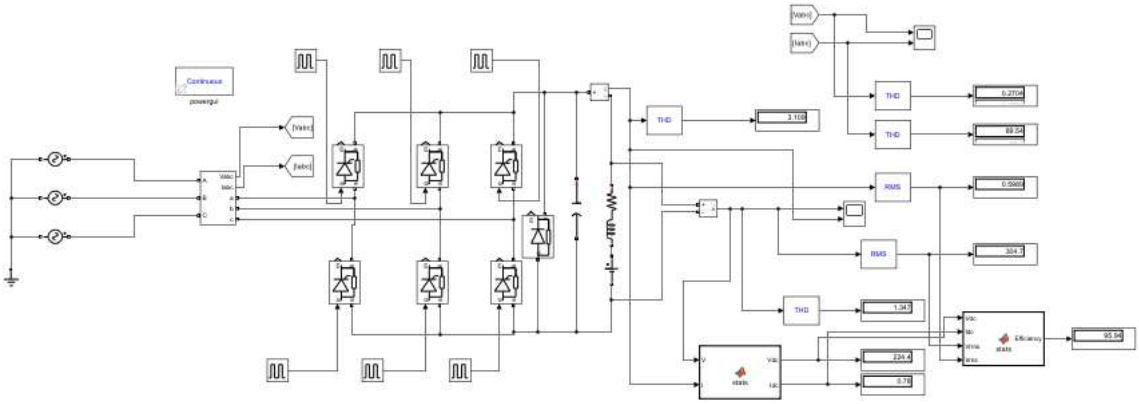
threephasefullycontrolledconverter

Details for threephasefullycontrolledconverter and above



G. Surya Anirudh

01-Apr-2024 16:30:57

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Model - threephasefullycontrolledconverter

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Full Model Hierarchy

1. threephasefullycontrolledconverter

Simulation Parameter	Value
Solver	VariableStepAuto
RelTol	1e-3
Refine	1
MaxOrder	5
ZeroCross	on

[more info]

Machine - threephasefullycontrolledconverter

Machine	threephasefullycontrolledconverter
Creation Date	01-Apr-2024 15:55:54

[more info]

System - threephasefullycontrolledconverter

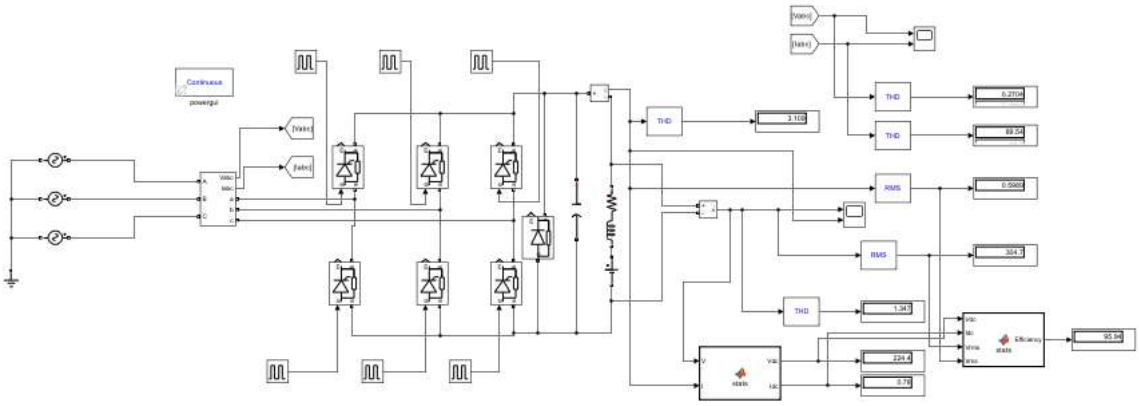

Table 1. AC Voltage Source Block Properties

Name	Amplitude	Phase	Frequency	Sample Time	Measurements	Bus Type
AC Voltage Source	230	120	50	0	None	swing
AC Voltage Source1	230	0	50	0	None	swing
AC Voltage Source2	230	240	50	0	None	swing

Table 2. Current Measurement Block Properties

Name
Current Measurement

Table 3. DC Voltage Source Block Properties

Name	Amplitude	Measurements
DC Voltage Source	200	None

Table 4. Detailed Thyristor Block Properties

Name	Ron	Lon	Vf	IL	Tq	IC	Rs	Cs	Measurements
Detailed Thyristor	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on
Detailed Thyristor1	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on
Detailed Thyristor2	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on
Detailed Thyristor3	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on
Detailed Thyristor4	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on
Detailed Thyristor5	0.001	1e-3	0.8	0.1	100e-6	0	500	250e-9	on

