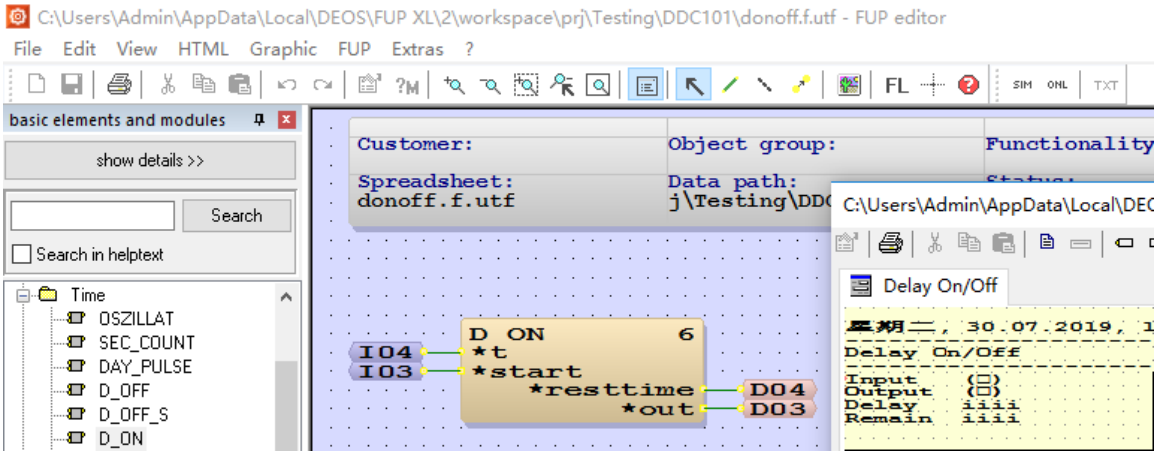
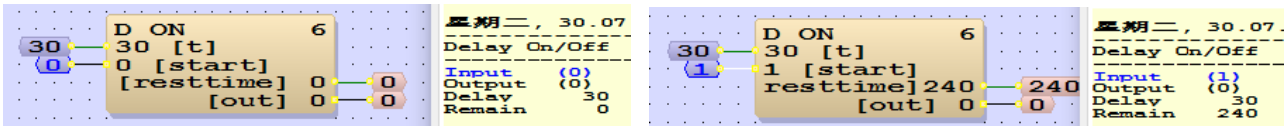
TT190806 – FUP - Delay On-Off Module

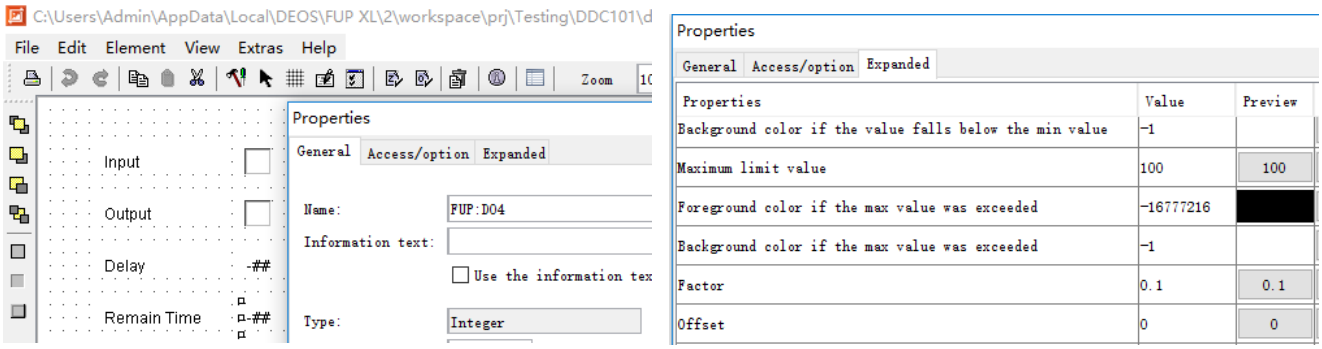
1. To delay the turn on and/or off of the equipment, we can use the delay on/off modules (D_ON and D_OFF) in FUP. We can also use it for alarm delay, etc.
2. Add a new FUP page (donoff.f) and create the logic like this. The D_ON module is under “Time”. “I04” is the delay time in seconds, and “D04” is the remaining time in 1/10 seconds



