

For example, imagine a conditioner providing pressure data on a 4-20 mA loop, with 4 mA corresponding to 3,200 millibar and 20 mA corresponding to 9,600 millibar. You have the option of choosing the User format, by setting the following lower and upper thresholds:

3,200 for 3,200 millibar as the lower threshold

9,600 for 9,600 millibar as the upper threshold

Values transmitted to the program vary between 3,200 (= 4 mA) and 9,600 (= 20 mA).

## Measurement Filtering

The type of filtering performed by the system is called "first order filtering". The filtering coefficient can be modified from a programming console or via the program.

The mathematical formula used is as follows:

$$Meas_{f(n)} = \alpha \times Meas_{f(n-1)} + (1 - \alpha) \times Val_{b(n)}$$

where:

$\alpha$  = efficiency of the filter

$Meas_{f(n)}$  = measurement filtered at moment n

$Meas_{f(n-1)}$  = measurement filtered at moment n-1

$Val_{b(n)}$  = gross value at moment n

You may configure the filtering value from 7 possibilities (from 0 to 6). This value may be changed even when the application is in RUN mode.

**NOTE:** Filtering may be accessed in Normal or Fast Cycle.

The filtering values depend on the T configuration cycle (where T = cycle time of 5 ms in standard mode):

Desired Efficiency	Required Value	Corresponding $\alpha$	Filter Response Time at 63%	Cut-off Frequency (in Hz)
No filtering	0	0	0	0
Low filtering	1	0.750	4 x T	0.040 / T
	2	0.875	8 x T	0.020 / T
Medium filtering	3	0.937	16 x T	0.010 / T
	4	0.969	32 x T	0.005 / T
High filtering	5	0.984	64 x T	0.0025 / T
	6	0.992	128 x T	0.0012 / T