

## KISSLING BI-STABLE RELAYS WITH INTERNAL CONTROL ELECTRONICS

### Series 31 / SAFETY

Our series 31 bi-stable power relay with internal control electronics is based on the Series 30 industrial relay and has all of 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, ground support equipment and lift trucks.

The robust design of our bi-stable relays provides 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 magnetical blowout (>40 VDC).

#### KEY BENEFITS

- Sealed housing meets IP67 and IP6K9K
- Robust design
- Variety of configuration options
- 6G shock and 4G vibration resistant

#### APPLICATIONS

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

#### Electronic Safety Control

The technical principle of this relay is a reliability proven two coil device with a Pull In and Drop Out coil with a powerless permanent magnetic holding.

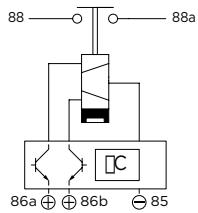
An impulse into the respective coil switches the relay into an “On” or “Off” position. The electronic function protects against incorrect actuation which therefore prevents overheating or damage to any component parts.

The minimum pick up impulse time is approximately 250 ms and continuous signals will not cause any damage.

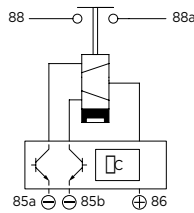
The electronic board integrates under voltage function that eliminates critical mechanic actuation, a suppression diodes, short circuit and polarity protection.

## CIRCUITS

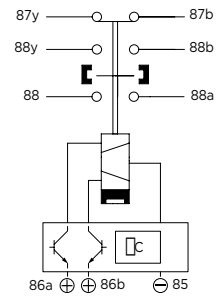
NO-Contact (S)  
Standard type



NO-Contact (S-P)  
Special type



NO-Contact Auxiliary contact /  
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

# KISSLING BI-STABLE RELAYS WITH INTERNAL CONTROL ELECTRONICS

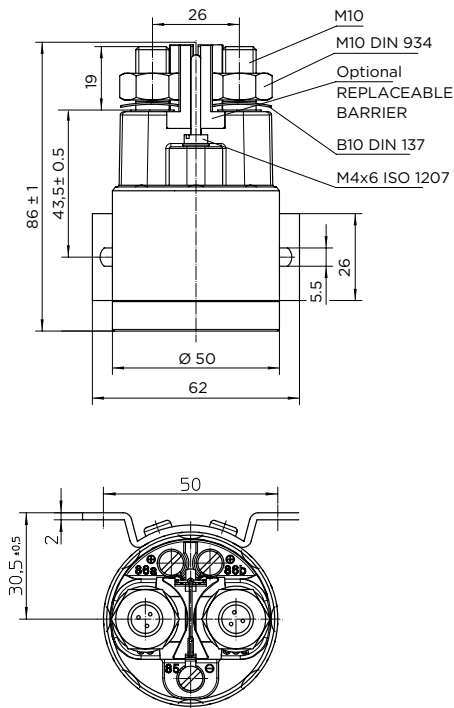
Series 31 / SAFETY

Coil Data	12 VDC	24 / 28 VDC
Voltage range	9-16 VDC	18-32 VDC
Nominal voltage	12 VDC	28 VDC
Pick up voltage	9 VDC	18 VDC
Pull in current	5.7 A, 50 ms	3.3 A, 50 ms
Drop out current	6.0 A, 50 ms	3.5 A, 50 ms

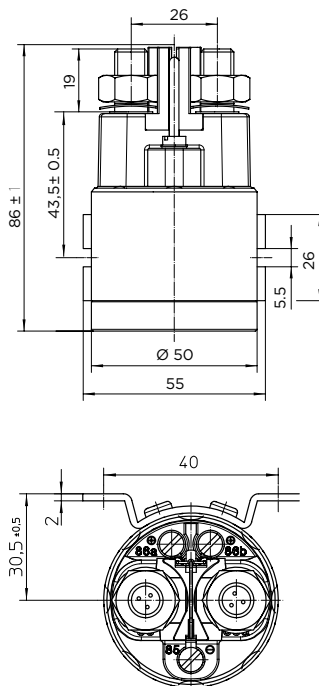
Operating times	
Pick up incl. bounce and running time $\mu\text{C}$	Approx. 250 msec
Drop out incl. running time $\mu\text{C}$	Approx. 250 msec
Wire Section	Min. 95 mm <sup>2</sup> / 0.147 sq.inch / AWG 4-0
Mounting position	Optional

