1 Variables

2 root

	var	symbol	documentation	type	units	tokens	eqs
5	$F_{N,A}$	`F`	incidence matrix of directed graph	network		[]	
1	t_N	`t`	time	frame	s	[]	
3	${t^o}_N$	`to`	initial time	frame	s	[]	1
4	${t^e}_N$	`te`	end time	frame	s	[]	2
2	$\#$	`value`	numerical value	constant		[]	

3 System

	var	symbol	documentation	type	units	tokens	eqs
17	${\hat{x}^a}_N$	`fx_a`	flow of x with mechanism a	transport	ms^{-1}	[]	12
18	${\hat{x}^b}_N$	`fx_b`	flow of x with mechanism b	transport	ms^{-1}	[]	13
6	x_N	`x`	state	state	m	[]	15
15	${\pi^a}_N$	`pi_a`	effort a	state	m	[]	10
16	${\pi^b}_N$	`pi_b`	effort b	state	m	[]	11
19	$\dot{x}_N$	`dx`	differential state	state	ms^{-1}	[]	14
23	pi_{cN}	`pi_c`	effort c	state	ms^{-1}	[]	17
10	ν	`nu`	frequency	constant	s^{-1}	[]	
11	K	`K`	frequency a	constant	s^{-1}	[]	6
12	L	`L`	frequency b	constant	s^{-1}	[]	7
13	N	`N`	a transport constant	constant		[]	8
14	O	`O`	a transport constant	constant		[]	9

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	var	symbol	documentation	type	units	tokens	eqs
21	P	P	a transport constant	constant		[]	16
22	M	M	frequency c	constant	s^{-1}	[]	

4 Properties

	var	symbol	documentation	type	units	tokens	eqs

5 Control

	var	symbol	documentation	type	units	tokens	eqs

6 System–Properties

	var	symbol	documentation	type	units	tokens	eqs

7 Properties–System

	var	symbol	documentation	type	units	tokens	eqs

8 System–Control

	var	symbol	documentation	type	units	tokens	eqs

9 Control–System

	var	symbol	documentation	type	units	tokens	eqs

10 Properties–Control

	var	symbol	documentation	type	units	tokens	eqs

11 Control–Properties

	var	symbol	documentation	type	units	tokens	eqs

12 Equations

12.1 Model equations

no	equation	documentation	layer
1	$t^o{}_N := Set(t_N, \#)$	initial time	root
2	$t^e{}_N := Set(t_N, \#)$	end time	root
6	$K := Set(\nu, \#)$	frequency a	System
7	$L := Set(\nu, \#)$	frequency b	System
8	$N := Set(\#, \#)$	a transprort constant	System
9	$O := Set(\#, \#)$	a transport constant	System
10	$\pi^a{}_N := N \,.\, x_N$	effort a	System
11	$\pi^b{}_N := O \,.\, x_N$	effort b	System
12	$\hat{x}^a{}_N := F_{N,A} \overset{A}{\star} \left(K \,.\, F_{N,A} \overset{N}{\star} \pi^a{}_N \right)$	flow of x with mechanism a	System
13	$\hat{x}^b{}_N := F_{N,A} \overset{A}{\star} \left(K \,.\, F_{N,A} \overset{N}{\star} \pi^b{}_N \right)$	flow of x with mechanism b	System
14	$\dot{x}_N := \hat{x}^a{}_N + \hat{x}^b{}_N$	differential state	System
15	$x_N := \int_{t^o{}_N}^{t^e{}_N} \dot{x}_N \;\; d\, t_N$	state	System
16	$P := Set(\#, \#)$	a transport constant	System
17	$pi_{cN} := M \,.\, x_N$	effort c	System