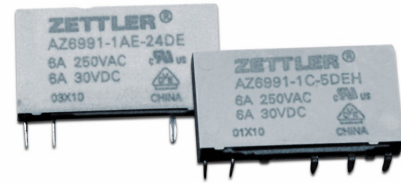


# AZ6991

## SENSITIVE SUBMINIATURE RELAY

### FEATURES

- Small footprint, extremely small width of only 5 mm
- 8 A switching capability
- High sensitivity version with 95 mW pickup power
- Dielectric strength of 4000 V<sub>RMS</sub> between coil and contacts
- Isolation spacing greater than 8 mm
- Horizontal and vertical versions available
- Epoxy sealed version available
- Reinforced insulation, EN 60730-1, EN 60335-1
- UL, CUR file E43203, VDE certificate 40020561



### CONTACTS

<b>Arrangement</b>	SPST (1 Form A), SPDT (1 Form C)
<b>Ratings (max.)</b>	(resistive load)
switched power	180 W or 2216 VA
switched current	8 A
switched voltage	125 VDC* or 400 VAC
	* Note: If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory.
<b>Rated Loads</b>	
UL, CUR	<b>1 Form A</b>
	8 A at 277 VAC, resistive, 85°C, 10k cycles <sup>[1][2]</sup>
	6 A at 277 VAC, resistive, 85°C, 60k cycles <sup>[1][2]</sup>
	6 A at 277 VAC, general use, 85°C, 30k cycles <sup>[1]</sup>
	6 A at 277 VAC, general use, 85°C, 20k cycles <sup>[2]</sup>
	B300, R300 pilot duty, 85°C <sup>[1][2]</sup>
	C300, R300 pilot duty, 28°C, 30k cycles <sup>[1][2]</sup>
	6 A at 30 VDC, 85°C, 6k cycles <sup>[1][2]</sup>
	<b>1 Form C</b>
	8 A at 277 VAC, res., 85°C, 10k cycles (N.O.) <sup>[1][2]</sup>
	6 A at 277 VAC, res., 85°C, 30k cycles (N.O.) <sup>[1][2]</sup>
	6 A at 277 VAC, res., 85°C, 10k cycles (N.C.) <sup>[1][2]</sup>
	6 A at 277 VAC, gen.use, 85°C, 30k cycles (N.O.) <sup>[1]</sup>
	6 A at 277 VAC, gen.use, 85°C, 20k cycles (N.O.) <sup>[2]</sup>
	6 A at 277 VAC, gen.use, 85°C, 20k cyc. (N.C.) <sup>[1][2]</sup>
	C300, R300 pilot duty, 28°C, 30k cycles (N.O.) <sup>[1][2]</sup>
	6 A at 30 VDC, 85°C, 6k cycles <sup>[1][2]</sup>
	B300, R300 pilot duty, 85°C <sup>[1][2]</sup>
VDE	<b>1 Form A</b>
	6 A at 250 VAC, 85°C, 50k cycles <sup>[1][2]</sup>
	6 A at 30 VDC, 85°C, 60k cycles <sup>[1][2]</sup>
	<b>1 Form C</b>
	6 A at 250 VAC, 85°C, 10k cycles <sup>[1][2]</sup>
	6 A at 30 VDC, 85°C, 60k cycles <sup>[1][2]</sup>
<b>Contact materials</b>	AgNi (silver-nickel) <sup>[1]</sup>
	AgSnO <sub>2</sub> (silver-tin-oxide) <sup>[2]</sup>
	gold plating available
<b>Initial resistance</b>	< 100 mΩ

### COIL

<b>Nominal coil DC voltages</b>	see coil voltage specifications table
<b>Dropout</b>	> 5% of nominal coil voltage
<b>Nominal power</b>	(typ.)
5 to 24 VDC coils	170 mW
48 to 60 VDC coils	210 mW
<b>Power at pickup voltage</b>	(typ.)
5 to 24 VDC coils	95 mW
48 to 60 VDC coils	120 mW
<b>Temperature Rise</b>	20 K (typ., at nominal coil voltage)
<b>Max. temperature</b>	105°C (221°F) - Class A

### GENERAL DATA

<b>Life Expectancy</b>	(minimum operations)
mechanical	1 x 10 <sup>7</sup>
electrical	1 x 10 <sup>5</sup> at 5 A, 250 VAC
<b>Operate Time</b>	8 ms (max.) at nominal coil voltage
<b>Release Time</b>	4 ms (max.) at nominal coil voltage, without coil suppression
<b>Dielectric Strength</b>	(at sea level for 1 min.)
	4000 V <sub>RMS</sub> coil to contact
	1000 V <sub>RMS</sub> between open contacts
<b>Surge voltage</b>	
coil to contact	6000 V (at 1.2 x 50 μs)
<b>Insulation Resistance</b>	1000 MΩ (min.) at 20°C, 500 VDC, 50% RH
<b>Temperature Range</b>	(at nominal coil voltage)
operating	-40°C (-40°F) to 85°C (185°F)
<b>Vibration resistance</b>	1 mm DA at 10–55 Hz
<b>Shock</b>	5 g (operating)
<b>Enclosure</b>	
type	P.B.T. polyester
material group	flux proof, wash tight
flammability	IIIa
<b>Terminals</b>	UL94 V-0
	Tinned copper alloy, P. C.
<b>Soldering</b>	
max. temperature	260°C (500°F)
max. time	5 seconds
<b>Cleaning</b>	
max. solvent temp.	80°C (176°F)
max. immersion time	30 seconds
<b>Outline Dimensions</b>	28.0 mm X 5.0mm X 15.0 mm
<b>Weight</b>	5 grams (approx.)
<b>Packing unit in pcs</b>	
horizontal version	20 per plastic tube / 1000 per carton box
vertical version	100 per plastic tube / 2000 per carton box
<b>Compliance</b>	UL 508, IEC 61810-1, RoHS, REACH

