

# AZEV140

## 40 AMP POWER RELAY

### FEATURES

- 40 Amp nominal switching capability
- Isolated N.C. signal contact for welding monitoring
- Withstands up to 1850 Amp short circuit current
- Wide contact gap of  $\geq 2.25$  mm
- Dielectric strength 4 kV<sub>RMS</sub>
- UL / CUR: E365652
- TÜV: B0887930016
- CQC: CQC20002276475



### CONTACTS

<b>Arrangement</b> load contact signal contact	SPST-N.O. (1 Form A) SPST-N.C. (1 Form B) coupled to load contact
<b>Ratings (max.)</b> switched power switched current switched voltage  signal contact	(resistive load) 22000 VA 50 A 440 VAC  10mA at 12 VDC
<b>Rated Loads</b> TÜV/CQC/UL/CUR load contact  signal contact	40 A at 440 VAC, resistive, 85°C, 30k cycles 32 A at 440 VAC, resistive, 85°C, 50k cycles 50 A at 440 VAC, resistive, 85°C, 6k cycles 20 A make, 50 A carry, 20 A break at 440 VAC, resistive, 85°C, 50k cycles  10 mA at 12 VDC, 85°C, 50k cycles
<b>Contact material</b> load contact signal contact	AgSnO <sub>2</sub> (silver tin oxide) AgNi+Au (silver nickel, gold plated)
<b>Contact gap</b> load contact	$\geq 2.25$ mm
<b>Contact resistance</b> initial typical	(load contact) $\leq 50$ m $\Omega$ < 3 m $\Omega$

### COIL

<b>Nominal coil DC voltages</b>	5, 9, 12, 24, 48
<b>Dropout voltage</b>	> 5% of nominal coil voltage
<b>Holding voltage</b>	> 35% of nominal coil voltage
<b>Coil power</b> nominal holding power at pickup voltage	(at 23 °C) 2.1 W 258 mW 1.2 W
<b>Temperature Rise</b>	70 K (126°F) at nominal coil voltage, 85°C
<b>Max. temperature</b>	Class F insulation - 155°C (311°F)

### GENERAL DATA

<b>Life Expectancy</b> mechanical electrical	(minimum operations) 1 x 10 <sup>5</sup> see UL/CUR/TÜV/CQC ratings
<b>Operate Time</b>	30 ms (max.) at nominal coil voltage
<b>Release Time</b>	10 ms (max.) at nominal coil voltage, without coil suppression
<b>Dielectric Strength</b> open load contacts coil to load contacts open signal contacts coil to signal contacts signal to load contacts	(at sea level for 1 min.) 2500 V <sub>RMS</sub> 4000 V <sub>RMS</sub> 500 V <sub>RMS</sub> 500 V <sub>RMS</sub> 4000 V <sub>RMS</sub>
<b>Pulse current capability</b>	(based on requirements of IEC 62752) $\geq 1.50$ kA, $\geq 6.0$ kA <sup>2</sup> s  (based on requirements of IEC 62955) $\geq 1.85$ kA, $\geq 4.5$ kA <sup>2</sup> s
<b>Surge voltage</b> open load contacts coil to load contacts signal to load contacts	6 kV 6 kV 6 kV
<b>Insulation Resistance</b>	1000 M $\Omega$ (min.) at 23°C, 500 VDC, 50% RH
<b>Temperature Range</b> operating	(at nominal coil voltage) -40°C (-40°F) to 85°C (185°F)
<b>Vibration resistance</b>	0.062" (1.5 mm) DA at 10–55 Hz
<b>Enclosure</b> protection category material group flammability	P.B.T. polyester RT II, flux proof IIIa UL94 V-0
<b>Terminals</b>	Tinned copper alloy, P. C.
<b>Soldering</b> max. temperature max. time	270 °C 5 s
<b>Dimensions</b> length width height	35.0 mm (1.38") 16.0 mm (0.63") 28.0 mm (1.10")
<b>Weight</b>	35 grams (approx.)
<b>Compliance</b>	UL 508, IEC 61810-1, RoHS, REACH designed to meet requirements of IEC 62752 and IEC 62955
<b>Packing unit in pcs</b>	50 per plastic tray / 400 per carton box

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## COIL VOLTAGE SPECIFICATIONS

