

NCC

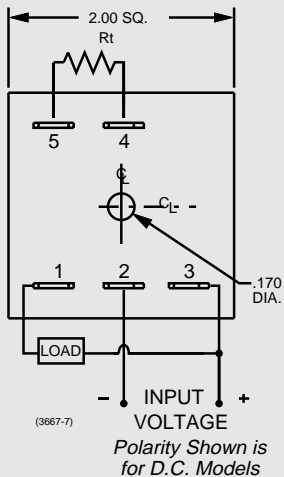
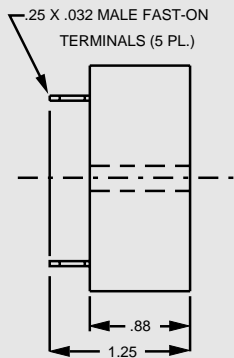
National Controls Corporation

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

Features

- File #E65038
- Time Delays To 5 Minutes Standard
- Only One Timing Component Required
- 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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External Resistance/Time Delay Relationship

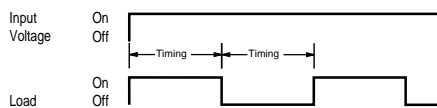
1 megohm external resistance is required to obtain the maximum time for all ranges. To determine the actual resistance needed to obtain the required time delay, use the following formula:

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

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



Logic Function Diagram:



Solid State Cube Timers

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Flasher Q8F Series

Operating Logic: Upon application of voltage to the input terminals, the load is energized for the duration of the preset time delay. At the end of this time delay, the load is de-energized for the duration of the preset time delay. The load is then energized again and the timer continues to repeat this on-off cycle until input voltage is removed. Both on and off times are the same and are determined by R_t .

Note: 1) R_t and terminals 4 and 5 are used for external time adjustment; 2) Remote potentiometer leads should be shielded when running close to other wires; 3) The minimum time setting on external resistor-adjustable time delay relays is obtained by shorting together the external resistor terminals of the relay; 4) The maximum time setting within tolerance limits is obtained by using a 1 megohm resistor; 5) Timing values between the minimum and maximum limits are linear with resistance within 10%; 6) Recommend 1/4 watt minimum resistor be used.

Specifications

Time Delay

- Adjustment:** External resistor, factory fixed on special order (Minimum order requirement)
- Range:** 50 mS to 5 minutes in 5 ranges
- Repeatability:** $\pm .5\% + 8 \text{ mS}$ maximum (0.25% typ) at constant temperature
- Accuracy:** Maximum time $\pm 2\%$ at $R_t = 1$ megohms
Minimum time $+0\%, -30\%$ at $R_t = 0 \text{ ohm}$

Input

- Operating Voltage:** 120 VAC $\pm 10\%$
- Frequency:** 50/60 Hz

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

Mechanical

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

Environmental

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

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Input Voltage and Appropriate Part Numbers				
Time Range	12 VDC $\pm 10\%$	24 VAC/DC $\pm 10\%$	120 VAC $\pm 10\%$	240 VAC $\pm 10\%$
.05-1 Second	ℓ	ℓ	Q8F-00001-321	ℓ
.25-5 Seconds	ℓ	ℓ	Q8F-00005-321	ℓ
.5-10 Seconds	ℓ	ℓ	Q8F-00010-321	ℓ
3-60 Seconds	ℓ	ℓ	Q8F-00060-321	ℓ
15-300 Seconds	ℓ	ℓ	Q8F-00300-321	ℓ

Trigger Time (Start Sw. Closure)	-	-	500 mS	-
Reset Time	-	-	500 mS	-
Min. Load	-	-	2 mA	-
Max. Leakage Current	-	-	100 uA	-
Voltage Drop @ 1A	-	-	3.3 Volts	-
Power Consumption	-	-	4.3 VA Max	-
Peak 1 Cycle Surge	-	-	20 Amp	-
Protection	-	-	30j. MOV	-

Optional Potentiometer: Part Number ASY-0001M-450

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