NATIONAL TIME
& SIGNAL CORPORATION

MC3 Master Clock
Supplemental Instruction Guide
Controlling 2MR, 3MR, HMR, 4MR Series X-10 Correction Clocks
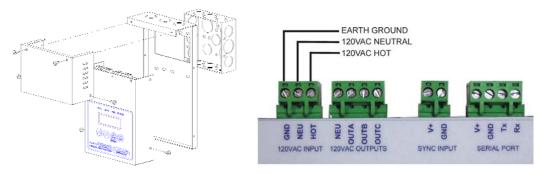
Initial Installation:
Mount the MC3 Master clock by attaching it to an electrical box (4 square, double gang, etc.) or mount directly to the wall and use the top conduit entry points. With circuit breaker turned off, connect the 120VAC input wiring and secondary clock wiring per the matching component(s) diagram.
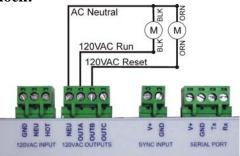
MC3 Configuration:
This Master Clock has been factory configured to the following settings:
- Serial or Unit I.D. #:_____
- Active Clock Circuits: [   ] 1 or [   ] 2   - Type 04 NATSCO X-10
- Circuit Designation: 1. _____ 2. _____ (eg. 1. North 2. South)
- Frequency: [   ] 60Hz or [   ] 50Hz - 115VAC
- Daylight Savings: [   ] Enabled   [   ] Disabled
- Serial Port: [   ] nA = Not Used, [   ] 9P = GPS Antenna or Local Area Network
- Time Zone: [   ] 05 Eastern, [   ] 06 Central, [   ] 07 Mountain, [   ] 08 Pacific
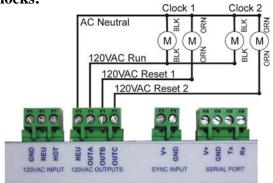 [   ] Other:_____

If the above configuration is correct, proceed to "Time Setting" on page 5. If the above configuration is incorrect, proceed to "MC3 Configuration Settings" on page 3.

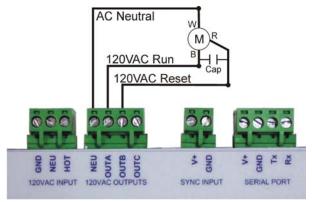**For single 2MR Series Clock:**

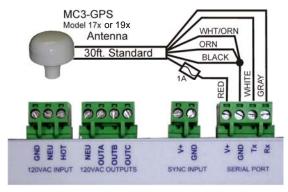**For Two 2MR Series Clocks:**

*No other load such as lighting power can be connected to clock wiring.

For Single 3MR, HMR, 4MR or larger Clock:

*No other load such as lighting power can be connected to clock wiring.

If the optional GPS antenna is to be used, connect the wires to the serial port terminals as shown.

Turn circuit on to power up MC3.

MC3 Configuration Settings:

If necessary, follow these steps for MC3 configuration (read first):

CKT1 CKT2 PGM STATUS **12:00**	⊟ PROGRAM	From the normal time display, Press and hold the PROGRAM button for 5 seconds.
CKT1 CKT2 PGM STATUS **c 1:**		"c1" (Circuit 1) is displayed for 3 seconds. Keep holding.
CKT1 CKT2 PGM STATUS **10:A**		"Hour : A or P" is displayed an additional 2 seconds. Keep holding.
CKT1 CKT2 PGM STATUS **c 1:04**	▲ ⊡ ENTER	Release PROGRAM button when "c1:0?" display appears. Circuit 1 - Clock type 04 should be displayed as shown. If "c1:00" is displayed, use the UP arrow to select **Clock Type 04** for Circuit 1. Press ENTER.
CKT1 CKT2 PGM STATUS **c2:00**	▲ ⊡ ENTER	If there is a clock on circuit 2, Select Clock Type 04. Otherwise, select Type 00. Press ENTER.
CKT1 CKT2 PGM STATUS **CY:60**	▲ ⊡ ENTER	Select 50Hz or 60Hz to reflect the 120VAC power frequency. Press Enter.
CKT1 CKT2 PGM STATUS **dS:E**	▲ ⊟ ENTER	Enable or Disable DAYLIGHT SAVINGS adjustments by selecting 'E' or 'd' respectively using the UP arrow. Press Enter.
CKT1 CKT2 PGM STATUS **SP:nA**	▲ ⊟ ENTER	Select SERIAL PORT setting. nA = Not Used, 9P = GPS antenna or LAN interface *Ln option is not used in this application Press Enter.

