

MC SERIES MASTER CLOCK CORRECTION MODES



MC4181N



MC41



MC4181

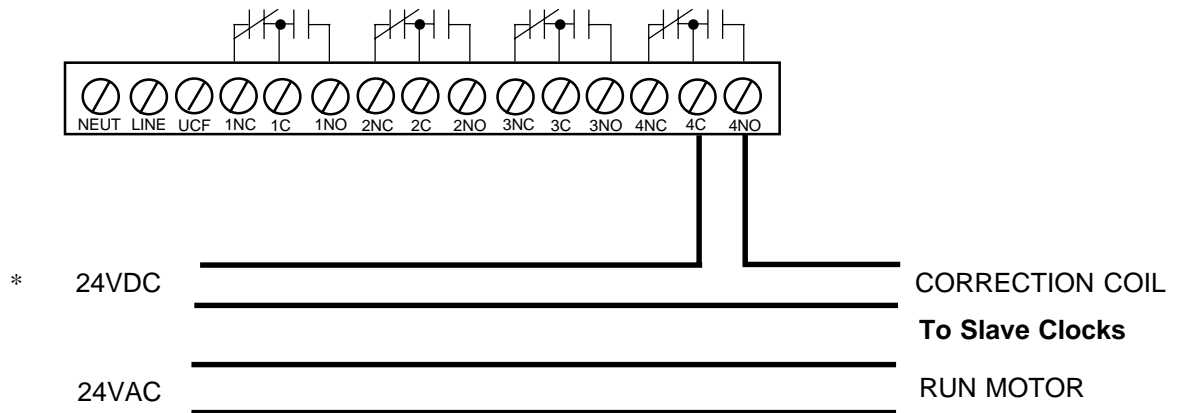
SYNCHRONOUS WIRED

24VAC is used to operate the clock motor and 24VDC is used on the correction coil. Allowing a 3 second command signal on the corrective line at 57 minutes will cause an hourly correction. Application of 12 three second command pulses every other minute starting at 5:59:00 will cause a 12 hour correction. Clocks that are in sync with the master will ignore the 12 hour correction pulses. Typical clocks include:

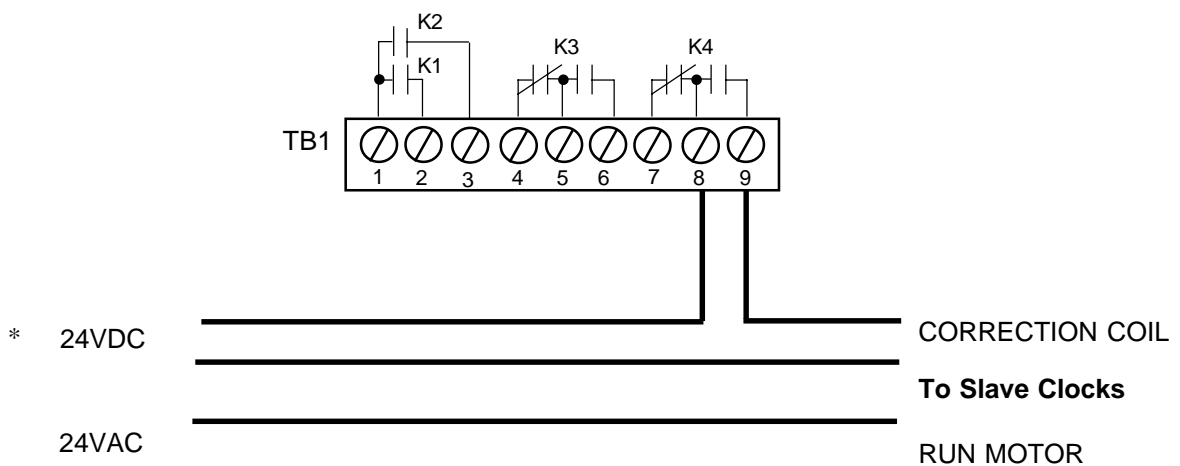
DUKANE

24EF214A

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



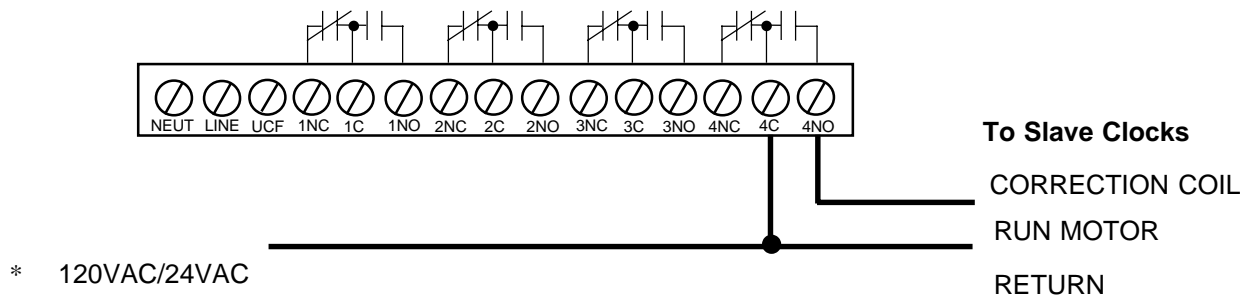
* Optional, Built-In 24 VAC and 24 VDC Power Supplies are available for the MC4181 and the MC4181N Series Master Clocks. External Power Supplies are available for all models. Contact the Factory for details.

