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AZ420

MINIATURE GENERAL PURPOSE RELAY



FEATURES

- Rugged construction for high reliability
- Life expectancy greater than 100 million operations
- DC coils to 115 V
- Power consumption as low as 25 mW per pole available
- Current sensitive and voltage sensitive coils available
- Round core and large coil volume provide greater pull force
- Up to 6 poles in less than one cubic inch
- Dry circuit to 5 Amp contacts
- Printed circuit or solder/plug-in terminals
- Balanced spring-held armature allows dependable operation in any position
- Sealed version available (2 and 4 pole)
- UL, CUR file E43203

CONTACTS

Arrangement	DPDT (2 Form C) 4PDT (4 Form C) 6PDT (6 Form C)
Ratings	See contact data table under relay ordering data **UL Rating:** See table for UL approved contact ratings
Material	See contact data table under relay ordering data
Resistance	< 50 milliohms initially

COIL

Power	
At Pickup Voltage (typical)	Standard: 450 mW, 2 or 4 pole Sensitive: 80 mW, 2 pole 180 mW, 4 pole (25 mW per pole available)
Max. Continuous Dissipation	2.6 W at 20°C (68°F) ambient 2.0 W at 40°C (105°F) ambient
Temperature Rise	
Standard	23°C (41°F) at nominal coil voltage,2 or 4 pole 40°C (72°F) at nominal coil voltage, 6 pole
Sensitive	5°C (9°F) at nominal coil voltage, 2 pole 10°C (18°F) at nominal coil voltage, 4 pole
Temperature	Max. 105°C (221°F)

NOTES

1. Other coil resistances and sensitivities are available upon request.
2. All values at 20°C (68°F).
3. Bifurcated crossbar, fine silver/gold plated contacts are recommended for dry circuit switching.
4. Epoxy sealed versions for automatic wave soldering and cleaning are available.
5. Specifications subject to change without notice.

GENERAL DATA

Life Expectancy **Mechanical** **Electrical**	Minimum operations 500 million See typical contact life expectancy table
Operate Time	See typical operate and release time diagram
Release Time	See typical operate and release time diagram
Capacitance (typical)	Contact to contact: 2 pF Contact to coil: 2 pF Contact to frame: 30 pF
Bounce (typical)	At 10 mA contact current 3 ms at nominal coil voltage
Dielectric Strength (at sea level)	1500 Vrms contact to coil 1000 Vrms all other points
Insulation Resistance	1000 megohms min. at 25°C 500 VDC 50% RH
Dropout	Greater than 5% of nominal coil voltage
Ambient Temperature **Operating** **Standard** **Sensitive** **Storage**	At nominal coil voltage 2 and 4 pole type: -55°C (-67°F) to 80°C (176°F) 6 pole type: -55°C (-67°F) to 65°C (149°F) -55°C (-67°F) to 95°C (203°F) -55°C (-67°F) to 105°C (220°F)
Vibration	0.062" DA at 5–55 Hz
Shock	20 g
Enclosure	Polycarbonate
Terminals	Plug-in: gold or tin plated copper alloy PC: tin plated copper alloy
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	23 to 35 grams

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AZ420

RELAY ORDERING DATA — TWO POLE

STANDARD DC VOLTAGE VERSION

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/Solder Terminals	PC Terminals	PC Terminals
3	5	14	2.25	AZ420–21–*–	AZ428–21–*–	AZ2428–21–*–
6	10	52	4.5	AZ420–15–*–	AZ428–15–*–	AZ2428–15–*–
12	19	185	9.0	AZ420–1011–*–	AZ428–1011–*–	AZ2428–1011–*–
18	29	430	13.0	AZ420–80–*–	AZ428–80–*–	AZ2428–80–*–
20	34	600	16.0	AZ420–08–*–	AZ428–08–*–	AZ2428–08–*–
24	37	700	18.0	AZ420–70–*–	AZ428–70–*–	AZ2428–70–*–
26	44	1,000	21.0	AZ420–07–*–	AZ428–07–*–	AZ2428–07–*–
48	70	2,500	36.0	AZ420–56–*–	AZ428–56–*–	AZ2428–56–*–
72	105	5,800	54.0	AZ420–40–*–	AZ428–40–*–	AZ2428–40–*–
115	170	15,000	86.0	AZ420–035–*–	AZ428–035–*–	AZ2428–035–*–

