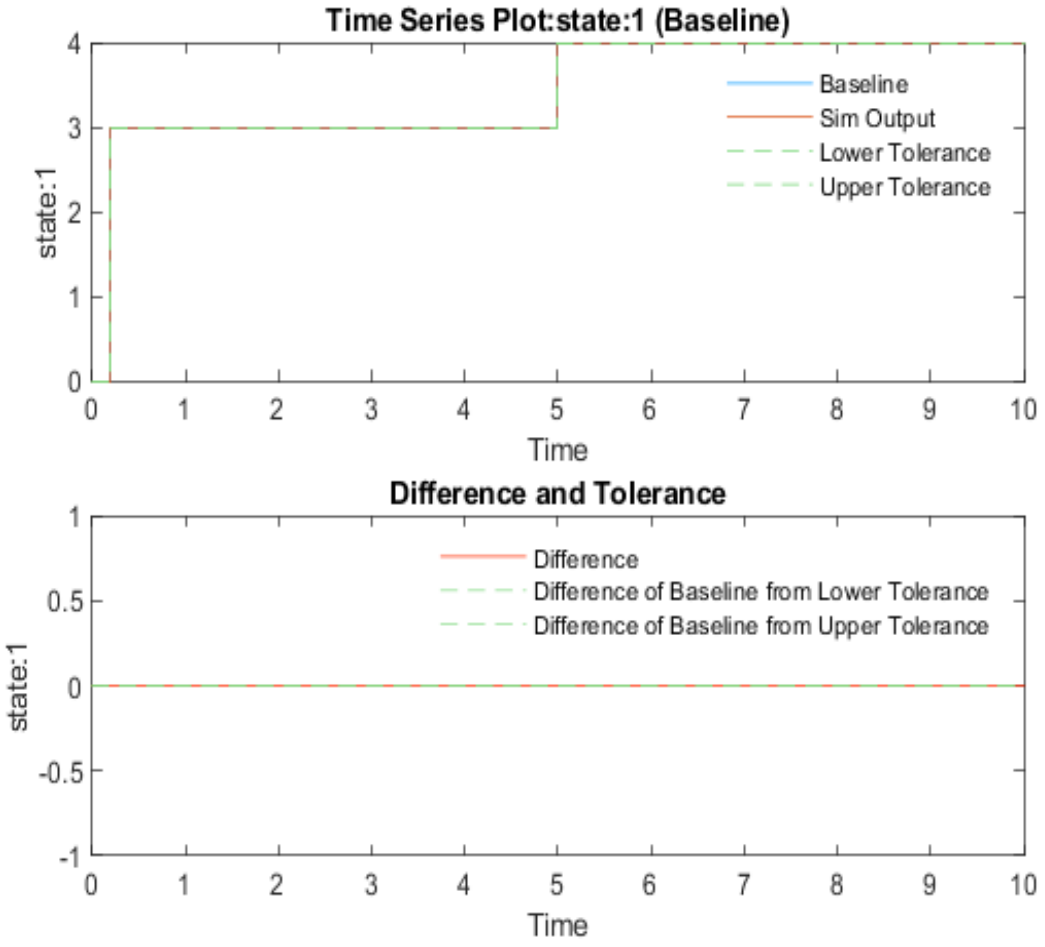
Test Case Information

Name: Combined-Regen
Type: Baseline Test
Baseline Name: Comb_Regen_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Comb_Regen_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

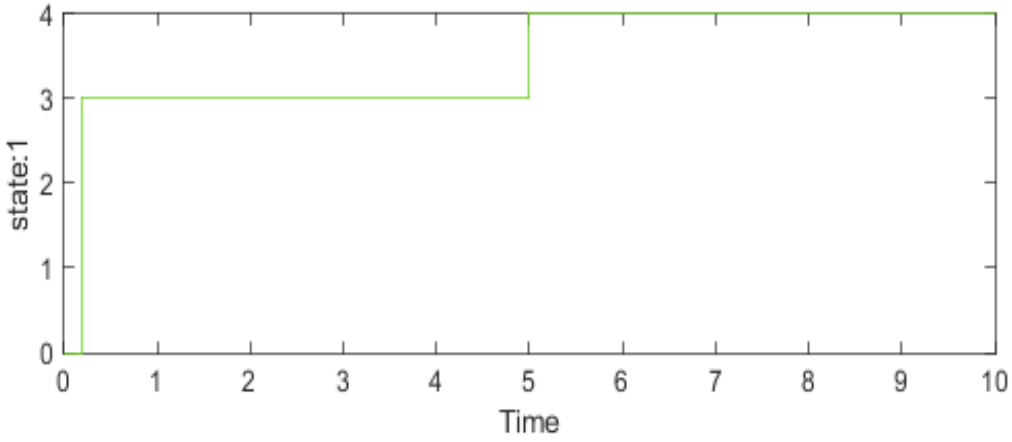
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Comb2.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb2.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:56
Simulation Stop Time:	2021-02-26 09:34:56
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Combined-DEAD

Test Result Information

Result Type:	Test Case Result
Parent:	Combined
Start Time:	26-Feb-2021 09:34:56

End Time: 26-Feb-2021 09:34:57
Outcome: Passed
Description:

State under test: COMBINED (3)

Transition under test: COMBINED (3) - DEAD (0)

INPUT conditions:

- Fuel < fuelMin

- SOC < SOCmin

EXPECTED OUTPUT:

The state should change to DEAD (0).

