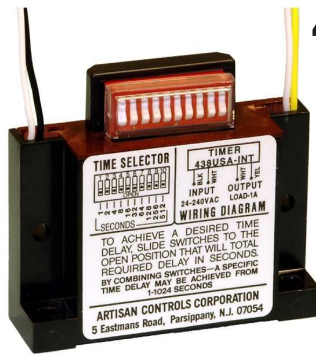




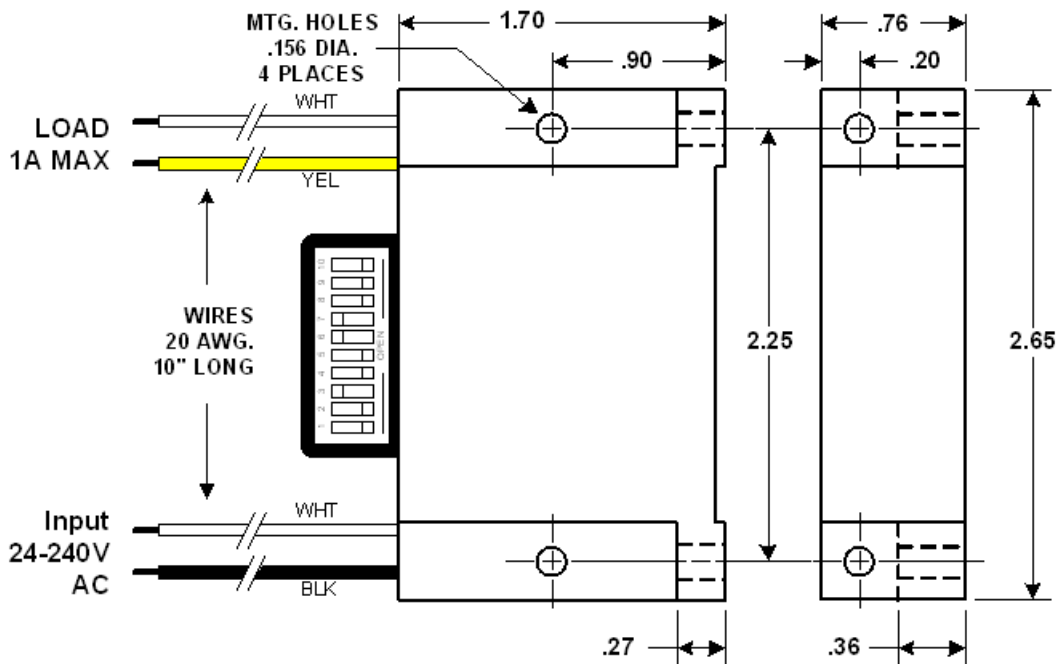
Solid State Timers and Controllers

438USA-INT Universal Switch Adjustable Interval Time Capsule®

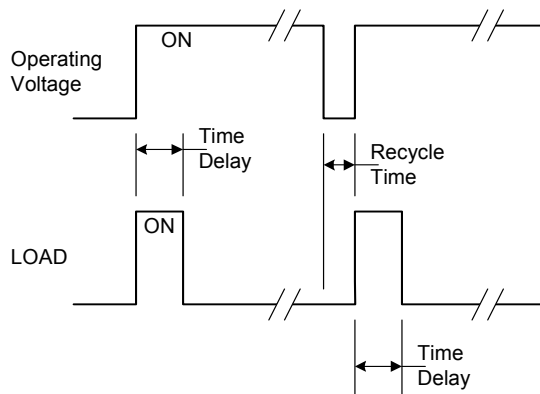


The model 438USA-INT Universal Switch Adjustable Interval Time Capsule® is an all solid state timer providing interval timing control of any load device operating from 24 to 240 volts AC. The 438USA-INT controls any one ampere load such as a relay, Solenoid, or lamp. Timing is set using ten DIP switches. Interval timing is adjustable from 1 to 1024 seconds in increments of 1 second. When voltage is applied, the 438USA-INT turns on permitting full load current to flow. At the end of the preset timing period the 438USA-INT turns off and permits only leakage current to flow through the load. To repeat a cycle, the operating voltage must be removed for at least 100 milliseconds.

