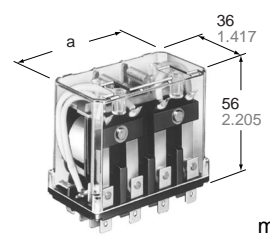




20 AMP POWER RELAY



mm inch

	a
HG2	34.0 1.339
HG3	50.0 1.969
HG4	68.0 2.667

UL File No.: E43028
CSA File No.: LR26550

- Large capacity — 20 A 250 V AC resistive and 1.5 kW 3 phase 220 V AC motor loads
- High contact reliability after long use
- Usable with direct soldering, quick-connect and plug-in terminals. (.250)

SPECIFICATIONS

Contacts

Arrangement	2 Form C, 3 Form C, 4 Form C	
Initial contact resistance, max. (By voltage drop 6 V DC 1A)	15 mΩ	
Contact material	Silver alloy	
Nominal switching capacity	20 A 250 V AC (resistive)	
UL rating (at 60 Hz)	Single phase	3/4 HP 125 V AC, 2 HP 250 V AC
	Three phase	2 HP 125 V AC, 3 HP 250 V AC
	p.f. ≅ 0.75	20 A 250 V AC
CSA rating (at 60 Hz)	Single phase	3/4 HP 125 V AC, 1 HP 250 V AC
	Three phase	2 HP 125 V AC, 1 HP 250 V AC
	p.f. ≅ 0.75	20 A 125 V AC, 15 A 250 V AC

Characteristics (at 60 Hz, 20°C 68°F)

Maximum operating speed	20 cpm	
Initial insulation resistance*1	Min. 100 MΩ at 500 V DC	
Initial break-down voltage*2	Between open contacts	2,000 Vrms for 1 min.
	Between contacts sets	2,000 Vrms for 1 min.
	Between contacts and coil	2,000 Vrms for 1 min.
Operate time*3 (approx.) (at nominal voltage)	2 Form C type	15 ms
	3 Form C & 4 Form C type	25 ms
Release time(without diode)*3 (approx.)(at nominal voltage)	2 Form C type	15 ms
	3 Form C & 4 Form C type	25 ms

Remarks

- *1 Measurement at same location as "Initial breakdown voltage" section
- *2 Detection current: 10 mA
- *3 Excluding contact bounce time
- *4 Half-wave pulse of sine wave: 11ms; detection time: 10μs
- *5 Half-wave pulse of sine wave: 6ms
- *6 Detection time: 10μs
- *7 Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 49)

Electrical life with AC load

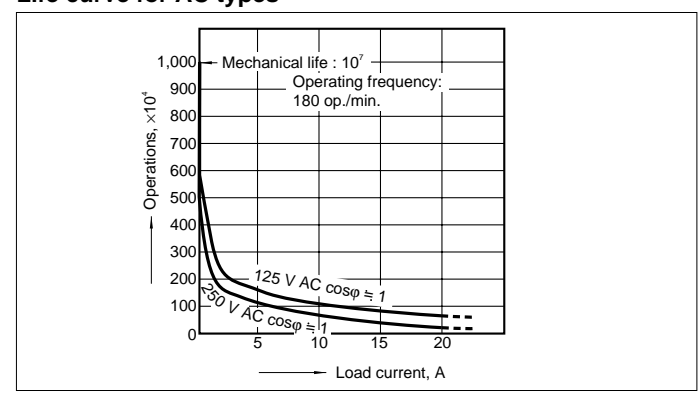
AC load	Voltage, V AC	Current, A	Expected life (min. operations)
Resistive (cosφ ≅ 1)	125	20	5×10 ⁵
		15	7.5×10 ⁵
	250	20	2×10 ⁵
		15	5×10 ⁵
Inductive (cosφ ≅ 0.4)	125	10	7.5×10 ⁵
		15	2×10 ⁵
		10	5×10 ⁵
	250	10	2×10 ⁵
		7.5	5×10 ⁵