Test Case Information

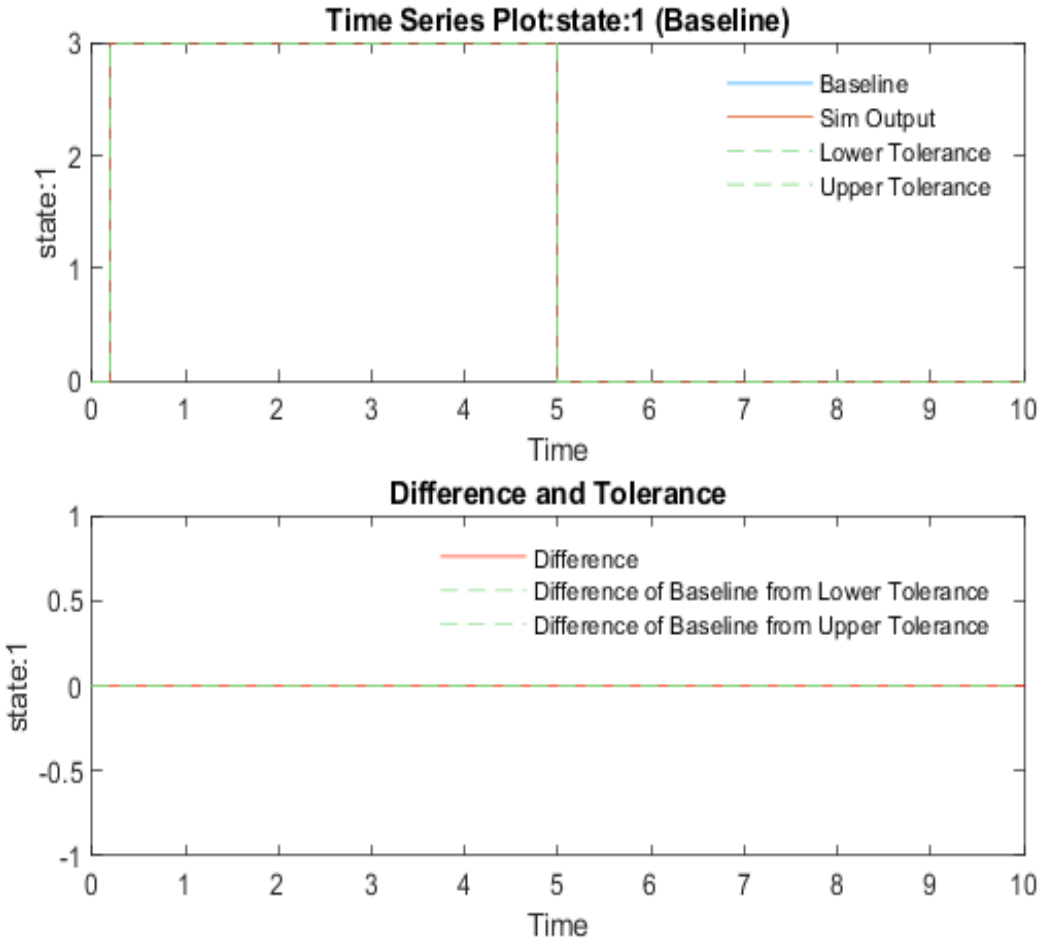
Name: Combined-DEAD
Type: Baseline Test
Baseline Name: Comb_Dead_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Comb_Dead_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync

state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

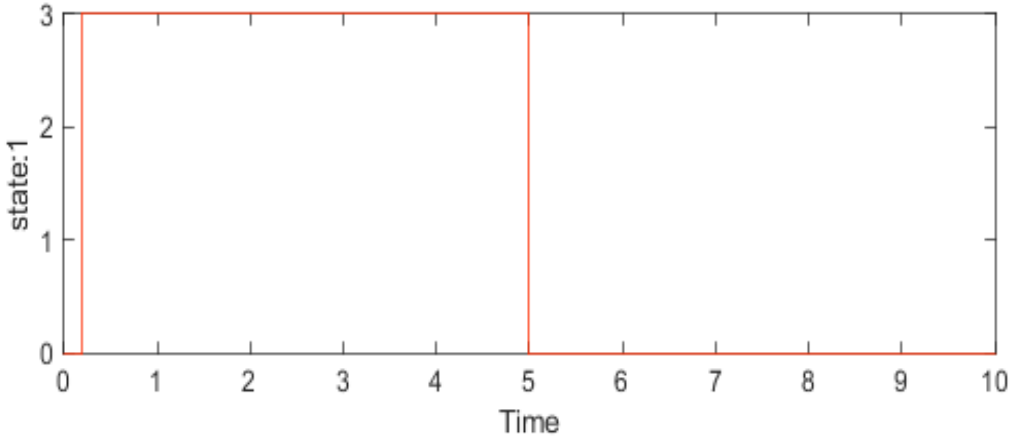
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal

Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Comb3.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb3.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:56
Simulation Stop Time:	2021-02-26 09:34:57
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Combined-ED

Test Result Information

Result Type:	Test Case Result
Parent:	Combined
Start Time:	26-Feb-2021 09:34:57

End Time: 26-Feb-2021 09:34:58
Outcome: Passed
Description:

State under test: COMBINED (3)

Transition under test: COMBINED (3) - ELECTRIC_DRIVE (ED, 2)

INPUT conditions:

- RealSpeed < SpeedEDMax at t = 5s

- AccPedal < MaxAccMGU after t = 5s

- BrakePedal: 0

- SOC > SOCmin

EXPECTED OUTPUT:

The state should change to ELECTRIC_DRIVE (ED, 2).

