

# Variable solutions for the best test results-HIL SYSTEMS



## Added Comfort and Safety for Every Road User

When it comes to driving in traffic, one thing is paramount: Advanced driver assistance systems need to function in every conceivable traffic scenario. Executing the right maneuver at the right time is key. Demand for advanced driver-assistance systems (ADAS)—those that help with monitoring, warning, braking, and steering tasks—is expected to increase over the next decade, fueled largely by regulatory and consumer interest in safety applications that protect drivers and reduce accidents. The best way to test advanced driver assistance systems is in virtual prototypes – as early as possible.

### Features:

- Maneuver-based scenarios with user-defined event criteria
- Configurable traffic object behavior
- Environment, road and body sensors
- Virtual cameras and Video Data Stream (VDS)
- Test Manager for automated testing of comprehensive catalogs
- Extendable with models (Simulink, C-Code, etc.)



IPG is delighted to support you through the hardware-in-the-loop stage of your development process. This is a critical phase for component and system testing where you can employ our powerful HIL systems to facilitate the best technical development of your systems, taking them towards a higher level of maturity.

### System at a glance:



## CarMaker®

## TruckMaker®



### Main Application Areas:

- Energy efficiency, emissions & performance investigation
- Powertrain concept and control analysis and testing
- Vehicle thermal management layout and optimization

### Key Applications:

- Engine and transmission development and optimization
- Real Driving Emissions (RDE) investigation
- Real world energy consumption
- Virtual electrification/hybridization
- Durability testing
- Powertrain/Engine ECU calibration and testing
- Operating strategy and driver behavior investigations

### Features

- Real-time simulation environment for setup of virtual vehicle prototypes with conventional, hybrid and full electric powertrains
- Easy to use full vehicle models including data set generator for all vehicle classes
- Comprehensive and tunable driver model with artificial intelligence (IPGDriver)
- Representative road, traffic and environment models
- Road data import (GPS- and map-based)
- Functional Mock-up Interface (FMI)
- Open interfaces to third-party tools like navigation systems, DoE tools and PLM systems