B. SENSITIVE DC VOLTAGE VERSION (Pickup 100 mW)

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/Solder Terminals	PC Terminals	PC Terminals
3	10	50	2.25	AZ420–V15–*–	AZ428–V15–*–	AZ2428–V15–*–
6	20	200	4.5	AZ420–V10–*–	AZ428–V10–*–	AZ2428–V10–*–
12	41	800	9.0	AZ420–V70–*–	AZ428–V70–*–	AZ2428–V70–*–
24	81	3,200	18.0	AZ420–V50–*–	AZ428–V50–*–	AZ2428–V50–*–
48	104	13,000	36.0	AZ420–V04–*–	AZ428–V04–*–	AZ2428–V04–*–

C. SENSITIVE DC CURRENT VERSION (Pickup 85 mW)

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate (mA)	Plug-in/Solder Terminals	PC Terminals	PC Terminals
12	44	1,000	8.5	AZ420–C07–*–	AZ428–C07–*–	AZ2428–C07–*–
18	70	2,500	5.4	AZ420–C56–*–	AZ428–C56–*–	AZ2428–C56–*–
29	102	5,000	4.1	AZ420–C045–*–	AZ428–C045–*–	AZ2428–C045–*–
44	144	10,000	3.1	AZ420–C408–*–	AZ428–C408–*–	AZ2428–C408–*–
51	170	15,000	2.4	AZ420–C035–*–	AZ428–C035–*–	AZ2428–C035–*–

*ORDERING PROCEDURE:

To specify an AZ 420 series relay, combine the basic part number found in the Order Number section with a contact code found in the Contact Data Table.

EXAMPLE:
AZ420–21–40LUS:

A. Basic number: **AZ420–21–** indicates two pole, plug-in/ solder terminals, standard coil, 3 VDC, 14 ohms.

B. Contact code: **40LUS** indicates bifurcated crossbar fine silver/gold plated contacts, Form C, UL and CUR approved.

CONTACT DATA TABLE

Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)	Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)	Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)
40LUS			**4LUS**			**4HUS**		
Bifurcated crossbar contact Fine silver/ gold plated	Max. Power: 56 W or 230 VA Max. current: 2 Amps Max. voltage: 150† VDC or 300 VAC	Dry circuit to 2 Amps	Single crossbar contact Moveable: fine silver/ gold plated	Max. power 100 W or 350 VA Max. current 2 Amps Max. voltage 150† VDC or 300 VAC	1 mA to 2 Amps	Single crossbar contact Moveable: silver cad-mium oxide/gold plated	Max. power 225 W or 870 VA Max. current: 5 Amps Max. voltage: 150† VDC or 300 VAC	100 mA to 5 Amps

† If switching voltage is greater than 30 VDC, special precautions must be taken. Contact the factory.

AZ420

RELAY ORDERING DATA — FOUR POLE

A. STANDARD DC VOLTAGE VERSION

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/Solder Terminals	PC Terminals	PC Terminals
3	5	14	2.25	AZ421–21–*—	AZ429–21–*—	AZ2429–21–*—
6	10	52	4.5	AZ421–15–*—	AZ429–15–*—	AZ2429–15–*—
12	19	185	9.0	AZ421–1011–*—	AZ429–1011–*—	AZ2429–1011–*—
18	29	430	13.0	AZ421–80–*—	AZ429–80–*—	AZ2429–80–*—
20	34	600	16.0	AZ421–08–*—	AZ429–08–*—	AZ2429–08–*—
24	37	700	18.0	AZ421–70–*—	AZ429–70–*—	AZ2429–70–*—
26	44	1,000	21.0	AZ421–07–*—	AZ429–07–*—	AZ2429–07–*—
48	70	2,500	36.0	AZ421–56–*—	AZ429–56–*—	AZ2429–56–*—
72	105	5,800	54.0	AZ421–40–*—	AZ429–40–*—	AZ2429–40–*—
115	170	15,000	86.0	AZ421–035–*—	AZ429–035–*—	AZ2429–035–*—