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# AZ6991

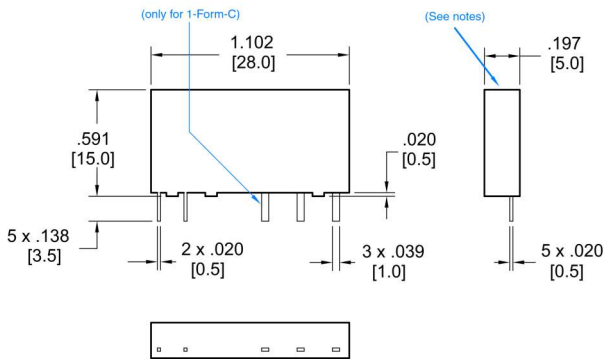
## COIL SPECIFICATIONS

Nominal Coil VDC	Must Operate VDC	Max. Continuous VDC	Resistance Ohm
5	3.75	7.5	147 (±10%)
6	4.5	9.0	212 (±10%)
9	6.75	13.5	476 (±10%)
12	9.0	18	848 (±10%)
18	13.5	27	1906 (±15%)
24	18.0	36	3390 (±15%)
48	36.0	72	10600 (±15%)
60	45.0	90	16600 (±15%)

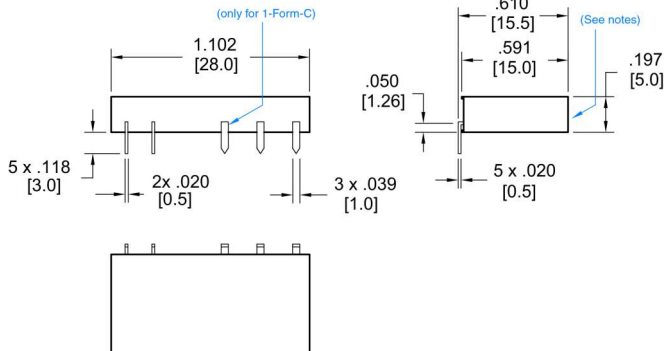
## MECHANICAL DATA

Dimensions in inches with metric equivalents in parentheses. Tolerance: ± .010"

### Vertical Mount



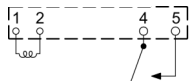
### Horizontal Mount



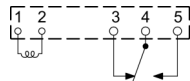
## WIRING DIAGRAMS

Viewed towards terminals

### Vertical Mount

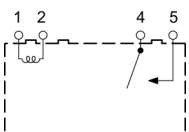


1-Form-A

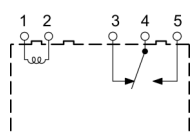


1-Form-C

### Horizontal Mount



1-Form-A



1-Form-C

## ORDERING DATA

AZ6991--D

**Orientation**  
nil: vertical version  
H: horizontal version

**Plating option**  
nil: non plated  
A: gold plating

**Sealing option**  
nil: non sealed  
E: sealed version

**Nominal coil voltage**  
see coil voltage specifications table

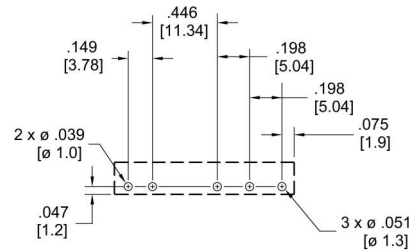
**Contact material**  
nil: silver nickel  
E: silver tin oxide

**Contact arrangement**  
1A: 1 Form A (SPST-N.O.)  
1C: 1 Form C (SPDT)

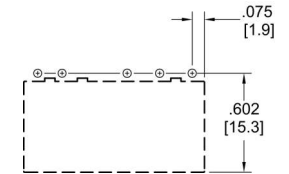
## PC BOARD LAYOUT

Dimensions in inches with metric equivalents in parentheses. Tolerance: ± .010"  
Viewed towards terminals

### Vertical Mount



### Horizontal Mount



Note: Mounting hole diameters and center to center dimensions are the same for vertical and horizontal mounting version.

## NOTES

- Specifications subject to change without notice.
- All values at 20°C (68°F) unless otherwise stated.
- Relay may pull in with less than "Must Operate" value.
- Coil suppression circuits such as diodes, etc. in parallel to the coil will lengthen the release time.
- Do not mount SPDT (1 Form C) types so that the marked side is facing downwards. See mechanical drawings for details.

## 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.

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