Mechanical & Wiring

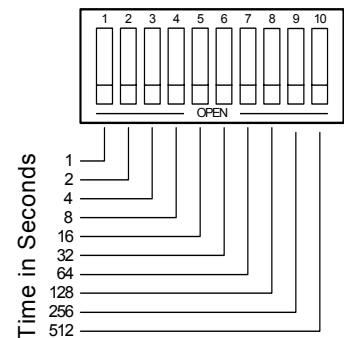


Timing Diagram



Setting the DIP Switches

Switch #1 will add 1 second to the timing period when open.
 Switch #2 will add 2 seconds to the timing period when open.
 Switch #3 will add 4 seconds to the timing period when open.
 Switch #4 will add 8 seconds to the timing period when open.
 This binary progression permits delay periods ranging from 1 second to 1024 seconds in 1 second increments.



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 Artisan Controls Corporation, 111 Canfield Ave, Bldg B15-18, Randolph, New Jersey 07869, USA

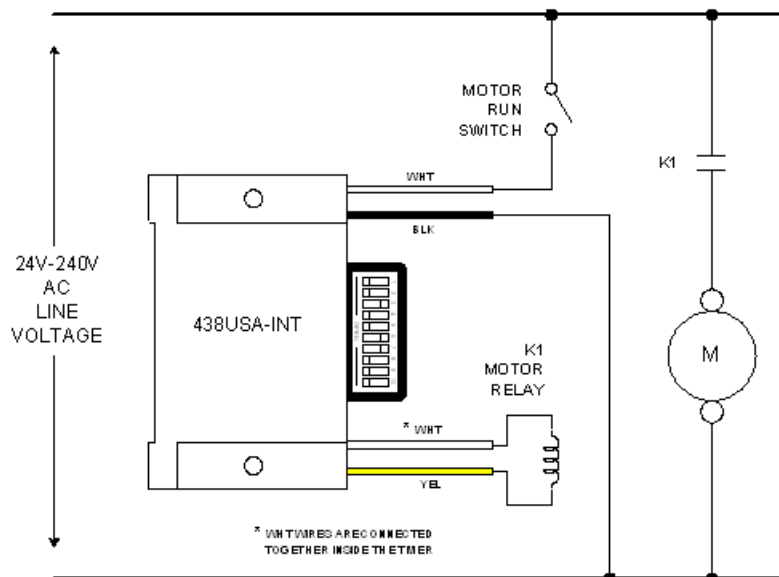


Solid State Timers and Controllers

Specifications

- Operating Voltage:** 24 to 240 Volts AC 50/60 Hz.
 - Timing Mode:** Interval, external load energizes when operating voltage is applied and turns OFF after preset timing period as set by 10 DIP switches.
 - Timing Range:** Digital timing is DIP switch programmable from 1 to 1024 seconds. From 1 second (All Closed) to 1024 seconds (All Open) in 1 second increments.
 - Timing Adjustment:** increments.
 - Programmable Timing Tolerance:** $\pm 10\%$, or 1 second whichever is greater.
 - Timing Variation:** $\pm 2\%$ at any combination of operating voltage and temperature.
 - Repeatability Of Timing Period:** $\pm 1\%$ nominal.
 - Recycle Time:** 100 milliseconds.
 - Output Rating:** 10 mA to 1A inductive with inrush current to 25A for 8 milliseconds.
 - Output Voltage Drop in "ON" State:** 4 volt maximum during an interval timing cycle.
 - Leakage Current in "OFF" State:** 1 milliamperes maximum.
 - Transient Protection:** Maximum transient voltage protection is 6000 volts as delivered through a source resistance of 30 ohms with a maximum duration of 8.3 milliseconds.
 - Operating Temperature:** -20°C to $+85^{\circ}\text{C}$
 - Humidity:** 95% condensing
 - Terminations:** Four (4) #20 AWG wire six (6) inches long, Two (2) for operating voltage and two (2) for load circuit.
- Data Sheet Revision Date:** January 31, 2006

Wiring Application



The circuit shown illustrates how the 438USA-INT can be used to control the length of time that a starter motor circuit runs for only 10 seconds no matter how long the Motor Run switch is held closed.

The circuit works like this:
When the starter motor switch is closed, the motor contactor or relay energizes immediately and applies operation voltage to the motor. If the motor system fails to start within 10 seconds, the 438USA-INT turns OFF and drops out the motor contactor or relay, turning the motor OFF.

Note that switches #1 (1 second), and #4 (8 seconds) are OPEN. This adds 9 seconds to the minimum time of 1 second to produce the 10 second interval required.

Ordering Information

Part Number	Operating Voltage	Timing Range
438USA-INT	24 - 240V AC 50/60 Hz	1 - 1024 Seconds

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