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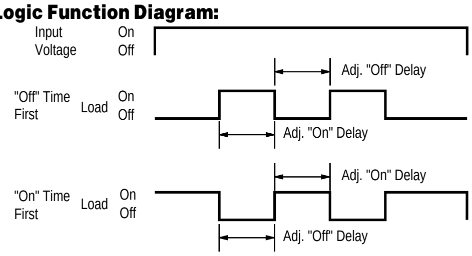
Solid-State Cube Timers

Repeat Cycle
Q6F Series

Operating Logic: Upon application of input voltage, the "off' delay is initiated. At the end of the "off' preset time, the load is activated and the "on" delay starts. At the end of the "on" preset time, the load is deactivated and a new cycle begins. The "on" and "off" cycles will continue to alternate until input voltage is removed.
This timer is available with "on" time occurring first logic.

Logic Function Diagram:



Note. 1) Remote potentiometer leads should be shielded when running close to other wires; 2) The minimum time setting on external resistor-adjustable time delay relays is obtained by shorting together the external resistor terminals of the relay; 3) The maximum time setting within tolerance limits is obtained by using a 1 megohm resistor ; 4) Timing values between the minimum and maximum limits are linear with resistance within 10%; 5) Recommend 1/4 watt minimum resistor be used.

National Controls Corporation

Phone **800-323-2593**
630-231-5900
Fax **630-231-1377**

Features
- File #E65038
- Time Delays To 10 Hours Standard
- 100% Life Tested
- Solid-State Digital Timing
- 20:1 Maximum To Minimum Timing Ratio
- Low Cost
- Compact Size
- Superior Transient Protection
- Flame-Retardant and Solvent-Resistant Polyester Thermoplastic Housing
- Made in U.S.A.

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Specifications

Time Delay
Adjustment: External resistor, factory fixed on special order (Minimum order requirement)
Range: 50 mS to 10 hours in 9 ranges
Repeatability: ±.5% + 8 mS maximum (.25% typ) at constant temperature
Accuracy:
Maximum time ±2% at Rt = 1 megohms
Minimum time +0%, -30% at Rt = 0 ohm

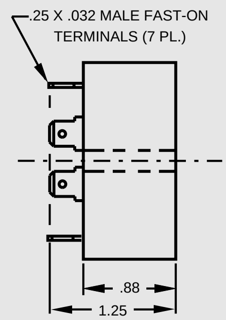
Input
Operating Voltage: 120, 240 VAC; 12 VDC; 24 VAC/DC ±10%; (D.C. models have reverse polarity protection. Unfiltered input voltage to them must be full-wave rectified)
Frequency: 50/60 Hz

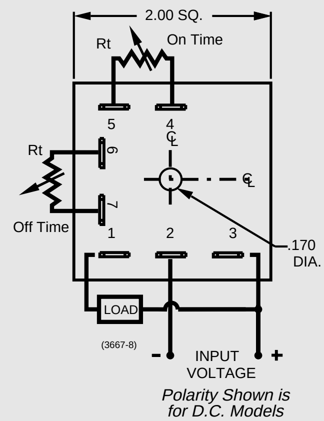
Mechanical
Termination: .25"x.032" male fast-on terminals
Mounting: Surface mount with one #8 screw

Output
Type: Solid-state, normally open
Rating: 1 amp steady state
Life: 100,000,000 operations

Protection
Transient Voltage: Metal oxide varistor see rating below
Dielectric Breakdown: 3000 VAC, RMS, terminals to mounting
Insulation Resistance: 100 megohms minimum between terminals and case

Environmental
Storage Temperature: -40°C to 85°C
Operating Temperature: -40°C to 65°C
Humidity: 95% relative





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"Off" Time First Logic	Input Voltage and Appropriate Part Numbers			
Time Range	12 VDC ± 10%	24 VAC/DC ± 10%	120 VAC ± 10%	240 VAC ± 10%
.05-1 Second	Q6F-00001-326	Q6F-00001-327	Q6F-00001-321	Q6F-00001-325
.25-5 Seconds	Q6F-00005-326	Q6F-00005-327	Q6F-00005-321	Q6F-00005-325
.5-10 Seconds	Q6F-00010-326	Q6F-00010-327	Q6F-00010-321	Q6F-00010-325
3-60 Seconds	Q6F-00060-326	Q6F-00060-327	Q6F-00060-321	Q6F-00060-325
15-300 Seconds	Q6F-00300-326	Q6F-00300-327	Q6F-00300-321	Q6F-00300-325
30-600 Seconds	Q6F-00600-326	Q6F-00600-327	Q6F-00600-321	Q6F-00600-325
180-3600 Seconds	Q6F-03600-326	Q6F-03600-327	Q6F-03600-321	Q6F-03600-325
.25-5 Hours	Q6F-18000-326	Q6F-18000-327	Q6F-18000-321	Q6F-18000-325
.5-10 Hours	Q6F-36000-326	Q6F-36000-327	Q6F-36000-321	Q6F-36000-325
"On" Time First Logic	Input Voltage and Appropriate Part Numbers			
3-60 Seconds	Q6F-00060-336	Q6F-00060-337	Q6F-00060-331	Q6F-00060-335
15-300 Seconds	Q6F-00300-336	Q6F-00300-337	Q6F-00300-331	Q6F-00300-335
30-600 Seconds	Q6F-00600-336	Q6F-00600-337	Q6F-00600-331	Q6F-00600-335
180-3600 Seconds	Q6F-03600-336	Q6F-03600-337	Q6F-03600-331	Q6F-03600-335
.25-5 Hours	Q6F-18000-336	Q6F-18000-337	Q6F-18000-331	Q6F-18000-335

Trigger Time *(Start Sw. Closure)*	500 mS	500 mS	500 mS	500 mS
Reset Time	500 mS	500 mS	500 mS	500 mS
Min. Load	5 mA	5 mA	2 mA	2 mA
Max. Leakage Current	100 µA	100 µA	100 µA	100 µA
Voltage Drop @ 1A	2.1 Volts max.	3.2 Volts max.	3.3 Volts max.	3.3 Volts max.
Power Consumption	2.6 Watts Max.	3.7 VA Max	4.3 VA Max	5.8 VA Max.
Peak 1 Cycle Surge	4 Amp	4 Amp	20 Amp	20 Amp
Protection	rev. voltage	8.8j. MOV	30j. MOV	30j. MOV

Optional Potentiometer: Part Number ASY-0001M-450

External Resistance/Time Delay Relationship

1 megohm external resistance is required to obtain the maximum time for all ranges. To determine the actual resistance needed to obtain the required time delay, use the following formula:

$$Rt = \frac{T_{required} - T_{minimum}}{T_{maximum} - T_{minimum}} \times 1{,}000{,}000 \text{ ohms}$$

Note: Due to component tolerances, the actual time obtained will normally be within 5% of desired time.