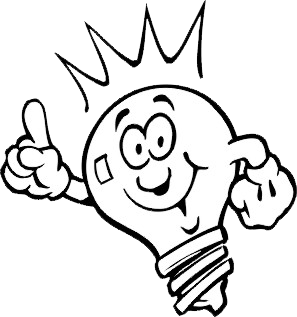
## HAProp in Labview

Harshad Inamdar,

## How to Install

Download the files **CoolProp.llb** and **CoolProp.dll** to a folder on your hard drive. Check if you have downloaded the library for the correct LabVIEW version, and the .dll for the correct version of Windows (32–bit or 64–bit). The default path is C:\Program Files (x86)\National Instruments\LabVIEW 2015\user.lib. VIs and VI libraries saved to the *User Libraries* folder of LabVIEW should be visible in the *Functions* panel of the *Block Diagram* of a LabVIEW window. You can save the files somewhere else, in this case you have to modify the path in the VI.

Drag and drop the **CoolProp\_HAProp\_SI.vi** VI into the project to use.

* Tip: After you’ve adjusted the path, right click on it and go to Data Operations ⇨ Make Current Value Default.*

## Input Code

The first input argument *must* be the dry bulb temperature, T in K. The third input argument *must* be the absolute pressure, P in Pa. The second argument is the humidity parameter. Available options are:

B, D, R, W

Where,

B = wet bulb temperature, K

D = dew point temperature, K

R = relative humidity, —

W = humidity ratio, kg water vapour/kg dry air

Desired output arguments may be chosen from the table of HAPropsSI parameters table on the CoolProp website.

## Testing of moist air properties returned by LabVIEW VI and values calculated by CoolProp.HAPropsSI called in Python

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Function call** | **T** | **Humidity parameter** | **Value** | **P** | **Output** | **LabVIEW VI** | **CoolProp** |
| HAPropsSI | 298.15 | R | 0.5 | 101325 | B | 291.033 | 291.0334868 |
| HAPropsSI | 298.15 | R | 0.5 | 101325 | D | 287.017 | 287.0168866 |
| HAPropsSI | 298.15 | R | 0.5 | 101325 | W | 0.00992574 | 0.009925739 |
| HAPropsSI | 298.15 | R | 0.5 | 101325 | H | 50423.5 | 50423.45039 |
| HAPropsSI | 300 | B | 290 | 101000 | H | 47284.4 | 47284.41783 |
| HAPropsSI | 300 | D | 288 | 101000 | W | 0.0106237 | 0.010623673 |
| HAPropsSI | 300 | W | 0.0095 | 101000 | R | 0.427809 | 0.427809433 |
| HAPropsSI | 300 | D | 282 | 101000 | B | 289.279 | 289.2792384 |