

12 AMP MINIATURE POWER RELAY

FEATURES

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



CONTACTS

Arrangement	SPST-NO (1 Form A) SPST-NC (1 Form B) SPDT (1 Form C)
Ratings (max.) switched power switched current switched voltage	(resistive load) 360 W or 3324 VA 12 A 125 VDC* or 440 VAC * Note: If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory.
Rated Loads	see section UL/VDE approved ratings
Contact material	AgNi / AgNi+Au (silver nickel / Au plating) AgSnO ₂ / AgSnO ₂ +Au (silver tin oxide / Au plating)
Initial resistance max. typ.	100 mΩ (1A / 6VDC, voltage drop method) < 10 mΩ (at rated current)

COIL

Nominal coil voltages	see coil voltage specifications tables
Dropout DC coil types AC coil types	> 10% of nominal coil voltage > 15% of nominal coil voltage
Coil power 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
Temperature Rise DC coil types sensitive DC coil types	typ. at nominal coil voltage 26 K (47°F) 17 K (31°F)
Max. temperature	155°C (311°F), class F insulation system

GENERAL DATA

Life Expectancy mechanical electrical	(minimum operations) 1 x 10 ⁷ see UL/CUR/VDE rated loads
Operate Time max. typ.	(at nominal coil voltage) 15 ms (DC coil) 7 ms (DC coil), 10 ms (AC coil)
Release Time max. typ.	(at nom. coil voltage, without coil suppression) 8 ms 4 ms
Dielectric Strength coil to contacts between open contacts	(at sea level for 1 min.) 5000 VAC 1000 VAC
Surge voltage coil to contact	(1.2/50 μs) 10 kV
Insulation Resistance	1000 MΩ (min.) at 23°C, 500 VDC, 50% RH
Isolation spacing clearance creepage	(coil to contact) ≥ 10 mm ≥ 10 mm
Insulation coil to contacts	Reinforced insulation (rated voltage: 250 VAC, pollution degree: 3, overvoltage category: III)
Temperature Range operating DC coil types sensitive DC coils AC coil types	(at nominal coil voltage) -40°C (-40°F) to 85°C (185°F) -40°C (-40°F) to 105°C (211°F) -40°C (-40°F) to 70°C (158°F)
Vibration resistance	0.062" (1.5 mm) DA at 10-55 Hz
Shock resistance	10 g
Enclosure protection category material group	P.B.T. polyester RT II - flux proof, RT III - wash tight IIla
Terminals	Tinned copper alloy, P. C.
Soldering max. temperature max. time	270 °C (518°F) 5 seconds
Cleaning max. solvent temp. max. immersion time	(RT III - wash tight versions only) 80°C (176°F) 30 seconds
Dimensions length width height	29.0 mm (1.142") 12.7 mm (0.500") 15.7 mm (0.618")
Weight	14 grams (approx.)
Packing unit in pcs	50 per plastic tray / 500 per carton box
Compliance	UL 508, IEC 61810-1, RoHS, REACH

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UL, CUR / VDE APPROVED RATINGS

UL, CUR	1 Form A / 1 Form C 12 A at 277 VAC, general use, 40°C, 100k cycles, (NO) [2] 12 A at 277 VAC, resistive, 85°C, 100k cycles, (NO) [1][2] 12 A at 277 VAC, resistive, 85°C, 30k cycles, (NC) [1][2] 1/2 HP at 250 VAC, 85°C, (NO) [2] 1/3 HP at 125 VAC, 85°C, (NO) [2] B300, 85°C, (NO) [2] R300, 85°C, (NO) [2]
	1 Form A / 1 Form C - sensitive DC coil types only 10 A at 277 VAC, resistive, 85°C [1][2]
VDE	1 Form A - DC coil types 12 A at 250 VAC, resistive, 50k cycles, 85°C [1] 12 A at 250 VAC, resistive, 20k cycles, 85°C [2] 3.5 A at 400 VAC, resistive, 100k cycles, 85°C [1] ¹⁾
	1 Form A - sensitive DC coil types 10 A at 250 VAC, resistive, 50k cycles, 85°C [1] 10 A at 250 VAC, resistive, 20k cycles, 85°C [2]
	1 Form A - AC coil types 12 A at 250 VAC, resistive, 50k cycles, 70°C [1][2]
	1 Form C - DC coil types 12 A at 250 VAC, resistive, 50k cycles, 85°C [1] 12 A at 250 VAC, resistive, 20k cycles, 85°C [2]
	1 Form C - sensitive DC coil types 10 A at 250 VAC, resistive, 20k cycles, 85°C [1][2]
	1 Form C - AC coil types 12 A at 250 VAC, resistive, 30k cycles, 70°C [1][2]

[1] denotes AgNi / AgNi+Au (silver nickel / gold plated) contact material
 [2] denotes AgSnO₂ / AgSnO₂+Au (silver tin oxide / gold plated) contact material
 Note: 1) tested with RTIII flux proof versions

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

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%

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

COIL VOLTAGE SPECIFICATIONS (cont'd)

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.