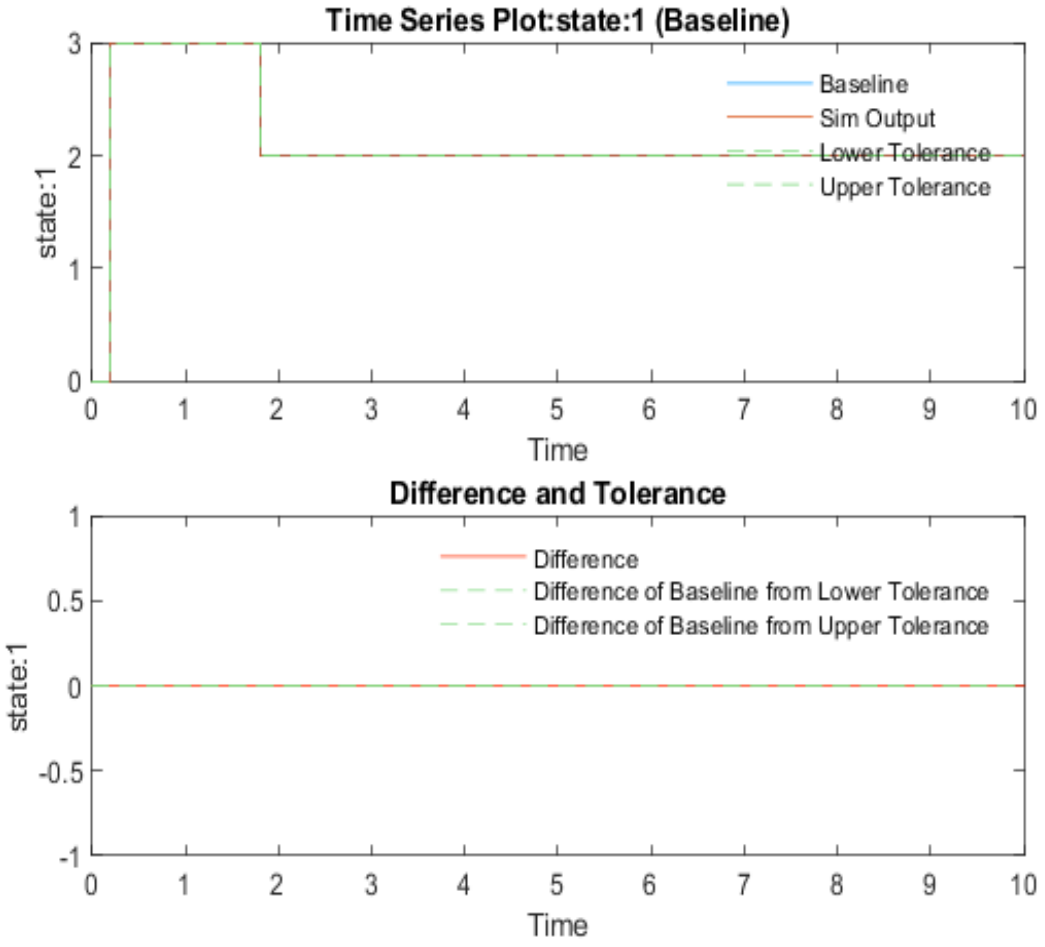
Test Case Information

Name: Combined-ED
Type: Baseline Test
Baseline Name: Comb_ED_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Comb_ED_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

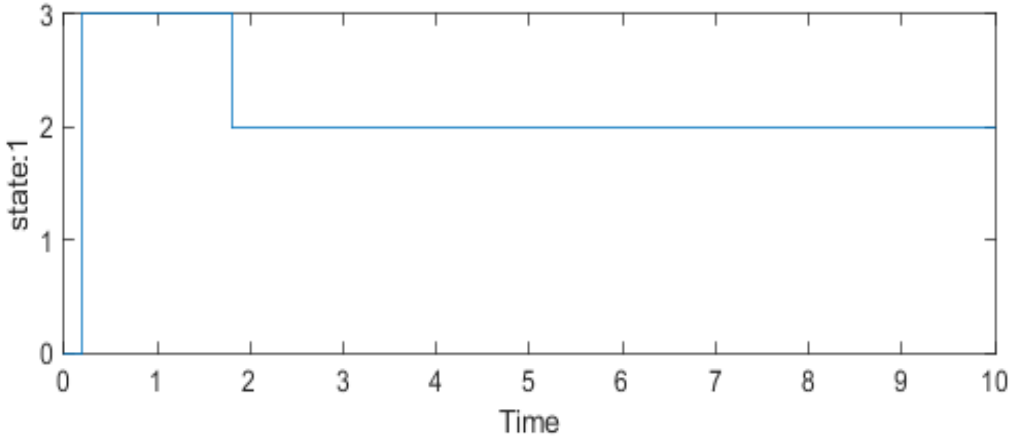
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Comb4.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb4.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:57
Simulation Stop Time:	2021-02-26 09:34:57
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Combined-NoCharge

Test Result Information

Result Type:	Test Case Result
Parent:	Combined
Start Time:	26-Feb-2021 09:34:58

End Time: 26-Feb-2021 09:34:58
Outcome: Passed
Description:

Combined to No Charge state transition check:

-SOC < SOCMin

-fuel > fuelMin

-AccPedal < maxAccICE

The state should pass from Combined to No Charge

State under test: COMBINED (3)

Transition under test: COMBINED (3) - NO_CHARGE (1)

INPUT conditions:

- AccPedal < maxAccICE

- BrakePedal: 0

- Fuel > fuelMin

- SOC < SOCmin

EXPECTED OUTPUT:

The state should change to NO_CHARGE (1).

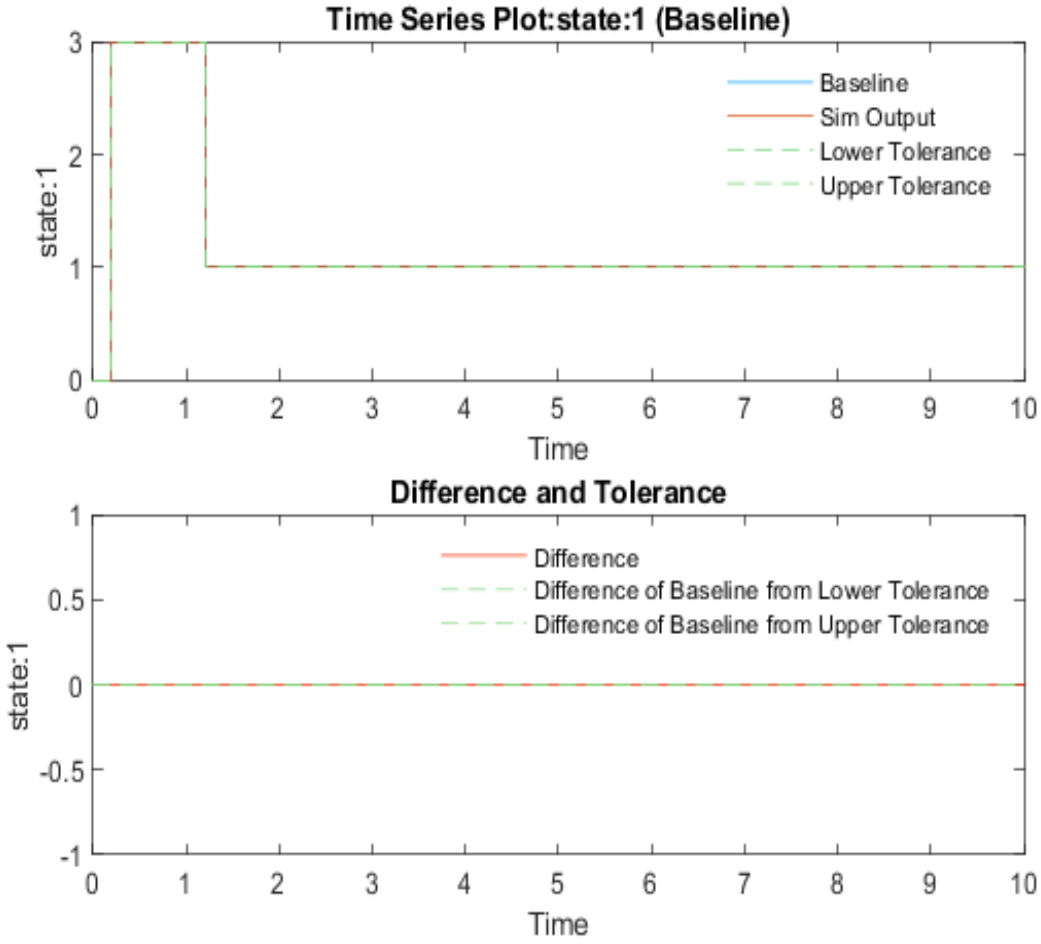
Test Case Information

Name: Combined-NoCharge
Type: Baseline Test
Baseline Name: Comb_NoCharge_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Comb_NoCharge_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