Shock resistance	Functional*4	98 m/s ² {10 G} (except for the contact moving direction)
	Destructive*5	980 m/s ² {100 G}
Vibration resistance	Functional*6	58.8 m/s ² {6 G}, 10 to 55 Hz at 1 mm double amplitude
	Destructive	117.6 m/s ² {12 G}, 10 to 55 Hz at 2 mm double amplitude
Conditions for operation, transport and storage*7 (Not freezing and condensing at low temperature)	Ambient temp.	-50°C to +40°C -58°F to +104°F
	Humidity	5 to 85% R.H.
Unit weight	2 Form C type	Approx. 130 g 4.59 oz
	3 Form C type	Approx. 185 g 6.53 oz
	4 Form C type	Approx. 240 g 8.47 oz

Expected life (min. operations)

Mechanical (at 180 cpm)	AC type: 10 ⁷ , DC type: 10 ⁶
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Life curve for AC types



AC load	Voltage, V AC	Capacity, kW	Expected life (min. operations)
Lamp	125	0.5	2×10 ⁵
		0.3	5×10 ⁵
Motor	Single phase	125	0.75
		250	0.4
	Three phase	125	0.75
		250	0.4

Note: In case of an electromagnet or exiting coil load (solenoid, etc.), the value of the motor or lamp load is applicable.

Electrical life with DC load

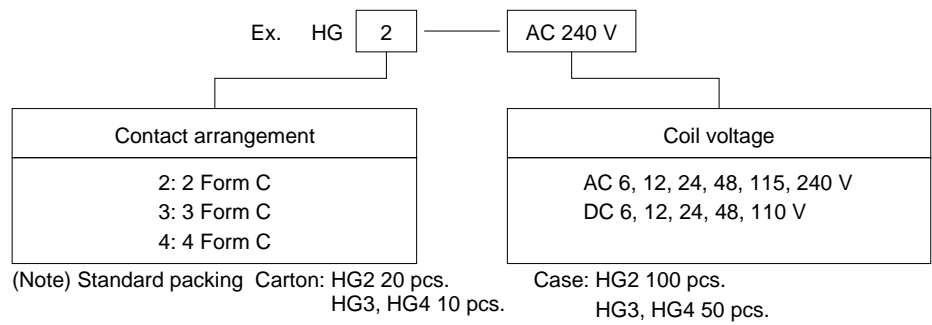
DC load	Voltage, V DC	Current, A	Expected life (min. operations)
Resistive	24	15	5×10 ⁵
	125	0.8	5×10 ⁵
Inductive (L/R ≅ 7 ms)	24	10	5×10 ⁵
	125	0.4	5×10 ⁵

Note: For DC inductive load, use of an arc extinguishing circuit is recommended.

TYPICAL APPLICATIONS

Industrial machinery, machine tools, food processing and packing machines, office machines, transportation equipment and amusement devices.

ORDERING INFORMATION



TYPES AND COIL DATA

DC TYPES at 20°C 68°F

Type	Part No.	Nominal coil voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Max. allowable, V DC voltage	Coil resistance, Ω (±10%)	Nominal coil current, mA	Operating power, W
HG2 (2 Form C)	HG2-DC6V	6	4.8	0.9	6.6	26.4	230	(approx.) 1.4
	HG2-DC12V	12	9.6	1.8	13.2	100	119.6	
	HG2-DC24V	24	19.2	3.6	26.4	416	57.6	
	HG2-DC48V	48	38.4	7.2	52.8	1585	30.3	
HG3 (3 Form C)	HG3-DC6V	6	4.8	0.9	6.6	22.7	264	(approx.) 1.6
	HG3-DC12V	12	9.6	1.8	13.2	89.5	134	
	HG3-DC24V	24	19.2	3.6	26.4	364	66	
	HG3-DC48V	48	38.4	7.2	52.8	1450	33.1	
HG4 (4 Form C)	HG4-DC6V	6	4.8	0.9	6.6	18.5	325	(approx.) 2.1
	HG4-DC12V	12	9.6	1.8	13.2	71.4	168	
	HG4-DC24V	24	19.2	3.6	26.4	296	81.2	
	HG4-DC48V	48	38.4	7.2	52.8	1050	45.7	
	HG4-DC110V	110	88	16.5	121	5420	20.3	

