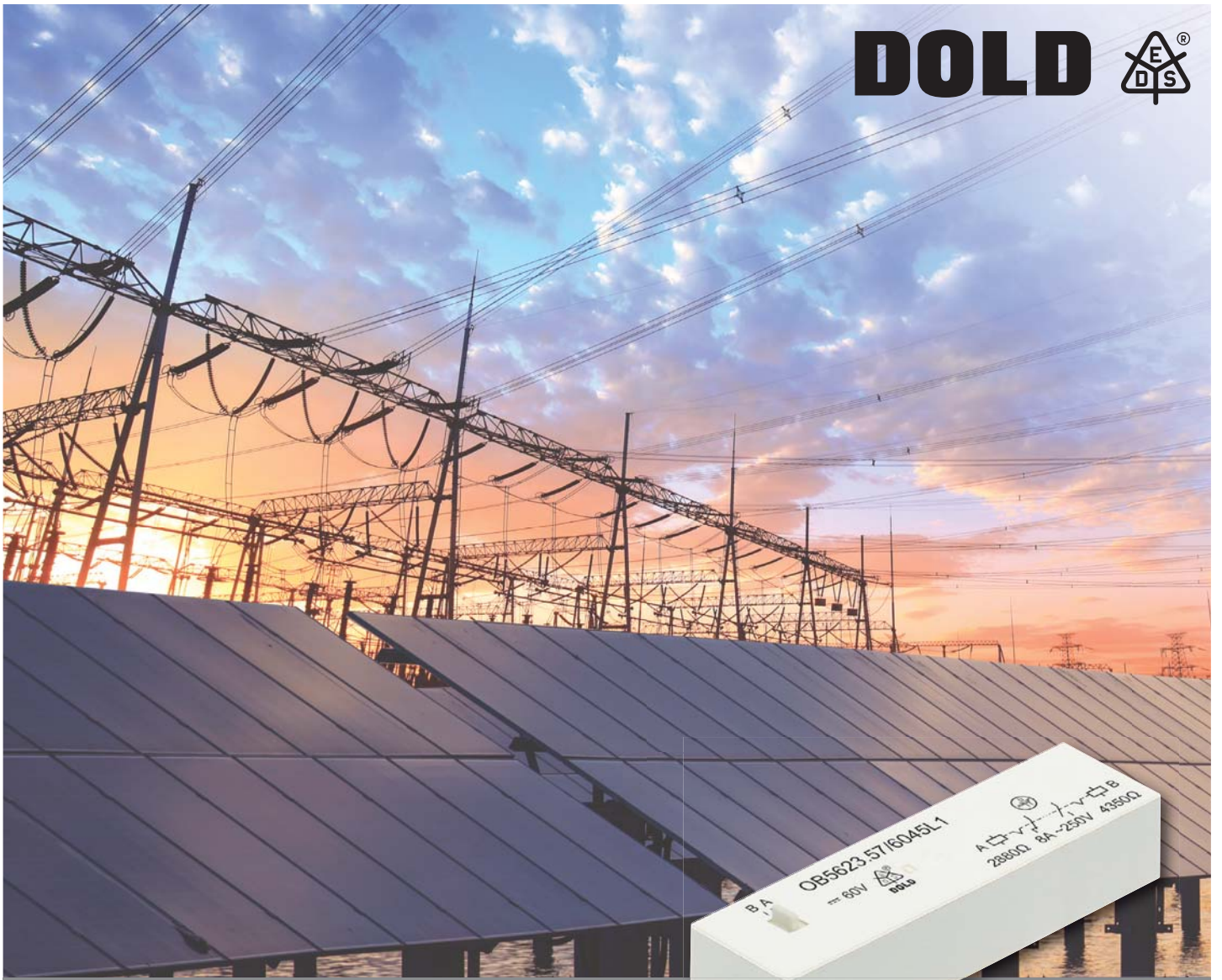


**DOLD**



Efficiency and reliability  
built in

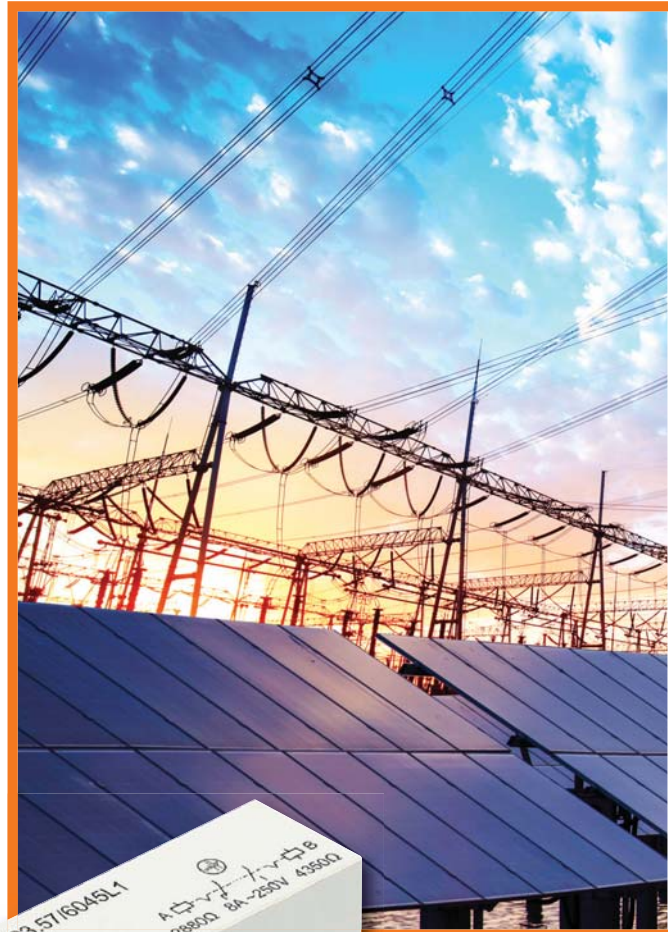
Technical contribution: Bistable switching  
characteristics with forcibly guided contacts

In recent years the end of electromechanical relays and their replacement by solid state relays has been consistently predicted. However, along with fast changing markets, electromechanical relays are evolving steadily and it is evident that they will remain essential in future technologies. Electric vehicles and their charging infrastructures require relays that can switch high currents and handle the galvanic isolation of the circuits. Controls for automation are becoming smaller but more and more powerful, thus requiring the miniaturization of the elementary relays to be used in their output assemblies. To save energy digital electric meters, so-called smart meters, count on efficient bistable relays.

What's more, relay manufacturers also create innovations for completely different markets and fields of application. The new elementary relay OB 5623 by Dold combines