ORDERING DATA

AZ761- - **F**

Class F insulation
 5 mm pin spacing option*
 nil: 3.5 mm pin spacing
 K: 5 mm pin spacing version

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 - AgSnO₂

Contact arrangement
 1A: 1 Form A (SPST-NO)
 1B: 1 Form B (SPST-NC)
 1C: 1 Form C (SPDT)

Example ordering data

- AZ761-1AB-5DF 1 Form A (SPST-NO), silver nickel, 5 VDC nominal coil voltage, flux tight version
- AZ761-1CE-12DSEAF 1 Form C (SPDT), silver tin oxide, 12 VDC nominal coil voltage, sensitive coil, RT III wash tight, gold plated contacts
- AZ761-1AE-24DEKF 1 Form A (SPST-NO), silver tin oxide, 24 VDC nominal coil voltage, RT III wash tight, 5 mm pin spacing
- AZ761-1AE-230AEF 1 Form A (SPST-NO), silver tin oxide, 230 VAC coil, RT III wash tight

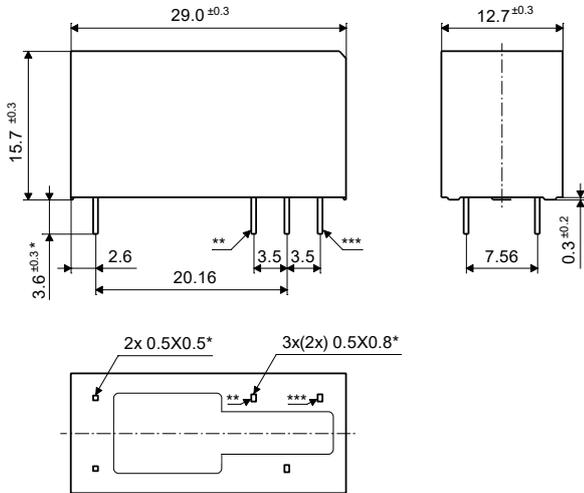
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MECHANICAL DATA

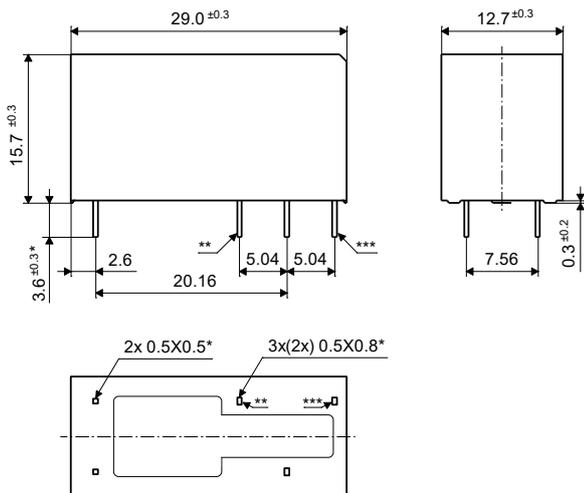
Dimensions in mm. If not stated otherwise, tolerance: ± 0.2 mm

Notes: * Pin dimensions for reference only and given without tin coating.
 ** Omitted at 1 Form A (SPDT-NO) contact arrangement versions.
 *** Omitted at 1 Form B (SPDT-NC) contact arrangement versions.

3.5 mm pin spacing

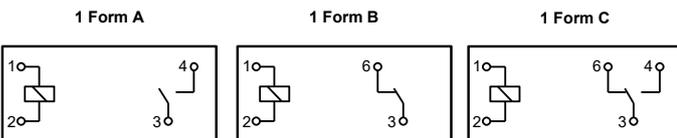


5 mm pin spacing (option K)



WIRING DIAGRAMS

Viewed towards terminals.



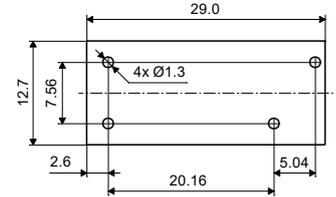
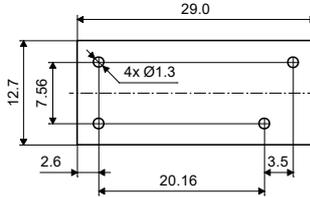
PC BOARD LAYOUT

Layout recommendation. Dimensions in mm. Viewed towards terminals.

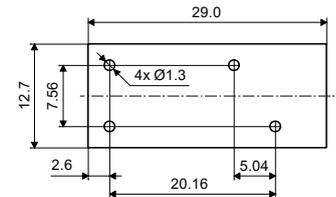
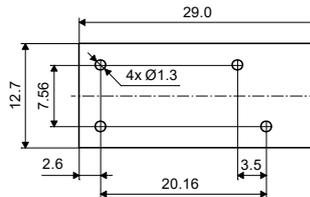
3.5 mm pin spacing

5 mm pin spacing (option K)

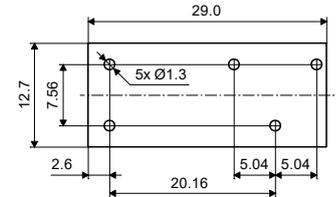
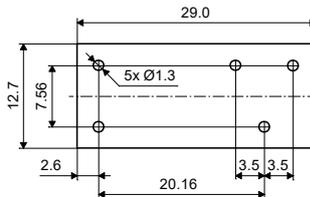
1 Form A



1 Form B



1 Form C



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.

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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.

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