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-10
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Contact Guard KOW-4.3



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1 General remarks

The Device KOW-4 features the monitoring of 4 independent contacts on their switching status as well as the detection of cable break and short circuit.

The various configurations of the Kow-4 differ with regard to the groupings of their fault-outputs S1 up to S4 and are realised by variable assignment of the link plug (Jumper J1, J2 and J3).

2 Principle of function

The outputs are designed as open-collector-circuits (NPN) and can be burdened with max. 200 mA. The Load has to be connected between the output terminal and the positive pole.

The fault outputs are normally connected to 0 Volt, in case of failure (short circuit or cable break) the fault-output assigned to the disturbed contact gets high-ohmic (opens).

The contact-outputs are high-ohmic on opened contact and change to 0 V (close) with closed contact.

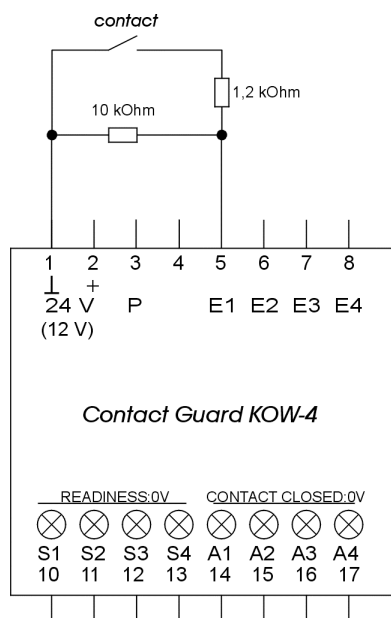
Fault- and operation-messages are indicated separately by light emitting diodes.

3 Operation

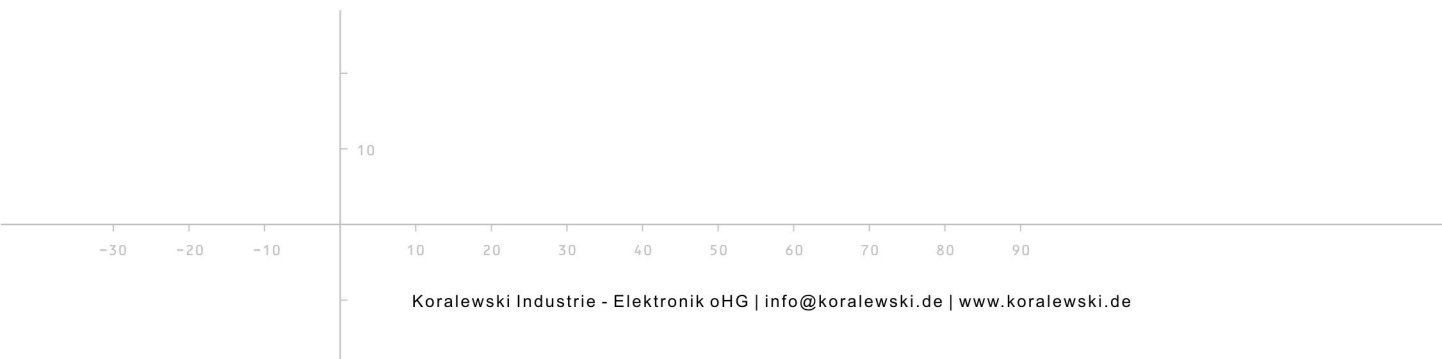
For the operation of the Kow-4, it is necessary to wire the contacts to be monitored with a combination of resistances. The resistors are to be connected directly to the contact to be monitored. Only in this way the power path will be controlled correctly.

3.1 Monitoring with the contact guard

The KOW-4 enables the independently monitoring of 4 contacts. The required connection of the contacts is shown on the following image at the example of one contact:



