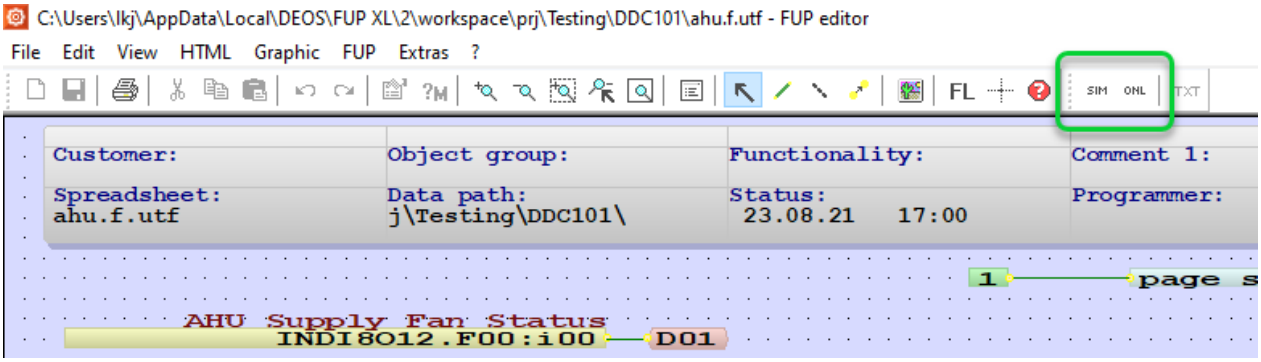
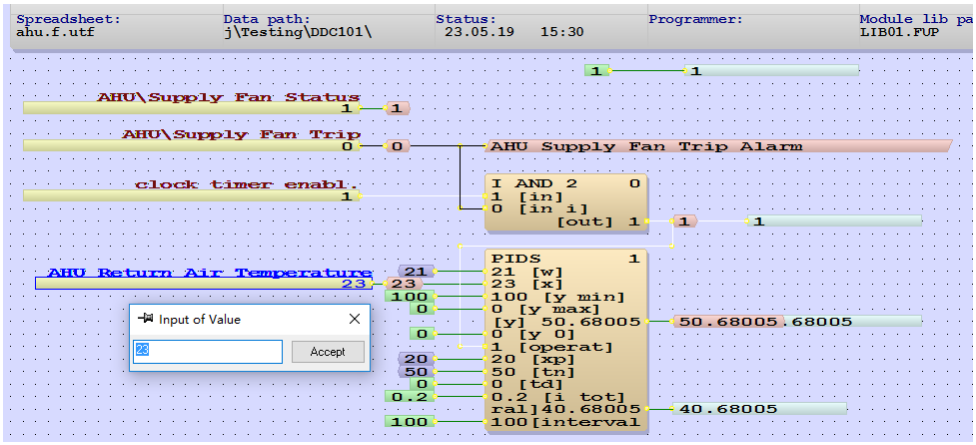
# TT220301 – FUP - Simulation and Online

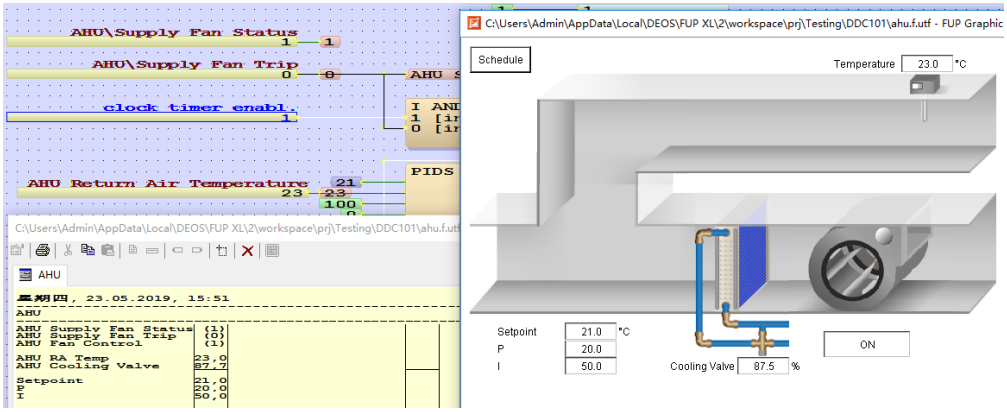
1. In FUP, we have 2 ways to test your program, simulation and online testing. You can find the 2 buttons “SIM” and “ONL” in the FUP editor toolbar




2. Click the SIM button to start simulation. Using simulation in FUP can help you test the program, graphic, HTML page, etc. without the controller, so you can easily test everything before upload the program to the controller.

