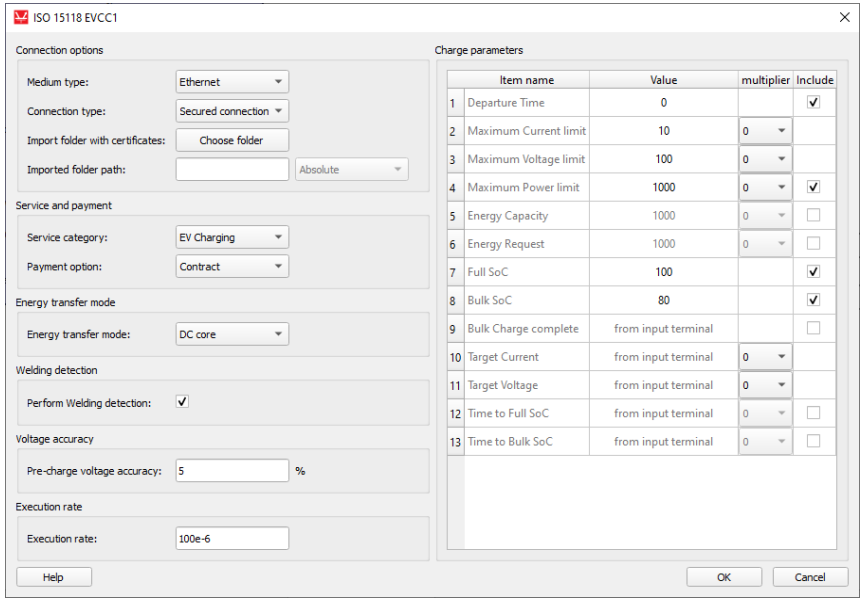
# 2023.2 Software Release Highlights

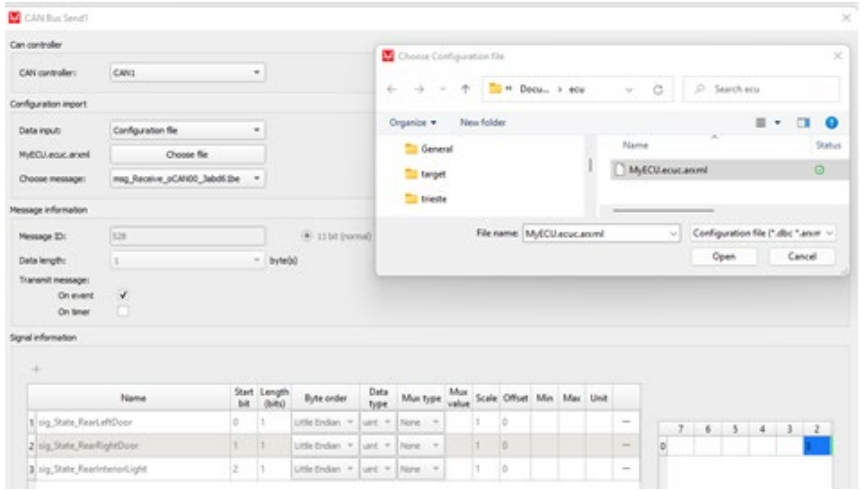
- New e-mobility features
- Support for .a files in Advanced C function
- 25 ns DC-DC solver
- Custom FW configurations
- Package Manager: Marketplace
- Remote IO Interface
- Additional features
  - PTP time synchronization
  - Hysteresis implementation

# 1.1 New Automotive features

*Test the state of the art in EV charging communication*

- ISO 15118 Plug and Charge improvements
  - Added options to upload certificates from the component dialog
  - Allows automatic charging payment with a transport security layer
  - Enable secured communication using certificates
- ARXML file support for CAN components
  - Configuration and specification information in XML format for ECUs
  - Standardize data exchange between vehicles
- XCP over CAN support in HIL SCADA
  - Measurement and calibration of ECUs
  - XCP master support added as a Python library in HIL SCADA
  - Support for A2L files

