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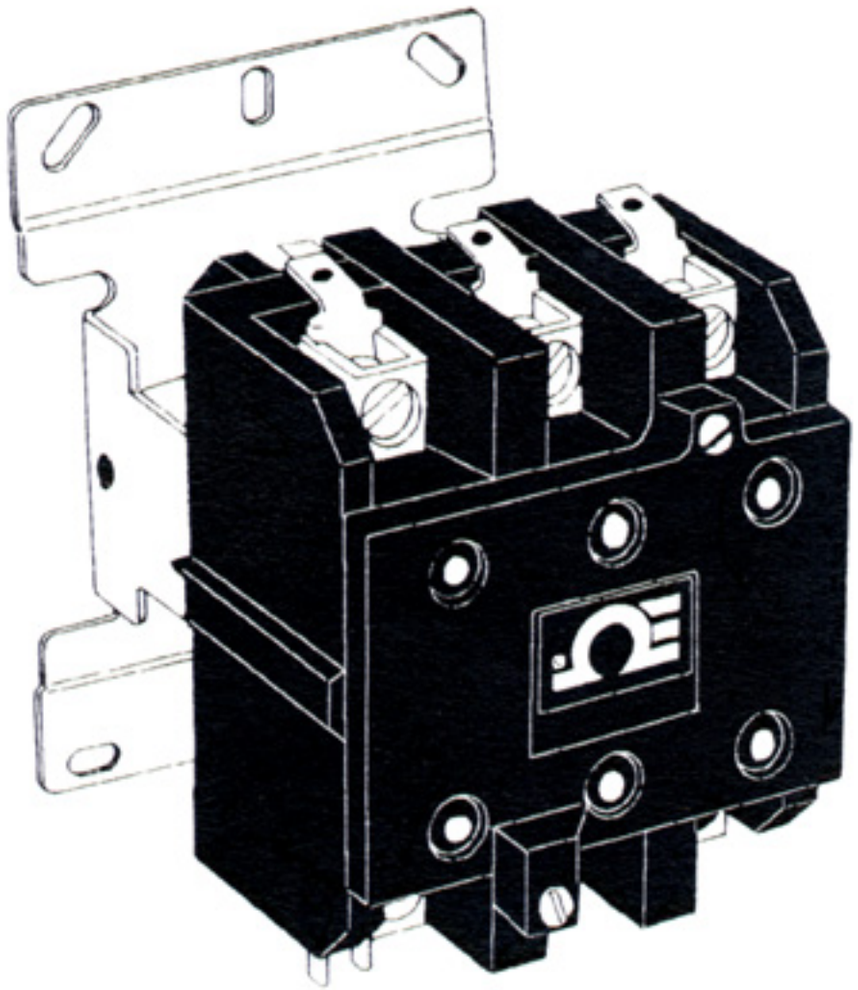
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User's Guide



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MC1, MC2, MC3
Magnetic Contractors

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MC1, MC2, MC3
Magnetic Connectors

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SECTION 1 INTRODUCTION

1.1 General Description

MC1, MC2, and MC3 magnetic contactors are actuated by either 120 Vac or 240 Vac control signals. They are designed for resistive (non-inductive) loads, however can be used for inductive loads by derating-see Table 2, in Section 5.

These contactors are well suited for temperature control applications where heat is supplied by electric resistance heaters. Use virtually any OMEGA® temperature controller with a relay output and wire-up to the MC contactor using the wiring schematics in Section 2.

1.2 Configurations

An OMEGA® magnetic controller is a two or three-pole normally open relay, capable of more than 500,000 cycles of operation. They are available to operate from either 120 V or 240 V alternating current (Vac).

A NEMA 1 enclosure is available for MC2 style contactors.

1.3 Features

1. Efficient low Va magnet design assures long mechanical life.
2. Silver cadmium oxide contacts have superior weld resistance, high conductivity and high resistance to arc erosion.
3. 600 volt spacing gives protection against arc over.
4. Efficient, cool running coils have double quick connects as standard.
5. Straight-thru wiring and easily accessible screws make wiring easy.

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SECTION 2 INSTALLATION

2.1 Unpacking

Remove the Packing List and verify that you have received all equipment. If you have any questions about your shipment, please call the OMEGA® Customer Service Department.

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor any claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

2.2 Mounting

1. Check that the load does not exceed the rating of the contacts.
2. Mount contactor upright on rigid vertical support.
3. Remove shim or spacer used to block armature open during shipment.
4. Be sure that voltage on coil label agrees with control voltage. Side by side grouping is possible since all terminals are front accessible.

The magnetic contactor can be located close to the load, minimizing the lengths of power cables. The actuating device, such as a temperature controller, can then be located in an area more convenient to the operator.

