

Analog Master Clock Operation

Description

A single BRG digital clock may control up to 200 analog slave clocks. Bipolar analog clocks are used for their increased reliability over older analog clock systems. The basic bipolar analog clock only contains three moving parts. No relays, ratchets or pawls are used. The master clock provides all power and sync pulses to the analog clocks over a simple two-wire circuit. Further, the master clock sends correction impulses each and every minute to maintain precise time over long periods. In the event of a power outage, the master clock will continue to keep time up to ten years. When the power returns, the master clock will “fast step” the analog clocks to the correct time. If continuous time display is required during a power outage, a simple off-the-shelf uninterruptible power supply (UPS) will provide many hours, if not days of operation for the entire system.

Operation

1. Be sure analog clocks all display the same time. They are typically shipped with the hands pointing to 12:00. The master clock’s secondary time display is also pre-configured to 12:00. Change the time of any analog clocks as necessary using the adjustment provided behind the clock.
1. Connect the red and black sync wires from the master clock to all analog clocks.
2. Apply power to the master clock. The clock will not begin sending synchronization pulses to the analog clocks until the master clock is initialized.
3. Check the date. Momentarily, press the Mode button once. A “1” will appear on the display. Press the Up button once and a “2” will appear. Press the Mode button and the Year will appear. Use the Up and Down buttons as necessary to change the year. Once the current year is displayed, press the Mode button and a “2” will again display. Press the Down button and a “1” will display. Press the Mode button and the Month and Day will display. Use the Up and Down buttons as necessary to change the date. Holding the buttons down will cause the date to change faster. If you cross over the end of the year, you will need to again change the year as described previously. Once the correct Month and Day is displayed, press the Mode button and a “1” will appear. Then press the Down button and a “0” will appear briefly, then the current time will again be displayed.
4. Check the current time. Use the Up and Down buttons to change the Hours and Minutes as necessary. Holding the buttons down will cause the time to change faster. If 12 hour display mode is used (default), then note if the “PM” indicator is illuminated in the upper left corner of the display.
5. To initialize the master clock, press the Timer Control button. The current analog clock time will display on the master clock. Use the Up and Down buttons to change the displayed time to match the analog clocks. Pressing the Timer Control button again will return the master clock to normal time display. The master clock will begin sending correction pulses to the analog clocks at the top of the minute and every four seconds thereafter until the slave clocks match the master clock.
6. Check analog clock operation. Be sure all clocks are pulsing to the correct time. If no clocks are pulsing, you can stop the master clock pulsing by holding down the Mode button until a “0” appears, then let go. A “1” will then appear. Press the down button once to return to the time display. Check your connections to the master clock. To restart pulsing, press the Timer Control button, adjust the time displayed to match the analog clocks, then press the Timer Control button again to exit and return to normal time display. The master clock will start sending fast pulses beginning at the top of the minute.

7. If a few analog clocks are not working, but the majority of the clocks are working, check your wiring to these few clocks. Once they are pulsing, manually move the time on the analog clock to match the time on other secondary clocks. This is accomplished by turning the knob on the back of the analog clock.
8. If secondary clocks need to be replaced, simply connect the new clock to the sync wires. Then manually change the time of the analog clock to match other analog clocks. This is accomplished by turning the knob on the back of the analog clock.

You can stop the master clock pulsing by holding down the Mode button until a “0” appears, then let go. A “1” will then appear. Press the down button once to return to the time display.

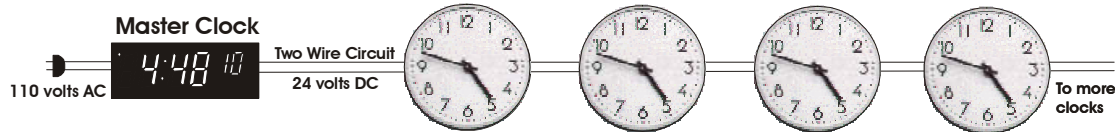
See also:

Mode 37-28 – Analog Master Clock

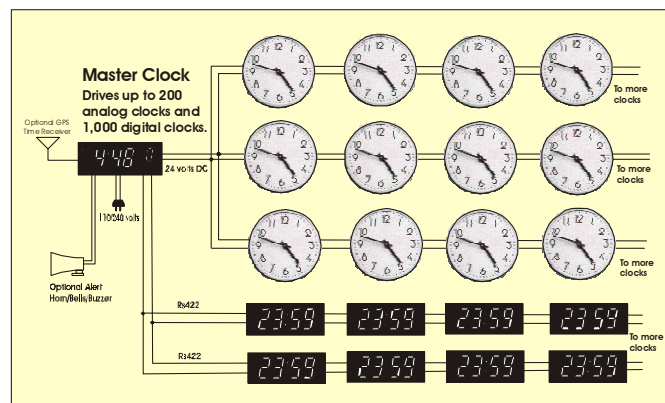
Mode 27 – Alarm time

Mode 29 - Alarm day-of-the-week

Typical Configuration of a Digital Master Clock with Analog Secondary Clocks



Typical Configuration of a Digital Master Clock with Smart Digital RS422 and Analog Secondary Clocks



Typical Configuration of a Digital Master Clock with Digital Impulse and Analog Secondary Clocks

