

# AZ2160/AZ2161

## MINIATURE POWER RELAY

### FEATURES

- Versatility of both PC and "Trace-Saver" quick connect terminals on contacts
- 40 Amp switching capability for both N.O. and N.C. contacts
- 1 Form A, B and C contacts available
- DC coils to 120 VDC
- Life expectancy to 10 million operations
- Class B insulation for high temperature applications
- Class F (155°C) version available
- Available with an epoxy seal for automatic wave soldering and cleaning
- UL, CUR file 44211 including versions meeting UL 508 and UL 873 spacing contact rating requirements



### CONTACTS

|             |                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Arrangement | SPDT (1 Form C)<br>SPST (1 Form A and 1 Form B)                                                                                                                                                                                                                                                                                                                         |
| Ratings     | Noninductive load:<br>Max. switched power: 900 W or 7200 VA<br>Max. switched current: 40 A<br>Max. switched voltage: 30 VDC or 300 VAC<br><br><b>UL Rating:</b> See chart for UL contact ratings. AZ2160 Series meets UL 508 Group A spacing and UL 873 refrigeration and safety control spacing requirements. AZ2161 Series meets UL 508 Group B spacing requirements. |
| Material    | Silver cadmium oxide                                                                                                                                                                                                                                                                                                                                                    |
| Resistance  | 20 milliohms initially<br>(at rated current voltage drop method)                                                                                                                                                                                                                                                                                                        |

### COIL

|                             |                                                          |
|-----------------------------|----------------------------------------------------------|
| Power                       |                                                          |
| At Pickup Voltage (typical) | 500 W                                                    |
| Max. Continuous Dissipation | 2.2 W at 20°C (68°F)<br>1.8 W at 40°C (104°F)            |
| Temperature Rise            | 38°C (68°F) at nominal coil voltage                      |
| Temperature                 | Max. 130°C (266°F) Class B<br>Max. 155°C (311°F) Class F |

### NOTES

1. All values at 20°C (68°F).
2. Relay may pull in with less than "Must Operate" value.
3. Unsealed relays cannot be dip cleaned.
4. Avoid thermal shock during immersion cleaning.
5. Specifications subject to change without notice.
6. Other coil resistances and sensitivities available upon request. Please contact factory.

### GENERAL DATA

|                                                  |                                                                                                                                                                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Life Expectancy<br>Mechanical<br>Electrical      | Minimum operations<br>1 x 10 <sup>7</sup><br>1 x 10 <sup>5</sup> at 30 A 120 VAC Res. N.O.                                                                                                      |
| Operate Time (max.)                              | Max. 12 ms<br>Typical: 8 ms                                                                                                                                                                     |
| Release Time (max.)                              | Max. 5 ms<br>Typical: 3.5 ms                                                                                                                                                                    |
| Dielectric Strength<br>(at sea level for 1 min.) | Group A: 2500 Vrms contact to coil<br>Group B: 2000 Vrms contact to coil<br>1500 Vrms between open contacts                                                                                     |
| Insulation Resistance                            | 100 megohms min. at 500 VDC, 20°C<br>50% RH                                                                                                                                                     |
| Dropout                                          | Greater than 10% of nominal coil voltage                                                                                                                                                        |
| Ambient Temperature<br>Operating<br><br>Storage  | At nominal coil voltage<br>-55°C (-67°F) to 100°C (212°F) Class B<br>-55°C (-67°F) to 125°C (257°F) Class F<br>-55°C (-67°F) to 130°C (266°F) Class B<br>-55°C (-67°F) to 155°C (311°F) Class F |
| Vibration                                        | 0.062" DA at 10-55 Hz                                                                                                                                                                           |
| Shock                                            | 20 g                                                                                                                                                                                            |
| Enclosure                                        | P.B.T. polyester                                                                                                                                                                                |
| Terminals                                        | Tinned copper alloy, PC with "Fast-On" tabs, .250" wide, on top                                                                                                                                 |
| Max. Solder Temp.                                | 270°C (518°F)                                                                                                                                                                                   |
| Max. Solder Time                                 | 5 seconds                                                                                                                                                                                       |
| Max. Solvent Temp.                               | 80°C (176°F)                                                                                                                                                                                    |
| Max. Immersion Time                              | 30 seconds                                                                                                                                                                                      |
| Weight                                           | 43 grams                                                                                                                                                                                        |

