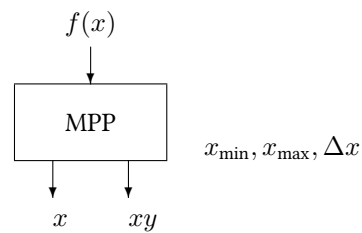


Block MPP

The MPP block simulates an ideal maximum power point tracker. In general, the MPP block can be used to find the maximum of any unimodal function.



Name	MPP
Function	fb0057
Inputs	1
Outputs	2
Parameters	3
Strings	0
Group	L

Inputs

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

Outputs

- 1 Signal x which is returned to a preceeding block until the product xy reaches its maximum
- 2 Product xy

Parameters

- 1 Lower limit $x_{\min}$ of the interval in which the iteration is performed
- 2 Upper limit $x_{\max}$ of the iteration intervall
- 3 Error tolerance Δx for the accuracy of the calculated maximum

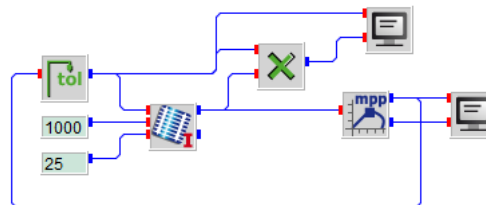
Strings

None

Description The standard application of this block is the calculation of maximum-power- points of a photovoltaic generator under different radiation and temperature conditions. In this case the **MPP** block determines the maximum product of the naturally unimodal function $P = V \cdot I$ for a given $I(V)$ characteristic in the intervall $[V_{\min}, V_{\max}]$ as given by the parameters.

Please observe that the input $f(x)$ of the **MPP** block comes back to **MPP** as a result of the output of the **MPP** block x and that **MPP** maximizes the product $x \cdot f(x)$ and not the function $f(x)$ itself.

mpp.vseit



A **PVI** block is used to calculate the current of a PV module at Standard Test Conditions, i. e., global irradiance equal to 1000 W/m^2 and a module temperature of 25 degrees Celsius, as specified by two **CONST** blocks.

The output current of the PV module is connected to an **MPP** block, which iterates the module voltage between 0 and 30 V, as specified by the parameters. The error tolerance of the **MPP** block is set to 0.01 V, which means that the block stops the iteration when the voltage interval decreases to a value less than 0.01 V.

The output voltage of the **MPP** block is connected to a **TOL** block whose task it is to provide the input voltage to the **PVI** block in this case. The iteration can be observed by the **SCREEN** block which is connected to the **TOL** block.

When the iteration is finished, i. e., the voltage iteration interval shrank below 0.01 V the **MPP** block gives control to its successors, which is a **SCREEN** block in this case. Finally, the **SCREEN** block displays the DC power at the maximum-power point of the module

11.459	37.640
18.541	49.531
22.918	0.000
15.836	50.642
14.164	46.121
16.869	52.374
17.508	52.467
17.902	51.901
17.264	52.556
17.113	52.530
17.357	52.543
17.206	52.553

17.299	52.554
17.242	52.556
17.277	52.556
17.255	52.556
17.250	52.556
17.259	52.556

Maximum at 17.259 Volt and 52.556 Watt