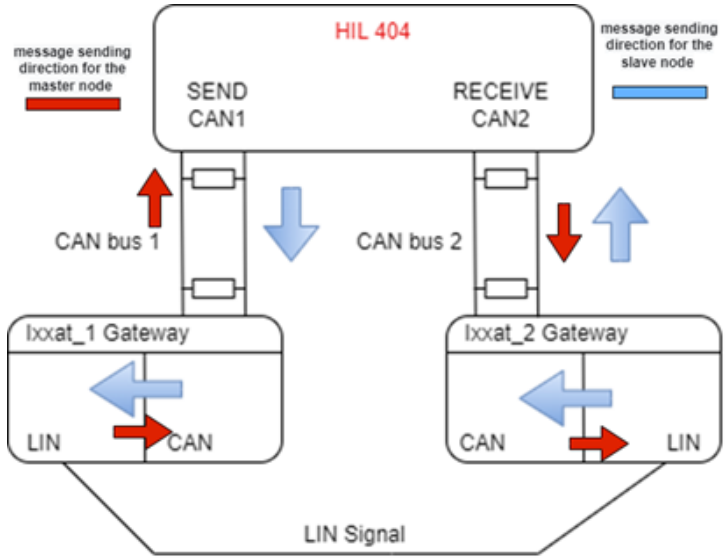


# 1.2 New Automotive features

*Test the state of the art in EV charging communication*

- LIN Protocol
  - Support added via CAN to LIN with FRC-EP170 gateway
  - Serial network protocol used for communication between components in vehicles



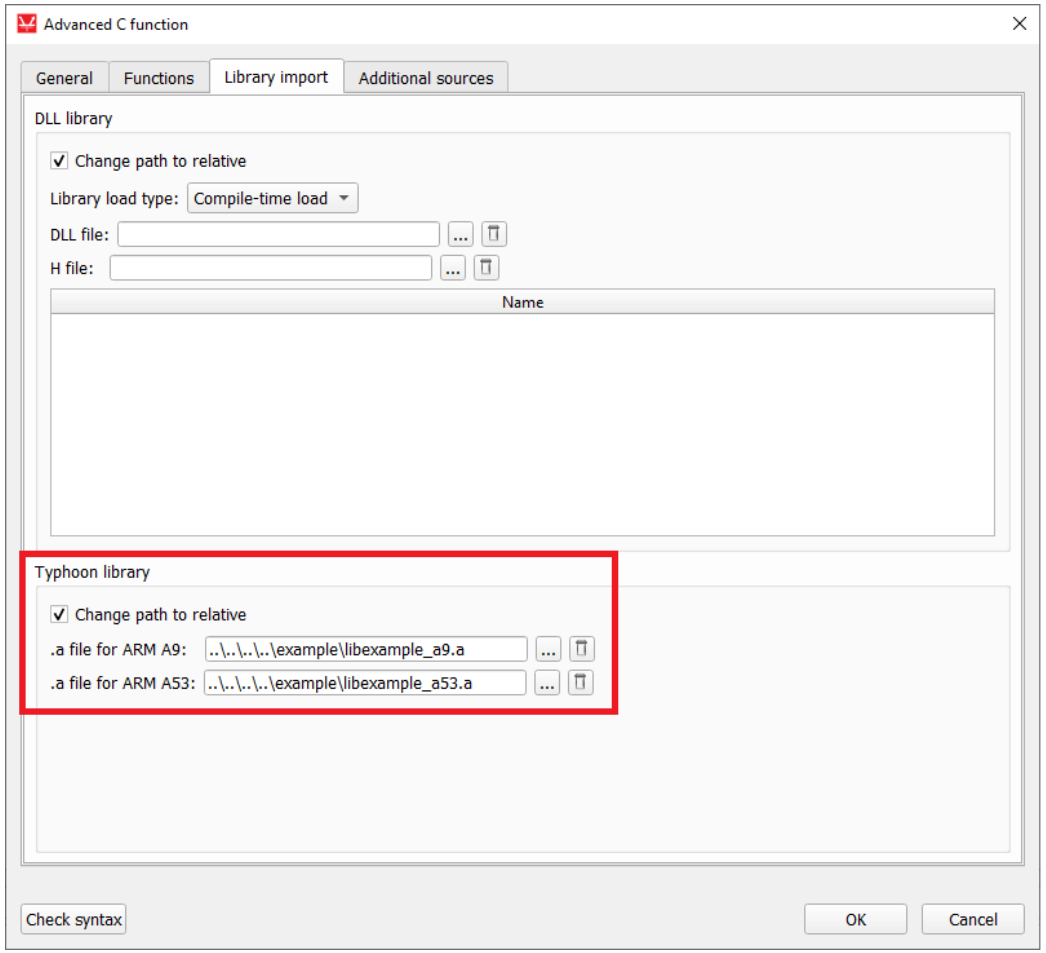

- J1939 DM1 message receive
  - Diagnostic message contains several DTC messages representing ECU faults
  - Variable message size supported


