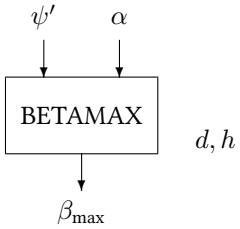
Block BETAMAX

The BETAMAX block calculates the maximum possible tilt angle such that rows of collector surfaces do not shade each other.





Name	BETAMAX
Function	em0031
Inputs	2
Outputs	1
Parameters	2
Strings	0
Group	S

Inputs

1	Difference between surface azimuth and azimuth of the Sun ψ' / °
2	Solar elevation α / °

Outputs

1	Maximum tilt angle $\beta_{\max}$ / °

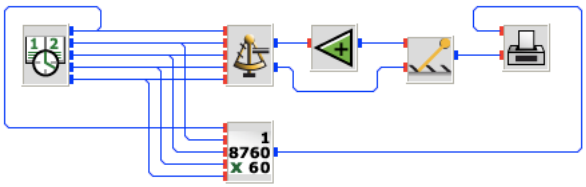
Parameters

1	Distance between module rows d / m
2	Height of modules h / m

Strings

None

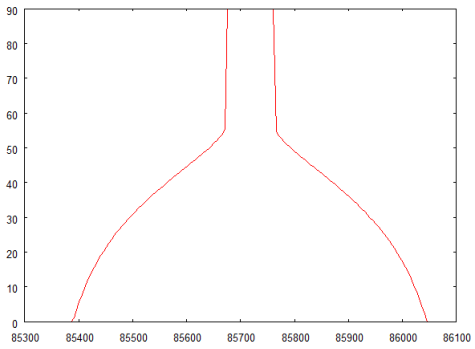
betamax.vseit



A CLOCK block drives this simulation between 06:00 o'clock in the morning until 07:00 p.m. in steps of five minutes on the first of March 2010. The SUNAE block is used to calculate the solar azimuth and elevation. An OFFSET block with parameter -180 is used to calculate the difference between surface azimuth and solar azimut, as required by the BETAMAX block.

The parameters of the BETAMAX block are set to 3.65 meters for the distance between the module rows and 2 meters for the height of the modules.

The Gregorian date of the CLOCK block is converted into the minute of the year by a MOY block, which is used as x-coordinate by the PLOT block.



It can be seen from the graph, that around noon no shading is to be expected, regardless of the tilt angle, while the receiver rows have shading problems depending on the actual tilt angle.