

FMI TOOLBOX

for MATLAB®/Simulink



SCOPE

- Integration of physical models in MATLAB®/Simulink
- Dynamic simulation
- Control system development

KEY FEATURES

- Export and import of Model Exchange and Co-Simulation FMUs
- Simulink blockset and MATLAB script interface
- Design of Experiments and design space exploration
- HIL simulation on dSPACE systems

BENEFITS

- Reduced time and cost for development of control systems supported by physical models
- Leverage state of the art physical modeling tools
- Maintain flexibility with the FMI standard

FMI Toolbox for MATLAB®/Simulink enables easy to use integration of physical models developed in state of the art modeling tools in the MATLAB®/Simulink environment. The toolbox relies on the open FMI standard and is ideal for control systems development.

High-fidelity physical models are key components in development of control systems and contribute to increased quality and shorter development cycles. Modeling languages such as Modelica are commonly used to develop accurate simulation models of systems in a wide range of domains, including mechanics, electronics, and thermodynamics.

The toolbox links any FMI compliant tool to the MATLAB®/Simulink environment. Support for the FMI standard ensures flexibility and cross-platform inter-operability.

The Toolbox enables simulation of FMUs as part of Simulink models and in MATLAB scripts. In addition, Simulink models can be exported into Model Exchange or Co-simulation FMUs. Hardware In the Loop (HIL) simulation is supported on any FMI compliant HIL system.



FMIT Aircraft Controller FMU in Modelon Impact.

Moreover, FMI Toolbox can be extended by a Coder add-on allowing to export Simulink models as FMUs and import FMUs to a Simulink Coder target. For example, a final Simulink model with nested FMU can be exported to another FMU ready for further import to e.g. Modelon Impact.

THE FUNCTIONAL MOCK-UP INTERFACE

The Functional Mock-up Interface (FMI) is an open standard for exchange of dynamic models, targeting tool interoperability and model reuse. FMI compliant models (Functional Mock-up Units (FMUs), are self-contained compiled models which can be integrated in a wide range of applications where dynamic models are needed. Modeling IP is protected since only compiled code and interface definitions are distributed in FMUs. FMI technology is adopted by more than 150 open source and commercial tools enabling easy exchange of compiled models.

For more information see: www.fmi-standard.org

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