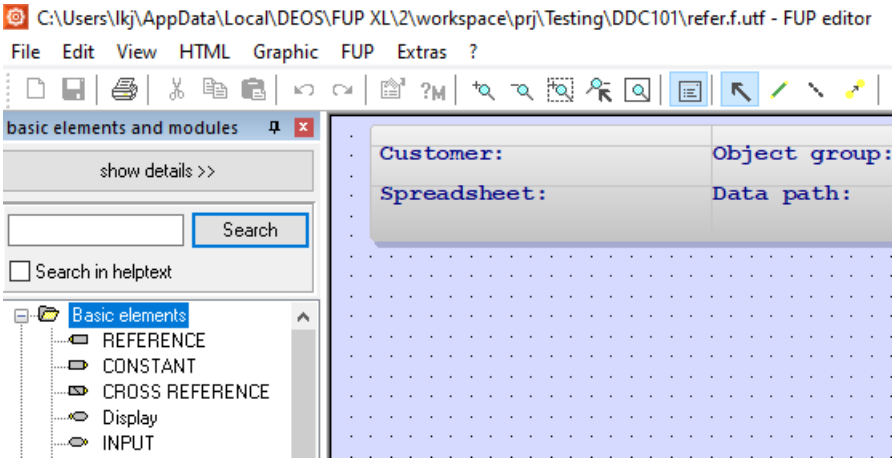
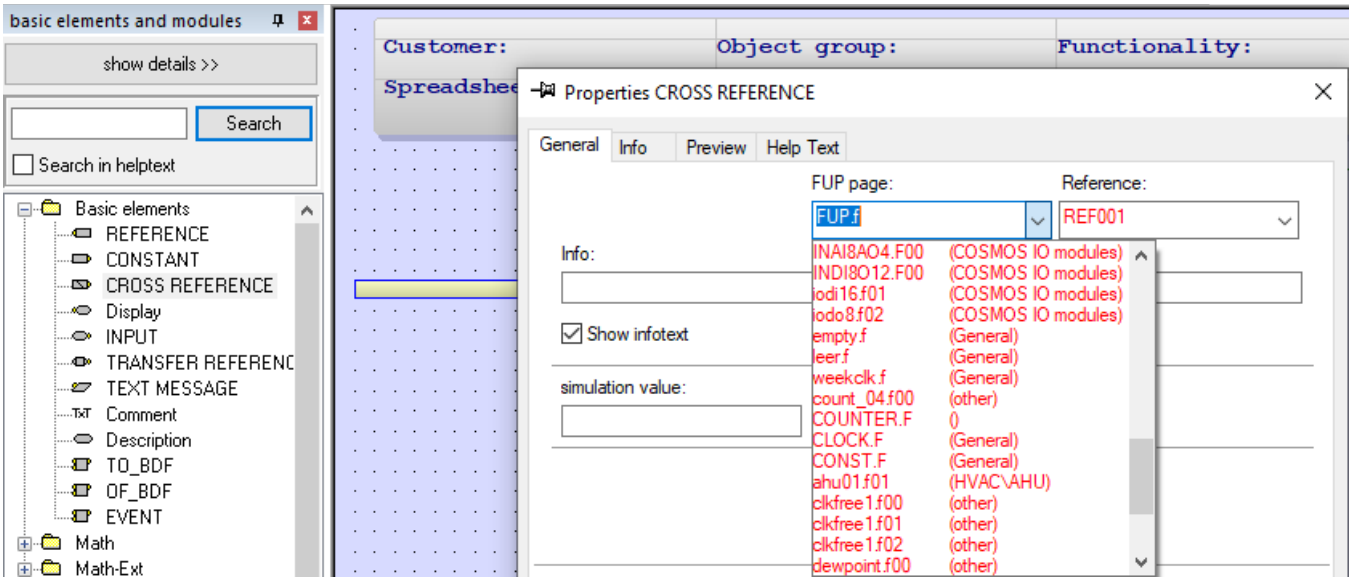
TT211005 – FUP - Reference and Cross Reference