Picture 1: monitoring of a contact using the KOW-4



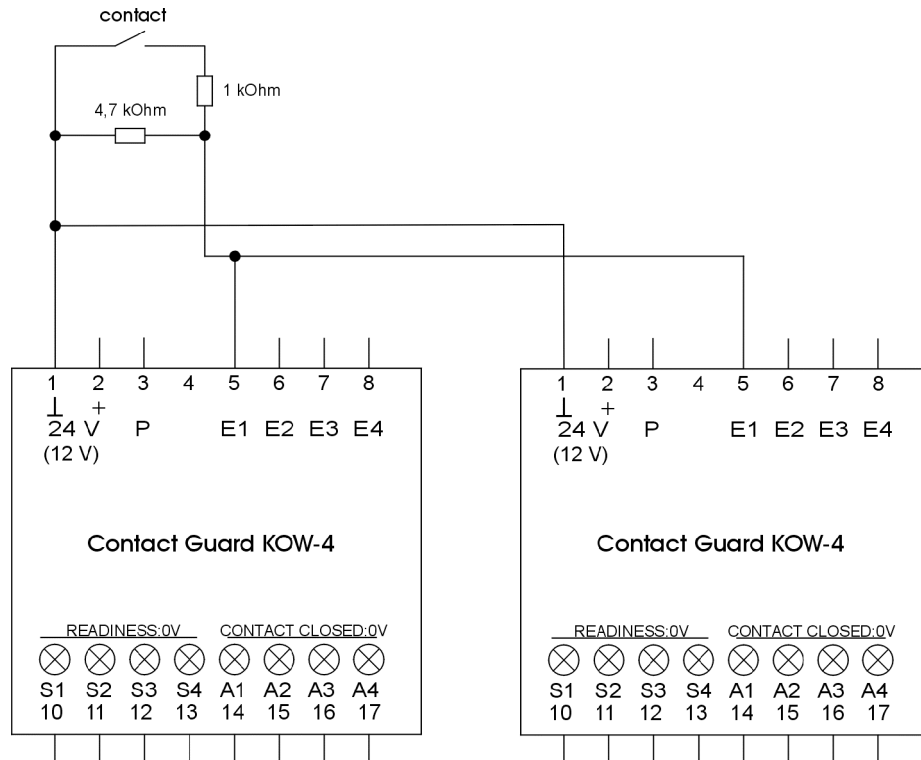


3.2 Operation of two contact guards at one contact

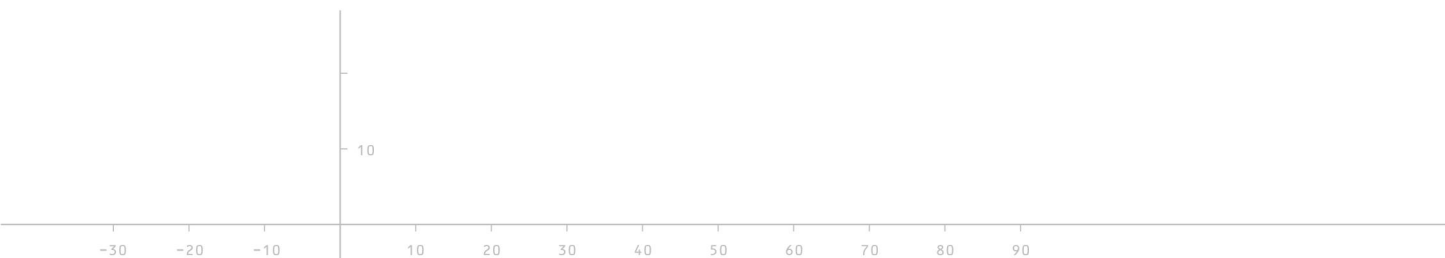
If two contact guards are needed on one contact, this will be possible, but:



For parallel operation of two contact guards the deviating wiring of the resistors to the contact is to observe!



Picture 2: parallel operation of two KOW-4





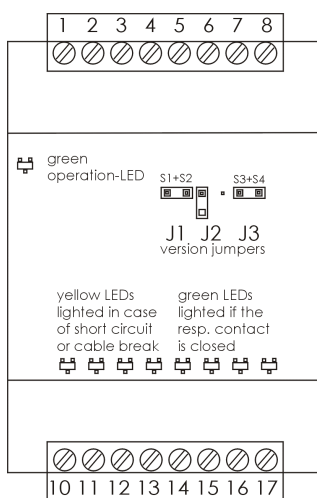
4 Configuration of contact guard outputs

