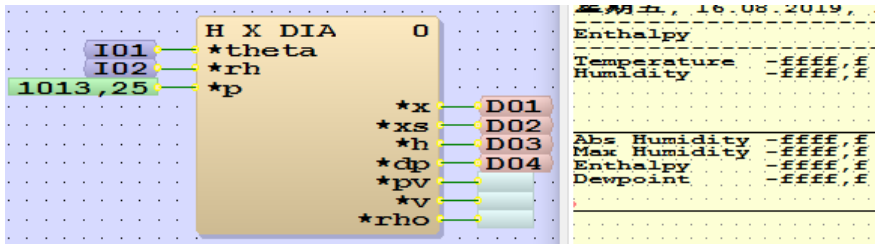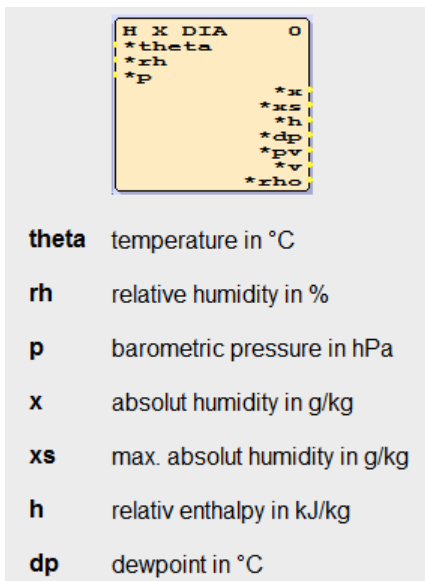# TT190904 – FUP - Enthalpy & Dew Point Module
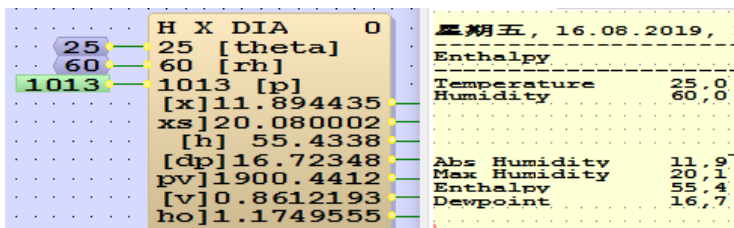
1. To calculate enthalpy and dew point temperature, we can use the "H_X_DIA" module. First, add a new FUP page called "enthalpy.f"

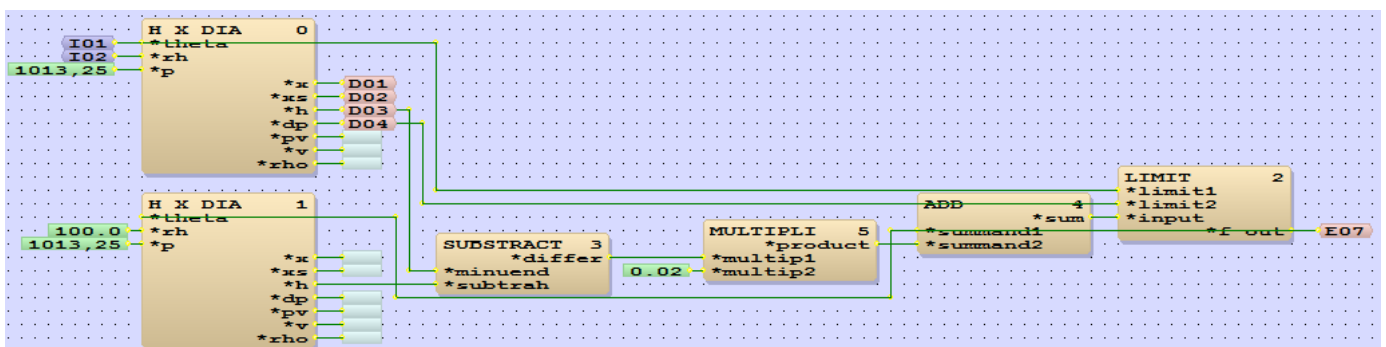
2. You can find the input and output and the units in the module help. The standard Atmospheric pressure is 1,013.25 mbar (101,325 Pa; 1,013.25 hPa)