B. SENSITIVE DC VOLTAGE VERSION (Pickup 180 mW)

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/Solder Terminals	PC Terminals	PC Terminals
3	8	30	2.25	AZ421–V18–*—	AZ429–V18–*—	AZ2429–V18–*—
6	15	110	4.5	AZ421–V12–*—	AZ429–V12–*—	AZ2429–V12–*—
12	30	450	9.0	AZ421–V80–*—	AZ429–V80–*—	AZ2429–V80–*—
24	61	1,800	18.0	AZ421–V05–*—	AZ429–V05–*—	AZ2429–V05–*—
48	124	7,500	36.0	AZ421–V04–*—	AZ429–V04–*—	AZ2429–V04–*—

C. SENSITIVE DC CURRENT VERSION (Pickup 85 mW)

COIL SPECIFICATIONS				ORDER NUMBER		
				Unsealed		Sealed
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate (mA)	Plug-in/Solder Terminals	PC Terminals	PC Terminals
19	44	1,000	13.0	AZ421–C07–*—	AZ429–C07–*—	AZ2429–C07–*—
30	70	2,500	8.3	AZ421–C56–*—	AZ429–C56–*—	AZ2429–C56–*—
44	102	5,000	6.2	AZ421–C045–*—	AZ429–C045–*—	AZ2429–C045–*—
64	144	10,000	4.5	AZ421–C408–*—	AZ429–C408–*—	AZ2429–C408–*—
75	170	15,000	3.5	AZ421–C035–*—	AZ429–C035–*—	AZ2429–C035–*—

*ORDERING PROCEDURE:

To specify an AZ 421 series relay, combine the basic part number found in the Order Number section with a contact code found in the Contact Data Table.

EXAMPLE:
AZ421–21–10LUS:

A. Basic number: **AZ421–21–** indicates four pole, plugin/ solder terminals, standard coil, 3 VDC, 14 ohms.

B. Contact code: **10LUS** indicates bifurcated crossbar fine silver/gold plated contacts, Form C, UL and CUR approved.

CONTACT DATA TABLE

Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)	Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)	Contact Material	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC (Typical)
10LUS			**1LUS**			**1HUS**		
Bifurcated crossbar contact Fine silver/ gold plated	Max. Power: 56 W or 230 VA Max. current: 2 Amps Max. voltage: 150† VDC or 300 VAC	Dry circuit to 2 Amps	Single crossbar contact Moveable: fine silver/ gold plated	Max. power 100 W or 350 VA Max. current 2 Amps Max. voltage 150† VDC or 300 VAC	1 mA to 2 Amps	Single crossbar contact Moveable: silver cadmium oxide/gold plated	Max. power 225 W or 870 VA Max. current: 5 Amps Max. voltage: 150† VDC or 300 VAC	100 mA to 5 Amps

† If switching voltage is greater than 30 VDC, special precautions must be taken. Contact the factory.

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AZ420

RELAY ORDERING DATA — SIX POLE

A. STANDARD DC COIL VOLTAGE VERSION

COIL SPECIFICATIONS				ORDER NUMBER	
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/ Solder Terminals	PC Terminals
3	4.5	11	2.25	AZ431–22–*—	AZ439–22–*—
6	7	25	4.5	AZ431–18–*—	AZ439–18–*—
12	14	90	9.0	AZ431–13–*—	AZ439–13–*—
18	22	230	13.0	AZ431–10–*—	AZ439–10–*—
20	26	360	16.0	AZ431–09–*—	AZ439–09–*—
24	29	430	18.0	AZ431–80–*—	AZ439–80–*—
26	34	600	21.0	AZ431–08–*—	AZ439–08–*—
48	59	1,800	36.0	AZ431–06–*—	AZ439–06–*—
72	83	3,600	54.0	AZ431–05–*—	AZ439–05–*—
115	130	9,000	86.0	AZ431–04–*—	AZ439–04–*—