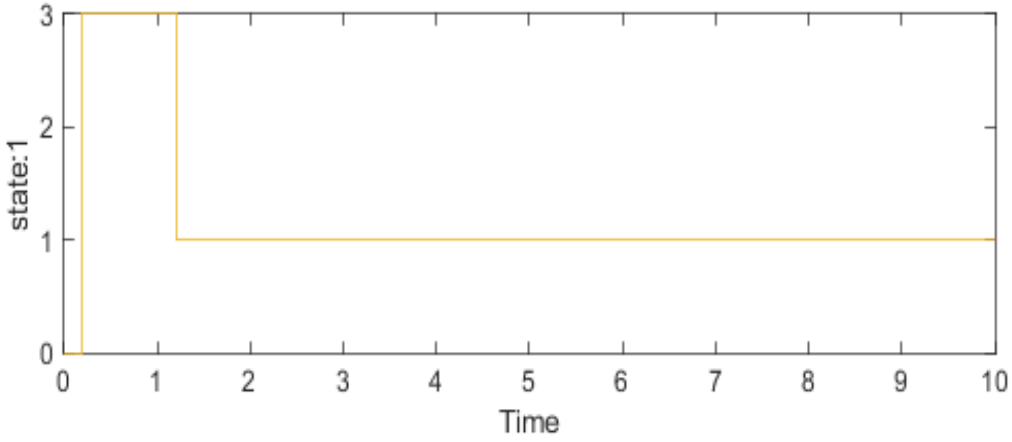
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	Comb5.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb5.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:58
Simulation Stop Time:	2021-02-26 09:34:58
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Regen

Test Result Information

Result Type:	Test Suite Result
Parent:	FSM_test
Start Time:	26-Feb-2021 09:34:58

End Time: 26-Feb-2021 09:35:01
Outcome: Total: 5, Passed: 5
Description:

From Regenerative Braking to all other states. Initially, the FSM starts from DEAD, but soon enters the Regen state at the first sampling instant.

Test Suite Information

Name: Regen

Back to Report Summary

Regen-Regen

Test Result Information

Result Type: Test Case Result
Parent: Regen
Start Time: 26-Feb-2021 09:34:58
End Time: 26-Feb-2021 09:34:59
Outcome: Passed
Description:

State under test: REGENERATIVE_BRAKING (4)

Transition under test: REGENERATIVE_BRAKING (4) - REGENERATIVE_BRAKING (4)

INPUT conditions:

- BrakePedal > 0

EXPECTED OUTPUT:

The state should remain to REGENERATIVE_BRAKING (4).

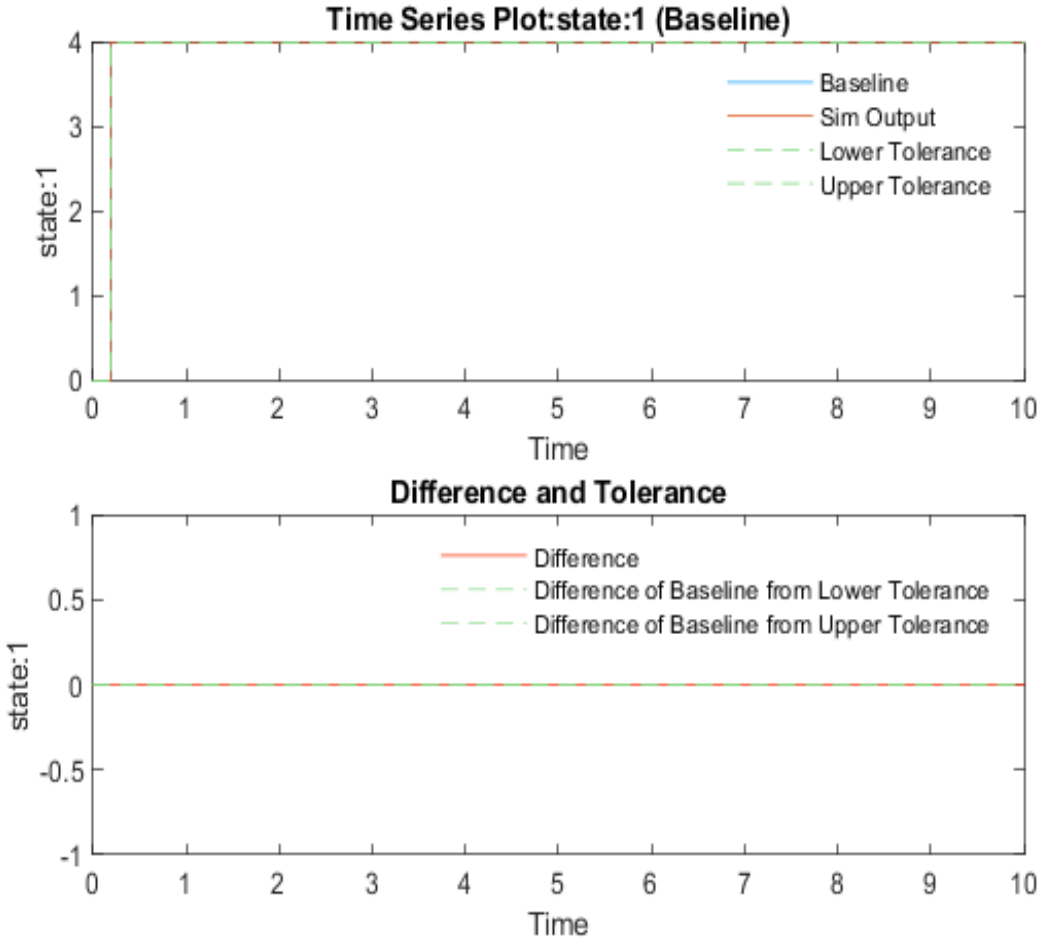
Test Case Information

Name: Regen-Regen
Type: Baseline Test
Baseline Name: Regen_Regen_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Regen_Regen_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

