
Chapter 19

FILTERS

Edition 2

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Overview

This chapter describes Function Blocks in the FILTERS class for providing signal filters.

LAG_1 FUNCTION BLOCK

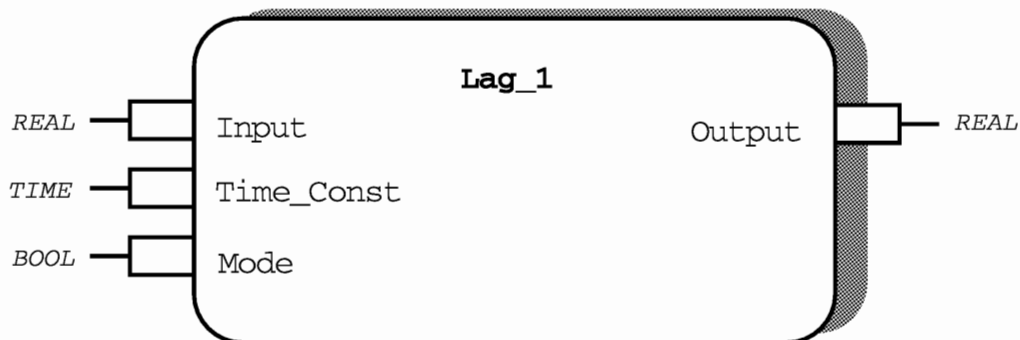


Figure 19-1 Lag1 Function Block

Functional Description

The Lag1 function block provides a first order low pass filter between Input and Output, which can be used to remove high frequency noise disturbances. The block has two modes of operation, which are defined by the parameter Mode.

Modes of Operation:

- Track (0): in Track mode the Output follows the input with no lag.
- Limit (1): in Limit mode a first order lag is included between the Output and Input, which is governed by the Laplace domain relationship:

$$\frac{\text{Output}}{\text{Input}} = \frac{1}{1 + \text{TC} \cdot S}$$

where TC is the parameter Time_Const. This emulates a first order RC filter with time constant determined by Time_Const.

Function Block Attributes

Type: 88 16
 Class: FILTERS
 DefaultTask: Task_2
 Short List: Input, Mode, Time_Const, Output
 Memory Requirements: 18 Bytes
 Execution Time: 393 μ Secs

Parameter Descriptions

Input (IN)

Input is the input to the function block.

Time_Const (TC)

Time_Const is the time constant of the first order lag.

Mode (M)

Mode defines the mode of operation of the function block. It's use is described above.

Output (OP)

Output is the output of the function block. When Mode is set to Track (0), Output is read directly from Input. When Mode is set to Limit (1), the first order lag is introduced between Output and Input.

Parameter Attributes

Name	Type	Cold Start	Read Access	Write Access	Type Specific Information	
Input	REAL	0.0	Oper	Oper	High Limit Low Limit	100,000 -100,000
Mode	BOOL	Track (0)	Oper	Super	Senses	Track (0) Limit (1)
Output	REAL	0.0	Oper	Block	High Limit Low Limit	100,000 -100,000
Time_Const	TIME	0	Oper	Oper	High Limit Low Limit	23d_23h_59m_59s 0

Table 19-1 Lag1 Parameter Attributes