2024.4 Software Release Highlights

- **TyphoonSim integration into Typhoon HIL Control Center**
- **Auto-save of Models and SCADA Panels**
- **New converter topologies**
  - Active Clamp Flyback converter
  - Active Clamp Forward-Flyback converter
- **Communication interface updates**
- **Calibration tool improvements**

Typhoon HIL
Control Center
2024.4

Typhoon HIL Control Center

Version 2024.4

TyphoonSim integration into THCC

Gain greater access to all Typhoon HIL Control Center has to offer

☐   Schematic Editor core library now displays all components and features, without restrictions, to all users.

☐   If there are any usage constraints for specific components and features, a visual notification will be displayed.

☐   Component properties are also visible, irrespective of whether the requirements are met.

☐   Test out and explore available components and features in Virtual HIL or TyphoonSim.

# TyphoonSim integration into THCC

Multicontext simulation support

☐ There are now two simulation contexts in Typhoon HIL Control Center:

  ■ Real-time/Virtual HIL

  ■ TyphoonSim

☐ Icons show context-specific visual notifications on usage constraints of components and features.

☐ Hovering over a core library component/property opens a tooltip containing relevant info.

☐ Visual notification is realized on 3 levels:

  ■ Library Explorer

  ■ Component property level

  ■ Model level

TyphoonSim integration into THCC

Simulation perspectives

☐ Simulation perspective chooser helps you show/hide notifications for a specific context.

☐ Available perspectives are:

- ■ Real-time perspective
- ■ TyphoonSim perspective
- ■ Integrated perspective
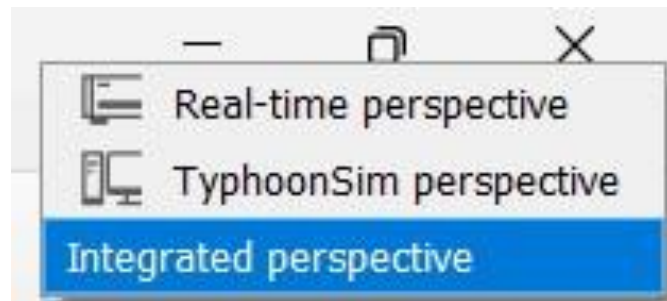
Component / property / description / constraint visibility	Integrated perspective	Real-time perspective	TyphoonSim perspective
Real-time/Virtual HIL Simulation specific	✓	✓	
TyphoonSim Simulation specific	✓		✓
Valid for both contexts	✓	✓	✓

TyphoonSim integration into THCC

Icons indicating component/property availability

| Icon	Description
	Component/property is not available in TyphoonSim
	Component/property is not available in real-time/Virtual HIL simulation
	Component/property is ignored in TyphoonSim
	Component/property is ignored in real-time/Virtual HIL simulation
	Component/property is not available in TyphoonSim due to missing requirements
	Component/property is not available in real-time/Virtual HIL due to missing requirements

TyphoonSim integration into THCC

Library Explorer level

☐ Icon(s) indicating component availability in the TyphoonSim/real-time context are displayed next to the listed component in Library Explorer.