3. Try simulation and you can see the remaining time is 0 when input is 0. It will count down from 300 (i.e. 30s) to 0 when input is 1, and when it’s 0, the output will become 1

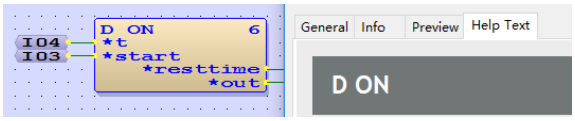


4. Now we create a graphic for it. We use graphic element “Integer” to show the remaining time, and in the “Expand” tab, we use a factor of 0.1 to show the time in second

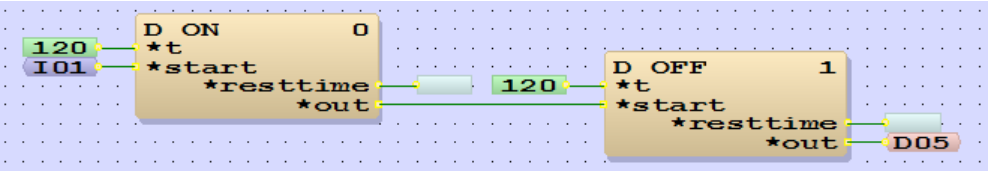


5. You can then test your program in the controller, after compile and upload

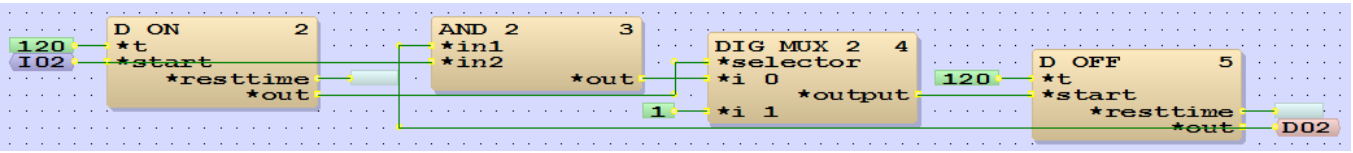
6. Remember you can see the help of the module by double-clicking on it and select “Help Text”



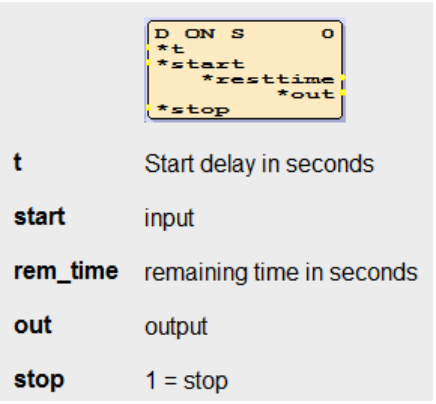
7. For off delay, we can use the “D_OFF” module. If both are required, we can connect them together, like below



8. For the logic above, please note that if you turn on the equipment again during the delay off period, the equipment may still turn off for a short period of time. To avoid this, you can use the below logic