SYNCHRONOUS WIRED

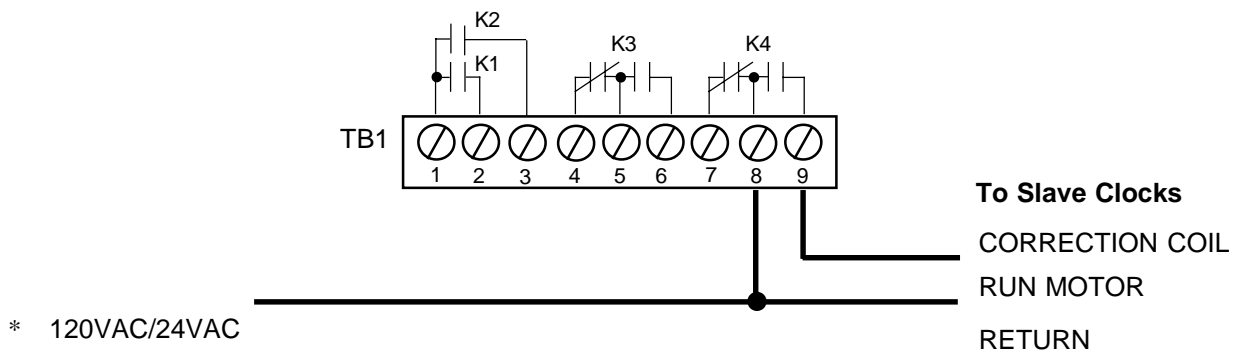
120VAC/24VAC is used to operate the clocks normally. Allowing an eight second command signal on the corrective line from 57 minutes, 54 seconds to 58 minutes, 02 seconds will cause an hourly correction. Application of a command on the corrective line from 5:58:02 through 5:58:08 in addition to the hourly corrective command (twelve seconds total), will result in a twelve hour correction. Typical clocks include:

ATS	CC2000 Series Digital System Clocks
CINCINNATI	D10
IBM	77 Series
SIMPLEX	77 Series, 93-9, 91-9, 941-9, 943-9
STROMBERG	3000
LATHEM	Type SS Wall Clocks
EDWARDS	2400 Series
AMERICAN	A4015D10
DUKANE	24SS

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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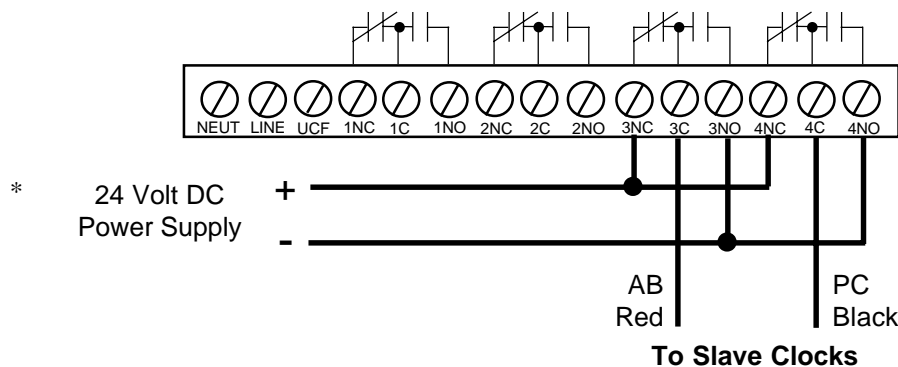
TWO WIRE REVERSE POLARITY MINUTE IMPULSE (59TH MINUTE)

From the 58th second to 00 seconds each minute a 24vdc pulse is transmitted to the secondary clocks. From the 59th minute through the 49th minute the pulse is transmitted with line AB positive with respect to PC. From the 50th minute to the 59th minute the pulse is transmitted with line AB negative with respect to PC. Clocks which are fast and reach the 59th minute ahead of the master will stop since, at this time, they will respond only to pulses transmitted with line AB positive with respect to PC. During the 59th minute from 10 seconds through the 50th second a total of 20 rapid pulses are transmitted at a 0.5 Hz rate to advance all slow clocks. During the rapid pulsing line AB is negative with respect to PC. Typical clocks include:

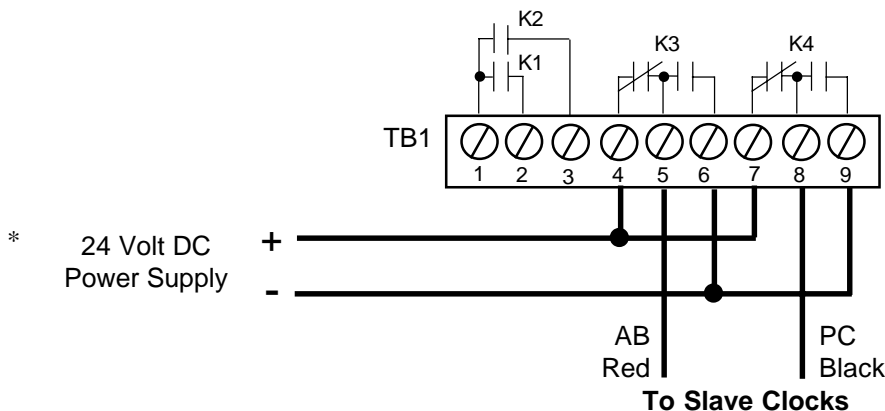
LATHEM
CINCINNATI MODEL
SIMPLEX

Type ISC Recorders (2-Wire)
D3
8042

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



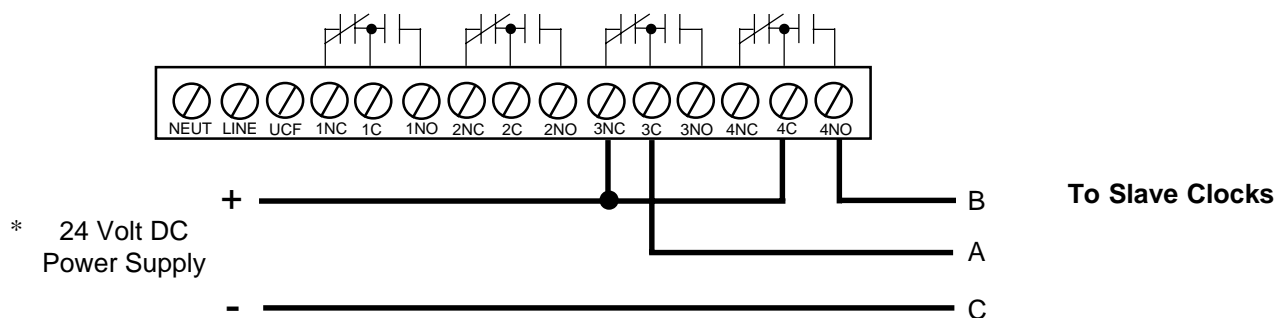
* Optional, Built-In 24 VAC and 24 VDC Power Supplies are available for the MC4181 and the MC4181N Series Master Clocks. External Power Supplies are available for all models. Contact the Factory for details.

THREE WIRE MINUTE IMPULSE (59TH MINUTE)

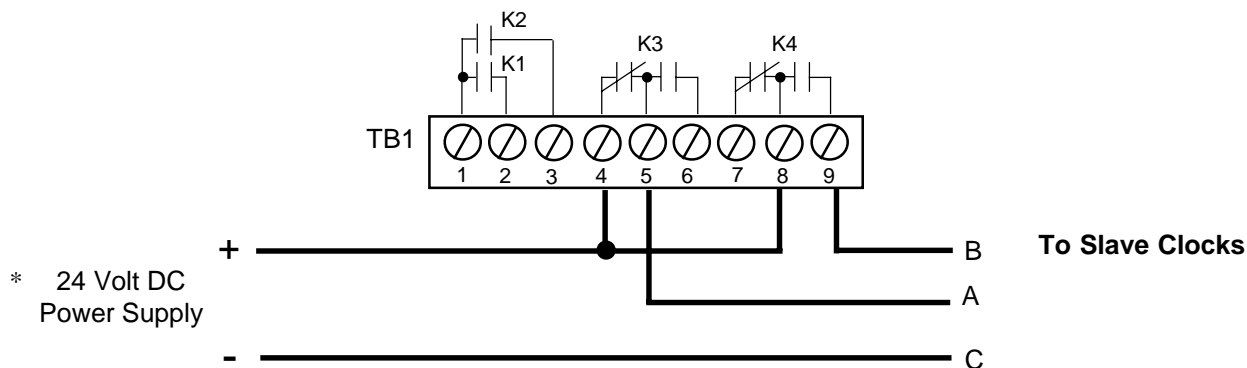
From the 58th second to 00 seconds each minute a 24vdc pulse is transmitted to the secondary clocks. From the 59th minute through the 49th minute the pulse is transmitted on both the A and B lines. From the 50th minute to the 59th minute the pulse is transmitted on the A line only. Clocks which are fast and reach the 59th minute ahead of the master will stop since, at this time, they will respond only to pulses transmitted on the B line. During the 59th minute from 10 seconds through the 50th second a total of 20 rapid pulses are transmitted at a 0.5 Hz rate on the A line to advance all slow clocks. Typical clocks include:

LATHEM	Type ISC Recorders (3-Wire)
CINCINNATI MODEL	D2, D4
EDWARDS IMPULSE	
FARADAY IMPULSE	
IBM	75 Series
SIMPLEX	75 Series, 91-4, 93-4, 941-4, 943-4
STANDARD IMPULSE	
STROMBERG IMPULSE	

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



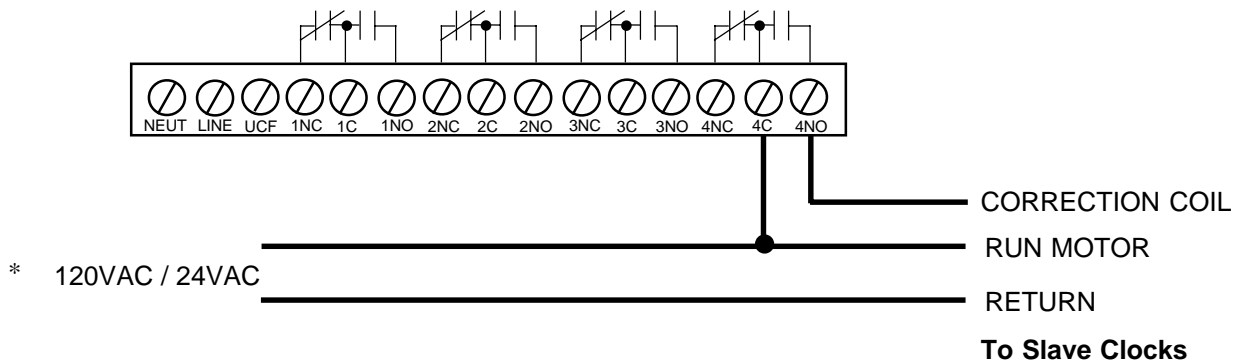
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SYNCHRONOUS WIRED

