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### Hybrid and Electric Vehicles Trainer



#### **Hybrid and Electric Vehicles Trainer**

Hybrid and electric vehicles constitutes one of the most innovative and trail-blazing sectors of automotive technology. Aspects such as the exhaustion of fossil fuels and global climate change have brought the topic to the forefront of public opinion. Research developments have advanced to the point where the global market breakthrough for electrically powered vehicles is inevitable in the very near future. Current developments are showing that politicians as well as vehicle manufacturers have seen the signs of the times and authorisation of electric vehicles is increasing throughout the globe. At the same time, such developments are opening up the need for mechanics specifically trained in this new and challenging technology. With electric power, electrical engineering and electronics will finally be the overwhelming aspect in vehicles.

## Fuel Cells Trainer



### Fuel Cells Trainer

The concept of using fuel cells in a vehicle is an alternative to the use of purely electrical vehicles with range extenders. It should be noted that a fuel cell powered vehicle is not considered to be a hybrid system. A fuel cell is merely an energy converter which can also store electrical energy. The idea nevertheless represents a promising alternative since the relatively long range it offers is an impressive factor.

## UniTrain



### UniTrain

Please choose your product:

## Fuel Cells



### Fuel Cells

Motorized vehicles (cars, trucks) produce large quantities of CO<sub>2</sub>. Despite considerable advancements, the internal combustion engine still has very high CO<sub>2</sub> emission levels. It is therefore no surprise that engineers are seeking alternative drive concepts here. In this training system students get to know and understand this fascinating technology. One interesting drive concept involves the use of electrical drive motors in conjunction with a fuel cell.

### List of articles:

Pos.	Product name	Bestell-Nr.	Anz.
1	UniTrain "Fuel cells in motor vehicles"	CO4204-6M	1

### Additionally required:

The UniTrain-I system is a computer-based training and experimentation system for vocational and further training and education in the areas of basic and advanced electrical engineering and electronics. Its multimedia courses combine cognitive and hands-on (haptic) training units into a comprehensive unified concept, specifically enabling students to acquire skills in the handling of equipment. Starting with basic courses and advancing to cover a huge variety of electrical engineering and electronics topics, a wide range of multimedia courses is available for study in school or in professional and advanced training courses. The UniTrain-I system is completely self-contained and can be used anywhere at any time. The multimedia learning environment the system provides high degrees of motivation, and maximum learning effectiveness in laboratories, at work or at home. It thus becomes a guarantor for effective and efficient study. Access to the multimedia courses and control of virtual instruments and experiment hardware is provided by LabSoft, the system's open experiment platform. The courses teach the theoretical building blocks and provide experiments to be carried out using the course-specific experiment hardware. The intelligent measurement interface supplies the analog and digital measuring and control I/O and represents, in combination with the system's virtual instruments, a high quality item of laboratory equipment. In addition, students' progress can be monitored and electronically documented on the basis of fault finding experiments with faults simulated by the hardware as well as tests of knowledge. The electrical and electronic circuits needed for the experiments are connected to the system with the aid of an Experimenter module.

<b>Pos.</b>	<b>Product name</b>	<b>Bestell-Nr.</b>	<b>Anz.</b>
2	<b>UniTrain Interface with virtual instruments (basic VI)</b>	CO4203-2A	1
3	<b>UniTrain measurement accessories, shunts and connection cables</b>	CO4203-2J	1

### Additionally recommended

<b>Pos.</b>	<b>Product name</b>	<b>Bestell-Nr.</b>	<b>Anz.</b>
4	<b>UniTrain storage case for experiment board</b>	SO4203-2V	1