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WARNING

WARNING! Disconnect voltage before working on electrical equipment.

2.3 Fusing

All magnetic contactors must be fused when they are wired by the user. Fuse rating not to exceed the contact rating.

NOTE

NOTE: 120 V circuit requires one fuse. 240 V circuit requires two fuses; one in each line. A three phase circuit requires three fuses; one in each line.

2.4 Wiring

Adding an OMEGA® magnetic contactor to the output of a temperature controller is the best way to extend the temperature controller's power switching capabilities. See Figure 2-1 for 120 Vac load, Figure 2-2 for 240 Vac loads and Figure 2-3 for 240 Vac three phase loads.

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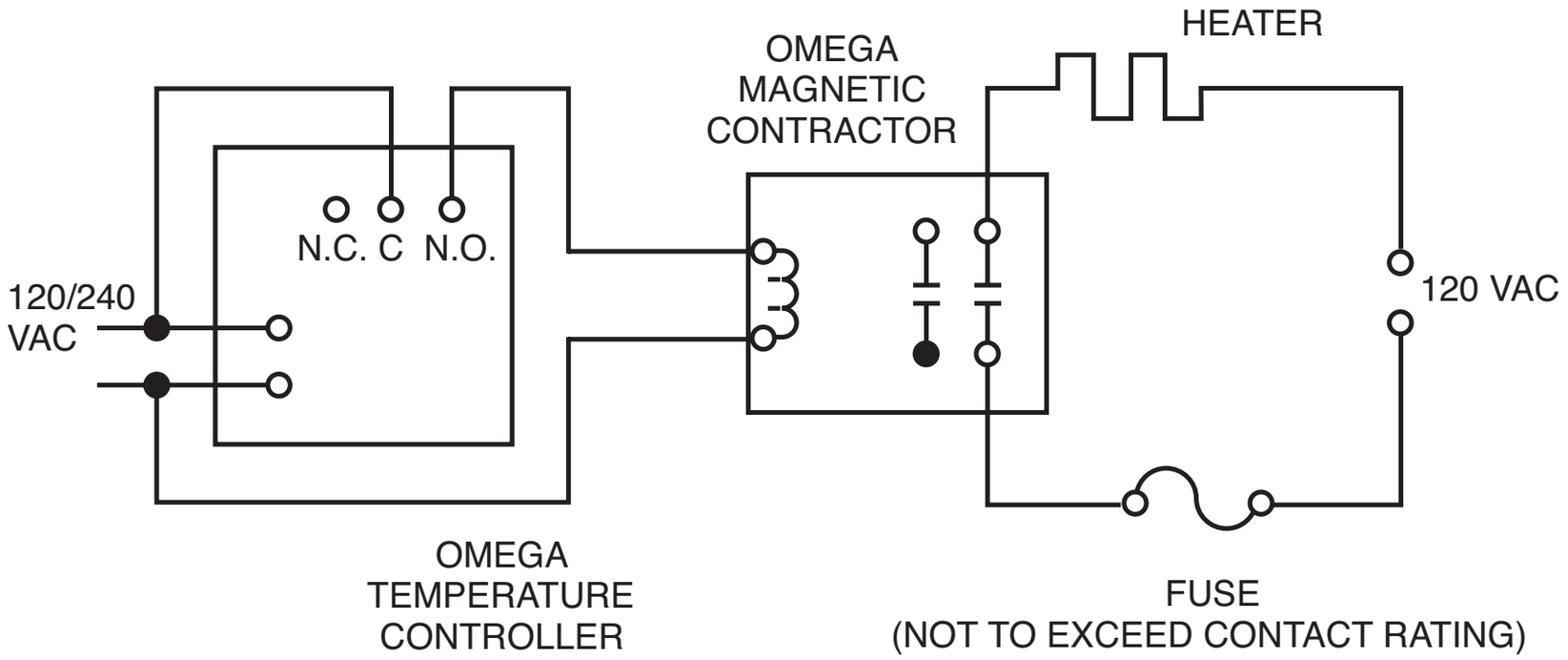