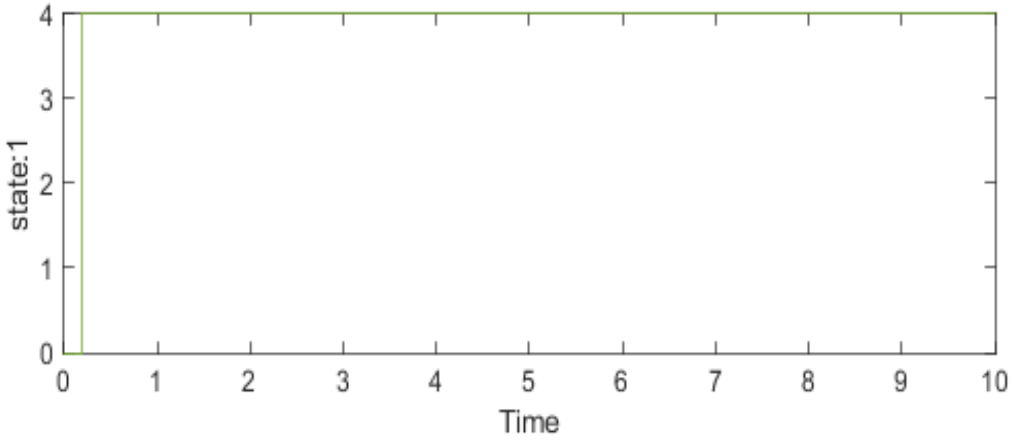
Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0

Configuration Set:	Configuration
External Input Name:	Regen1.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen1.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:58
Simulation Stop Time:	2021-02-26 09:34:58
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Regen-DEAD

Test Result Information

Result Type:	Test Case Result
Parent:	Regen
Start Time:	26-Feb-2021 09:34:59

End Time: 26-Feb-2021 09:34:59
Outcome: Passed
Description:

State under test: REGENERATIVE_BRAKING (4)

Transition under test: REGENERATIVE_BRAKING (4) - DEAD (0)

INPUT conditions:

- AccPedal > 0 at t = 5 s

- BrakePedal: 0 at t = 5 s

- Fuel < fuelMin

- SOC < SOCmin

EXPECTED OUTPUT:

The state should change to DEAD (0).

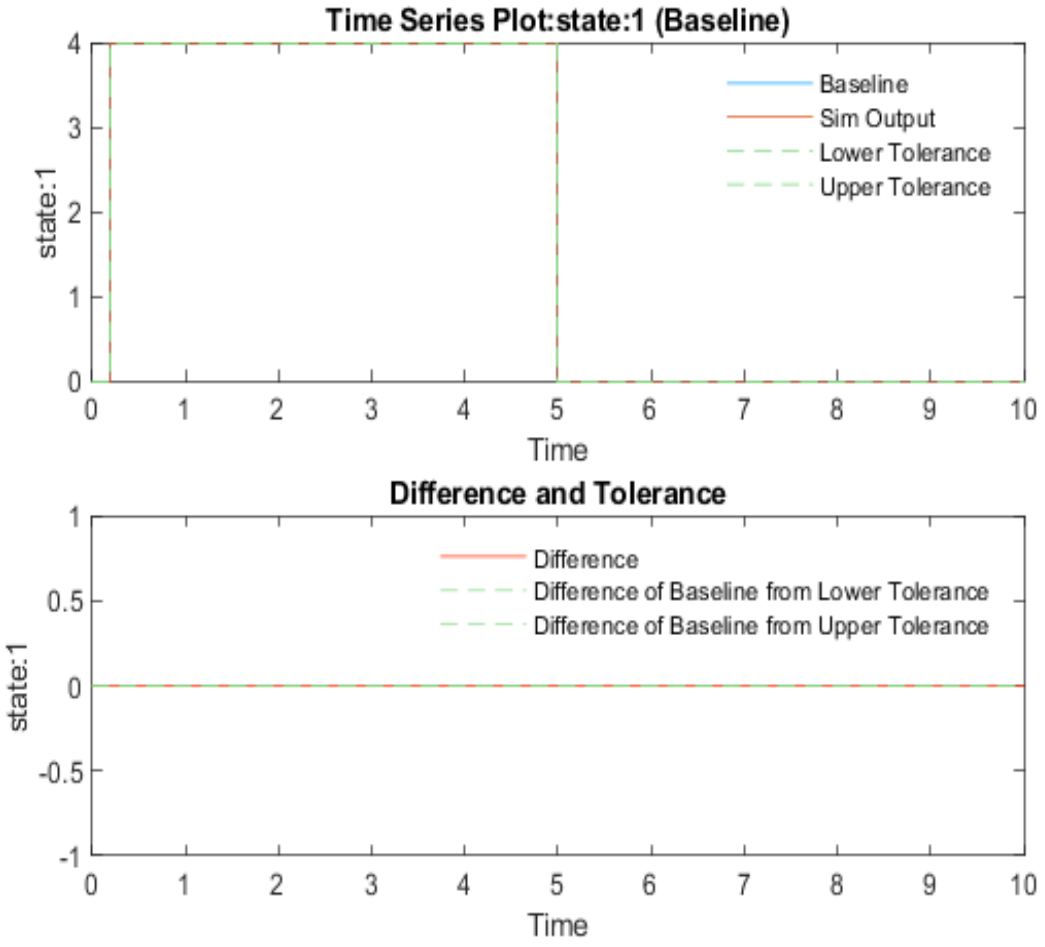
Test Case Information

Name: Regen-DEAD
Type: Baseline Test
Baseline Name: Regen_Dead_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Regen_Dead_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