J1939 Receive1

# 2.1 Support for .a files in Advanced C function

*Securely share your proprietary control code*

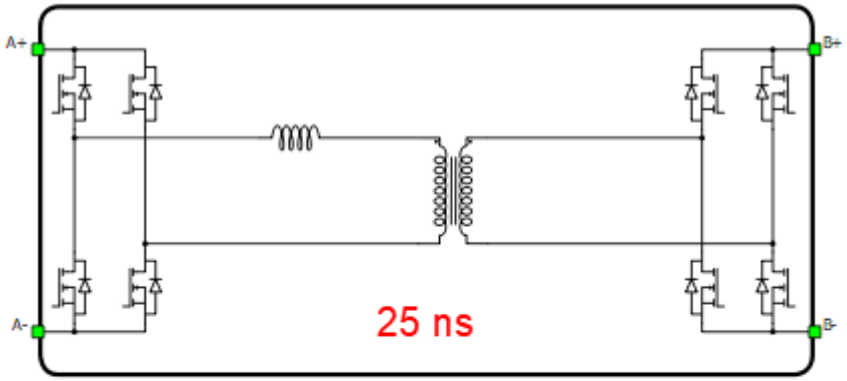
- Novel (.a) file type lets you pre-compile code for Typhoon HIL devices and share it as a Typhoon library
- Keep the IP of your control algorithms completely protected by sharing only pre-compiled code
- All functions and variables are available for further use inside an Advanced C function component
- Available for both of Typhoon HIL's CPU architectures:
  - ARM A53 in 4th generation devices
  - ARM A9 in 3rd generation devices



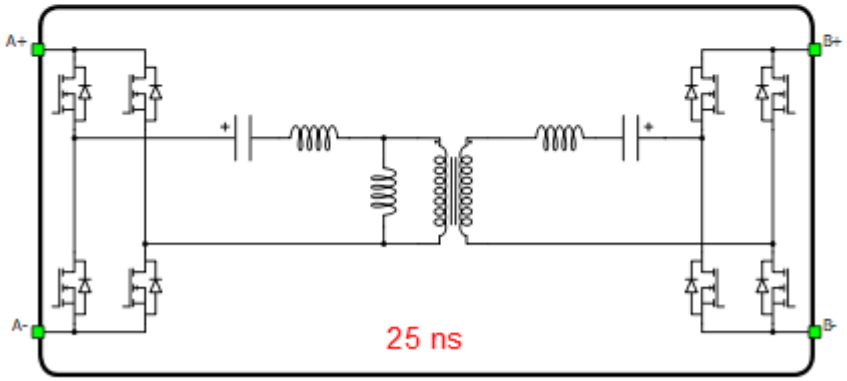
# 3.1 DC-DC solver with 25 ns resolution

*High fidelity model for fast charger applications*

- FPGA block calculates Dual Active Bridge and Resonant converter components with 25 ns time resolution on 4th Generation devices (HIL404 and HIL606)
- Resonant converter and Dual Active Bridge are also available on 3rd generation devices (HIL604 and HIL602+) with 50 ns simulation step
- Specially designed to fulfill the needs of high frequency DC-DC charger applications
- Powered by the special DC-DC converter solver resource