Figure 2-1. Wiring For 120 Vac Load

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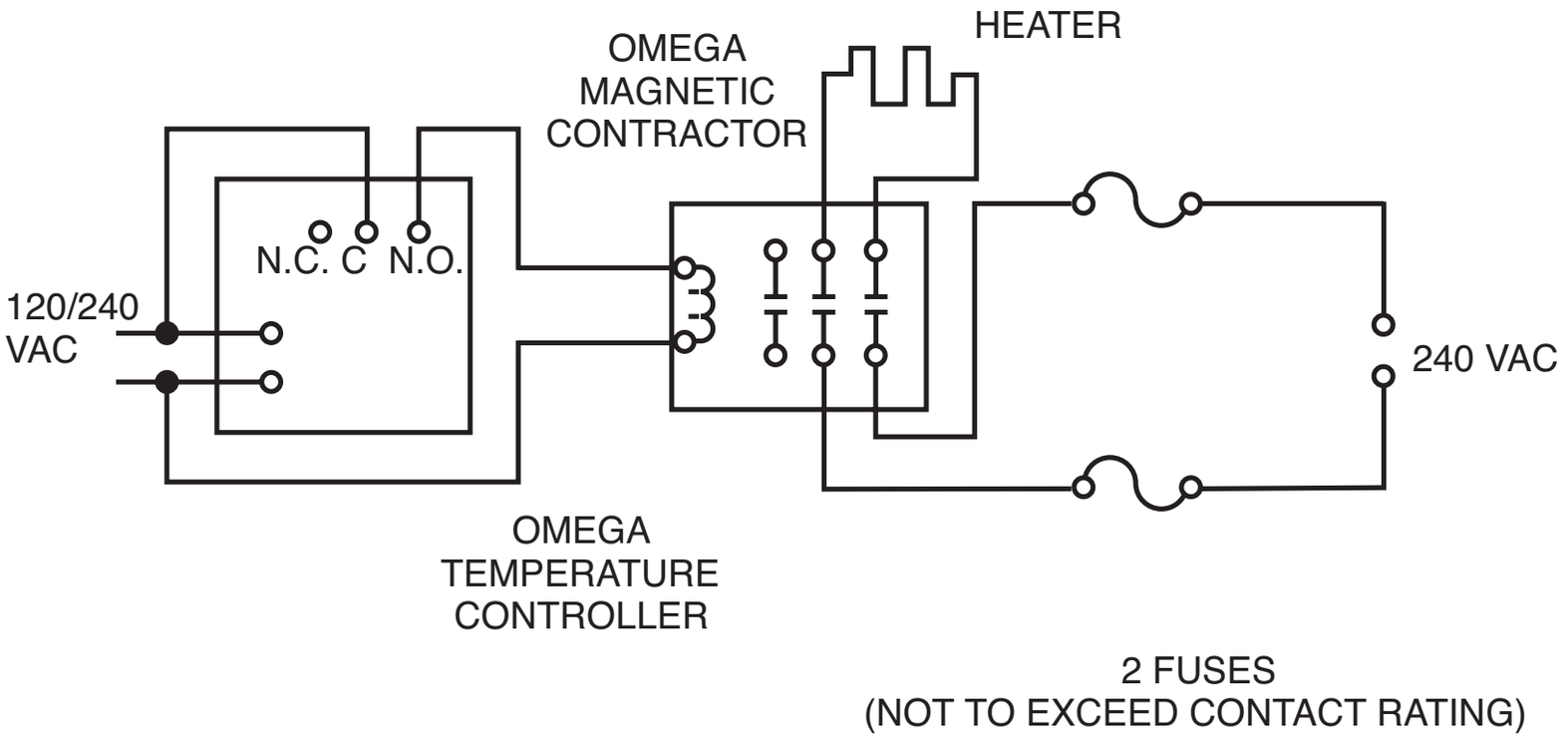


