

# 2024.1 Software Release Highlights

#### □ EVCC upgrades

- ISO 15118-20 EVCC component
- CHAdeMO EVCC component
- DC Constant Power Load
- □ User-defined simulation steps
- □ Communication Interface updates
  - Flexible Ethernet port selection
  - EtherNET/IP protocol full support
- □ HIL Connect Interface improvements

	***
Typhoon HIL Control Center 2024.1	Typhoon HIL
$\begin{array}{c} \downarrow \\ \downarrow \\ \hline \\$	Typhoon HIL Control Center
C° F. S	Version 2024.1
Co 😰 🔊	AND 2559 9

# **ISO 15118-20 EVCC component**

Expand your ISO 15118-2 test coverage with new V2G functions

- □ Bidirectional Power Transfer: support for V2X (V2H, V2G, V2V)
- Dynamic control mode support
  - Both vehicle-driven and infrastructure-driven charging control supported
- □ Stronger data security
  - TLS encryption according to TLS 1.3 always required
- □ Multi-contract handling
- □ DC and DC-BPT energy service support



Connection options			Charg	e parameters				
Medium type:	PLC -			ltem name	Value	Expo	onent	Include
Connection type:	Secured connection *		1	Maximum Charge Power	0	0	*	
			2	Minimum Charge Power	0	0	*	
Payment			3	Maximum Charge Current	0	0	-	
Payment option:	Contract ~		4	Minimum Charge Current	0	0	-	
			5	Maximum Voltage	0	0	-	
Certificates			6	Minimum Voltage	0	0	-	
Import folder with certificates:	Choose folder		7	Maximum Energy Request	0	0	*	
Imported folder path:		Absolute 👻	8	Minimum Energy Request	0	0	*	
Energy service			9	Maximum V2X Energy Request	0	0	Ŧ	
Supported energy service:	DC -		10	Minimum V2X Energy Request	0	0	Ŧ	
			11	Departure Time	0			
Connector type:	Core *		12	Minimum SOC	0			
Control mode:	Dynamic 💌		13	Maximum Supporting Points	1024			
Meter Info			14	Target SOC	from input terminal			
Receive Meter Info	False 💌		15	Target Energy Request	from input terminal	0	-	
Nelding detection			16	Present Voltage	from input terminal	0	*	
Perform Welding detection:	V		17	Target Voltage	from input terminal	0	•	
/oltage accuracy								
Pre-charge voltage accuracy:	5	%						
Execution rate								
Execution rate:	100e-6							
ogging								
Logging level:	Off *							

Typhoon HIL

# **CHAdeMO EVCC component**

Expand the reach of your charging applications

- Digital communication protocol for fast DC charging of electric vehicles
- □ CAN Bus-based
- □ Full Electric Vehicle Charging Communication (EVCC) model
  - Electric Vehicle Supply Equipment (EVSE) testing according to the CHAdeMO protocol
- Adjustable EVCC charge parameters from component properties



#### **DC Constant Power Load**

Speed up DC system development

- DC Constant Power Load component with current limiting capabilities
- □ Capable of operating as both a power source or a power load
- D Power reference controlled from either SCADA or Signal processing logic



DC Constant Power Load

### **User-defined simulation steps**

Configure Circuit Solver with more flexibility

- $\Box$  Enable selection of custom simulation steps beyond standard ones (e.g. 1.25 µs)
- □ Enhance simulation fidelity by reducing the achievable simulation step
- □ Simulation steps between 200 ns and 20 µs supported
- □ Chosen time step must be an integer multiple of 50 ns

¥ Model settings						:	×
Hardware settings Ci	ircuit Solver settings	Signal Processi	ng settings	External tools	C Code Export	Diagnostics	1
Discretization method:			exact			•	
Simulation step:			2e-6			•	
Calculation method:			constraint	matrix		•	

Hardware settings	Circuit Solver settings	Signal Processin	ng settings	settings External tools C Code Export			
Discretization method	:		exact			•	
Simulation step:			1.25e-6			-	

# **Communication interface updates**

More options for your communication tests

- □ Flexible Ethernet port selection
  - OPC UA Server component can now utilize any available Ethernet port for 4th generation HIL devices
  - This allows for creating separate networks on a single HIL device



C UA Server from librar	y core	
OPC UA configuration:	config1	
Ethernet port:	1	
	2	
Execution rate:	3	
	4	

- □ EtherNET/IP protocol full support
  - EtherNET/IP Server component now available
  - EDS file import used for component parametrization
  - Added support for explicit message transfer

	EtherNET-IP Server	$\times$								
	EDS import									
EtherNet/IP	Import EDS file: Choose file									
	Execution rate									
	Execution rate: 100e-6									
	Device configuration									
	Classes File Information Device Information									
	Class Instances									
EtherNET-IP Server										
	ОК	Cancel								

# **HIL Connect Interface improvements**

Configure your HIL BMS Interface in minutes

- HIL BMS Interface now available as a configuration preset
- □ Native support added for the following hardware modules:
  - Cell Emulator Card
  - CAN Resistor Emulator Cards
  - BMS Digital Card
  - BMS Analog Output Card



X

The HIL Connect Interface component represents an interface between the simulated model (running on a HIL Device) and the HIL Connect Os. You can choose a HIL Connect toof. 'Specific', a "Configuration Code" property will appear where you can enter a specific configuration code from the label on the back of your HIL Connect device. To apply a new configuration, you must click the "Apply" button. Depending on which connector (along with its dedicated pin) is selected, different signals can be sent to appropriate outputs. For analog and digital inputs, appropriate internal probes and digital probes are created. Each input terminal (which is created for every selected connector) requires a vector input whose length depends on the number of pins on the connector (For example, Digital and Analog outputs require a vector of length 8, and High Voltage Outputs require a vector of length 4). When signal chooser is used to send measurement to appropriate outputs. Values of all analog signals fed to the input terminals of this component should be equal to the expected value at the output of the HIL Connect. For example, if a 100 V value is needed at the High Voltage Output of the HIL Connect, the value of the provided signal in the model should be 100.										
	HIL System Parameters	Slot A	Slot B	Slot C	Slot D	Slot E	Slot F	Slot G	Slot H	
	HIL Device ID:	IL Device ID: Universal								
	HIL Connect Configuration:	BMS			Apply					
	Execution rate:	Specif	ic	s						