

# ELR W 3/x-... MM

## Electronic Reversing-Load Relay With Motor Management



Data Sheet

01/2005

### Features

Electronic load relays with motor management (ELR-MM) combine fast, wear-resistant, semiconductor switches and modern measurement and evaluation electronics. The active-power input of electrical drives is calculated every 6.6 ms from three currents, voltages, and the phase angle. This enables continuous status monitoring.

Freely parameterizable signaling and switching thresholds for detecting under/overloads provide functions that far exceed standard motor protection. All relevant electrical values such as apparent power,

active power, reactive power, currents, voltages, and phase angles, as well as the values of the internal cycle counter and elapsed-time meter can be requested via the display.

Actuators and variable-speed drives, pumps, and tools are switched using the ELR-MM load relay and at the same time monitored and protected against dirt or wear.

As an option, the devices can be coupled to fieldbus systems via a defined interface for online monitoring.

### Technical Data

Input Data	ELR W 3/9-400 MM	ELR W 3/2-400 MM	ELR W 3/9-500 MM
Operating voltage $U_B$	24 V DC $\pm 20\%$		
Maximum current consumption	80 mA		
Control voltage right/left	24 V DC $\pm 20\%$		
Input current right/left	7 mA	5 mA	7 mA
Input wiring	LED, diode for protection against polarity reversal, surge protection		

Output Data Confirmation Contacts O1 - O4	
With 1 signal	$U_B - 1$ V/50 mA, maximum

Output Data Load Side	ELR W 3/9-400 MM	ELR W 3/2-400 MM	ELR W 3/9-500 MM
Operating voltage (conductor voltage) 50 Hz/60 Hz	110 V AC - 435 V AC	110 V AC - 550 V AC	
Reverse voltage	1000 V	1500 V	
Load current (see derating curve on page 2)	3 x 8 A (100% operating factor)	3 x 1.8 A (100% operating factor)	3 x 8 A (100% operating factor)

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Output Data Load Side (Continued)	ELR W 3/9-400 MM	ELR W 3/2-400 MM	ELR W 3/9-500 MM
Load current depending on the ambient operating temperature Operating time: 100% operating factor	<p>Figure 1 Load current depending on the ambient operating temperature</p>		
Surge current	360 A (t = 10 ms)		
Minimum load current	150 mA		
Residual voltage at $I_N$	1.4 V, typical		
Residual current in the OFF state	4 mA, typical		
Reversing frequency right rotation/left rotation ( $\cos \varphi = 0.5$ )	2.5 Hz, maximum		
Shutdown time when overload or underload occurs	45 ms, typical (worst case 70 ms)		
Output wiring	RCV circuit		

General Data	
Housing dimensions (length x width x height)	94 mm x 62 mm x 122 mm (3.701 x 2.441 x 4.803 in.)
Insulating housing version	Polycarbonate (PC), color: green
Test voltage I/O	2.5 kV <sub>rms</sub>
Ambient operating temperature range	-20°C to +60°C (-4°F to +140°F)
Standards/specifications	EN 61000-4-2/DIN EN 61000-4-2/VDE 0847-4-2; EN 61000-4-3/DIN EN 61000-4-3/VDE 0847-4-3; EN 61000-4-4/DIN EN 61000-4-4/VDE 0847-4-4; EN 61000-4-5/DIN EN 61000-4-5/VDE 0847-4-5; EN 61000-4-6/DIN EN 61000-4-6/VDE 0847-4-6; IEC 60664/IEC 60664 A/DIN VDE 0110
Safe isolation input/output	DIN EN 50178 (VDE 0160)
Degree of protection according to IEC 60529/EN 60529/DIN VDE 0470-1	IP20
Mounting position	Vertical (DIN rail horizontal)
Mounting	Can be mounted with spacing $\geq 20$ mm (0.787 in.)

## Connection Data

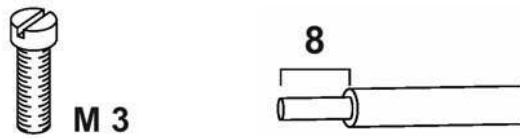


Figure 2 Connection data

The following cable cross sections can be connected:

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

## Block Diagram

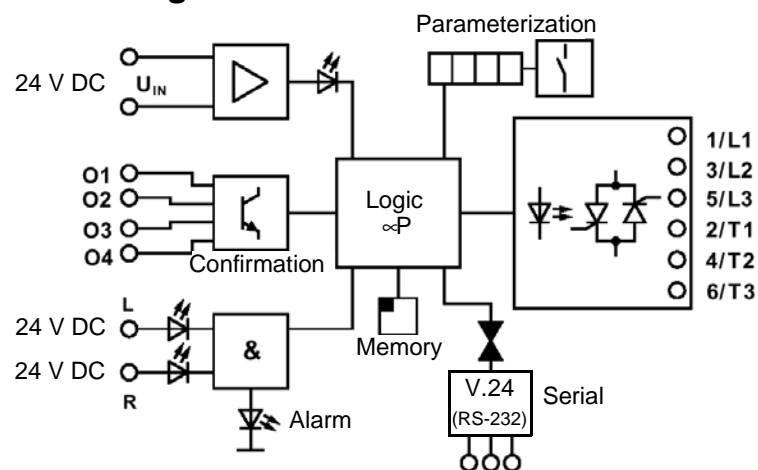


Figure 3 Block diagram

## Ordering Data

Description	Order Designation	Order No.
Electronic reversing-load relay with motor management.	ELR W 3/9-400 MM	29 63 51 4
	ELR W 3/2-500 MM	29 82 62 1
	ELR W 3/9-500 MM	29 63 54 3
For marking systems and assembly material, see CLIPLINE catalog.		



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