Nominal Coil VDC	Must Operate VDC	Min. Holding VDC	Max. Cont. VDC	Resistance Ohm $\pm$ 10%
5	3.75	1.75	6.0	11.8
9	6.75	3.15	10.8	38.4
12	9.0	4.2	14.4	68.5
24	18.0	8.4	28.8	274
48	36.0	16.8	57.6	1096

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

## ORDERING DATA

AZEV140-1AE  -  D

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

**Signal contact**

nil: without signal contact  
1BG: equipped with 1 Form B signal contact

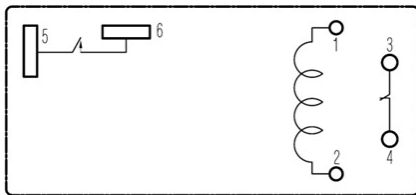
### Example ordering data

AZEV140-1AE-24D Without signal contact, 24VDC coil

AZEV140-1AE1BG-12D With 1 Form B signal contact, 12VDC coil

## WIRING DIAGRAMS

Viewed towards terminals

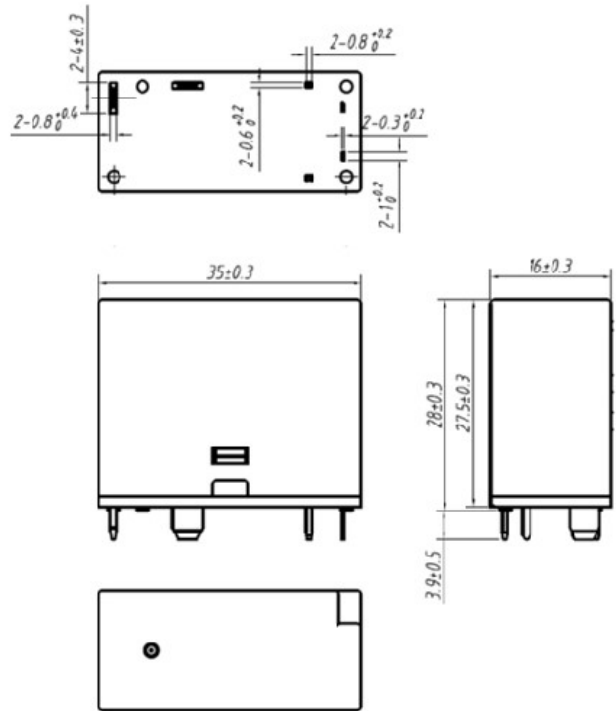


## NOTES

- All values at 23°C (73°F).
- Relay may pull in with less than "Must Operate" value.
- Provide sufficient PCB cross section as heat spreader on terminals.
- Specifications subject to change without notice.

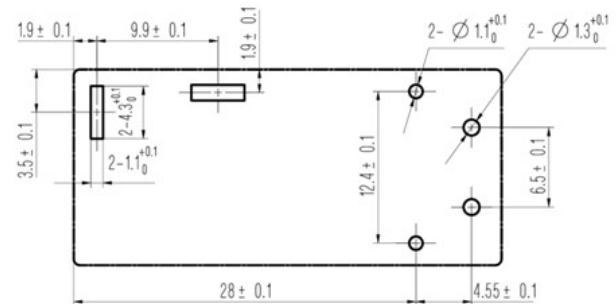
## MECHANICAL DATA

Dimensions in mm. Tolerance:  $\pm$ 0.3mm if not stated otherwise.



## PC BOARD LAYOUT

Suggested PCB layout. Viewed towards terminals. Dimensions in mm.



## IEC 62752 / IEC 62955 Short Circuit Withstand

Compliance with IEC 62752 or similar standards for short circuit withstand is a function of both relay design and PCB layout. ZETTLER's relay design and applications engineering teams have developed a set of application notes that contain important design suggestions to optimize the performance of the AZEV140 relay with respect to its short circuit current withstand capability. Please contact your local ZETTLER relay office for these important application notes and suggestions.

In addition, as the overall performance depends on multiple factors such as part arrangement and trace routing, compliance cannot be generically guaranteed by ZETTLER. We strongly encourage customers to conduct their own short circuit tests in accordance with IEC 62752 or similar standards in the context of their individual application design.

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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.

## ZETTLER GROUP

Building on a foundation of more than a century of expertise in German precision engineering, ZETTLER Group is a world-class enterprise, engaged in the design, manufacturing, sales and distribution of electronic components. Our industry leadership is based on a unique combination of engineering competence and global scale.

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