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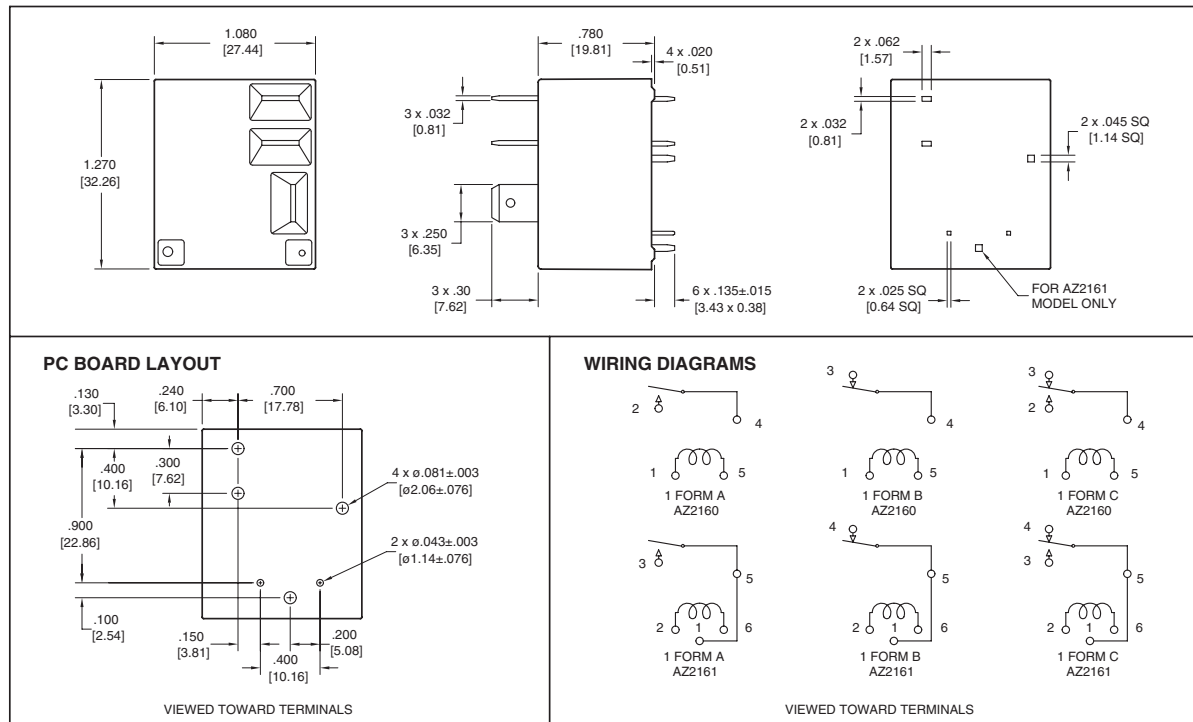
# AZ2160/AZ2161