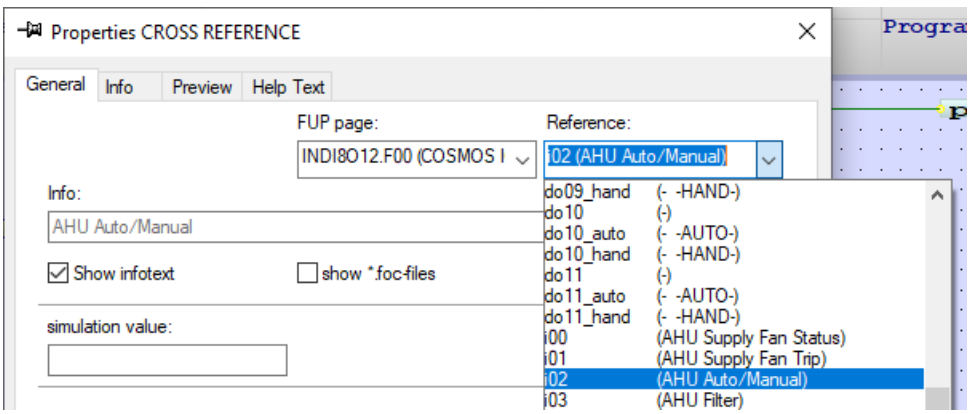
1. In this document, we will show you how to use the “Reference” and “Cross Reference” modules in FUP editor, as well as the “Input” and “Display” modules.
2. First, add and open a new FUP page called “Refer.f”. If you’ve not added the IO modules in FUP, please refer to TT180801 for details.



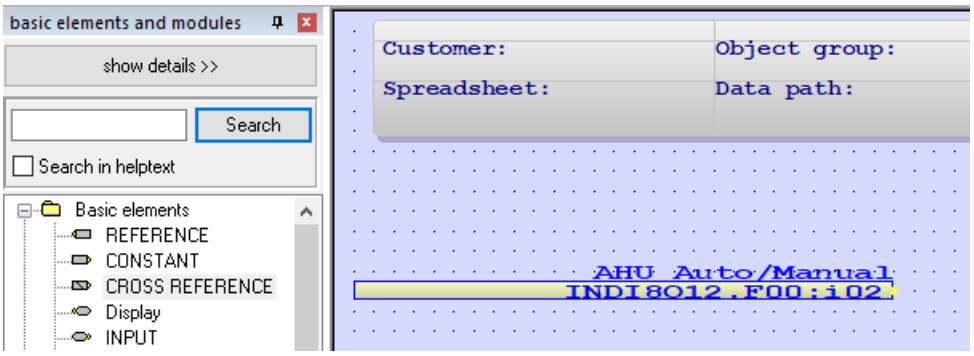
3. The ”Cross Reference” module is use to read the “Reference” in another FUP page or macro. For example, if you want to read the DI point “AHU Auto/Manual” from the OPEN 600 internal IO module. Drag the “Cross Reference” module and put it on your FUP page.



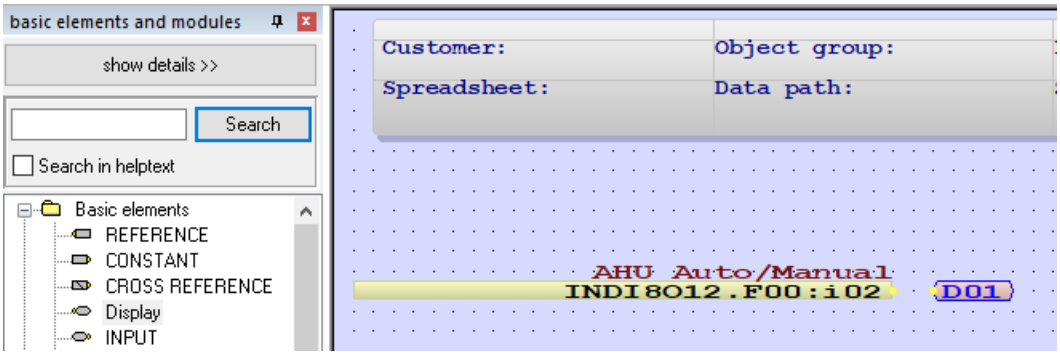
4. Select the FUP page “INDI8O12.f00” (see above), and then select the “Reference”. In this example, we use “i02” which is DI2 of the OPEN 600 Digital Input.



