Available libraries

- Eigen values, eigen vectors calculation and representation
- Harmonic analysis
- Turbine characteristic pre-processing
- Coupling with CFX and ANSYS
- Water column separation
- Open channel
Simulation Software for
Hydraulic & Electric Systems
Adjustable Speed Drives

**Features:**
- ✔ From water to wire modelling
- ✔ Modular structure with arbitrary topology
- ✔ No restriction on the network size
- ✔ Three phases systems in ABC phase quantities
- ✔ Events detection and back-tracking
- ✔ Load-Flow calculation
- ✔ Parameterization
- ✔ Harmonics analysis, eigen values, eigen vectors calculation and representation

**Hydraulic systems**
- ✔ Water hammer calculation
- ✔ 4 quadrants transient behavior
- ✔ Francis/Pelton/Kaplan/Pumps and reversible Francis pump-turbines
- ✔ Surge tanks, surge shafts, differential surge tanks
- ✔ PID Turbine governors
- ✔ Hydroelectric interactions
- ✔ Cavitation/Water column separation
- ✔ Open channel flows
- ✔ Piezometric line visualization
- ✔ Database of realistic Francis & Pelton turbines performance hill chart

**Electrical Power Networks:**
- ✔ Electrical 3ph machines models 2.1-3.3 according to IEEE standard 1110
- ✔ Single phase synchronous machine model
- ✔ Electromagnetic transients in AC/DC
- ✔ Transient stability and general fault analysis
- ✔ SubSynchronous Resonance (SSR)
- ✔ Torsional analysis
- ✔ FACTS, HVDC, SVC
- ✔ Grid code compliance (FRT)
- ✔ IEEE Standard excitation systems and PSS

**Regulation part:**
- ✔ Easy definition of any control structure
- ✔ S-transfer functions, PID regulator
- ✔ Programmable unit, logical table
- ✔ Digital devices, Z-transfer functions
- ✔ Control devices, on-line FFT
- ✔ User defined DLL for control
- ✔ Coupling with external application (Matlab, Labview, EMTP-RV, Electromagnetic/Fluid FEM, HIL, etc)

**Adjustable Speed Drives:**
- ✔ DFIM FSFC modelling
- ✔ Power electronics converters
- ✔ Multi level modular converters (MMC)
- ✔ Voltage Source Inverters (VSI)
- ✔ LCI 6 and 12 pulses
- ✔ Cyclo-converters
- ✔ Analog / digital mixed signals simulation
- ✔ PWM PLL based control
- ✔ Vector control
- ✔ IGBT GTO Thyristor

**Graphical User Interface**
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