

# AZ970(E)/AZ971(E)

## AUTOMOTIVE 40 AMP MINIATURE POWER RELAY

### FEATURES

- Low cost
- Up to 40 Amp switching capability in a compact size
- Open, covered or sealed
- Coil voltages up to 24 VDC
- Small footprint, available in 2 versions
- 1 Form A and 1 Form C contacts available
- Vibration and shock resistant
- Designed for high in-rush applications



### CONTACTS

<b>Arrangement</b>	SPST (1 Form A), SPDT (1 Form C)
<b>Ratings (max.)</b>	(resistive load)
switched power	560 W (1 Form A), 420 W (1 Form C)
switched current	40 A (1 Form A), 30 A (1 Form C)
switched voltage	150 VDC*
	* Note: If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory.
<b>Contact material</b>	Silver tin oxide
<b>Initial resistance</b>	< 100 mΩ (1 A / 24 V voltage drop method)

### COIL

<b>Nominal coil DC voltages</b>	9, 12, 24
<b>Dropout</b>	> 6% of nominal coil voltage
<b>Power at pickup voltage</b>	(typ.)
9 VDC coil	520 mW
12 VDC and 24 VDC coil	514 mW
<b>Max. continuous dissipation</b>	(at 20°C (68°F) ambient)
open version	5.3 W
covered version	4.6 W
<b>Temperature Rise</b>	(at nominal coil voltage)
open version	56 K (101°F)
covered version	59 K (106°F)
<b>Max. temperature</b>	155°C (311°F)

### COIL VOLTAGE SPECIFICATIONS

Nominal Coil VDC	Must Operate VDC	Max. Continuous VDC		Resistance Ohm ± 10%
		Open version	Covered version	
9	5.1	15.9	15.2	50
12	6.8	21.3	20.4	90
24	13.9	42.7	41.0	362

### GENERAL DATA

<b>Life Expectancy</b>	(minimum operations)
Mechanical	1 x 10 <sup>6</sup>
Electrical	1 x 10 <sup>5</sup> at 40 A, 14 VDC, resistive
<b>Operate Time</b>	5 ms (typ.) at nominal coil voltage
<b>Release Time</b>	3 ms (typ.) at nominal coil voltage, without coil suppression
<b>Dielectric Strength</b>	(at sea level for 1 min.)
	500 VDC coil to contact
	500 VDC between open contacts
<b>Insulation Resistance</b>	100 MΩ (min.) at 20°C, 500 VDC, 50% RH
<b>Temperature Range</b>	(at nominal coil voltage)
Operating	-40°C (-40°F) to 105°C (221°F)
<b>Vibration resistance</b>	1.5 mm (0.062") 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>Soldering</b>	
Max. Temperature	270°C (518°F)
Max. Time	5 seconds
<b>Cleaning</b>	
Max. Solvent Temp.	80°C (176°F)
Max. Immersion Time	30 seconds
<b>Weight</b>	20 grams

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- A ZETTLER GROUP Company

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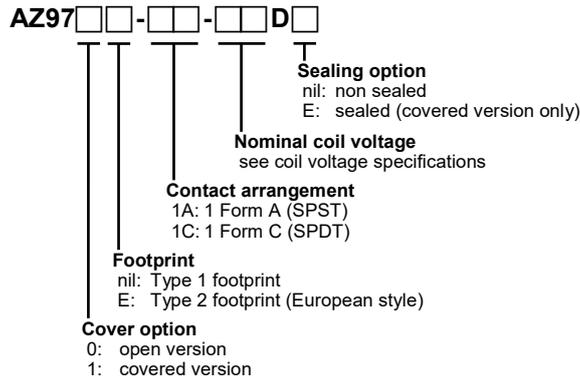
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# AZ970(E) / AZ971(E)