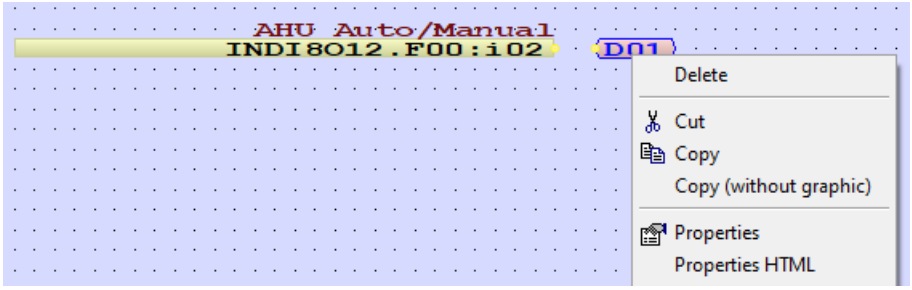
5. Now you can use the point DI2 in your FUP page.



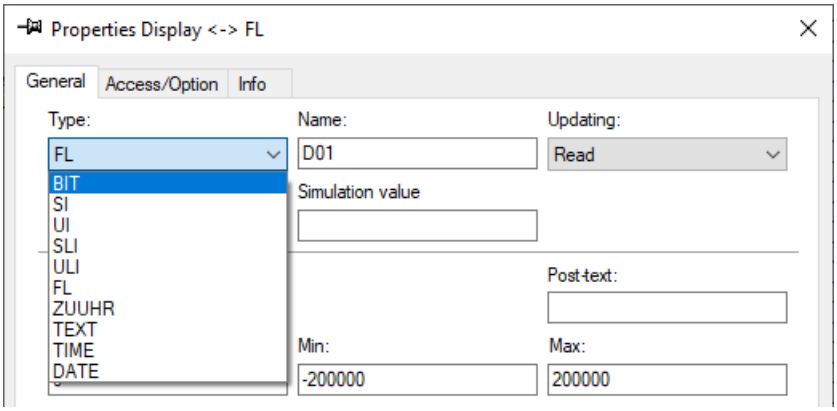
6. To show the point DI2 in your graphic page (and HTML page), we use the “Display” module. Drag and drop it to the FUP page.



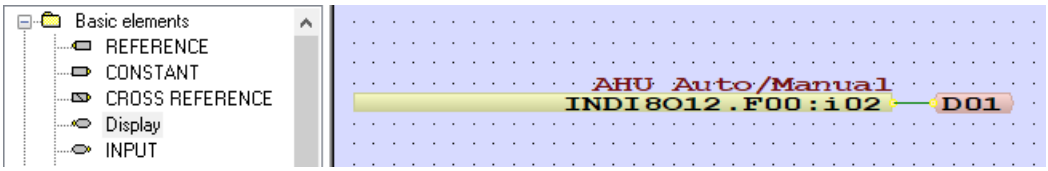
7. We need to set the “Display” to show a digital point value (i.e. 0 or 1). Right click on the “Display” and select “Properties HTML”.



