Simulink Report: HR_Rad_

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Model - HR_Rad_
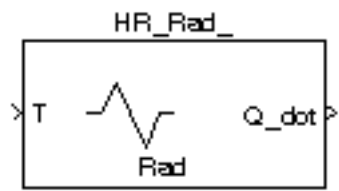

Tabelle 1.1. HR_Rad_ Simulation Parameters

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_Rad_ 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_Rad_	<root>		HR_Rad_	HR_Rad_<1>

Blocks

Tabelle 1.3. Block Type Count
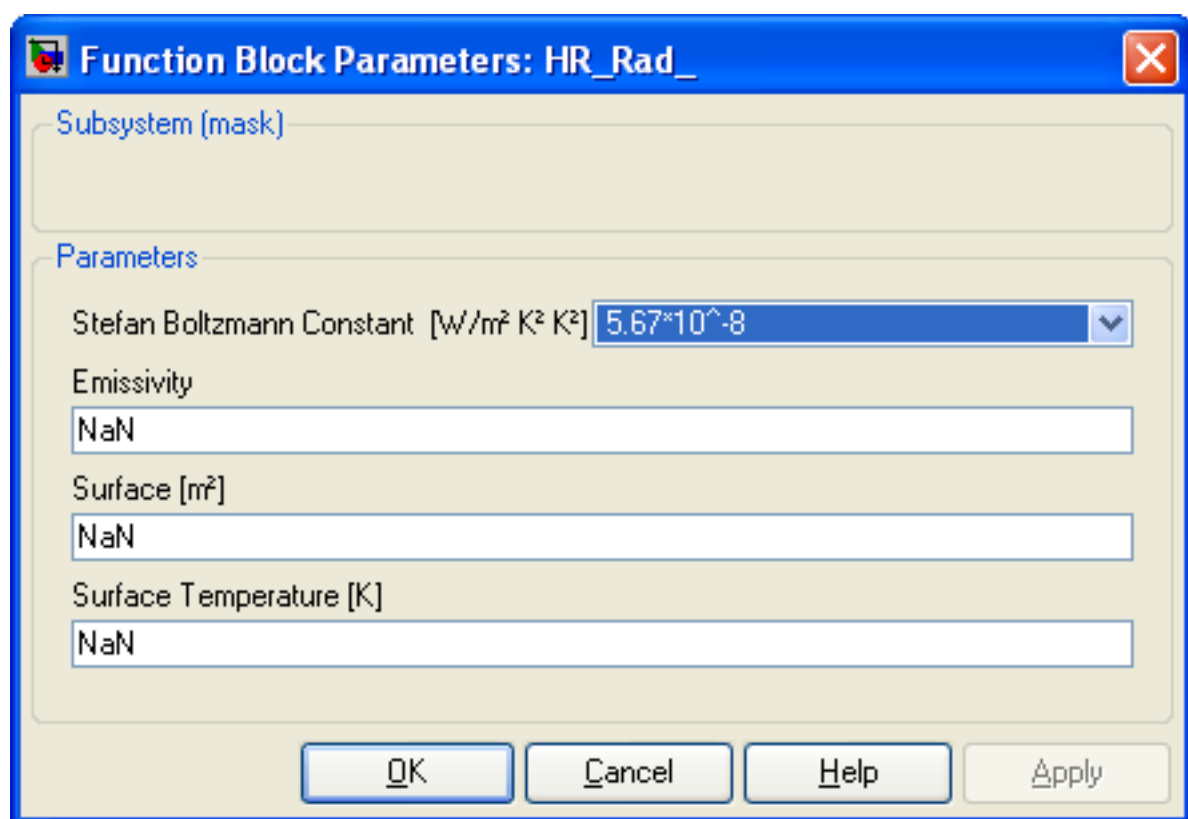
BlockType	Count	Block Names
Inport	6	T, sigma, epsilon, A, T_s, T
Constant	4	A, T_s, epsilon, sigma
Outport	2	Q_dot, Q_dot
Terminator	1	Terminator
SubSystem	1	HR_Rad_
Stateflow (m)	1	Embedded MATLA Function
S-Function	1	SFunction

BlockType	Count	Block Names
Demux	1	Demux

Data and Functions

Tabelle 1.4. Model Functions

Function Name	Parent Blocks	Calling string
NaN		
	HR_Rad_	NaN
	HR_Rad_	NaN
	HR_Rad_	NaN

Function Block Parameters: HR_Rad_

Subsystem (mask)

Parameters

Stefan Boltzmann Constant [W/m² K² K²]   5.67*10^-8

Emissivity

NaN

Surface [m²]

NaN

Surface Temperature [K]

