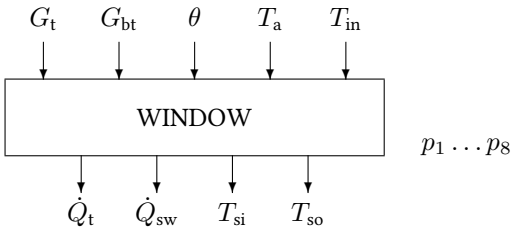
Block WINDOW

The WINDOW block calculates the total energy flux through a window, with a detailed model of the solar heat gain coefficient.





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Inputs

1 Global radiation in the window plane G_t / W m^{-2}
2 Beam radiation in the window plane G_{bt} / W m^{-2}
3 Incidence angle θ of the beam radiation over the window in degrees
4 Ambient air temperature T_a / °C
5 Inside air temperature T_{in} / °C
6 Radiative heat flux inside

Outputs

1 Total heat flux through the window, from outside to inside $\dot{Q}_t$ / W
2 Beam radiation transmitted through the window $\dot{Q}_b$ / W
3 Diffuse radiation transmitted through the window $\dot{Q}_d$ / W
4 Inside surface temperature T_{si} / °C
5 Outside surface temperature T_{so} / °C

Parameters

1 Global U-value including window frame / W m^{-2} K^{-1}
2 Number of window panes N_p
3 Total window Area A / m^2

	4	Frame fraction of the total window area
	5	Optical absorption coefficient α of inner glass pane
	6	Normal solar heat gain coefficient, without shading $\mathrm{SHGC_n}$
	7	Normal solar heat gain coefficient, with shading $\mathrm{SHGC_{sh}}$
	8	Global radiation threshold above which one the shading devices are set on G_{th} / $\mathrm{W\,m^{-2}}$
Strings		
		None

Remarks

The WINDOW block calculates the total heat flux through the window (solar gains and transmission losses), the short wave radiation transmitted through the window, and both surface temperatures.