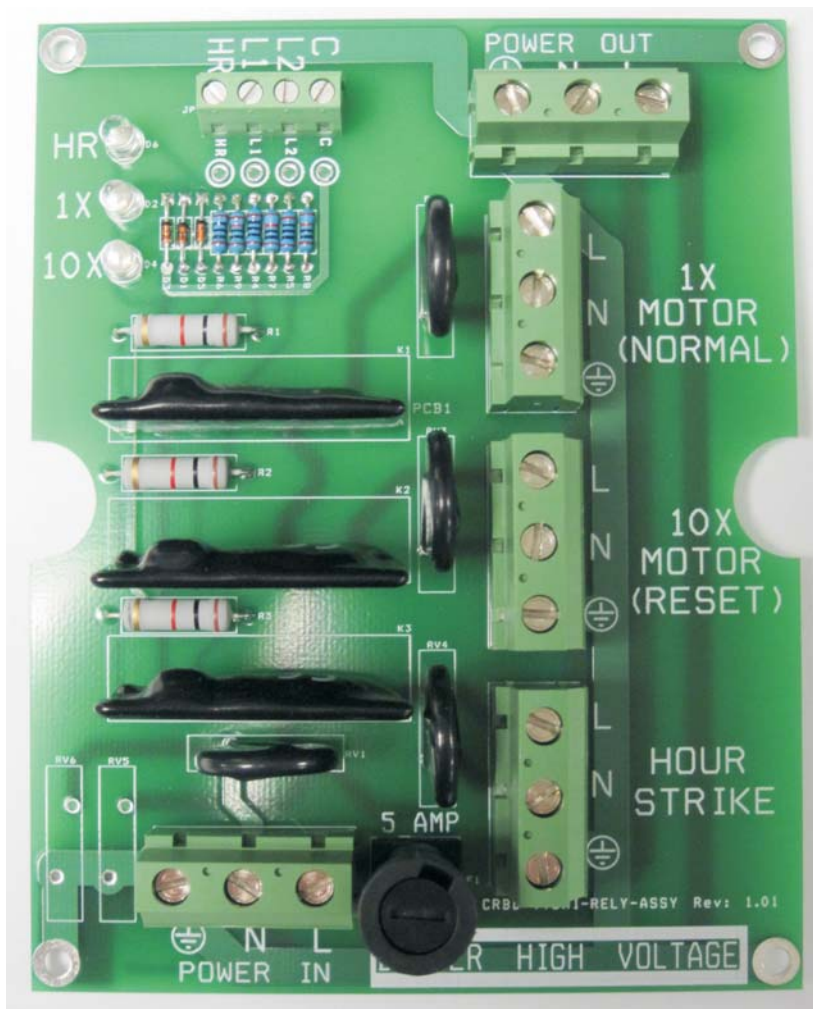




OUTPUT BOARD

Installation Manual



INTRODUCTION

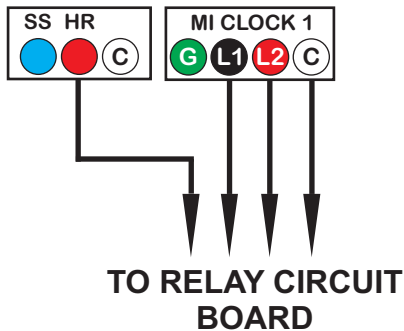
The 99B-MI Clock Controller with relay adapter box is a microprocessor based master clock that provides completely automatic control of minute impulse (MI), stepper corrective (SC), dual synchronous motor (DM), single synchronous motor (STOP) and National Time dual synchronous motor (NAT) clocks. This manual provides installation instructions for connecting the various clock types and configuring the 99BMI. Refer to M274 for complete 99BMI operation instructions.

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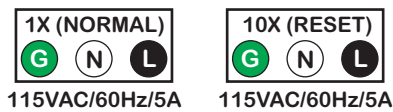
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CONNECTING “MI-115 CLOCKS”

(Minute Impulse, 115VAC)



115 VAC POWER
OUT



115 VAC BELL
STRIKE

1. If the adapter box is not already prewired to the 99BMI clock controller connect L1, L2, C and HR (hour strike) from the 99BMI to the relay board (18ga recommended).

