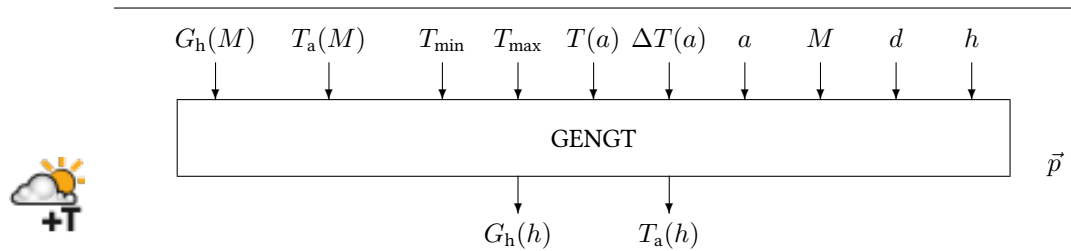


Block GENG

Warning: This block is deprecated, because it used a west-positive convention for longitudes. Please use [GENGT2](#) instead, with east-positive longitudes.

The GENG block generates a series of hourly radiation and temperature data from monthly mean values. Optionally, hourly values of relative humidity may be generated. When a minute input is connected and different from zero, GENG performs a linear interpolation between the two corresponding hours.



Name	GENG
Function	em0022
Inputs	10 ... [12]
Outputs	3
Parameters	8 ... [10]
Strings	0
Group	S

Inputs

- 1 Global horizontal irradiance $G_h(M)$ / W m^{-2} (monthly)
- 2 Ambient temperature $T_a(M)$ / $^{\circ}\text{C}$ (monthly)
- 3 Daily minimum ambient temperature $T_{\min}$ / $^{\circ}\text{C}$
- 4 Daily maximum ambient temperature $T_{\max}$ / $^{\circ}\text{C}$
- 5 Yearly average ambient temperature $T(a)$ / $^{\circ}\text{C}$
- 6 Maximum ambient temperature difference $\Delta T(a)$ / $^{\circ}\text{C}$
- 7 Year a
- 8 Month $M \in [1, 12]$
- 9 Day $d \in [1, 31]$
- 10 Hour $h \in [0, 23]$
- 11 Relative humidity $\varphi(M)$ (monthly)
- 12 Minute $m \in [0, 59]$

Outputs

- 1 Global radiation $G_h(h)$ / W m^{-2}
- 2 Ambient temperature $T_a(h)$ / $^{\circ}\text{C}$
- 3 Relative humidity $\varphi(h)$

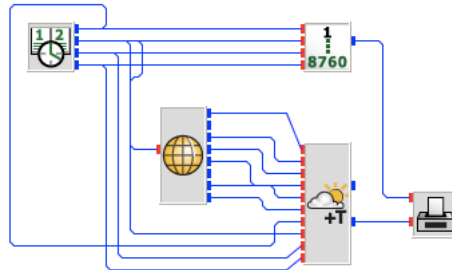
Parameters

- 1 Latitude $\varphi \in [-90^{\circ}, +90^{\circ}]$, northern hemisphere positive
- 2 Longitude $\lambda \in [0^{\circ}, 360^{\circ})$, **west of Greenwich**; values east of Greenwich may be used with a minus sign
- 3 Time zone $Z \in [0, 23]$, Greenwich Mean Time $Z = 0$, Central European Time $Z = 23$.
- 4 Variance factor f_{σ} to the Gordon / Reddy correlation, eq ??; if unknown $f_{\sigma} = 1$ is recommended
- 5 Coefficient c_{σ} corresponding to the year-to-year variability due to different climatic conditions. When c_{σ} is set to zero the year-to-year variability is omitted. $c_{\sigma} = 0.185$ approximates North American variability, while $c_{\sigma} = 0.3$ approximates European variability
- 6 Autocorrelation coefficient $\rho(1)$ at a lag of one day; if unknown $\rho(1) = 0.3$ is recommended
- 7 Autocorrelation coefficient $\rho(2)$ at a lag of two days; if unknown $\rho(2) = 0.57\rho(1)$ is recommended
- 8 Initialization I_{seed} of random number generator
- 9 Maximum allowed deviation between given monthly mean temperature and calculated value (0.1°C by default)
- 10 Maximum number of allowed iterations for temperature synthesis (2000 by default)

Strings

None

gengt.vseit



A **CLOCK** block simulates the year 2010 in steps of one hour. An hour of the year block **HOY** is used to convert the **CLOCK** block output to a convenient x -coordinate for a **PLOT** block.

The input data required by the **GENGT** block all come from the **MTM** block for the location of Berlin, Germany, in this case.

The **PLOT** block displays the generated time series of hourly ambient temperature data.

