

## 16 AMP MINIATURE POWER RELAY

### FEATURES

- 20 Amp switching capability, 80 Amp high inrush version available
- 5 kV dielectric strength, Isolation spacing  $\geq 10$  mm
- Reinforced insulation according IEC 60730-1, IEC 60335-1
- Glow wire approved versions acc. IEC 60335-1 available
- DC coils, sensitive DC coils and AC coils available
- Compact size, low seated height of 15.7 mm
- UL / CUR file E44211
- VDE certificate 40006031



### CONTACTS

<b>Arrangement</b>	SPST-N.O. (1 Form A) SPST-N.C. (1 Form B) SPDT (1 Form C)
<b>Ratings (max.)</b> switched power switched current switched voltage	(resistive load) 480 W or 5540 VA 20 A 125 VDC* or 440 VAC  * Note: If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory.
<b>Rated Loads</b>	see section UL/VDE approved ratings
<b>Contact material</b>	AgNi / AgNi+Au (silver nickel / Au plating) AgSnO <sub>2</sub> / AgSnO <sub>2</sub> +Au (silver tin oxide / Au plating)
<b>Initial resistance</b> max. typ.	100 m $\Omega$ (1A / 6VDC, voltage drop method) < 10 m $\Omega$ (at rated current)

### COIL

<b>Nominal coil voltages</b>	see coil voltage specifications tables
<b>Dropout</b> DC coil types AC coil types	> 10% of nominal coil voltage > 15% of nominal coil voltage
<b>Coil power</b> DC coil types nominal at pickup voltage sensitive DC coil types nominal at pickup voltage AC coil types nominal at pickup voltage	typ. at 23°C (73°F) coil temperature  400 mW 200 mW  250 mW 140 mW  0.75 VA 0.42 VA
<b>Temperature Rise</b> DC coil types sensitive DC coil types	typ. at nominal coil voltage 26 K (47°F) 17 K (31°F)
<b>Max. temperature</b>	155°C (311°F), class F insulation system

### GENERAL DATA

<b>Life Expectancy</b> mechanical electrical	(minimum operations) 1 x 10 <sup>7</sup> see UL/CUR/VDE rated loads
<b>Operate Time</b> max. typ.	(at nominal coil voltage) 15 ms (DC coil) 7 ms (DC coil), 10 ms (AC coil)
<b>Release Time</b> max. typ.	(at nom. coil voltage, without coil suppression) 8 ms 4 ms
<b>Dielectric Strength</b> coil to contacts between open contacts	(at sea level for 1 min.) 5000 VAC 1000 VAC
<b>Surge voltage</b> coil to contacts	(1.2/50 $\mu$ s) 10 kV
<b>Insulation Resistance</b>	1000 M $\Omega$ (min.) at 23°C, 500 VDC, 50% RH
<b>Isolation spacing</b> clearance creepage	(coil to contact) $\geq 10$ mm $\geq 10$ mm
<b>Insulation</b> coil to contacts	Reinforced insulation (rated voltage: 250 VAC, pollution degree: 3, overvoltage category: III)
<b>Temperature Range</b> operating DC coil types AC coil types	(at nominal coil voltage) -40°C (-40°F) to 85°C (185°F) -40°C (-40°F) to 70°C (158°F)
<b>Vibration resistance</b>	0.062" (1.5 mm) DA at 10-55 Hz
<b>Shock resistance</b>	10 g
<b>Enclosure</b> protection category material group	P.B.T. polyester RT II - flux proof, RT III - wash tight IIIa
<b>Terminals</b>	Tinned copper alloy, P. C.
<b>Soldering</b> max. temperature max. time	270 °C (518°F) 5 seconds
<b>Cleaning</b> max. solvent temp. max. immersion time	(RT III - wash tight versions only) 80°C (176°F) 30 seconds
<b>Dimensions</b> length width height	29.0 mm (1.142") 12.7 mm (0.500") 15.7 mm (0.618")
<b>Weight</b>	14 grams (approx.)
<b>Packing unit in pcs</b>	50 per plastic tray / 500 per carton box
<b>Compliance</b>	UL 508, IEC 61810-1, RoHS, REACH

