

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.



ENERBA

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Inputs

- 1 Day/month of the year [d/month]
- 2 External ambient temperature [$^{\circ}\text{C}$]
- 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 [m²]
 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[m²]
 16 Area of wall under ground level [m²]
 17 Area of bottom plate [m²]
 18 Window area north direction 1 [m²]
 19 Window area north direction 2 [m²]
 20 Window area east direction 1 [m²]
 21 Window area east direction 2 [m²]
 22 Window area south direction 1 [m²]
 23 Window area south direction 2 [m²]
 24 Window area west direction 1 [m²]
 25 Window area west direction 2 [m²]
 26 Window area horizontal 1 [m²]
 27 Window area horizontal 2 [m²]
 28..37 U-value of opaque wall 1 to wall 10 [W/(m²*K)]
 38..47 U-value of window north 1 to 10 [W/(m²*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/(m²*K)]
 61 Additional U-value for heat bridge [W/(m²*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/m²]
 69 Internal gains per area off useing [W/m²]
 70 Average temperature during year [°C]

Strings

None
