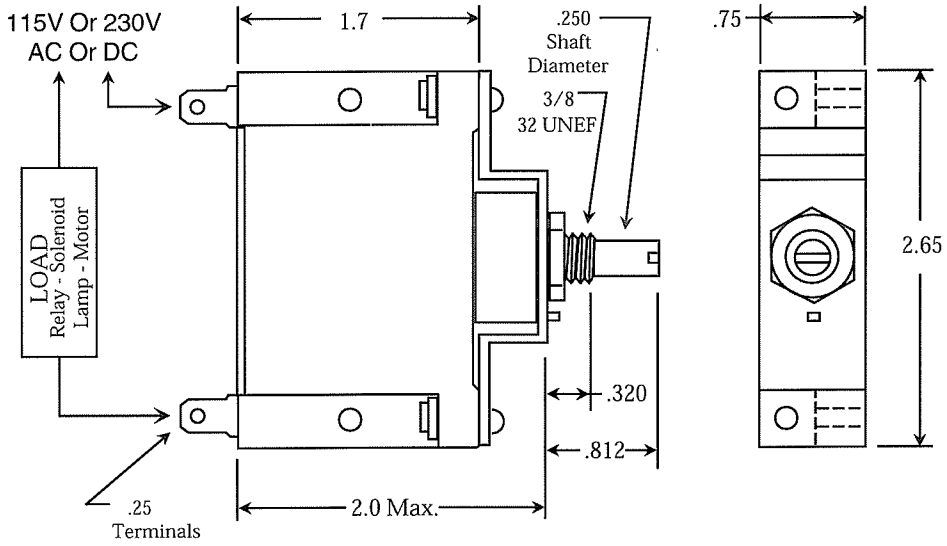
Solid State Timers and Controllers

438API Adjustable Panel Mount Interval Time Capsule®

The Model 438API is an in-line timing device that performs as a two terminal interval timer suitable for panel mounting. Operation is exactly the reverse of the standard Artisan Controls Corporation's 438AP Time Capsule ®. When connected in series with a load circuit, the 438API 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. Eleven models provide interval timing from 0.1 to 300 seconds. The interval timing action can be repeated by removing and re-applying the operating voltage. The 438API operates on either 115V or 230V AC or DC, and operates a load circuit up to .25 amperes.

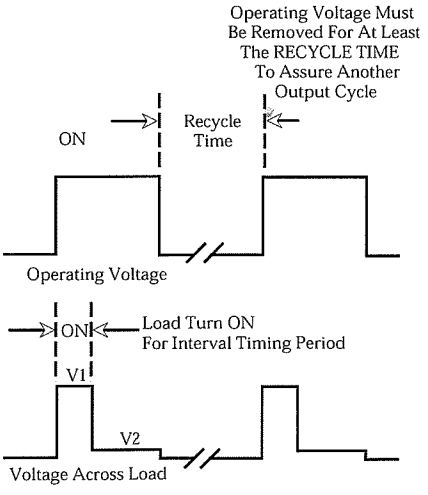
Mechanical & Wiring Diagram



How The 438API 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 438API and the load circuit, the 438API 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 438API 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/440Ω = 227mA. At the end of the timing interval the 438API turns OFF, but leakage current continues to flow. This leakage current can be as high as 3mA. This would cause the relay to have 4mA x 440Ω = 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

Timing Diagram



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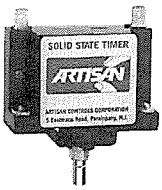
Specifications

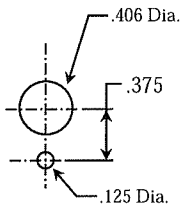


Operating Voltage:	115V or 230V AC/DC 50/60Hz.
Voltage Tolerance:	Operates over the voltage range of 105V to 240V AC or DC.
Timing Mode:	Interval - Load turns ON with application of operating voltage then turns OFF after delay period.
Timing Ranges:	Eleven ranges: Time in seconds: 0.1-4.0 (-1), 1-30 (-2), 2-100 (-3), 10-500 (-4), 30-900 (-5), 0.1-0.4 (-6), 1-3 (-7), 2-10 (-8), 10-50 (-9), 30-90 (-10), 10-300 (-11).
Timing Adjustment:	Potentiometer suitable for panel mounting. Timing is essentially linear over the 280° ± 5° rotation of the potentiometer.
***Timing Tolerance:**	Timing range specified is guaranteed to be within ± 10% of the low time and ±25% of the high time specified.
Timing Variation:	±5% at any combination of operating voltage and temperature.
Repeatability Of Timing Period:	±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 438API 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°C
Humidity:	95% condensing
Terminations:	Two (2) .25 Faston type.
Data Sheet Revision Date:	September 28, 1995

Ordering Information

Part Number	Time Range - Seconds	Operating Voltage
438API	-1 0.1 - 4.0 -2 1 - 30 -3 2 - 100 -4 10 - 500 -5 30 - 900 -6 0.1 - 0.4 -7 1 - 3 -8 2 - 10 -9 10 - 50 -10 30 - 90 -11 10 - 300	115V OR 230V

Panel Cutout



** Note: The ±10% and ±25% specification referred to above under Timing Tolerance states that any specified model is guaranteed to provide, as a minimum the timing range listed ±10% on the low time and ±25% on the high time. As an example assume the -10 timing range is specified. The specified low range of ±10% might provide a unit that had timing control as narrow as 30 + 10% (33) to 90 - 25% (67.5) seconds to as broad as 30 -10% (27) to 90 +25% (112.5) seconds. Always select that model which falls within these absolute specification limits. The timing ranges shown are nominal.*