

# AZ970/AZ971

## 40 AMP MINIATURE POWER RELAY FOR AUTOMOTIVE USE

### FEATURES

- Low cost
- Up to 40 Amp switching capability in a compact size
- Open, covered or sealed
- Coils to 24 VDC
- Small footprint
- 1 Form A, B and C contacts available
- Vibration and shock resistant
- Designed for high in-rush applications



### CONTACTS

|                    |  |
|--------------------|--|
| <b>Arrangement</b> | SPST (1 Form A)<br>SPST (1 Form B)<br>SPDT (1 Form C)  |
| <b>Ratings</b>     | Resistive load:<br>Max. switched power: Form A: 560 W<br>Form B: 420 W<br>Form C: 420 W<br>Max. switched current: Form A: 40 A<br>Form B: 30 A<br>Form C: 30 A<br>Max. switched voltage: 150* VDC<br><br>* If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory. |
| <b>Material</b>    | Silver tin oxide   |
| <b>Resistance</b>  | < 100 milliohms initially<br>(24 V, 1 A voltage drop method)   |

### COIL

|                                    |  |
|------------------------------------|--|
| <b>Power</b>                       |  |
| <b>At Pickup Voltage (typical)</b> | 514 mW (12 and 24 VDC Coil)<br>573 mW (6 VDC Coil)                             |
| <b>Max. Continuous Dissipation</b> | 5.3 W 20°C (68°F) ambient (AZ970)<br>4.6 W 20°C (68°F) ambient (AZ971)         |
| <b>Temperature Rise</b>            | 56°C (101°F) nominal coil VDC (AZ970)<br>59°C (106°F) nominal coil VDC (AZ971) |
| <b>Max. Temperature</b>            | 155°C (311°F)  |

### GENERAL DATA

|  |  |
|--|--|
| <b>Life Expectancy</b><br><b>Mechanical</b><br><b>Electrical</b> | Minimum operations<br>5 x 10 <sup>6</sup> operations<br>1 x 10 <sup>5</sup> operations at 40 A 14 VDC Res. |
| <b>Operate Time (typical)</b>                                    | 3 ms at nominal coil voltage   |
| <b>Release Time (typical)</b>                                    | 5 ms at nominal coil voltage<br>(with no coil suppression)   |
| <b>Dielectric Strength</b><br>(at sea level for 1 min.)          | 500 VDC coil to contact<br>500 VDC between open contacts   |
| <b>Insulation Resistance</b>                                     | 100 megohms min. at 20°C, 500 VDC,<br>50% RH   |
| <b>Dropout</b>   | Greater than 6% of nominal coil voltage  |
| <b>Ambient Temperature</b>                                       | At nominal coil voltage  |
| <b>AZ970 Operating</b>   | -40°C (-40°F) to 105°C (221°F)   |
| <b>AZ970 Storage</b>   | -40°C (-40°F) to 105°C (221°F)   |
| <b>AZ971 Operating</b>   | -40°C (-40°F) to 105°C (221°F)   |
| <b>AZ971 Storage</b>   | -40°C (-40°F) to 105°C (221°F)   |
| <b>Vibration</b>   | 0.062" (1.5 mm) DA at 10–55 Hz   |
| <b>Shock</b>   | 10 g   |
| <b>Enclosure</b>   | P.B.T. polyester   |
| <b>Terminals</b>   | Tinned copper alloy, P.C.  |
| <b>Max. Solder Temp.</b>   | 270°C (518°F)  |
| <b>Max. Solder Time</b>  | 5 seconds  |
| <b>Max. Solvent Temp.</b>  | 80°C (176°F)   |
| <b>Max. Immersion Time</b>                                       | 30 seconds   |
| <b>Weight</b>  | 20 grams   |

### NOTES

1. All values at 20°C (68°F).
2. Relay may pull in with less than "Must Operate" value.
3. Specifications subject to change without notice.

**ZETTLER electronics GmbH**

Junkersstrasse 3, D-82178 Puchheim, Germany

Tel. +49 89 800 97 0  
Fax +49 89 800 97 200

office@ZETTLERelectronics.com  
www.ZETTLERelectronics.com

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# AZ970/AZ971

## RELAY ORDERING DATA — AZ970 — OPEN STYLE

| COIL SPECIFICATIONS |                  |                     |                            | ORDER NUMBER  |               |               |
|---------------------|------------------|---------------------|----------------------------|---------------|---------------|---------------|
| Nominal Coil VDC    | Must Operate VDC | Max. Continuous VDC | Coil Resistance $\pm 10\%$ | Form A (SPST) | Form B (SPST) | Form C (SPDT) |
| 6                   | 3.3              | 9.8                 | 19.0                       | AZ970-1A-6D   | AZ970-1B-6D   | AZ970-1C-6D   |
| 9                   | 5.1              | 15.9                | 50.0                       | AZ970-1A-9D   | AZ970-1B-9D   | AZ970-1C-9D   |
| 12                  | 6.8              | 21.3                | 90.0                       | AZ970-1A-12D  | AZ970-1B-12D  | AZ970-1C-12D  |
| 24                  | 13.9             | 42.7                | 362.0                      | AZ970-1A-24D  | AZ970-1B-24D  | AZ970-1C-24D  |

## RELAY ORDERING DATA — AZ971 — With Dust Cover

| COIL SPECIFICATIONS |                  |                     |                            | ORDER NUMBER* |               |               |
|---------------------|------------------|---------------------|----------------------------|---------------|---------------|---------------|
| Nominal Coil VDC    | Must Operate VDC | Max. Continuous VDC | Coil Resistance $\pm 10\%$ | Form A (SPST) | Form B (SPST) | Form C (SPDT) |
| 6                   | 3.3              | 9.4                 | 19.0                       | AZ971-1A-6D   | AZ971-1B-6D   | AZ971-1C-6D   |
| 9                   | 5.1              | 15.2                | 50.0                       | AZ971-1A-9D   | AZ971-1B-9D   | AZ971-1C-9D   |
| 12                  | 6.8              | 20.4                | 90.0                       | AZ971-1A-12D  | AZ971-1B-12D  | AZ971-1C-12D  |
| 24                  | 13.9             | 41.0                | 362.0                      | AZ971-1A-24D  | AZ971-1B-24D  | AZ971-1C-24D  |

\*Add suffix "E" for epoxy sealed version.

## MECHANICAL DATA

### AZ970 Outline Dimensions and PCB Layout

Viewed towards terminals

### Terminal Dimensions

| Term. | Dimensions                |
|-------|---------------------------|
| 3,5   | .041 [1.02] x .03 [0.76]  |
| 1,2   | .041 [1.02] x .018 [0.46] |
| 4     | .041 [1.02] x .062 [1.57] |

### AZ971 Outline Dimensions and PCB Layout

Viewed towards terminals

### Wiring Diagrams

Viewed towards terminals

Dimensions in inches with metric equivalents in parentheses. Tolerance:  $\pm 0.010$ "

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