



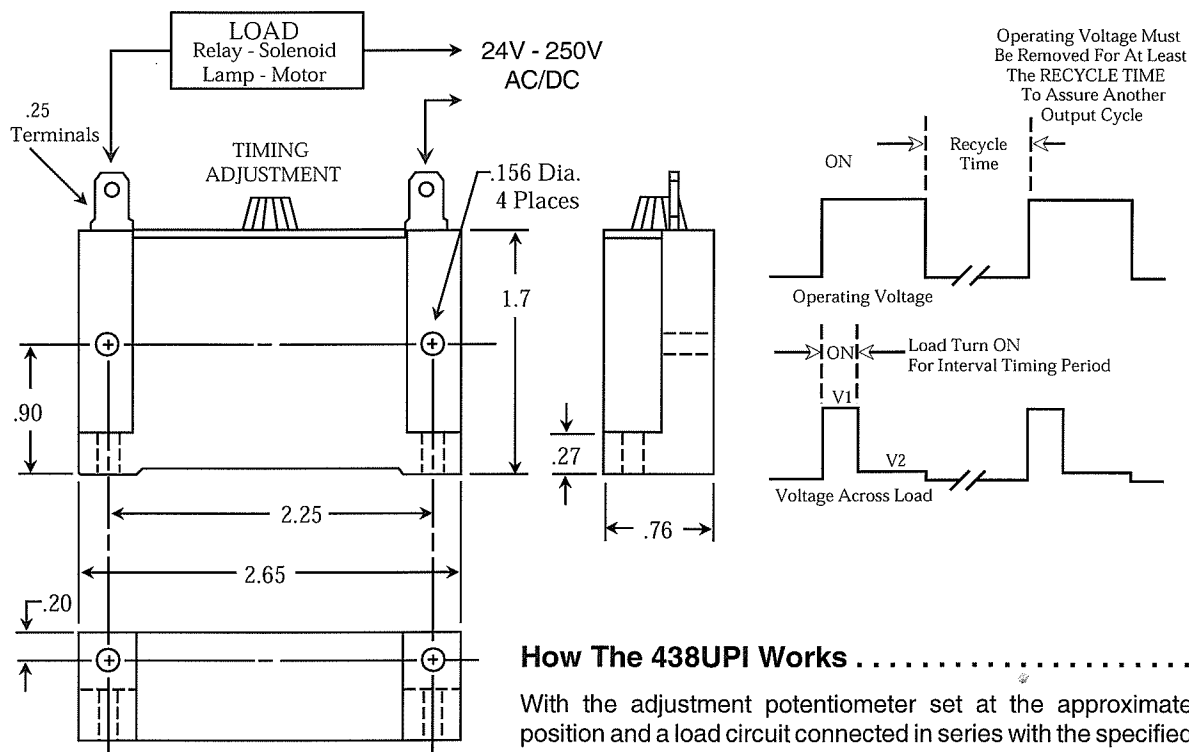
Solid State Timers and Controllers



438UPI Universal Potentiometer Adjust Interval Time Capsule®

The Model 438UPI is an in-line timing device that performs as a two terminal interval timer. Operation is exactly the reverse of the standard Artisan Controls Corporation's 438UP Time Capsule®. When connected in series with a load circuit, the 438UPI will energize the load when operating voltage is first applied, turning off after the externally set interval time delay period. The interval timing periods is controlled by an internal adjustment potentiometer, and controls the timing period from 5 to 480 seconds. The interval timing action can be repeated by removing and re-applying the operating voltage. The 438UPI operates on any voltage between 24 and 250 volts, AC or DC.

Mechanical Timing Diagram



How The 438UPI Works

With the adjustment potentiometer set at the approximate position and a load circuit connected in series with the specified operating voltage, the circuit is ready for operation. When the operating voltage is applied to the series combination of the 438UPI and the load circuit, the 438UPI turns ON, and the load will be energized. It is important to understand that the load current that flows is determined by the (Applied Voltage - 10 volts) divided by the load resistance. The 10 volts is the maximum voltage that will be dropped across the 438UPI at a full .25A of load current. As an example: a 440Ω (ohm) relay coil that would normally draw 250mA at 110V DC will now only be permitted to draw 227mA. This is determined by the voltage across the relay which becomes 110 - 10, or 100V DC (V1). At 100V, the current becomes $100V/440\Omega = 227mA$. At the end of the timing interval the 438UPI turns OFF, but leakage current continues to flow. This leakage current can be as high as 3mA. This would cause the relay to have $3mA \times 440\Omega = 1.32V$ (V2) across it. Always make certain that the dropout voltage of the load circuit is below the voltage caused by the residual leakage current.



