



Solid State Timers and Controllers

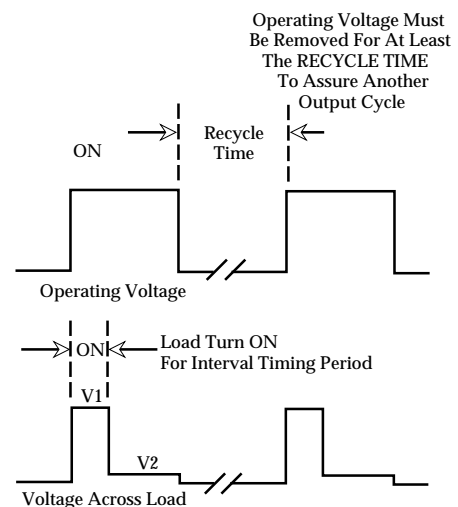
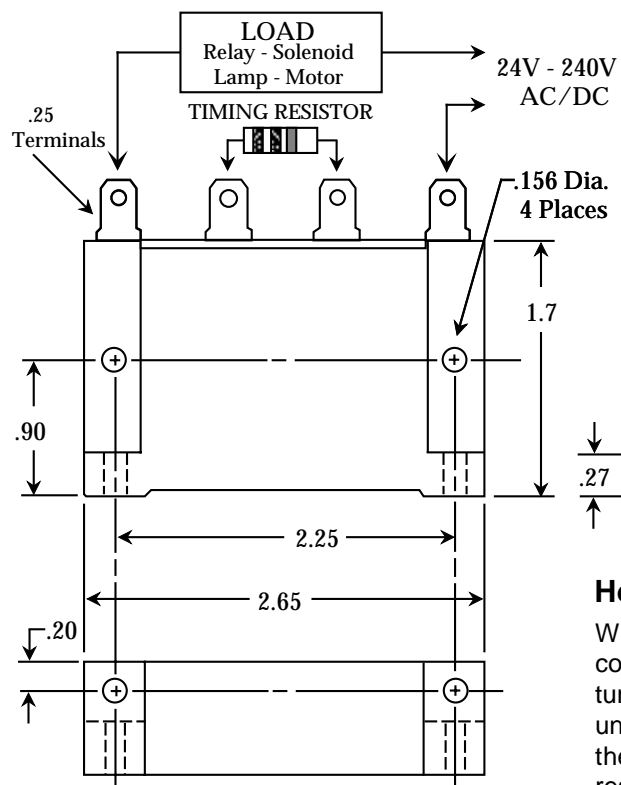


438UI

Universal Interval Time Capsule®

The Model 438UI 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 438U Time Capsule®. When connected in series with a load circuit, the 438UI will energize the load when operating voltage is first applied, turning off after the externally set interval time delay period. Three models cover interval timing periods from 0.5 to 100 seconds, 1 to 1000 seconds, and 10 to 10,000 seconds. The full interval timing range can be set with an external resistor ranging from 0 ohms to 10 meg ohms. The interval timing action can be repeated by removing and re-applying the operating voltage. The 438UI operates at voltages ranging from 24 to 240 volts AC or DC.

Mechanical Timing Diagram



How The 438UI Works

When the operating voltage is applied to the series combination of the 438UI and the load circuit, the 438UI 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 438UI 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 438UI 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 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.

Finding The Value Of The Timing Resistor For Any Timing Interval From 1 second To 1000 Seconds For The 438UI

A short circuit across the center two terminals will produce a 1 second interval. To increase the interval, increase resistor by 10,000 ohms for each additional second required. As an example: To find the value of the resistor for 300 seconds, subtract 1 from the 300 and multiply the answer by 10,000 ohms to get a value of 2,990,000 ohms, or 2.99 meg. As a practical matter you would select a 3 meg ohm resistor and connect it across the center two terminals.

