



AVL DRICON™ – Vehicle Driving Robotic System

High Precision in Every Motion

THE CHALLENGE

Testing on different testbeds is an invaluable tool in automotive engineering and has become a cornerstone for vehicle development, safety, and reliability testing to achieve homologation. Obtaining accurate data, and thus valuable insights, requires testing through complex driving maneuvers and cycles, which can be challenging. A crucial requirement is ensuring highly repeatable and accurate driving maneuvers for efficient and reliable testing and validation.

THE AVL SOLUTION

DRICON is a standard robotic system for computer-controlled driving of passenger cars and light commercial vehicles. It allows repeatable and accurate control of the brake and throttle inputs (static, dynamic), and is modular in design and simple to install. Advanced in-vehicle software reduces overall testing and validation efforts, coupled with a driver model that ensures consistent and human driving behavior in all testing environments.

THE ADDED-VALUE

- **Stand-alone system (modular configuration)**
- **Fast and simple installation as well as set-up**
- **Highly repeatable and accurate control of brake and throttle inputs**
- **Reliable reproduction of road driven measurements with electrical multipurpose interfaces (SENT, analog, PWM) to accelerator pedal/ECU**
- **Driving and automation of free definable maneuvers (event and time based)**
- **24/7 automated and unmanned running**
- **Industry-leading driver model to ensure representative human driving styles across all test environments (SiL, HiL, and testbed)**
- **Versatile Applications: BEV range tests, endurance testing, catalyst load tests, PHEV/HEV charge depletion testing, emission homologation certification**

THE WORKFLOW

1. Test creation of the upcoming test in office and transfer to the test PC with the DRICON Software installed.
2. Installation of the DRICON actuators and/or electrical connections to accelerator pedal/ECU in the workshop.
3. Vehicle installation on the testbed including connection of the actuators to the DRICON control units.
4. Execution of the test (e.g.: BEV range test) directly from the test PC from testbed automation system with appropriate CAN interface to DRICON.

TECHNICAL SPECIFICATIONS

Total System Weight	20kg approx.
Operating Temperature	-40°C ~ 60°C
Operating Voltage	AC~100-230V; DRICON base unit also DC 12-24V
Control Modes	<p>Selected examples of available control modes:</p> <p>v/alpha - Vehiclespeed ramp via Dyno / accelerator pedal ramp</p> <p>RG/alpha - Roadgradient ramp via Dyno / accelerator pedal ramp</p> <p>n/T - Enginespeed ramp via Dyno / Torque ramp via accelerator pedal</p> <p>n/X - Enginespeed ramp via Dyno / X ramp via accelerator pedal</p> <p>v/T - Vehiclespeed ramp via Dyno / Torque ramp via accelerator pedal</p> <p>v/X - Vehiclespeed ramp via Dyno / X ramp via accelerator pedal</p> <p>RG/n - Roadgradient ramp via Dyno / Enginespeed ramp via accelerator pedal</p> <p>RG/v - Roadgradient ramp via Dyno / Vehiclespeed ramp via throttle pedal</p> <p>RG/F - Roadgradient ramp via Dyno / DynoForce via accelerator pedal</p> <p>RG/a - Roadgradient ramp via Dyno / Acceleration via accelerator pedal</p>
Speed Control Accuracy	Static: +/- 0.2kph Dynamic: +/- 1kph, +/- 1s
Vehicle Stop/Start Actuation	No
Installation	Fast, simple & modular installation
Operating System	Win10 or above
Interfaces	<p>CAN interfaces (to vehicle, to testbed, to actuator and 2 spare CANs)</p> <p>Electrical multipurpose interface (SENT, analog, PWM) to accelerator pedal/ECU</p> <p>AVL iGEM interface for cycle driving</p> <p>AVL CAMEO interface to run DOE tests</p>
Driver's Aid	Cycle visualization via GUI
Human Drive Style Emission and Mileage	Yes
Possible Configurations	<p>DRICON SW + DRICON base unit + drive-by-wire</p> <p>DRICON SW + DRICON base unit+drive-by-wire + actuator (for brake) + actuator control unit</p> <p>DRICON SW + DRICON base unit + actuator (for brake & throttle) + 2x actuator control unit</p>

THE COMPONENTS



DRICON software



actuator for brake



actuator for brake and throttle



DRICON base unit+ actuator control unit



drive-by-wire

