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Model **MOC3XXX**  
Part Number **Motor Operated Potentiometer**

## INTRODUCTION

The MOC3XXX series of motor operated controls consists of a motor-driven, variable potentiometer housed in a rugged enclosure. MOC limit switches assure that the potentiometer returns to the center position regardless of the starting position. MOC3XXX controls can be specified for use with 24 Vdc, 32 Vdc, 48 Vdc, or 120 Vdc control power.

## MODEL NUMBER DEFINITION

The model number for this series of MOCs consists of the prefix MOC3 followed by three digits. The first digit establishes the input control voltage. The second and third digits establish the output control element characteristics. Table 1 lists the available model numbers and the corresponding operating characteristics. For example, MOC3105 has a 120 Vdc control input and a 500 ohm, 2 watt potentiometer.

**Table 1. MOC3XXX Model Definitions**

Model Number	Motor Drive Voltage *	Control Element	Resistance in Ohms	Maximum Power	Adjustment Rate	Traverse Time
<b>MOC3</b>	1: 120 Vdc	<b>02:</b> Potentiometer †	175, ±10%	10 W	8.15 Ω/s	21.5 s
	2: 48 Vdc	<b>03:</b> Potentiometer †	250, ±5%	2 W	3.13 Ω/s	80 s
	3: 32 Vdc	<b>04:</b> Potentiometer †	250, ±10%	10 W	11.7 Ω/s	21.5 s
	4: 24 Vdc	<b>05:</b> Potentiometer †	500, ±5%	2 W	6.26 Ω/s	80 s
	9: Special	<b>07:</b> Potentiometer †	5,000, ±10%	10 W	237.6 Ω/s	21.5 s
		<b>99:</b> Special ‡ (Specify potentiometer resistance and power rating.)				

### Table 1 Notes

- \* Motor drive voltage values have a tolerance of ±10%.
- † Potentiometers have a linear taper.
- ‡ Special linear, wire-wound potentiometers are available with normal resolution or precise resolution. Normal resolution potentiometers are available with a power rating of 10 watts and resistance values within the range of 1 to 25,000 ohms. Precise resolution potentiometers are available with a power rating of 2 watts and resistance values within the range of 10 to 10,000 ohms.

## SPECIFICATIONS

MOC3XXX electrical and physical specifications are listed in the following paragraphs.

### Motor Drive Power

Nominal Voltage: 24 Vdc, 32 Vdc, 48 Vdc, or 120 Vdc  
Maximum Voltage: Withstands 135% of the nominal value for 5 minutes  
Maximum Current: 0.3 Adc

### Control Element

Linear, wire-wound potentiometers are available in two basic types: normal resolution (10 W rating) and precise resolution (2 W rating).

### Limit Switches

Motor-driven and auxiliary NC-NO (Form C) limit switches are factory preset at 2%, ±0.5% of the element electrical rotational limit. Auxiliary switches are user-adjustable. Limit switch ratings are 5 Aac at 250 Vac, 0.5 Adc at 125 Vdc, and 0.25 Adc at 250 Vdc, resistive.

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## Dynamic Braking

Motor shaft rotation stops within 10 ms after shorting of motor terminals.

## Shock Withstand Capability

Withstands 15 G in all planes.

## Operating Temperature

–40 to 70°C (–40 to 158°F)

## Weight

Net: 9 lb. (4.08 kg)  
Shipping: 10.5 lb. (4.76 kg)

## FUNCTIONAL DESCRIPTION

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Control power of 24 Vdc, 32 Vdc, 48 Vdc, or 120 Vdc is applied at terminals 1 and 2. It is decreased, as necessary, by internal resistors to 24 Vdc at terminals 3 (negative) and 4 (positive). This 24 Vdc is applied to the motor through a network of external switches which allow application of the 24 Vdc in either polarity. The polarity is determined by the need to raise or lower the system parameter controlled by the MOC. When a raise or lower input is received, voltage is applied to the motor, causing it to rotate and move the slider of the potentiometer.

If a raise input is received, the polarity of the applied motor voltage causes the motor and potentiometer to rotate in the clockwise direction. This clockwise rotation continues until 24 Vdc is removed from the motor due to removal of the raise input or activation of the clockwise limit switch.

If a lower input is received, the polarity of the applied motor voltage causes the motor and potentiometer to rotate in the counterclockwise direction. This counterclockwise rotation continues until 24 Vdc is removed from the motor due to removal of the lower input or activation of the counterclockwise limit switch.

Dynamic braking is obtained by placing a short-circuit across terminals 5 and 7. An available accessory switch provides the necessary contact arrangement for the raise/lower function and dynamic braking.

Terminals 8 and 13 are connected internally to switches which provide the centering feature.