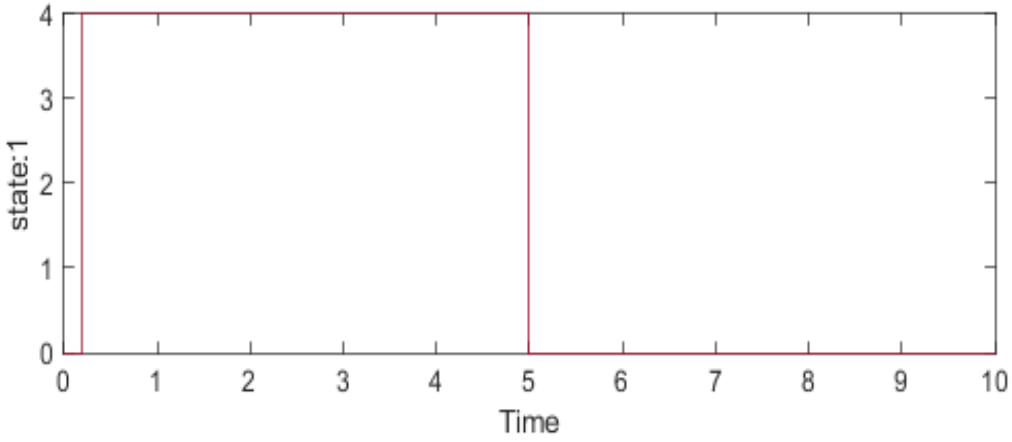
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Regen2.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen2.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:59
Simulation Stop Time:	2021-02-26 09:34:59
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Regen-ED

Test Result Information

Result Type:	Test Case Result
Parent:	Regen
Start Time:	26-Feb-2021 09:34:59

End Time: 26-Feb-2021 09:35:00
Outcome: Passed
Description:

State under test: REGENERATIVE_BRAKING (4)

Transition under test: REGENERATIVE_BRAKING (4) - ELECTRIC_DRIVE (ED, 2)

INPUT conditions:

- RealSpeed < SpeedEDMax

- AccPedal: !=0 at t = 5 s

- BrakePedal: 0 at t = 5 s

- SOC < SOCmin for a while, then SOC>SOCmin

EXPECTED OUTPUT:

The state should change to ELECTRIC_DRIVE (ED, 2).

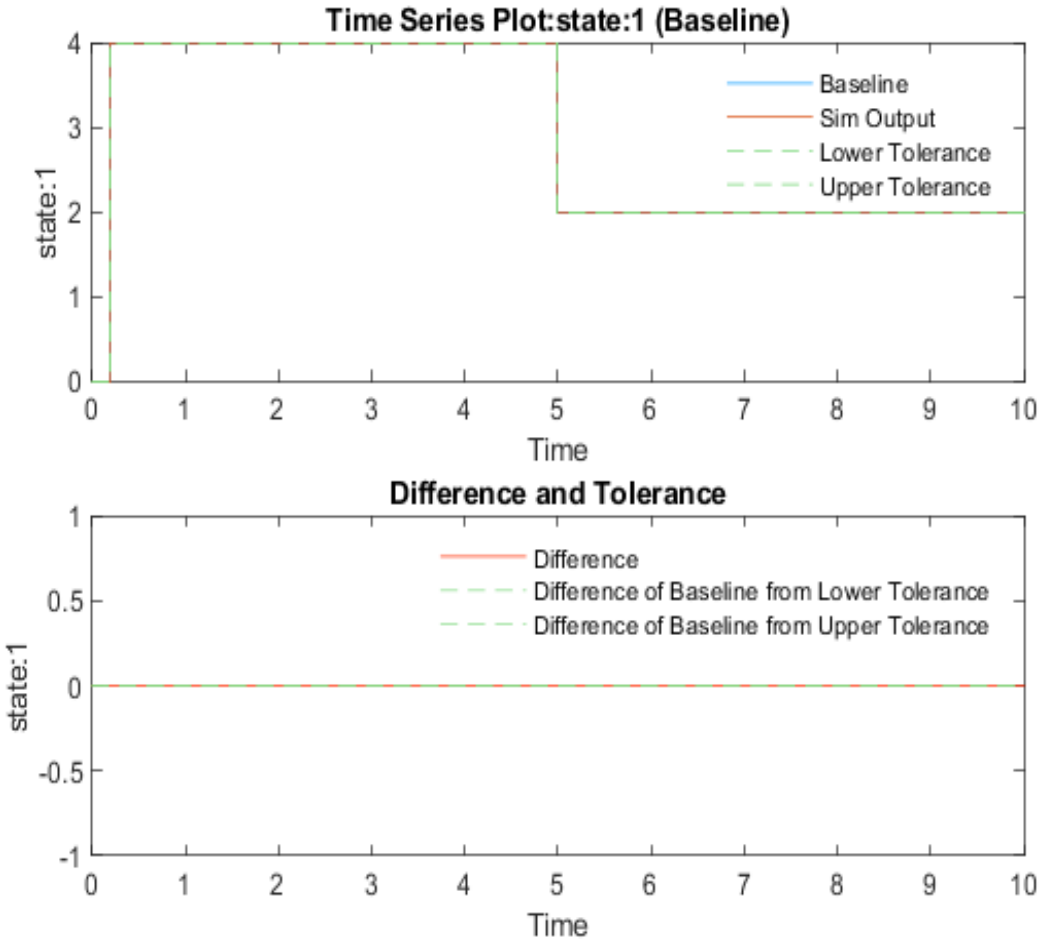
Test Case Information

Name: Regen-ED
Type: Baseline Test
Baseline Name: Regen_ED_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Regen_ED_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

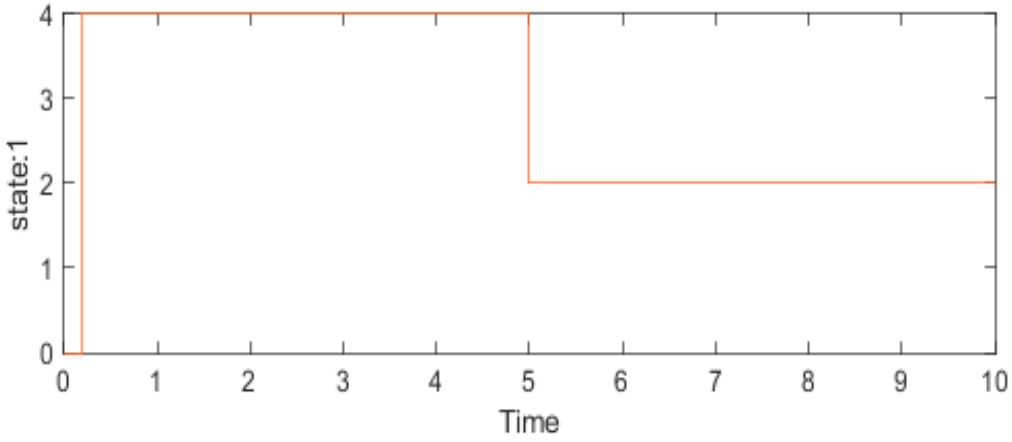
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Regen3.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen3.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:34:59
Simulation Stop Time:	2021-02-26 09:35:00
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Regen-NoCharge

Test Result Information

Result Type:	Test Case Result
Parent:	Regen
Start Time:	26-Feb-2021 09:35:00

End Time: 26-Feb-2021 09:35:01
Outcome: Passed
Description:

State under test: REGENERATIVE_BRAKING (4)

Transition under test: REGENERATIVE_BRAKING (4) - NO_CHARGE (1)

INPUT conditions:

- AccPedal: !=0 at t = 5 s

- BrakePedal: 0 at t = 5 s

- Fuel > fuelMin

- SOC < SOCmin

EXPECTED OUTPUT:

The state should change to NO_CHARGE (1).

