

# Hybrid and electric powertrain systems



## DESCRIPTION

### **Complete electric vehicle development projects**

Applus IDIADA is full service engineering and testing partner for electric and hybrid vehicle development projects. Some examples of vehicle projects include:

- Light electric truck conversion
- E-born3 clean sheet vehicle development
- Electric AWD vehicle with 4 EMs for torque vectoring
- Electric scooter development
- Lightweight vehicle development

Also we provide partial development projects such as:

- Concept studies
- Component specification and supplier management
- Electric scooter development
- Lightweight vehicle development
- Development of drive control and energy management software
- E-motor / HEV powertrain testing and calibration
- First run and validation of the vehicle
- Charger and charger interface integration

### **Charger testing**

*CHAdeMO charger and mode 4 compliance testing*

Testing with a battery simulator enables:

- Abnormal failure testing
- Different voltage and power levels
- Simulated battery can be set "empty" immediately, repeated testing possible DC

*Onboard charger testing*

Communication tests, thermal stability, performance, efficiency, electric safety using battery simulator.

EVSE (*charging station*) mode 3 compliance testing

With 9kW three-phase A/C load checks of pilot states, PWM signals, normal start/stop, abnormal failure and malfunction