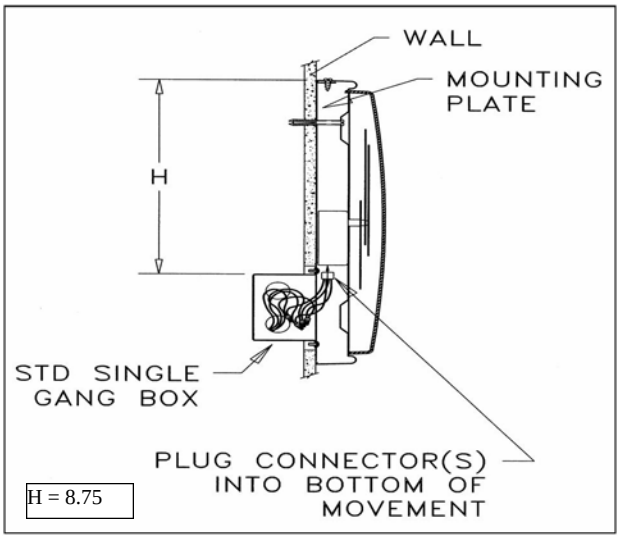
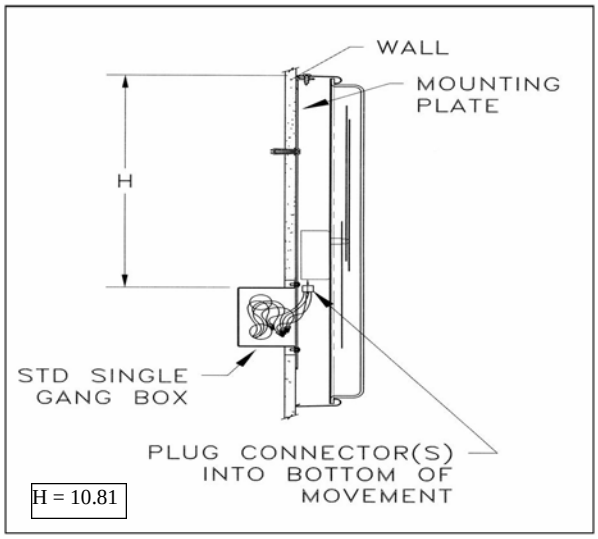
Analog Clocks (Rev 1.04)

Installation Instructions

12” Clock



16” Clock



Wall Mount Instructions

1. Connect the wiring as shown on the wiring diagram.
2. Mount the back plate to a single gang box using the 2 machine screws #6-32 in cluded in the kit for the 12” clock and 16” clock. The 16” requires the screw to connect to the ground wire.
3. Mount the plastic anchor into the wall, through the large hole, towards the top of the plate.
4. Insert the sheet metal screw (#10) into the plastic anchor. The screw should protrude approximately 1” for the 12” clock. The screw should go in all the way for the 16” clock.
5. Plug the connector into the movement.
6. Insert the ground tab into the clock (12” clock).
7. Hang the clock on the protruding screw (12” clock).
8. Put screw #4-20 through the hole on top and bottom of the clock into the hole at the top and bottom of the plate.