Figure 2-2. Wiring For 240 Vac Load

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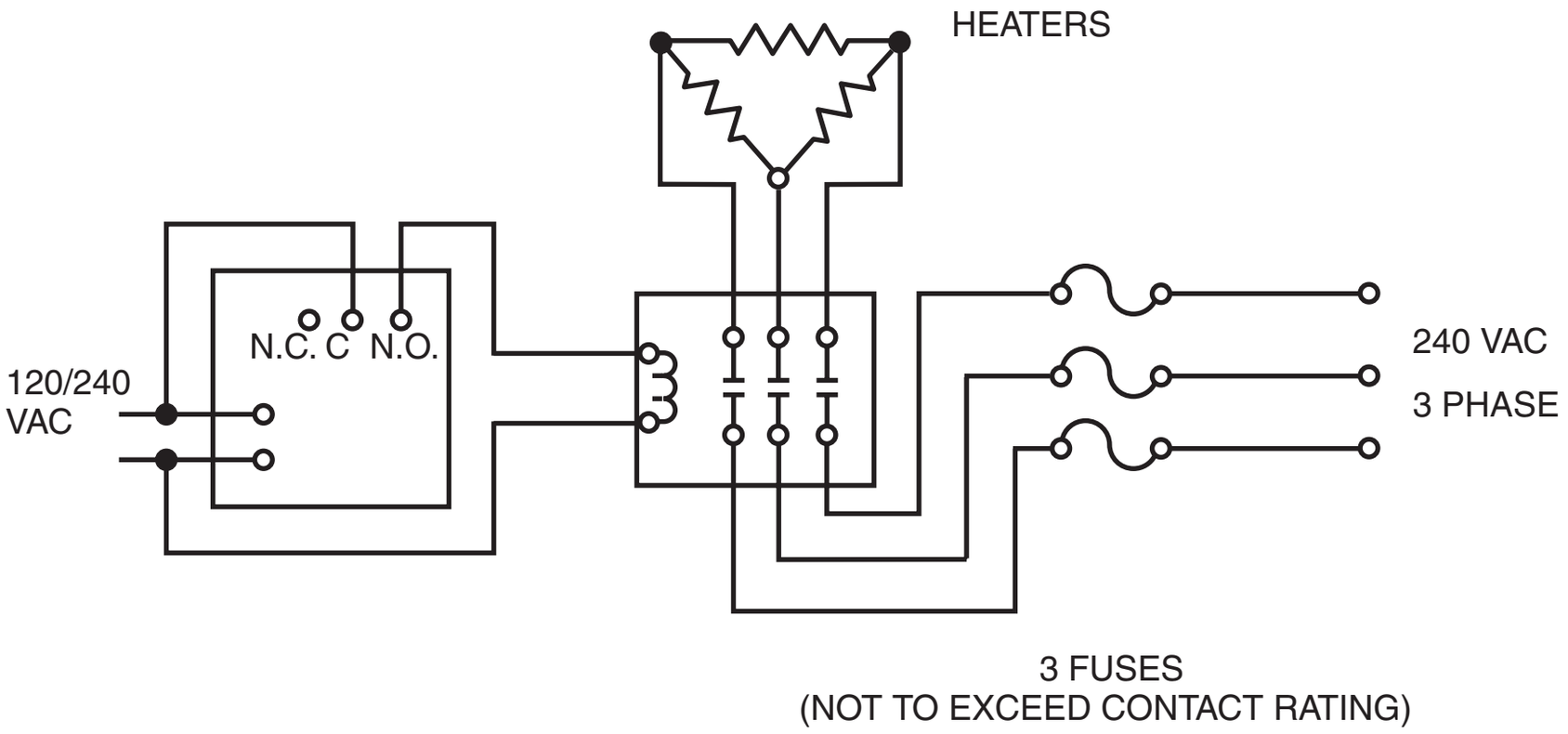


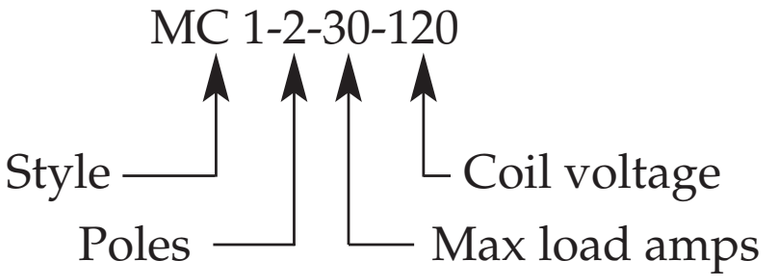
Figure 2-3. Wiring For 240 Vac Three Phase Load

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SECTION 3 SELECTION AND APPLICATION

To select the correct magnetic contactor, three electrical requirements should be considered: 1) number of poles, 2) maximum resistive load amperes, 3) control coil voltage. Refer to the catalog number and nominal ratings in Table 1.

Typical Catalog No.



3.1 Voltage Rating of Contacts

All contacts are rated to 600 V max.

3.2 Applications Rating Guide

The applications rating guide in Table 1 aids in selection of the proper magnetic contactor. It assumes that all electrical parameters will be within the limits of the recommended magnetic contactor.

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Table 1
Rating Guide

Catalog Number	MC1-2-30-120 -240	MC2-2-40-120 -240	MC2-3-40-120 -240	MC2-3-50-240	MC3-3-75-240
Non-inductive Amps	30	40	40	50	75
Full Load Amps	20	30	30	40	60
Locked Rotor Amps at					
240V	120	180	180	240	360
480V	100	150	150	200	300
600V	80	120	120	160	240
No. of Poles	2	2	3	3	3
Wire Size	16-8	16-8	16-8	14-6	14-2

NOTES: Contacts are rated to 600 V MAX.
Poles cannot be used in parallel to increase current rating.
Contactors do not provide overload protection for motors.
Contactor must be mounted vertically.

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SECTION 4 SERVICE INFORMATION

4.1 Maintenance

In many applications, the magnetic contactor can be expected to be trouble free during the operating life of the equipment it is used with. However, periodic inspections of the equipment should include routine inspection of the contactor.