B. SENSITIVE DC VOLTAGE VERSION (Pickup 250 mW)

COIL SPECIFICATIONS				ORDER NUMBER	
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate VDC	Plug-in/ Solder Terminals	PC Terminals
3	6	20	2.25	AZ431–V19–*—	AZ439–V19–*—
6	13	80	4.5	AZ431–V13–*—	AZ439–V13–*—
12	26	320	9.0	AZ431–V09–*—	AZ439–V09–*—
24	50	1,200	18.0	AZ431–V60–*—	AZ439–V60–*—
48	68	5,200	36.0	AZ431–V045–*—	AZ439–V045–*—

C. SENSITIVE DC CURRENT VERSION (Pickup 250 mW)

COIL SPECIFICATIONS				ORDER NUMBER	
Nominal Coil VDC	Max. Continuous VDC	Coil Resistance ± 10%	Must Operate (mA)	Plug-in/ Solder Terminals	PC Terminals
23	44	1,000	16.0	AZ431–C07–*—	AZ439–C07–*—
36	70	2,500	10.0	AZ431–C56–*—	AZ439–C56–*—
51	102	5,000	7.2	AZ431–C045–*—	AZ439–C045–*—
71	144	10,000	5.0	AZ431–C408–*—	AZ439–C408–*—
90	170	15,000	4.2	AZ431–C035–*—	AZ439–C035–*—

*ORDERING PROCEDURE:

To specify an AZ 431 series relay, combine the basic part number found in the Order Number section with a contact code found in the Contact Data Table.

EXAMPLE: **AZ431–22–10LUS:**

A. Basic number: **AZ431–22–** indicates six pole, plug-in/ solder terminals, standard coil, 3 VDC, 11 ohms.

B. Contact code: **10LUS** indicates bifurcated crossbar fine silver/gold plated contacts, Form C, UL and CUR approved.

CONTACT DATA TABLE

Contact Material (Typical)	Maximum Switched Load	Switching Range at 28 VDC or 115 VAC
10LUS		
Bifurcated crossbar contact Fine silver/ gold plated	Max. Power: 56 W or 230 VA Max. current: 2 Amps Max. voltage: 150† VDC or 300 VAC	Dry circuit to 2 Amps
1LUS *		
Single crossbar contact Moveable: fine silver/ gold plated	Max. power: 100 W or 350 VA Max. current: 2 Amps Max. voltage: 150† VDC or 300 VAC	1 mA to 2 Amps
1LUS **		
Single contact button Fine silver/ gold plated	Max. power: 56 W or 230 VA Max. current: 2 Amps Max. voltage: 150† VDC or 300 VAC	Low level to 2 Amps
1HUS *		
Single crossbar contact Moveable: silver cadmium oxide/gold plated	Max. power: 225 W or 870 VA Max. current: 5 Amps Max. voltage: 150† VDC or 300 VAC	100 mA to 5 Amps
1HUS **		
Single contact button Silver cadmium oxide	Max. power: 140 W or 575 VA Max. current: 5 Amps Max. voltage: 150† VDC or 300 VAC	100 mA to 5 Amps

* Contact for Standard DC Voltage version only (Table A).

** Contact code for Sensitive DC Voltage version only (Table B) and sensitive DC current version.

† If switching voltage is greater than 30 VDC, special precautions must be taken. Contact the factory.

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TYPICAL CONTACT LIFE EXPECTANCY WHILE SWITCHING RESISTIVE LOADS

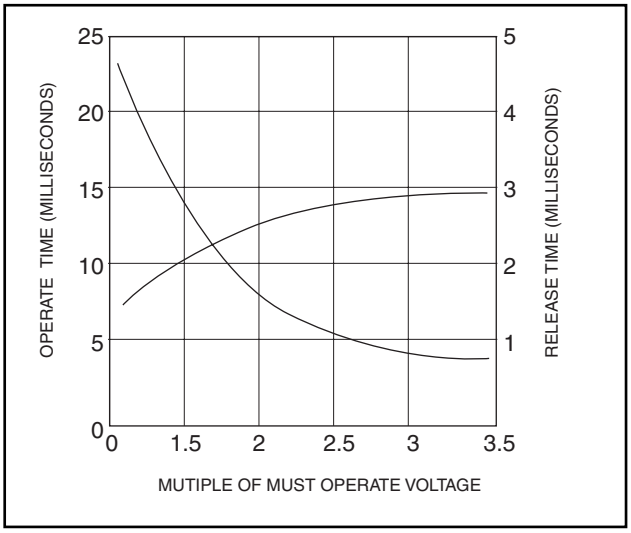
CONTACT CODE	CURRENT	VOLTAGE	NUMBER OF OPERATIONS	
			STANDARD COIL ADJUSTMENT	SENSITIVE COIL ADJUSTMENT
—LUS	1 MA 10 MA 2 A 2 A	.1 VDC 6 VDC 28 VDC 115 VAC	1×10^8 1×10^8 6×10^5 6×10^5	1×10^8 1×10^8 5×10^5 5×10^5
—HUS	5 A 5 A	28 VDC 115 VDC	1×10^5 1×10^5	1×10^4 1×10^4

