

## Description

The EXR50 is a so-called voltage monitor. By means of an in-built microcontroller, the on-board electrical system voltage is permanently monitored. As soon as the charge condition of the vehicle battery is critical, the EXR50 automatically disconnects the load. You can indicate the switching thresholds for automated off and on switching of the load via the order numbering code in your purchase order, so that an off-switching sequence can be realised in the vehicle. This ensures sufficient energy supply for critical loads such as the starter or the like at all times.

This voltage monitor is suitable for standard automotive relay sockets to ISO 7588 (ISO MINI).

The EXR50 with its mechanical contact system is suitable for continuous currents of 10 A, 30 A and 40 A.

## Applications

The EXR50 is available in a 12 V version for passenger cars and in a 24 V version for trucks. This device ensures that the vehicle battery is not discharged to such an extent by comfort consumers such as cool box, fan, coffee machine, laptop, smartphone etc., that the motor cannot start.

### Scope of applications:

- Trucks
- Buses
- Construction machinery and emergency cars
- Agricultural vehicles and forestry equipment

### Typical applications:

- On-board electrical system monitoring to ensure that sufficient battery voltage is always available for the starter

## Benefits

Buses, trucks, agricultural vehicles and construction machinery work in a precisely coordinated process chain. The failure »battery empty« has effect on the entire chain and leads to enormously costly downtimes in the schedule.

## Qualifications

### EXR50

<b>Degree of protection</b>	IP52
<b>Resistance to disturbances</b>	95/54 EG & DIN 40839
<b>E1 number</b>	upon request



**EXR50**

## Technical data - EXR50-1xx-xxx-xxx-xx A

Rated voltage	12 V
Operating voltage	9 V...30 V
Current consumption	1 mA...100 mA
Drop voltage	xx.x (selectable in the order numbering code)
Re-start voltage	yy.y (selectable in the order numbering code)
Outputs	change over contact
Max. output current at 12 V	10 A, 30 A, 40 A
Operating temperature	-40 °C...+85 °C
Mass	40 g
Material	
Blade terminals	DIN 46244 – A6.3 x 0.8 (10 A/ 30 A) DIN 46244 – A9.5 x 1.2 (40 A) CuZn 37 F37
Housing material	PA6GF

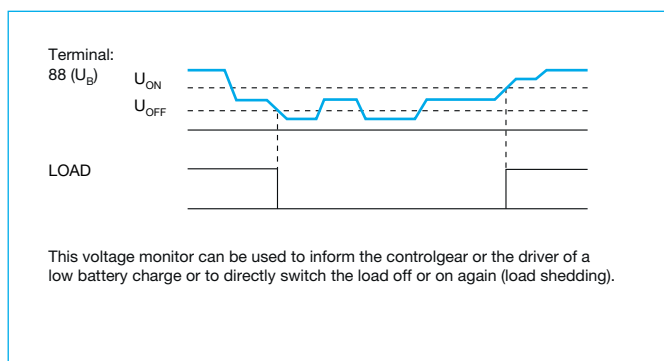
## Technical data - EXR50-2xx-xxx-xxx-xx A

Rated voltage	24 V
Operating voltage	18 V...30 V
Current consumption	1mA...100 mA
Drop voltage	xx.x (selectable in the order numbering code)
Re-start voltage	yy.y (selectable in the order numbering code)
Outputs	change over contact
Max. output current at 12 V	10 A, 30 A, 40 A
Operating temperature	-40 °C...+85 °C
Mass	40 g
Material	
Blade terminals	DIN 46244 – A6.3 x 0.8 (10 A/ 30 A) DIN 46244 – A9.5 x 1.2 (40 A) CuZn 37 F37
Housing material	PA6GF

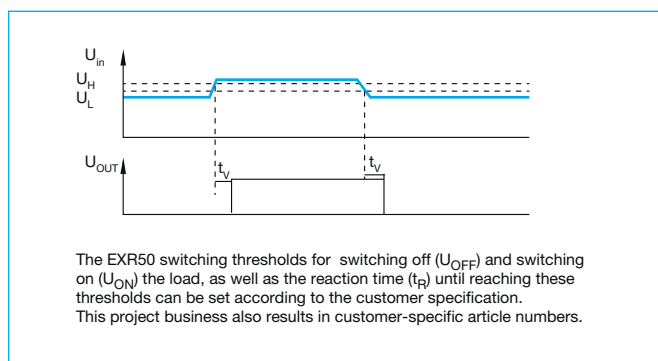
## Typical voltage range in passenger car or truck on-board electrical systems