## RELAY ORDERING DATA

| STANDARD RELAYS: 1 Form A (SPST): UL 508 Group A; UL 873 Version |                  |                     |                            |                |                 |
|------------------------------------------------------------------|------------------|---------------------|----------------------------|----------------|-----------------|
| COIL SPECIFICATIONS                                              |                  |                     |                            | ORDER NUMBER*  |                 |
| Nominal Coil VDC                                                 | Must Operate VDC | Max. Continuous VDC | Coil Resistance $\pm 10\%$ | Unsealed       | Epoxy Sealed    |
| 5                                                                | 3.75             | 7.3                 | 27                         | AZ2160-1A-5D   | AZ2160-1A-5DE   |
| 6                                                                | 4.50             | 8.9                 | 40                         | AZ2160-1A-6D   | AZ2160-1A-6DE   |
| 9                                                                | 6.75             | 13.9                | 97                         | AZ2160-1A-9D   | AZ2160-1A-9DE   |
| 12                                                               | 9.00             | 17.5                | 155                        | AZ2160-1A-12D  | AZ2160-1A-12DE  |
| 15                                                               | 10.50            | 22.5                | 256                        | AZ2160-1A-15D  | AZ2160-1A-15DE  |
| 18                                                               | 13.50            | 27.4                | 380                        | AZ2160-1A-18D  | AZ2160-1A-18DE  |
| 24                                                               | 18.00            | 36.1                | 660                        | AZ2160-1A-24D  | AZ2160-1A-24DE  |
| 48                                                               | 36.00            | 68.4                | 2360                       | AZ2160-1A-48D  | AZ2160-1A-48DE  |
| 70                                                               | 52.50            | 104.4               | 5500                       | AZ2160-1A-70D  | AZ2160-1A-70DE  |
| STANDARD RELAYS: 1 Form A (SPST): UL 508 Group B Version         |                  |                     |                            |                |                 |
| COIL SPECIFICATIONS                                              |                  |                     |                            | ORDER NUMBER*  |                 |
| Nominal Coil VDC                                                 | Must Operate VDC | Max. Continuous VDC | Coil Resistance $\pm 10\%$ | Unsealed       | Epoxy Sealed    |
| 5                                                                | 3.75             | 7.3                 | 27                         | AZ2161-1A-5D   | AZ2161-1A-5DE   |
| 6                                                                | 4.50             | 8.9                 | 40                         | AZ2161-1A-6D   | AZ2161-1A-6DE   |
| 9                                                                | 6.75             | 13.9                | 97                         | AZ2161-1A-9D   | AZ2161-1A-9DE   |
| 12                                                               | 9.00             | 17.5                | 155                        | AZ2161-1A-12D  | AZ2161-1A-12DE  |
| 15                                                               | 10.50            | 22.5                | 256                        | AZ2161-1A-15D  | AZ2161-1A-15DE  |
| 18                                                               | 13.50            | 27.4                | 380                        | AZ2161-1A-18D  | AZ2161-1A-18DE  |
| 24                                                               | 18.00            | 36.1                | 660                        | AZ2161-1A-24D  | AZ2161-1A-24DE  |
| 48                                                               | 36.00            | 68.4                | 2360                       | AZ2161-1A-48D  | AZ2161-1A-48DE  |
| 70                                                               | 52.50            | 104.4               | 5500                       | AZ2161-1A-70D  | AZ2161-1A-70DE  |
| 110                                                              | 82.50            | 163.2               | 13450                      | AZ2161-1A-110D | AZ2161-1A-110DE |

\*Substitute "1B" or "1C" in place of the "1A" to indicate 1 Form B and 1 Form C respectively. To indicate Class F version add suffix "F".

## MECHANICAL DATA



Dimensions in inches with metric equivalents in parentheses. Tolerance:  $\pm .010$ "

