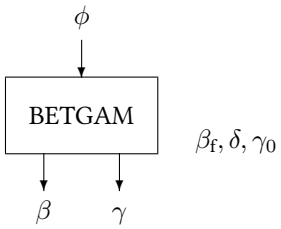
Block BETGAM

The BETGAM block calculates the effective tilt and azimuth angle of a tilted, one-axis tracked receiver area.





Name	BETGAM
Function	em0037
Inputs	1
Outputs	2
Parameters	1 . . . [3]
Strings	0
Group	S

Inputs

1	Rotation angle $\phi \in [-90°, 90°]$, east negative, west positive

Outputs

1	Effective tilt angle β / °
2	Effective azimuth angle γ / °

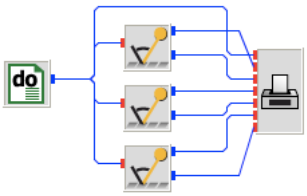
Parameters

1	Tilt angle of fixed rotation axis β_f / °
2	Deviation of axis from north/south direction (clockwise positive) (optional) δ / ° $\in [-90°, 90°]$
3	Azimuth angle if undefined γ_0 / ° (optional)

Strings

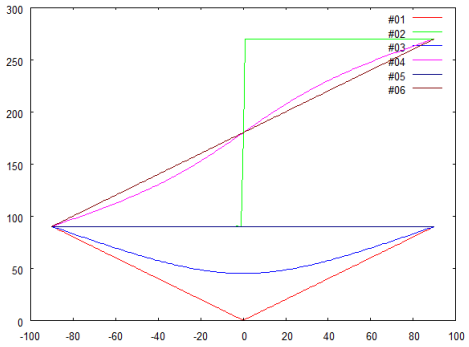
None

betgam.vseit



A DO block varies a rotation axis from -90 to $+90$ degrees in steps of one degree. The rotation axis is connected to three BETGAM blocks with different orientations: The top block uses a horizontal rotation axis, the middle block a tilt angle of the rotation axis of 45 degrees, the lower block simulates a vertical rotation axis. In all three cases the deviation from the north-south direction is zero.

The PLOT block shows the effective tilt and effective azimuth angles.



As could be expected, the horizontal axis faces east in the morning and west in the afternoon (green curve). The tilt angle of the horizontal case is also easy to interpret: 90 degrees at -90 degrees, linear down to zero at true solar noon and linear up to 90 degrees.