bistable switching characteristics with mechanical forcibly guided contacts compliant with DIN EN 61810-3. The benefits of such a relay are obvious: Energy efficiency combined with the reliable diagnosis of the switching position.

### Bistable switching characteristics

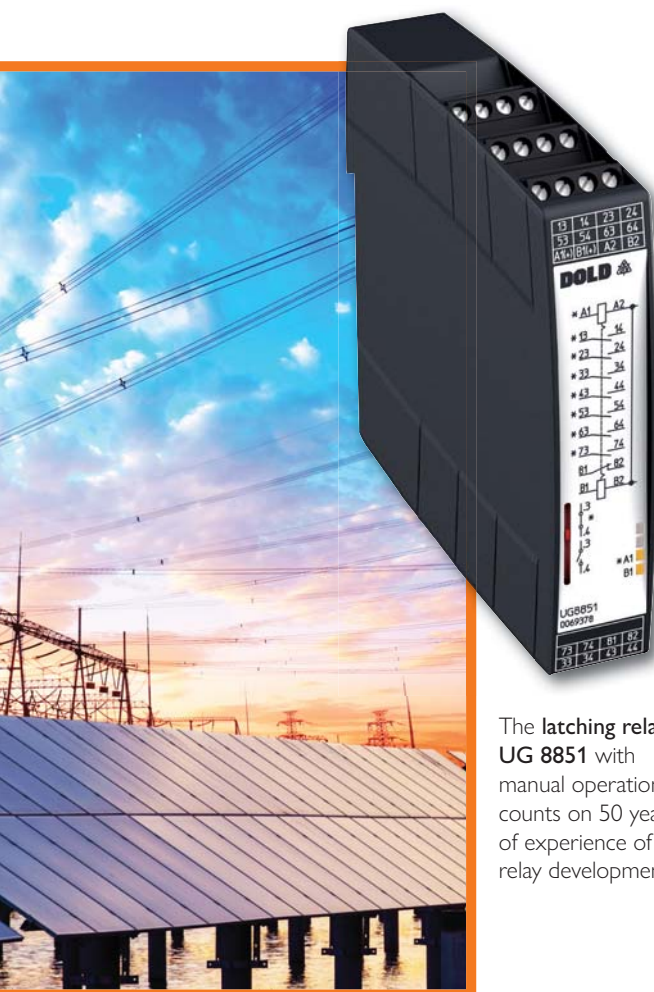
While monostable relays need permanent energy to maintain the operating position, bistable relays can adopt two stable switching positions without continuous power. Triggered by a short energy saving pulse, the relays keep the switching position adopted by the last operation and can hardly be surpassed in terms of energy efficiency. For this purpose, the elementary relay OB 5623 is equipped with two drive systems, one to transition into the operating position and one for the return from operating position into the neutral position. The relay's internal mechanism for the mechanical locking and saving of the switching position provides for relatively high contact forces and vibration resistance. Thus, users benefit from increased contact reliability and availability in their applications.



