
Simulink Report: Thermal_Capacity_

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Model - Thermal_Capacity_

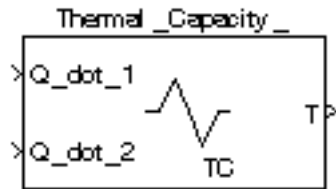


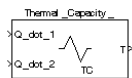
Tabelle 1.1. Thermal_Capacity_ Simulation Parameters

<i>Solver</i> ode14x	<i>ZeroCross</i> on	<i>StartTime</i> 0.0 <i>StopTime</i> 10.0
<i>RelTol</i> 1e-3	<i>AbsTol</i> auto	<i>Refine</i> 1
<i>InitialStep</i> auto	<i>FixedStep</i> auto	<i>MaxStep</i> auto

Tabelle 1.2. Thermal_Capacity_ Summary Information

<i>NumModelInputs</i>	N/A	<i>NumModelOutputs</i>	N/A
<i>NumVirtualSubsystems</i>	N/A	<i>NumNonvirtSubsystems</i>	N/A
<i>NumNonVirtBlocksInModel</i>	N/A	<i>NumBlockTypeCounts</i>	N/A
<i>NumBlockSignals</i>	N/A	<i>NumBlockParams</i>	N/A
<i>NumZCEvents</i>	N/A	<i>NumNonsampledZCs</i>	N/A

Systems

Name	Parent	Snapshot	Blocks	Signals
Thermal_Capacity_	<root>		Thermal_Capacity_	Thermal_Capacity_<1>

Blocks

Tabelle 1.3. Block Type Count



BlockType	Count	Block Names
Inport	6	Q_dot_1, Q_dot_2, m, c, Q_dot_in_1, Q_dot_in_2
Outport	2	d_T, T
Constant	2	c, m
Terminator	1	Terminator
SubSystem	1	Thermal_Capacity_
Stateflow (m)	1	Embedded MATLA Function
S-Function	1	SFunction

BlockType	Count	Block Names
Integrator	1	Integrator1
Demux	1	Demux

Data and Functions

Tabelle 1.4. Model Functions

Function Name	Parent Blocks	Calling string
NaN	Thermal_Capacity_ Thermal_Capacity_ Thermal_Capacity_	NaN NaN NaN

 **Function Block Parameters: Thermal_Capacity_** 

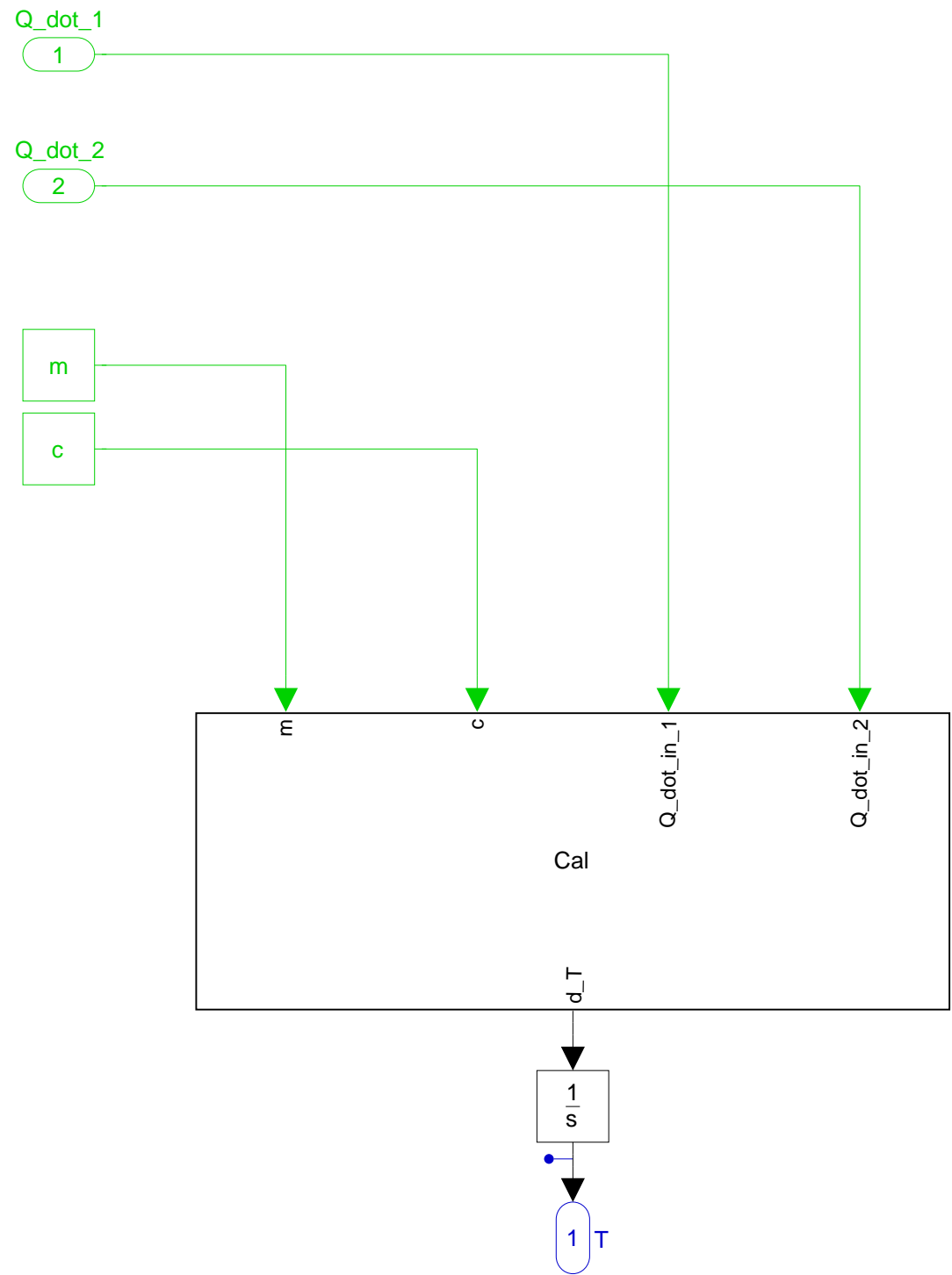
Subsystem (mask)

Parameters

Mass [kg]

Specific Heat Capacity [J/kg/K]

Initial Parameter: Temperature [K]



```
function d_T = Cal(m,c,Q_dot_in_1,Q_dot_in_2)

% *****
% * Definition of a Thermal Capacity
% *
% * Number of inputs:                2
% *
% * Parameter: Mass:                  m
% *           Specific heat capacity: c
% *
% *
% * Relevant input variables of TC
% *
% * heat flow:                        Q_dot
% *
% *
% * Relevant output variables of TC
% *
% * Temperature:                      T
% *
% *****
% * Embedded Matlab Function Cal:
% *
% * Calculations:
% * 1. Modification of the temperature.
% *
% *
% * Last modification : 15.03.2008
% * Author : Christian Müller(HAW)
% *
% *****

% * 1. Modification of the temperature
d_T = (Q_dot_1+Q_dot_2)/(m*c)
% *****
```