## ACCESSORIES

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MOC3XX accessories consist of switch and dial plate sets. Each set is supplied with a rotary, three-position, momentary-action switch with a pistol-grip handle.

For a switch with a blank dial plate, order Basler part number 9174805106.

For a switch with a dial plate labeled LOWER/OFF/RAISE and FREQUENCY CONTROL, order Basler part number 9174805107.

For a switch with a dial plate labeled LOWER/OFF/RAISE and VOLTAGE CONTROL, order Basler part number 9174805108.

## MOUNTING

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Mounting dimensions for the MOC are illustrated in Figure 1. Dimensions are expressed in inches with millimeters in parenthesis. All dimensions listed have a tolerance of  $\pm 0.03$  inches ( $\pm 0.762$  millimeters).

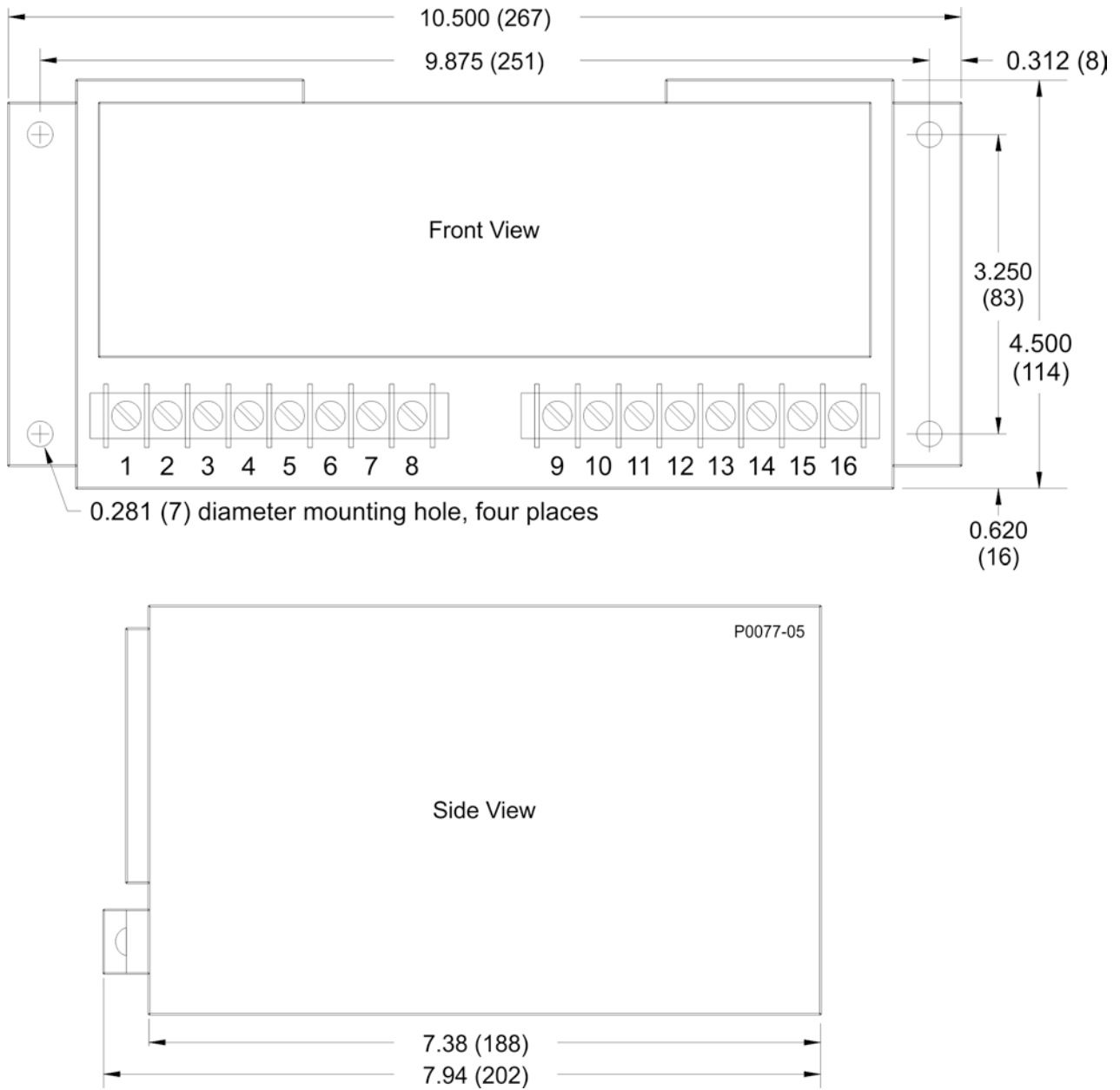
## CONNECTIONS

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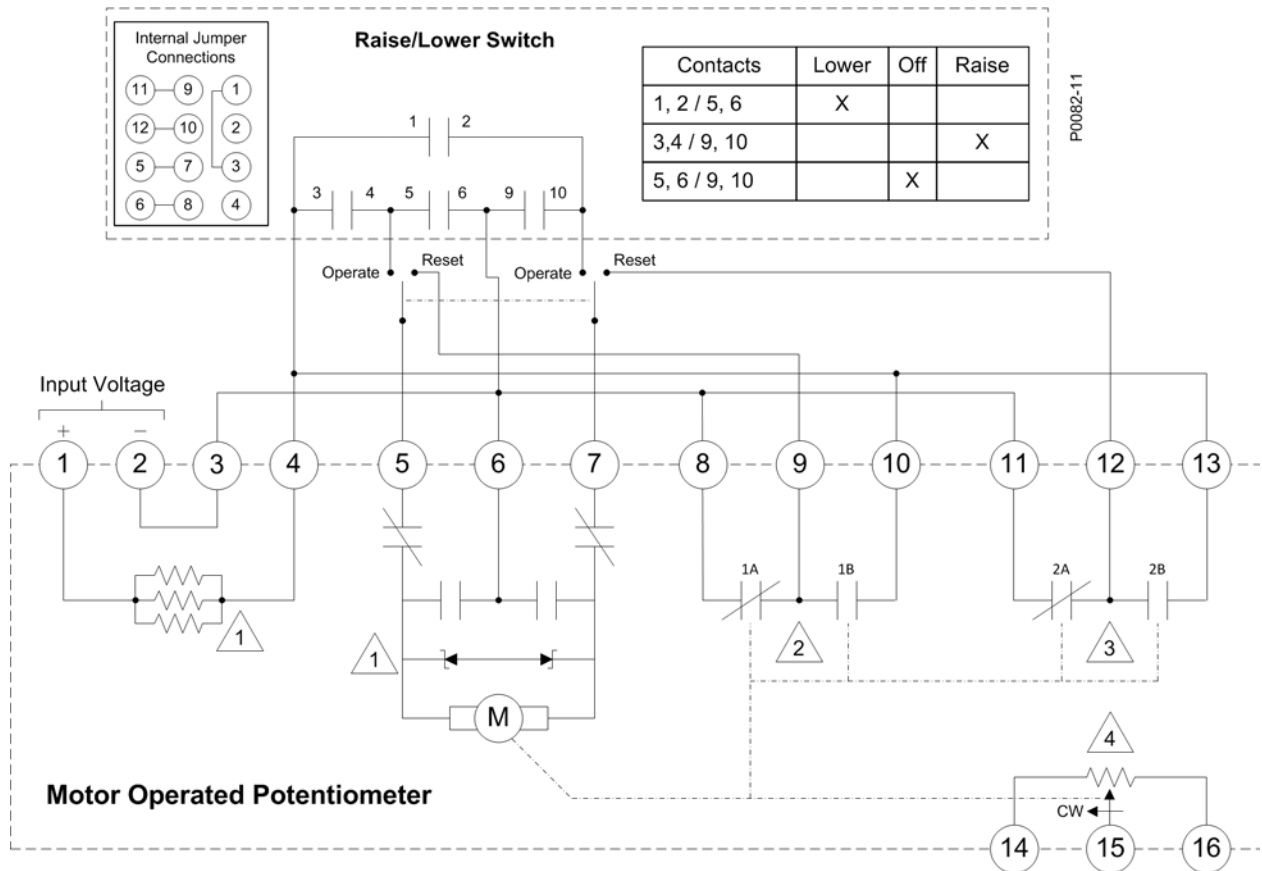
Typical MOC3XXX connections are illustrated in Figure 2. When making MOC connections, observe the following guidelines:

- Each terminal accommodates a maximum wire size of 12 AWG (3.31 mm<sup>2</sup>).
- When tightening each terminal screw, apply no more than 9 inch-pounds (1 N•m) of torque.

Publication <b>9148100990</b>	Revision <b>C</b>	<b>Instructions</b>	Date <b>03/16</b>	Page <b>2 of 4</b>
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**Figure 1. MOC3XXX Mounting Dimensions**



- 1 Components not installed when 24 Vdc control power is specified.
- 2 Actuated by counterclockwise rotation. Return-to-center contacts shown in center position.
- 3 Actuated by clockwise rotation. Return-to-center contacts shown in center position.
- 4 Clockwise rotation is obtained with voltage applied to terminals 5 (+) and 7 (-) or with switch in Raise position.

Figure 2. MOC3XXX Connections