



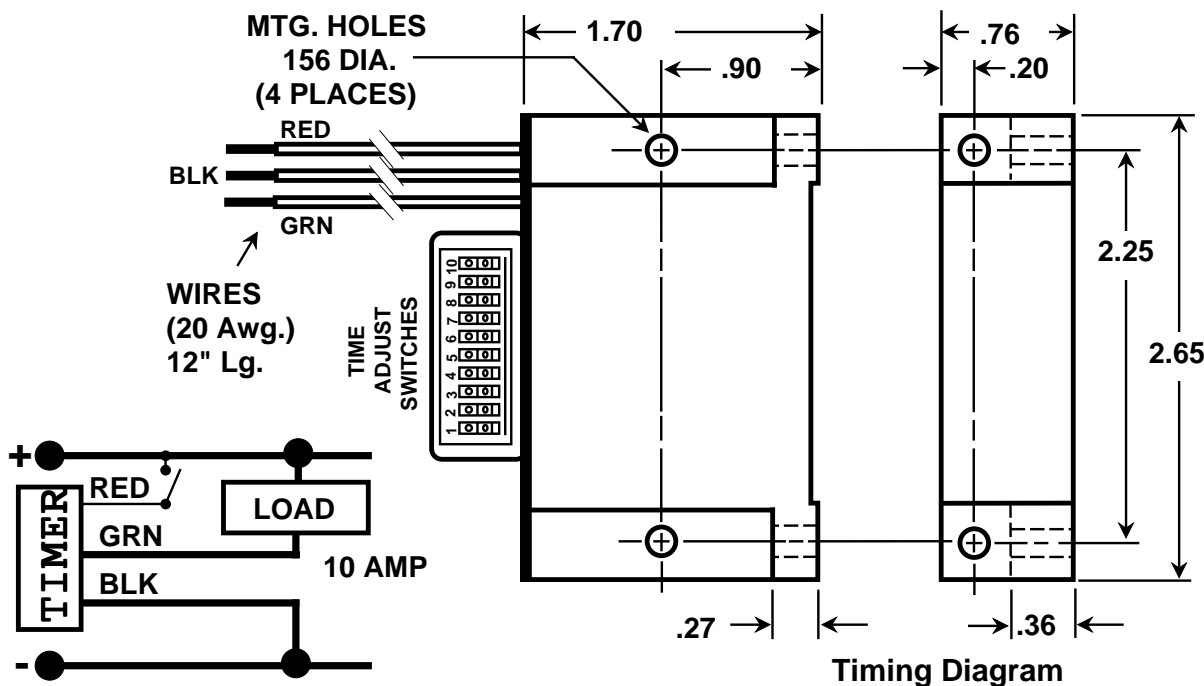
## Solid State Timers and Controllers



# 438USA-PIN Switch Adjustable Power Interval Time Capsule®

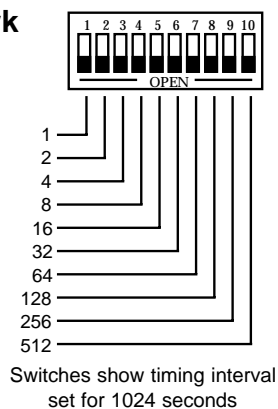
The model 438USA-PIN Switch Adjustable Interval Time Capsule® is an all solid state timer providing interval timing control of a load device operating from DC voltage and switching up to ten amperes of DC load current. The interval timing period is adjustable from 1 to 1024 seconds in increments of 1 second. When DC voltage is applied, the 438USA-PIN turns on permitting full load current to flow. At the end of the preset timing period the 438USA-PIN 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



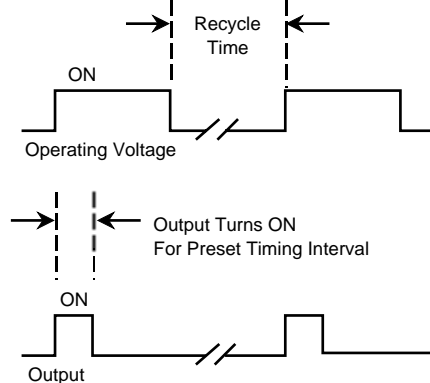
### How The DIP Switches Work

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.



### Timing Diagram

Operating Voltage Must Be Removed For At Least The RECYCLE TIME To Assure Another Output Cycle





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### Specifications

<b>Operating Voltage:</b>	12V (9V-15V), 24V (20V-30V), 48V (40V-60V), 110V (95V-125V), 220V (200V-240V), 250V (240V-277V) DC..
<b>Timing Mode:</b>	Interval - Load turns ON with application of operating voltage then turns OFF after delay period.
<b>Timing Range:</b>	Digital timing is DIP switch programmable from 1 to 1024 seconds.
<b>Timing Adjustment:</b>	From 1 second (All Closed) to 1024 seconds (All Open) in 1 second increments.
<b>Programmable Timing Tolerance:</b>	±15%.
<b>Timing Variation:</b>	±2% at any combination of operating voltage and temperature.
<b>Repeatability Of Timing Period:</b>	±2% nominal.
<b>Recycle Time:</b>	100 milliseconds.
<b>Output Rating:</b>	10 mA to 10A inductive with inrush current to 50A for 10 milliseconds.
<b>Output Voltage Drop in "ON" State:</b>	1 volt maximum voltage drop across the 438USA-PIN at any operating voltage and load current to 10 ampere during an interval timing cycle.
<b>Leakage Current in "OFF" State:</b>	4 milliamperes maximum at any operating voltage and load circuit.
<b>Transient Protection:</b>	Maximum transient voltage protection is 6000 volts as delivered through a source resistance of 30 ohms with a maximum duration of 8.3 milliseconds.
<b>Operating Temperature:</b>	-20°C to +85°C
<b>Humidity:</b>	95% condensing
<b>Terminations:</b>	Three (3) #20 AWG wire twelve (12) inches long, Two (2) for operating voltage and one (1) for load circuit
<b>Data Sheet Revision Date:</b>	February 23, 2000

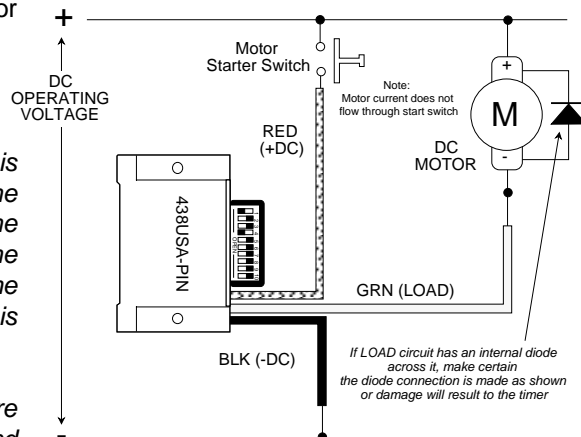
### Application Example

The circuit shown illustrates how the 438USA-PIN can be used to control the motor run time no matter how long a motor starter switch is held closed.

The circuit works like this:

*When the motor starter switch is closed, operating voltage is applied to the motor, and motor current flows through the output switch of the 438USA-PIN. The motor will have the operating voltage applied to it for the timing period set by the switches (10 seconds shown). After the 10 seconds the motor voltage is turned off even if the motor starter switch is held closed.*

*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 illustrated*



### Ordering Information

Part Number	Operating Voltage
438USA-PIN-0	12V DC
438USA-PIN-1	24V DC
438USA-PIN-2	48V DC
438USA-PIN-3	110V DC
438USA-PIN-4	220V DC
438USA-PIN-5	250V DC