The **bistable relay OB 5623** offers forcibly guided contacts, thus ensuring the reliable diagnosis of the switching position.

## Mechanical forcibly guided contacts

With its eight contacts, the highly compact bistable relay OB 5623 includes a mechanical forcibly guided contact set compliant with DIN EN 61810-3. According to this standard, the relay is designed in such a way that break and make contacts cannot be in the same state for the lifetime of the relay. Due to the physical connection, the feedback contacts are open when the make contacts close. In this way, a reliable diagnosis of the switching position is allowed at any time. Especially with respect to remote monitoring and predictive maintenance, the energy-efficient relay meets the needs of the time, as it allows for surveillance and monitoring embedded into a control concept in a very simple way and without additional sensor systems.



The **latching relay UG 8851** with manual operation counts on 50 years of experience of relay development.

## Latching relays for switchboards in energy technology

Along with other uses, bistable elementary PCB solderable relays can be applied in energy technology solutions, e.g. if the latest switching position is to be kept in case the excitation is switched off or the supply fails. Switching devices known under the name of latching relays in the industrial switching technology are examples of such solutions (see picture 2). They convert short actuation pulses into a permanent function of the contacts. Whilst typically an overall width of 45 mm or more was needed for eight contacts in the customer's application, the latching relay UG 8851 significantly reduces the installation space in the control cabinet by using the elementary relay OB 5623. An operating lever at the enclosure front that mechanically interlocks into the switching mechanism of the PCB relay also allows the manual switching in test operation and indicates the current switching position.

## Conclusion

Bistable switching elements are an important element of the energy transition, especially as the technologies that count on regenerative energies need to operate in a highly efficient and at the same time economic way. The energy-saving actuation and low self-heating are essential benefits, making such relays core components in energy-efficient and battery-powered systems. More applications for such relays will come in the future, for example battery powered vehicles and systems. The future will not be able to do without these key components.

## The right relay - for every application

DOLD is one of the leading manufacturers in the field of PCB relays and offers suitable electro-mechanical relays for a multitude of application fields. The comprehensive product portfolio contains miniature relays, PCB relays and safety relays with forcibly guided contacts.

We will be happy to inform you about other PCB relays. Please contact us for further advice.



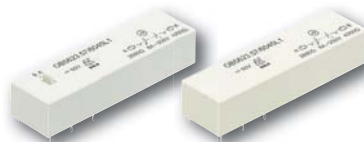
### Safety relays

Safety relays with forcibly guided contacts according to DIN EN 61810-3 are used in functional safety applications and are available in vertical and horizontal versions. With up to 8 mechanically forcibly guided contacts, different designs, contact materials and, if required also with partially equipped contact sets, we offer maximum flexibility.



### PCB relays

PCB relays, also known as plug-in/print relays, are used for galvanic separation of circuits as well as for signal adaptation and signal strengthening. Our vertical and horizontal designs enable perfect adaptation to your application.



### Bistable relays

Bistable relays can adopt two stable switching positions without permanent power supply. In this way, they keep the switching position adopted by the last excitement by means of a short energy-saving control pulse and can hardly be topped in terms of energy efficiency.



### Miniature relays

If it is necessary to switch heavy currents reliably in a small space and galvanic separation of control and load circuits is also required, there is no better answer than the power miniature relays.