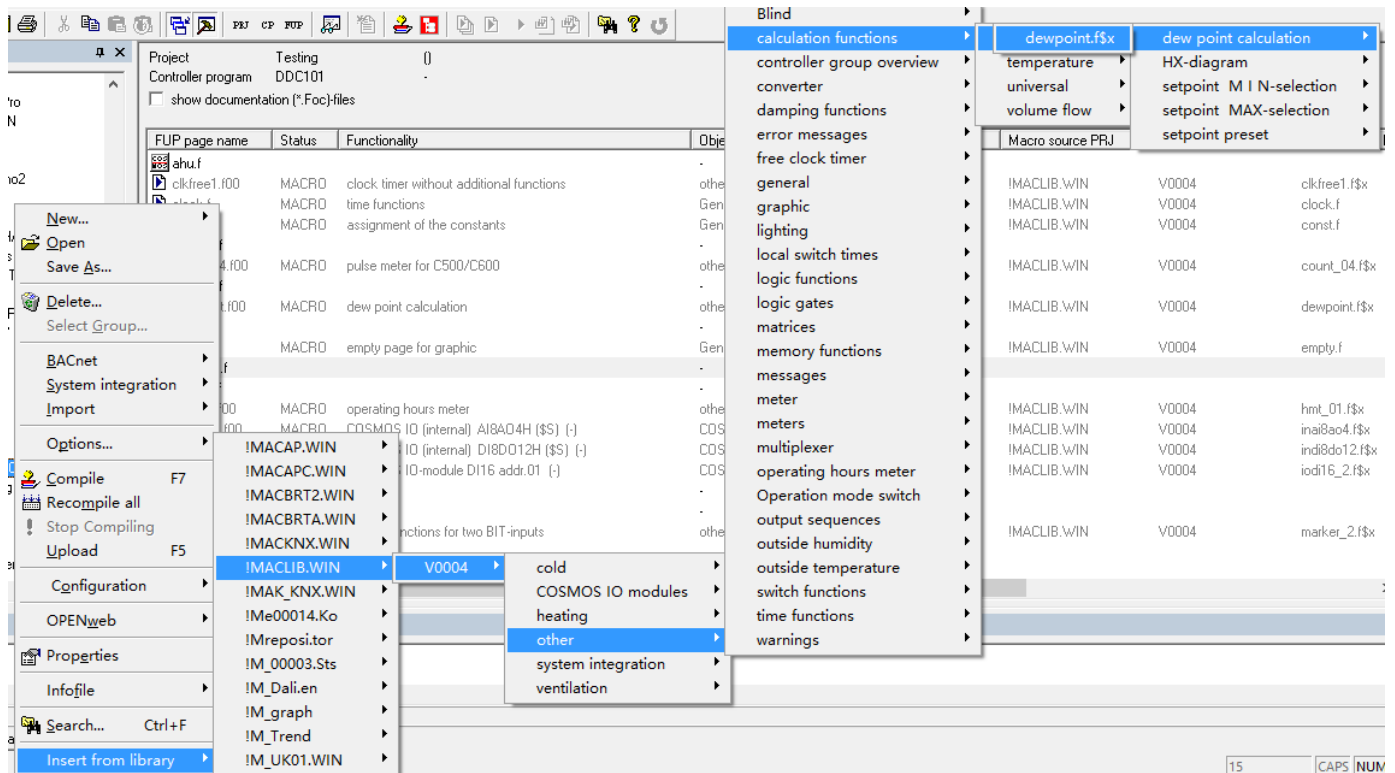|	
theta	temperature in °C
rh	relative humidity in %
p	barometric pressure in hPa
x	absolut humidity in g/kg
xs	max. absolut humidity in g/kg
h	relativ enthalpy in kJ/kg
dp	dewpoint in °C