## TECHNICAL DRAWINGS

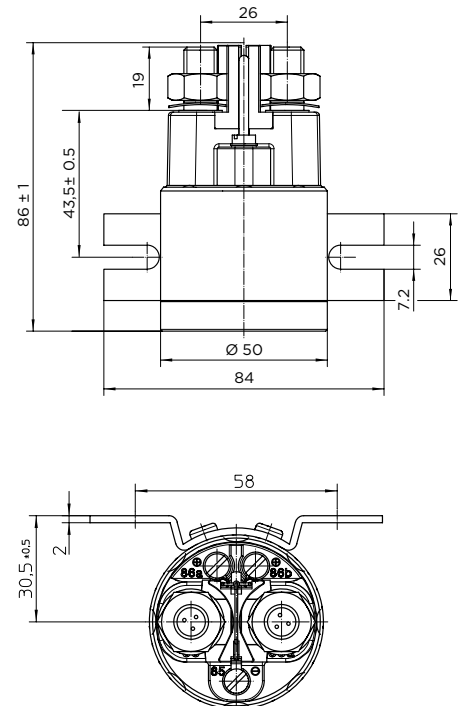
Standard side mounting



Short form side mounting



Long form side mounting

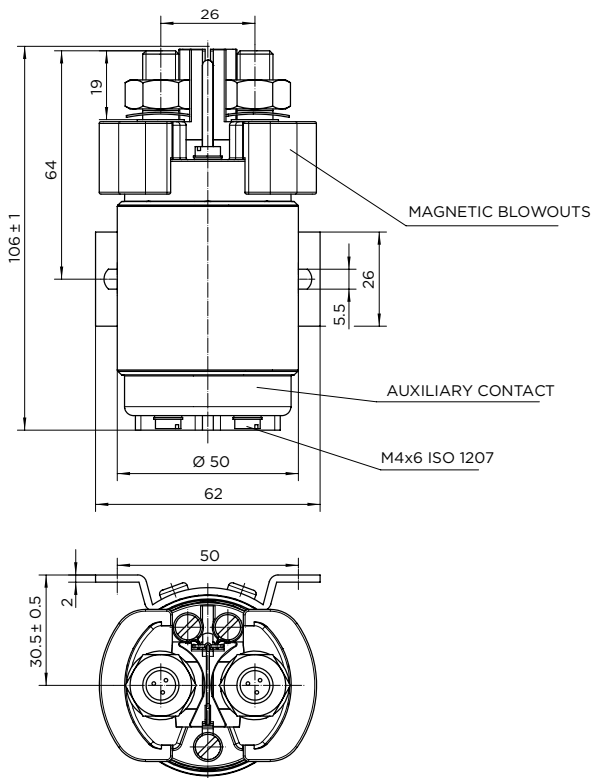


# KISSLING BI-STABLE RELAYS WITH INTERNAL CONTROL ELECTRONICS

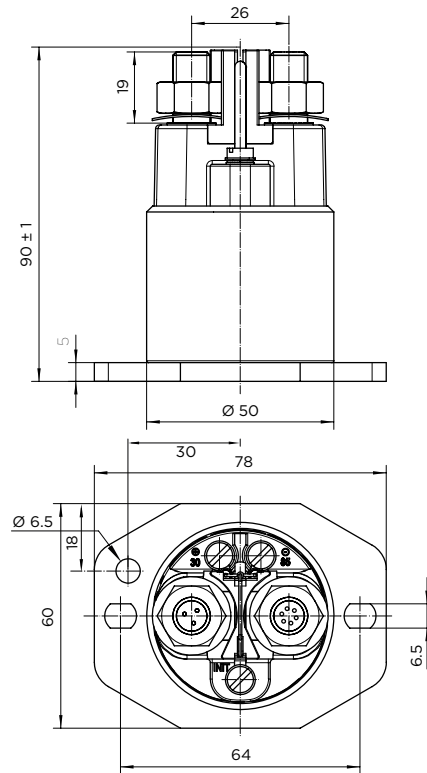
Series 31 / SAFETY

## Options:

Auxiliary contacts, magnetic blowouts



## Bottom mounting



## ORDERING INFORMATION

Part Number  
example: 31-XXX-XX-X  
31 - X \_ \_ \_ - - - - -

### 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
3	Bottom mounting
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

### Switching function SAFETY

S	Standard type com-
S-P	Special type com+

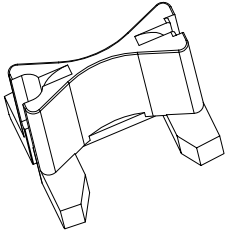
### Coil voltage

1	12 V
2	24 / 28 V

## ACCESSORIES

### Replaceable barrier

29-200-55



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