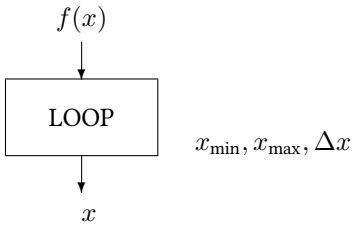
Block LOOP

The LOOP block runs through a sequence of values defined by parameters, restricted to a part of the simulation model.





Name	LOOP
Function	fb0055
Inputs	1
Outputs	1
Parameters	3
Strings	0
Group	L

Inputs

1 Any signal $y = f(x)$ within the loop

Outputs

1 Signal x which is varied in steps as defined through the parameters

Parameters

1 Minimum output signal $x_{\min}$
2 Maximum output signal $x_{\max}$
3 Increment of x per step Δx

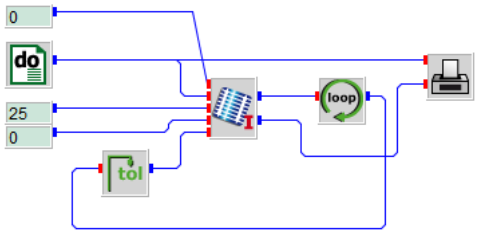
Strings

None

Description

The output signal of the LOOP block runs from $x_{\min}$ to $x_{\max}$ in steps of Δx. The function is very similar to that of the DO block with one difference: DO is a T-block, while LOOP is an L-block, which can set up a local loop.

loop.vseit This example shows how a LOOP block can be used in the calculation of steady-state PV module temperatures as a function of the global radiation.

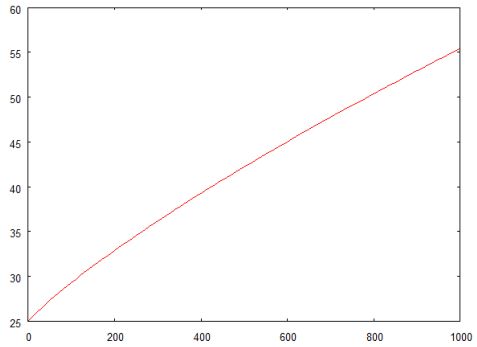


The global radiation is varied from 0 to 1000 Watt per square meter in steps of 10 by the DO block. The output of the DO block is used by a PVI block which calculates the current and module temperature in DEQ temperature mode. Ambient temperature and wind speed are set constant by CONST blocks.

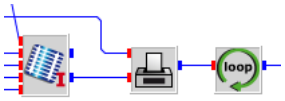
The LOOP block sets up a local loop. Since its output is used as time input of the PVI block the parameters are set to a start of 0, stop of 3600 and increment 60 seconds, i. e., the LOOP block simulates one hour during which the PV module can heat up. Since the voltage is set to zero the PVI block simulates short-circuit-current operation.

Please notice that the feedback connection between LOOP and PVI block does not set up an algebraic loop. This is a feature of L-blocks in combination with a TOL block.

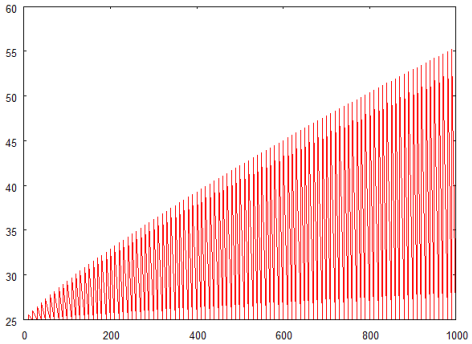
The PLOT block shows the final result.



The x coordinate is the solar radiation in Watt per square meter, the y coordinate the steady-state module temperature in degrees Celsius.



If the PLOT block is placed between the PVI block and the LOOP block the iteration process for each radiation value can be observed.



See also Block DO, block MPP, and block NULL, for instance.