



# INSTALLATION INSTRUCTIONS

## ARP-8 SERIES

### DUPLEX CONTROLLERS

December 2020, Rev A

901-0000-332



**Potentially hazardous voltages are present. Electrical shock can cause death or serious injury. Installation should be done by qualified personnel following all National, State & Local Codes.**

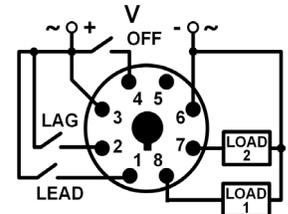
*Présence de tensions potentiellement dangereuses. Une décharge électrique peut causer la mort ou des blessures graves. L'installation devrait être effectuée par du personnel qualifié suivant tous les codes nationaux, provinciaux et locaux.*



**BE SURE TO REMOVE ALL POWER SUPPLYING THIS EQUIPMENT BEFORE CONNECTING OR DISCONNECTING WIRING. READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.**

**Installation & Setup**

Mount the appropriate 8 pin octal socket (Macromatic 70169-D) in a suitable enclosure. Wire the socket per the wiring diagram shown at right or on the side of the time delay relay. **Make sure to match the terminal numbers on the socket to the ones shown on the wiring diagram (the wiring diagram on the relay is the view looking towards the bottom of the relay vs. the top of the socket).** Use one or two #12-22 AWG solid or stranded copper or copper clad aluminum conductors with a tightening torque of 12 in-lbs. Plug the Duplex Controller into the socket, making sure the key on the center post is in the proper orientation before insertion. **If the relay must be removed from the socket, do NOT rock the relay back and forth excessively—the center post could be damaged.**



**DIAGRAM 58**

**Operation**

In the initial OFF state, all three switches are open, the Duplex Pump Controller is in the LOAD 1 position, and both loads are off. No action happens with the Controller or either load when the OFF switch closes. When the LEAD Switch closes, LOAD 1 turns on. When the LAG Switch closes, LOAD 2 turns on. Both loads remain on as long as all three switches are closed. When the LAG Switch opens, LOAD 2 remains on because the Duplex Controller simulates the function of an auxiliary contact. When the LEAD Switch opens, LOAD 1 remains on for the same reason. When the OFF Switch opens, both LOAD 1 and LOAD 2 are turned off simultaneously because all voltage is removed to both loads. The Duplex Controller toggles to the LOAD 2 position.

- Continued on Back -

**Operation - Continued**

The entire cycle is then repeated, but with LOAD 2 energized first followed by LOAD 1. These products protect against failure of the OFF or LEAD Switches—if one or both of these switches fail to close in sequence, the two LOADS will be energized when the LAG switch closes.

**Selector Switch**

Set the top-mounted three-position selector switch to “ALTERNATE”. In this mode, the unit will operate as a normal Alternating Relay, alternating between the two loads on each subsequent opening of the OFF switch. Setting the selector switch to either “LOAD 1” or “LOAD 2” will indicate which LOAD will always be energized first when the LEAD switch closes.

**Troubleshooting**

If the unit fails to operate properly, check that all connections are correct per the appropriate wiring diagram. Check the Troubleshooting Guide below.

Situation	Cause	Solution
The relay does not alternate. Load 1 always comes on and Load 2 never comes on.	The input voltage connected to the Duplex Controller must be applied at all times. If an input voltage wire is switched by the control device, the relay will always start in the Load 1 position and Load 2 will never energize.	Refer to the appropriate wiring diagram or the Knowledge Base article at <a href="http://www.macromatic.com/ar-apps">www.macromatic.com/ar-apps</a> to learn how to connect the relays. Make sure the two input voltage wires are not switched and input voltage is present at all times.
	The socket is wired incorrectly. The wiring diagram on the relay is the view looking towards the bottom of the relay vs. the top of the socket.	Make sure the wires are connected to the correct terminal number on the socket.
Can I use a different voltage for the two Loads than the input voltage for the Duplex Controller?	No. This unit requires the same voltage for both the input voltage & the two loads.	Use the same voltage for both the input voltage & the two loads.

**Warranty**

All catalog-listed ARP-8 Series products manufactured by Macromatic are warranted to be free from defects in workmanship or material under normal service and use for a period of five (5) years from date of manufacture.