Simulink Report: HR_Cond_

Christian Müller

2008-03-06

Model - HR_Cond_
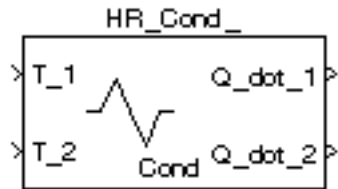

Tabelle 1.1. HR_Cond_ Simulation Parameters

Solver ode14x	*ZeroCross* on	*StartTime* 0.0*StopTime* 10.0
RelTol 1e-3	*AbsTol* auto	*Refine* 1
InitialStep auto	*FixedStep* auto	*MaxStep* auto

Tabelle 1.2. HR_Cond_ Summary Information

NumModelInputs	N/A	*NumModelOutputs*	N/A
NumVirtualSubsystems	N/A	*NumNonvirtSubsystems*	N/A
NumNonVirtBlocksInModel	N/A	*NumBlockTypeCounts*	N/A
NumBlockSignals	N/A	*NumBlockParams*	N/A
NumZCEvents	N/A	*NumNonsampledZCs*	N/A

Systems

Name	Parent	Snapshot	Blocks	Signals
HR_Cond_	<root>		HR_Cond_	HR_Cond_<1> HR_Cond_<2>

Blocks

Tabelle 1.3. Block Type Count

BlockType	Count	Block Names
Inport	7	T_1, T_2, A, b, lambda, T_in_1, T_in_2
Outport	4	Q_dot_1, Q_dot_2, Q_dot_1, Q_dot_2
Constant	3	A, b, lambda
Terminator	1	Terminator
SubSystem	1	HR_Cond_
Stateflow (m)	1	Embedded MATLA Function
S-Function	1	SFunction

BlockType	Count	Block Names
Demux	1	Demux

Data and Functions

Tabelle 1.4. Model Functions

Function Name	Parent Blocks	Calling string
NaN	HR_Cond_ HR_Cond_ HR_Cond_	NaN NaN NaN

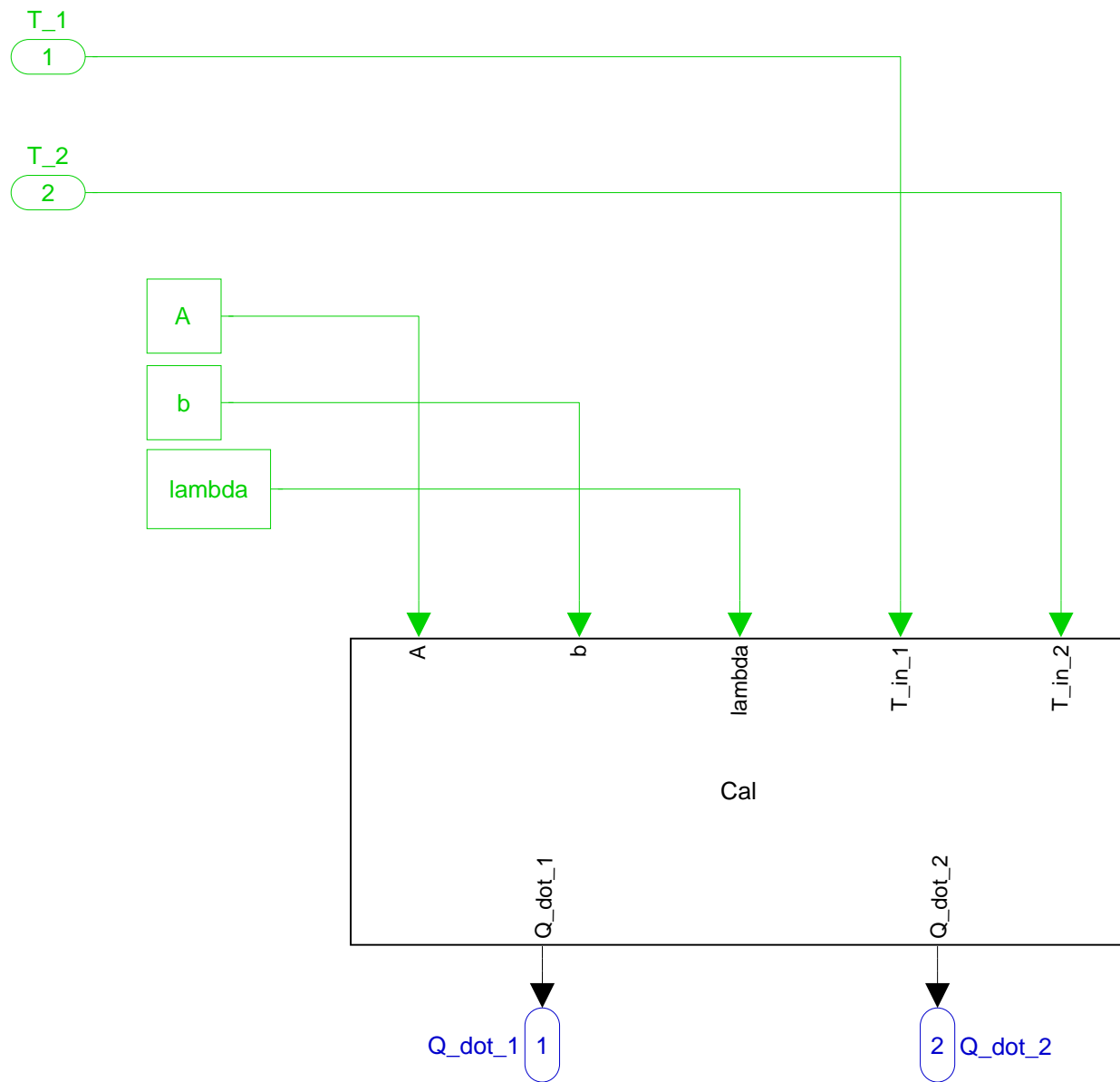**Function Block Parameters: HR_Cond_**

Subsystem (mask)

Parameters

Surface [m²]

NaN

Thickness [m]

NaN

Thermal Conductivity [W/m K]

NaN

OK   Cancel   Help   Apply

```
function [Q_dot_1,Q_dot_2] = Cal(A,b,lambda,T_in_1,T_in_2)

% ***********************************************************************
% * Definition of a Heat Resistance
% *
% * Number of inputs:              2
% *
% * Parameter: Surface:            A
% *            Thickness:          b
% *            Thermal conductivity: lambda
% *
% *
% * Relevant input variables of HR
% *
% * Temperature:                   T_in
% *
% *
% * Relevant output variables of Block HR
% *
% * Heat flow:                     Q_dot
% *
% ***********************************************************************
% * Embedded Matlab Function Cal:
% *
% * Calculations:
% * 1. Calculation heat flow.
% *
% *
% * Assumptions:
% * 1. Heat transfer process = conduction
% *
% *
% * Last modification : 15.03.2008
% * Author : Christian Müller(HAW)
% *
% ***********************************************************************

% * 1. Calculation heat flow
Q_dot_1 = -lambda*(A/b)*(T_1-T_2);
Q_dot_2 = -lambda*(A/b)*(T_2-T_1);
% ***********************************************************************
```