Block ENERBA

The ENERBA (Energy balance) block calculates the energy balance of a building for heating and cooling. Calculation methods are based on DIN V 18599.



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Inputs

1 Day/month of the year [d/month]
2 External ambient temperature [°C]
3 Total irradiation on vertical surface north direction [W/m^2]
4 Total irradiation on vertical surface east direction [W/m^2]
5 Total irradiation on vertical surface south direction [W/m^2]
6 Total irradiation on vertical surface west direction [W/m^2]
7 Total irradiation on horizontal surface [W/m^2]
8 Dynamic conductance via basement floor [W/K]
9 Dynamic conductance via basement wall [W/K]
10 Static conductance [W/K]
11 Phase shift because of basement [mth.]

Outputs

1 Heating energy demand month/day [kWh]
2 Cooling energy demand month/day [kWh]

Parameters

1 Gross volume of the building [m^3]

2	Total net area [m^2]
3	Target temperature in winter (for heating) [°C]
4	Target temperature in summer (for cooling) [°C]
5	Calculation modus (0:month 1:day)
6..15	Area of opaque wall 1 to wall 10[m^2]
16	Area of wall under ground level [m^2]
17	Area of bottom plate [m^2]
18	Window area north direction 1 [m^2]
19	Window area north direction 2 [m^2]
20	Window area east direction 1 [m^2]
21	Window area east direction 2 [m^2]
22	Window area south direction 1 [m^2]
23	Window area south direction 2 [m^2]
24	Window area west direction 1 [m^2]
25	Window area west direction 2 [m^2]
26	Window area horizontal 1 [m^2]
27	Window area horizontal 2 [m^2]
28..37	U-value of opaque wall 1 to wall 10 [$W/(m^2*K)$]
38..47	U-value of window north 1 to 10 [$W/(m^2*K)$]
48..57	g-value of window north 1 [-]
58	Frame fraction for window group 1 [%]
59	Frame fraction for window group 2 [%]
60	Effective heat capacity [$Wh/(m^2*K)$]
61	Additional U-value for heat bridge [$W/(m^2*K)$]
62	ventilation ratio ”blower door” n50 [1/h]
63	ventilation ratio window ventilation [1/h]
64	Modus for night-time heating reduction (0: no nthr 1: nthr 2: shutdown mode)
65	Lenght of night-time heating reduction [h]
66	Maximum temperature reduction during night [K]
67	Time of use (for example 10) [h]
68	Internal gains per area during useing [W/m^2]
69	Internal gains per area off useing [W/m^2]
70	Average temperature during year [°C]

Strings

None