## UL, CUR / VDE APPROVED RATINGS

UL, CUR	1 Form A / 1 Form C
	16 A at 277 VAC, general use, 40°C, 100k cycles, (NO) [2] 16 A at 277 VAC, resistive, 85°C, 100k cycles, (NO) [1] 16 A at 277 VAC, resistive, 85°C, 20k cycles, (NC) [1] 16 A at 277 VAC, resistive, 85°C, 75k cycles [2] 10 A at 250 VAC, resistive, 85°C, 100k cycles, (NO) [2] 9.2 A at 120 VAC, general use, 60°C, 100k cycles [2] 8.2 A at 120 VAC, resistive, 60°C, 100k cycles [2] 8 A at 120 VAC, tungsten, 40°C, 15k cycles, (NO) [2] 16 A at 24 VDC, resistive, 85°C, 50k cycles, (NO) [2] 16 A at 24 VDC, resistive, 40°C, 50k cycles, (NO) [1] 16 A at 24 VDC, resistive, 40°C, 20k cycles, (NC) [1] 8 A at 30 VDC, resistive, 85°C, 50k cycles, (NO) [2] 16 FLA / 72 LRA at 120 VAC, 85°C, 30k cycles, (NO) [2] 10 FLA / 60 LRA at 250 VAC, 40°C, (NO) [2] 10 FLA / 60 LRA at 240 VAC, 85°C, 30k cycles, (NO) [2] 5 FLA / 30 LRA at 250 VAC, 65°C, 30k cycles [2] 1 HP at 250 VAC, 40°C, 30k cycles (NO)[2] 1/2 HP at 250 VAC, 85°C (NO) [2] 1/2 HP at 125 VAC, 40°C, 30k cycles, (NO) [2] 1/3 HP at 125 VAC, 85°C (NO) [2] TV-5 at 120 VAC, 40°C, (NO) [2] B300, 85°C, (NO) [2] R300, 85°C, (NO) [2]
	<b>1 Form A / 1 Form C - DC coil types only</b> 5 FLA / 30 LRA at 250 VAC, 85°C, 30k cycles, (NO) [1][2]
	<b>1 Form A - DC coil types without gold plating only</b> 20 A at 277 VAC, resistive, 40°C [2]
	<b>1 Form A - DC coil types with high inrush option</b> 16 A at 250 VAC, general use, 85°C, 50k cycles [2] 16 A at 277 VAC, general use, 40°C, 100k cycles [2] TV-5 at 120 VAC, 40°C [2] 1000 W at 120 VAC, tungsten, 40°C, 6k cycles [2]
	<b>Note:</b> Versions with sensitive DC coils are not UL approved.
VDE	1 Form A - DC coil types
	16 A at 250 VAC, resistive, 50k cycles, 85°C [1] 16 A at 250 VAC, resistive, 10k cycles, 85°C [2] 16 A at 250 VAC, resistive, 50k cycles, 85°C [2] <sup>2)</sup> 16 A at 277 VAC, resistive, 10k cycles, 85°C [2] <sup>2)4)</sup> 12.5 A at 400 VAC, resistive, 30k cycles, 85°C [1] 11 A at 250 VAC, resistive, 100k cycles, 85°C [1] <sup>3)</sup> 9 A at 250 VAC, cos phi 0.4, 120k cycles, 70°C [1][2] 6 A at 400 VAC, resistive, 100k cycles, 85°C [1]
	<b>1 Form A - DC coil types with high inrush option</b> 16 A at 277 VAC, resistive, 10k cycles, 85°C [2] 16 A at 277 VAC, resistive, 50k cycles, 85°C [2] <sup>2)</sup> 16 A at 277 VAC, resistive, 100k cycles, 40°C [2]
	<b>1 Form A - sensitive DC coil types</b> 10 A at 250 VAC, resistive, 50k cycles, 85°C [1] 10 A at 250 VAC, resistive, 20k cycles, 85°C [2]
	<b>1 Form A - AC coil types</b> 16 A at 250 VAC, resistive, 50k cycles, 70°C [1]
	<b>1 Form C - DC coil types</b> 16 A at 250 VAC, resistive, 50k cycles, 85°C [2] <sup>1)2)</sup> 16 A at 250 VAC, resistive, 10k cycles, 85°C [1][2] <sup>1)</sup> 12 A at 250 VAC, resistive, 50k cycles, 85°C [1] 9 A at 250 VAC, cos phi 0.4, 120k cycles, 70°C [1][2] <sup>1)</sup>
	<b>1 Form C - sensitive DC coil types</b> 10 A at 250 VAC, resistive, 20k cycles, 85°C [1][2]
	<b>1 Form C - AC coil types</b> 16 A at 250 VAC, resistive, 20k cycles, 70°C [1]

