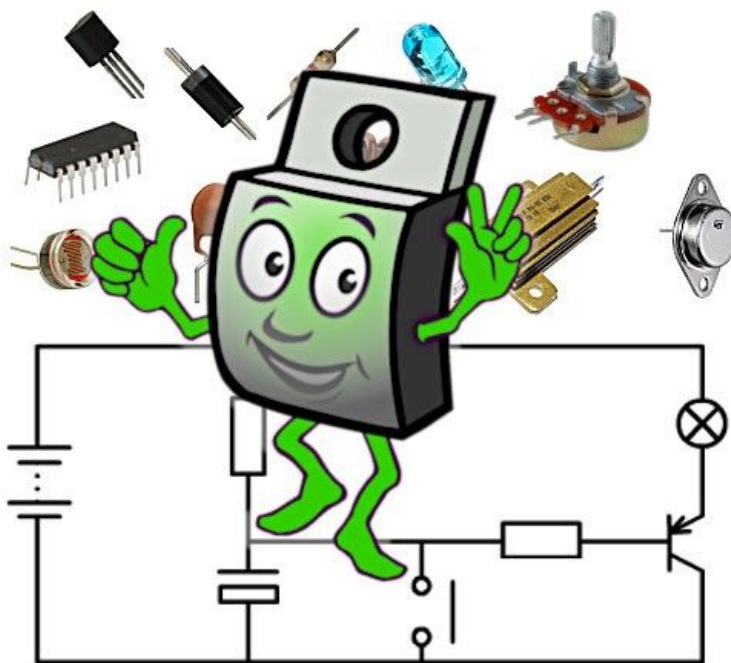




Product Sheet - Prodiags Automotive Online Training Module

Electronics

Electronics and electrical components are a central part of electric circuits. Resistors, diodes, leds, thyristors, transistors and microcircuits can be found almost everywhere in a vehicle. A mechanic has to understand the function of the components and circuits, to be able to perform troubleshooting.



- Electronics basics
- Component properties
- Integrated and programmable circuits
- Common electronic components and their functions
- Voltage divider circuits
- Voltage stabilising in electronics
- Rectifying alternating current
- Amplification circuits
- Delay and timer circuits

Language: English

SKU: 040.0140.014.000.EN

LEARNING OUTCOMES

After this study, you will be familiar with the basic electronic components and their functions. You can utilise your knowledge in interpreting electric circuit diagrams and measurement results, and you will also be able to understand the vehicle's sensor and control circuits' function.

Certificate

After completing your module of study and approved completion of the exercises, you will be allowed to take the final exam. After completing the final exam, you can print a Prodiags certificate from your attainments register as proof of your expertise.



INTRODUCTION

Why this module?

With the help of electronics, vehicles electrical systems have become more complex and they are also programmable. When troubleshooting a vehicle, the mechanic faces multiple types of connections and electronics implementation. With this training module you will obtain knowledge that is widely applicable outside automotive technology.

What will you learn?

In this study, you will get familiarised with the components used in electronics, their properties and how they can be utilised. With detailed animations you get to control the function of the components, and you understand the controlling effects, such as the brightness of a light bulb, or how long it is illuminated.

In the last study of this module, common electronics circuits are covered. With the help of these, you can execute different sensor circuits, even out voltage fluctuations, amplifying a weak control signal to a strong actuator current or delay a components function.

Capacitor

A capacitor is a component that is able to store electrical energy. The function of a capacitor is similar to rechargeable battery, but with the difference in it's capability to charge up and release energy very quickly

Capacitors are used in timers, resonant circuits and interference protections. The capacitors ability to store electrical energy is described by capacitance, with the unit farad (F). The most common capacitors are so called ceramic and electrolytic capacitors.

Ceramic capacitors

Electrolytic capacitor

Electronic Basics

What is Electronics?

Electronics is a part of electricity, that is based on controlling the movement of the electrons. Controllability is based on materials that conduct electricity better than insulators, but not as good as conductors. These materials are called semiconductors. Desired features are acquired by mixing or layering different materials.

Can you work out which of the materials used in electronics are insulators, conductors or semiconductors?

	Insulator	Semiconductor	Conductor
Copper			
Iron			
Silicon			
Silver			
Rubber			
Germanium			
Gallium arsenide			
Glass			
Gold			

Delay Circuit

Delay and timer circuits are typically based on utilising capacitors. In the example, the capacitor is discharged when the switch is closed. When the switch is opened, the capacitor is charged. The charging is slowed down with a resistor connected in series.

PREREQUISITES

To get the best possible learning outcome, we hope that you have a basic knowledge in electricity. For studying electricity, we recommend the module(s):
Electricity

System Requirements

Internet connection and PC or laptop with browser.
Recommended screen resolution 1024 x 768 or higher.

Updates

We want to make sure that you always have the latest version of our product. Prodiags reserves the right to make real time updates and changes. This way you'll always have the best version, without extra fees.

Content Equivalence

This modules topics and objectives correspond in scope to a conventional 1 - 2 day training event. Once you have made your payment, you get immediate access to the content. You'll save time and money by not needing to travel.

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