2. Connect the power output wiring from the adapter box to the 99BMI.

3. Connect L1, L2 and C movement wiring to L (1X) and L (10X) and N on the relay board.

For multiple clocks, “Home Run” wiring is required between each clock and one of the “MI CLOCK” outputs on 99B-MI

4. Connect Hour Strike output if equipped. Refer to 99BMI user manual M274 for hour strike configuration details.

5. Connect 115Vac input power to the “Power In” location on the relay board.

MI-115 CLOCK OPERATION

(Minute Impulse, 115VAC)

Using the relay adapter box with 99BMI controller 115Vac MI clock movements will function per 99BMI user manual M274. Refer to M274 for all functions including correcting time, date and clock hand position.

SPECIAL SETUP FUNCTIONS (tech mode)

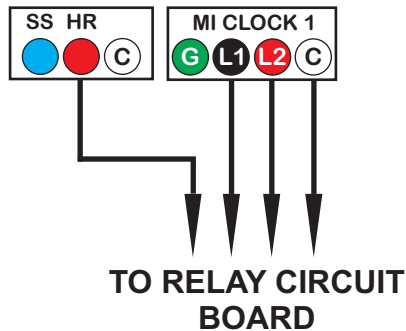
“L1/L2 Drive Opt:”

- **Minute Impulse:** For MI style clocks
- **None:** Turns L1 and L2 function off
- **SC Pulsed:** Stepper Corrective movements, minutes corrected every hour, hour corrected twice a day
- **Dual Motor:** L1-normal motor, L2-reset motor, L1 & L2 operate on reset
- **Dual Motor NAT:** L1-normal motor, L2-reset motor, L2 only on reset
- **Dual Motor Stop:** L1-normal motor. No reset motor.

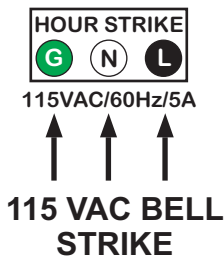
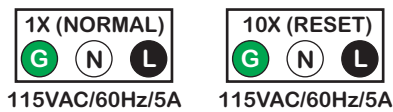
**L1/L2 Drive Opt:
Minute Impulse**

CONNECTING “SC-115 CLOCKS”

(Stepper Corrective, 115VAC)



↑ ↑ ↑
**115 VAC POWER
OUT**



↑ ↑ ↑
**115 VAC BELL
STRIKE**

NOTE: 24Vac Stepper corrective systems do not require an adapter box. Connect 'L1' to movement 'L' (line), 'L2' connects to movement 'S' (synch) and 'C' connects to 'N' (neutral).

1. If the adapter box is not already prewired to the 99BMI clock controller connect L1, L2, C and HR (hour strike) from the 99BMI to the relay board (18ga recommended).
 2. Connect the power output wiring from the adapter box to the 99BMI.
 3. Connect L (line), S (synch) and N (neutral) movement wiring to L (1X) and L (10X) and N respectively on the relay board.
- For multiple clocks, “Home Run” wiring is required between each clock and one of the “MI CLOCK” outputs on 99B-MI
4. Connect Hour Strike output if equipped. Refer to 99BMI user manual M274 for hour strike configuration details.
 5. Connect 115Vac input power to the “Power In” location on the relay board.

SC-115 CLOCK OPERATION

(Stepper Corrective, 115VAC)

Using the relay adapter box with 99BMI controller, 115Vac SC clock movements will function normally through the 99BMI. Some function are not possible with stepper corrective movements. Refer to M274 to set the time and date.

SPECIAL SETUP FUNCTIONS (tech mode)

“L1/L2 Drive Opt:”

- Minute Impulse: For MI style clocks
- None: Turns L1 and L2 function off
- **SC Pulsed**: Stepper Corrective movements, minutes corrected every hour, hour corrected twice a day
- Dual Motor: L1-normal motor, L2-reset motor, L1 & L2 operate on reset
- Dual Motor NAT: L1-normal motor, L2-reset motor, L2 only on reset
- Dual Motor Stop: L1-normal motor. No reset motor.

**L1/L2 Drive Opt:
SC Pulsed**

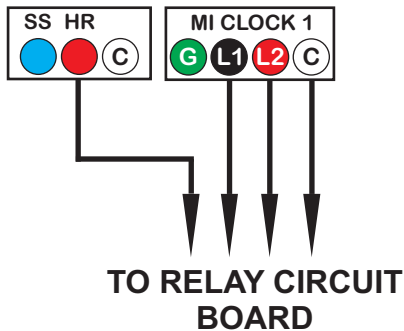
“Advance Hands?”