[1] denotes AgNi / AgNi+Au (silver nickel / gold plated) contact material  
 [2] denotes AgSnO<sub>2</sub> / AgSnO<sub>2</sub>+Au (silver tin oxide / gold plated) contact material

Notes: 1) change-over contact tested as make contact  
 2) tested with open vent hole  
 3) tested with RTII flux proof versions  
 4) tested according IEC 62368-1 clause G.2.1

## COIL VOLTAGE SPECIFICATIONS

### DC coils

Nominal Coil VDC	Must Operate VDC	Max. Coil VDC	Nom. Current mA (ref.)	Resistance Ohm
5	3.5	10.2	80.6	62 ±10%
6	4.2	12.3	66.7	90 ±10%
9	6.3	18.3	45.0	200 ±10%
12	8.4	24.7	33.3	360 ±10%
15	10.5	30.9	26.7	562 ±10%
18	12.6	37.0	22.2	810 ±10%
24	16.8	49.4	16.7	1440 ±10%
48	33.6	98.0	8.3	5760 ±15%
60	42.0	112.9	8.0	7500 ±15%
110	77.0	206.9	4.4	25200 ±15%

### sensitive DC coils (w/o UL approval)

Nominal Coil VDC	Must Operate VDC	Max. Coil VDC	Nom. Current mA (ref.)	Resistance Ohm
5	3.8	13.0	50.0	100 ±10%
6	4.5	15.6	41.7	144 ±10%
12	9.0	31.3	20.8	576 ±10%
18	13.5	46.9	13.9	1296 ±10%
24	18.0	62.6	10.4	2304 ±10%
48	36.0	125.2	5.2	9216 ±15%
60	45.0	147.8	4.7	12857 ±15%

### AC coils

Nominal Coil VAC	Must Operate VAC	Max. Coil VAC	Nom. Current mA (ref.)	Resistance Ohm
24	18.0	31.2	31.6	350 ±10%
115	86.3	149.5	6.6	8100 ±15%
230	172.5	299.0	3.2	32500 ±15%

Note: All values at 23°C (73°F), upright position, terminals downward.

# AZ762

## ORDERING DATA

AZ762--**F**

- Class F insulation**
- Inrush option\***  
nil: standard version  
I: high inrush option \*
- Plating option**  
nil: non plated  
A: gold plating
- Sealing option**  
nil: non sealed (RT II - flux tight)  
E: sealed version (RT III - wash tight)
- Coil type**  
D: DC coil  
DS: sensitive DC coil  
A: AC coil
- Nominal coil voltage**  
see coil voltage specifications tables
- Contact material**  
Nil: silver cadmium oxide – not available in all regions  
B: silver nickel - AgNi  
E: silver tin oxide - AgSnO<sub>2</sub>
- Contact arrangement**  
1A: 1 Form A (SPST-NO)  
1B: 1 Form B (SPST-N.C.)  
1C: 1 Form C (SPDT)

Note: \* High inrush option only available for 1 Form A (SPST-NO) types with non plated silver tin oxide contacts and standard DC coils.