## ORDERING DATA



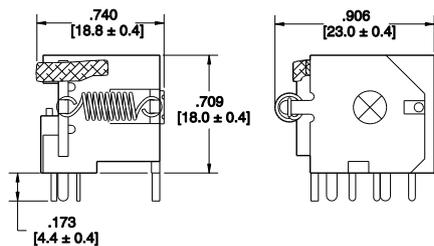
## Example ordering data

AZ970-1A-9D	Open version, Type 1 footprint, 1 Form A, 9 VDC nominal coil voltage
AZ971E-1A-12D	Covered version, Type 2 footprint, 1 Form A, 12 VDC nominal coil voltage, non sealed

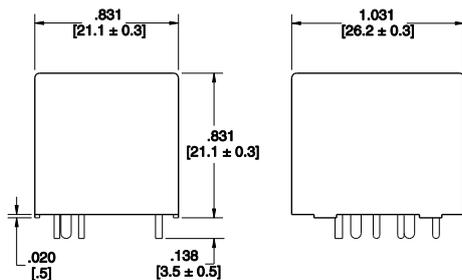
## MECHANICAL DATA

Dimensions in inches with metric equivalents in parentheses.  
Tolerance: ± .01" unless otherwise noted

### Open version

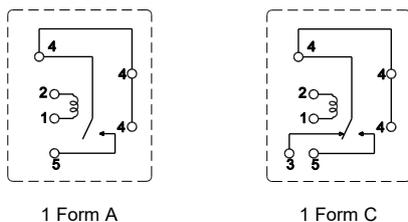


### Covered version



## WIRING DIAGRAMS

Viewed towards terminals



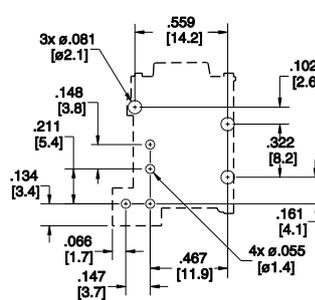
## PC BOARD LAYOUT

Dimensions in inches with metric equivalents in parentheses.

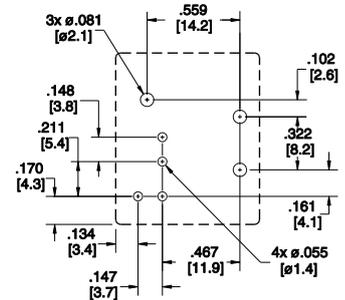
Tolerance: ± .01" unless otherwise noted

Viewed towards terminals

### Type 1 footprint

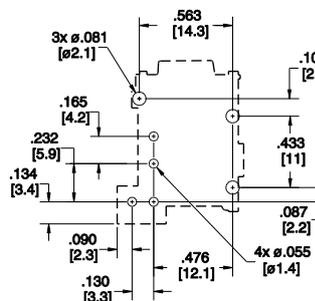


open version (AZ970)

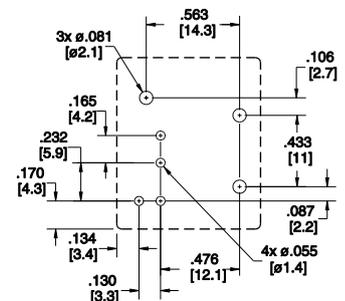


covered version (AZ971)

### Type 2 footprint



open version (AZ970E)



covered version (AZ971E)

## NOTES

1. Specifications subject to change without notice.
2. All values at 20°C (68°F) unless otherwise stated.
3. Relay may pull in with less than "Must Operate" value.
4. Coil suppression circuits such as diodes, etc. in parallel to the coil will lengthen the release time.

## DISCLAIMER

This product specification is to be used in conjunction with the application notes which can be downloaded from [www.ZETTLERelectronics.com/pdfs/relais/ApplicationNotes.pdf](http://www.ZETTLERelectronics.com/pdfs/relais/ApplicationNotes.pdf)

The specification provides an overview of the most significant part features. Any individual applications and operating conditions are not taken into consideration. It is recommended to test the product under application conditions. Responsibility for the application remains with the customer. Proper operation and service life cannot be guaranteed if the part is operated outside the specified limits.