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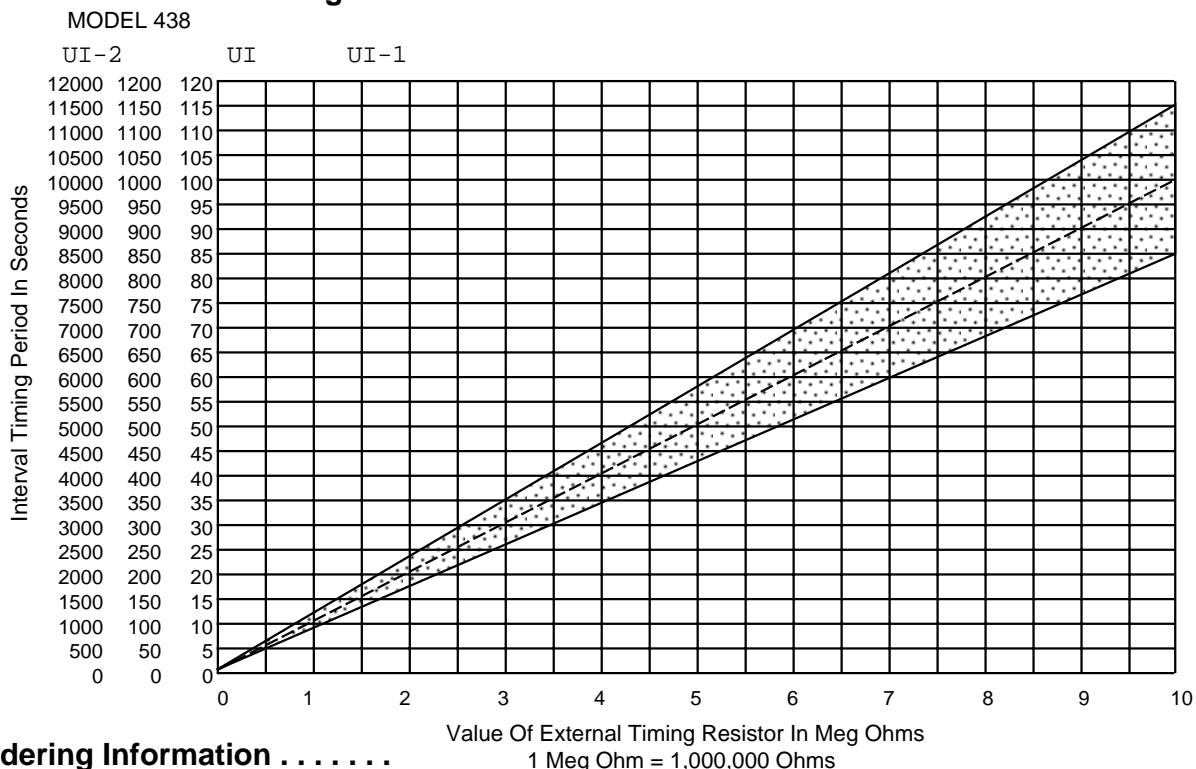
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Specifications



Operating Voltage:	24V - 240V AC/DC 50/60Hz.
Timing Mode:	Interval - Load turns ON with application of operating voltage then turns OFF after delay period.
Timing Range:	External resistor control from 1 to 1000 seconds (438UI), 0.5 to 100 seconds (438UI-1), 10 to 10,000 seconds (438UI-2), .
Timing Adjustment:	0 Ω to 10 Meg Ω covers specified timing range.
Timing Resistor Rating:	1/4 watt maximum.
Timing Tolerance:	$\pm 15\%$ of calculated resistor vs timing value.
Timing Variation:	$\pm 2\%$ at any combination of operating voltage and temperature.
Repeatability Of Timing Period:	$\pm 2\%$ nominal.
Recycle Time:	200 milliseconds.
Output Rating:	250 mA inductive with inrush current to 8 amperes for 8 milliseconds.
Output Voltage Drop in "ON" State:	10 volts maximum voltage drop across the 438UI 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:	Four (4) .25 Faston type.
Data Sheet Revision Date:	November 30, 1999

External Resistor Timing Curve



Ordering Information

Part Number	Time Range - Seconds	Operating Voltage
438UI	1 - 1000	24V - 240V AC/DC All Models
438UI-1	0.5 - 100	
438UI-2	10 - 10,000	

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