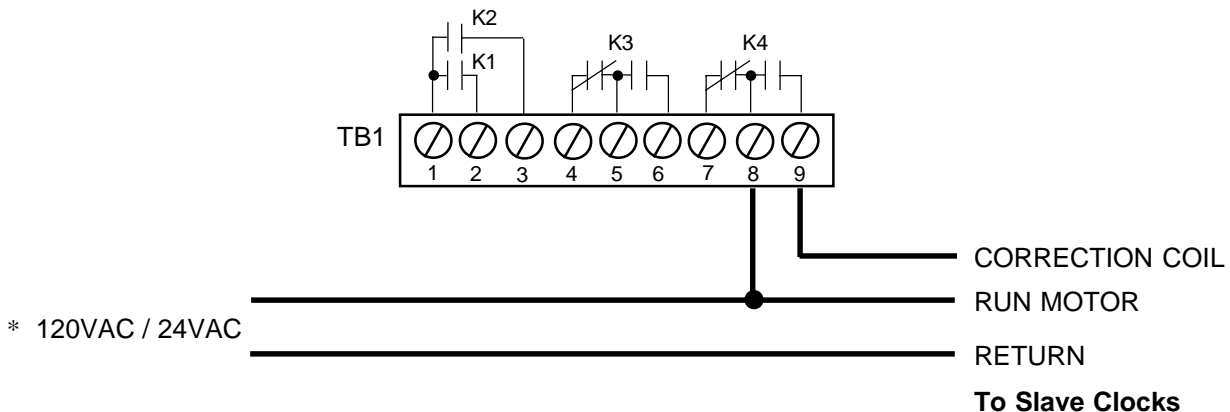
120VAC or 24VAC is continuously applied to the clock run motor. The AC voltage is applied to the clock correction coil for 55 seconds each hour from XX:58:05 to XX:59:00 to provide hourly corrections. To provide 12 hour corrections the voltage is applied to the clock correction coil for 55 seconds each four minutes from 5:03:05 through 5:47:59. Typical clocks include:

CINCINNATI	D8
FARADAY	
HONEYWELL	ST402A

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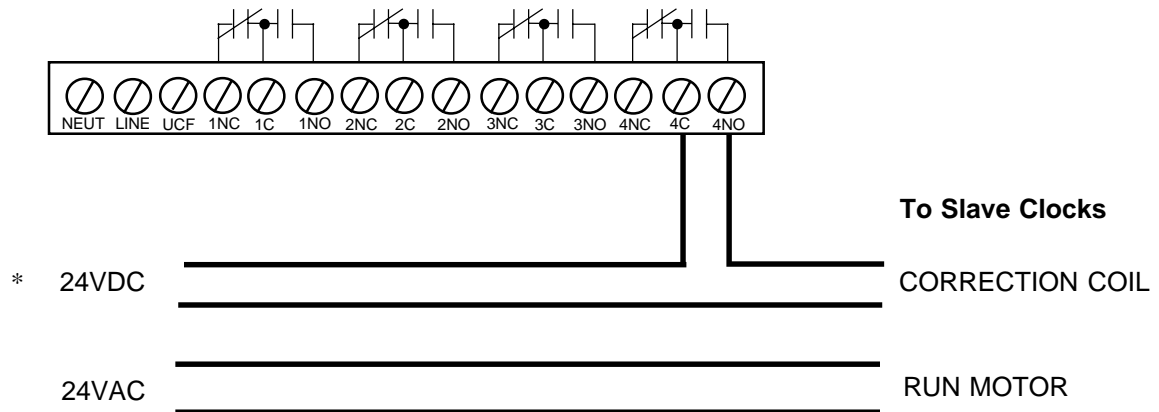
SYNCHRONOUS WIRED

24VAC is used to operate the clock motor and 24VDC is used on the correction coil. Allowing a 55 second command signal on the corrective line at 57 minutes will cause an hourly correction. Application of twelve 55 second command pulses every other minute starting at 5:59:00 will cause a 12 hour correction. Clocks that are in sync with the master will ignore the 12 hour correction pulses. Typical clocks include:

