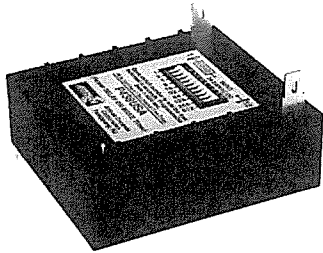




# Solid State Timers and Controllers

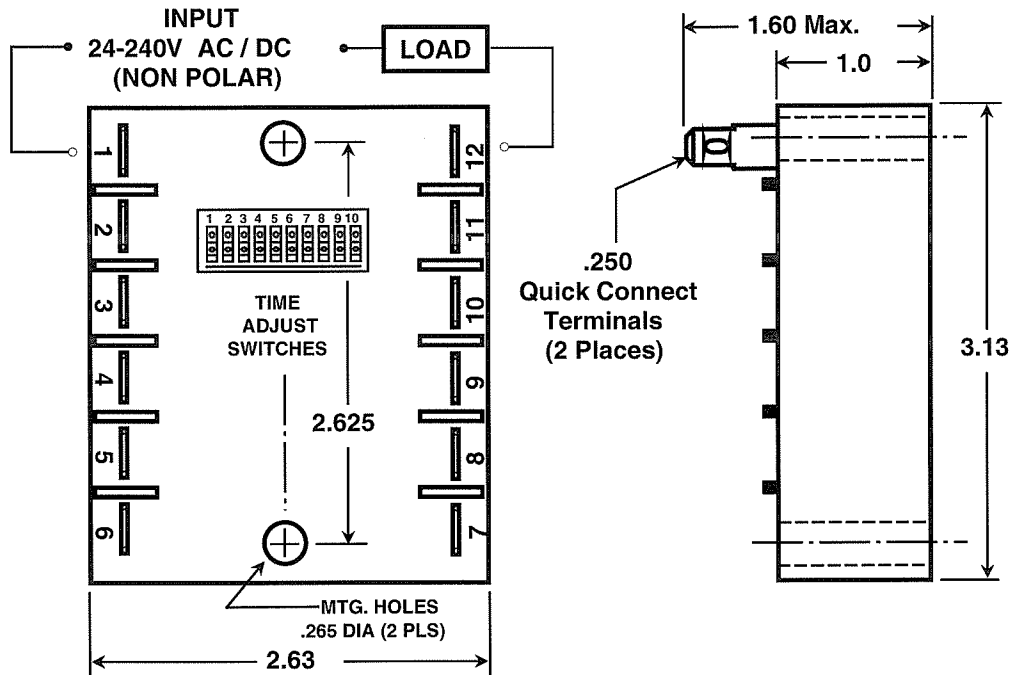
## P438USA

### Power Universal Switch Adjustable Time Capsule®



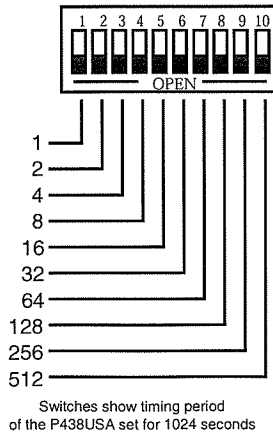
The Model P438USA is a higher powered version of the most popular of all Artisan Controls Corporation Time Capsule® devices, the model 438USA. By merely connecting the two terminals in series with any load circuit drawing between ten milliamperes and three amperes operating from any voltage between 24 volts and 240 volts AC or DC, the P438USA turns that load circuit into a delay on make timing circuit. Set the 10 DIP switches to the required delay, and apply operating voltage. When the operating voltage is applied, a small amount of current will flow through the load and the timer (leakage current). At the end of the delay period, the model P438USA turns ON and full load current is permitted to flow.

