

# VM Series Proportional Amplifier/Controller

## FEATURES

- For use with Magtrol Hysteresis Brakes, Hysteresis Clutches
- Additional PI controller and signal amplifier
- Current control: < 1 A (Model VM6)  
                   ≤ 3 A (Model VM8)
- 5 kHz PWM switching frequency
- Narrow design (22.5 mm)
- Snap-on DIN rail mounting

## DESCRIPTION

*NOTE: Refer to the schematics on page 3 for reference numbers inside brackets.*

The VM Series Proportional Amplifier/Controller is used to supply and control power (up to 3 A) to Magtrol Hysteresis Brakes and Clutches. The analog inputs of the amplifier/controller are designed for 10 V signals with two inputs switchable to 20 mA current input (using switches “S1” and “S2”).

The unit functions in two possible modes:

### Proportional Amplifier (control loop)

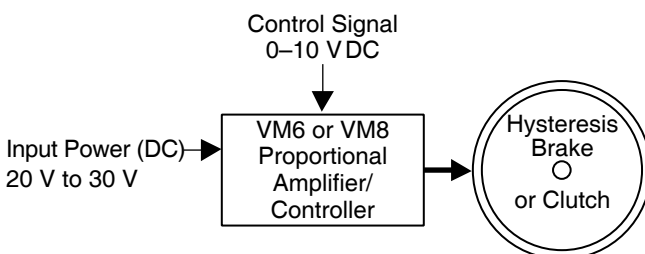
In this mode, the integrated controller stays disabled and a set value is activated at input [3]. At the maximum set value of 10 V, the output current is adjustable from 0 to 100% using potentiometer “R1”. “R3” shifts the zero point from 0 to 20%.



### Proportional Controller to Set Up Control Circuits (for pressure, speed, etc.)

This mode requires enabling of the integrated PI controller via the control input [9] and activation of inputs [1] and [2] with set/actual values. With the PI controller in use, the reference value input [3] can be used as a summer input (if required). This allows the actuator to operate with a set value pilot control, with the controller only adjusting the set/actual value deviation, which considerably improves the stability and dynamics of the control circuit. The integrated adjustable signal amplifier can be used to align or invert the set/actual values.

## SYSTEM CONFIGURATION



## ORDERING INFORMATION

Model	Maximum Power Output
VM6	< 1 A
VM8	≤ 3 A

## RATINGS

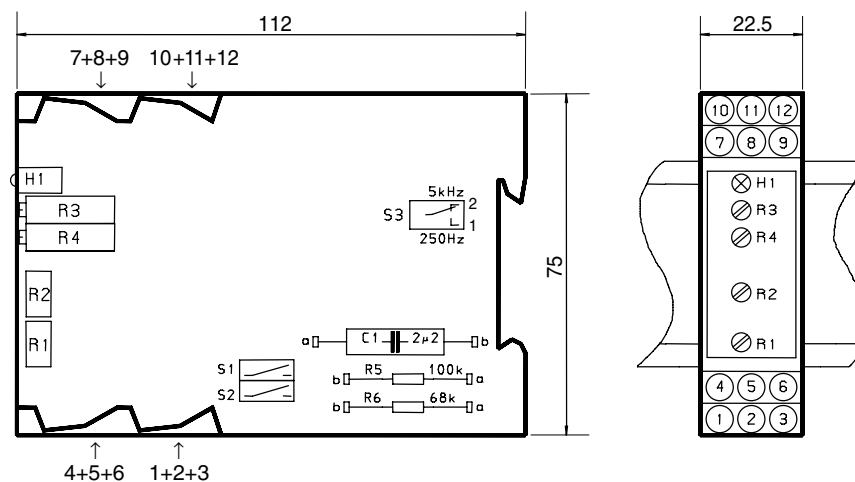
POWER CHARACTERISTICS	
Supply Voltage ( $U_V$ )	20 to 30 VDC; Ripple $\pm 5\%$
Power Consumption	70 mA + Load current
Power Output $I_{MAX} / V_{MAX}$	VM6: $< 1 \text{ A} / U_V$ minus 2 V VM8: $1 - 3 \text{ A} / U_V$ minus 2 V
Type of Load	Inductive loads only
Current Adjustment [through R1]	0 to 100%
Zero Displacement [through R3]	0 to 20%
Control Stroke [through R2]	0 to 100%
Switchable Clock Frequency [S3]	250 Hz (for proportional valves) 5 kHz (for brakes and clutches)
<ul style="list-style-type: none"> <li>• Switch Setting 1</li> <li>• Switch Setting 2 *</li> </ul>	
INPUTS/OUTPUTS	
Reference Value Input [3]	0 to +10 V RIN = 100 k $\Omega$
Controller Enable [9]	15 to 30 V 5 to 12 mA
Controller Inputs [1+2]	0 to +10 V RIN = 100 k $\Omega$
Signal Amplifier Input [4]	0 to $\pm 10 \text{ V}$ ** RIN = 95 k $\Omega$ **
Signal Amplifier Outputs [5+6]	0 to $\pm 12 \text{ V}$ max. 10 mA
Current Inputs [1+4]	0(4) to 20 mA Burden = 100 $\Omega$
Terminals	Screw-type 2.5 mm <sup>2</sup>
ENVIRONMENTAL CHARACTERISTICS	
Ambient Temperature	0 °C to 50 °C
MECHANICAL CHARACTERISTICS	
Housing	Gray insulation material
Device Mounting	Snap-on for TS-35 DIN rail
Weight	115 g

\* For use with Magtrol Hysteresis Brakes, customer must manually switch to "2" position.

