Block FADYBS

The FADYBS block calculates the heating consumption of a zone via the numerical solved differential equation of a resistant-capacity element. FADYBS is short for Fast Dynamic Building Simulation. The FADYBS block is deprecated. Its sucessor is block FDBS.



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Function	bs0010
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Inputs

1	Second of the year / s
2	External ambient temperature / °C
3	Global radiation on vertical surface north direction / $\mathrm{W\,m^{-2}}$
4	Global radiation on vertical surface east direction / $\mathrm{W\,m^{-2}}$
5	Global radiation on vertical surface south direction / $\mathrm{W\,m^{-2}}$
6	Global radiation on vertical surface west direction / $\mathrm{W\,m^{-2}}$
7	Global radiation on horizontal surface / $\mathrm{W\,m^{-2}}$
8	Target temperature / °C
9	Internal gains / W
10	Effective air ventilation rate / $\mathrm{h^{-1}}$
11	Temperature of first adjacent zone / °C
12	Total thermal resistance to first adjacent zone / $\mathrm{K\,W^{-1}}$
13	Temperature of second adjacent zone / °C
14	Total thermal resistance to second adjacent zone / $\mathrm{K\,W^{-1}}$
15	Temperature of third adjacent zone / °C

16 Total thermal resistance to third adjacent zone / $\mathrm{K\,W^{-1}}$
17 Temperature of fourth adjacent zone / °C
18 Total thermal resistance to fourth adjacent zone / $\mathrm{K\,W^{-1}}$

Outputs

1 Operative internal temperature / °C
2 Heating energy demand per timestep / kWh
3 Cooling energy demand per timestep / kWh

Parameters

1 Additional U-value for heatbridges / $\mathrm{W\,m^{-2}\,K^{-1}}$
2 U-value external wall 1 / $\mathrm{W\,m^{-2}\,K^{-1}}$
3 Area external wall 1 / $\mathrm{m^2}$
4 U-value external wall 2 / $\mathrm{W\,m^{-2}\,K^{-1}}$
5 Area external wall 2 / $\mathrm{m^2}$
6 U-value external wall 3 / $\mathrm{W\,m^{-2}\,K^{-1}}$
7 Area external wall 3 / $\mathrm{m^2}$
8 U-value external wall 4 / $\mathrm{W\,m^{-2}\,K^{-1}}$
9 Area external wall 4 / $\mathrm{m^2}$
10 U-value external wall 5 / $\mathrm{W\,m^{-2}\,K^{-1}}$
11 Area external wall 5 / $\mathrm{m^2}$
12 U-value of window north 1 / $\mathrm{W\,m^{-2}\,K^{-1}}$
13 Area window north 1 / $\mathrm{m^2}$
14 Total energy transmission of window north 1
15 Frame fraction of window north 1 / %
16 U-value of window north 2 / $\mathrm{W\,m^{-2}\,K^{-1}}$
17 Area window north 2 / $\mathrm{m^2}$
18 Total energy transmission of window north 2
19 Frame fraction of window north 2 / %
20 U-value of window east 1 / $\mathrm{W\,m^{-2}\,K^{-1}}$
21 Area window east 1 / $\mathrm{m^2}$
22 Total energy transmission of window east 1
23 Frame fraction of window east 1 / %
24 U-value of window east 2 / $\mathrm{W\,m^{-2}\,K^{-1}}$
25 Area window east 2 / $\mathrm{m^2}$
26 Total energy transmission of window east 2
27 Frame fraction of window east 2 / %
28 U-value of window south 1 / $\mathrm{W\,m^{-2}\,K^{-1}}$
29 Area window south 1 / $\mathrm{m^2}$
30 Total energy transmission of window south 1
31 Frame fraction of window south 1 / %
32 U-value of window south 2 / $\mathrm{W\,m^{-2}\,K^{-1}}$
33 Area window south 2 / $\mathrm{m^2}$
34 Total energy transmission of window south 2

35 Frame fraction of window south 2 / %
36 U-value of window west 1 / $W\,m^{-2}\,K^{-1}$
37 Area window west 1 / m^2
38 Total energy transmission of window west 1
39 Frame fraction of window west 1 / %
40 U-value of window west 2 / $W\,m^{-2}\,K^{-1}$
41 Area window west 2 / m^2
42 Total energy transmission of window west 2
43 Frame fraction of window west 2 / %
44 U-value of window horizontal 1 / $W\,m^{-2}\,K^{-1}$
45 Area window horizontal 1 / m^2
46 Total energy transmission of window horizontal 1
47 Frame fraction of window horizontal 1 / %
48 U-value of window horizontal 2 / $W\,m^{-2}\,K^{-1}$
49 Area window horizontal 2 / m^2
50 Total energy transmission of window horizontal 2
51 Frame fraction of window horizontal 2 / %
52 Net volume of zone (Air-volume) / m^3
53 Net area / useful area / m^2
54 Specific thermal capacity / $W\,m^{-2}\,K^{-1}$
55 Temperature of initialisation / °C
56 Heating on (0) or off (1)
57 Cooling on (0) or off (1)
None