

# INSTALLATION & OPERATING INSTRUCTIONS

# GRÄSSLIN™

by Intermatic

## GM40AV Series General Purpose Electromechanical Commercial Time Switches

### ⚠ WARNING

- To avoid fire, shock, or death, turn off power at circuit breaker and test that power is off before wiring.
- Read instructions completely before installation and retain for future reference.
- Observe all national and local electrical and safety codes.
- Disconnect power when servicing or changing loads.
- Alterations or modifications to the device will void the warranty.
- For outdoor locations, rain-tight or wet location conduit hubs that comply with the requirements of UL 514B Conduit, Tubing, and Cable Fittings, must be used.

### INSTALLATION INSTRUCTIONS

1. To avoid fire, shock, or death, turn off power at the circuit breaker and test that power is off before wiring.
2. Open door and remove the interior protective cover by releasing the spring latch (see figure 1 below).
3. Remove the printed circuit board by releasing the spring latch holding the bottom of the board (see figure 2 below).
4. Select knockouts to be used. Remove the inner 1/2" knockout by inserting a flathead screwdriver in the slot and carefully punch the knockout loose. Remove slug. If 3/4" knockout is required, remove the outer ring with pliers after removing the 1/2" knockout. Smooth edge with knife, if necessary.
5. Place the enclosure in the desired mounting location, and mark the three mounting holes (refer to Figure 3 below for dimensions). Install the top screw first with one of the supplied spacers, and then hang the enclosure by the key-hole. Drive the remaining two screws at the bottom of the enclosure through the mounting holes while passing each screw through one of the supplied spacers and in to the wall.
6. Connect conduit hubs to conduit before connecting the hubs to the enclosure. After inserting hubs into enclosure, carefully tighten hub lock nut. Do not over-torque.
7. Replace printed circuit board making sure to engage spring latch at the bottom of PCB.
8. Wire in accordance with national and local electrical and safety codes (see wiring diagrams on page 3).
9. Grounding: Terminate all ground wires to the ground lug inside the case at the bottom of the enclosure.
10. Replace interior protective cover.



### ELECTRICAL RATINGS

#### N.O. Contacts:

- 40A Resistive @ 120-277VAC
- 1HP, 16FLA, 90LRA @ 120VAC
- 2HP, 12FLA, 52LRA @ 208-277VAC
- 30A Ballast @ 120VAC
- 20A Ballast @ 277VAC
- 15A Tungsten @ 120VAC
- 300VA Pilot Duty 120-240VAC

#### N.C. Contacts:

- 30A Resistive @ 120-277VAC
- 1HP, 12FLA, 30LRA @ 120VAC
- 2HP, 10FLA, 30LRA @ 240VAC
- 2A Tungsten @ 120VAC
- 10A Ballast @ 277VAC

### WIRING CONNECTIONS:

Screw box lug terminals

### ENVIRONMENTAL RATINGS:

- Operating Temperature Range:  
-40°F to 131°F (-40°C to 55°C)
- Operating Humidity:  
10 - 95% RH, non-condensing

### ENCLOSURE DIMENSIONS:

8.795" x 6.631" x 2.935"  
(H x W x D)

### SHIPPING WEIGHT:

2 lbs.

### AGENCY APPROVALS:

UL Listed

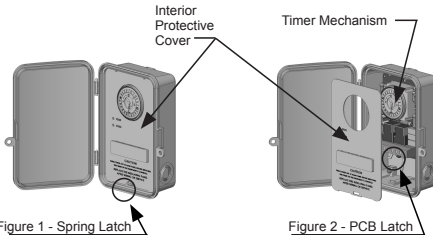


Figure 1 - Spring Latch

Figure 2 - PCB Latch

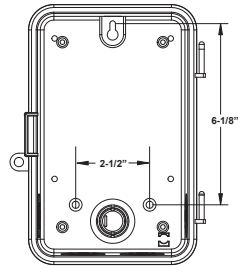


Figure 3 - Rear View of Enclosure with mounting hole dimensions

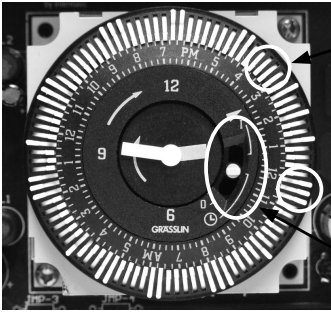
### PROGRAMMING INSTRUCTIONS

#### SETTING THE CLOCK TIME

Rotate the program dial gradually clockwise until the time of day on the outer dial is nearly aligned with the triangle marker at the 2 o'clock position. Then set time to the minute by rotating minute hand clockwise until the time of day (and AM or PM) on the outer dial is aligned with the triangle marker on the inner dial. **NOTICE! Do not rotate the dial or minute hand counter-clockwise. Doing so will damage the timer.**

