ELR W 1/2-24DC
ELR W 1/6-24DC

Electronic Reversing-Load Relay for DC Motors



Data Sheet 01/2005

Features

ELR-DC electronic reversing-load relays can be used to switch mechanically commutated DC motors. They can be used to reverse and brake DC motors up to 24 V/6 A without wear. An output that is protected against short circuits, surge voltages, and overloads, ensures reliable application in the system.

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.

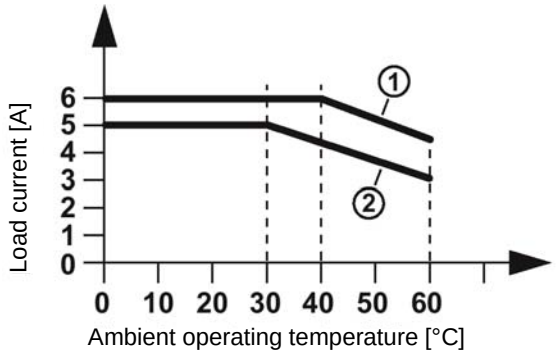
The amount of cabling required is reduced to a minimum by the internal locking switch and the load wiring.

Technical Data

Input Data	ELR W 1/2-24DC	ELR W 1/6-24DC
Control voltage U_{ST} right/left	24 V DC ±20%	
Control input current I_{ST} right/left	3 mA, approximately	
Input wiring	Diode for protection against polarity reversal, surge protection, yellow right rotation LED (R), yellow left rotation LED (L)	

PWM Option (PWM = Pulse Width Modulation)	ELR W 1/2-24DC	ELR W 1/6-24DC
Maximum clock frequency of PWM at the control inputs	1 kHz	
Pulse duty factor of PWM	0% - 100%	

Output Data (Output)	ELR W 1/2-24DC	ELR W 1/6-24DC
Operating voltage range	10 V DC - 30 V DC	
Zero-signal current in the OFF state	7 mA	
Output wiring	Protection against polarity reversal, surge protection	

Motor Switching Output	ELR W 1/2-24DC	ELR W 1/6-24DC
Features	Protected against short circuits and overloads	
Maximum continuous load current I_A	2 A	6 A (see derating)
Load current depending on the ambient operating temperature Operating time: 100% operating factor **Applies to ELR W 1/6-24DC**	 Figure 1 Load current depending on the ambient operating temperature **Applies to ELR W 1/6-24DC** **1** Individual device **2** Mounted without spacing	
Short-circuit current limit (must be observed when braking)	15 A	20 A

General Data	
Housing dimensions (length x width x height)	98 mm x 12.5 mm x 114.5 mm (3.858 x 0.492 x 4.134 in.)
Insulating housing version	Polycarbonate (PC), color: green
Test voltage I/O	2.5 kV_{rms}
Ambient operating temperature range	-20°C to +60°C (-4°F to +140°F)
Nominal operating mode	100% operating factor
Standards/specifications	DIN VDE 0110:1989-01, pollution degree 2, Surge Voltage Class III, basic insulation
Degree of protection according to IEC 60529/EN 60529/DIN VDE 0470-1	IP20
Mounting position	Vertical (DIN rail horizontal)

Connection Data

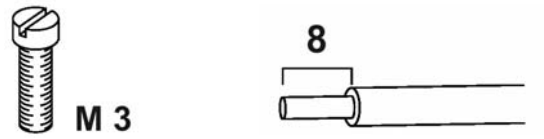


Figure 2 Connection data

The following cable cross sections can be connected:

Solid [mm^2]	Stranded [mm^2]	AWG	Stripping Length L [mm]
0.2 - 6	0.2 - 4	25 - 10	8 mm (0.31 in.)

Block Diagram

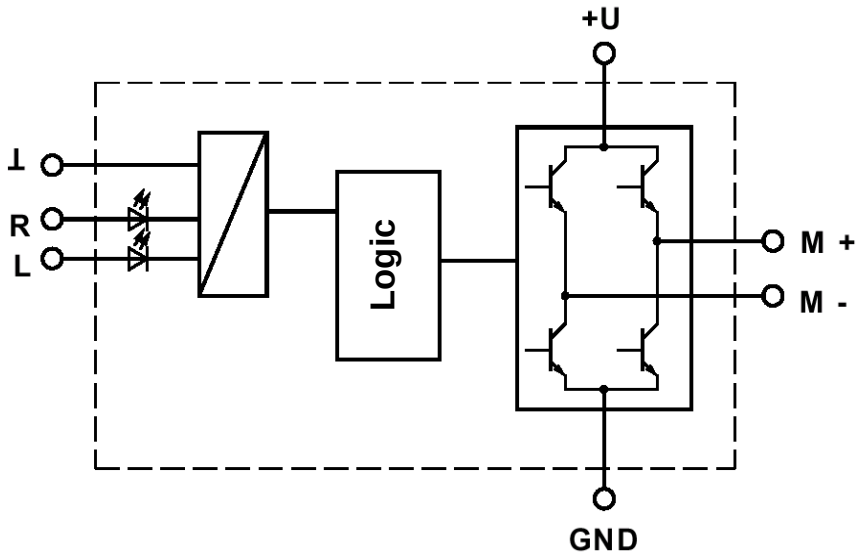


Figure 3 Block diagram

Application Example

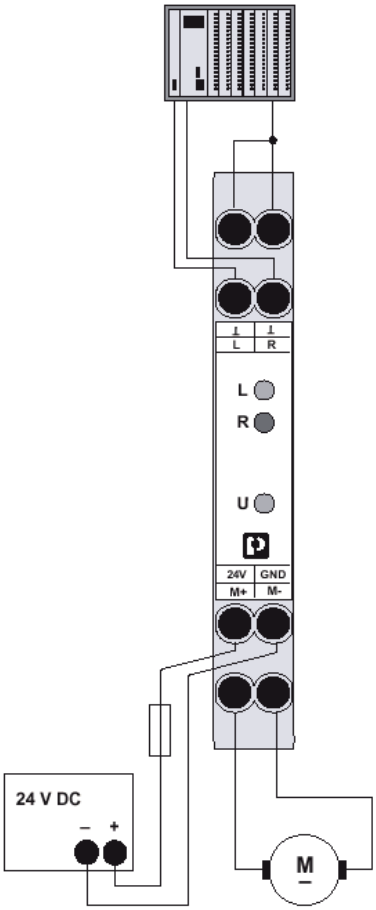


Figure 4 Application example

State Table

Input		Output	
Right	**Left**	**M +**	**M –**
0	0	High resistance	High resistance
1	0	+24 V	GND
0	1	GND	+24 V
1	1	GND	GND

Ordering Data

Description	Order Designation	Order No.
Electronic reversing load relay for directly controlling DC motors with LED and protective circuit.	ELR W 1/2-24DC	29 63 59 8
	ELR W 1/6-24DC	29 82 09 0
For marking systems and assembly material, see CLIPLINE catalog.		



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