

# 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) SPST (1 Form B) SPDT (1 Form C)
<b>Ratings</b>	Resistive load: Max. switched power: Form A: 560 W Form B: 420 W Form C: 420 W  Max. switched current: Form A: 40 A Form B: 30 A Form C: 30 A  Max. switched voltage: 150* VDC  * 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 (24 V, 1 A voltage drop method)

### COIL

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

### GENERAL DATA

<b>Life Expectancy</b> <b>Mechanical</b> <b>Electrical</b>	Minimum operations 5 x 10 <sup>6</sup> operations 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 (with no coil suppression)
<b>Dielectric Strength (at sea level for 1 min.)</b>	500 VDC coil to contact 500 VDC between open contacts
<b>Insulation Resistance</b>	100 megohms min. at 20°C, 500 VDC, 50% RH
<b>Dropout</b>	Greater than 6% of nominal coil voltage
<b>Ambient Temperature</b> <b>AZ970 Operating</b> <b>AZ970 Storage</b> <b>AZ971 Operating</b> <b>AZ971 Storage</b>	At nominal coil voltage -40°C (-40°F) to 105°C (221°F) -40°C (-40°F) to 105°C (221°F) -40°C (-40°F) to 105°C (221°F) -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

2003-04-08

# 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

Top view dimensions: .740 [18.8 ± 0.4], .906 [23.0 ± 0.4], .173 [4.4 ± 0.4]

Side view dimensions: .709 [18.0 ± 0.4]

Terminal view dimensions: 3x  $\phi 0.081$  [ $\phi 2.1$ ], .559 [14.2], .102 [2.6], .148 [3.8], .211 [5.4], .322 [8.2], .161 [4.1], .066 [1.7], .467 [11.9], 4x  $\phi 0.055$  [ $\phi 1.4$ ], .134 [3.4], .147 [3.7]

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

Top view dimensions: .831 [21.1 ± 0.3], 1.031 [26.2 ± 0.3], .020 [5], .138 [3.5 ± 0.5]

Side view dimensions: .831 [21.1 ± 0.3]

Terminal view dimensions: 3x  $\phi 0.081$  [ $\phi 2.1$ ], .559 [14.2], .102 [2.6], .148 [3.8], .211 [5.4], .322 [8.2], .161 [4.1], .170 [4.3], .134 [3.4], .467 [11.9], 4x  $\phi 0.055$  [ $\phi 1.4$ ], .147 [3.7]

Viewed towards terminals

### Wiring Diagrams

FORM C

FORM B

FORM A

Viewed towards terminals

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

**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

2003-04-08