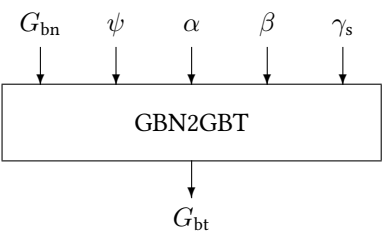


Block GBN2GBT

The GBN2GBT block converts beam radiation normal to tilted.



Name	GBN2GBT
Function	em0019
Inputs	5
Outputs	1
Parameters	0
Strings	0
Group	S

- Inputs
- 1 Beam radiation normal $G_{bn} / \text{W m}^{-2}$
 - 2 Azimuth of the Sun $\psi / ^\circ$
 - 3 Elevation of the Sun $\alpha / ^\circ$
 - 4 Surface tilt angle $\beta / ^\circ$
 - 5 Surface azimuth $\gamma_s / ^\circ$

- Outputs
- 1 Beam radiation tilted $G_{bt} / \text{W m}^{-2}$

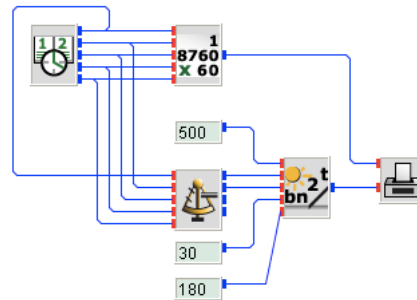
Parameters

None

Strings

None

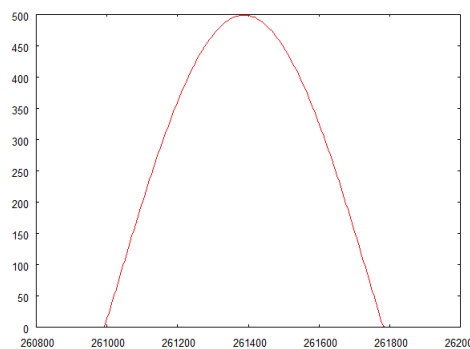
gbn2gbt.vseit



A [CLOCK](#) block simulates the first of June 2010 between 04:00 o'clock in the morning until 10:00 p.m., i. e., 22:00 hours in steps of five minutes. Assuming a constant light source with 500 Watt per square meter beam irradiance from the direction of the Sun, the [GBN2GBT](#) block calculates how much of this beam radiation arrives at a surface facing the south (azimuth 180 degrees, in INSEL convention) with a tilt angle of 30 degrees – as defined by two [CONST](#) blocks.

The [SUNAE](#) block calculates solar azimuth and elevation after Spencer's model for the coordinates of Stuttgart, Germany (latitude 48.77 degrees north, longitude 9.18 degrees east, i. e., –9.18 degrees in INSEL convention, time zone 23, i. e., Central European Time). Solar azimuth and elevation are connected to the [GBN2GBT](#) block.

A minute of the year block [MOY](#) is used as x -coordinate by the [PLOT](#) block which displays the result.



See also [Block GH2GT](#)