Simulation for iC7 series: MyDrive® HIL

Want **unique power to de-risk** product lifecycle?

Powerful simulation replaces the test lab

With MyDrive® HIL you get a powerful toolchain to de-risk and save time, with a hardware-in-the-loop simulator that replaces the test lab. This is your new all-in-one toolchain for testing and validation of control systems – with a rich feature set for electric motor drives and microgrid applications.

Get maximal power of simulation: real time and with the highest possible fidelity available.

In every phase of system lifecycle

MyDrive® HIL can optimize every phase of the product or system lifecycle, from development and testing, to commissioning and lifetime monitoring. MyDrive® HIL supports continuous integration and continuous development by simulating individual applications using drives or power converters; or entire systems.

Get going faster

Configure a setup in just 15 minutes. Cut down test and commissioning time from days to hours.

Feature	Benefit
Replace physical testing with virtual testing	Cut testing time from days to hours
De-risk project execution in an early phase	Greater reliability in business model
Run end-to-end system simulations	Improve uptime and de-risk project execution
Easily simulate different component sizes and combinations for early integration	Quickly find the optimal solution both cost and performance-wise
Assess configuration efficiency in the design phase	Reduce energy consumption in the application Save cost and reduce carbon emission
Optimize parameters in the design phase	Reduce commissioning time
– Test with a high level of automation **– Test critical scenarios in a low-stress environment** **– Eliminate risk of equipment damage**	Protect equipment and secure safety
– Monitor and improve performance using a digital twin **– Validate software updates virtually**	Efficiently maintain and improve the application over its lifetime

HIGHLIGHTS

Speed up and de-risk
- Cut down test and commissioning time from days to hours
- De-risk project execution to avoid issues early
- Assess product and system performance before prototyping
- Reduce risk of equipment damage

Design and operate efficiently
- Always maximal high fidelity and speed
- Extend system productivity by reducing energy consumption, downtime, and wear

Fast
test and validation in just hours

⬈ Learn more about iC7-Automation

danfossdrives.com **iC7**

What are the components of MyDrive® HIL?

MyDrive® HIL is a Hardware in the Loop (HIL) system comprising a real-time application simulator [1] and signal connector combined with actual control boards and option cards from the drive or power converter [2], with PC user interface [3]. The combination of virtual application controlled from real components gives the highest possible fidelity in simulation of a drive or power converter, or even a whole system.
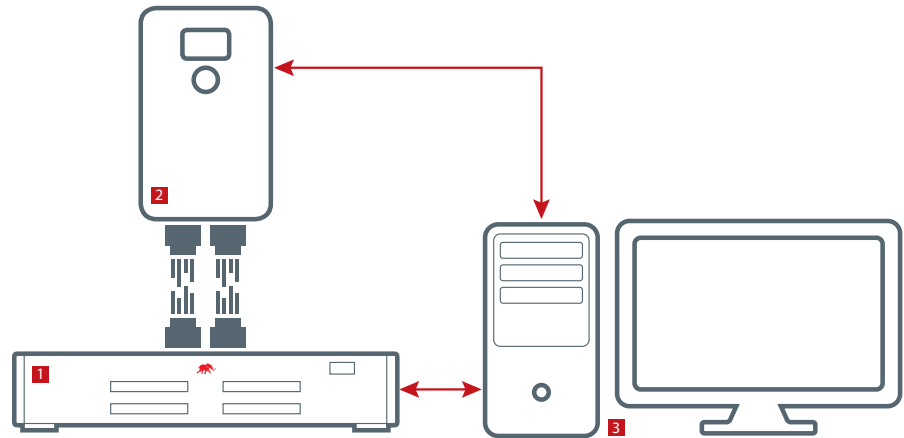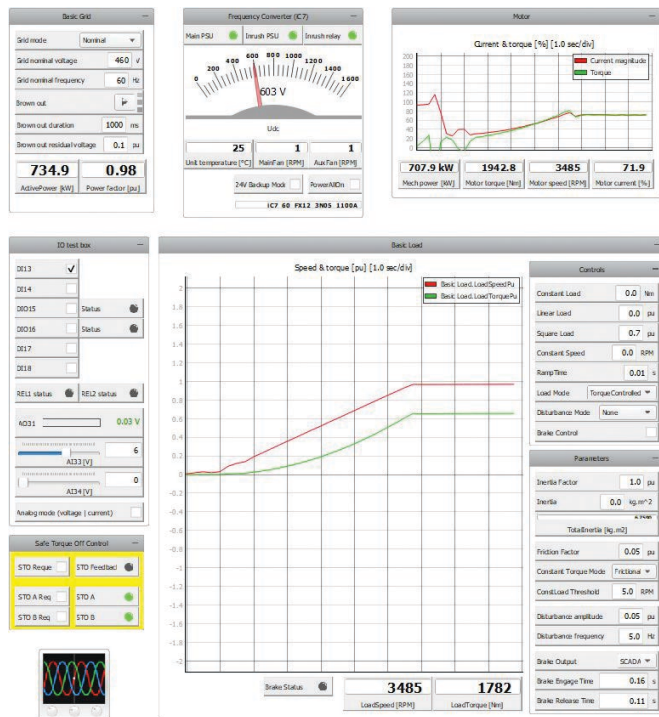
1 *Real-time HIL device*
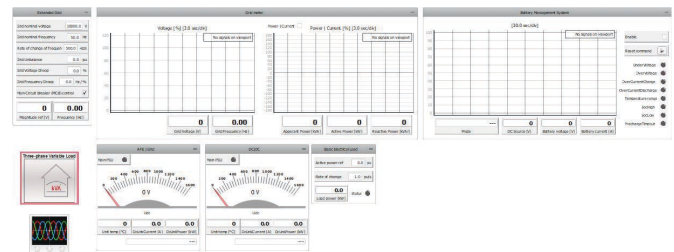2 *VLT® or iC7 drive control unit*
3 *PC user interface*