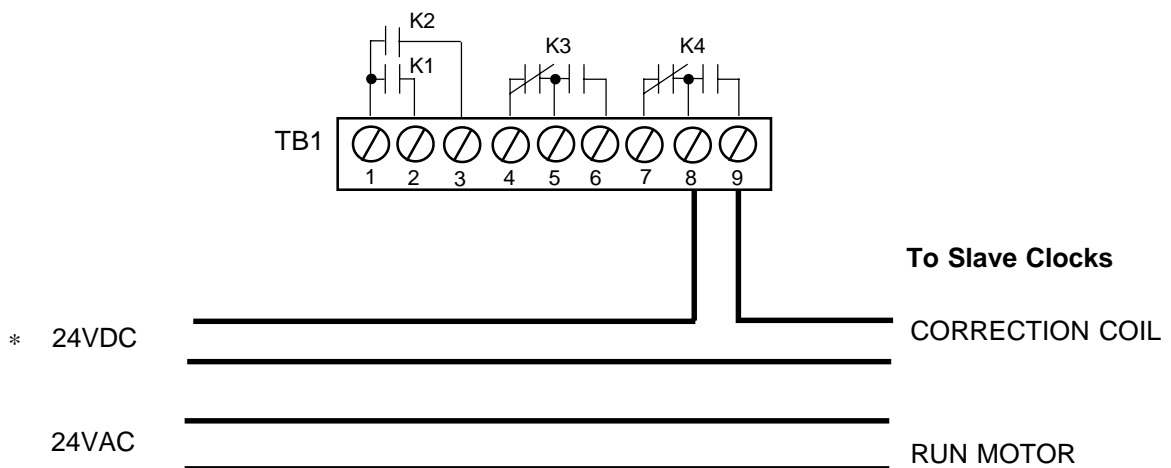
DUKANE

24EF212, 24EF215

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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SYNCHRONOUS WIRED

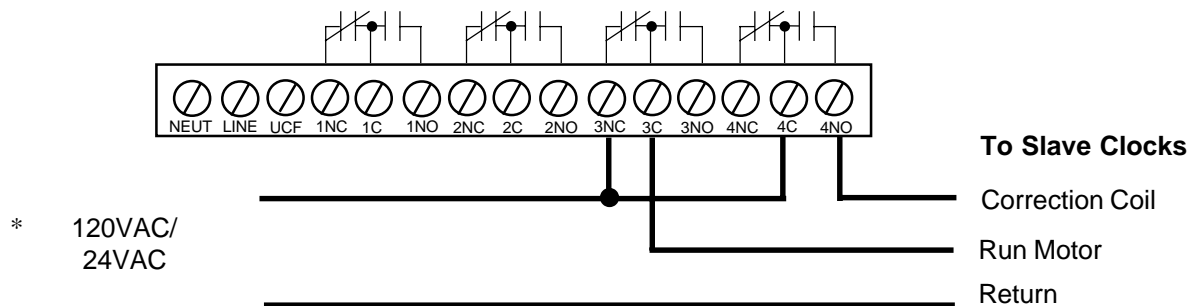
120VAC or 24VAC is applied to the run motors. A 15 minute correction signal on the correction coil line will cause a 12-Hour correction from 5:15:00 to 5:30:00. This will occur twice daily (AM and PM). Run motor power is connected during the 12-Hour correction. A 29 second signal is applied to the correction coil line from XX:59:30 to XX:59:59 to cause hourly corrections. During hourly corrections, power is removed from the run motor line. Typical clocks include:

STANDARD

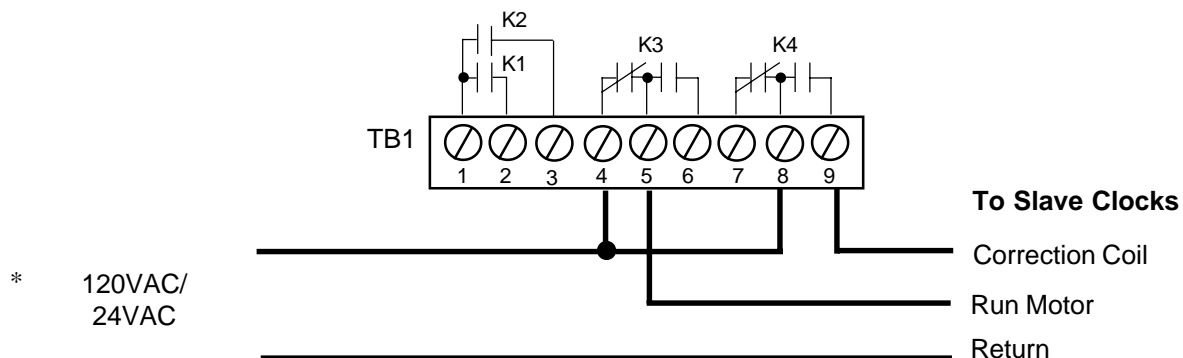
Synchronous Wired

Some older versions of this clock only had Hourly correction. On these versions use one of the master clocks relays to disconnect the correction coil from 5:15 to 5:30 for both AM and PM, everyday.

