

# KISSLING BI-STABLE RELAYS WITH INTERNAL CONTROL ELECTRONICS

## Series 31 / ENERGY

Our series 31 bi-stable power relay with internal control electronics is based on the Series 30 industrial relay and has all the same quality mechanical and electrical switching characteristics - but also features additional electronic functions.

This relay is particularly well suited for battery management and power distribution applications on commercial vehicles, buses, construction & agricultural vehicles, aircraft, ground support equipment and lift trucks.

Our robust design of our bi-stable relays provide a sealing rate of IP67 and IP6K9K (steam pressure cleaning) in accordance with IEC 60529 and DIN 40050-9. The series 31 includes power relays in nominal voltages of 12 & 24 V and nominal continuous amperages of 300 A. Contact voltages up to 250 VDC with magential blowout (>40 VDC).

### Electronic energy storage-control

The relay has only two control connections which make it possible to replace a standard monostable relay with a bi-stable relay providing the advantage of powerless holding.

The internal capacitor is charged during the switch-on process. When the power supply is removed, the capacitor discharges the power into the drop out coil, which therefore switches off the relay. The characteristics of a standard bi-stable relay requires resupply of energy to drop out the coil. The electronics are short-circuit protected and feature safety coil selection, reverse polarity protection and coil cancellation.

### KEY BENEFITS

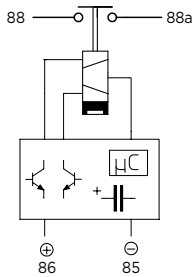
- Sealed housing meets IP67 and IP6K9K
- Robust design
- Variety of configuration options
- 6G shock and 4G vibration resistant
- “Energy” function for automatic shutoff in case of loss of power improves safety levels and reaction times in critical situations

### APPLICATIONS

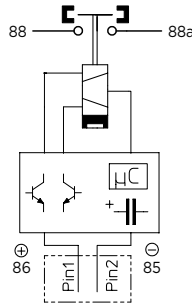
- Commercial vehicles
- Bus
- Lift truck
- Ground support equipment
- Construction and agricultural vehicles

## CIRCUITS

NO-Contact  
Standard type



NO-Contact Plugin connection /  
Magnetic blowout



## SPECIFICATION

Technical Data	
Temperature range	-40°C to +85°C
Protection	IEC 60529 & DIN 40050-9 - IP67 (0,2 bar, 1 min) and IP6K9K
Shock	6g / 11 msec
Vibration	4g / 50 - 2000 Hz
Thread sizes / Torque	M4 = 2.0 - 2.2 Nm   M10 = 15 - 20 Nm

Electrical Characteristics	
Min. Insulation resistance	100 MΩ
After live or environment	50 MΩ
Dielectric withstanding voltage	1050 VAC / 1 min at 50 Hz
Max. Contact drop, initial	150 mV
Contact drop after life test	175 mV
Continuous current	300 A
Overload	2400 A - 1 sec / 600 A - 20 sec
Quiescent current	Approx. 2 mA

Rated contact load	
Resistive load	50,000 cycles 300 A
Mechanical life	100,000 cycles

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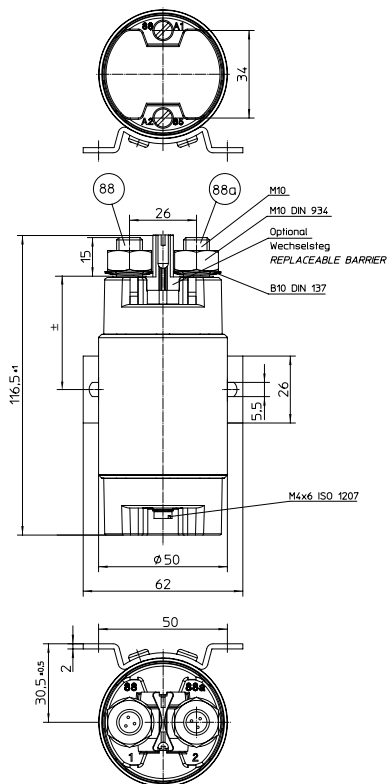
Series 31 / ENERGY

