

ELR W 3/9-500 MM EX

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

operating 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.

The ELR W 3/9-500 MM EX is specially designed for use in the chemical and petrochemical industry. A corresponding ex-type examination certificate is available.

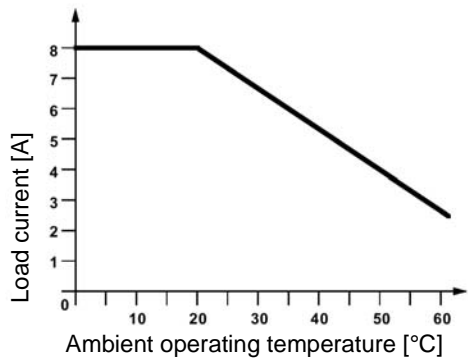
As an option, the devices can be coupled to fieldbus systems via a defined interface for online monitoring.

Technical Data

Input Data	
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
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	
Operating voltage (conductor voltage) 50 Hz/60 Hz	110 V AC - 550 V AC
Reverse voltage	1500 V
Load current (see derating curve on page 2)	3 x 8 A (100% operating factor)

Output Data Load Side (Continued)	
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 φ = 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 _{rms}
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.)

Safety Data		
EU-type examination according to ATEX	Ⓔ II (2) GD	PTB 03 ATEX 3114
Requirement class according to DIN V 19251	AK4	
Category according to EN 60954-1	3	

Connection Data

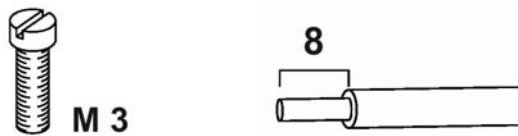


Figure 2 Connection data

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

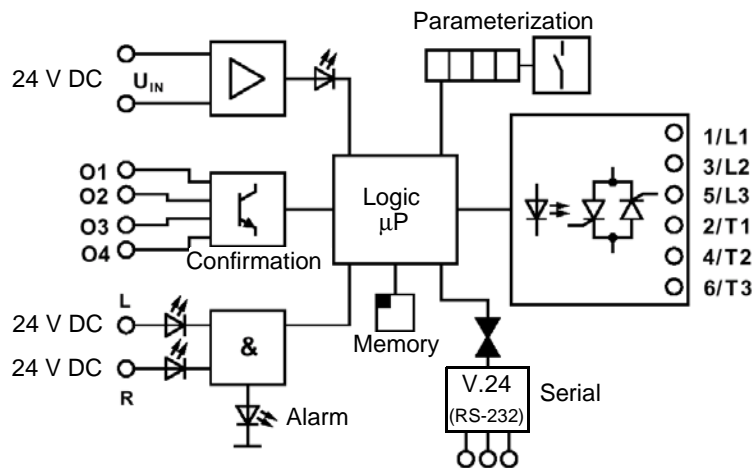


Figure 3 Block diagram

ELR W 3/9-500 MM EX

Ordering Data

Description	Order Designation	Order No.
Electronic reversing-load relay with motor management.	ELR W 3/9-500 MM EX	29 63 69 5
For marking systems and assembly material, see CLIPLINE catalog.		



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