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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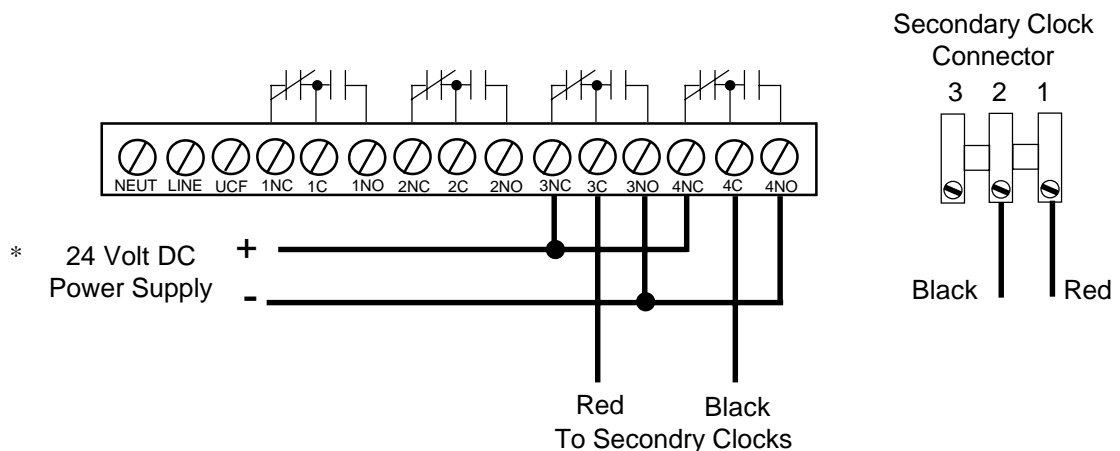
TWO WIRE BI-POLAR MINUTE IMPULSE

A one second bi-polar 24VDC pulse is transmitted each minute. Polarity is reversed each minute. Use function 20, then select MODE 8. The display will prompt for the time now indicated by the secondary clocks. After entering the slave clock time, the MC Series Master Clock will advance all secondary clocks at one pulse per second for the appropriate number of pulses. The secondary clocks will now be updated each minute. The same type of corrections occur after power outages and Daylight Savings Time adjustments. Typical clocks include:

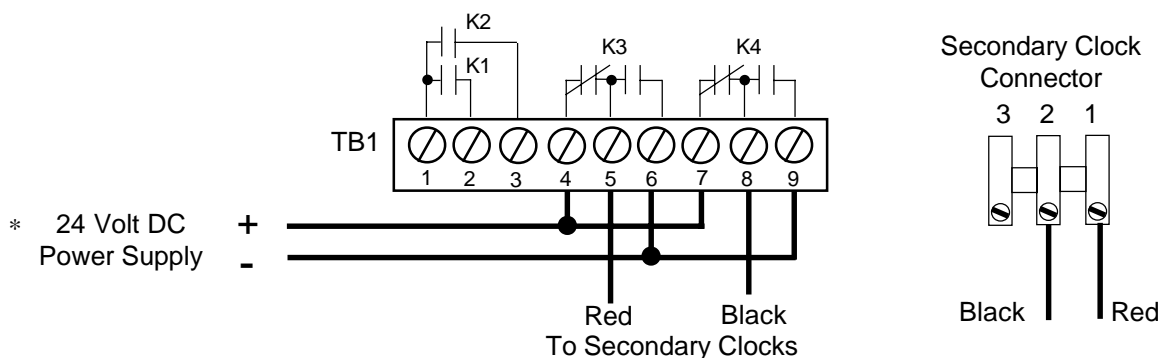
FRANKLIN
APPLIED TECHNICAL SYSTEMS

MARK 5M Series
SC5A Series

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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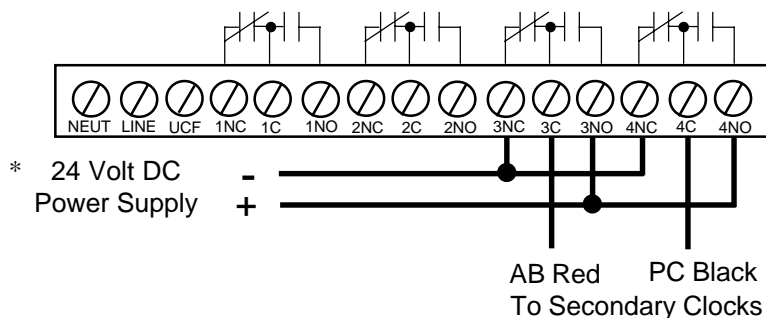
TWO WIRE REVERSE POLARITY MINUTE IMPULSE (59TH MINUTE)

From the 58th second to 00 seconds each minute a 24vdc pulse is transmitted to the secondary clocks. From the 59th minute through the 49th minute the pulse is transmitted with line AB positive with respect to PC. From the 50th minute to the 59th minute the pulse is transmitted with line AB negative with respect to PC. Clocks which are fast and reach the 59th minute ahead of the master will stop since, at this time, they will respond only to pulses transmitted with line AB positive with respect to PC. To provide hourly corrections, during the 59th minute from 10 seconds through the 50th second a total of 20 rapid pulses are transmitted at a 0.5 Hz rate to advance all slow clocks. During the rapid pulsing line AB is negative with respect to PC. To provide twelve hour corrections, 20 rapid pulses occurring at a .5 Hz rate are transmitted from second 10 through second 50 of each minute from 5:00 through 5:35 AM & PM. Typical clocks include:

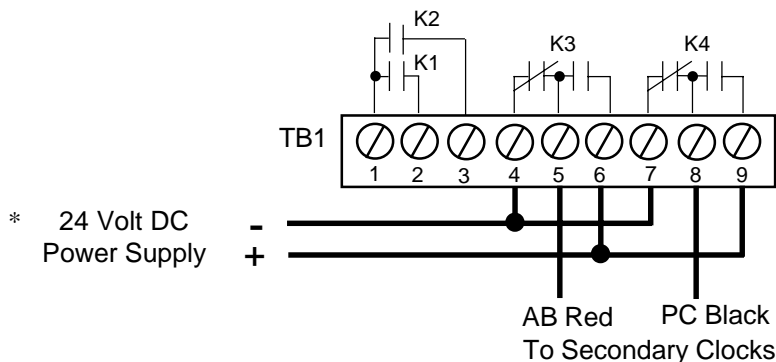
CINCINNATI MODEL

D6

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



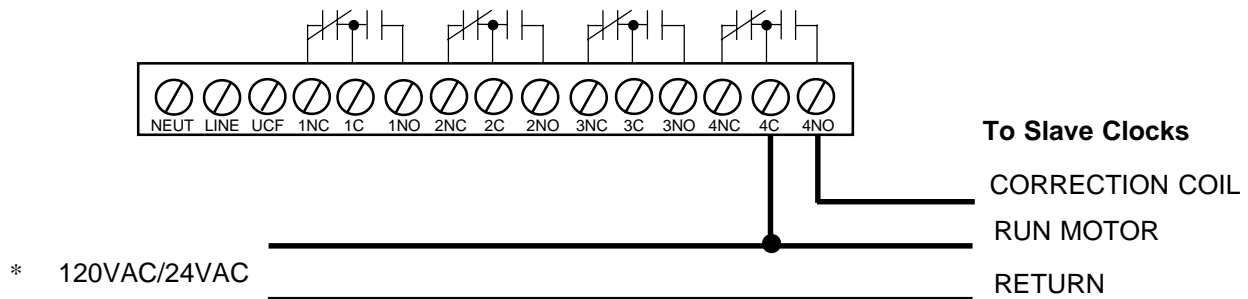
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SYNCHRONOUS WIRED

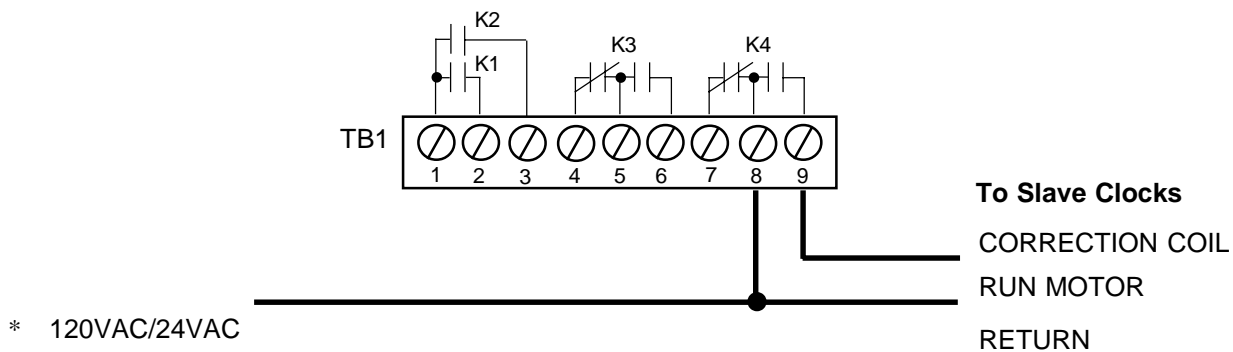
120VAC/24VAC is used to operate the clocks normally. Allowing a 25 second command signal on the corrective line from XX:00:00 to XX:00:25 will cause an hourly correction. Application of a command signal on the corrective line from 6:00:00 to 6:24:25, will result in a twelve hour correction. Typical clocks include:

NATIONAL	E-SRX Series
RAULAND	2460 Series
DUKANE	240 Series

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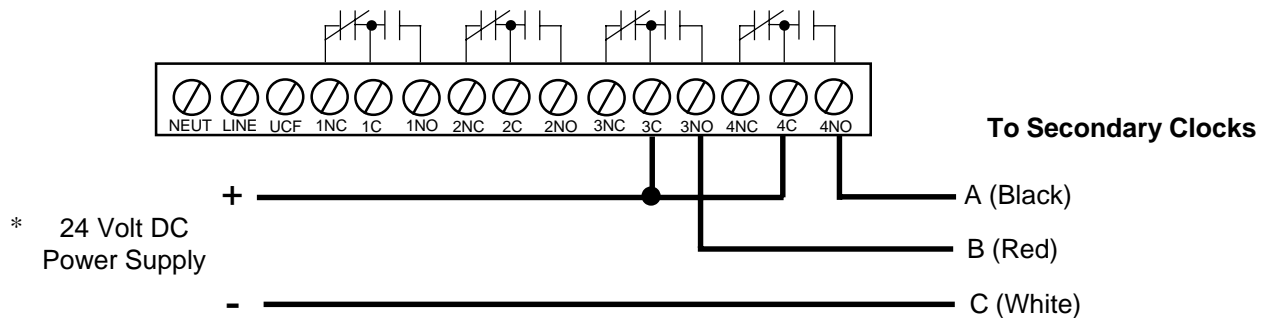
THREE WIRE MINUTE IMPULSE (59TH MINUTE)

From the 58th second to 00 seconds of each minute a 24vdc pulse is transmitted on line A. The secondary clocks will receive the pulses on line A until the 58th minute. At this time from 50 seconds to 00 seconds a pulse on line B will be required to advance to the 59th minute. Typical clocks include:

