DO calculation

1. Pulse width (ms, the rang is defined by Pulse per unit and Qmax)
2. Pulse Per Unit (Freely )
3. Formula

The max pulse per second could be calculated by the next formula:

*Max Pulse per second = 1000.0 / (Pulse with \* 2.0 ) / 1.0;*

p/s ms ms /p s

When the pulse per unit is set, we can get the max pulse through the next formula.

We can get the max Liquid volume in 1 second.

*Liquid volume per second = Qmax \* 1s = Qmax \* 1 /( unit base time)*

*M3 /s M3/h -> m3/s \* 1/3600.*

3600 represents the time unit change from hour to second.

*Max Pulse per second= Liquid volume per second \*Pulse per unit*

p/s m3/s p/m3

When we define the max pulse per unit, we could get the max pulse per second that DO should output, through the Qmax and the unit of Qmax.

But we also defined the pulse width, the will limit the rang of pulse per second. So there is another formula:

*Qmax \* Pulse per unit / unit base time <= 1000.0/ (Pulse with \* 2.0)*

That also the same as the formula follow:

*Qmax \* Pulse per unit \* Pulse with \*2 / unit base time <= 1000.0*

1. For example:

Qmax = 80m3/h

Factor = 500

Pulse width = 200ms.

Then 80\*500\*200\*2/3600 = 4444.4444444444444444444444444444 > 1000.0

Digital Output will generate an alarm.

If change the pulse width to 30ms

Then 80\*500\*30\*2/3600 = 666.66666666666666666666666666667 < 1000.0

The alarm will be cleared.

1. For DO actual formula we add one factor “Qfactor” for the requirements.

*Qmax \* Pulse per unit \* Pulse with \*2 \* Qfactor / unit base time <= 1000.0*

As now Qfactor = 1.1, we can make it smaller but should be bigger than 1.0