CKT1 CKT2 PGM STATUS **tn:05**	▲ ⏎	Select TIME ZONE using UP arrow. 05=-5 UTC (Eastern Time). 06=-6 UTC (Central Time) 07=-7 UTC (Mountain Time) 08=-8 UTC (Pacific Time) __ = ___ UTC See Appendix C of the manual for complete world wide UTC -Coordinated Universal Time zone schedule. Press Enter.

Setting MC3 Time & Date

If necessary, follow these steps:

CKT1 CKT2 PGM STATUS **12:00**	⏎ PROGRAM	From the normal time display, Press and hold the PROGRAM button 3 seconds.
CKT1 CKT2 PGM STATUS **c 1:**		Circuit 1 displayed for 3 seconds. Keep holding.
CKT1 CKT2 PGM STATUS **10:A**	▲ ⏎	Release PROGRAM button when "XX" hour display is flashing. "10" shown at left example. Select the proper HOUR by pressing the UP arrow. Press Enter.
CKT1 CKT2 PGM STATUS **10:10**	▲ ⏎	Minute display flashing. Select the MINUTE by pressing the Up arrow. Press Enter.
CKT1 CKT2 PGM STATUS **n7: 3**	▲ ⏎	Select the MONTH by pressing the UP arrow. Press Enter.
CKT1 CKT2 PGM STATUS **dt: 19**	▲ ⏎	Select the DATE using the UP arrow. Press Enter.

CKT1 CKT2 PGM STATUS **d4:05**	⬆️ ⏎	Select DAY of week using the UP arrow. 1:Sunday 2: Monday 3: Tuesday 4: Wednesday 5: Thursday 6: Friday 7: Saturday Press Enter.
CKT1 CKT2 PGM STATUS **Yr:06**	⬆️ ⏎	Select the YEAR using the UP arrow. Press Enter.

Time Setting

If time displayed on MC3 is incorrect, go to "Setting MC3 Time & Date" on page 4.

To adjust the secondary clock(s) to the correct time, follow these steps:

CKT1 CKT2 PGM STATUS **10:50**	⏎	Press and release the PROGRAM button.
CKT1 CKT2 PGM STATUS **c 1:**	⬆️ ⏎	"c1" flashing. Select circuit 1 by pressing ENTER.
CKT1 CKT2 PGM STATUS **On:**	⬆️	The current ON or OFF status of the circuit is shown. Initially shipped in OFF position. Press SIDE arrow so ON is displayed.
CKT1 CKT2 PGM STATUS **HH:HH**	⏎	Press UP arrow to access Hour/Hour Min/Min display. HH:HH is flashing. Press ENTER. Secondary 120 VAC OUTPUT clock circuits turn off for time input. Plug in the secondary 120VAC clock output circuit connector if not connected. Confirm time displayed on CKT 1 clock.
CKT1 CKT2 PGM STATUS **10:50**		Hours flashing. In the following steps, enter the time indicated on the circuit #1 secondary clock. For initial start up, the hands should be set at the 12:00 position.

 CKT1 CKT2 PGM STATUS 🔴 ⚫ 🟡 ⚫ **10:50**	🔼	The current time of day will be displayed with the CKT 1 LED illuminated and hours flashing. Press the UP arrow to adjust the HOURS to that shown on the secondary clock wired to circuit 1. For initial start up, press UP arrow until 12 is displayed.
	▶	Press RIGHT arrow to access minutes.
CKT1 CKT2 PGM STATUS 🔴 ⚫ ⚫ ⚫ **12:00**	🔼	Press the UP arrow to adjust the MINUTES to that shown on the secondary clock wired to circuit 1. For initial start up, press UP arrow until 00 is displayed.
	▶	Press RIGHT arrow. Disregard seconds display.
	⏎	Press ENTER
		If only circuit 1 is programmed as clock type 04, the clock on circuit 1 will begin to advance to the correct time. The CKT 1 LED will flash while advancing to correct time.
CKT1 CKT2 PGM STATUS ⚫ 🔴 🟡 ⚫ **10:50**		If circuit 2 is also programmed as clock type 04 NATSCO X-10, the time menu will appear with the CKT 2 LED illuminated.
CKT1 CKT2 PGM STATUS ⚫ 🔴 🟡 ⚫ **10:50**	🔼	Press the UP arrow to select the HOURS as shown on the secondary clock wired to circuit 2.
	▶	Press RIGHT arrow.
CKT1 CKT2 PGM STATUS ⚫ 🔴 🟡 ⚫ **9:50**	🔼	Press the UP arrow to select the MINUTES as shown on the secondary clock wired to circuit 2.
	▶	Press RIGHT arrow. Disregard seconds.
	⏎	Press ENTER.

At this time, both clocks will begin the correction cycle. Note, if one of the clocks needs to turn off to correct to the time, both clocks will turn off for that period. After the first clock is on time, the second clock will then advance to the correct time.

Bulletin C-480.rev4