### Mechanical & Wiring

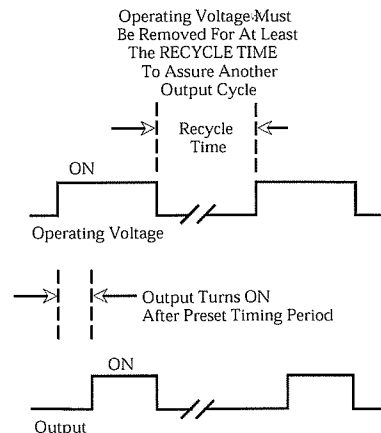


### How The DIP Switches Work

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. The switch values are doubled (2 - 2048 seconds) for the model 438USA-1.



### Timing Diagram



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# Solid State Timers and Controllers

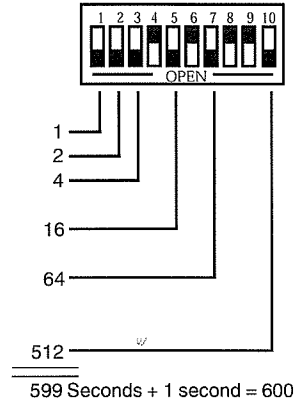
## Specifications .....

- Operating Voltage:** 24 to 240 Volts AC 50/60 Hz or DC.
- Timing Mode:** Delay-On-Make, External load energizes after preset timing period as set by the 10 DIP switches.
- Timing Range:** Digital timing is DIP switch programmable from 1 to 1024 seconds, or 2 - 2048 depending on model. See *Ordering Information*.
- Timing Adjustment:** From 1 second (All Closed) to 1024 seconds (All Open) in 1 second increments for the P438USA and from 2 seconds (All Closed) to 2048 seconds (All Open) in 2 second increments for the P438USA-1.
- Programmable Timing Tolerance:** ±10%
- Timing Variation:** ±15% worst case at any combination of operating voltage and temperature.
- Repeatability Of Timing Period:** ±1% nominal.
- Recycle Time:** 50 milliseconds if output is ON, 200 milliseconds during a timing cycle while output is OFF.
- Output Rating:** 10 milliamperes to 3 amperes inductive with inrush current to 50 amperes for 8 milliseconds.
- Output Voltage Drop in "ON" State:** 4 volts maximum.
- Leakage Current in "OFF" State:** 0.6 mA @ 24V, 1.8 mA @ 48V, 5.4 mA @ 120V, 11.4 mA @ 240V.
- 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°C
- Humidity:** 95% condensing
- Terminations:** Two (2) .25 Faston type.
- Data Sheet Revision Date:** May 3, 1995

## Setting The DIP Switches For A Delay Of 600 seconds (P438USA) .....

To illustrate the setting of the DIP switches, assume that a 1200 second delay period is to be programmed by the 10 DIP switches on the model P438USA. In order to achieve the 600 seconds we must add an additional 599 seconds to the initial minimum delay of 1 second. Begin with all DIP switches closed. Now open switch #10 and subtract its value of 512 seconds from the 599, the result is 87. Move down to the next lower DIP switch and repeat the process. However, switch #9 (256 seconds) is greater than the 87 seconds, so return switch #9 to the closed position and move down to the next lower switch #8. Switch #8 (128 seconds) is still greater than the 87 seconds, so return switch #8 to the closed position and move down to the next lower switch #7. Switch #7 (64 seconds) is now subtracted from the 87 resulting in 23 seconds remaining. Leave switch #7 in the open position and move down to switch #6. Switch #6 (32 seconds) is again greater than the 23 seconds, so return switch #6 to the closed position and move down to the next lower switch #5. Switch #5 (16 seconds) is now subtracted from the 23 resulting in 7 seconds remaining. Leave switch #5 in the open position and move down to switch #4. Switch #4 (8 seconds) is again greater than the 7 seconds, so return switch #4 to the closed position and move down to the next lower switch #3. Continue this procedure with switches #3, #2, and #1, which will all be moved to the open position. This technique will work for any time from 1 to 1024 seconds.

For the model P438USA-1 double all switch values.



## Ordering Information .....

Part Number	Time Range	Operating Voltage
P438USA	1 - 1024 Seconds	24V - 240V AC or DC
P438USA-1	2 - 2048 Seconds	24V - 240V AC or DC

