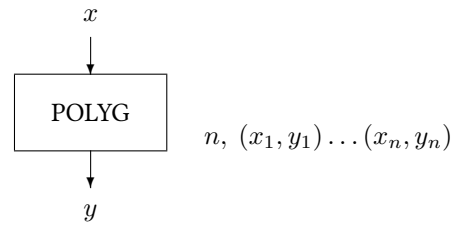


Block POLYG

The POLYG block interpolates a polygon of points defined through the parameters.



Name	POLYG
Function	fb0019
Inputs	1
Outputs	1
Parameters	3 ... [7001]
Strings	0
Group	S

Inputs

- 1 Any signal x

Outputs

- 1 Interpolated value $y(x)$

Parameters

- 1 Number of given points, $2 \leq n \leq 3500$
- 2 x -coordinate of 1st point, x_1
- 3 y -coordinate of 1st point, y_1
- 4 x -coordinate of 2nd point, x_2
- 5 y -coordinate of 2nd point, y_2
- ...
- $2n$ x -coordinate of n^{th} point, x_n
- $2n + 1$ y -coordinate of n^{th} point, y_n

Strings

None

Description The x -coordinates $x_1 \dots x_n$ must either be strictly increasing, i. e., $x_1 < x_2 \dots < x_n$ or strictly decreasing, $x_1 > x_2 \dots > x_n$. The output signal y is calculated from the input x according to

$$y = \begin{cases} y_1 & \text{if } x < x_1 \\ y_i + (x - x_i)(y_{i+1} - y_i)/(x_{i+1} - x_i) & \text{if } x_i \leq x < x_{i+1} \\ y_n & \text{if } x_n < x \end{cases}$$

for the case of increasing x values and correspondingly for decreasing x values.

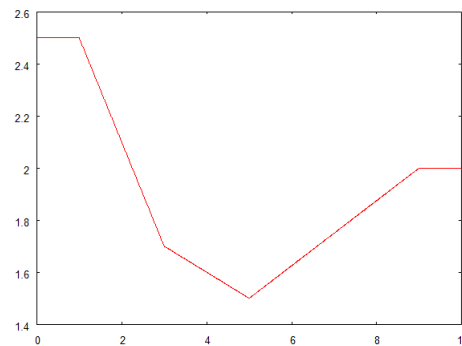
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A **DO** block delivers values from 0 to 10 in steps of 0.1. The **POLYG** block interpolates as specified by the block parameters

```
4
1 2.5
3 1.7
5 1.5
9 2
```

The **PLOT** block displays the graph.



Please observe how the **POLYG** block keeps the output constant for data out of the specified parameter range.