Dual Active Bridge



Resonant Converter

# 4.1 Custom FW configurations

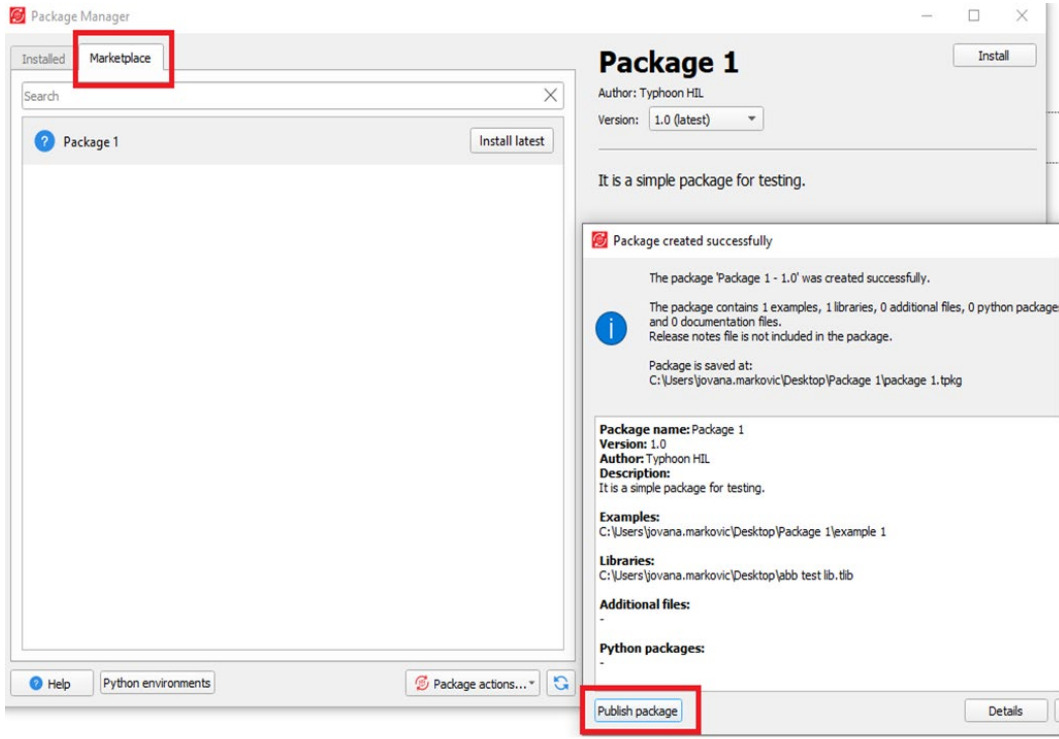
*Make the most of your HIL device*

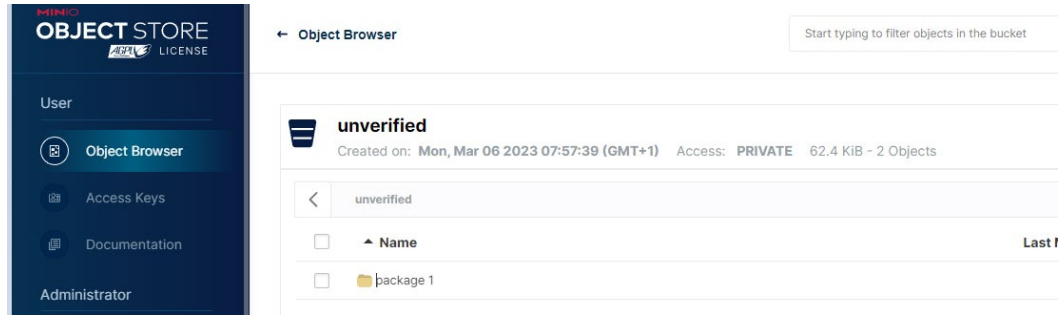
- ☐ Tailor your Firmware configuration to get more power and flexibility from your HIL device
- ☐ Effectively address applications with specific requirements
- ☐ Fully automated configuration validation during form entry
- ☐ Fully integrated in Typhoon HIL Control Center

# 5.1 Package Manager: Marketplace

*Promote your work to a wider audience*

- Packages can now be saved, published, and shared remotely in the Marketplace
- Packages can be created through a dedicated Package Manager wizard tool
- New Marketplace tab lets you download any current or historical versions of your chosen package
- Contact Typhoon HIL if you would like your package to be published for other users