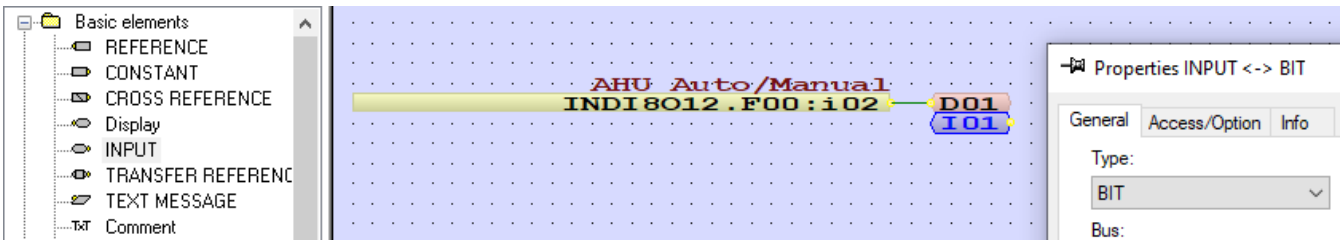
8. Change the “Type” to “BIT” for digital point.



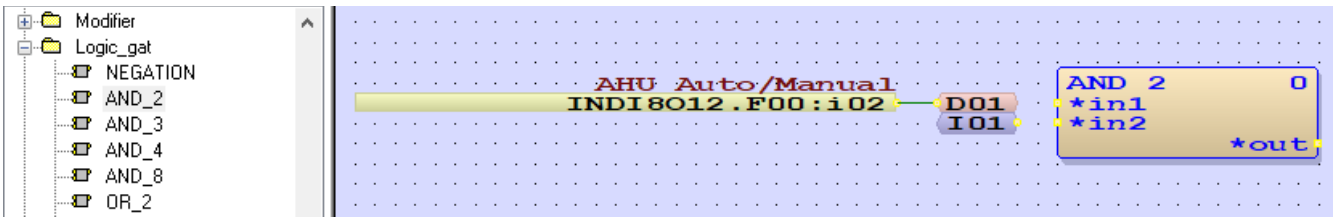
9. Connect the “Display” to the “Cross Reference” module.



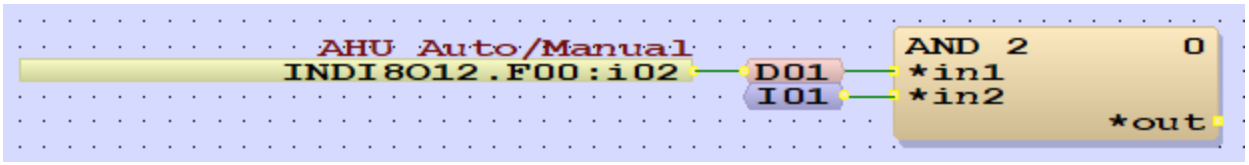
10. We want to control the AHU start/stop in the program, so drag and drop a “Input” to the FUP page. Right click on it, and change the “Type” to “BIT”.



11. We want to control the AHU only when it’s in “Auto” mode, so we add a “AND_2” module.

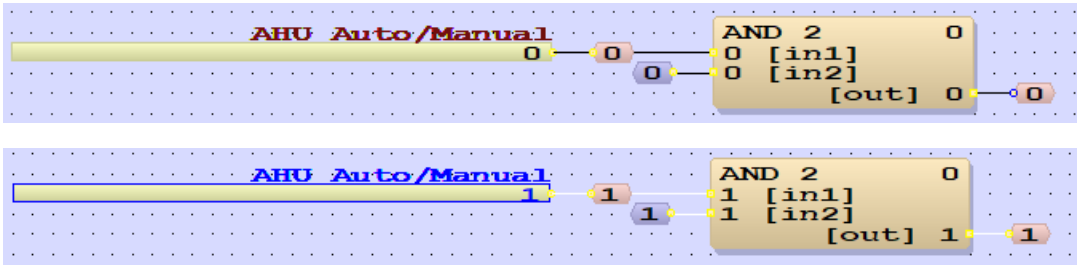


12. Now connect the inputs of the “AND_2” modules to the “Display” and “Input”. Make sure you connect them with the “yellow dots” correctly.