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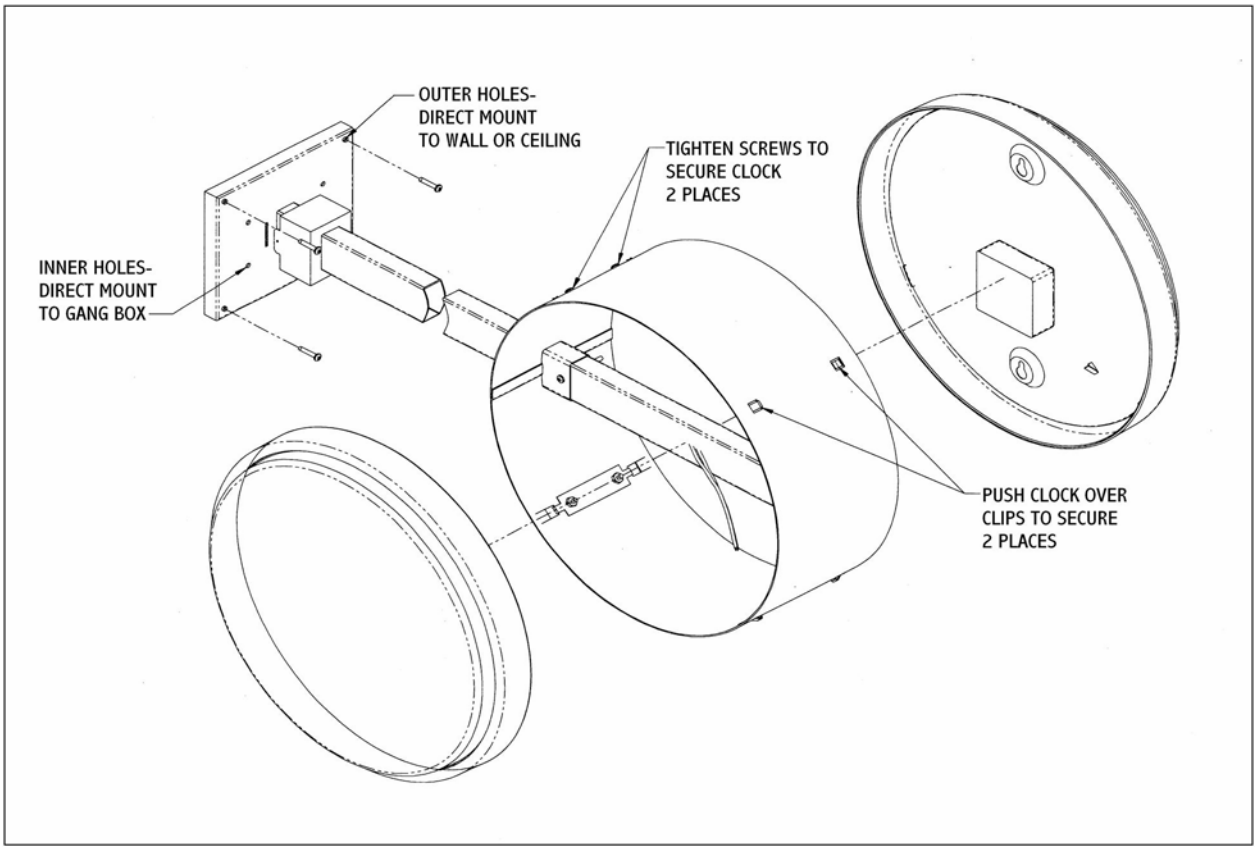
Double Mount Clock



Double Mount Instructions

1. Screw the mounting bracket to the double gang box using 4 inner holes on the mounting bracket, or mount the mounting bracket directly to the wall or ceiling using the 4 outer holes. (As shown in above drawing)
2. Insert the wires through the mounting bracket.
3. Fish the wires through the clock hanging rod.
4. Secure hanging rod to mounting bracket with screws supplied, and place cover over connection.
5. Connect the wiring as shown on the wiring diagrams.
6. Plug the connectors into the movements.
7. Place the clocks on the double mount housing and tighten the screws to secure clocks as shown above.