NOTE: Relays operate at nominal coil voltage or 1.33 x must operate value for sensitive versions.

UL APPROVED CONTACT RATINGS

CONTACT CODE	UL RATINGS
40LUS, 10LUS	2 Amps at 26 VDC and 115 VAC
4LUS, 1LUS	2 Amps at 28 VDC and 115 VAC
4HUS, 1HUS	5 Amps at 28 VDC and 115 VAC

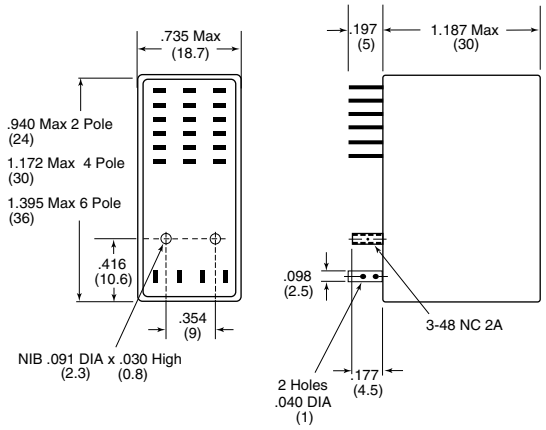
TYPICAL OPERATE AND RELEASE TIME (STANDARD DC VOLTAGE VERSION)



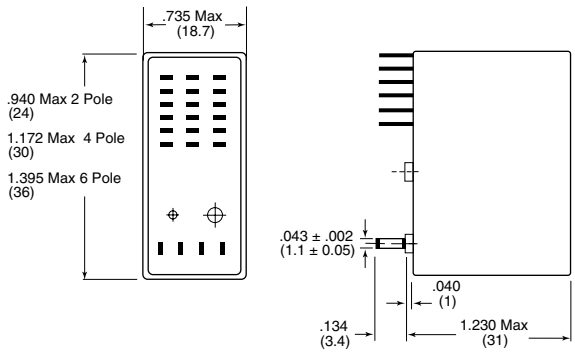
NOTES: 1. Coils not diode suppressed
2. Switched battery voltage source

