Software Information

- Please check, whether your inputs, the equations applied and the charactersitics are displayed correctly.
- You are welcome to send your feedback via `https://github.com/oemof/tespy/issues`.
- LaTeXpackages required are:
  - graphicx
  - float
  - hyperref
  - booktabs
  - amsmath
  - units
  - cleveref
- To supress these messages, call the model documentation with the keyword draft=False.

TESPy Version:	0.4.0 - dev
Commit:	d918f10d@feature/self_documenting_models
CoolProp version:	6.4.0
Python version:	3.8.0 (default, Oct 28 2019, 16:14:01) [GCC 8.3.0]

1 Connections in design mode

1.1 Specified connection parameters

label	p in bar (1)	T in °C (2)
to collector:out1_solar thermal collector:in1	5.000	35.000

Table 1: Specified connection parameters

1.2 Equations applied

$$0 = p - p_{\text{spec}} \tag{1}$$

$$0 = T\left(p, h\right) - T_{\text{spec}} \tag{2}$$

1.3 Specified fluids

label	H2O (3)
to collector:out1_solar thermal collector:in1	1.000

Table 2: Specified fluids

1.4 Equations applied

$$0 = x_{\text{H2O}} - x_{\text{H2O,spec}} \tag{3}$$

2 Components in design mode

2.1 Components of type SolarCollector

2.1.1 Mandatory constraints

$$0 = \dot{m}_{\text{in},i} - \dot{m}_{\text{out},i} \; \forall i \in [1] \tag{4}$$

$$0 = x_{fl,\text{in},i} - x_{fl,\text{out},i} \; \forall fl \in \text{network fluids}, \forall i \in [1] \tag{5}$$

2.1.2 Inputs specified

label	Q (6)	pr (7)	energy_group (8)
solar thermal collector	8000.000	0.990	True

Table 3: Parameters of components of type SolarCollector

label	E	eta_opt	lkf_lin	lkf_quad	A	Tamb
solar thermal collector	900.000	0.900	1	0.005	10	10

Table 4: Parametergroup energy_group

2.1.3 Equations applied

$$0 = \dot{m}_{\mathrm{in}} \cdot (h_{\mathrm{out}} - h_{\mathrm{in}}) - \dot{Q} \tag{6}$$

$$0 = p_{\mathrm{in},1} \cdot pr - p_{\mathrm{out},1} \tag{7}$$

$$\begin{aligned} 0 =& \dot{m}_{\mathrm{in}} \cdot (h_{\mathrm{out}} - h_{\mathrm{in}}) \\ & - A \cdot \left[E \cdot \eta_{\mathrm{opt}} - \alpha_1 \cdot (T_{\mathrm{m}} - T_{\mathrm{amb}}) - \alpha_2 \cdot (T_{\mathrm{m}} - T_{\mathrm{amb}})^2 \right] \\ T_{\mathrm{m}} =& \frac{T_{\mathrm{out}} + T_{\mathrm{in}}}{2} \end{aligned} \tag{8}$$