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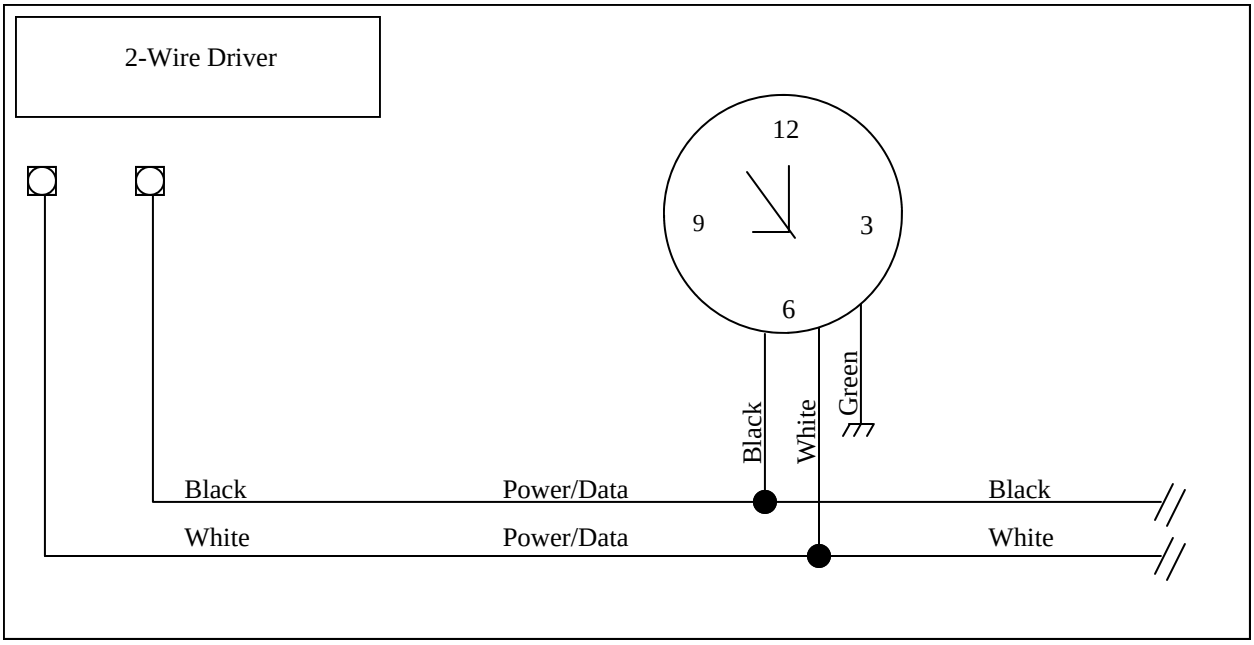
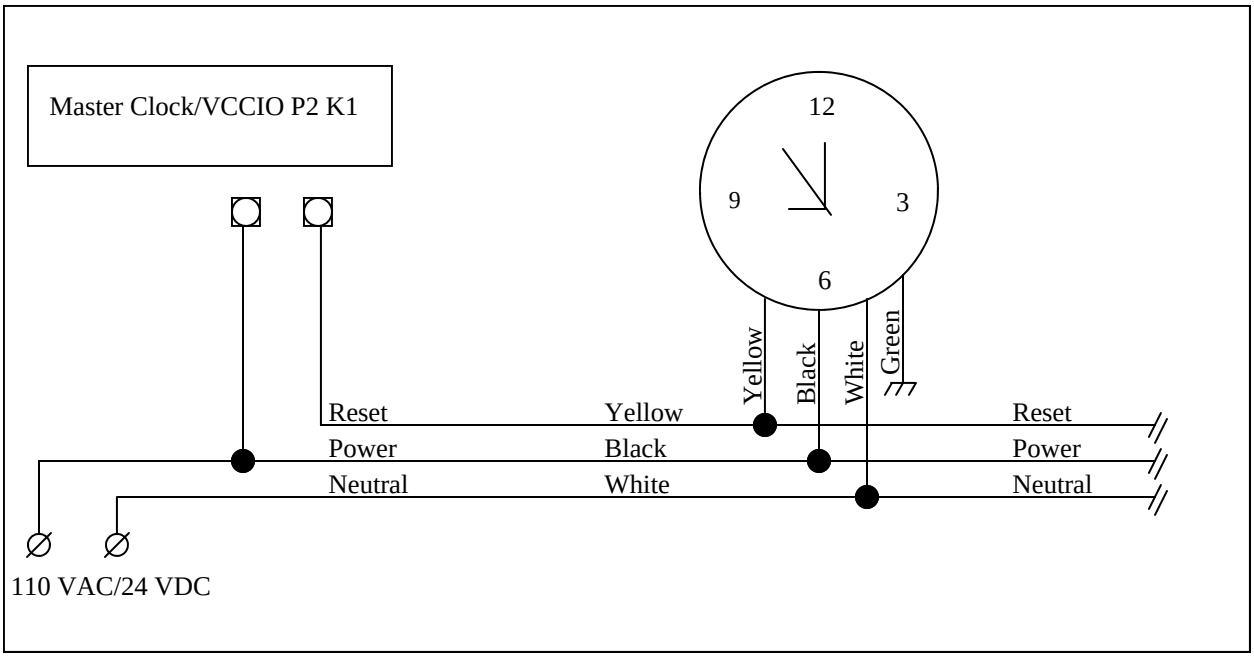
Wiring Instructions

2 Wire Digital Communication for 24VDC Clock Models



Sync-Wire Communication for 24VDC and 110VAC Clock Models



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Diagnostic Testing

Diagnostic Testing

To enter the diagnostic testing, press the diagnostic switch located on the right hand side of the movement.

