AUTOMOTIVE TRAINING STAND FOR CAR ELECTRONICS

A6 | Product number MSAE01

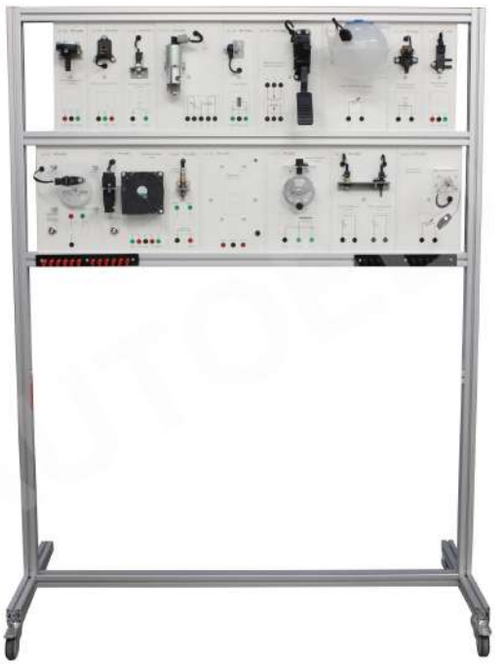
Training stand designed for hands-on education in automotive electronic systems. It includes multiple removable modules, allowing students to individually test, measure, and analyze a wide range of automotive sensors and actuators. The stand provides a controlled environment for learning signal processing, sensor calibration, and troubleshooting electrical faults.

Specifications

- Includes 16 different sensor and actuator modules, such as Hall sensor, knock sensor, mass airflow meter, and fuel level sensor.
- Modules can be detached for independent analysis and measurement.
- Allows real-time signal monitoring using diagnostic tools such as oscilloscopes and multimeters.
- Enables simulation of faulty conditions for troubleshooting exercises.
- Supports both analog and digital signal analysis, teaching fundamental and advanced electronic control principles.
- Built on a sturdy and mobile stand for easy classroom integration.
- Sensor types:
  - Hall sensor
  - Accelerator pedal position sensor
  - Absolute pressure sensor
  - Knock sensor
  - Oxygen sensor
  - Oil pressure switch
  - Liquid level sensor
  - Differential pressure sensor
  - Air flow meter
  - EGR actuator
  - Limit pressure increase solenoid valve
  - Oil level and temperature sensor
  - Air mass meter
  - Engine temperature sensor / Air temperature sensor
  - Direction of rotation sensor
  - Fuel level sensor

Features

- Integrated resistors, capacitors, potentiometers, coils, and diodes for diverse measurement scenarios.
- Built-in transistor testing for PNP, NPN, N-Channel, and P-Channel MOSFETs.
- Manual switch, push button, and PJEZO signaler connection points for interactive circuit exploration.
- DC motor simulation for learning correct wiring sequences and operational principles.
- High-power PWM driver and manual voltage regulator for hands-on learning of advanced electrical techniques.
- Removable multimeter provided with each stand for accurate and reliable measurements.
- Lightweight, mobile design with both vertical and horizontal mounting options.



Value for Students

- Learn to measure resistor values across ranges from 1 ohm to 1 kohm, and decades of resistors from 100 ohms to 1 Mohm using manual adjustments.
- Gain hands-on experience with potentiometers, capacitors (10 nF to 10 µF), and coil inductance (4.7 µH to 10 mH) measurements.
- Explore diode characteristics, including rectifier, Schottky, Zener, LED, and photodiodes, through practical connections and testing.
- Understand transistor behavior with measurements of PNP, NPN, N-Channel, and P-Channel MOSFETs.
- Perform relay tests, visualize DC motor operations, and connect manual switches and push buttons for circuit simulations.
- Develop skills in using a multimeter for accurate diagnostics, eliminating the need for additional tools.
- Learn how to integrate and operate various lamps and phototransistors for electrical circuit studies.
- Explore pulse-width modulation (PWM) principles with manual high-power PWM drivers and voltage regulators.