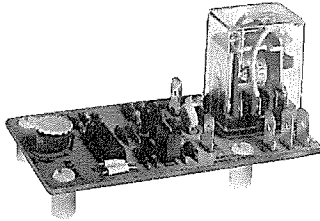




# Solid State Timers and Controllers

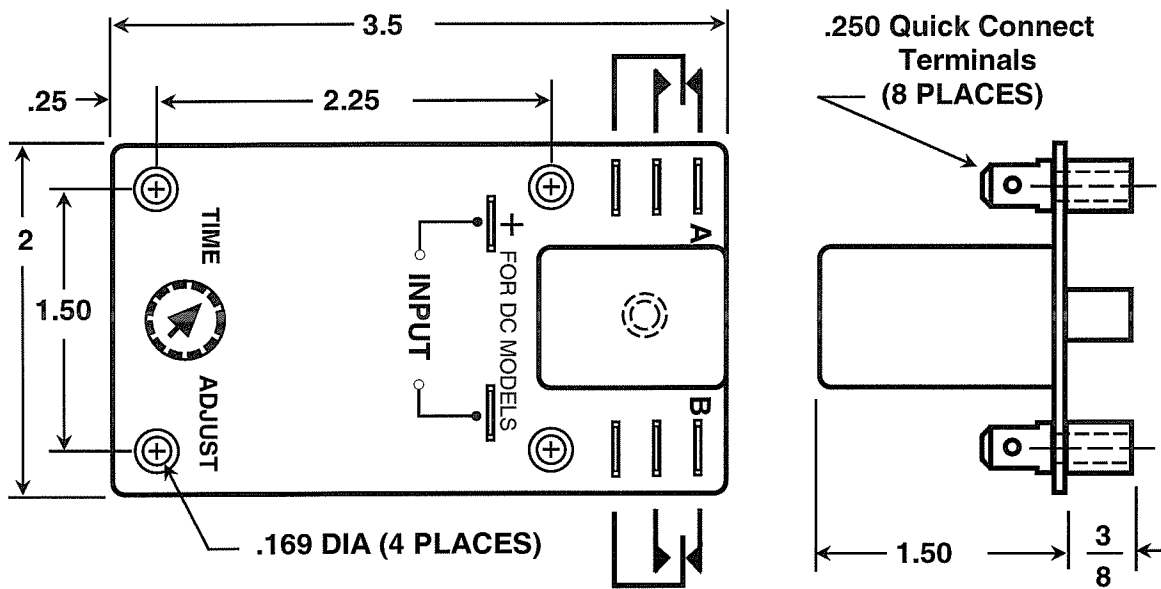
## 4606

AC - DC  
Flasher Relay

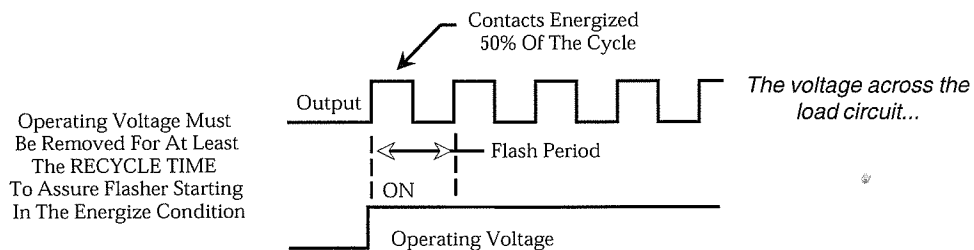


The model 4606, open board flasher, combines digital timing techniques with 10 ampere output contacts to form a flasher that is available in either AC or DC operating voltages. The model 4606 is available in fixed flash rates from 1 to 250 FPM, and adjustable models in two ranges covering 1 to 250 FPM. The model 4606 is essentially a 50% duty cycle flasher. This means that the energize time and the de-energize times are essentially of equal timing period.