#### SETTING ON/OFF TIMES

Move the white tab (tripper) on the outer dial outward at the start of the desired ON period. Move each adjacent tab outward until the desired OFF time is reached. (See illustrations on page 2)



**TRIPPERS IN**

Relays: OFF - Green Status LED: OFF  
(Normally-open contacts open)

**TRIPPERS OUT**

Relays: ON - Green Status LED: ON  
(Normally-open contacts closed)

**MANUAL OVERRIDE OPERATION**

With the manual switch in the **middle position**, the GM40AV is in automatic mode and will switch at the programmed times.  
In the **upper position "I"**, the load is continuously ON.  
In the **lower position, "O"**, the load is continuously OFF.

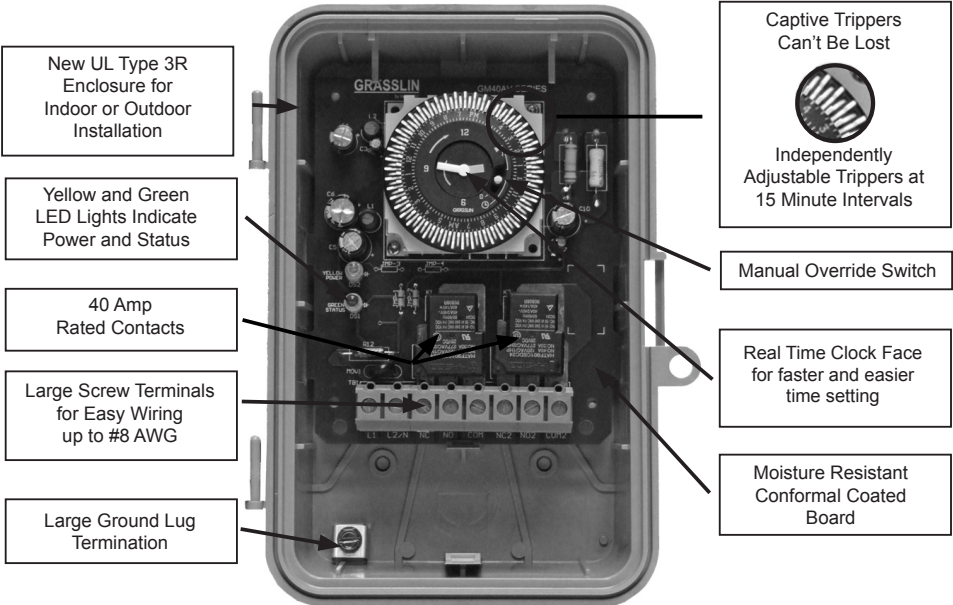
**APPLICATION**

The GM40AV Series Time Controls are universal, electronic time switches designed for general purpose commercial applications. The control operates on any AC voltage from 120VAC to 277VAC. The mechanism is mounted in an enclosure and has been designed for the control of lighting, heating, air conditioning, pumps, motors, or general electrical circuits in residential, commercial, industrial and agricultural facilities.

**SPECIFIERS GUIDE**

Furnish and install an Intermatic GM40AV Auto-Volt Series with 24 hour mechanical timer. The Auto-Volt input voltage range shall be 120VAC to 277VAC. All units shall incorporate two isolated sets of SPDT contacts that are each rated at 40A, 2 HP @ 277V. LED indicators shall provide Power and Status feedback. Enclosure shall be UL Type 3R, suitable for indoor or outdoor installation.

**Automatic Voltage Selection From 120 VAC to 277 VAC**



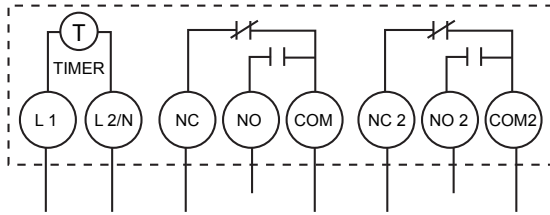
Interior protective cover and door not shown

# ⚠ WARNING

This Time Switch is designed to control one or two single phase loads. Do Not use to directly control three phase loads. Consult a qualified electrician if you are required to control three phase equipment.