Table 5. Diode Block Properties

Name	Ron	Lon	Vf	IC	Rs	Cs	Measurements
Diode	0.001	0	0.8	0	500	250e-9	on

Table 6. DiscretePulseGenerator Block Properties

Name	Pulse Type	Time Source	Amplitude	Period	Pulse Width	Phase Delay	Sample Time
Pulse Generator1	Time based	Use simulation time	1	0.02	33.35	0.01	1
Pulse Generator2	Time based	Use simulation time	1	0.02	33.35	0.0033	1
Pulse Generator3	Time based	Use simulation time	1	0.02	33.35	0.01663	1
Pulse Generator4	Time based	Use simulation time	1	0.02	33.35	0.02	1
Pulse Generator5	Time based	Use simulation time	1	0.02	33.35	0.01333	1
Pulse Generator6	Time based	Use simulation time	1	0.02	33.35	0.00663	1

Table 7. Display Block Properties

Name	Format	Decimation	Floating
Display	short	1	off
Display1	short	1	off
Display2	short	1	off
Display3	short	1	off
Display4	short	1	off
Display5	short	1	off
Display6	short	1	off
Display7	short	1	off
Display8	short	1	off

Table 8. From Block Properties

Name	Goto Tag	Icon Display	Goto Blk Name	Goto Blk Location	Defined In Blk
From	Vabc	Tag	Goto	threephasefullycontrolledconverter	Kv1
From1	Iabc	Tag	Goto1	threephasefullycontrolledconverter	Kv

Table 9. Goto Block Properties

Name	Goto Tag	Icon Display	Tag Visibility	From Blk	From Blk Location	Used By Blk
Goto	Vabc	Tag	local	From	threephasefullycontrolledconverter	Product, Product, Product1, Product, integrator, Product, Product, Product1, Product, Scope1
Goto1	Iabc	Tag	local	From1	threephasefullycontrolledconverter	Product, Product, Product1, Product, integrator, Product, Product, Product1, Product, Scope1

Table 10. Ground Block Properties

Name	Physical Domain	Sub Class Name	Left Port Type	Right Port Type
Ground	powersysdomain	unknown	p1	p1

Table 11. MATLAB Function Block Properties

Name	Script

MATLAB Function	`function [Vdc,Idc]  = stats(V,I)`
	
	`Vdc=mean(V);`
	`Idc=mean(I);`

MATLAB Function1	`function Efficiency   = stats(Vdc,Idc,Vrms,Irms)`
	
	`Efficiency=((Vdc*Idc)/(Vrms*Irms))*100;`

Table 12. PSB option menu block Block Properties

Name	Simulation Mode	Iterations	Frequencyindice	Pbase	Err Max	Units V	Units W	Function Messages	Echomessages	Current Source Switches	Disable Snubber Devices	Disable Ron Switches	Disable Vf Switches	Display Equations	Methode	X0stat
powergui	Continuous	50	50	100e6	1e-4	kV	MW	off	off	off	off	off	off	off	off	blocks

Table 13. RMS Block Properties

Name	True RMS	Freq	RMSInit	Ts
RMS1	on	60	120	0
RMS2	on	60	120	0

Table 14. Series RLC Branch Block Properties

Name	Branch Type	Resistance	Inductance	Seti L0	Measurements
Series RLC Branch	RL	100	1	off	None
Series RLC Branch1	C	100	1	off	None

Table 15. THD Block Properties

Name	Freq	Ts
THD	60	0
THD1	60	0
THD2	60	0
THD3	60	0

Table 16. Three-Phase VI Measurement Block Properties

Name	Voltage Measurement	Set Label V	Vpu	Vpu LL	Current Measurement	Set Label I	Ipu
Three-Phase V-I Measurement	phase-to-phase	off	off	off	yes	off	off

Table 17. Voltage Measurement Block Properties

Name
Voltage Measurement

Appendix

Table 18. Block Type Count

BlockType	Count	Block Names
Display	9	Display, Display1, Display2, Display3, Display4, Display5, Display6, Display7, Display8
DiscretePulseGenerator	6	Pulse Generator1, Pulse Generator2, Pulse Generator3, Pulse Generator4, Pulse Generator5, Pulse Generator6
Detailed Thyristor (m)	6	Detailed Thyristor, Detailed Thyristor1, Detailed Thyristor2, Detailed Thyristor3, Detailed Thyristor4, Detailed Thyristor5
THD (m)	4	THD, THD1, THD2, THD3
AC Voltage Source (m)	3	AC Voltage Source, AC Voltage Source1, AC Voltage Source2
Series RLC Branch (m)	2	Series RLC Branch, Series RLC Branch1
Scope	2	Scope, Scope1
RMS (m)	2	RMS1, RMS2
MATLAB Function	2	MATLAB Function, MATLAB Function1
Goto	2	Goto, Goto1
From	2	From, From1
Voltage Measurement (m)	1	Voltage Measurement
Three-Phase VI Measurement (m)	1	Three-Phase V-I Measurement
PSB option menu block (m)	1	powergui
Ground (m)	1	Ground
Diode (m)	1	Diode
DC Voltage Source (m)	1	DC Voltage Source
Current Measurement (m)	1	Current Measurement