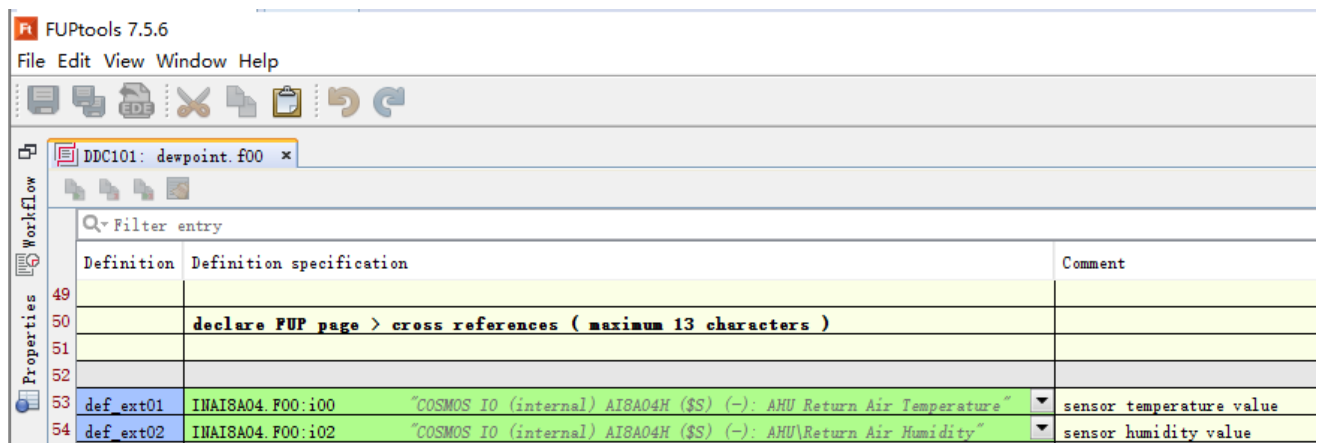3. You can test the calculation in simulation

4. To calculate the wet bulb temperature, you can use the calculation below. Please note the order of the modules
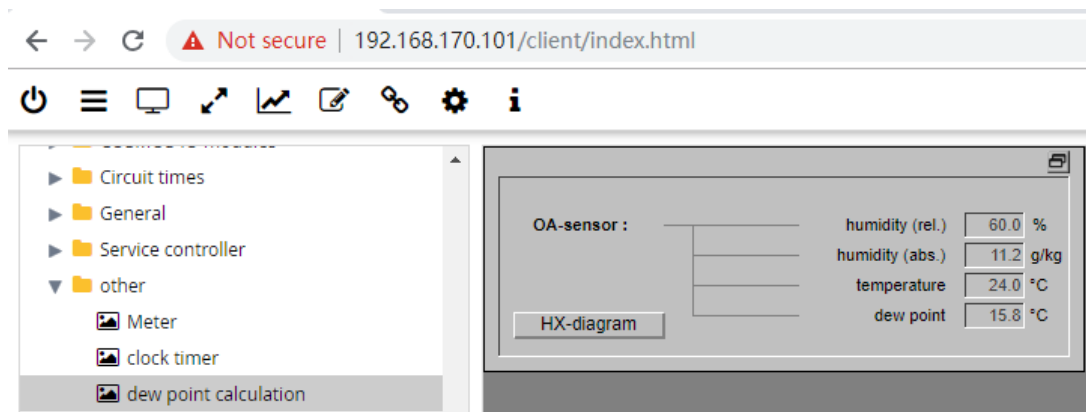
5. You can also use our macro called "dewpoint" for this purpose. First, add it to your controller

6. Connect the inputs (temperature and humidity) to the macro

7. Compile and upload to the controller. It's under "other"

8. Click the "HX-diagram" button, you can see the diagram showing the real time graph with the calculation of the dew point temperature, enthalpy and wet-bulb temperature. "Tick" the value you want to display in the diagram

Mollier h,x - Diagramm
für feuchte Luft

Gesamtdruck 1000 mbar

Wassergehalt x (g/kg)

Wasserdampfdruck p_D (mbar)

Lufttemperatur t (°C)

Dichte ρ (kg/m³)

Relative Luftfeuchtigkeit φ

Enthalpie h (kJ/kg)

kcal kJ

24.0°C
60.0 %
18.5°C
15.8°C
52.6 kJ/kg

temperature/humidity
display dew point : ☑
show enthalpy : ☑
max. abs. humidity display : ☐
show wet-bulb-temp.: ☑