## **ELR W 1/10-24DC**

## **Electronic Reversing-Load Relay for DC Motors**

#### **INTERFACE**

Data sheet 100218\_en\_01

© PHOENIX CONTACT - 02/2009

### 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



Make sure you always use the latest documentation. It can be downloaded at <a href="https://www.phoenixcontact.net/download">www.phoenixcontact.net/download</a>.



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



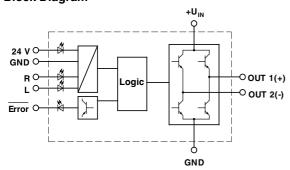
# 2 Ordering data

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

#### 3 Technical data

Input Data		
Operating voltage	24 V DC ± 20 %	
Current consumption, maximum	10 mA	
Control voltage right/left	24 V DC ± 20 %	
Input current right/left	approx. 3 mA	
Transmission frequency f <sub>limit</sub>	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 mmx 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 ≥ 20 mm	

### **Block Diagram**



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