



Solid State Timers and Controllers

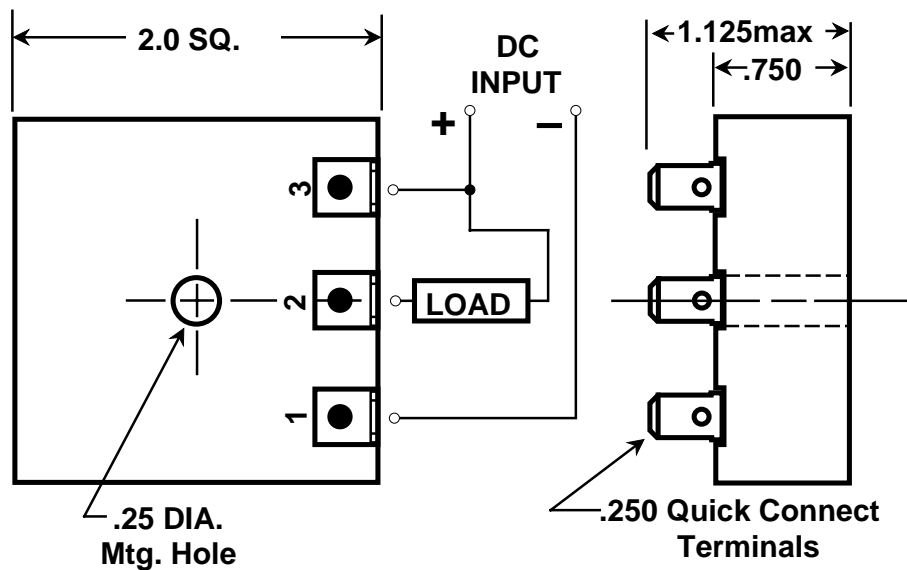
4211

Solid State DC Flasher



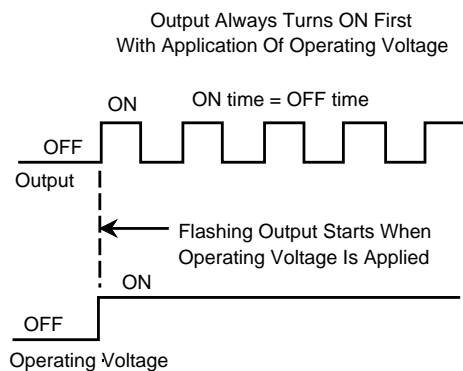
The Model 4211 is an all solid state flasher intended for use in DC circuits only. Capable of flashing a load circuit up to two amperes at a fifty percent duty cycle. Output switch is ON for as long as it is OFF. Flash rates from 1 flash per minute up to 5,000 flashes per minute are available in five operating voltage ranges. A unique feature of the model 4211 is the low operating power and low voltage drop across the output switch when in the ON state. The model 4211 has internal transient protection devices to assure reliable operation even when driving inductive load circuits such as relays or solenoids.

Mechanical & Wiring



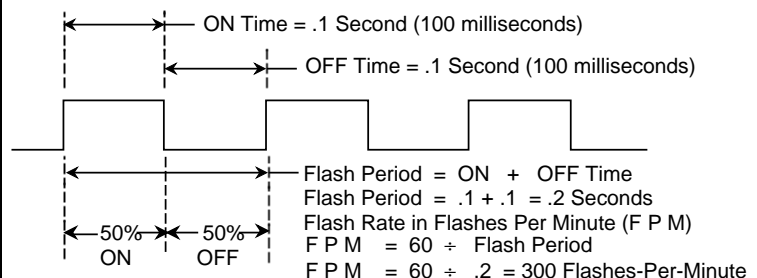
Timing Diagram

How To Find The Flash Rate.



The timing diagram shown below is for an application that requires the load circuit to be ON for 100 milliseconds and OFF for 100 milliseconds. (Remember - the ON and OFF times will essentially be equal due to the 50% duty cycle specification inherent in the model 4211)

The voltage across the load circuit would look something this:



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Specifications

- Operating Voltage:** DC only (5, 12, 24, 48, 110).
Operating Current: 5mA + load current at any operating voltage.
Voltage Tolerances: $\pm 15\%$.
Timing Mode: Flasher.
Fixed Flash Rate: Factory fixed at any rate from 1 to 5,000 flashes-per-minute (FPM)
Fixed Flash Duty Cycle: 50%.
Flash Rate Duty Cycle Tolerance: $\pm 10\%$ (2% nominal).
Tolerances On Fixed Timing: 2%, 5%, 10%, and 20% available.
Flash Rate Variation: Less than 4% of set point over full temperature and voltage range.
Repeatability Of Flashing Period: $\pm 1\%$ at stabilized operating voltage temperature.
Recycle Time: Operating voltage must be removed for a minimum of 200 milliseconds to assure that timing and output circuits are reset. If it is not a requirement that the load circuit always be energized when operating voltage is re-applied, the operating voltage may be re-applied at any time.
Output Rating: 2mA to 2A inductive with inrush current to 20A for 10 milliseconds.
Output Switch Voltage Drop: 0.56 volts DC maximum at 2A.
Output Switch Leakage Current: 1 mA maximum when load circuit is de-energized.
Transient Protection: Output switch protected by silicon transient suppressors responding to transients within 1×10^{-12} seconds to a peak pulse power dissipation of 1500 watts, with transient surge currents to 200 amperes for durations up to 1/120 second at 25° C. Maximum transient voltage protection is 6000 volts as delivered through a source resistance of 30 ohms with a maximum duration of 8.3ms.
Dielectric: 1500V rms all terminals to case.
Operating Temperature: -20°C to +85°C
Construction: Encapsulated module with .25 quick connect wiring terminals.
Data Sheet Revision Date: June 17, 2000

Ordering Information

| Part Number | Operating Voltage | Flash Rate (FPM) | Flash Rate Tolerance |
|-------------|-------------------|--|----------------------|
| 4211 - | 5V DC | Specify Fixed Flash | -A 2% |
| | 12V DC | Rate Required From 1 to 5,000 Flashes Per Minute | -B 5% |
| | 24V DC | | -C 10 % |
| | 48V DC | | -D 20 % |
| | 110V DC | | |

Examples Of Part Numbers

4211 - 12VDC - 90 - C Is a model 4211 operating from 12V DC with a flash rate of 90 flashes-per-minute (FPM) to a tolerance of $\pm 10\%$ on the flash rate. The load circuit will be ON for 333mS and OFF for 333 mS.

4211 - 24 DC - 1000 - B Is a model 4211 operating from 24V DC with a flash rate of 1000 flashes-per-minute (FPM) to a tolerance of $\pm 10\%$ on the flash rate. The load circuit will be ON for 30mS and OFF for 30 mS.

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