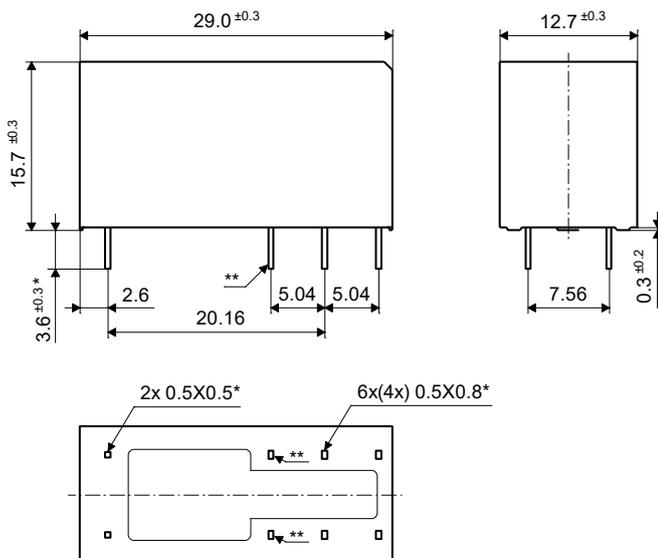
### Example ordering data

- AZ762-1CB-9DF 1 Form A (SPDT), silver nickel, 9 VDC nominal coil voltage, flux tight version,
- AZ762-1AE-24DIF 1 Form A (SPST-NO), silver tin oxide, 24 VDC nominal coil voltage, 80 Amp high inrush version
- AZ762-1AB-230AEF 1 Form A (SPST-NO), silver nickel, 230 VAC coil, wash tight version

## MECHANICAL DATA

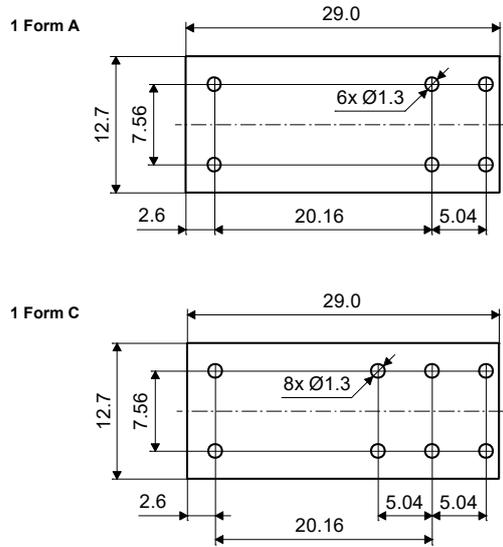
Dimensions in mm. If not stated otherwise, tolerance:  $\pm 0.2$  mm

Notes: \* Pin dimensions for reference only and given without tin coating.  
\*\* Only for 1 Form C (SPDT) contact arrangement versions.



## PC BOARD LAYOUT

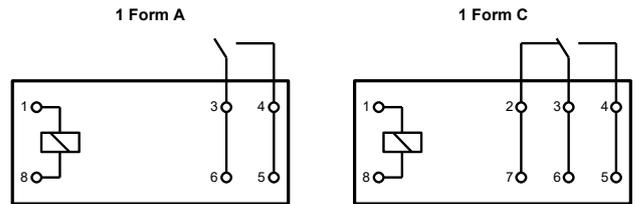
Layout recommendation. Dimensions in mm. Viewed towards terminals.



## WIRING DIAGRAMS

Viewed towards terminals.

Note: Connect associated load terminals on PCB to ensure proper operation and service life.



## NOTES

1. All values at reference temperature of 23°C (73°F) unless stated otherwise.
2. Relay may pull in with less than "Must Operate" value.
3. "Maximum Coil Voltage" is the maximum voltage the coil can endure for a short period of time.
4. Coil suppression circuits such as diodes, etc. in parallel to the coil will lengthen the release time.
5. Relay adjustment may be affected if excessive shock is applied to the relay or if undue pressure is exerted on the relay case.
6. Substances containing silicone or phosphorus must be avoided in the vicinity to the relay as these will shorten its service life.
7. RTII (flux proof) relays must not be washed, immersion cleaned or conformal coated.
8. With gold plated contacts a minimum load of 10mA/5V/50mW is recommended.
9. Specifications subject to change without notice.

# AZ762

## DISCLAIMER

This product specification is to be used in conjunction with the application notes which can be downloaded from the regional ZETTLER relay websites. 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.

## ZETTLER GROUP

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