Coil Data	12 VDC	24 / 28 VDC
Voltage range	9-16 VDC	18-32 VDC
Nominal voltage	12 VDC	28 VDC
Pick up voltage max.	2.1 $\Omega \pm 20\%$	7.8 $\Omega \pm 20\%$
Drop out voltage min.	2.6 $\Omega \pm 20\%$	8.4 $\Omega \pm 20\%$

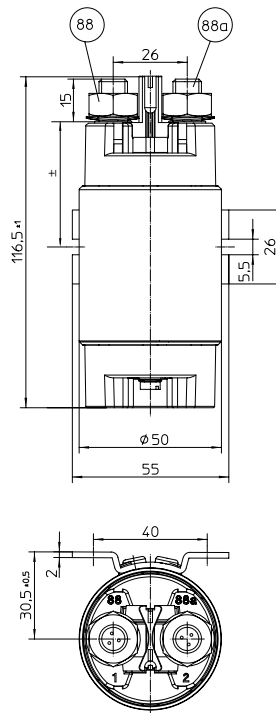
Operating times	
Min. pick up time	approx. 500 msec
Bounce time	max. 5 msec
Min. drop time	approx. 100 msec
Wire Section	min. 95 mm <sup>2</sup> / 0.147 sq.inch / AWG 4-0
Mounting position	Optional

## TECHNICAL DRAWINGS

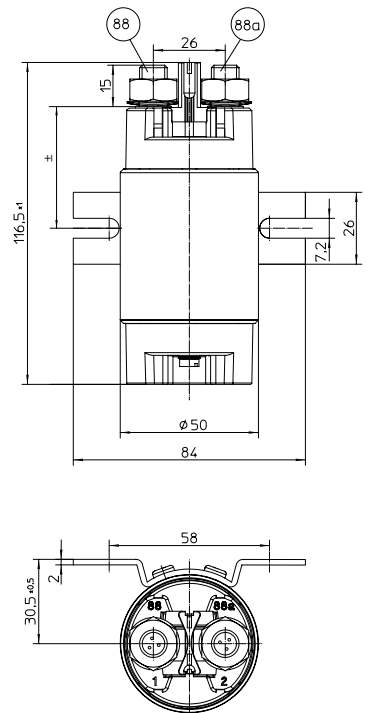
Standard side mounting



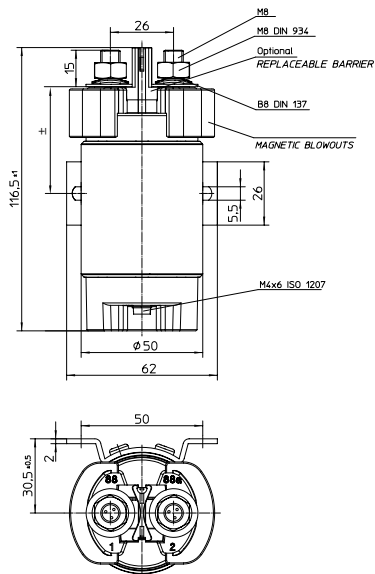
Short form side mounting



Short form side mounting



## Options: Magnetic blowouts



## ORDERING INFORMATION

Part Number  
example: 31-311-12-E  
31 - 3 \_ \_ - 1 \_ - E \_ \_

### Current

3	Current 300 A
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### Contacts

1	Make Contact NO
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### Mounting

1	Standard side mounting
2	Short form side
4	Long form side

### Suppression

1	Suppression (integrated)
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### Options

A	Auxiliary contacts*
B	Magnetic blowout (required over 40 VDC)

\* Not possible for bottom mounting and NO/NC relay

### Coil voltage

1	12 V
2	24 / 28 V
3	36 V
4	48 V
5	60 V
6	80 V

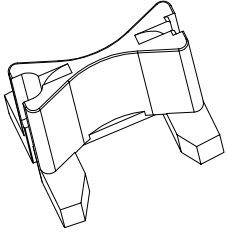
### Suppression

0	Without suppression
1	With suppression

## ACCESSORIES

### Replaceable barrier

29-200-55



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