NaN

OK   Cancel   Help   Apply

T
1

sigma

epsilon

A

T_s

sigma epsilon A T_s T

Cal

Q_dot

Q_dot 1
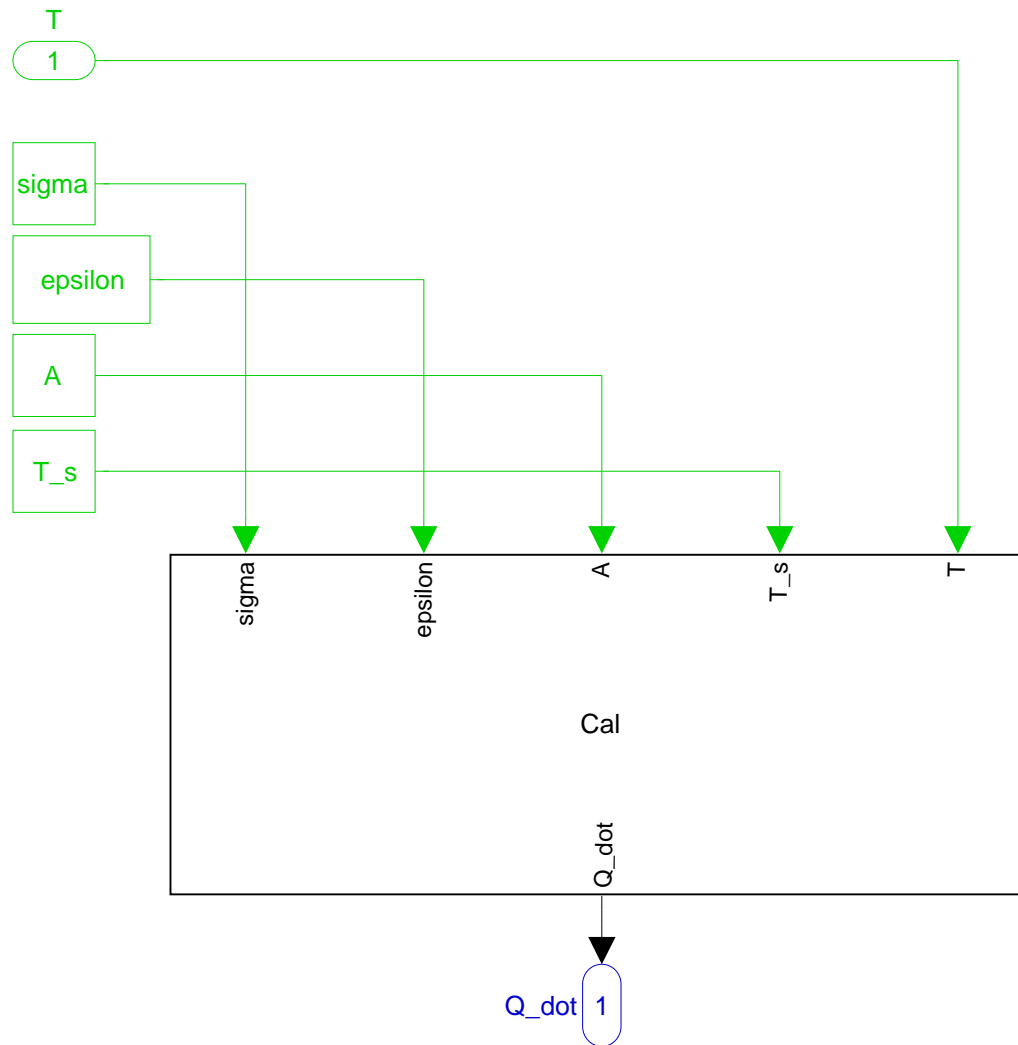
```
function Q_dot = Cal(sigma,epsilon,A,T_s,T)

% **********************************************************************
% * Definition of a Heat Resistance
% *
% * Number of inputs:                      1
% *
% * Parameter: Stefan Boltzmann Constant: sigma
% *            Emissivity:                 epsilon
% *            Surface:                    A
% *            Surface Temperature:        T_s
% *
% *
% * Relevant input variables of HR Rad
% *
% * Temperature:                           T_in
% *
% *
% * Relevant output variables of HR Rad
% *
% * Heat flow:                             Q_dot
% *
% **********************************************************************
% * Embedded Matlab Function Cal:
% *
% * Calculations:
% * 1. Calculation heat flow.
% *
% *
% * Assumptions:
% * 1. Heat Transfer process = radiation
% *
% *
% * Last modification : 15.03.2008
% * Author : Christian Müller(HAW)
% *
% **********************************************************************

% * 1. Calculation heat flow
Q_dot = epsilon*sigma*(T^4-T_s^4);
% **********************************************************************
```