4.2 Routine Inspection

WARNING

Disconnect primary power source prior to inspection.

1. Never oil any part of the magnetic contactor.
2. Periodic cleaning by blowing out dust, and particles, which may have accumulated within the contactor.
3. Check surrounding area for new sources of dust, oil, or corrosive vapors not present at the time of installation. The enclosure may have been satisfactory when the contactor was installed, however, the proximity of new production equipment or processes might, for example, make it necessary to change enclosures or to shield the existing one from oil spray or excessive dust.
4. Inspect insulation on wires. Conductors must be clear of all moving parts.
5. Examine contacts-cleaning is not required since the contact material is a special pre-oxidized Silver cadmium oxide alloy. Replacement is required only when the contact material is almost worn down to the backing.

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6. Check magnet pole faces for oil deposits. If oil is present, carefully clean pole faces with solvent. This will prevent an accumulation of dust and a potentially sticky magnet.
7. Check terminal screws for tightness.

SECTION 5 SPECIFICATIONS

Table 2 Electrical

Catalog Number	MC1-2-30-120 -240	MC2-2-40-120 -240	MC2-3-40-120 -240	MC2-3-50-240	MC3-3-75-240
Non-inductive Amps	30	40	40	50	75
Full Load Amps	20	30	30	40	60
Locked Rotor Amps at					
240V	120	180	180	240	360
480V	100	150	150	200	300
600V	80	120	120	160	240
No. of Poles	2	2	3	3	3
Wire Size	16-8	16-8	16-8	14-6	14-2
Inrush Va	37.4	52	52	92	200
Sealed VA	7.68	6.2	6.2	10	31
Sealed Watts	2.8	2.5	2.5	4.0	13.5
Pull-in Volts	80%	85%	85%	76%	85%
Drop-out Volts	53%	50%	50%	58%	50%

NOTES: Contacts are rated to 600 V MAX.
Poles cannot be used in parallel to increase current rating.
Contactors do not provide overload protection for motors.
Contactor must be mounted vertically.

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SECTION 5 SPECIFICATIONS (Cont'd)

Outline Dimensions:

Models MC1-2-30-120 and MC1-2-30-240 (See Figure 5-1).

Models MC2-2-40-120, MC2-2-40-240, MC2-3-40-120, MC2-3-40-240, and MC2-3-50-240 (See Figure 5-2).

Model MC3-3-75-240 (See Figure 5-3).

Enclosure for MC2 Models only (See Figure 5-4).

Electrical:

Contacts: 600 V MAX.

Magnet Coil: Single voltage, 120 or 240 Vac, 50/60 Hertz.

Mechanical Life: Over 500,000 operations.

Contactor is designed for "no contact" potential when mounted on vertical panel.

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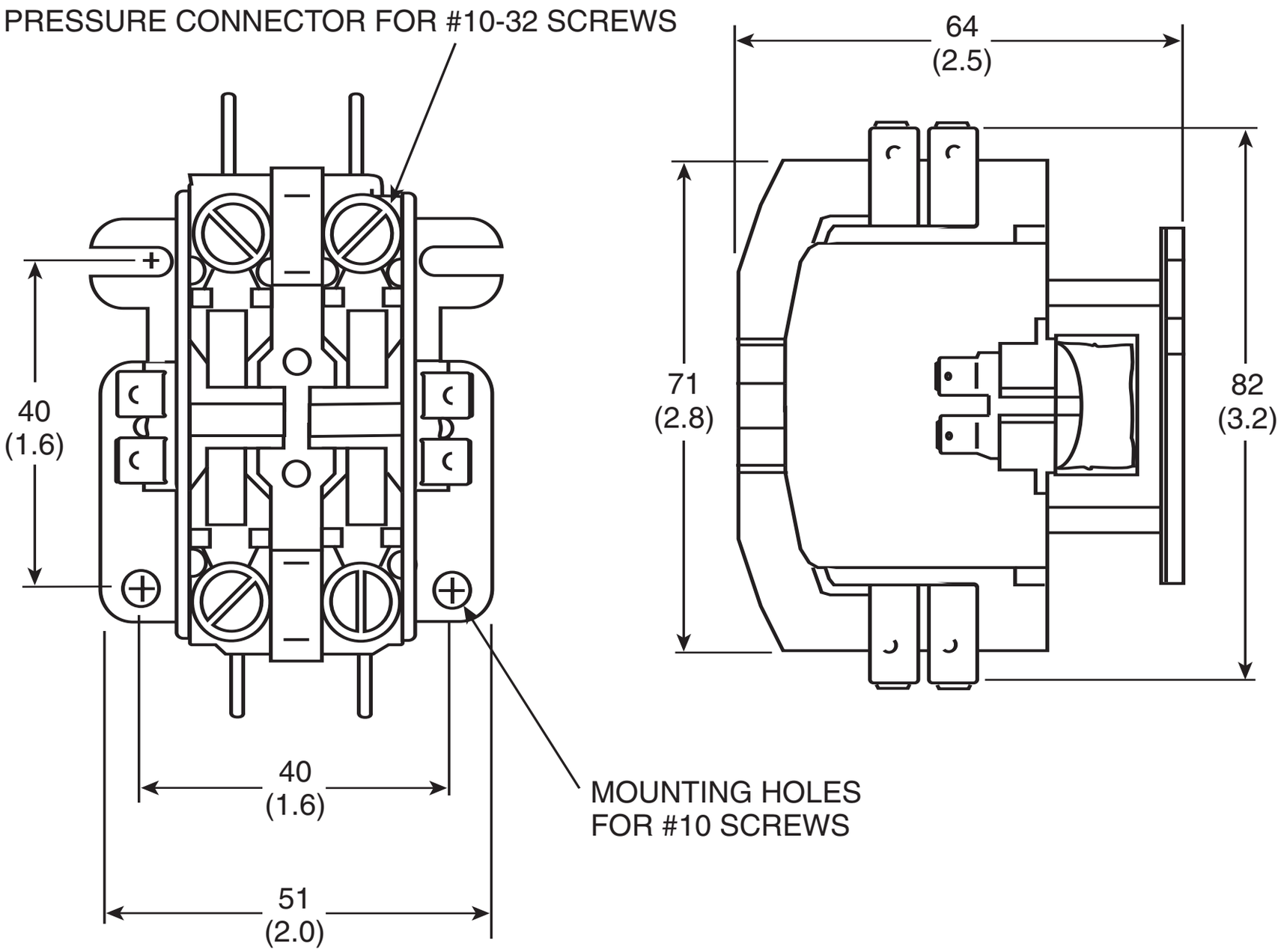


