

The numerical filtering function configurable for every input channel is a low pass first order.  
The mathematic formula used is:

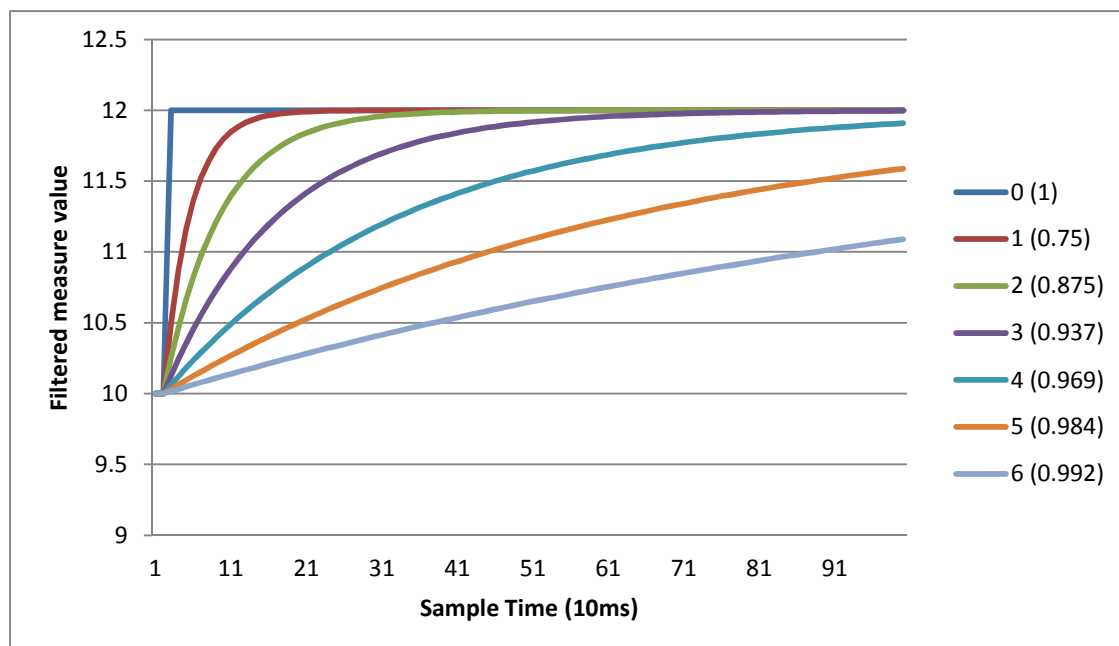
$$\text{Meas}_n = K * \text{Meas}_{n-1} + (1 - K) * \text{Val}_n$$

With: **K** is the filter efficiency,  
**Meas<sub>n</sub>** is the filtered measure at time n,  
**Meas<sub>n-1</sub>** is the filtered measure at time n-1,  
**Val<sub>n</sub>** is the actual input value measured at time n.

The sample time (from time n-1 to time n) is about 10ms.

Filter efficiency	Filter Level	Corresponding K value
No filtering	0	0
Smooth filtering	1	0,750
	2	0,875
Average filtering	3	0,937
	4	0,969
High filtering	5	0,984
	6	0,992

Example 1: The input value makes a jump from 10 to 12. The diagram displays the filtered measure value with different filter levels:



We can see Filter1 takes shortest time to follow the jump, and Filter6 takes longest time to follow the jump.

Normally, Filter1 or Filter2 is enough.

Example 2: A disturbance is imposed on the input value. The diagram displays the filtered measure value with different filter levels:

