



ADVANCED
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Master Clock Operation for Legacy Slave Clocks

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U.S.A

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Static Electric Warning



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User Support: <https://www.anetd.com/user-support/>
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OVERVIEW

This application note describes how to use an AND ZONEC2 to operate as a master clock to provide atomic time synchronization to legacy (analog) slave clocks. The ZONEC2 will interface with a network of slave clocks to send sync pulses at the appropriate times to keep the clock time synchronized. Analog clocks that implement the IBM/Simplex synchronous wired time correction mode are supported, such as:

| | | |
|-------------------|---|---------------------|
| IBM 77 Series | Simplex 77 Series, 93-9, 91-9, 941-9, 943-9 | American A4015D10 |
| ATS CC2000 Series | Cincinnati D10 | Dukane 24SS |
| Lathem Type SS | Stromberg 3000 | Edwards 2400 Series |

REQUIRED EQUIPMENT

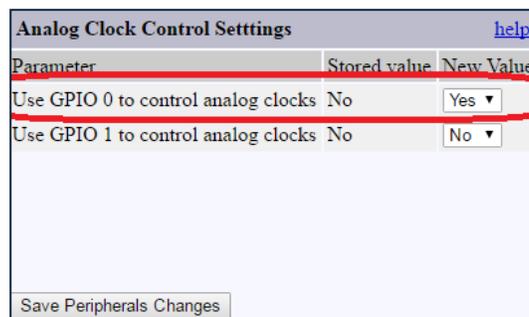
- AND Zone Controller 2 (ZONEC2)
- “Form A” Normally Open relay rated for 120VAC/30A with 12VDC coil (e.g., TE Connectivity T9AP1D52-12). Consult with a qualified electrical contractor if selecting an alternate relay.

CONFIGURING THE AND DEVICE

The ZONEC2 must be running firmware version 1.5.0001 or later. You can configure the device to send sync pulses via its on-board device settings, or via a configuration file.

On-board Settings:

Access the web page interface for the device, and select **Device Settings** → **Peripherals**. At the bottom of the page, find the *Analog Clock Control Settings* section, and set the *Use GPIO 0 to control analog clocks* parameter to “Yes” as shown to the right. Click the *Save Peripherals Changes* button. Reboot the device.



| Parameter | Stored value | New Value |
|-------------------------------------|--------------|-----------|
| Use GPIO 0 to control analog clocks | No | Yes |
| Use GPIO 1 to control analog clocks | No | No |

Save Peripherals Changes

Configuration File Settings:

If using a configuration file, add this line before the closing line of the file:

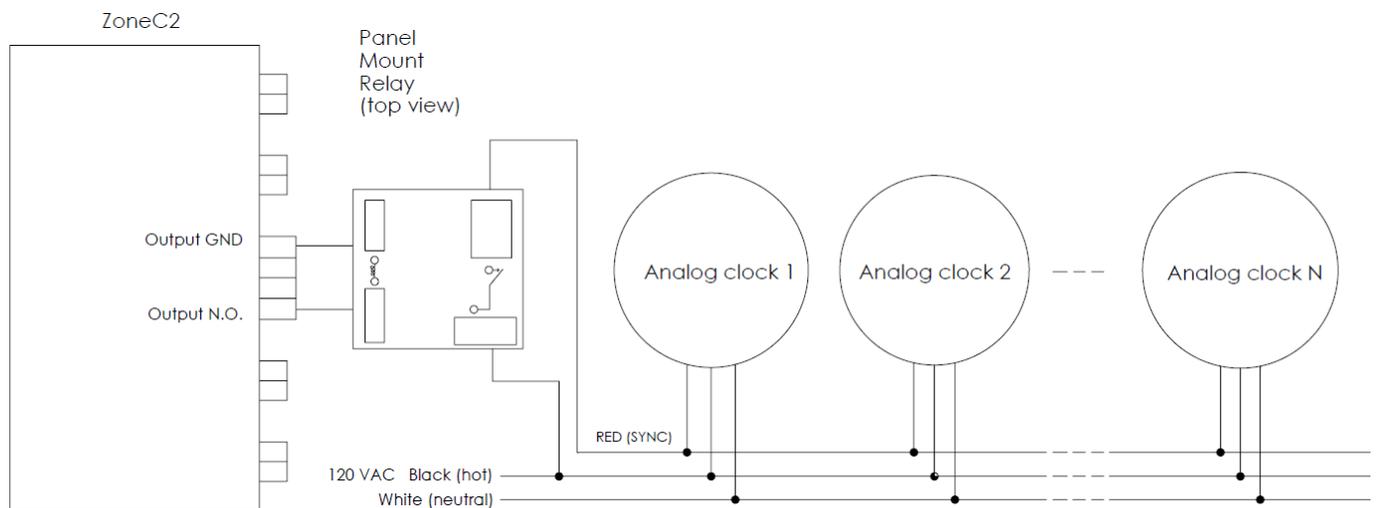
```
<SlaveClock gpio_correction="01" />
```

Save the configuration file, and reboot the device to update the settings. The device will reboot a second time automatically when the new settings apply.

WIRING INSTRUCTIONS

Warning:

Before making any connections, disconnect the electrical service (120 VAC) at the circuit breaker or fuse box. Dealing with 120V can be dangerous and lethal if not properly handled. Please have a qualified electrician do the wiring, connection, test, and maintenance. AND makes no representations as to the safety of the implementation. This process is the sole responsibility of the implementer, which should be a qualified electrician. All electrical connections must be made in accordance with local codes and/or ordinances.



1. Disconnect the CAT5 cable from the ZONEC2 PoE input to remove power from the device.
2. Connect the ZONEC2 into the slave clock circuit as shown in the figure above.
 - a. Connect the ZONEC2's Output N.O. (Normally Open) and GND terminals to the 12VDC coil inputs on the panel mount relay.
 - b. Wire the N.O. terminal of the panel mount relay to the clock synchronization wire (sync), and wire the COM terminal of the relay to the hot side of the 120VAC.
 - c. Use parallel wiring to connect the synchronization signal to multiple slave clocks.
3. Set the Output Mode of the ZONEC2 to *Sw DC* as shown in the figure to the right.
4. Re-connect the CAT5 cable to the ZONEC2 PoE input to restore power to the ZONEC2.



Installation is complete. Restore electrical power. Allow several hours for full clock synchronization to occur.