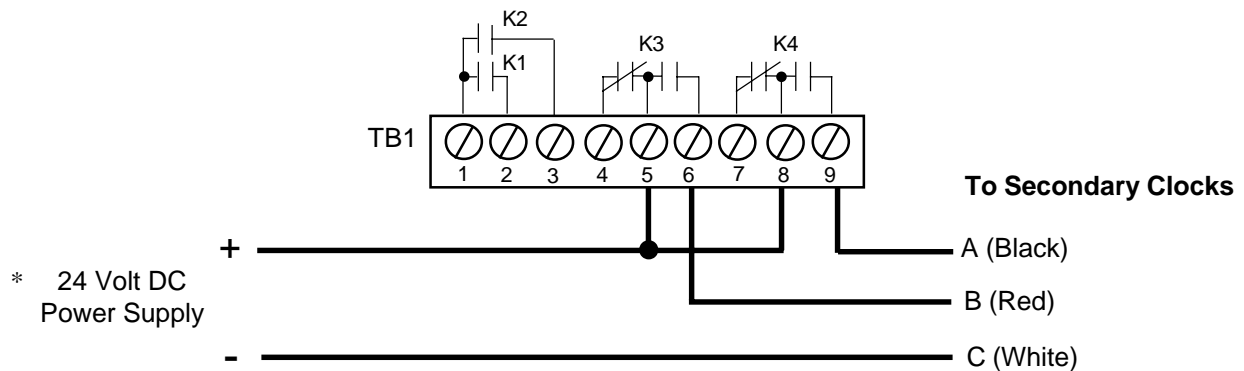
STANDARD ELECTRIC TIME

AR-3

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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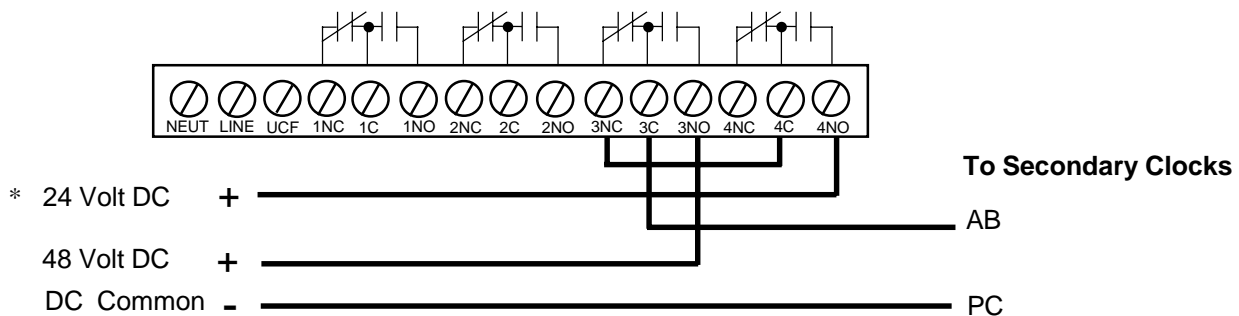
TWO WIRE MINUTE IMPULSE (59TH MINUTE)

From the 58th second to 00 seconds of each minute a 24vdc pulse is transmitted on line AB. The secondary clocks will receive the pulses on line AB until the 58th minute. At this time from 50 seconds to 00 seconds a 48 VDC pulse on line AB will be required to advance to the 59th minute. Typical clocks include:

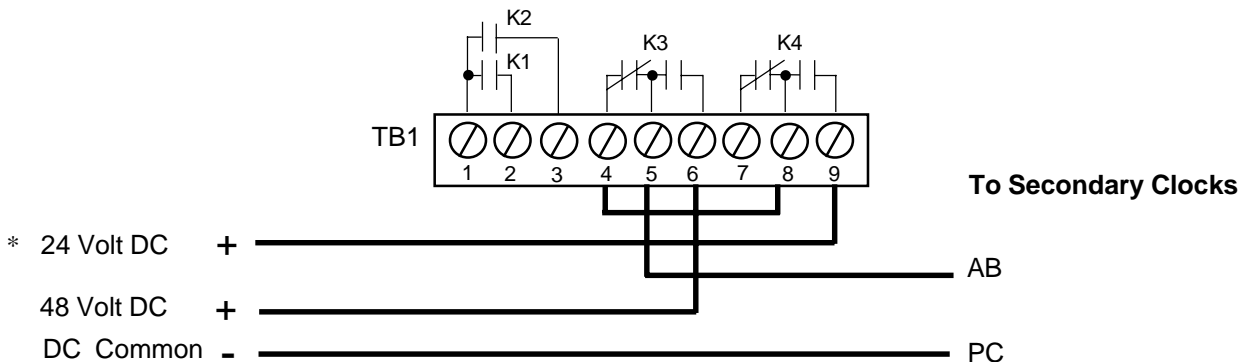
STANDARD ELECTRIC TIME

AR-2

WIRING - MC41 AND MC4181N SERIES WALL MOUNT MASTER CLOCKS



WIRING - MC4181 SERIES RACK MOUNT MASTER CLOCKS



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MC SERIES CORRECTION

MODE XX

** Optional, Built-In 24 VAC and 24 VDC Power Supplies are available for the MC4181 and the MC4181N Series Master Clocks. External Power Supplies are available for all models. Contact the Factory for details.*



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