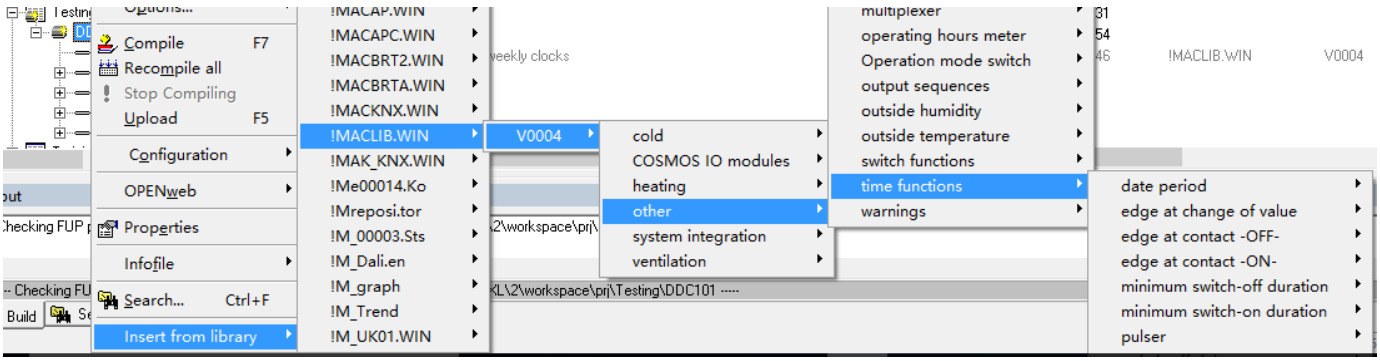


9. There is another FUP module called “D_ON_S”. The main different is there is a “stop” input that you can temporary stop the counter when it is 1.

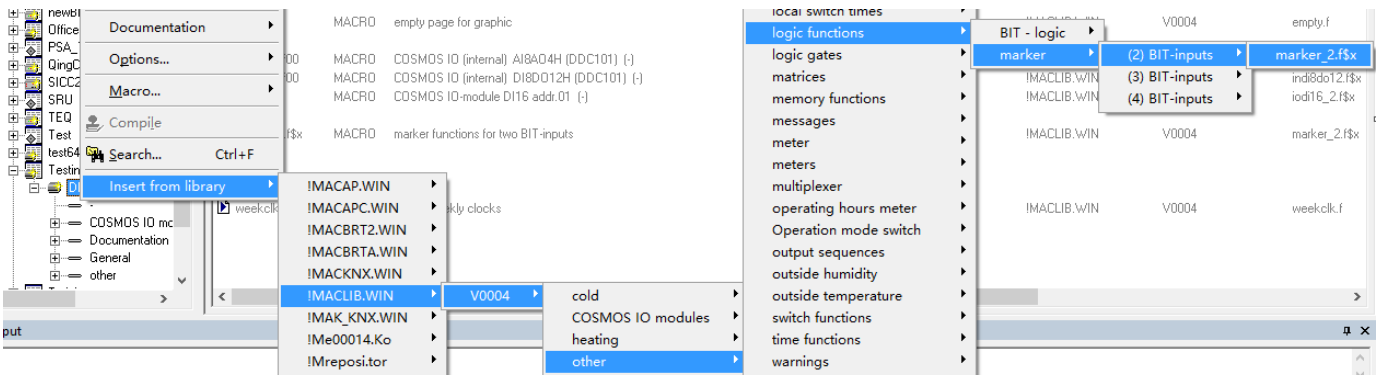


This module executes a delay of the start. If **start** is set to 0 then **out** is disabled and set to 0. Otherwise if **start** is set to 1 then **out** will be enabled (set to 1) after a delay (in seconds) which can be setup by the parameter **t**.
If a positive flank triggers **start** during the delay, then the delay is restarted. While **start** is set to 1 the remaining time will be output to rem_time. In case of setting **stop** to 1 the delay is interrupted an can be continued by resetting **stop** to 0.

