GRUNER
SWITCH TO INNOVATIONS

GRUNER RELAYS

FOR THE DUAL-VOLTAGE VEHICLE CIRCUIT

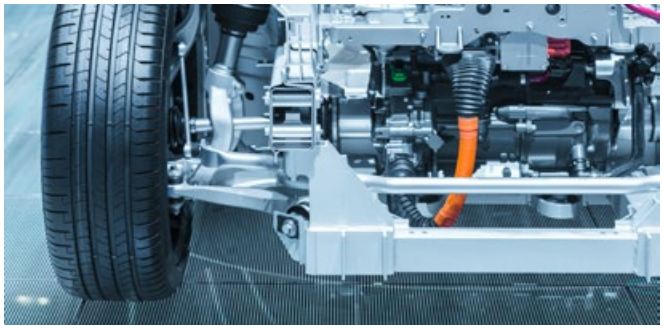
Since 2016, cars have had dual-voltage vehicle circuits because the 12 V system that was common until then was no longer able to cover the energ y requirements of an ever greater number of assistance and safety systems as well as comfort functions. However, this new 48 V technology presents challenging requirements to automotive electronics. The previously used 12 V relays are still required to switch the battery power supply, or to switch various areas of the vehicle circuit on and off, because despite the higher voltages now present in a vehicle, there is still a need for a 12 V vehicle circuit.

GRUNER
SWITCH TO INNOVATIONS

WITHOUT AN INERT GAS FILL

THREE TIMES AS ECONOMICAL

The galvanic isolation of power circuit and load circuit is crucially necessary to separate the potential safely in the event of a malfunction or a road traffic accident. For this purpose, the market has so far turned to isolating elements from the high-voltage sector. This is because, on a 48 V vehicle circuit, switch arcs constitute a problem. The high electronic potential could prevent a switch arc from being extinguished automatically, which could in turn cause damage to the vehicle or the relay. Relays for the 400 VDC sector have a very costly inert gas fill to suppress the ignition of arcs. Each relay has a permanent magnet inside, which is supposed to expand the arc with its field and extinguish it.



This is why Gruner has developed a relay specifically for the 48 V vehicle circuit, allowing this expensice and cumbersome design to be circumvented.

SHOCK-RESISTANT

WITH HIGH RESISTANCE TO SHORT-CIRCUITS

The 48 V relay functions without gas fill or magnetic suppression fixtures. Instead of this, defined contact distances and their fast, temperature-dependent opening speed ensures that the arc is extinguished. The contact module is based on a symmetrical design so that the direction of current flow is not an issue. This enables the relay to be used more flexibly than many other high-voltage devices. In addition, the contact position can be sensed. Using a separate sensor request, it is possible to establish it the relay is open or closed. The diagnosis potential can be sensed at several points on the contact

assembly. This makes it possible to determine quickly and reliably whether a fault is present.

COMPACT DESIGN

EFFICIENT AND EASY TO ADAPT

The Gruner 48 V relay is characterised by a very flexible design. For example, the adjustment of coil adaptation is very simple because the entire relay remains the same, and only the connector adapters are replaced. In addition, the relay only weighs 130 g instead of the 400 g that are common on conventional high-voltage relays. It is characterised by a flat and compact design, and it also saves on space in the battery or in the vehicle. In addition, the compact shape of the 48 V relay and its ease of integration make it three times more economical than conventional components from the high-voltage sector.

RELAY 850

RELAY 852