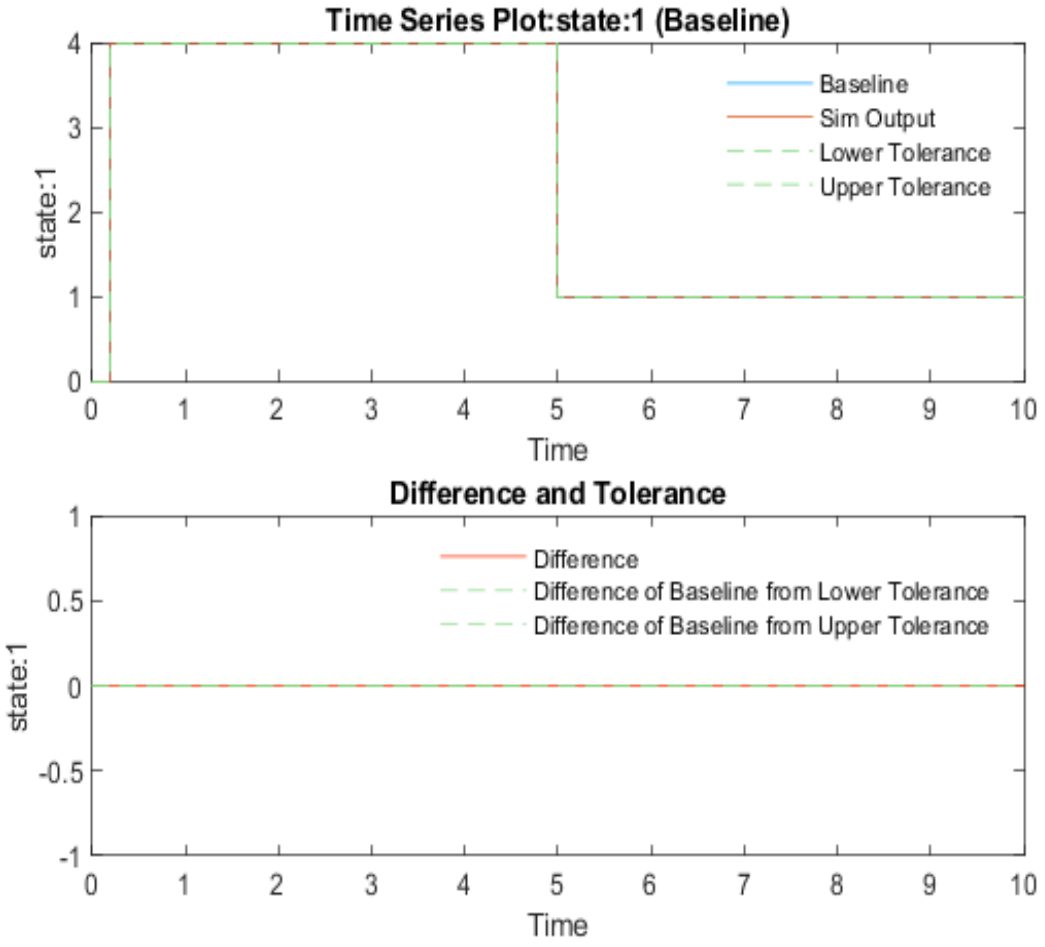
Test Case Information

Name: Regen-NoCharge
Type: Baseline Test
Baseline Name: Regen_NoCharge_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Regen_NoCharge_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot
state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

System Under Test Information

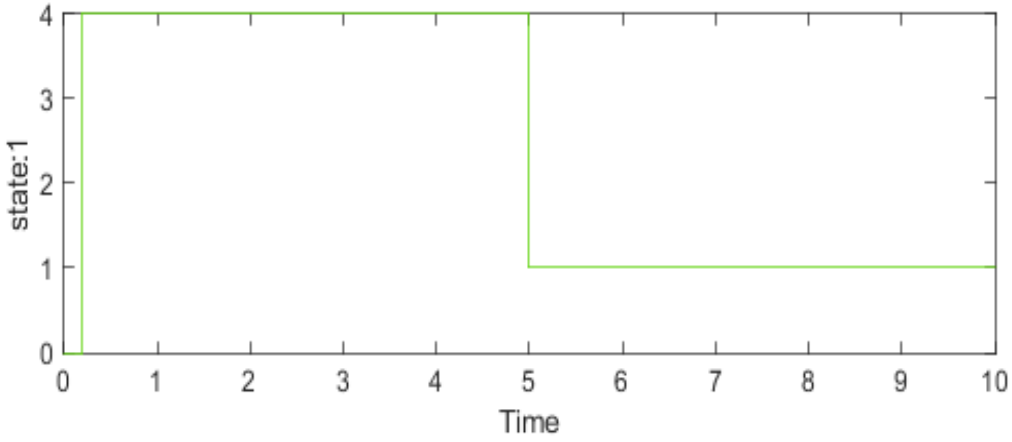
Model: FSM_Model

Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Regen4.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen4.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:35:00
Simulation Stop Time:	2021-02-26 09:35:00
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary

Regen-Combined

Test Result Information

Result Type:	Test Case Result
Parent:	Regen
Start Time:	26-Feb-2021 09:35:01

End Time: 26-Feb-2021 09:35:01
Outcome: Passed
Description:

State under test: REGENERATIVE_BRAKING (4)

Transition under test: REGENERATIVE_BRAKING (4) - COMBINED (3)

INPUT conditions:

- RealSpeed > SpeedMaxMGU

- AccPedal: !=0 at t = 5 s

- BrakePedal: 0 at t = 5 s

- Fuel > fuelMin

- SOC > SOCmin

EXPECTED OUTPUT:

The state should change to COMBINED (3).