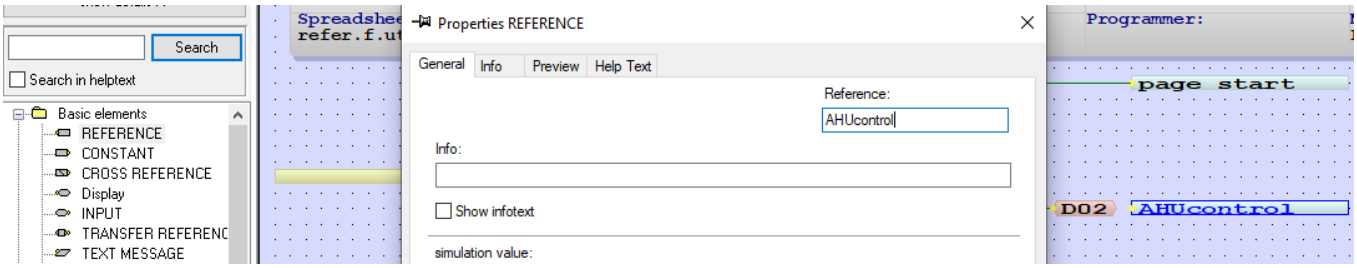


13. Now add one more “Display” to show the AHU control status. Make sure the type is changed to “BIT” and connect it to the output of the “AND_2” module correctly.

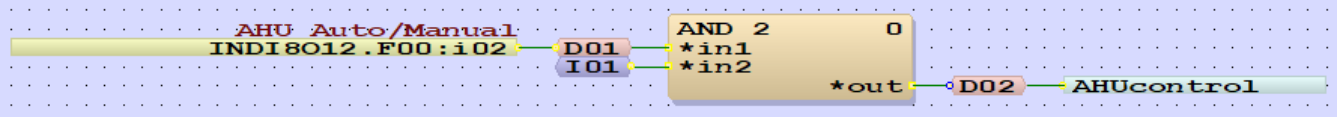
14. This program allows the user the control the AHU start/stop when it’s in auto mode, and stop the AHU when it’s in manual mode. You can test the logic by clicking the simulation button SIM.



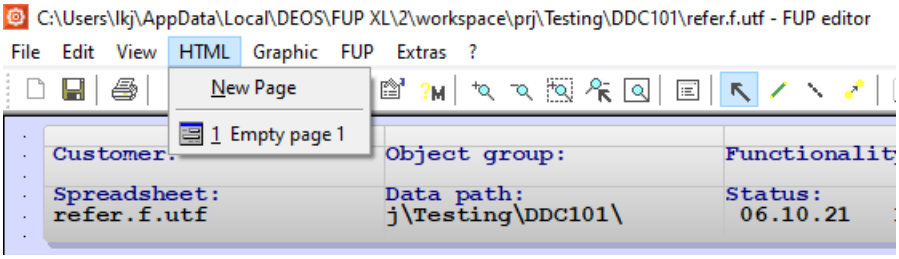
15. To send the AHU start/stop control to the DO module, we need to use the “Reference” module. This allows the macro “INDI8O12.f00” to read this value using “Cross Reference” and sent the value to the DO point. Drag and drop a “Reference” and set the reference name (e.g. AHUcontrol). Connect it to the “Display” correctly