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Specifications

Operating Voltage: 24V to 250V AC/DC 50/60Hz.

Timing Mode: Interval - Load turns ON with application of operating voltage then turns OFF after delay period.

Timing Range: Internal potentiometer controls interval from 5 to 480 seconds.

Timing Adjustment: Timing is essentially linear between 5 and 480 seconds permitting the potentiometer to approximate the value of timing over its adjustment span of 270° to within 10% of the desired interval.

Timing Tolerance: Maximum range of 480 seconds to within $\pm 15\%$.

Timing Variation: $\pm 2\%$ at any combination of operating voltage and temperature.

Repeatability Of Timing Period: $\pm 1\%$ nominal.

Recycle Time: 50 milliseconds.

Output Rating: .25 ampere inductive with inrush current to 8 amperes for 8 milliseconds.

Output Voltage Drop in "ON" State: 10 volts maximum voltage drop across the 438UPI at any operating voltage and load current to .25 ampere during an interval timing cycle.

Leakage Current in "OFF" State: 3 milliamperes maximum at any operating voltage and load circuit.

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 $+85^{\circ}\text{C}$

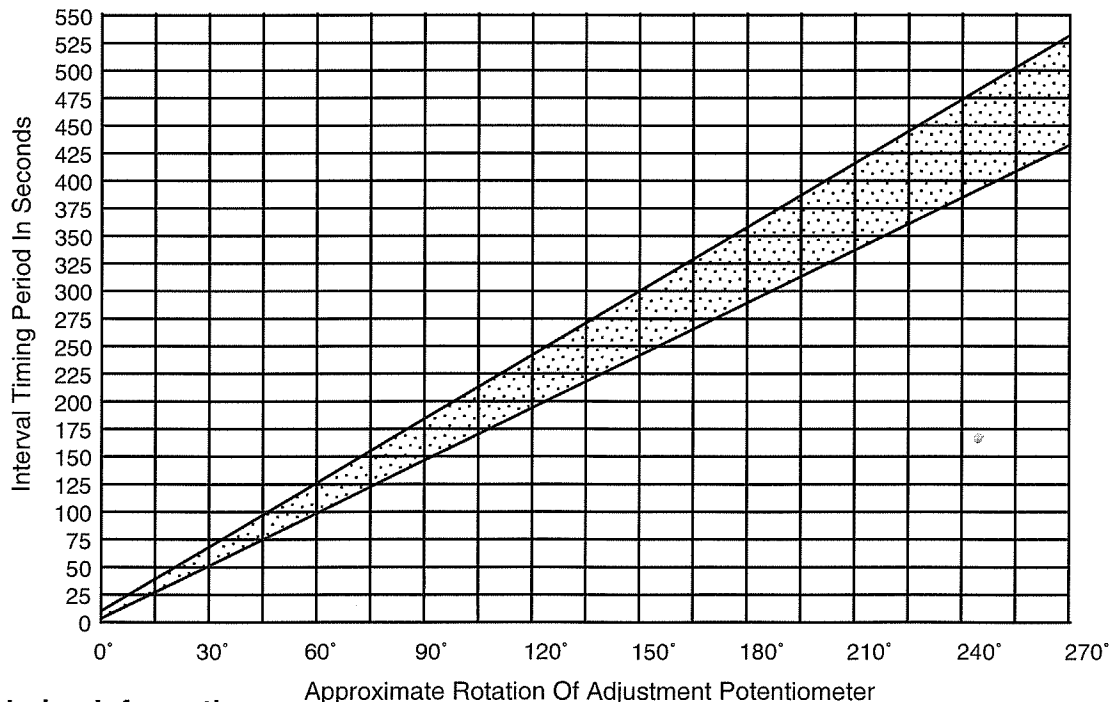
Humidity: 95% condensing

Terminations: Two (2) .25 Faston type.

Data Sheet Revision Date: October 18, 1995



Potentiometer Setting vs Timing Interval



Ordering Information

Part Number	Operating Voltage
438UPI	24V - 250V AC or DC