Figure 5-1. Dimensions for Style MC1

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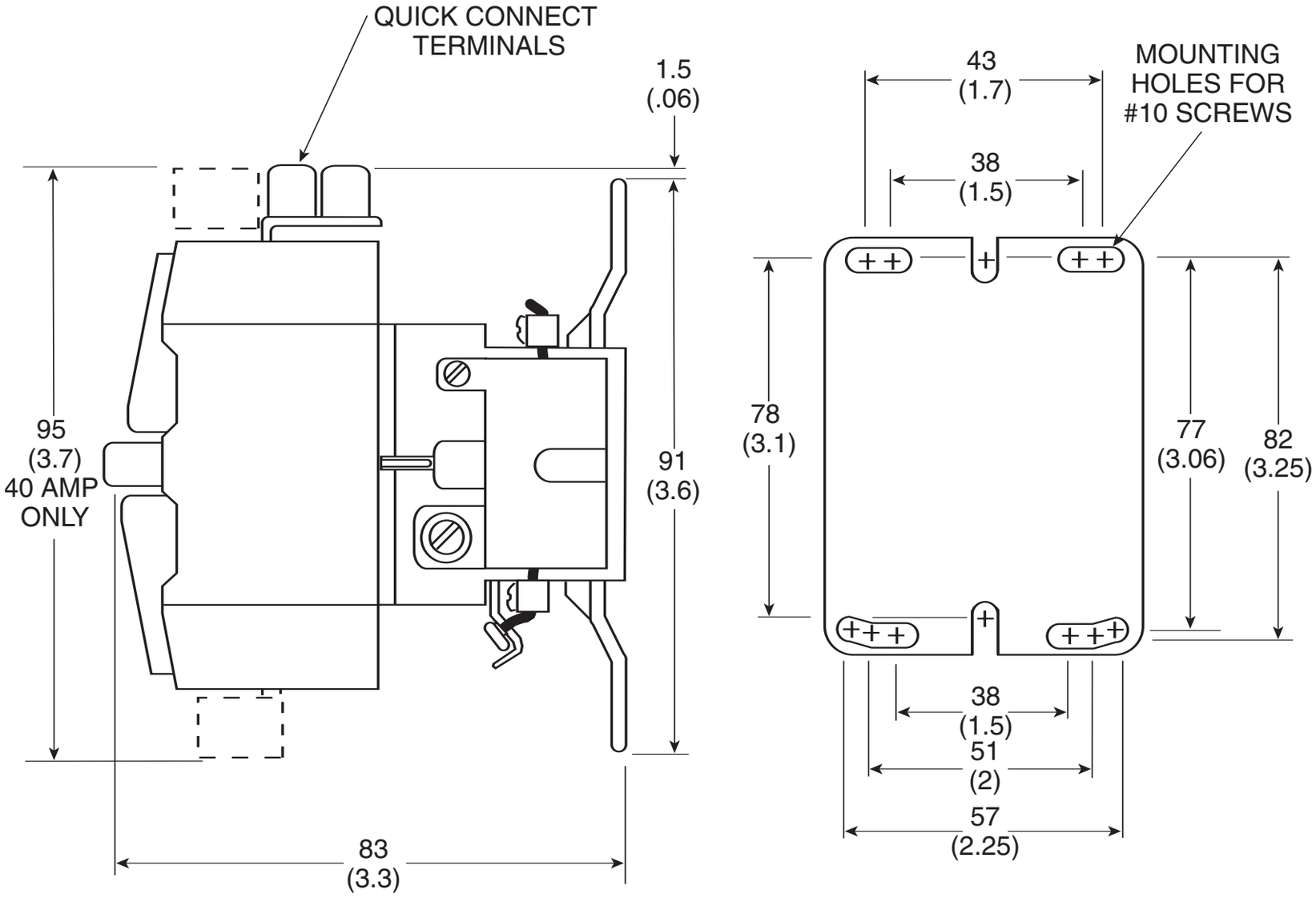