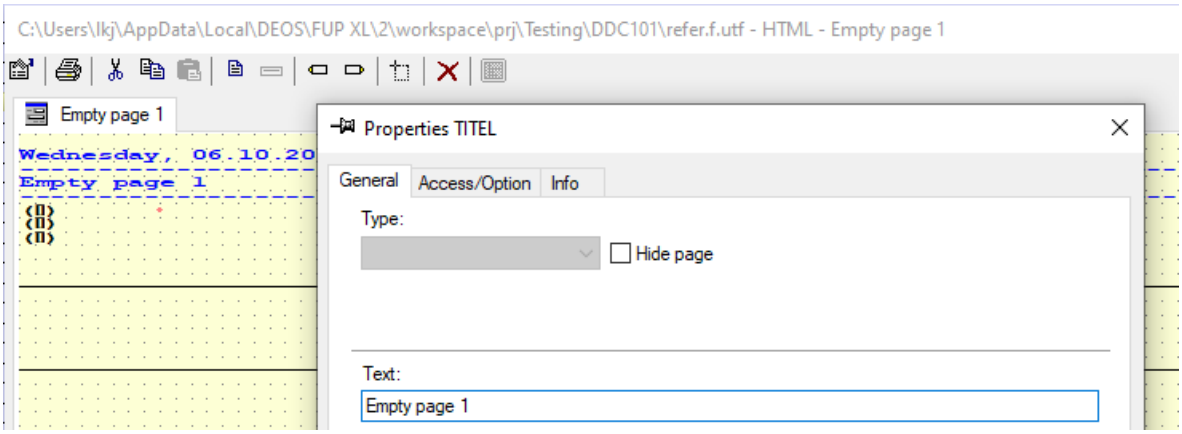
16. Now we've completed a very simple AHU control program.



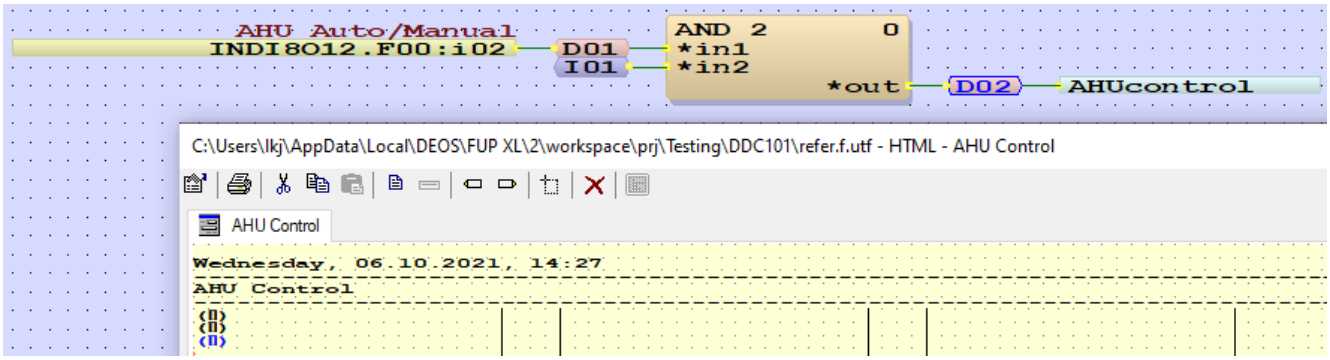
17. The last step is to set the HTML page so that user can view/control the AHU easily in OPENview and/or OPENweb in text format. Select "HTML", "Empty page 1" from the menu.



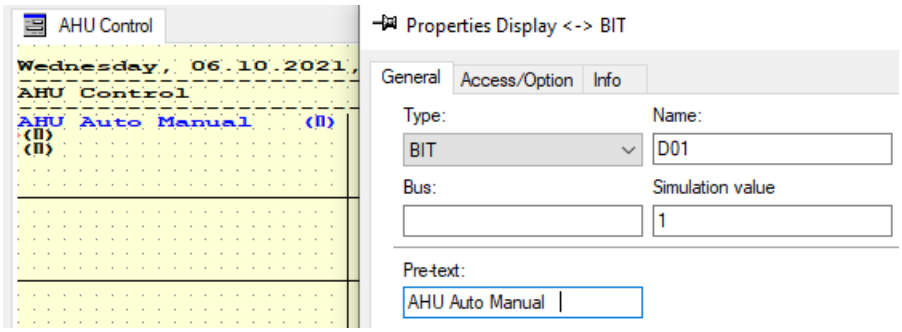
18. Double click on "Empty page 1", change the name of the HTML page by changing the "Text" to "AHU Control", for example.



