

# ELR W 1/10-24DC

## Electronic Reversing-Load Relay for DC Motors



### INTERFACE

Data sheet  
100218\_en\_01

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## 1 Description

The electronic reversing-load relay (ELR-DC) allows the switching of mechanically commutated DC motors. They can be used to reverse and brake DC motors up to 24 V/10 A without wear. An output that is protected against short-circuits, overvoltages and overloads, ensures reliable application in the system.

The integrated confirmation output returns ELR-DC error information to the control system, e.g., a short-circuit or a broken cable in the motor.

If a 24 V DC signal is connected to the "left" input, the ELR-DC is switched so that the output supplies voltage to the motor. If the "right" input is controlled, the polarity of the voltage at the output is reversed. By activating both inputs, "left" and "right", the motor is brought to a halt by the ELR-DC.

During startup the electronic load relay limits the motor current to 21 A. This protects the motor from unwanted magnetic reversal current.

### State Table

Input		Output	
Right	Left	OUT 1 (+)	OUT 2 (-)
0	0	High resistance	High resistance
1	0	+ 24 V	GND
0	1	GND	+ 24 V
1	1	GND	GND



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This data sheet is valid for all products listed on the following page:

## 2 Ordering data

Description	Type	Order No.	Pcs./Pkt
Electronic reversing-load relay, for controlling DC motors, with LED display and protective circuit	ELR W 1/10-24DC	2964306	1

## 3 Technical data

Input Data	
Operating voltage	24 V DC $\pm$ 20 %
Current consumption, maximum	10 mA
Control voltage right/left	24 V DC $\pm$ 20 %
Input current right/left	approx. 3 mA
Transmission frequency $f_{\text{limit}}$	1000 Hz
Input wiring	Operating indicators (green LED), polarity protection diode

Output Data	
Operating voltage area	10 - 30 V DC
Continuous load current, maximum	10 A
Short-circuit current limit	21 A
Voltage drop at maximum load current	$<$ 1 V
Output circuitry	Protection against polarity reversal, overload, overvoltage and overcurrent
Output switching	H bridge

Connection data	
Connection method	Screw connection
Conductor cross section, solid	0,2 mm <sup>2</sup> ... 6 mm <sup>2</sup>
Conductor cross section, stranded	0,2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Stripping length	8 mm

General data	
Housing dimensions (L x W x H)	84 mm x 62 mm x 110 mm
Test voltage I/O	2,5 kV <sub>eff</sub>
Ambient temperature range	-20 °C to + 60 °C (-4°F to 140°F)
Protection according to IEC 60 529/EN 60 529/DIN VDE 0740-1	IP20
Mounting position	Vertical (DIN rail horizontal)
Mounting	Can be mounted with a distance of $\geq$ 20 mm

Conformance with EMC directive 2004/108/EC	
Noise Immunity Test According to EN 61000-6-2:2001	
Noise Emission Test According to EN 61000-6-4:2001	

### Block Diagram

