

BOPTTEST Emulators

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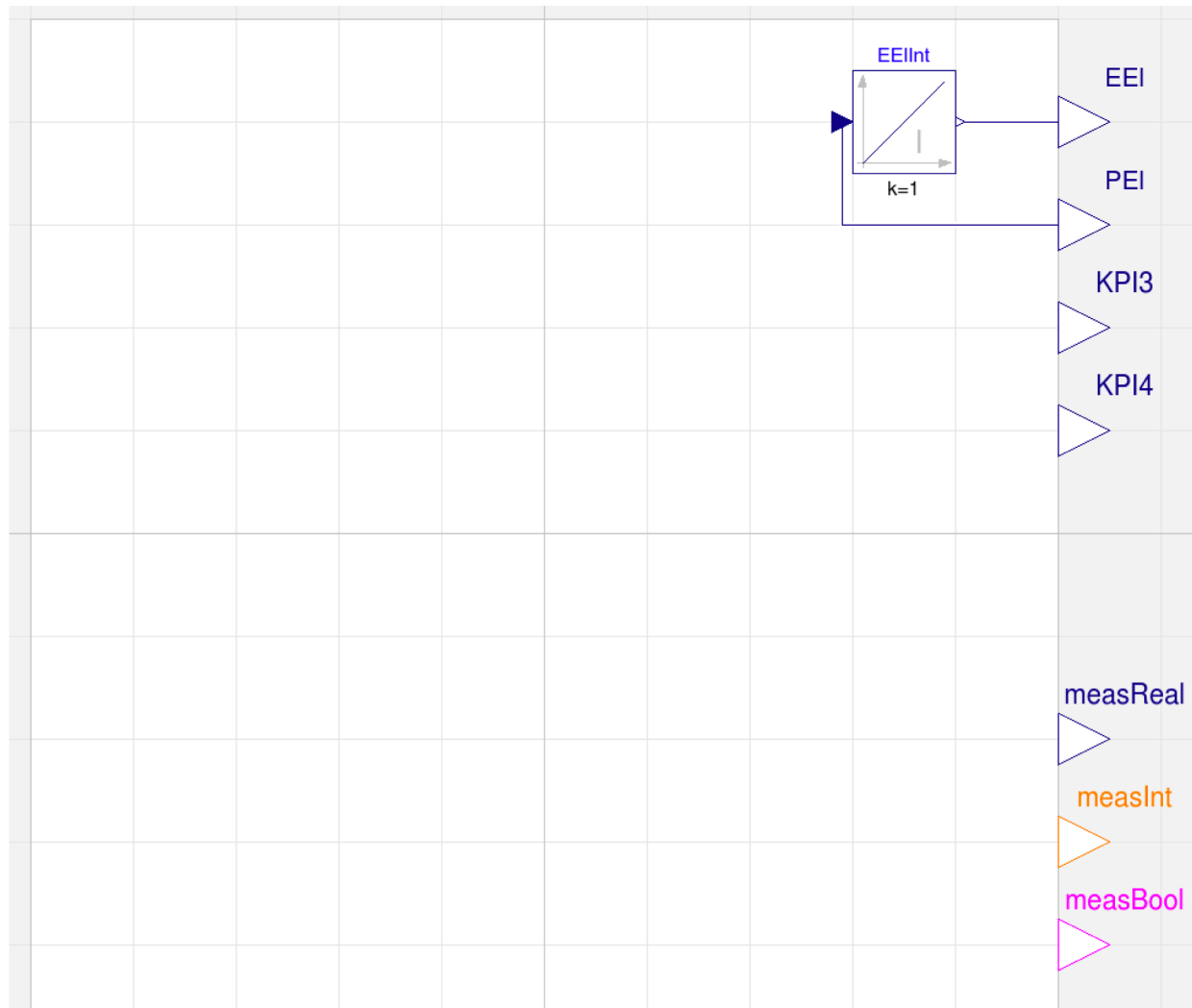
Documentation

- Qualitative description: type of building, level of detail (shading, pressure-driven flow), etc.
- Important assumptions/simplifications: steady state valves, etc
- Inputs/outputs summary (tables) – auto-generated from template?
 - Control inputs + description
 - Measurement outputs + description
 - Constraint outputs + description
 - Objective output(s) + description
- Control options: internal RBC if present
- Boundary conditions of the model: weather data, occupancy, ...
- Benchmark specs: solver, time interval, etc?