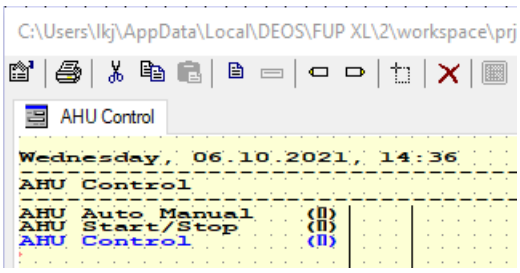
19. You should see there are 3 points in the HTML page. Click on any one of them, and you should see the corresponding "Input" or "Display" is highlighted in "blue" in the FUP page.



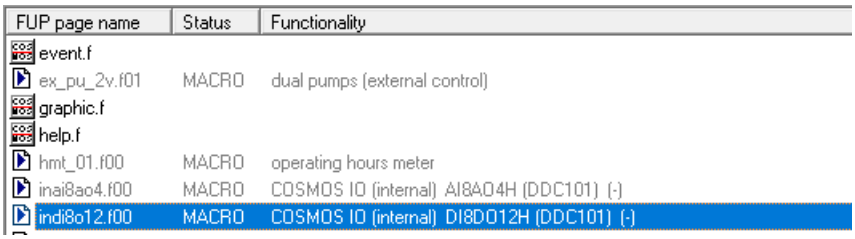
20. Double click on one of the points and you can set the name of it in the "Pre-text". Add some spaces to the end to make it aligned.



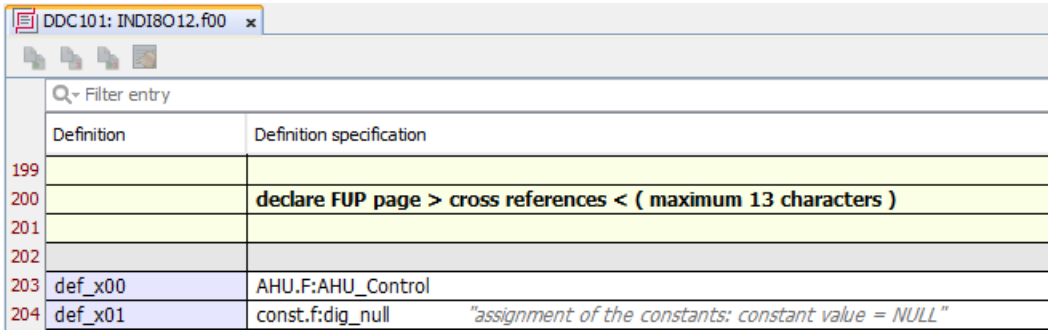
21. Do the same for the other 2 points, and you HTML page should looks like this. Now the programming is finished, and you can save and close the FUP page.



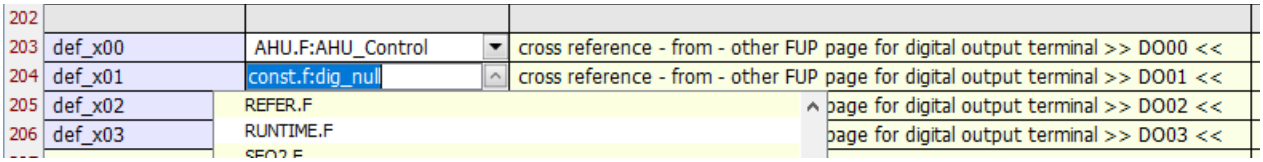
22. Finally, and most importantly, double click on the “indi8o12.f00” macro to read the “AHUcontrol” reference in the “Refer.f” FUP page.



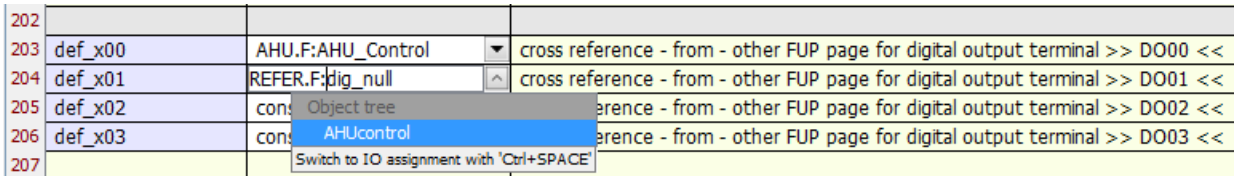
23. Scroll down the list until you find the below section “declare FUP page > cross reference <”.



