

AMESim

LIBRARIES – IFP DRIVE

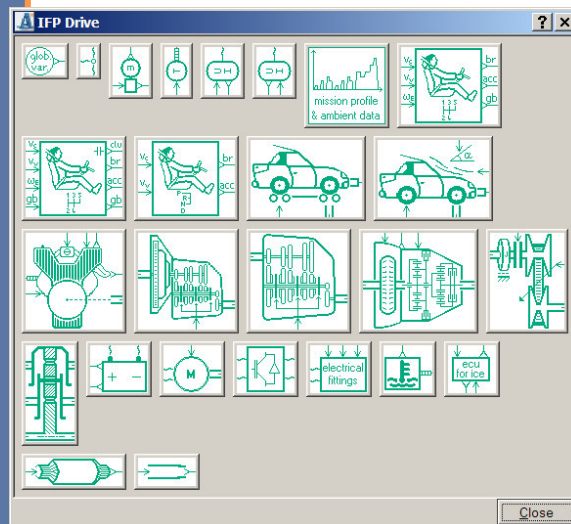
KEY POINTS

- Steady-state and transient simulation.
- Graphical interface enables you to create new designs quickly.
- State-of-the-art theory. Easy parameters filling from manufacturers' experiments or data from technical drawings .
- Recognizable technological icons facilitating direct model correlation with technical drawings.
- Full multi-domain compatibility for total system analysis with study of energetic couplings.
- Complex modeling without writing a single line of code thanks to a Basic Element approach.
- Build and save your own models for easy reuse.
- Sensitivity analysis and size optimization.
- Time domain and frequency analysis for vibration modes characterization (eigenvalues, modal shapes, transfer functions).
- Matlab®/Simulink® interface for control design.
- Direct integration of your own C and Fortran code.
- Fully compatible with other AMESim libraries.

Overview

AMESim IFP Drive library is dedicated to the simulation and analysis of the fuel consumption and pollutant emissions of conventional and hybrid vehicles. It can also predict vehicle performances (accelerating ability, maximum climbed slope, maximum speed...), and help to evaluate engines, drive trains and more generally vehicle architectures.

Moreover, the AMESim IFP DRIVE library can also be considered as a real supervising tool that makes it possible to include a detailed system model in a complete vehicle context that provides it with realistic dynamic boundary conditions.

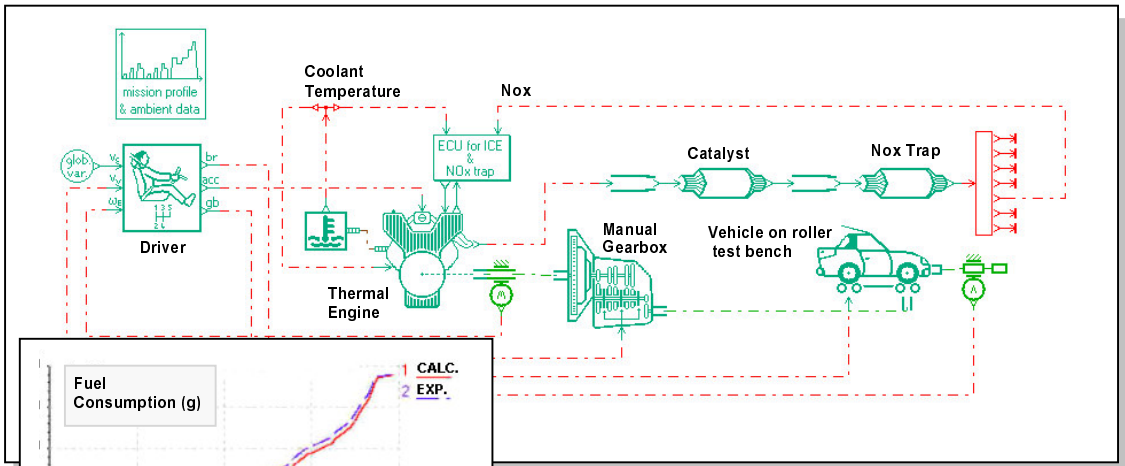


Benefits

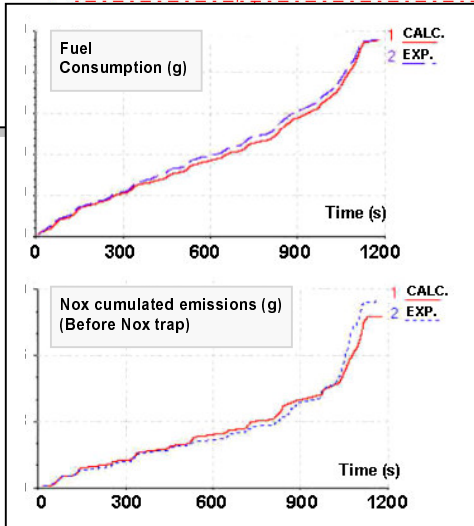
The user-friendly AMESim IFP Drive library helps you to rapidly model any kind of vehicle (classic or hybrid) without having to write a single line of code.

A large collection of mission profiles, ambient data, gearboxes, battery, engines and vehicle models allow you to find answers for the optimization of fuel consumption and pollutants emissions for every kind of energy used in vehicles.

All AMESim libraries are compatible with one another thus enabling true multi-domain simulation studies.



Example of a complete gasoline vehicle model including the ECU



Comparison with experiments

IFP DRIVE component models

- Mission profiles and ambient data for European, Japanese and American cycles.
- Pollutants mass sensors.
- Signal port to temperature source converter.
- Signal port to current and tension converter.
- Drivers for manual
- Drives for automatic gearboxes.
- Vehicle models on test bench
- Vehicle models on road.
- Thermal engine with pollutants emissions.
- Cooling circuit temperature source.
- Gearbox with internal or external clutch.
- Automatic gearbox with torque converter.
- Continuous Variable Transmission (CVT).
- Planetary gear train.
- Catalytic converter for exhaust after treatment.
- Pipe component.
- Battery.
- Electric engine.
- Power electronics.
- Electric fittings and ECU.

Requirements

The AMESim IFP DRIVE library runs on Unix®, Linux® platforms and Pentium®-based PCs.

Features

The AMESim IFP DRIVE library enables you to answer questions involving fuel consumption and pollutants emissions with a large number of capabilities such as:

- All standard types of vehicle systems modeling: Diesel and Gasoline engines, Manual gearbox, Automatic gearbox, CVT, Electric, Series hybrid, Parallel hybrid.
- Pollutants emissions (mass and flow rate)
- After treatment optimization (catalytic converter and NOx trap).
- Database of world normalized mission profiles.
- Cooling system optimization (basic or detailed circuit)
- Battery and electric engine design.

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