☐ Examples (in Integrated Perspective):
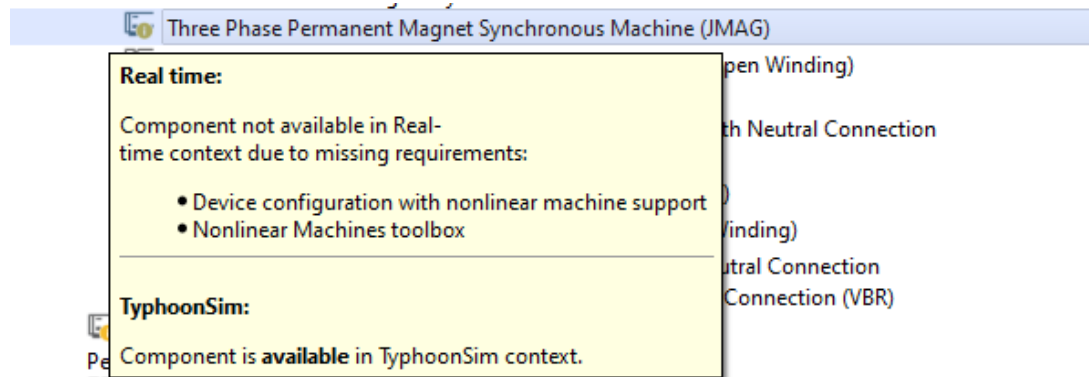
**Real-time unsupported component
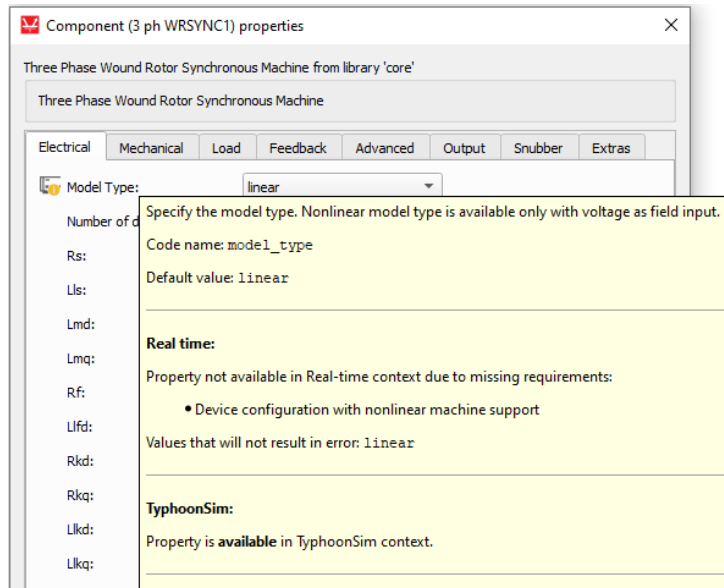due to an unsatisfied requirement tooltip**
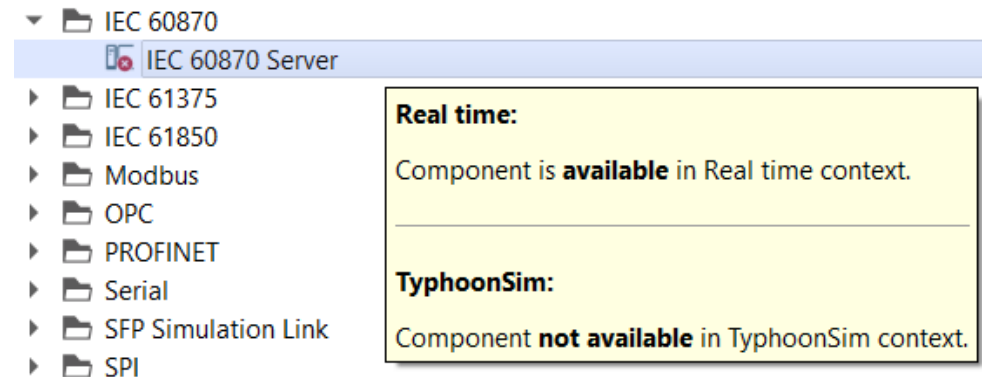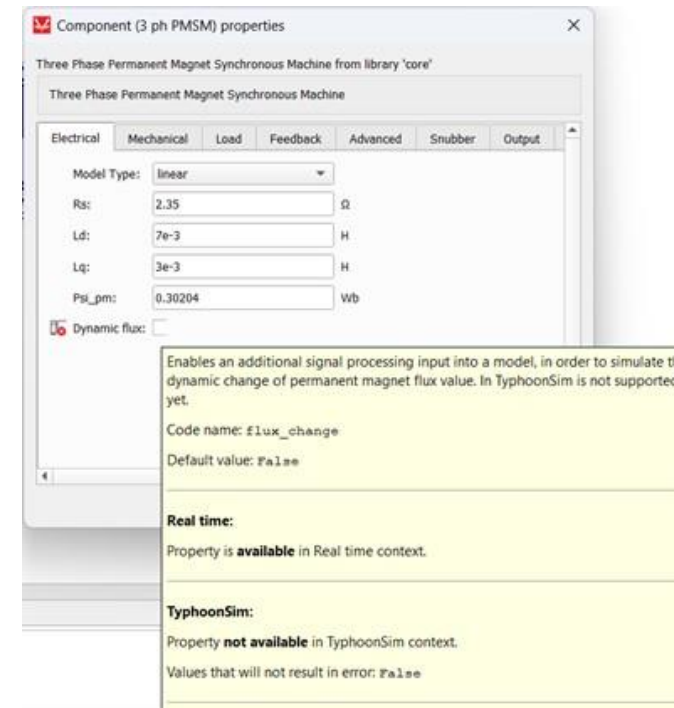