- **Send 12 Hour** : Sends 12 hour pulse, Hour hand advances to 6:00
- **Send Hour**: Sends hour pulse. Minute hand advances to 12:00 position

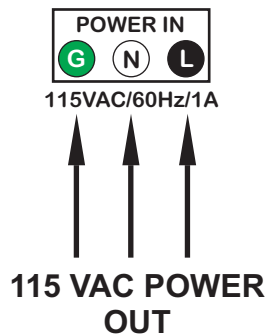
**Advance Hands?
Send 12 Hour**

CONNECTING "DM" Clocks

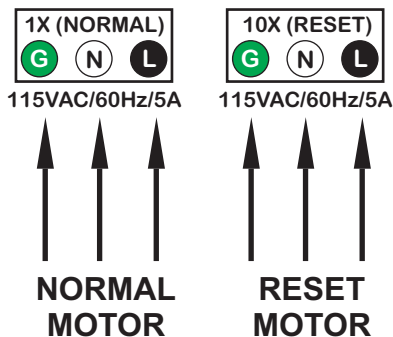
(Dual Motor, 115VAC)



1. If the adapter box is not already prewired to the 99BMI clock controller connect L1, L2, C and HR (hour strike) from the 99BMI to the relay board (18ga recommended).

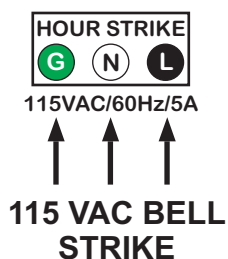


2. Connect the power output wiring from the adapter box to the 99BMI.



3. Connect the normal and reset motors to the adapter box.

For multiple clocks, "Home Run" wiring is required between each clock and the adapter box



4. Connect Hour Strike output if equipped. Refer to 99BMI user manual M274 for hour strike configuration details.

5. Connect 115Vac input power to the "Power In" location on the relay board.

DM CLOCK OPERATION

(Dual Motor, 115VAC)

Using the relay adapter box with 99BMI controller 115Vac Dual Motor clock movements will function per 99BMI user manual M274. Refer to M274 for all functions including setting time, date and correcting the clock hands.

SPECIAL SETUP FUNCTIONS (tech mode)

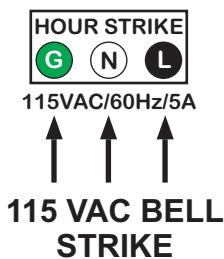
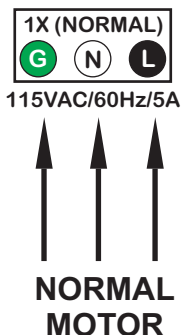
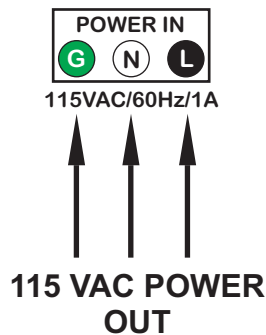
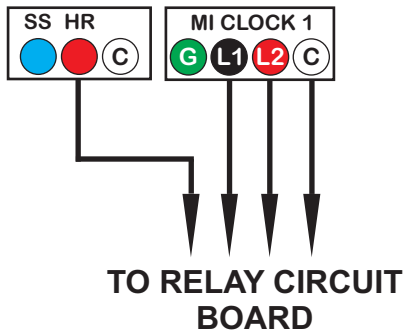
“L1/L2 Drive Opt:”

- Minute Impulse: For MI style clocks
- None: Turns L1 and L2 function off
- SC Pulsed: Stepper Corrective movements, minutes corrected every hour, hour corrected twice a day
- **Dual Motor:** L1-normal motor, L2-reset motor, L1 & L2 operate on reset
- Dual Motor NAT: L1-normal motor, L2-reset motor, L2 only on reset
- Dual Motor Stop: L1-normal motor. No reset motor.

**L1/L2 Drive Opt:
Dual Motor**

CONNECTING Single Motor "STOP" Clocks

(Single Motor, 115VAC)



1. If the adapter box is not already prewired to the 99BMI clock controller connect L1, L2, C and HR (hour strike) from the 99BMI to the relay board (18ga recommended).

