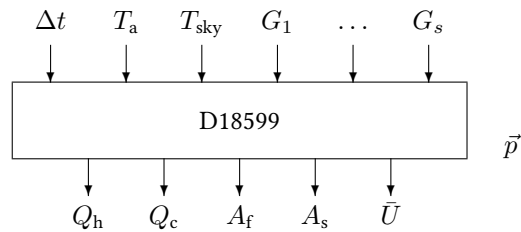


Block D18599

The D18599 block calculates the energy balance of a building for heating and cooling based on DIN 18599.



Name	D18599
Function	bs0014
Inputs	4 ... [1000]
Outputs	5
Parameters	29 ... [1000]
Strings	0
Group	S

Inputs

- 1 Month $\in [1, 12]$
- 2 Ambient temperature / °C
- 3 Sky temperature / °C
- 4 Global irradiation surface 1 / W m^{-2}
- ..
- 3+s Global irradiation surface s (number of surfaces) / W m^{-2}

Outputs

- 1 Monthly heating energy demand q_h / kW h
- 2 Monthly cooling energy demand q_c / kW h
- 3 Total floor area A_f / m^2
- 4 Total surface area A_s / m^2
- 5 Mean U -value $\bar{U}$ / $\text{W m}^{-2} \text{K}^{-1}$

Parameters

- 1 Heated volume
- 2 Average storey height / m
- 3 Number of storeys above ground

4 Attic heating type (0=no room, 1=unheated, 2=heated)
 5 Cellar heating type (0=no room, 1=unheated, 2=heated)
 6 Indirectly heated area ratio
 7 Effective heat capacity / $\text{W h m}^{-2} \text{K}^{-1}$
 8 Additional U-value for heat bridge / $\text{W m}^{-2} \text{K}^{-1}$
 9 Usage type (0=standard, 1=IWU)
 10 Number z of zones
 11 Area A_1 of zone 1 / m^2
 12 Internal gains $\dot{q}_i$ / W m^{-2}
 13 Heating setpoint temperature / $^{\circ}\text{C}$
 14 Heating setback temperature / $^{\circ}\text{C}$
 15 Cooling setpoint temperature / $^{\circ}\text{C}$
 16 Usage hours per day / h
 17 Usage days per year / d
 18 Minimum air change rate zone 1 / h^{-1}
 19 Area A_2 of zone 2 (optional)
 ..
 26 Minimum air change rate zone 2 (optional)
 ..
 11+8z Number s of surfaces
 12+8z Surface 1 type (1=wall, 2=ground, 3= roof, 4=flat roof)
 13+8z A_{a1} Area above ground / m
 14+8z A_{b1} Area below ground / m
 16+8z U_1 / $\text{W m}^{-2} \text{K}^{-1}$
 16+8z A_{w1} Window area / m^2
 17+8z F_{r1} Window frame fraction
 18+8z U_{w1} Window U -value / $\text{W m}^{-2} \text{K}^{-1}$
 19+8z g_1 Window g -value / $\text{W m}^{-2} \text{K}^{-1}$
 20+8z ρ_1 short-wave reflectance of surface 1
 21+8z Surface 2 type
 ..
 29+8z ρ_2 short-wave reflectance of surface 2
 ..

Strings

None

ggfls. aktualisieren !!!

```
s 0 const
p 0 0
s 1 do
p 1 1 12 1 % Months
s 2 polyg 1
p 2 12 % Days per month
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
  1 31 2 28 3 31 4 30 5 31 6 30 7 31 8 31 9 30 10 31 11 30 12 31
s 3 gain 2
p 3 24 % Hours per day
s 4 d18599 3 20 21 0 103 104 101 102 100 % Ta Tsky Gr. S_1 S_2 S_3 S_4 Roof
p 4
775 % Heated Volume (vBrutto)
2.5 % Average storey height / m
1 % Number of storeys above ground
0 % Attic heating type (0=no room, 1=unheated, 2=heated)
0 % Cellar heating type (0=no room, 1=unheated, 2=heated)
0.25 % Indirectly heated area ratio
90.0 % Effective heat capacity
0.10 % Additional U-value for heat bridge
1 % Usage type (0=standard, 1=IWU, 99=invalid)
1 % Number $$ of zones
225 % #1 Area of zone 1 (sqm)
13 % #2 Internal gains of zone 1
21 % #3 Heating setpoint temperature zone 1 (tSetHeat)
17 % #4 Heating setback temperature zone 1 (tSetbackHeat)
24 % #5 Cooling setpoint temperature zone 1 (tSetCool)
14 % #6 Usage hours per day zone 1
300 % #7 Usage days per year zone 1
8.3 % #8 Minimum air change rate zone 1 (h^-1)
6 % Number of surfaces = BP(11+8z)
% #1 Surface type (1=wall, 2=ground 3=roof, 4=flat roof), #2 Areas above ground
% #3 Areas below ground, #4 U-value, #5 Window area, #6 Window frame fraction
% #7 Window U-value, #8 Window g-value, #9 Short-wave reflectance
% #1 #2 #3 #4 #5 #6 #7 #8 #9
  2 0 225 0.62 0 0 0 0 0 % groundsurface (beta=0, gamma=n.a.)
  1 45 0 0.83 9 0.3 2.57 0.76 0.3 % wallsurface (90, 0) N
  1 45 0 0.83 9 0.3 2.57 0.76 0.3 % wallsurface (90, 90) E
  1 45 0 0.83 9 0.3 2.57 0.76 0.3 % wallsurface (90, 180) S
  1 45 0 0.83 9 0.3 2.57 0.76 0.3 % wallsurface (90, 270) W
  4 225 0 0.43 0 0 0 0 0.2 % flat roof (0, n.a.)
s 20 polyg 1
p 20 12 % Monthly ambient temperature
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
  1 0.3 2 1.4 3 5.4 4 9.6 5 13.6 6 16.9 7 18.8 8 18.4 9 15.3 10 9.9 11 5.2 12 1.2
s 21 polyg 1
p 21 12 % Monthly sky temperature
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
  1 -17.3 2 -16.9 3 -10.6 4 -5.7 5 0.2 6 5.3 7 5.7 8 8.3 9 1.5 10 -4.8 11 -10.0 12 -12.4
s 100 polyg 1
p 100 12 % Horizontal Stuttgart
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
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1 40 2 69 3 111 4 169 5 207 6 225 7 227 8 187 9 152 10 93 11 46 12 32
s 101 polyg 1
p 101 12 % South
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1 59 2 85 3 103 4 118 5 117 6 117 7 122 8 120 9 131 10 109 11 66 12 51
s 102 polyg 1
p 102 12 % West
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1 28 2 47 3 75 4 105 5 130 6 130 7 136 8 114 9 103 10 61 11 31 12 24
s 103 polyg 1
p 103 12 % North
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1 19 2 30 3 49 4 71 5 88 6 97 7 97 8 76 9 56 10 37 11 21 12 15
s 104 polyg 1
p 104 12 % East
% JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1 27 2 44 3 78 4 109 5 129 6 135 7 145 8 121 9 101 10 61 11 32 12 22

s 300 mul 4.1 4.3
s 301 mul 4.2 4.3
s 302 screen 4.1 4.2 300 301

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