## Block DYBASE

The DYBASE block calculates the dynamic conductance value for unsteady heat transport via basement around an building, the temperature in this basement zone and heating as well as cooling demand. Calculation is based on EN ISO 13370.




| | |
|---|---|
| **Name** | DYBASE |
| **Function** | bs0011 |
| **Inputs** | 18 |
| **Outputs** | 3 |
| **Parameters** | 36 |
| **Strings** | 0 |
| **Group** | S |

### Inputs

| | |
|---|---|
| 1 | Second of the year / s |
| 2 | Ambient temperature / °C |
| 3 | Global radiation on north surface / $\mathrm{W\,m^{-2}}$ |
| 4 | Global radiation on east surface / $\mathrm{W\,m^{-2}}$ |
| 5 | Global radiation on south surface / $\mathrm{W\,m^{-2}}$ |
| 6 | Global radiation on west surface / $\mathrm{W\,m^{-2}}$ |
| 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 | Net volume cellar / $\mathrm{m^3}$ |
| 2 | Area of basement floor / $\mathrm{m^2}$ |
| 3 | External perimeter of basement floor / m |
| 4 | Height of cellar wall / m |
| 5 | Thickness of cellar wall / m |
| 6 | Thermal resistance of wall under ground / $\mathrm{m^2\,K\,W^{-1}}$ |
| 7 | Thermal resistance of ground plate / $\mathrm{m^2\,K\,W^{-1}}$ |
| 8 | Thermal conductivity of soil / $\mathrm{W\,m^{-1}\,K^{-1}}$ |
| 9 | Additional U-value for heatbridges / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 10 | U-value external wall / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 11 | Area external wall / $\mathrm{m^2}$ |
| 12 | Specific thermal capacity / $\mathrm{Wh\,m^{-2}\,K^{-1}}$ |
| 13 | Jahresmitteltemperatur / °C |
| 14 | Temperature of initialisation / °C |
| 15 | U-value of window north / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 16 | Area window north / $\mathrm{m^2}$ |
| 17 | Total energy transmission of window north |
| 18 | Frame fraction of window north / % |
| 19 | U-value of window east / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 20 | Area window east / $\mathrm{m^2}$ |
| 21 | Total energy transmission of window east |
| 22 | Frame fraction of window east / % |
| 23 | U-value of window south / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 24 | Area window south / $\mathrm{m^2}$ |
| 25 | Total energy transmission of window south |
| 26 | Frame fraction of window south / % |
| 27 | U-value of window west / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 28 | Area window west / $\mathrm{m^2}$ |
| 29 | Total energy transmission of window west |
| 30 | Frame fraction of window west / % |
| 31 | U-value of window horizontal / $\mathrm{W\,m^{-2}\,K^{-1}}$ |
| 32 | Area window horizontal / $\mathrm{m^2}$ |
| 33 | Total energy transmission of window horizontal |
| 34 | Frame fraction of window horizontal / % |
| 35 | Heating on (0) or off (1) |

36 Cooling on (0) or off (1)

Strings

None