OPERATION

To operate the ***AutoMate II***, proceed as follows:

1. Rotate the **TURN-UP TIME** knob clockwise from **OFF** to turn on the control.
2. Notice that the **TIMING** light begins to flash, indicating that the system is on.
3. The **TIMING** light blinks at a rate proportional to the **TURN-UP TIME** setting, and thereby also provides an indication of how fast the kiln is firing.
4. Select the desired **TURN-UP TIME** (in hours).
5. A few moments or perhaps several minutes later … depending on the turn-up time selected … the **HEATING** light will flash, turning the kiln on very briefly, then off again. In the beginning, the *ON* time will be very short, and the *OFF* intervals quite long. As time passes, the ratio of *ON* to *OFF* time will gradually change, until the kiln's heaters are finally *ON* 100% of the time. Shortly thereafter, the **TIMING** light will stop blinking, indicating that the turn-up process has been completed.
6. Beyond this point, the kiln might be tripped off by a cone-actuated limit switch, or manually by an attendant who judges the appropriate turn-off point using pyrometric cones placed at some visible location within the kiln.

To set the heat manually, do this:

1. Move the **TURN-UP TIME** knob to the **SET** position, and observe the operation of the **HEATING** light, which flashes every ten seconds.
2. With the control knob at the **SET** position, the ***AutoMate II*** increases its output at a rate of 1% per second. Thus, each flash of the **HEATING** light indicates that the output has increased another 10% … after the light flashes ten times, the output will be at 100%, and the **HEATING** light will remain on 100% of the time.
3. Use this timing feature to manually establish heat settings …
4. For example, to set the kiln on *"LOW"* (*ON* approximately 30% of the time), turn the switch on and move the pointer to **SET**. When the **HEATING** light comes on for the third time, move the control knob immediately to **HOLD**.
5. When the knob is set at the **HOLD** position, the timing process is suspended, and the ***AutoMate II*** will maintain the kiln at the current heat setting indefinitely.
6. To complete the firing process, simply move the knob to the desired firing time, and the ***AutoMate II*** will complete the firing, automatically adjusting for that part of the turn-up process that had already been completed.

SERVICE

If you have questions, please give the dealer or kiln manufacturer from whom you purchased your controller the first opportunity to assist you. ***FireRight*** **Controls** warrants ***AutoMate II*** units for one-year. We will repair or replace, without charge, units that fail because of defective material or workmanship. Factory service is available a reasonable flat rates for all other cases, and can be handled through your dealer, or factory-direct.

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INSTRUCTION SHEET

AutoMate II

AUTOMATIC HEAT SWITCH
for Ceramic Kilns

GENERAL INFORMATION

The ***AutoMate II*** Kiln Switch is a self-incrementing percentage timer. The unit is specially designed for use as an automatic turn-up control for ceramic kilns.

This device regulates the heating process by operating the kiln's heaters on a "time proportioning" basis. For example, to apply 30% of the available heating capacity, the switch repetitively turns the heat on for three seconds, and off for seven seconds. To provide its automatic turn-up function, it automatically increases the "on" time from zero to 100% during the time period set by the user.

The switch may be wired for either 110vac or 220vac, 50/60Hz power. A single-pole electrical contact, capable switching up to 15 amps at 240vac, constitutes the output of the switch. Since all but the smallest kilns draw more than 15 amps, a power relay or "definite purpose contactor" is normally also required to complete the installation. For long life and quiet operation, mercury displacement relays are suggested.

INSTALLATION

The ***AutoMate II*** Kiln Switch may be installed on the kiln, or in a remote enclosure. If installed on the kiln, the temperature at the mounting location must not exceed 130°F during operation.

The control can be mounted in panels as follows:

1. Provide a rectangular cutout measuring $5^{1}/_{2}$" high by $3^{5}/_{8}$" wide.
2. Insert the ***AutoMate II*** in this cutout and mark the locations for its four mounting screws.
3. Remove the control and drill $^{7}/_{64}$" pilot holes at the marked locations.
4. Fasten the ***AutoMate II*** to the mounting panel using #6 self-tapping screws.