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9/8/16

# AZ2160/AZ2161

## UL/CUR File E44211 Approved Contact Ratings

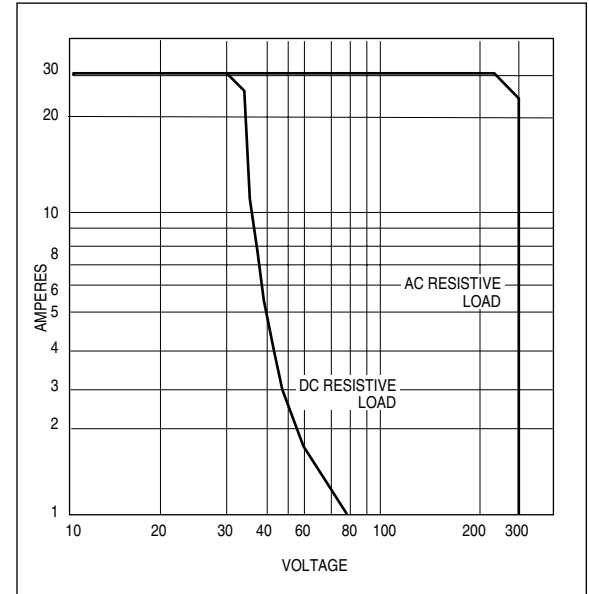
| Load Type                             | Cycles    | Volts                 | Form A<br>(NO)       | Form B<br>(NC)   | Form C               |                  |
|---------------------------------------|-----------|-----------------------|----------------------|------------------|----------------------|------------------|
|                                       |           |                       |                      |                  | NO                   | NC               |
| General Purpose<br>(Inductive)        | 100,000   | 125 or 240VAC         | 30A                  | 15A              | 30A                  | 15A              |
|                                       | 30,000    | 277VAC                | 30A                  | 30A              | 30A                  | 30A              |
| Resistive                             | 100,000   | 125 or 240VAC         | 30A                  | 15A              | —                    | —                |
|                                       | 100,000   | 30VDC                 | 20A                  | 10A              | 20A                  | 10A              |
|                                       | 100,000   | 277VAC                | 20A                  | —                | —                    | —                |
|                                       | 100,000 * | 240VAC                | 15A                  | —                | —                    | —                |
|                                       | 6,000     | 250VAC                | 40A                  | —                | 40A                  | —                |
| Ballast                               | 6,000     | 125, 240 or<br>277VAC | 6A                   | 3A               | 6A                   | 3A               |
|                                       | 6,000     | 277VAC                | 20A                  | —                | —                    | —                |
|                                       | 6,000     | 125VAC                | 800 VA               | 290VA            | 800VA                | 290VA            |
| Pilot Duty                            | 30,000    | 125VAC                | 800 VA               | —                | 690 VA               | —                |
|                                       | 100,000   | 125VAC                | 690 VA               | —                | 470 VA               | 275VA            |
|                                       | 6,000     | 240VAC                | 1152 VA              | 768VA            | 1152 VA              | 768 VA           |
|                                       | 100,000   | 277VAC                | 764 VA               | —                | 764 VA               | —                |
|                                       | 6,000     | 125VAC                | 1HP                  | 1/4HP            | 1HP                  | 1/4HP            |
| Motor Load                            | 6,000***  | 240VAC                | 3HP                  | 1HP              | 2HP                  | 1HP              |
|                                       | 30,000    | 125VAC                | 1HP                  | —                | 1HP                  | —                |
|                                       | 100,000   | 125 or 277 VAC        | 3/4 HP               | —                | 3/4 HP               | —                |
|                                       | 30,000 ** | 120VAC                | 82.8 LRA<br>13.8 FLA | —                | 82.8 LRA<br>13.8 FLA | —                |
|                                       | 30,000    | 125VAC                | 96LRA<br>30FLA       | 33LRA<br>10FLA   | 60LRA<br>20FLA       | 33LRA<br>10FLA   |
| (LRA-Locked Rotor)<br>(FLA-Full Load) | 30,000 ** | 125VAC                | 60 LRA<br>20 FLA     | 30 LRA<br>12 FLA | 60 LRA<br>20 FLA     | 30LRA<br>12FLA   |
|                                       | 100,000   | 125VAC                | 82.8LRA<br>27 FLA    | —                | 82.8 LRA<br>27 FLA   | —                |
|                                       | 30,000    | 240VAC                | 80 LRA<br>30 FLA     | 33 LRA<br>10 FLA | 60 LRA<br>20 FLA     | 33 LRA<br>10 FLA |
|                                       | 30,000 ** | 240VAC                | 41.4 LRA<br>6.9 FLA  | —                | 41.4 LRA<br>6.9 FLA  | —                |
|                                       | 100,000   | 277VAC                | 60LRA<br>20FLA       | —                | 60LRA<br>20FLA       | —                |
| Tungsten                              | 6,000     | 125VAC                | 15A                  | —                | 15A                  | 3A               |
|                                       | 6,000     | 240VAC                | 5A                   | —                | 5A                   | 3A               |
|                                       | 6,000     | 120VAC                | —                    | 3A               | —                    | —                |
|                                       | 6,000     | 240VAC                | —                    | 3A               | —                    | —                |
| TV-5                                  | 25,000    | 120VAC                | TV-5                 | —                | TV-5                 | TV-3             |
| TV-3                                  | 25,000    | 120VAC                | —                    | TV-3             | —                    | TV-3             |

\* Ambient temperature 96°C (208°F) max. sealed and 105°C (221°F) unsealed.

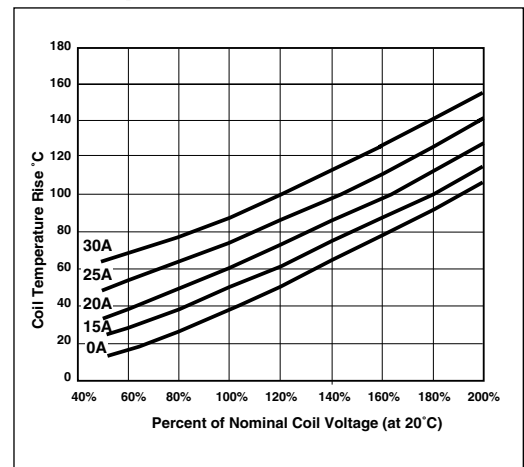
\*\* Ambient temperature 85°C (185°F) max. sealed and unsealed.

\*\*\* Ambient temperature 65°C (149°F) max. sealed and unsealed.

## Maximum Switching Capacity



## Coil Temperature Rise



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