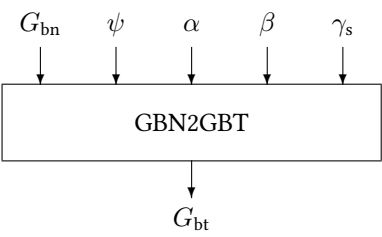


Block GBN2GBT

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 $G_{bt} / \text{W m}^{-2}$

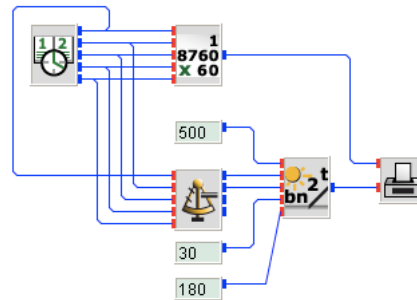
Parameters

None

Strings

None

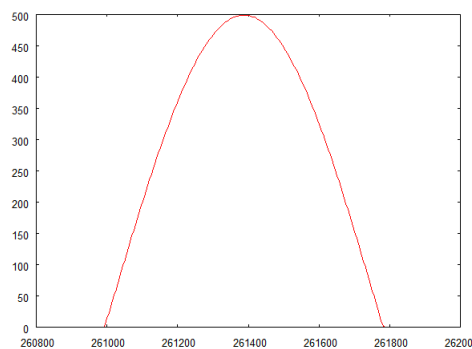
gbn2gbt.vseit



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](#)