EMM W 3/5-500-EX

Electronic Motor Management



Data Sheet 01/2005

Features

EMM provides all the advantages of modern active power monitoring. The active-power input of a drive system or another 3-phase load is calculated every 6.6 ms from three currents, voltages, and the phase angle.

Currents greater than 5 A are led to the module via transformers. The load is switched by a separate switching element. In this way, the EMM reliably protects connected loads – regardless of their current consumption – against overload and underload and provides continuous status monitoring.

Switching thresholds, signaling thresholds, and four configurable confirmation outputs provide motor and system protection.

All relevant values can be viewed via the integrated display of the configuration software or a fieldbus interface:

- Apparent power, active power, and reactive power
- Currents and voltages
- Phase angle
- Operating cycle counter and elapsed-hour meter
- Power meter

The integrated memory can be used to record complete curves, which can be used, for example, in the system documentation.

Actuators and variable-speed drives, pumps, etc. are connected using the right rotation, left rotation, reverse, and limit switch modes (with integrated restart inhibit) and at the same time are monitored and protected against dirt or wear.

The EMM W 3/5-500-EX is specially designed for use in the chemical and petrochemical industry.
A corresponding ex-type examination certificate is available.

Technical Data

Input Data	
Module supply U_N	24 V DC ±20%
Maximum current consumption	80 mA
Control voltage right/left	24 V DC ±20%
Current consumption right/left	7 mA
Switching output supply	24 V DC ±20%
Input current	2 A
Input wiring	LED, diode for protection against polarity reversal, surge protection

Power Measurement	
Voltage input V1, V2, V3	110 V AC - 575 V AC, 50/60 Hz
Nominal current at 550 V AC	6 mA
Input wiring	RCV circuit
Current measuring input L1/T1, L2/T2, L3/T3	5 A AC, maximum
Maximum cable length between the transformer and EMM	5 m (16.40 ft.) at 2.5 mm^2(14 AWG)/3 m (9.84 ft.) at 1.5 mm^2 (16 AWG)

Output Data	
Confirmation outputs O1, O2, O3, O4 with 1 signal	U_N - 1 V/50 mA, maximum
Switching output OL, OR with 1 signal	U_N/2 A Free-wheeling diode, surge protection, protected against short circuits and overloads

General Data	
Housing dimensions (length x width x height)	107 mm x 62 mm x 120 mm (4.213 x 2.441 x 4.724 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 ≥ 20 mm (0.787 in.)

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

Connection Data

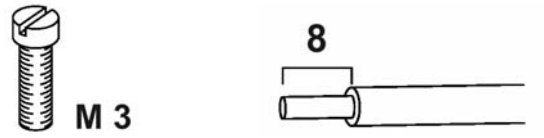


Figure 1 Connection data

The following cable cross sections can be connected:

Solid [mm²]	Stranded [mm²]	AWG	Stripping Length L [mm]
0.2 - 6	0.2 - 4	25 - 10	8 mm (0.31 in.)

Block Diagram

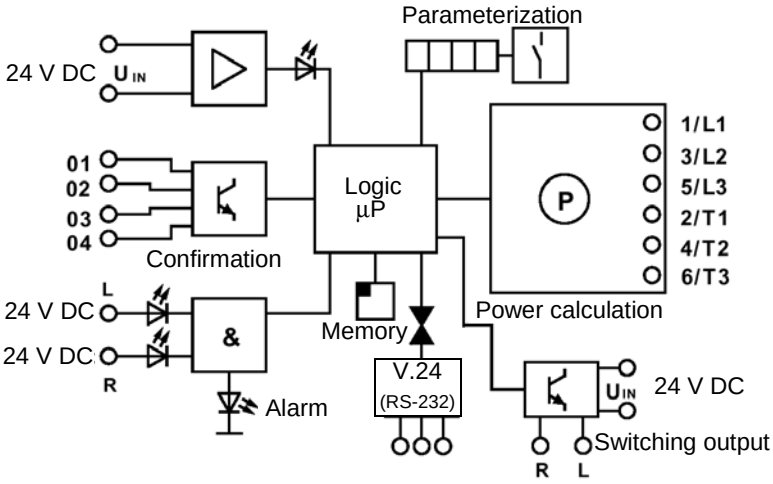


Figure 2 Block diagram

Connection Versions

Switching Element

Depending on the application, an electromechanical contactor or a contactor-type reversing starter combination, or an electronic load relay or a reversing-load relay should be used to actually switch the load.

The EMM has two switching outputs with 24 V DC/2 A to control these switching elements.