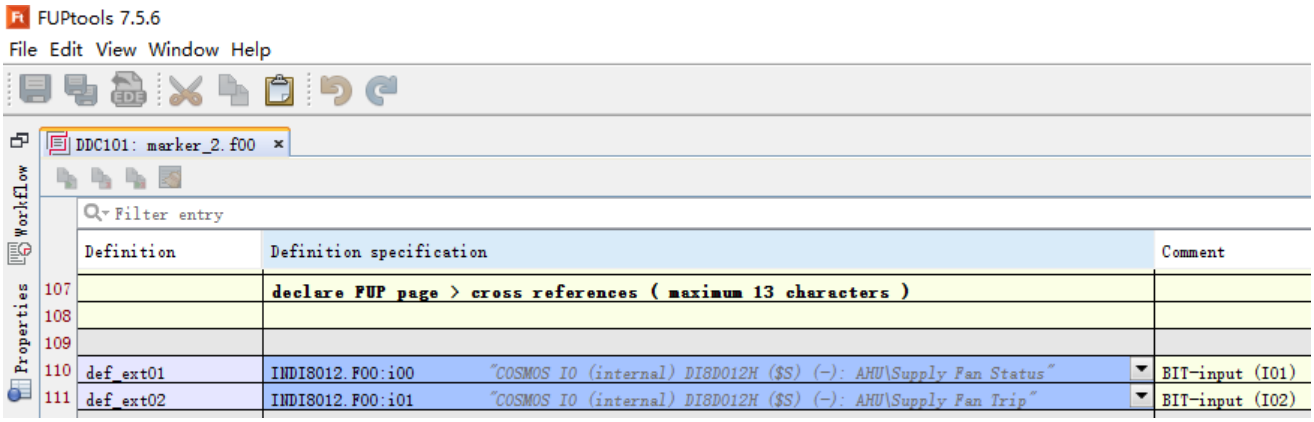
10. We have some macros for delay on/off control



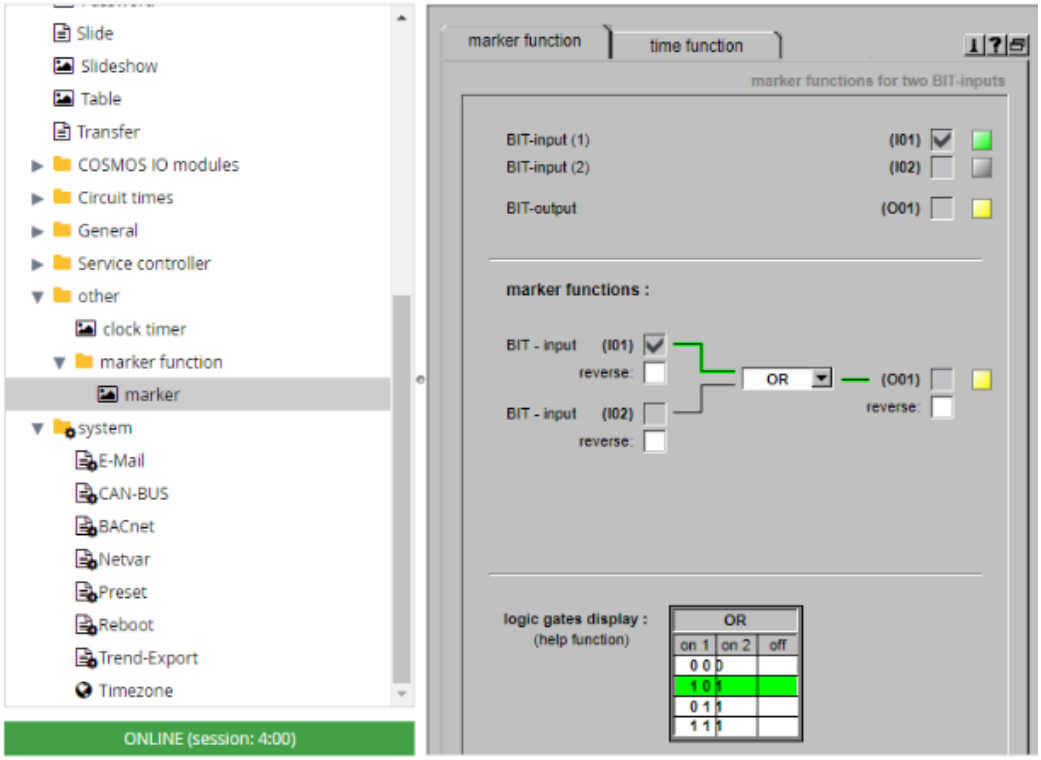
11. You can also use our Macro library for delay on/off with logic, e.g. marker_2. This one has basically all the features you need



12. Insert the macro to your controller, and configure the inputs



13. This come with a very nice interface for you to configure the logic and view the result.



14. Also, you can configure the on/off delay time, and minimum on/off time online. The color indicates the status of the output (click the help button “?” for more information)