Impulse Latching Relay
NLF1/NLF2 Series
Solid State Relay

Description
The NLF1 and NLF2 provide a Flip-Flop latching function. Each time the control switch is closed, the solid state output changes state and latches. The NLF Series has no isolation between the control switch and the solid state output, which lowers cost and reduces the number of connections required. For use where the control switch is the same voltage source as the load. Zero voltage switching NLF2 extends the life of an incandescent lamp up to 10 times. Random switching NLF1 is ideal for inductive loads. When fully insulated female terminals are used on the connection wires, the system meets the requirements for touch-proof connections.

Operation
The solid state output is located between terminals 1 and 2, and can be ordered as either normally open or normally closed, when voltage is applied. When S1 is closed, the solid state output between terminals 1 and 2 closes (or opens). If S1 is opened and reclosed, the solid state output will open (or close).

Reset: Open and reclose S1. Reset is also accomplished by removing and reapplying input voltage.

Ordering Table

<table>
<thead>
<tr>
<th>X</th>
<th>Series</th>
<th>X</th>
<th>Input Voltage</th>
<th>X</th>
<th>Output Rating</th>
<th>X</th>
<th>Output Form</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NLF1</td>
<td></td>
<td>24 V AC</td>
<td>1</td>
<td>1 A</td>
<td>A</td>
<td>Normally Open</td>
</tr>
<tr>
<td></td>
<td>(Random Switching)</td>
<td></td>
<td>24 V AC</td>
<td>6</td>
<td>20 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NLF2</td>
<td></td>
<td>230 V AC</td>
<td>6</td>
<td>20 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Zero Voltage Switching)</td>
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</tbody>
</table>

Example P/N: NLF1410A

Technical Data

Output
Type: Non-isolated solid state
Form: SPST, normally open or normally closed
Ratings
Steady State: 1 A, 10 A, SCR & Bridge Rectifier
Inrush*: 6 A, 60 A Triac
6 A, 10 A, Triac
10 A, 100 A, Tric
20 A, 200 A, Triac
Minimum Load Current: 50 mA
Voltage Drop (at Rated Current): 2.0 V – 6, 10, & 20 A units; 2.5 V – 1 A units
Leakage Current (Open State): ≤ 5 mA

Input
Type: Non-isolated, common with output
Voltage: 24, 120, or 230 V AC +/-20%
Power Consumption: ≤ 0.5 W
Operations Per Second: ≤ 5

Protection
Circuitry: Encapsulated
Dielectric Breakdown: ≥ 2000 V RMS terminals to mounting surface
Insulation Resistance: ≥ 100 MΩ

Mechanical
Mounting*: Surface mount with one #10 (M5 x 0.8) screw
Package 6, 10, 20 A units: 2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
1 A units: 2 x 2 x 0.94 in. (50.8 x 50.8 x 23.8 mm)
Termination: 0.25 in. (6.35 mm) male quick connect terminals

Environmental
Operating Temperature: -20°C ... +60°C
Storage Temperature: -40°C ... +85°C
Humidity: 95% relative non-condensing
Weight: 1 A units: 0.4 oz (11.3 g)
6, 10, 20 A units: 0.4 oz (11.3 g)

*Units rated ≥ 6 A must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16 ms.

Accessories

Female Quick Connect Terminals
These 0.25 in. (6.35 mm) female terminals are constructed with an insulated barrel to provide strain relief.
P/N: P1015-13
      Wire Size
      AWG 10/12 (5.3/3.2 mm²)
P1015-64
      AWG 14/16 (2.5/1.3 mm²)
P1015-14
      AWG 18/22 (0.3/0.3 mm²)

Quick Connect to Screw Adaptor
Converts 0.25 in. (6.35 mm) female quick connect terminal to screw terminal.
P/N: P1015-18

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