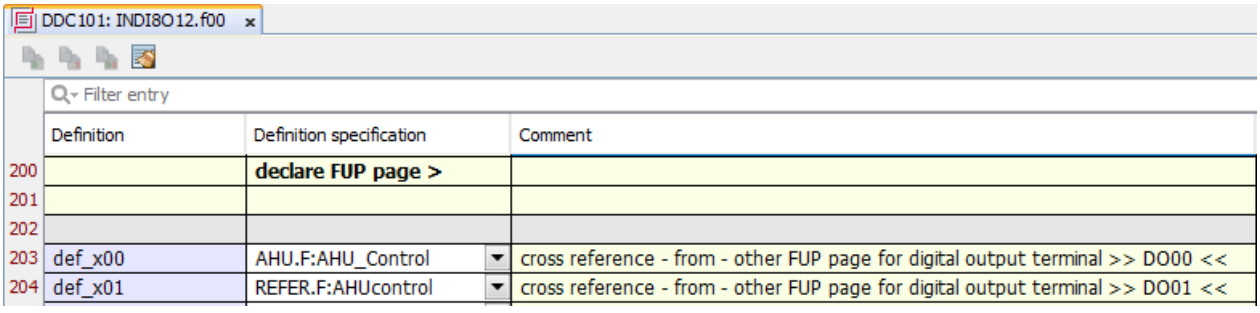
24. For example, if your AHU is controlled by “DO01” terminal on the OPEN 600 controller. Click the dropdown menu for “DO01” (like below) and select the “REFER.F” FUP page.



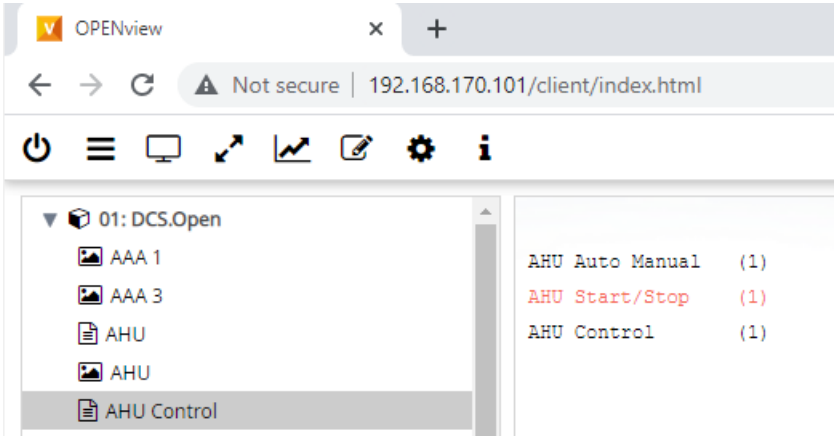
25. Then select the “AHUcontrol” reference.



26. Everything done. Save and close it. Compile and upload to the controller for testing.



27. Start OPENview and you should now see the “AHU Control” HTML page in the tree, and also the “Input” and “Display” in your FUP page. The 2 “Display” are for view only, and you can control the “Input” in OPENview. To create the graphic page in FUP, please refer to TT180803.



28. Similarly, for the AI and AO points in the OPEN 600 controller, the macro is “inai8ao4.f00”. You can use “Cross Reference” in your FUP page to access the points in the AI module, and use “Reference” to send the command (e.g. cooling valve control) to the AO module.
29. In summary
    - “Cross Reference” is used to read the “Reference” from another FUP page
    - “Reference” is used to send the value to another FUP page
    - “Input” is used for the user to control the equipment (e.g. on/off or setpoint)
    - “Display” is used to display the status or value of the equipment (e.g. auto/manual, temperature, etc.)