**TyphoonSim unsupported
component tooltip**

TyphoonSim integration into THCC

Component property level

☐ Icon(s) indicating property availability in the TyphoonSim/real-time context will be displayed next to the observed property on the component mask.

☐ Examples (in Integrated Perspective):

**Real-time unsupported property due to unsatisfied requirement tooltip on the component mask**

TyphoonSim unsupported property tooltip on the component mask

TyphoonSim integration into THCC

Model level – Model visualization

☐ Visually distinguish between components which are available and components which are not available/supported in a chosen simulation context in the model.

Typhoon HIL

TyphoonSim integration into THCC

Model level – Model information

☐ The Model information window (F10) displays simulation-perspective-dependent information on which model components are unsupported and which toolboxes are required to run a real-time/TyphoonSim simulation.

☐ Example: Model information window – 3 ph PMSM JMAG component

1) HIL402, C1:
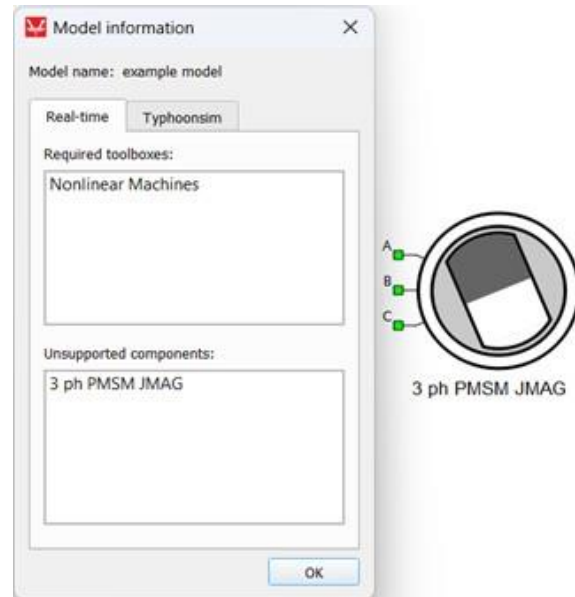
2) TyphoonSim:
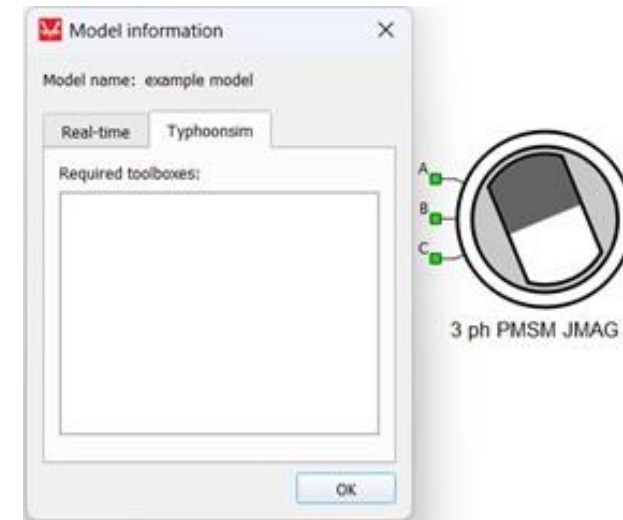
Auto-save of Models and SCADA Panels

Progress on simulation files now automatically saved

- ☐ Saving of Schematic Editor models and SCADA panel files is now periodically triggered.