2. Connect the power output wiring from the adapter box to the 99BMI.

3. Connect the normal motor to the adapter box.

For multiple clocks, "Home Run" wiring is required between each clock and the adapter box

4. Connect Hour Strike output if equipped. Refer to 99BMI user manual M274 for hour strike configuration details.

5. Connect 115Vac input power to the "Power In" location on the relay board.

'STOP' CLOCK OPERATION

(Single Motor, 115VAC)

Using the relay adapter box with 99BMI controller 115Vac Single Motor clock movements will function per 99BMI user manual M274. Refer to M274 for all functions including setting time, date and correcting the clock hands.

Note: The hands will not move when the hand position does not match the current time. The Stop function waits up to 12 hours for the hands and current time to match before resuming normal operation

SPECIAL SETUP FUNCTIONS (tech mode)

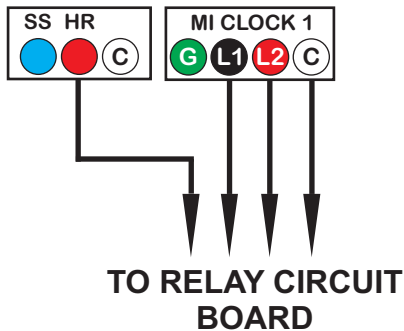
“L1/L2 Drive Opt:”

- Minute Impulse: For MI style clocks
- None: Turns L1 and L2 function off
- SC Pulsed: Stepper Corrective movements, minutes corrected every hour, hour corrected twice a day
- Dual Motor: L1-normal motor, L2-reset motor, L1 & L2 operate on reset
- Dual Motor NAT: L1-normal motor, L2-reset motor, L2 only on reset
- **Dual Motor Stop**: L1-normal motor. No reset motor.

**L1/L2 Drive Opt:
Dual Motor Stop**

CONNECTING NATIONAL TIME “NAT” Clocks

(Dual Motor National Time, 115VAC)

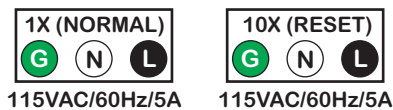


1. If the adapter box is not already prewired to the 99BMI clock controller connect L1, L2, C and HR (hour strike) from the 99BMI to the relay board (18ga recommended).



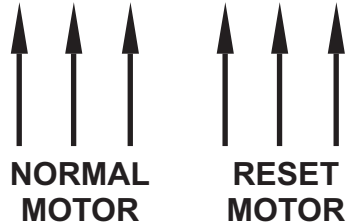
2. Connect the power output wiring from the adapter box to the 99BMI.

115 VAC POWER
OUT



3. Connect the normal and reset motors to the adapter box.

For multiple clocks, “Home Run” wiring is required between each clock and the adapter box



NORMAL
MOTOR RESET
MOTOR



115 VAC BELL
STRIKE

4. Connect Hour Strike output if equipped. Refer to 99BMI user manual M274 for hour strike configuration details.

5. Connect 115Vac input power to the “Power In” location on the relay board.

'NAT' CLOCK OPERATION

(Dual Motor National Time, 115VAC)

Using the relay adapter box with 99BMI controller 115Vac Dual Motor National Time clock movements will function per 99BMI user manual M274. Refer to M274 for all functions including setting time, date and correcting the clock hands.

SPECIAL SETUP FUNCTIONS (tech mode)

“L1/L2 Drive Opt:”

- Minute Impulse: For MI style clocks
- None: Turns L1 and L2 function off
- SC Pulsed: Stepper Corrective movements, minutes corrected every hour, hour corrected twice a day
- Dual Motor: L1-normal motor, L2-reset motor, L1 & L2 operate on reset
- **Dual Motor NAT:** L1-normal motor, L2-reset motor, L2 only on reset
- Dual Motor Stop: L1-normal motor. No reset motor.

**L1/L2 Drive Opt:
Dual Motor NAT**

SERVICE

For assistance in troubleshooting problems, or to request service, contact the Electric Time Company Service Department at the address shown below:

Electric Time Company, inc.
Service Department
97 West Street
Medfield, MA 02052 USA

Ph: (508) 359-4396
Fax: (508) 359-4482
Email: service@electrictime.com