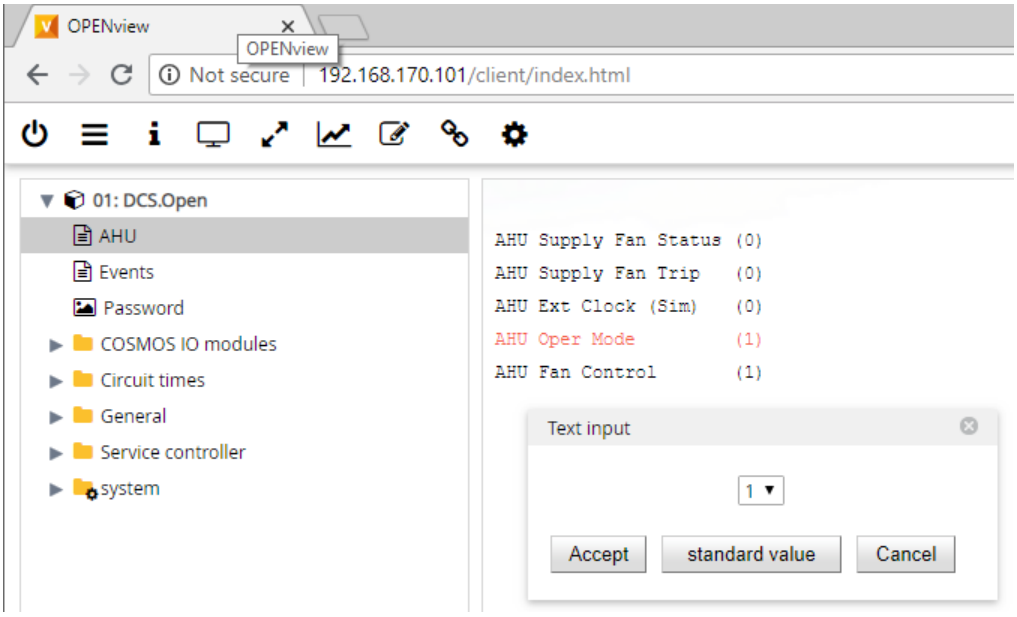



3. In addition to controlling the on/off, changing the setpoints, and seeing the outputs of your logic, you can also test the graphic page and HTML page in simulation

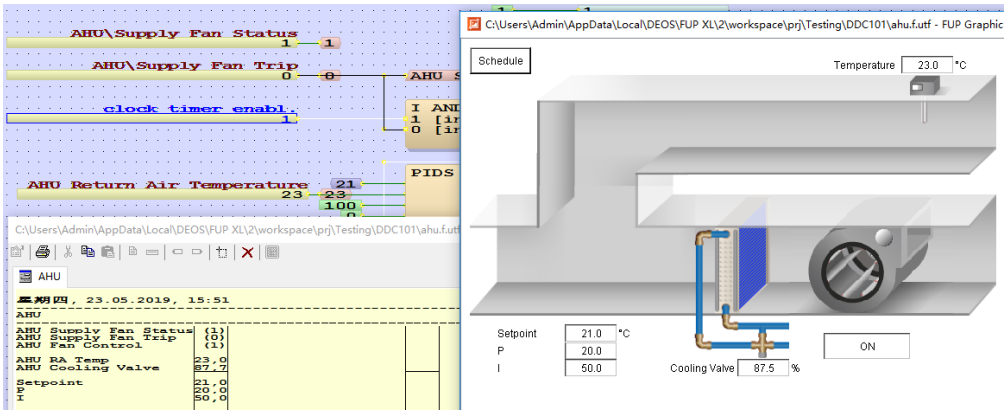



4. Please note that there are some limitations in simulation testing
    a. Can only test a single FUP page
    b. All links to other FUP pages, e.g. reference, cross reference, graphics in another FUP page (like reference copy, Dialog, DialogCall), graphic link to other FUP page elements, etc. will not work in simulation
    c. All calculations in simulation are done in floating points (FL), so result may not exactly be the same in the controller
    d. Some FUP modules do not work in simulation

5. After successfully compile the program, and upload to the controller, you can use OPENview to test it in a browser (e.g. Chrome)




6. You can now check your program online using the “ONL” button in your FUP page, it is next to the “SIM” button. Click the ONL button to start online testing. Now, what you see in the FUP page are the real values from the controller.




7. In FUP online mode, because you’re now testing with the real controller, you will not be allowed to freely change all the values in the FUP page for testing. For example, in simulation mode, you can test the FUP page by clicking on a cross reference and change it’s value. But in online mode, this is not possible, because it is now linked with the reference in another FUP page online
8. Please refer to TT190601 for more details regarding what FUP Simulation can do to help you test the program easily
9. You can also refer to TT210901 and TT210902 on how to test the IO modules in online mode, as well as how to simulate (i.e. fix) IO points value so that you can test your FUP program easily on-site