MECHANICAL DATA

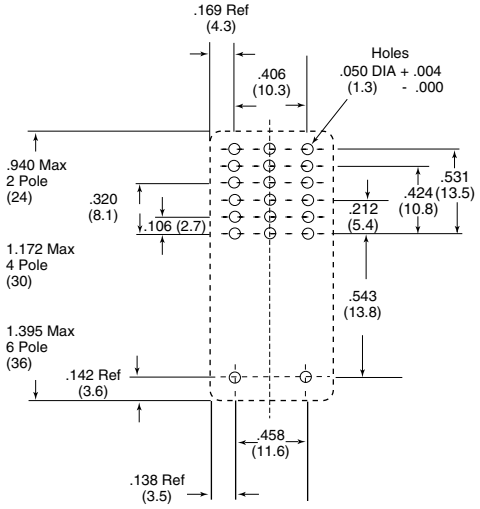
SOLDER/PLUG IN TERMINALS



PC BOARD TERMINALS

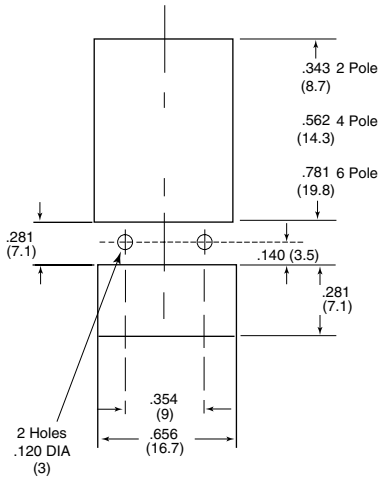


PC BOARD LAYOUT



Viewed toward terminals

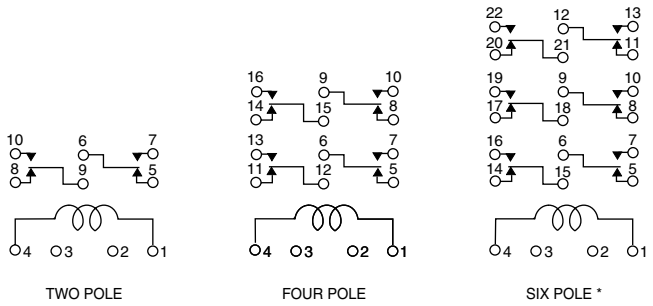
SUGGESTED PANEL LAYOUT



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

WIRING DIAGRAM

FORM C CONTACT

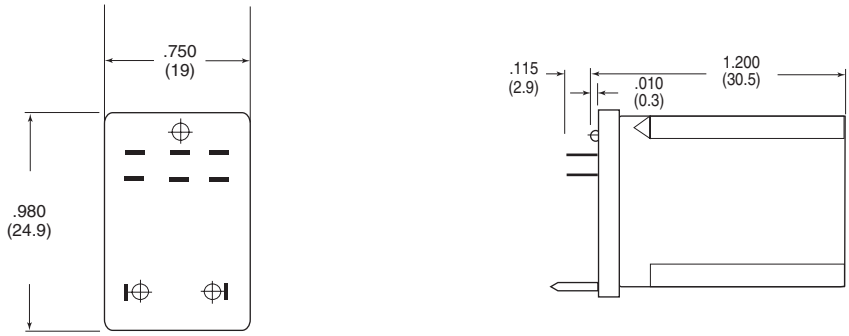


Viewed toward terminals

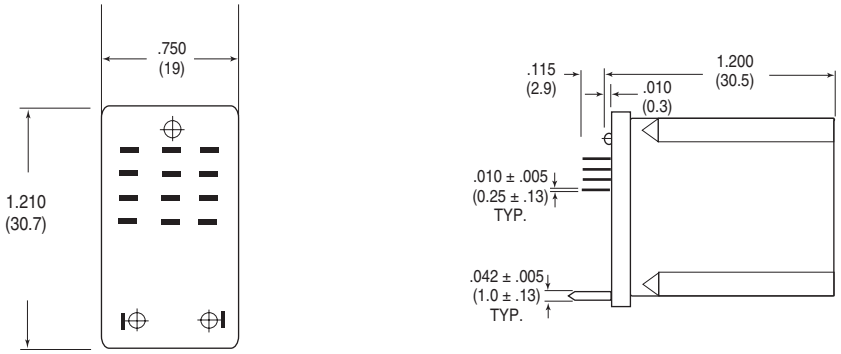
* Not available in sealed version

MECHANICAL DATA AZ2428; 2429 Versions

1. TWO POLE (DPDT)



2. FOUR POLE (4PDT)



AZ420

Sockets & Hardware for AZ420 Series



FEATURES

- International standard spacing — accommodates most cradle-type relays
- Unique knife-edge connector assures positive contact
- Unbreakable fiberglass filled polyester base material
- Spacing riser prevents flux contamination
- PC terminal spacing for 0.1 or 0.2 inch grids
- UL CUR file E171533