ELECTRICAL CONNECTIONS

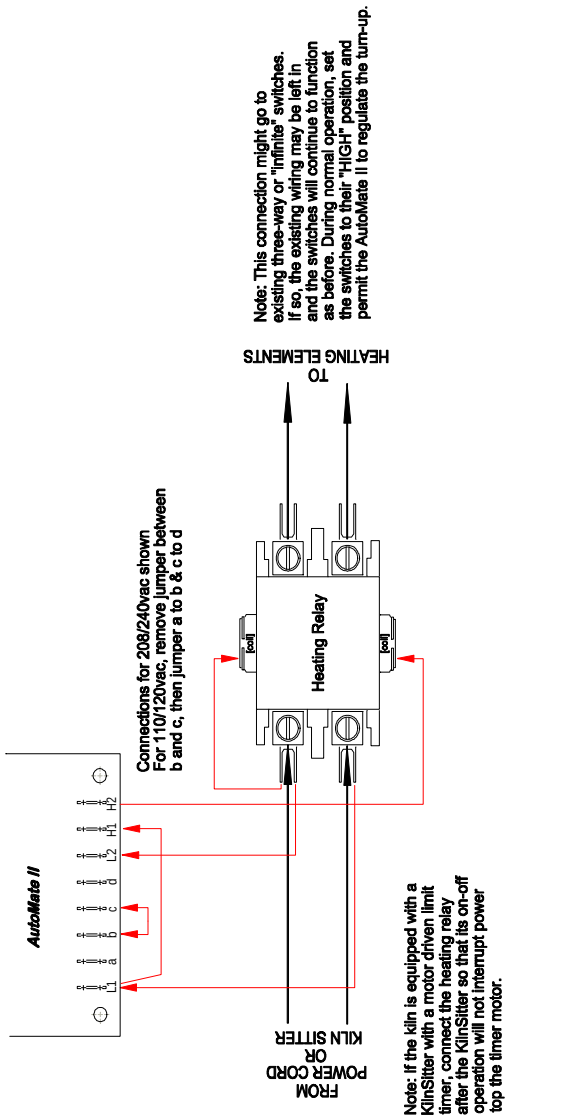
All electrical connections are made at the tabs provided along the bottom edge of the control's circuit board, using ¼" push-on terminals.

The ***AutoMate II*** Kiln Switch will work with 50/60Hz input power, either 110/120vac or 208/240vac. Small kilns drawing less than 15 amps can be operated directly by the control's output contact. Larger kilns require a separate power relay, sized according to the nameplate current of the kiln.

The four representative wiring diagrams provided in this sheet illustrate all possible alternatives, and will generally apply even if the particulars of your installation are somewhat different:

1. For 120vac systems, connect terminal **a** to **b** and terminal **c** to **d**.
2. For 220vac systems, connect terminal **b** to terminal **c**.
3. Connect one leg of the input power to terminal **L1**, and the other to **L2**. (Most power relays have auxiliary terminals that are intended as a convenient source of control power. **L1** and **L2** can usually be connected to the power relay at these auxiliary terminals.)
4. Connect the output contact of the ***AutoMate II*** to interrupt current either to the kiln's electric heaters, or the solenoid coil of the power relay. This normally open contact is provided between terminals **H1** and **H2**.
5. If directly operating electric heaters, connect one leg of the power line to **H1**, one end of the heating element to **H2**, and the other end of the heating element to the other leg of the power line.
6. If using a power relay, connect **H1** to a **L1** auxiliary terminal on the power relay, then connect **H2** to either one of the power relay's coil terminals. Next connect the second coil terminal to a **L2** auxiliary terminal on the same power relay.

Please note that the ***AutoMate II*** kiln switch modulates power to the kiln on an *ON/OFF* basis. Kilns are often equipped with a motor-driven shut-off timers; in such cases, the power relay should be connected so that it does not interrupt power to the timer. Please also note that certain types of mercury relays can be highly inductive, and may cause the ***AutoMate II*** output contact to switch erratically. If any "chattering" is evident (**HEAT** light flickering), consider attaching a *snubber network* as shown in the diagram.



CONTROL KNOB REMOVAL

The control knob is securely attached to the shaft of the turn-up time adjustment potentiometer using a set screw. There isn't normally any need to remove the knob, but if you wish to do so, loosen the set screw before pulling the knob off the shaft. Prying the knob without loosening the set screw will damage the control.