- ☐ Benefits:

  - ■ Data protection

  - ■ Increased time efficiency in Typhoon HIL environment

  - ■ Reduced stress

  - ■ Minimized human error

- ☐ Recovery feature will be available in future releases.

Typhoon HIL
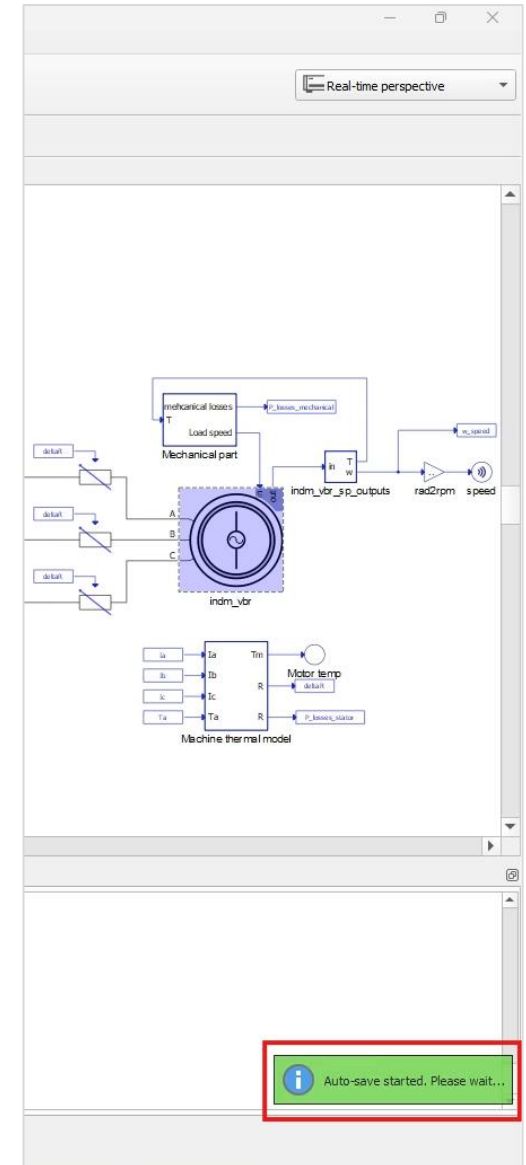
New converter topologies

Expanding the coverage of our converter library

☐ Active Clamp Flyback converter

■ Isolated DC-DC converter – variation of traditional Flyback converter

■ Used in 48 V electronic components of motor vehicles

☐ Active Clamp Forward-Flyback converter

■ Converter used in low-volage DC-DC (LDC) applications

■ High energy efficiency and low electromagnetic interference (EMI)