Implementation

- Docker consisting of
 - Documentation
 - Modelica model
 - Library dependencies (e.g. library release version number & dll's/so's)
 - File dependencies (weather data, occupancy data)
 - Translated FMU
 - BOPTEST API

Preliminary emulator template

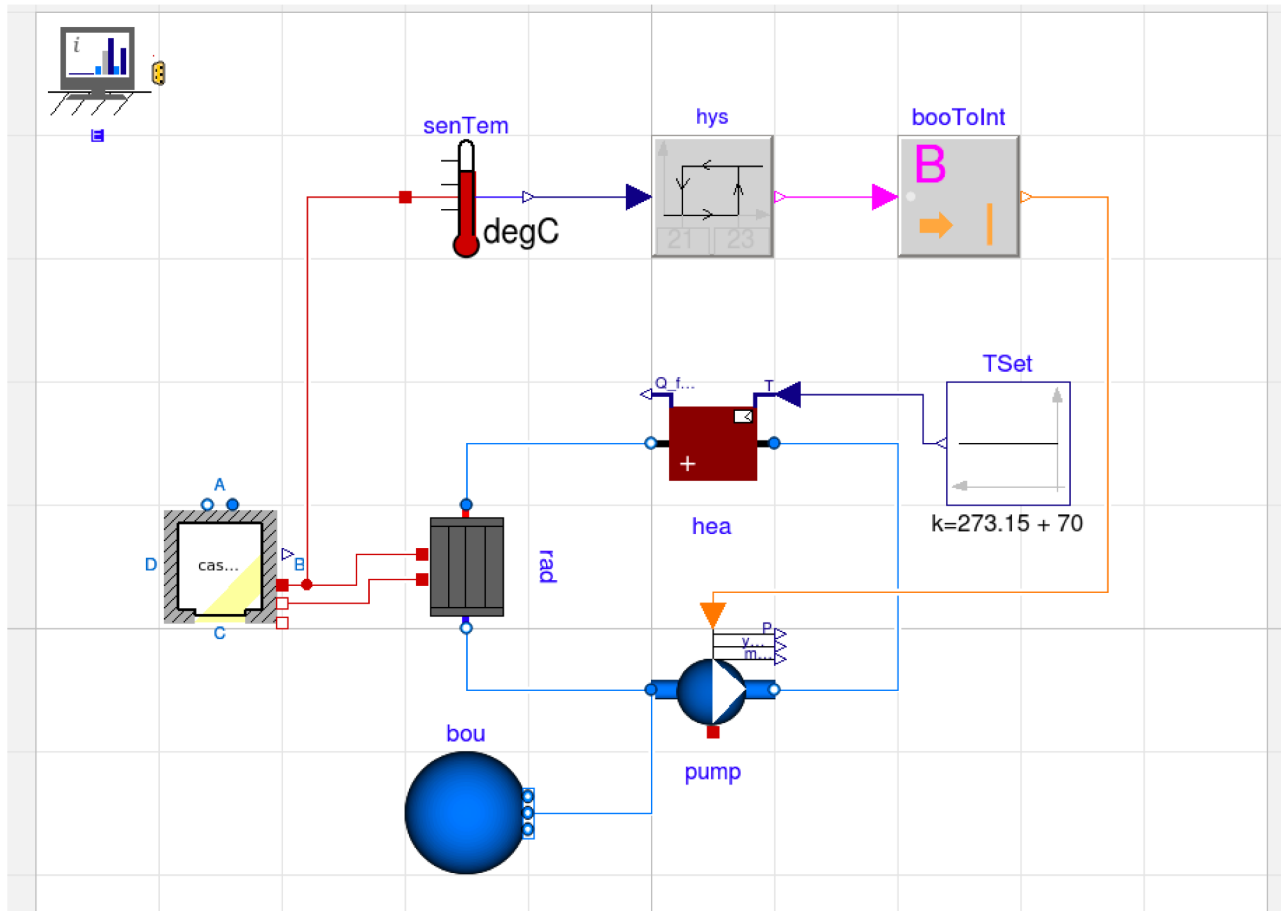


Model requirements & review

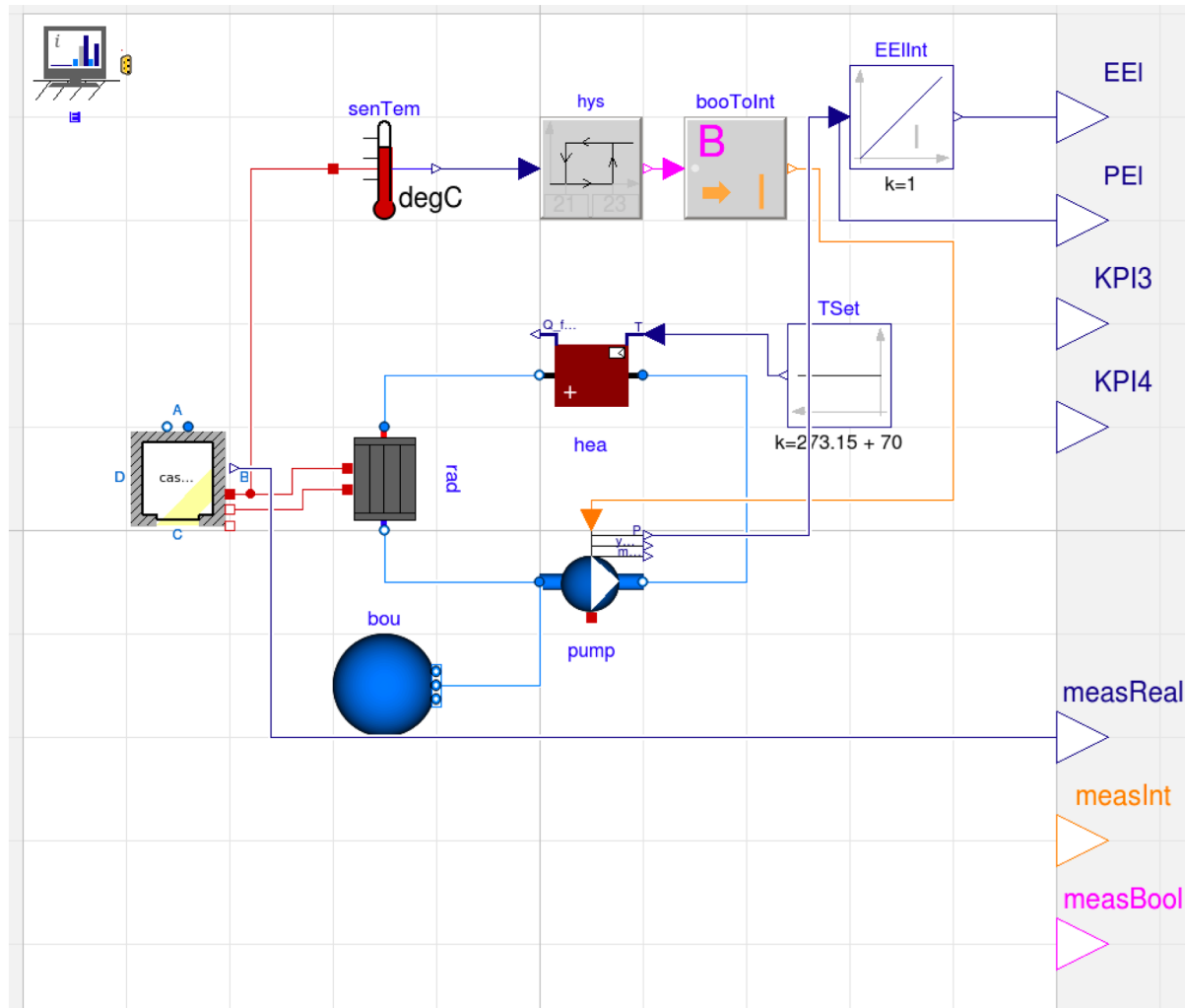
- Assert correct control inputs: e.g. valve control signals in $[0,1]$
- Model is physical:
 - Reasonable thermal mass and time constants
 - Conservation of energy, 2nd law of thermodynamics, etc.
- Model is representative
 - Reasonable dimensions
 - Typical US/EU based system as agreed

Example emulator

IDEAS.Examples.IBPSA.SingleZoneResidentialHydronic



Example + template



Unit test and code location

- Implement Modelica models in common library?
 - How to deal with library dependencies/versions?
 - Unit tests
 - Fixed control inputs?