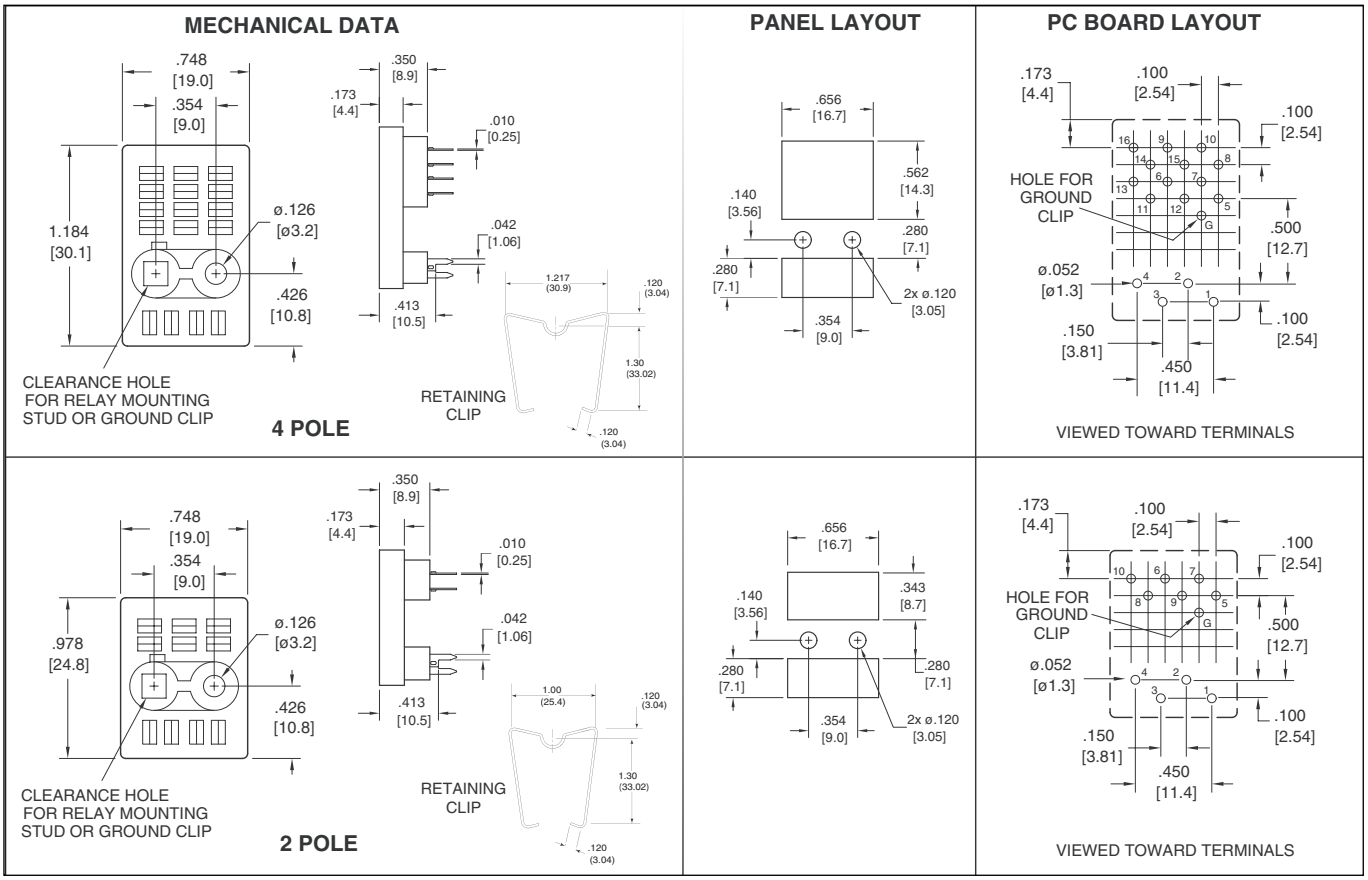
ORDERING DATA

# OF POLES	SOCKET	RETAINING CLIPS
2	ST140–A1	ST140–1
4	ST141–A1	ST141–1

GENERAL DATA

Dielectric Strength (at sea level)	1500 Vrms between all elements
Insulation Resistance	10^{12} ohms minimum at 25°C, 100 VDC
Current Rating	5 Amps maximum, continuous
Ambient Temperature	-55°C (-67°F) to 105°C (220°F)
Maximum Temperature	Machine soldering: 240°C (460°F)
Vibration	10 g at 5–55 Hz (socket soldered into PC board with relay inserted and held in place with retainer)
Shock	50 g any position (socket soldered into PC board with relay inserted and held in place with retainer)
Terminals	Combination type facilitates hand wiring or PC board mounting
Contact Material	Tin bronze silver plated

MECHANICAL SPECIFICATIONS



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

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