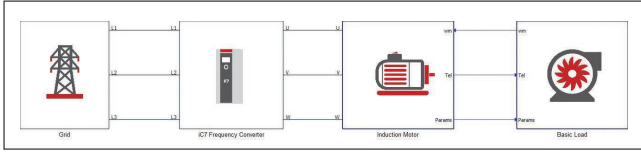*MyDrive® HIL toolchain components*

Simulation examples

Simulation of a drive-motor system using a frequency converter

Simulation of a battery management system comprising several power converters

Software: Application simulator
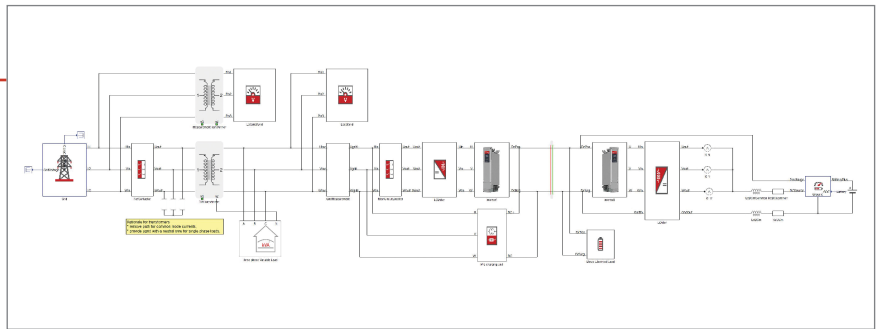**HIL system for frequency converters**

Hardware:
Control unit = control boards and option cards

HIL system for system drives

Software: System simulator

Hardware: Control unit = control boards and option cards

What does high fidelity mean?

High fidelity in simulation means you achieve the greatest possible precision in recreating actual drive, converter, or system performance. MyDrive® HIL gives you absolute alignment between measured and simulated currents and voltages.

What does real time mean?

By simulating in real time, you recreate the exact response of the system to a disturbance. Real time simulation gives you the power to react fast to avoid downtime in an operational situation. For example, you can simulate recovery of the grid after a brownout and short power interruption.

How can MyDrive® HIL save cost?

The greater the variety of drive and motor sizes being tested with MyDrive® HIL (for example, ratings of 1.5 kW, 7.5 kW, and 355 kW over the course of the day), the higher the cost saving becomes. Ultimately, you can eliminate the need for a physical test setup.

How to buy

MyDrive® HIL from Danfoss is available as a combination of software package and hardware components, ready to support a frequency converter or a system drive.

- Software package: Annual service fee with user option to choose the features needed
- Hardware components: One-time purchase

MyDrive® HIL is powered by Typhoon HIL

Grid current

Measured motor currents
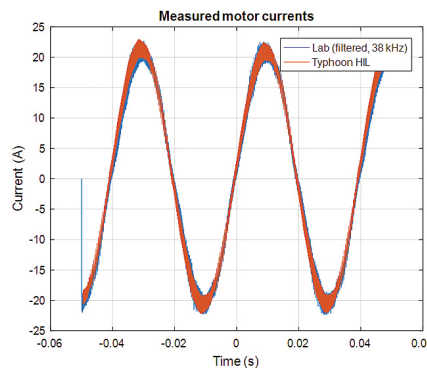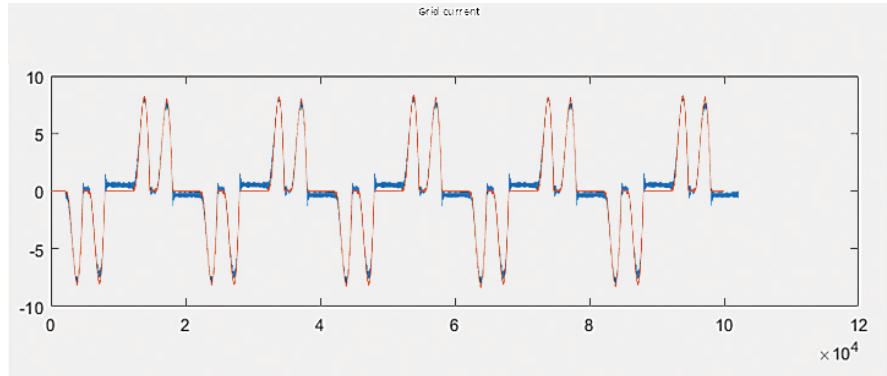
The MyDrive® HIL setup allows us to emulate dozens of drive variants, paired with any motor that is used in our equipment. The system is well integrated into Typhoon HIL environment and there is good documentation to get up and running quickly – within a few hours of opening the box.

I am impressed with how robust the system operation is. Simulations will often fail to run if conditions are changed too quickly or deviate too much from the nominal values. The MyDrive® HIL system runs and gives reasonable results even with aggressive commands and load profiles.

Ben Sykora, Power Electronics Engineer at Trane Technologies, Wisconsin USA

Some functionalities listed in this fact sheet are for future implementation