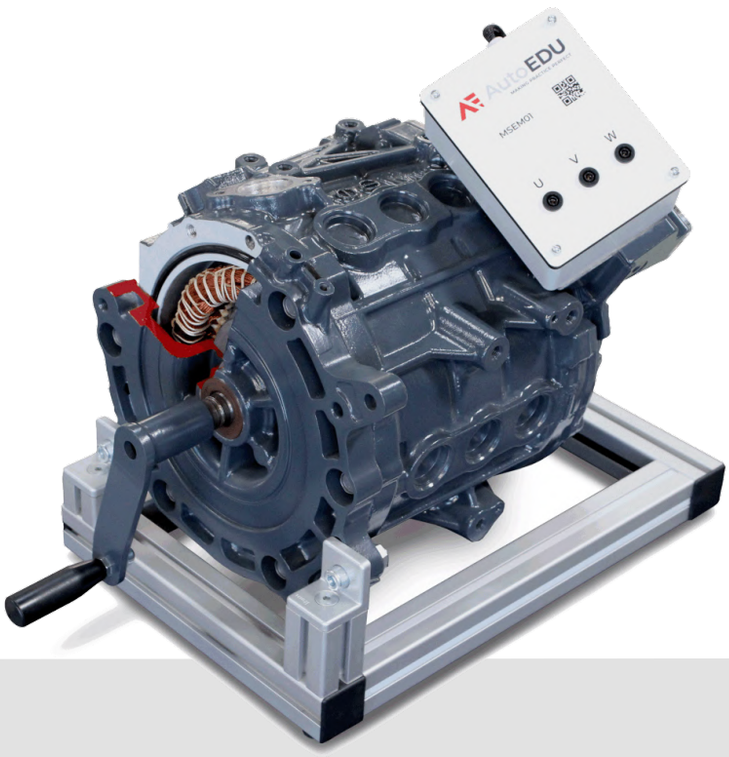
EV VEHICLE ELECTRIC MOTOR EDUCATIONAL TRAINER

L3

Product number
MSEM01

Manually operated educational trainer designed to demonstrate the principles of three-phase electric power generation. Built using an original electric motor from a Nissan Leaf EV, this unit allows students to simulate real-world electromagnetic induction by manually rotating the rotor. It combines mechanical interaction, waveform analysis, and clear structural visibility for comprehensive electric drive system training.

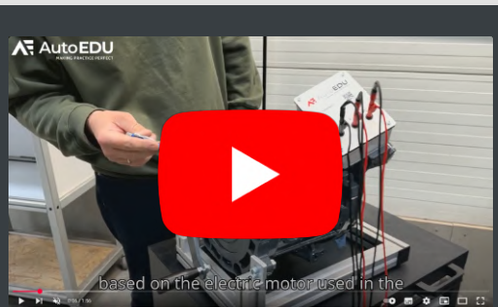


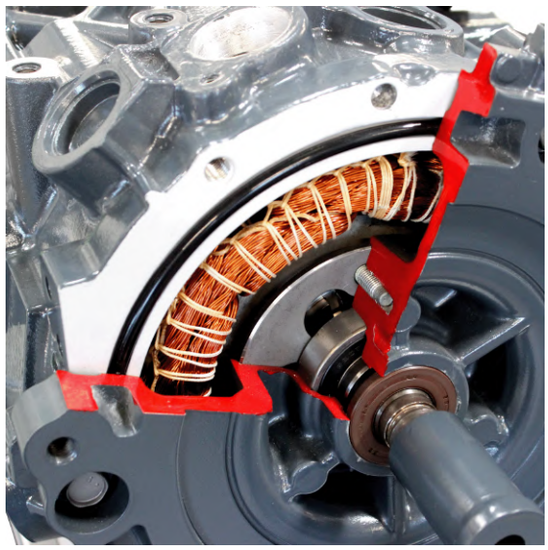
Features

- Manual crank for simulating rotor rotation and power generation.
- Integrated LED strip indicating power output through brightness and color change.
- Three-phase output terminals (U, V, W) for oscilloscope connection and waveform analysis.
- Cross-section view of rotor, stator, windings, and shaft components.
- Transparent protective cover over high-voltage terminals and connections.
- Fault simulation of damaged circuit for troubleshooting and diagnostic practice.
- Visible EV motor cooling paths.

Product Overview Video

A short video demonstrating the trainer's design, components, and key functions.



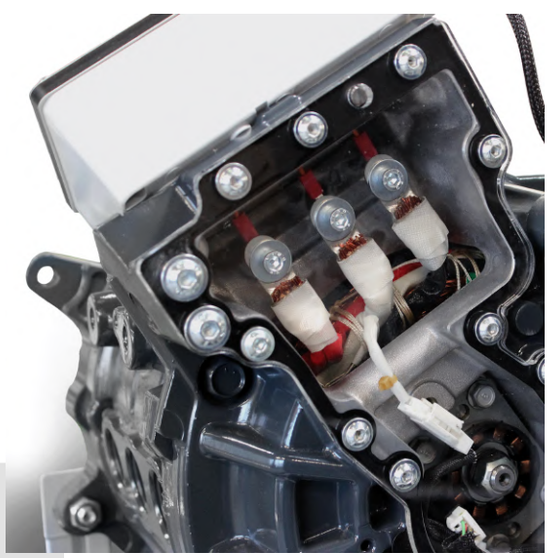


Value for Students

- Physically simulates how mechanical motion converts to electrical energy.
- Enables real-time observation of three-phase signal generation.
- Visualizes electrical output in response to user-controlled crank speed.
- Supports connection of standard diagnostic tools (oscilloscope, multimeter).
- Reinforces core concepts of EV motor structure and function.

Value for Instructors

- Clear demonstration of electromagnetic induction in a safe, non-powered format.
- Allows for waveform comparison between different crank speeds.
- Durable construction suited for repeated classroom use.
- Transparent design helps explain internal motor components and wiring.
- Supports structured experiments and practical lab tasks.



Specifications

- Motor Type: Nissan Leaf EV permanent magnet synchronous motor (PMSM).
- Simulation Type: Manual rotation with mechanical crank.
- Voltage Output: Low-voltage three-phase AC (non-powered, safe manual simulation).
- Terminals: U, V, W – 4mm safety socket type for measurement.
- Measurement Support: Compatible with oscilloscopes and multimeters.
- LED Indicator: Color-changing linear strip (visualizes relative power level).

Safety: Transparent polycarbonate cover for high-voltage terminal protection.

Frame: Aluminum profile with rubber feet for lab stability.

Dimensions: 700 x 500 x 450 mm (27.55 x 19.68 x 17.71 inch)

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