Diagnostic 1 – Protocol Verification

Purpose: To display the type of protocol the master clock is sending.

Holding the switch for one (1) second will enable you to enter into diagnostic one (1). This can be verified by the green diagnostic LED flashing one (1) time with a three (3) second break between flashes.

While the clock is performing the diagnostic, the diagnostic LED will continue to flash green. If a problem is diagnosed by the clock, the flashing green LED will turn into a flashing red LED. In this case, please refer to Table 2 for the diagnostic error codes. If at the end of the diagnostic the diagnostic LED will change to solid green, it lets the user know that the test was completed successfully.

At the end of diagnostic, the second hand will display the type of protocol the master clock is sending; please refer to Table 1. This will be displayed for approximately three (3) minutes, then the clock will begin to run normally.

Diagnostic 2- Comprehensive Test

Purpose: To test the gearbox and electrical components. The second hand will display the protocol that was detected, the minute hand will display the software version number, and the hour hand will display how much time has passed since the clock last received communication signal.

Holding the switch for three (3) seconds will enable you to enter into diagnostic two (2). This can be verified by the green diagnostic LED flashing two (2) times with a three (3) second break between flashes.

While the clock is performing the diagnostic, the diagnostic LED will continue to flash green. If a problem is diagnosed by the clock, the flashing green LED will turn into a flashing red LED. In this case, please refer to Table 2 for the diagnostic error codes. If at the end of the diagnostic the diagnostic LED will change to solid green, it lets the user know that the test was completed successfully.

At the end of diagnostic 2

A. The second hand will display the protocol that was detected. Please refer to Table 1.
B. The minute hands will display the software version number.
C. The hour hand will display how much time has passed since the clock last received communication signal; please refer to Table 3. This will be displayed for approximately three (3) minutes, then the clock will begin to run normally.

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Diagnostic Testing

Diagnostic 3– Manufacturing Default

Purpose: To bring the clock to 12:00:00 and reset to manufacturers default.

Holding the switch for five (5) seconds will enable you to enter into diagnostic three (3). This can be verified by the green diagnostic LED flashing three (3) times with a three (3) second break between flashes.

While the clock is performing the diagnostic, the diagnostic LED will continue to flash green. If a problem is diagnosed by the clock, the flashing green LED will turn into a flashing red LED. In this case, please refer to Table 2 for the diagnostic error codes. If at the end of the diagnostic the diagnostic LED will change to solid green, it lets the user know that the test was completed successfully.

At the end of diagnostic 3 the hands will all be set to 12:00:00. The analog clocks will not resume normal operation until the power has been recycled.

Table 1

Hand Position	Protocol and Polarity Detected from Master Clock
2 seconds	Two-wire digital communication, Polarity 1
4 seconds	Two wire digital communication, Polarity 2
14 seconds	59 minute communication, Correct polarity
16 seconds	59 minute communication, Reversed polarity
18 seconds	58 minute communication, Correct polarity
20 seconds	58 minute communication, Reversed polarity
22 seconds	National Time/Rauland communication, Correct polarity
24 seconds	National Time/Rauland communication, Reversed polarity

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Diagnostic Testing

Table 2

# of red Flashes	Diagnosis of Error Code
1,2	Movement detected problem with second hand, check hands to see if they are hitting each other. Repeat test.
3,4,5	Movement detected problem with hour/minute hand, check to see if they are hitting each other. Repeat test.
6,7,8	Call tech support

Table 3

Hand Position	Time since clock last received a communication signal
12	Movement received communication within the past hour
1	" " " between one and two hours ago
2	" " " between two and three hours ago
3	" " " between three and four hours ago
4	" " " between four and five hours ago
5	" " " between five and six hours ago
6	" " " between six and seven hours ago
7	" " " between seven and eight hours ago
8	" " " between eight and nine hours ago
9	" " " between nine and ten hours ago
10	" " " between ten and eleven hours ago
11	" " " more than eleven hours ago. This may also signify a manufacturing default.

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