ETAS ASCMO

Data-based modeling and model-based calibration

At a glance

- Capture of complex system behavior in both steady-state and dynamic/transient operation using data-based models of very high quality
- Optimization of parameters in physical models
- Reduction of model complexity for time-critical applications and deployment in ECUs
- Efficient design of experiments (DoE) approach
- Fast and modern optimization processes
- Easy to use, no specialist knowledge required
- Interactive graphical display of multidimensional dependencies
- Exchange of data and models in standardized formats
- Powerful MATLAB® and COM interfaces for integrating customer-specific functions and tools as well as coupling with test bench automation
- Flexible adaptation of ETAS ASCMO products with a variety of add-ons

ETAS ASCMO is the ideal solution for data-based modeling and model-based calibration. It enables users to accurately model, analyze, and optimize the behavior of complex systems with few measurements and advanced algorithms. Both steady-state and transient system behaviors can be captured. In addition, the tool allows users to efficiently optimize parameters in physical models.

Applications

ETAS ASCMO is used for model-based calibration in numerous applications, such as the optimization of fuel consumption and engine emissions.

In addition, the tool is able to generate accurate data-based metamodels of physical system simulations. This feature can be used to increase the simulation quality of individual system components and significantly shorten the iteration times of the overall system simulation.

ETAS ASCMO models can be used to simulate the controlled system in model-, software-, and hardware-in-the-loop applications (XiL). For very demanding runtime behavior requirements, the complexity of the models can be greatly reduced.

ETAS ASCMO product model:
ETAS ASCMO comes as a basic installation with various add-ons. This provides the flexibility required to adapt the product to different applications.

That means the models can be used, for example, as "virtual sensors" in production vehicle ECUs.

ETAS ASCMO-DESK basic product

ETAS ASCMO-DESK is the launch pad for ASCMO-STATIC, ASCMO-DYNAMIC and ASCMO-MOCA. It also includes useful tools for managing and calculating driving cycles, displaying scatter plots, and editing calibration data.

ETAS ASCMO-STATIC

ETAS ASCMO-STATIC offers users a wealth of functions including capturing the stationary behavior of complex systems using data-based models, visualizing and analyzing measurement data, optimizing system parameters, and generating Design of Experiment methodology test plans.

ETAS ASCMO-DYNAMIC

ETAS ASCMO-DYNAMIC captures the behavior of complex systems in dynamic/transient operation. The models can be exported as C code or in special formats for integration into INCA/MDA, Simulink®, or FMI/FMU-compliant simulation environments. This add-on can also generate test plans.

ETAS ASCMO-MOCA

ETAS ASCMO-MOCA enables users to efficiently optimize parameters in physical models. The models can be input into the tool as a formula or integrated as Simulink®, FMU, ETAS ASCET or ETAS ASCMO models.

Add-ons to flexibly adapt the tool

As the diagram shows, add-ons can be used for various purposes. Examples include modeling signal traces based on static inputs, optimizing control variables of combustion engines in the entire operating range in terms of emissions and consumption, and exporting models for use outside the ETAS ASCMO tool environment.

Info For more details about the ASCMO product family, please visit www.etas.com/ASCMO.
If you require any further information, please get in touch with your local ETAS representative.