Figure 5-2. Dimensions for Style MC2

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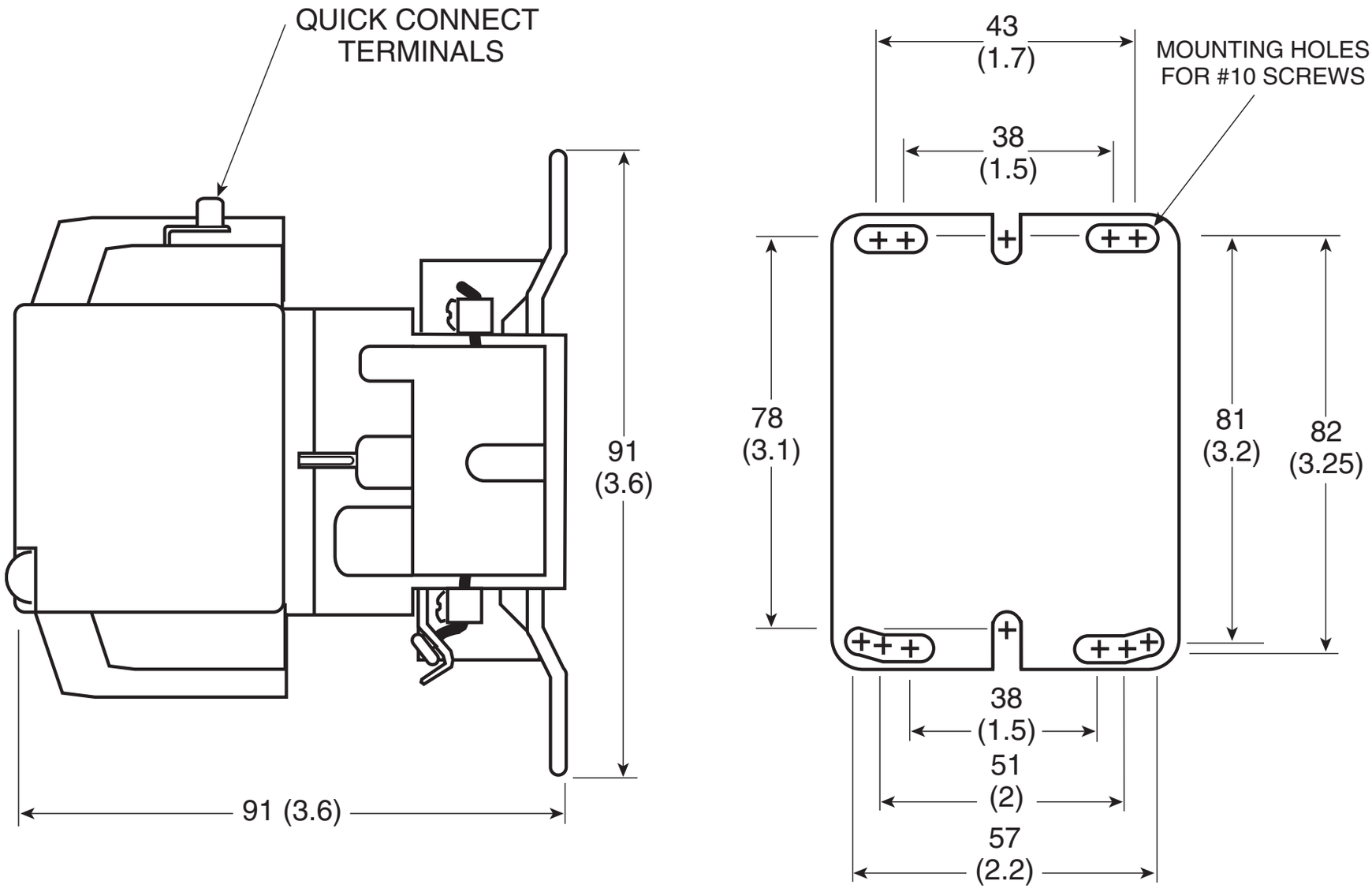