Active Clamp Flyback
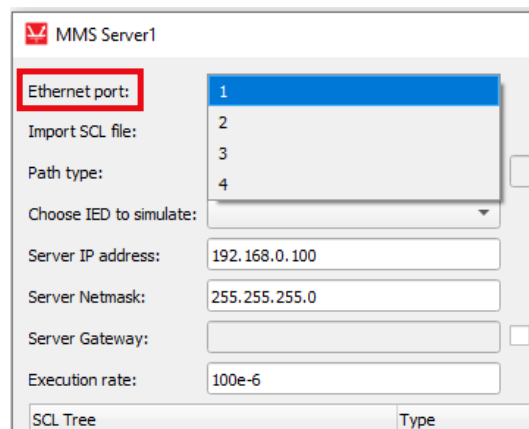

Active Clamp Forward-Flyback
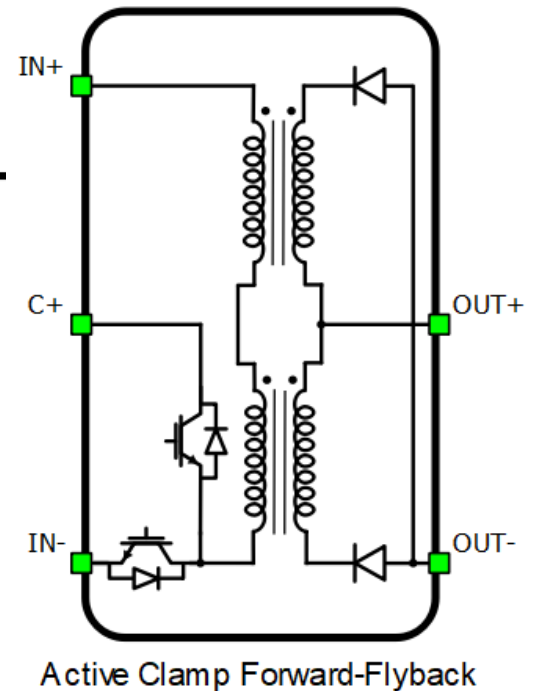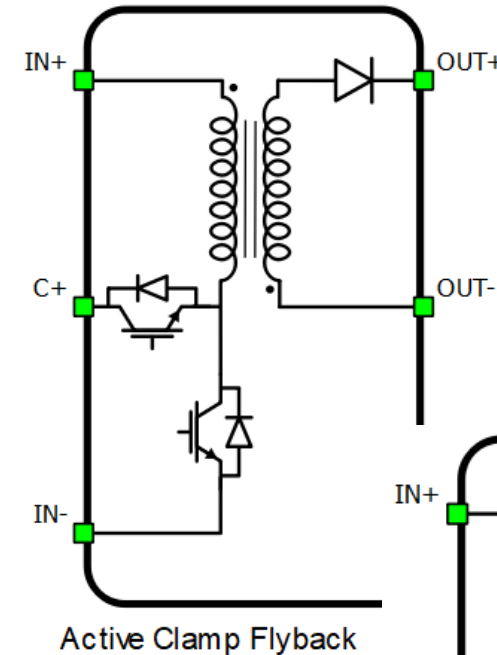
Communication interface updates

More options for your communication interfaces

☐ Flexible Ethernet port selection now available for:

- IEC 61850 GOOSE

- IEC 61850 MMS Protocol
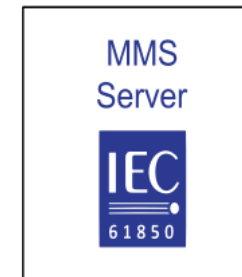
Calibration tool improvements

Easily share and record your calibration report

☐ The calibration process now provides a detailed .pdf report after its completed.

☐ Calibration report structure:

- ■ General data
- ■ Summary
- ■ Test tolerances
- ■ Pre-calibration test results
- ■ Post-calibration test results

00404-00-00099_2024 -09-27_Result.pdf
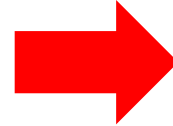
Calibration Report

General data:

Name	Value
Device Type	HIL404
Serial Number (HIL Device)	00404-00-00099
Firmware Version	2020-20-20
I/O Board revision	0
Date of Calibration	2024-09-27
Previous Calibration Date	2024-09-27
Applied VREF Levels	[4.096, -4.096]

Summary:

Channels	Status
Analog Inputs	PASSED
Analog Outputs	PASSED
Digital I/O	PASSED
Power Supply	PASSED

Test tolerances:

Criteria	Tolerance
PASS	< 0.003V
OUT OF SPEC	0.003V - 0.05V
FAIL	> 0.05V

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