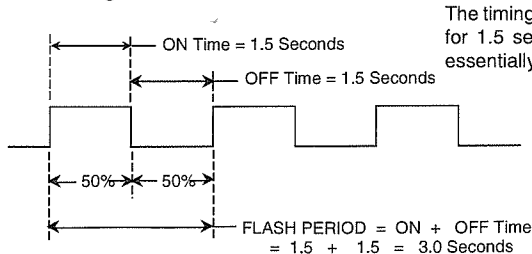
### Mechanical & Wiring



### Timing Diagram



### Finding The Flash Rate



The timing diagram shown represents an application that requires the load circuit to be ON for 1.5 seconds and OFF for 1.5 seconds. (Remember - the ON and OFF times will essentially be equal due to the 50% duty cycle specification inherent in the model 4606)

Since the ordering information requires the flashes-per-minute, we must first find the Flash Period by converting the total ON + OFF time to seconds. In the above example this becomes 3.0

Then: to find the flashes-per-minute merely divide 60 by the Flash Period, which in our example becomes:

$$\text{FLASHES-PER-MINUTE} = \frac{60}{3} = 20 \text{ Flashes-Per-Minute}$$





## Solid State Timers and Controllers

### Specifications

- Operating Voltage:** 12V DC, 24V DC, 48V DC 110V DC, 24V AC, 48V AC, 115V AC, 230V AC.
- Voltage Tolerance:** -10%, +15% AC and DC models, AC 50/60Hz.
- Operating Current:** 12V DC 85mA, 24V DC 45mA, 48V DC 25mA, 110V DC 15mA, 24V AC 60mA, 48V AC 30mA, 115V AC 16mA, 230V AC 12mA.
- Timing Mode:** Flasher - 50% duty cycle ON = OFF.
- Fixed Flash Rate:** 1 to 250 flashes-per-minute (FPM).
- Fixed FPM Purchase Tolerance:** 5%, 10%, and 20%.
- Adjustable Flash Rate:** 1 to 60 flashes-per-minute and 5 to 250 flashes-per-minute.
- Adjustable Flash Rate Tolerance:** Adjustable flash rate guaranteed with maximums of -15% on the low rate and +15% on the high rate.
- Flash Rate Variation:** Less than 6% of set point over specified temperature and voltage range.
- Repeatability Of Flash Rate:** ±1% nominal.
- Recycle Time:** Operating voltage must be removed for a minimum of 200 milliseconds to guarantee all timing and output circuits have reset.
- Output:** DPDT relay contacts.
- Output Rating:** UL rated for 10A, 1/3 HP, 125V, 250V AC, 10A 30V DC CSA rated for 10A, 1/4 HP, 125V, 250V AC, 10A 30V DC relay is covered by UL File No. E57520, and CSA File No. LR26550. 50,000 operations at 10A 250V AC and 3A at 30V DC. 1,500 Vrms for one minute between contact sets, 1,000 Vrms for one minute between open contacts, and 2,000 Vrms between contacts and operating voltage terminals for one minute.
- Contact Life:** 50,000,000 operations mechanical life at 180 FPM, 500,000 operations at full load at 180FPM.
- Contact Life Estimation:** Divide 500,000 by the percentage of full load rating. Ex: at 1 ampere of load current (10%), life at 1 ampere becomes 500,000 / .1 = 5,000,000. At 250FPM this becomes 333 hours, and at 1 FPM becomes 83,250 hours. Contact life assumes a resistive load. As the load becomes more inductive, make certain to employ contact arc suppression devices, to prolong contact life.
- Transient Protection:** The timing circuit is protected with a zener type voltage limiting device and an MOV rated for transient limiting at a voltage below that of the solid state switching element. The MOV is rated for transient absorption to 25 joules.
- Operating Temperature:** -20°C to +70°C.
- Construction:** Open PC board with .25 quick connect wiring terminals.
- Data Sheet Revision Date:** June 20, 1995

### Ordering Information

Part Number	Operating Voltage	Flash rate (FPM)	FPM Tolerance
4606F - (Fixed Flash Rate)	-2 (12V DC)	Specify the fixed flash rate from 1 to 250 Flashes-Per-Minute For 4606F	-B 5% <sup>Ⓢ</sup>
	-3 (24V DC)		-C 10 %
	-4 (48V DC)		-D 20 %
	-5 (110V DC)		
	-6 (24V AC)		
4606A - (Adjustable Flash Rate)	-7 (48V AC)	Specify the adjustable flash rate For 4606A -1 (1 - 60 FPM) -2 (5 - 250 FPM)	For 4606F
	-8 (115V AC)		Fixed
	-9 (230V AC)		Flash Rate
			Only

Examples:

4606F - 6 - 90 - C Is a model 4606F with 24V AC operating voltage with a fixed flash rate of 90 FPM.

4606A - 2 - 2 Is a model 4606A with 12V DC operating voltage with an adjustable flash rate of 5 to 250 FPM.