No	Type	Jumper configuration			Function
		J1	J2	J3	
1	KOW-4 / A:	-	-	-	All fault-outputs operate separately.
2	KOW-4 / B:	x	x	x	One common fault-output for all contact-inputs E1 ... E4 (S1 to S4 interconnected).
3	KOW-4 / C: (Werkseinstellung)	x	-	x	One common fault-output for contact-inputs E1 and E2 (S1 and S2 interconnected). One common fault-output for contact-inputs E3 and E4 (S3 and S4 interconnected).
4	KOW-4 / D:	x	x	-	One common fault-output for contact-inputs E1, E2 and E3. S1, S2 and S3 are interconnected. The contact-input E4 affects S4.
5	KOW-4 / E:	-	x	x	One common fault-output for contact-inputs E2, E3 and E4. S2, S3 and S4 are interconnected. The contact-input E1 affects S1.
6	KOW-4 / P:	x	x	x	Several contact guards can be wired in parallel mode and operate with one common fault-output. All of the 3 jumpers on the circuit board are mounted and connected to terminal 3. Parallel hooked up KOW will be connected to each other on terminal 3.

5 Jumper J1, J2 and J3

By removing the lid, among others the following will be detected:

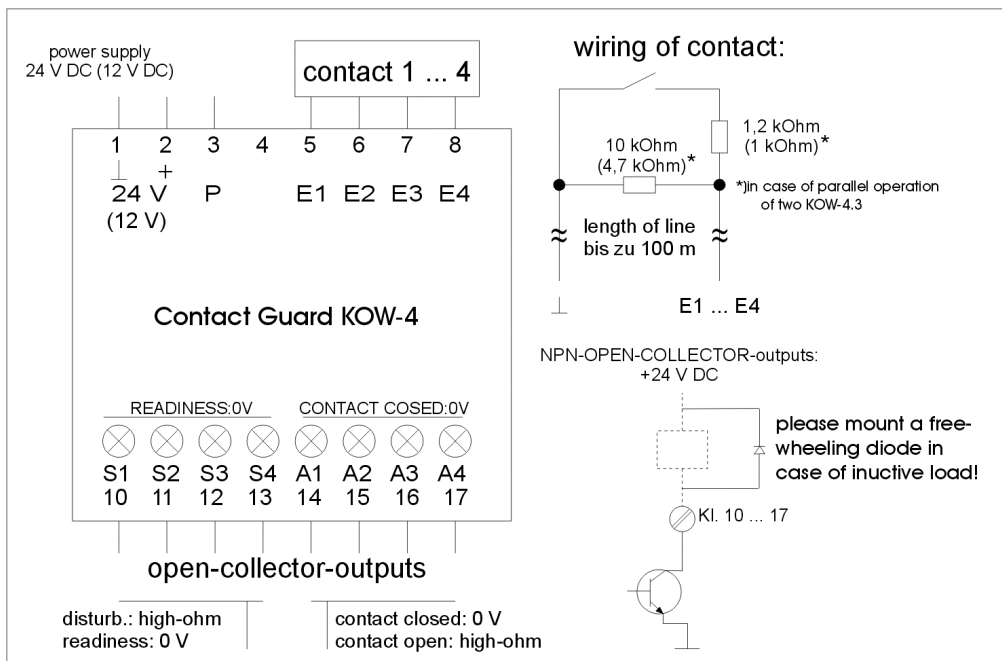
- the three version-jumpers J1, J2 and J3.
- the green operation – LED.
- the yellow fault – LEDs of the 4 contacts.
If these are lighted, either cable break or short circuit occurred at the respective input.
- the green contact indicating – LEDs.
If these are lighted, the respective contact is closed.



Picture 3: interior view



6 Connectors



Picture 4: connection diagram

7 Technical data



**Mounting and first commissioning only by qualified personnel.
Electrical connection in accordance to VDE 0160.**

Operating voltage:	24 V DC (20 ... 34 V) optionally: 12 V DC (12 ... 20 V)
Power consumption:	approx. 2 VA
Outputs:	Open-Collector, NPN (200 mA)
Control circuit:	Switching contact wired with 1,2 k and 10 k Ohm
Ambient temperature:	-20 ... +55 °C
Housing:	W / H / D : 55 x 85 x 110mm (35 mm – standard bar)

7.1 Ordering information

Contact Guard KOW-4.3

Part Number

24 V – version:

E1767

12 V – version:

E1790

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