

## 2023.3 Software Release Highlights

- CAN Bus protocol over CAN FD controller
- OCPP protocol in HIL SCADA
- Additional features
  - PWM modulator sawtooth carrier
  - PTP synchronization for IEC 61850 SV
  - HIL Connect Interface component



### **CAN Bus protocol over CAN FD controller**

#### Make the most of your CAN ports

- CAN FD ports can now be utilized for regular CAN Bus protocol
- Extend CAN bus capacity from 2 to 4 controllers on a single HIL606 device
- Reduced testbed cost for ECU network testing

# CAN Bus Receive CAN controller CAN controller: CAN1 CAN2 Configuration import CAN FD1 CAN FD2 Diraiog wirndow

| Compor             | nent (CAN    | Setup) pr   | operties         |              | ×      |
|--------------------|--------------|-------------|------------------|--------------|--------|
| CAN Setup fr       | om library ' | 'core'      |                  |              |        |
| This block device. | defines CA   | N controlle | r settings for t | he connected | HIL    |
| General            | CAN1         | CAN2        | CAN FD1          | CAN FD2      |        |
| Specify bit        | timing valu  | ues for CAN | FD1: Auton       | natic 🔻      | ·      |
| CAN FD1 b          | aud rate:    |             | 50000            | )            | bits/s |
| CAN FD1 o          | ontroller e  | xecution ra | te: 10e-3        |              | s      |
| Help               |              |             | ОК               |              | Cancel |

### **OCPP protocol in HIL SCADA**

Expanded support for EV charging communication

- HIL SCADA can now communicate with EV fast chargers
- Can runs in Standalone HIL SCADA without using HIL device
- Based on OCPP Python implementation by <u>The</u>
   <u>Mobility House</u>
- Test site-level interoperability, coordination and cyberattack mitigation for fast chargers

| ile Model Panel View Help  |  |                    |       |   |                                      |
|--|--|--------------------|-------|---|--------------------------------------|
| 6 6 6 6 6 6 6 6  | E C E A C E 4 6 5 6 6 6 6  | 回兴                 |       |   |                                      |
| Nany RM  |  | Model Settings     |       |   | 0                                    |
|  | - testmodelocpp16.cus *(unsaved Panel) X   | \$ \$ \$           |       |   |                                      |
| Core   | ACTIVE   | <b>~~~</b> ~~      | 0     |   |                                      |
| - 🖿 Action   |  | find component     | ×     | ÷   | ÷                                    |
| Macro     Gopp test  |  | - 🖿 Model          |       | s   |                                      |
| Text Box   |  | †å So<br>▼ 🛅 Outpu |       | ls  |                                      |
| 📼 Combo I  |  | * 🖻 An             |       |   |                                      |
| Check Bo   |  |                    | HIL O |   |                                      |
|  |  | - 🖻 Dig<br>+J      | HIL 0 | puts  |                                      |
| Pan Mod  | v<br>b   | Model Setti        |       | space Exp   | pl                                   |
| issage Log   | · · · · · · · · · · · · · · · · · · ·  |                    |       | History   |                                      |
| <pre>meter_value : [{'timestamp': '2023-07-10T0:07:44Z' meter_value : [{'timestamp': '2023-07-10T0:07:45Z' meter_value : [{'timestamp': '2023-07-10T0:07:47Z' meter_value : [{'timestamp': '2023-07-10T0:07:50Z' meter_value : [{'timestamp': '2023-07-10T0:07:51Z' meter_value : </pre> | <pre>, 'sampled_value': [{'value': '1'}]}] , 'sampled_value': [{'value': '1'}]}] , 'sampled_value': [{'value': '1'}]}] , 'sampled_value': [{'value': '1'}]}] , 'sampled_value': [{'value': '2'}]}] , 'sampled_value': [{'value': '3'}]}]</pre> |                    |       | Initializat<br>Initializat<br>Initializat<br>Initializat<br>Initializat<br>Initializat<br>Initializat | tion<br>tion<br>tion<br>tion<br>tion |

#### **HIL Connect Interface component**

Configure your model for your HIL setup in one place

- □ Supports the following HIL Connect configurations:
  - Universal
  - Specific configurations defined by Configuration Codes
- Easily configurable (IO mapping and scaling are handled by the component)

|   | Component (HIL Connect Interface1) properties   |
|---|---|
|   | HIL Connect Interface from library 'core'   |
|   | The HIL Connect Interface component represents an interface between the simulated model<br>(running on a HIL Device) and the HIL Connect IOs.<br>You can choose a HIL Connect configuration in the "HIL Connect Configuration" property. By<br>choosing "Specific", a "Configuration Code" property will appear where you can enter a<br>specific configuration code from the label on the back of your HIL Connect device. To apply<br>a new configuration, you must click the "Apply" button.<br>Depending on which connector (along with its dedicated pin) is selected, different signals<br>can be sent to appropriate outputs.<br>For analog and digital inputs, appropriate internal probes and digital probes are created.<br>Each input terminal (which is created for every selected connector) requires a vector input<br>whose length depends on the number of pins on the connector (For example, Digital and<br>Analog outputs require a vector of length 8, and High Voltage Outputs require a vector of<br>length 4).<br>Values of all analog signals fed to the input terminals of this component should be equal to<br>the expected value at the output of the HIL Connect, the value of the provided signal in<br>the model should be 100. |
|   | HIL System Parameters         Slot A         Slot B         Slot C         Slot D         Slot E         Slot F   |
|   | HIL Device ID: 0  |
|   | I/O Position: Universal   |
|   | HIL Connect Configuration: Specific Apply   |
|   |   |
|   | Configuration code: J1JU0KQ0JT0KE0KG0   |
| J | Configuration code:     J1JU0KQ0JT0KE0KG0       Execution rate:     100e-6  |
| J |   |

HIL Connect Interface

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XAX01

#### **Additional features**

Test your models even more precisely

- □ PWM modulator sawtooth carrier
  - PWM modulator now supports both triangular and sawtooth carrier signals
  - Sawtooth carrier now runs on FPGA, no need to model it in Signal Processing and utilize ARM CPU
- □ PTP time synchronization for IEC 61850 SV
  - Improved Process bus testing capability
  - Supported on 4th generation devices

| Multi-channel PWM m<br>KHz and dead time ge                              |                              | ar carrier from 100 | Hz up to 500 |
|--|------------------------------|---------------------|--------------|
| operates at the device<br>Component outputs a<br>device's digital output | cy.<br>igital signal map and | n a dedicated hardw |              |
|  |                              |                     |              |
| General Extras   |                              |                     |              |
| General Extras   | le                           | •                   |              |

| General      | ASDU   | J Signal Q | Quality |     |     |   |    |
|--------------|--------|------------|---------|-----|-----|---|----|
| svID:        |        | ExampleSVM | essage  |     |     |   |    |
| confRev:     |        | 1          |         |     |     |   |    |
| Synchroniz   | ation: | Remote     | •       |     |     |   |    |
| I scaling fa | ctor:  | 1000       | I ty    | be: | int | • | Ti |
| V scaling fa | actor: | 100        | V ty    | pe: | int | • |    |





## Learn More

- Visit: <u>https://www.typhoon-hil.com/products/2023-3-</u> <u>software-release</u>
- Contact Us: <u>info@typhoon-hil.com</u>

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