<b>24 V on-board electrical system</b>	< 0 V	< 0 V < 8 V	≥ 8 V < 16 V	≥ 16 V < 18 V	≥ 18 V ≤ 32 V	≥ 32 V < 36 V	≥ 36 V 58 V
<b>12 V on-board electrical system</b>	< 0 V	< 0 V < 9 V	≥ 9 V < 11 V		≥ 11 V ≤ 14.3 V	> 14.3 V < 16 V	≥ 16 V 20 V
	Negative voltages are not allowed	Undefined condition	Level with limited functionality	Limited under-voltage range	Rated voltage range in full functionality	Overvoltage with limited functionality	External over-voltage only in the event of a failure, e.g. »load dump«

## Voltage monitor diagram



## Functional diagram



## Order numbering code for 10 A / 30 A

<b>Type number</b>	
EXR50 Special relay	
<b>Operating voltage</b>	
1	12 V
2	24 V
<b>Control</b>	
1	Type A
2	Type B
3	Type C
4	Type D
<b>Response time (<math>T_R</math> in seconds)</b>	
F	0.1 second
M	1 second
T	10 seconds
L	30 seconds
X	Customer-specific with own number
<b><math>U_{ON}</math> (xx.x V)</b>	
xxx	Volts - If this voltage is undercut the load is switched off
<b><math>U_{OFF}</math> (yy.y V)</b>	
yyy	Volts - If this voltage is undercut the load is switched off
<b>Project number - part 1</b>	
049	Project index number according to region (international area code), e.g. Germany +49 = 049 France +33 = 033 Portugal +351 = 351 USA +1 = 001
<b>Project number - part 2</b>	
001	serial number
<b>Current rating</b>	
	10 A
	30 A
EXR50 - 1	1 M - 115 - 122 - 10 A Ordering example