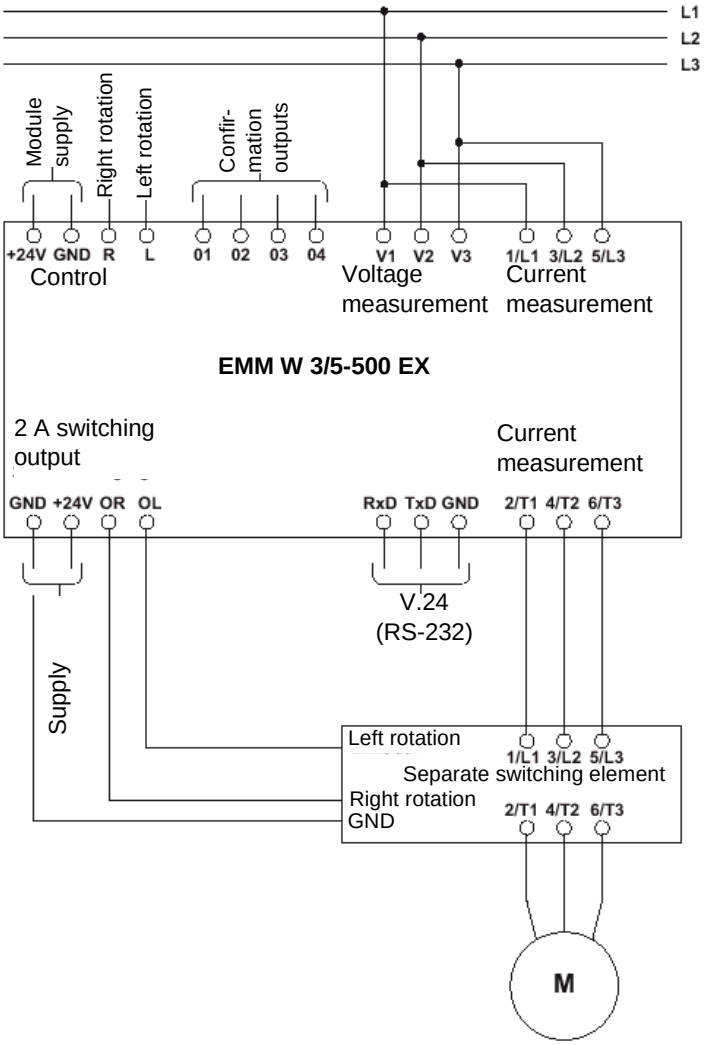


Figure 3 Connection version 1: Conductor currents < 5 A, without external current transformers

Current Transformer

Separate current transformers should be used for currents greater than 5 A. Transformers with a secondary nominal current of 5 A should be selected.

The primary nominal current is determined by the current consumption of the device (see Figure 4).

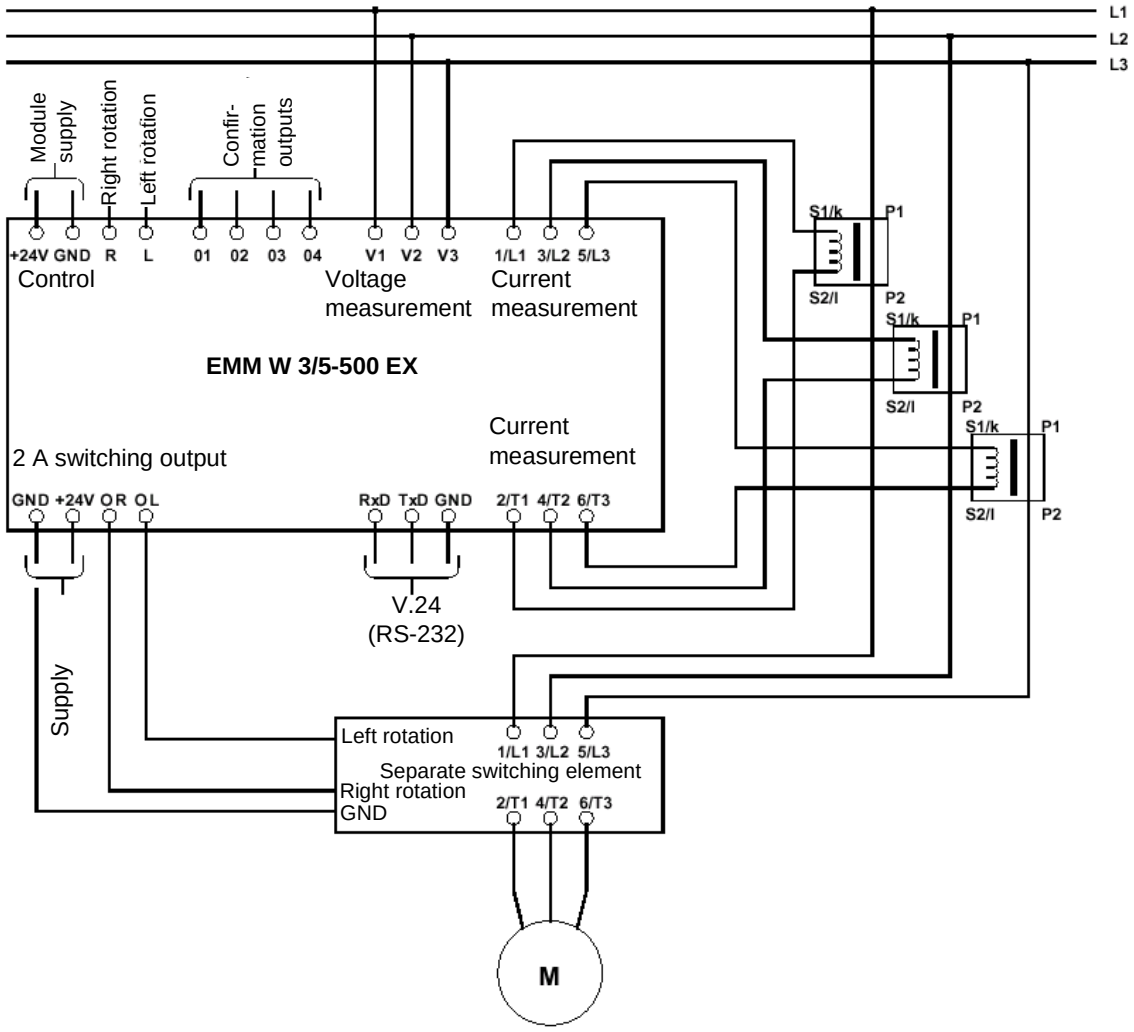


Figure 4 Connection version 2: Conductor currents > 5 A, with external current transformers

Ordering Data

Description	Order Designation	Order No.
Electronic motor management	EMM W 3/5-500-EX	29 63 68 2
For marking systems and assembly material, see CLIPLINE catalog.		



Make sure you always use the latest documentation.
It can be downloaded from www.download.phoenixcontact.com.

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