Figure 5-3. Dimensions for Style MC3

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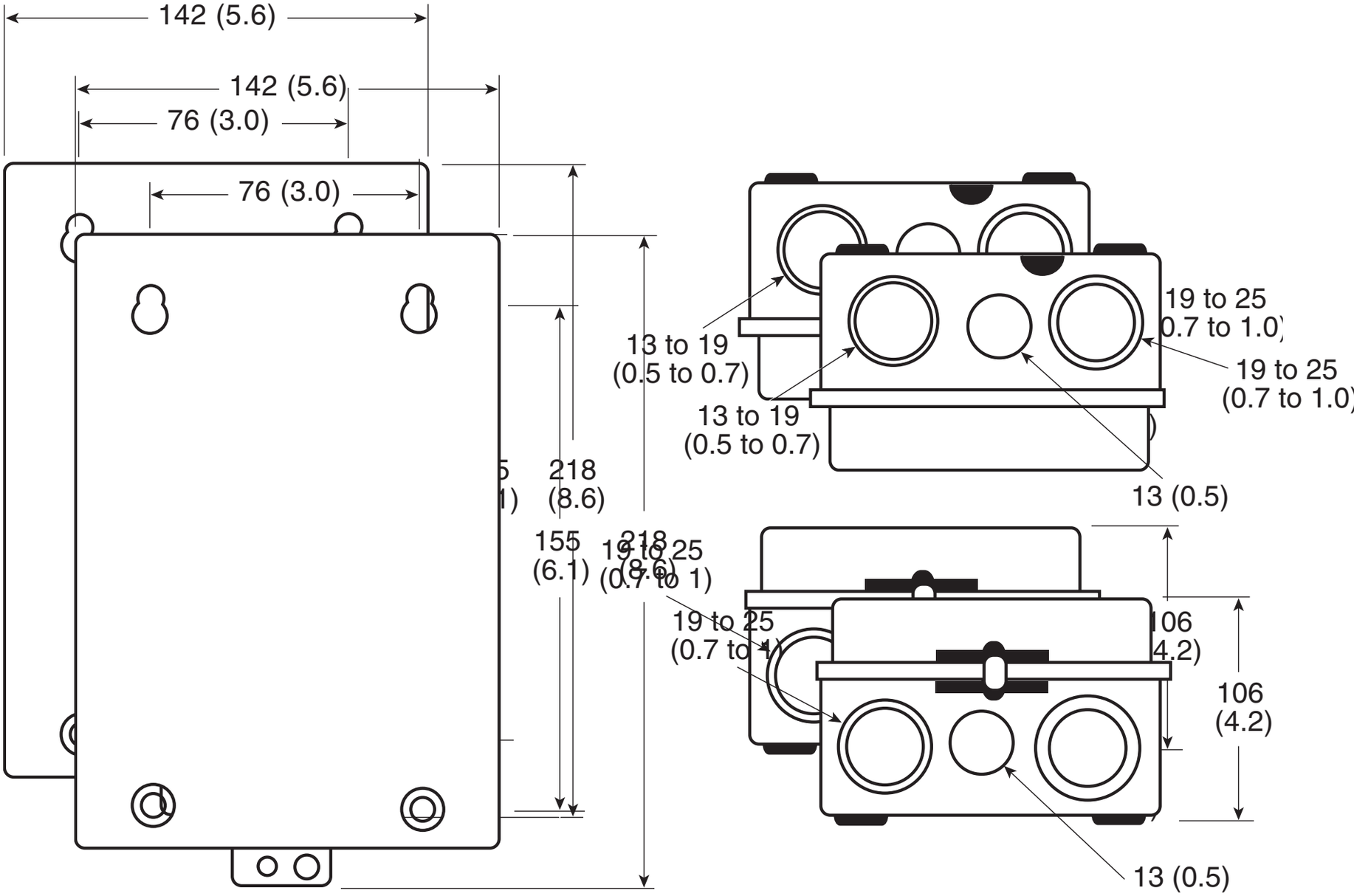


Figure 5-4. NEMA 1 Enclosure Style EN-MC2

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FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

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2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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1. Purchase Order number to cover the COST of the repair,
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