## NOTICE

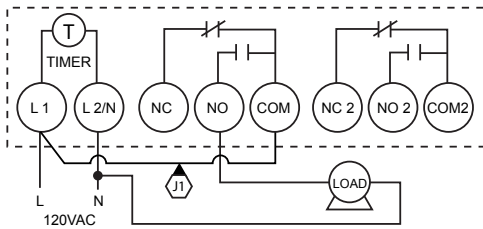
### GM40AV SERIES TERMINAL DESIGNATIONS



- The circuit conductors shall have an ampacity not less than the maximum total load to be controlled.
- For all connections, use min. 8 AWG wire for 40 A loads or 10 AWG for 30 A loads, min. 90 °C (194 °F) rating.
- Over current protection shall have an interrupting rating sufficient for the application control circuit voltage and the total load current of the equipment being controlled.
- A fuse or circuit breaker shall be connected in series with each ungrounded conductor (and shall be able to simultaneously open each conductor).
- Jumper wires are not included.

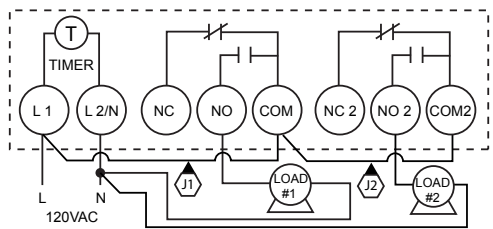
### GM40AV SERIES TYPICAL WIRING DIAGRAMS

#### 120 VAC One Load



When the GM40AV is used to control a single phase 120 VAC load, connect a jumper wire (J1) between L1 and COM.

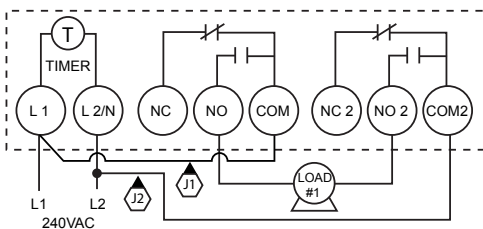
#### 120 VAC Two Loads



When the GM40AV is used to control two single phase 120 VAC loads, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between COM and COM2.

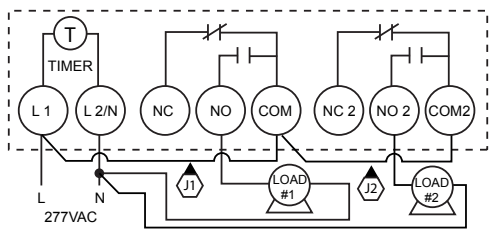
**NOTICE!** Make sure that the combined amperage of Load 1 and Load 2 do not exceed the limits of the feed circuit.

#### 240 VAC One Load



When the GM40AV is used to control a single phase 240 VAC load, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between L2 and COM2.

#### 277 VAC Two Loads



When the GM40AV is used to control two single phase 277 VAC loads, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between COM and COM2.

**NOTICE!** Make sure that the combined amperage of Load 1 and Load 2 does not exceed the limits of the feed circuit.

# GM40AV SERIES TROUBLESHOOTING GUIDE

## **WARNING**

- Some terminals in the Time Switch may be energized even if the yellow and green LED indicators are OFF.
- Check all terminals and wires with an appropriate voltage checker before touching.

### **PROBLEM: LOAD (Lights/Pumps/Motors, etc) will NOT turn ON or OFF**

1. Verify that all wiring connections are correct. (Refer to wiring diagrams on page 3)
2. Check the YELLOW Power LED. If ON, it indicates that power is applied to the GM40AV.
3. Slide the Manual Override Switch to the upper [ON] position. If wired for use, the loads connected to terminals (NO) or (NO2) should turn ON.  
NOTE: Check for correct voltage at terminals (NO) and/or (NO2).
4. Slide the Manual Override Switch to the lower [OFF] position. If wired for use, the loads connected to terminals (NO) or (NO2) should turn OFF.  
NOTE: Check that there is no voltage detected at terminals (NO) and/or (NO2).
5. Verify that the trippers are correctly positioned for the desired ON and OFF times. Slide the Manual Override Switch to the middle position for automatic time switching.

### **LIMITED ONE YEAR WARRANTY**

If within the warranty period specified, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it, at its sole option, free of charge. This warranty is extended to the original purchaser only and is not transferable. This warranty does not apply to: (a) damage to units caused by accident, dropping or abuse in handling, acts of God or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product; (e) sealed lamps and/or lamp bulbs, LED's and batteries; (f) the finish on any portion of the product, such as surface and/or weathering, as this is considered normal wear and tear; (g) transit damage, initial installation costs, removal costs, or reinstallation costs.

INTERMATIC INCORPORATED WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY MODIFIED TO EXIST ONLY AS CONTAINED IN THIS LIMITED WARRANTY, AND SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) completing a warranty claim on line at [www.intermatic.com](http://www.intermatic.com). This warranty is made by: Intermatic Incorporated Customer Service/7777 Winn Rd., Spring Grove, Illinois 60081-9698 / 815-675-7000  
<http://www.intermatic.com>