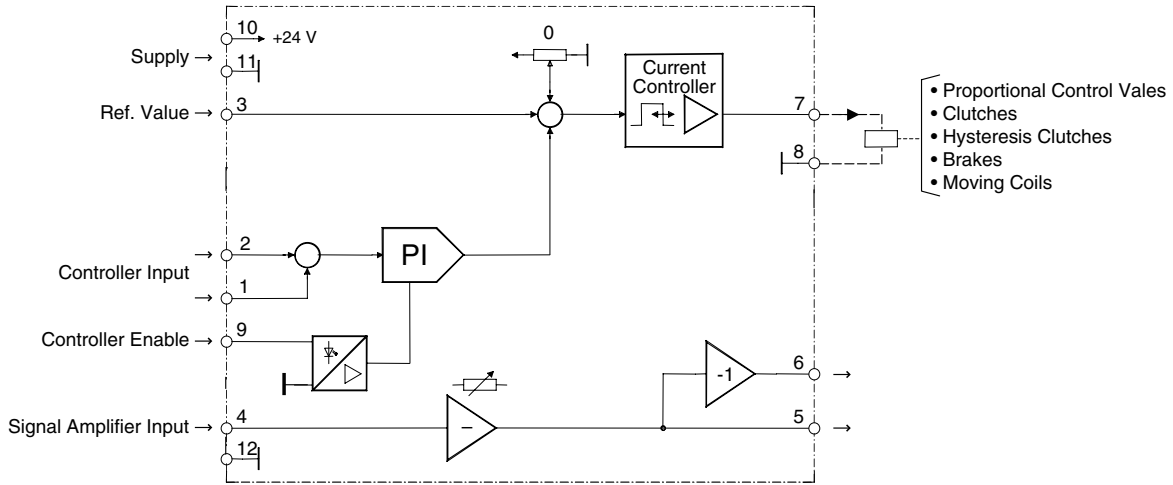
\*\* Delivery default settings

NOTE: When used with Magtrol Hysteresis Brakes, the maximum torque available depends on the brake's operating temperature. Please contact Magtrol Customer Service for more information.

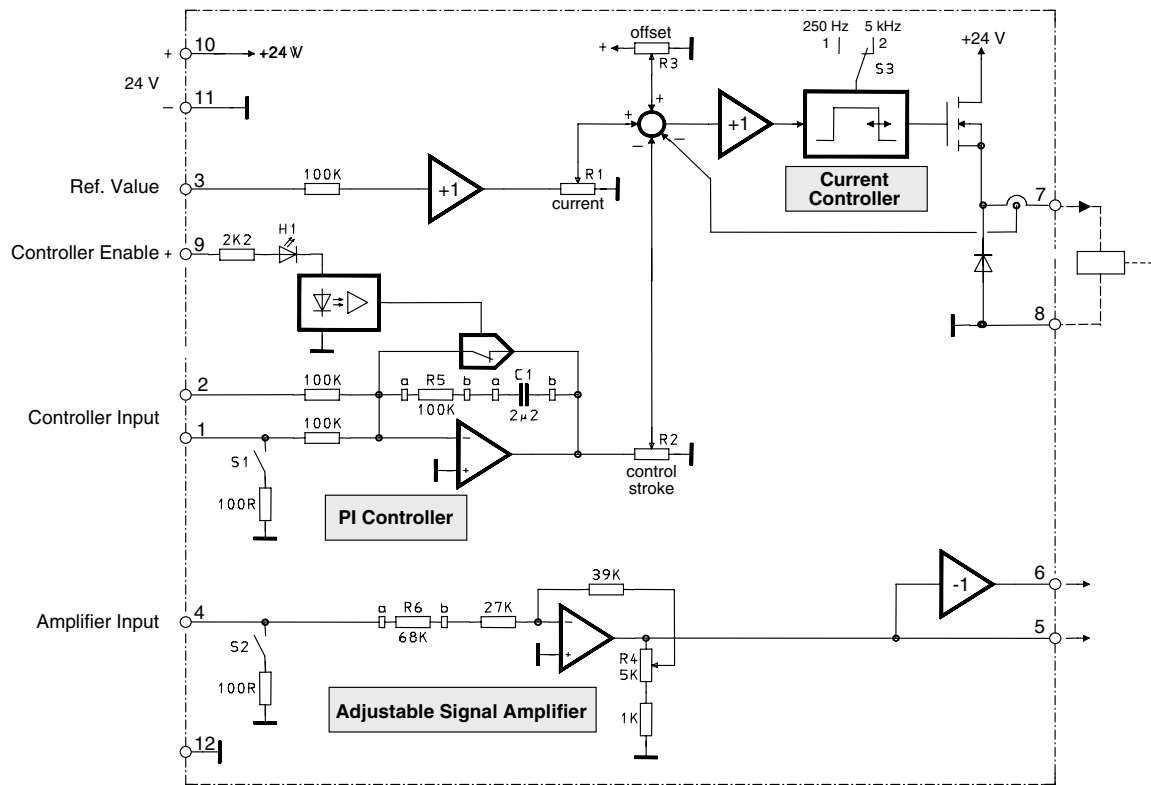
## DIMENSIONS



## GENERAL DIAGRAM



## ELECTRICAL DIAGRAM



Due to the continual development of our products, we reserve the right to modify specifications without forewarning.



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