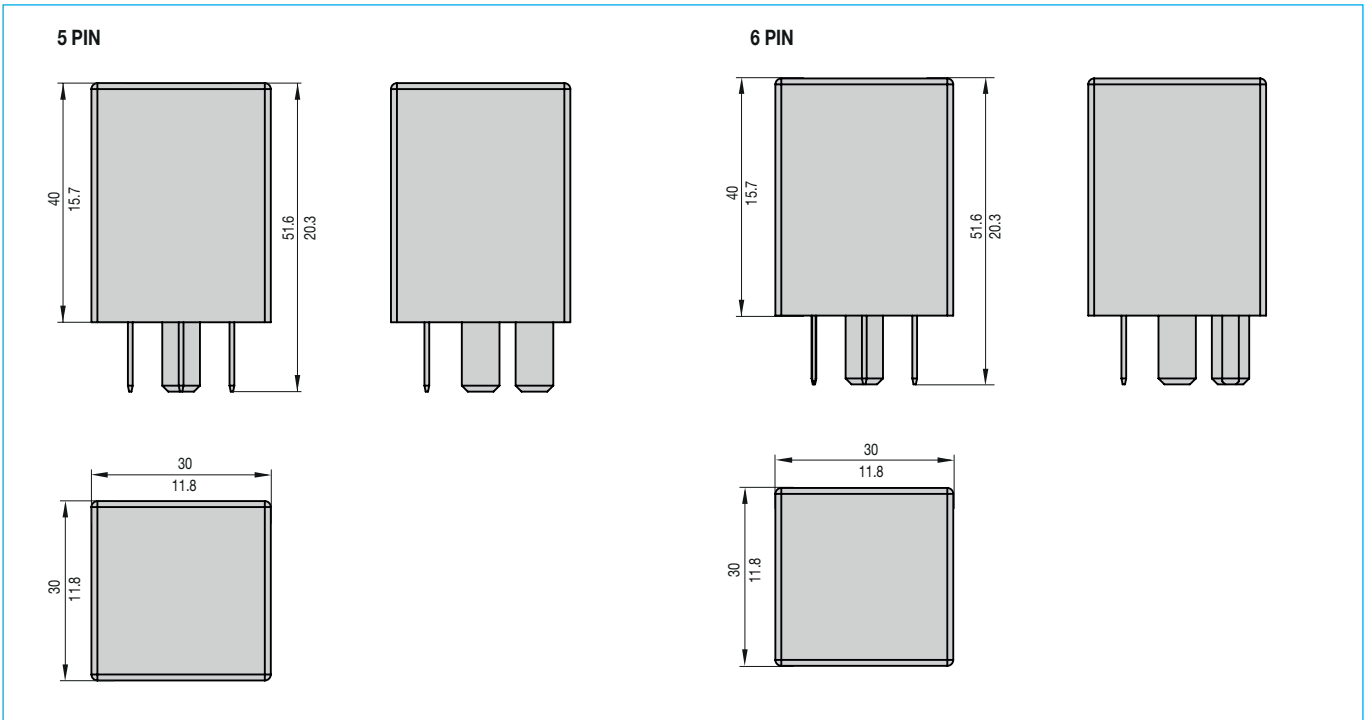
## Order numbering code for 40 A

<b>Type number</b>	
EXR50 Special relay	
<b>Operating voltage</b>	
1	12 V
2	24 V
<b>Control</b>	
1	Type A
<b>Response time (<math>T_R</math> in seconds)</b>	
F	0.1 second
M	1 second
T	10 seconds
L	30 seconds
X	Customer-specific with own number
<b><math>U_{ON}</math> (xx.x V)</b>	
xxx	Volts - If this voltage is undercut the load is switched off
<b><math>U_{OFF}</math> (yy.y V)</b>	
yyy	Volts - If this voltage is undercut the load is switched off
<b>Project number - part 1</b>	
049	Project index number according to region (international area code), e.g. Germany +49 = 049 France +33 = 033 Portugal +351 = 351 USA +1 = 001
<b>Project number - part 2</b>	
001	serial number
<b>Current rating</b>	
	40 A
EXR50 - 2	1 M - 230 - 250 - 40 A Ordering example

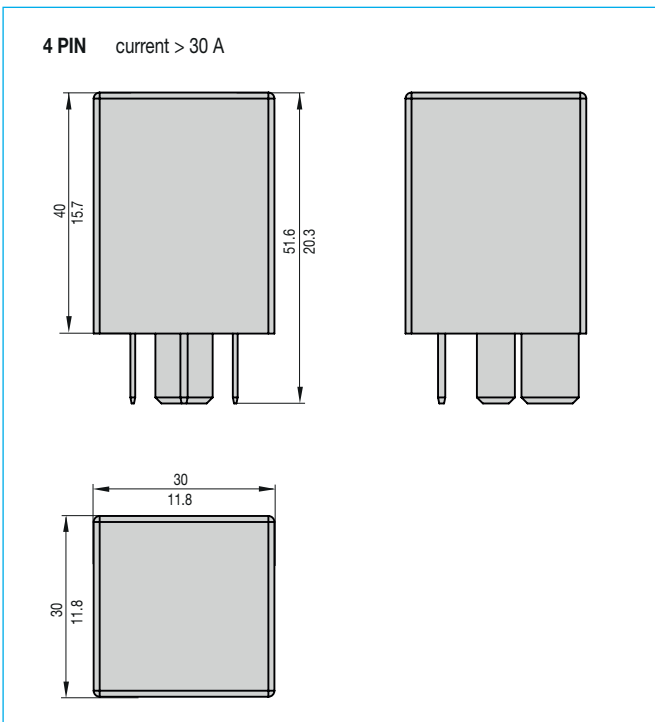
### Notes:

It is possible to set in the software a delay time for switching of a load and another delay time for switching on a load. In this case we will set up an individual customer number for you, e.g.: EXR50-11X-049-001-30A

**Dimensions 10 A/ 30 A**

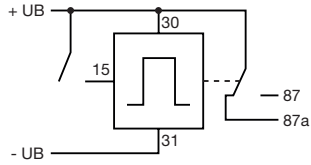


**Dimensions 40 A**

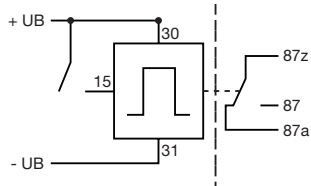


Schematic diagram 10 A / 30 A

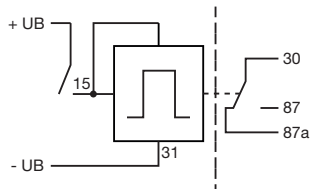
**Type A**  
5 pins



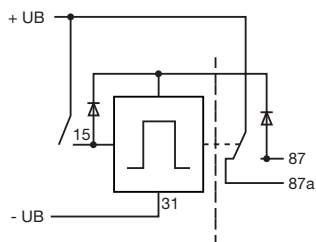
**Type B**  
6 pins



**Type C**  
5 pins

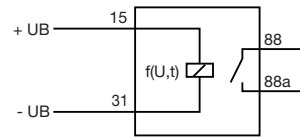


**Type D**  
5 pins



Schematic diagram 40 A

**Type A**  
4 Pins



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