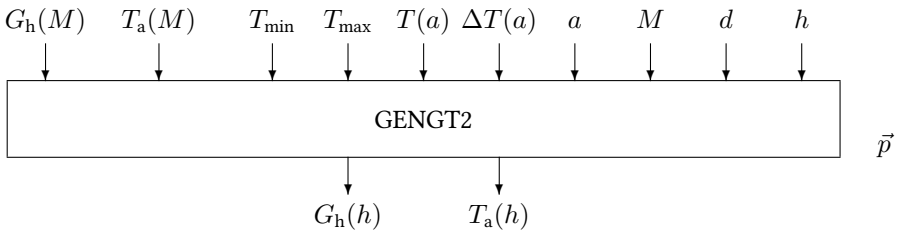
Block GENGT2

The GENGT2 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, GENGT2 performs a linear interpolation between the two corresponding hours.

Internally, it simply calls GENGT which uses an old convention for timezone and longitude.





Name	GENGT2
Function	em0122
Inputs	10 . . . [12]
Outputs	3
Parameters	8 . . . [10]
Strings	0
Group	S

Inputs

1	Global horizontal irradiance $G_\mathrm{h}(M)$ / W m^{-2} (monthly)
2	Ambient temperature $T_\mathrm{a}(M)$ / °C (monthly)
3	Daily minimum ambient temperature T_min / °C
4	Daily maximum ambient temperature T_max / °C
5	Yearly average ambient temperature $T(a)$ / °C
6	Maximum ambient temperature difference $\Delta T(a)$ / °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 $G_\mathrm{h}(h)$ / $\mathrm{W\,m^{-2}}$
2	Ambient temperature $T_\mathrm{a}(h)$ / °C
3	Relative humidity $\varphi_(h)$

Parameters

1	Latitude $\varphi \in [-90°, +90°]$, northern hemisphere positive
2	Longitude $\lambda \in [-180°, 180°]$, **east of Greenwich**; values west of Greenwich may be used with a minus sign
3	UTC Time zone $Z \in [-12, 12]$, Greenwich Mean Time $Z = 0$, Central European Time $Z = +1$.
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 0 for a different random sequence at each run
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