# 6.1 Remote IO Interface

*Expansion of interfacing possibilities*

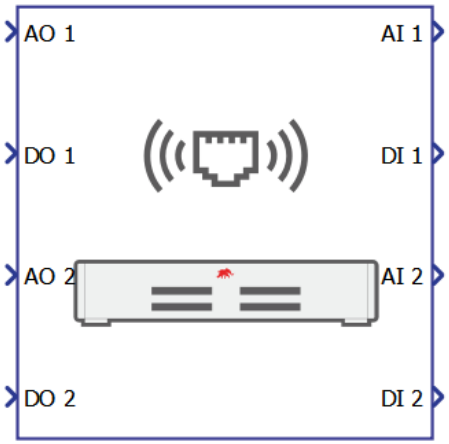
- IO expansion device intended to complement HIL Setups
- Same dimensions as a HIL 6-series device
- 1 mS update rate
- Data exchange with HIL Device

  via Ethernet Variable Exchange

# 6.2 Remote IO Interface component

*Expansion of interfacing possibilities*

- Part of the new HIL Interfaces Component Library
- Easily configurable (Ethernet VE setup handled by the component)
- Analog and Digital Output signals provided through Input ports of the component
- Analog and Digital Input signals accessible through internal probes and Output ports



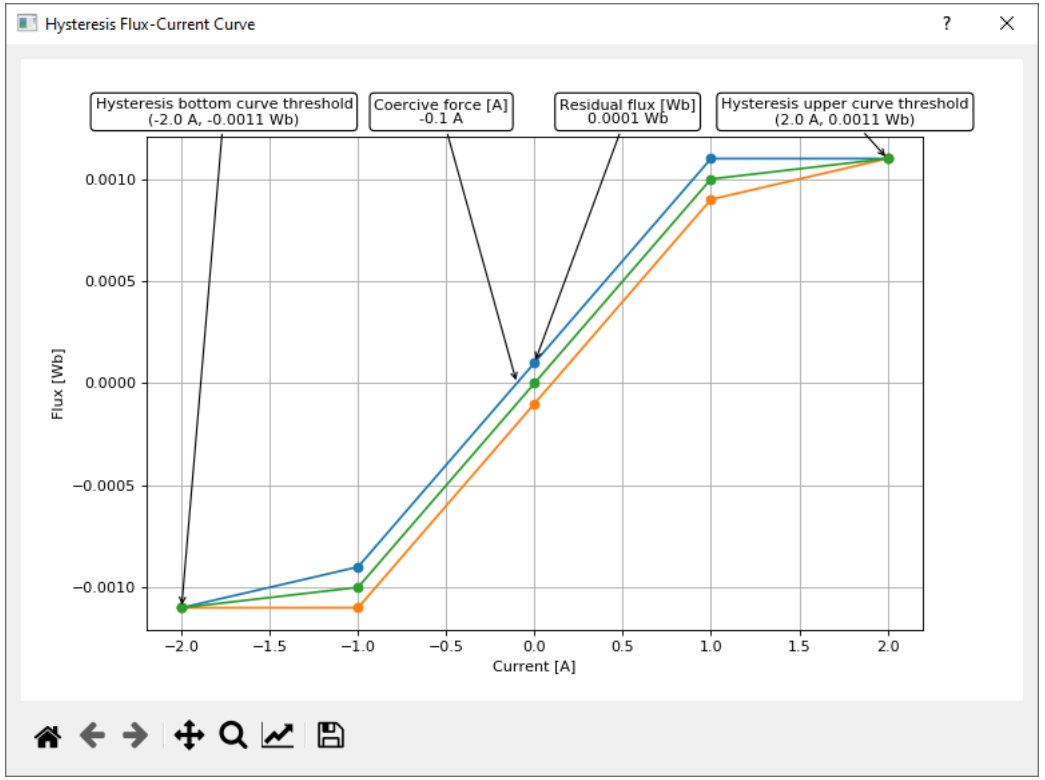
Remote IO Interface (Ethernet)

# 7.1 Additional features

- Synchronize your HIL device with an external time source, such as:
  - GPS (Global positioning system)
  - PTP (Precision time protocol)

Time Synchronization Status

- Hysteresis effects
  - Available for nonlinear inductors and transformers
  - Increased fidelity of existing models



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