Notes:

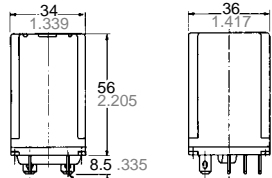
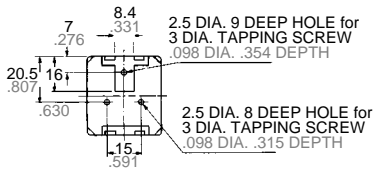
- The coil current ranges is ±15% for AC (60 Hz), ±10% for DC (20°C 68°F).
- These relays are applicable to a range of 80% to 110% of the nominal coil voltage. However, it is recommended that the relay be used in a range of 85% to 110% of the nominal coil voltage, taking the temporary voltage variation into consideration. For AC types, when operating voltage is 70% of nominal coil voltage, "buzzing" will occur, and a large amount of current will flow, burning the coil.
- Each coil resistance of DC types is the measured value at coil temperature of 20°C 68°F. Please compensate the coil resistance by ±0.4%, each time the coil

AC TYPES (50/60 Hz) at 60 HZ, 20°C 68°F

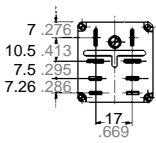
Type	Part No.	Nominal coil voltage, V AC	Pick-up voltage, V AC (max.)	Drop-out voltage, V AC (min.)	Max. allowable, V AC voltage	Inductance, H	Nominal coil current, mA	Operating power, VA
HG2 (2 Form C)	HG2-AC6V	6	4.8	1.8	6.6	0.026	600	(approx.) 3.6
	HG2-AC12V	12	9.6	3.6	13.2	0.104	300	
	HG2-AC24V	24	19.2	7.2	26.4	0.416	150	
	HG2-AC48V	48	38.4	14.4	52.8	1.660	75	
	HG2-AC115V	115	92	34.5	126.5	9.531	31.3	
HG3 (3 Form C)	HG3-AC6V	6	4.8	1.8	6.6	0.018	864	(approx.) 5.2
	HG3-AC12V	12	9.6	3.6	13.2	0.073	432	
	HG3-AC24V	24	19.2	7.2	26.4	0.290	216	
	HG3-AC48V	48	38.4	14.4	52.8	1.163	108	
	HG3-AC115V	115	92	34.5	126.5	6.648	45.2	
HG4 (4 Form C)	HG4-AC6V	6	4.8	1.8	6.6	0.012	1264	(approx.) 7.6
	HG4-AC12V	12	9.6	3.6	13.2	0.050	632	
	HG4-AC24V	24	19.2	7.2	26.4	0.199	316	
	HG4-AC48V	48	38.4	14.4	52.8	0.795	158	
	HG4-AC115V	115	92	34.5	126.5	4.557	66.1	
	HG4-AC240V	240	192	72	264	19.87	31.6	

DIMENSIONS

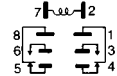
HG2 (2 Form C)



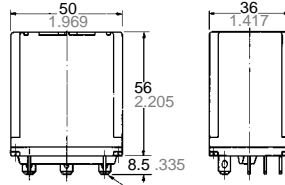
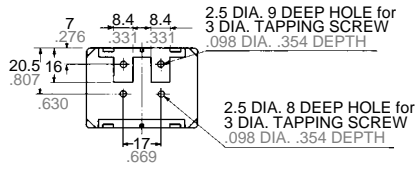
AMP SERIES FASTON 250 CONNECTORS CAN BE USED



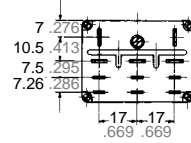
Schematic (Bottom view)



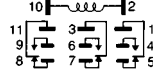
HG3 (3 Form C)



