Functionality of the analogue pulse converter AD-AI 200 GVC by means of an example

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Example flow measuring i.e.
MID

**Techn. data
sensor:
0 ... 1000 l/h
4 ... 20 mA**

Recording the quantity:

500 l/h
12 mA

Water

Water

Pipe

Pipe

Q[l/h]	I[mA]
1000	20
750	16
500	12
250	8
0	4

dM = smallest quantity share

dt 0,1   0,3   0,5   0,7

t[s]
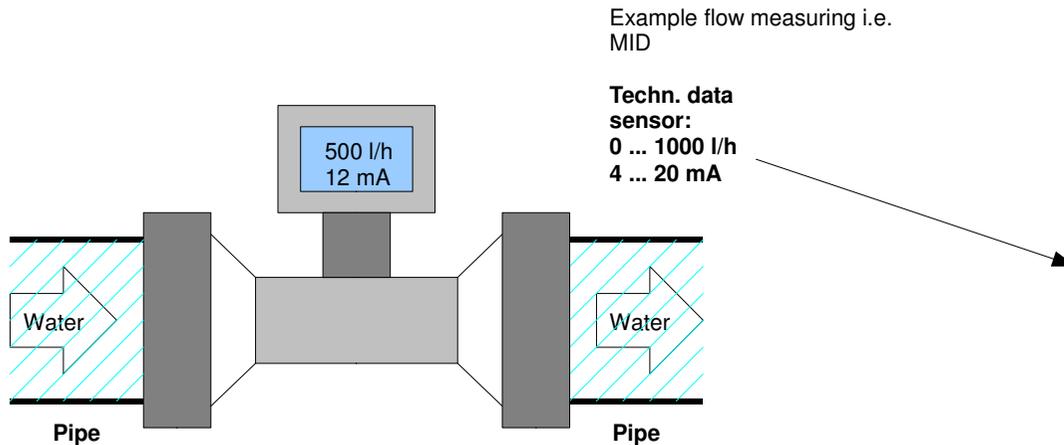
Customer requirement: 10 Imp/l (quantity signal) at the relay output of the AD-AI 200 GVC
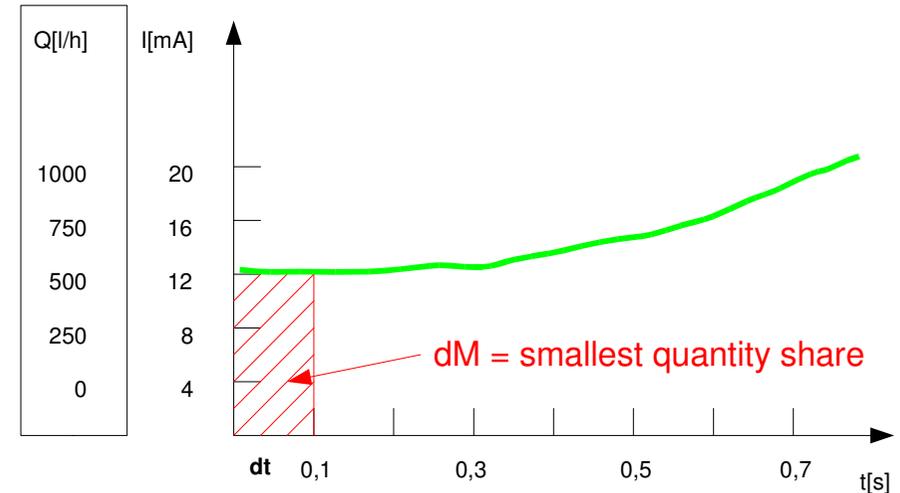
Calculation of output pulses (quantity signals):

1. Calculate smallest quantity share:

$$dM = dt[s] * Q[l/s]$$
$$DM = 0.1\ s * (500\ l/h\ /\ 3600\ s)$$
$$DM = 0.0138\ l$$

2. Calculate pulses to be outputted:

$$Imp = Rest[Imp] + (dM[l] * Impulse\ [1/l])$$
$$Imp = 0\ Imp + (0.0138\ l * 10\ Imp/l)$$
$$Imp = 0.138\ Impulse$$

3. Whole pulses are outputted. As no whole pulses have been calculeted after the first calculation, at least 8 calculaltions for the output of the first pulse are necessary. After 8 calculations 1.104 pulses must be outputted. One pulse is outputted and 0.104 pulses are saved as remainder for the next calculation. During further calculations, the residual pulses are also summed.

Relevant parameter of the AD-AI 200 GVC:

1. Input signal type	Selects the analogue input from:current/voltage
2. Range current start	Analogue input current:range start [mA]
3. Range current end	Analogue input current: range end [mA]
4. Range voltage start	Analogue input voltage: range start [V]
5. Range voltage end	Analogue input voltage: range end [V]
6. Scaling start	Scaling range: range start [count quantity/time unit]
7. Scaling end	Scaling range: range end [count quantitiy/time unit]
8. Count quantity	Measuring quantity to be counted [i.e. l; m³; g; kg ...]
9. Time unit	Time base for the quantity to be counted [s; min; h; Tag]
10. Pulse/count quantity	Number of pulses, which are outputted per count quantity
11. Output pulse duration	Duration of output pulse [ms]

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