Test Case Information

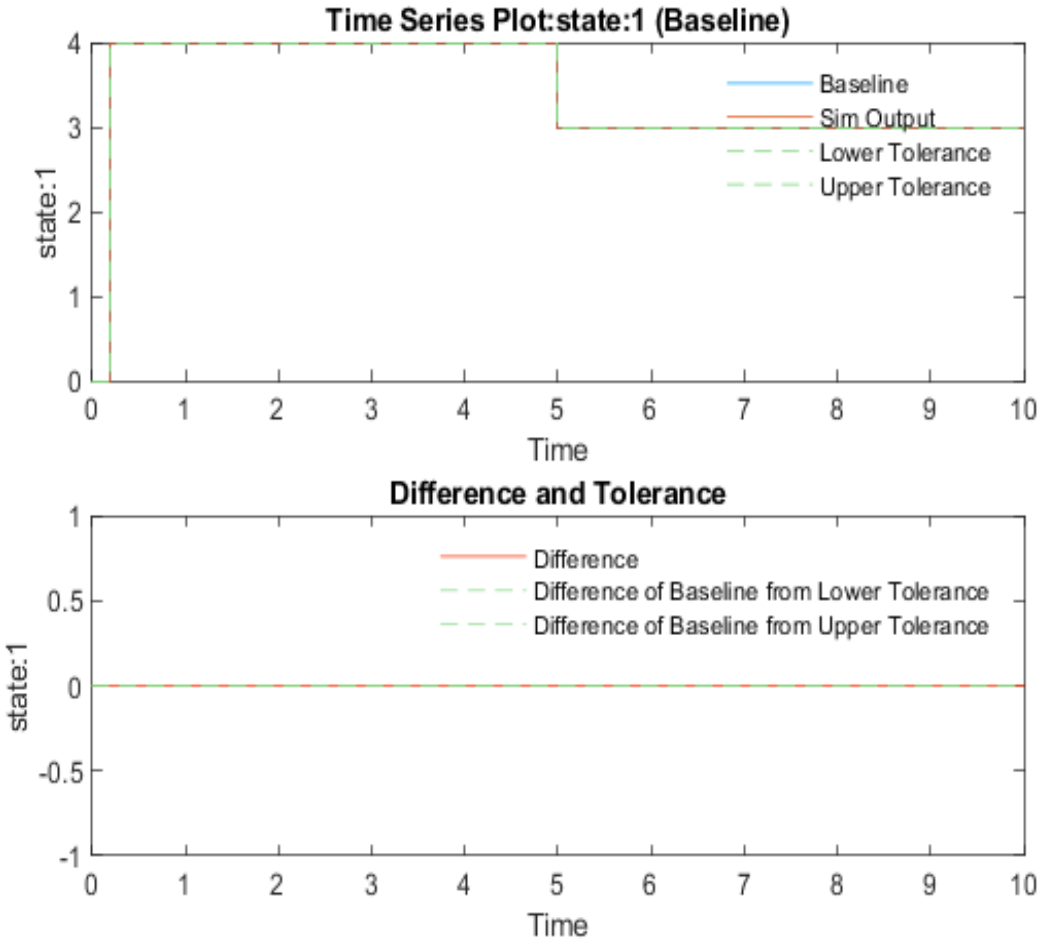
Name: Regen-Combined
Type: Baseline Test
Baseline Name: Regen_Combined_baseline.mat
Baseline File: C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Baselines\Regen_Combined_baseline.mat

Baseline Comparison

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync	Link to Plot

state:1	0	0	0	0	0	double			double		Continuous	zoh	union	Link	

Name	Abs Tol	Rel Tol	Lead Tol	Lag Tol	Max Diff	Data Type 1	Units 1	Sample Time 1	Data Type 2	Units 2	Sample Time 2	Interp	Sync
state:1	0	0	0	0	0	double			double		Continuous	zoh	union



Back to Report SummaryBack to Criteria Results

Simulation

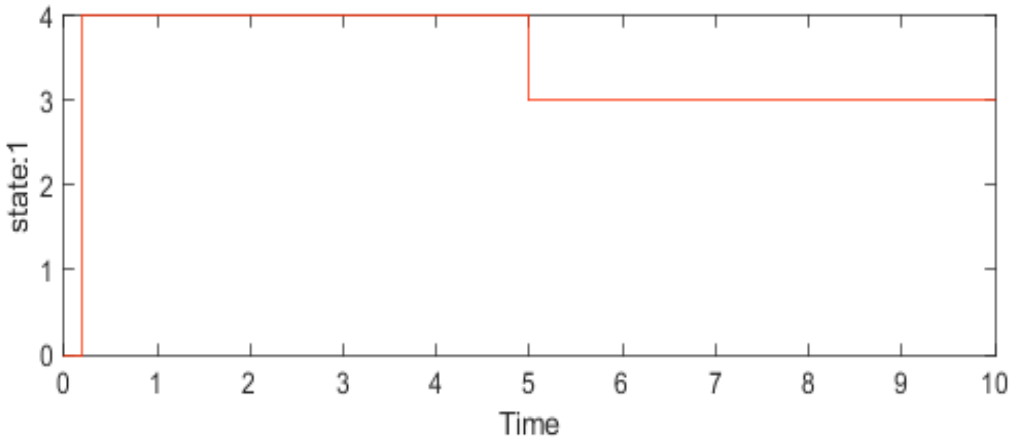
System Under Test Information

Model:	FSM_Model
Release:	Current
Simulation Mode:	normal
Override SIL or PIL Mode:	0
Configuration Set:	Configuration
External Input Name:	Regen5.mat
External Input File:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen5.mat
Start Time:	0
Stop Time:	10
Checksum:	548314369 3126024374 1648386796 2958348115
Simulink Version:	10.2
Model Version:	1.3
Model Author:	mordi
Date:	Tue Feb 16 15:30:18 2021
User ID:	ivane
Model Path:	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\FSM_Model.slx
Machine Name:	DESKTOP-MPG8QDG
Solver Name:	VariableStepDiscrete
Solver Type:	Variable-Step
Max Step Size:	0.20000000000000001
Simulation Start Time:	2021-02-26 09:35:01
Simulation Stop Time:	2021-02-26 09:35:01
Platform:	PCWIN64

Simulation Output

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
state:1	double		Continuous	zoh	union	Link

Name	Data Type	Units	Sample Time	Interp	Sync
state:1	double		Continuous	zoh	union



Back to Report SummaryBack to Signal Summary