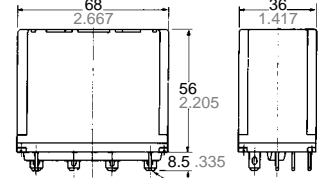
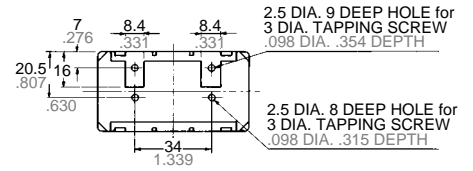
AMP SERIES FASTON 250 CONNECTORS CAN BE USED



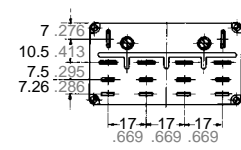
Schematic (Bottom view)



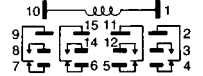
HG4 (4 Form C)



AMP SERIES FASTON 250 CONNECTORS CAN BE USED



Schematic (Bottom view)



General tolerance: $\pm 0.5 \pm .020$

ACCESSORIES

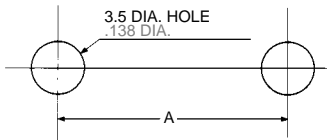
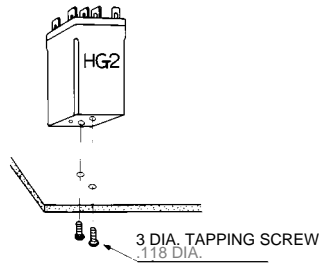
Please refer to "MOUNTING METHOD" for further information.

HG	Relay	Screw terminal socket front wiring (with hold-down clip)	Solder terminal socket for rectangular hole (with hold-down clip)	Bracket for direct mounting
HG2 (2 Form C)		HG2-SF 	HG2-SS 	HP-BRACKET 1 pc.
HG3 (3 Form C)		HG3-SF 	HG3-SS 	HP-BRACKET 2 pcs.
HG4 (4 Form C)		HG4-SF 	HG4-SS 	HP-BRACKET 2 pcs.

Note: Tapping-screw holes are provided on the cover top for direct mounting.

Direct mounting

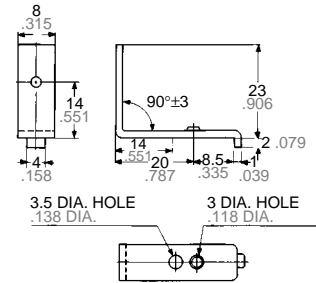
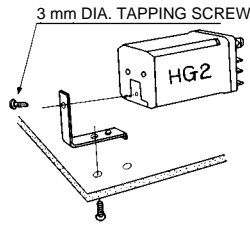
Faston 250 series quick-connectors can be used.



A: HG 2: 15mm .591
 HG 3: 17mm .669
 HG 4: 34mm 1.339

Direct mounting with HP-BRACKET

Faston 250 series quick-connectors can be used.

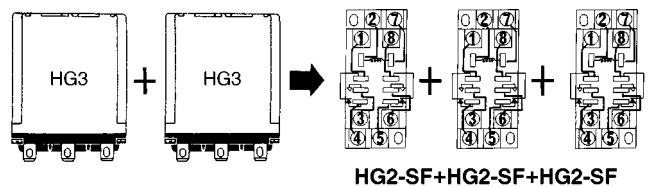
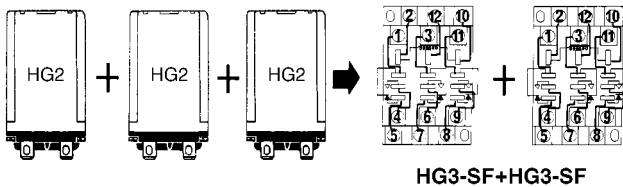
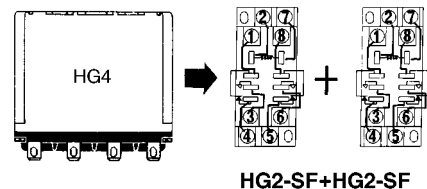
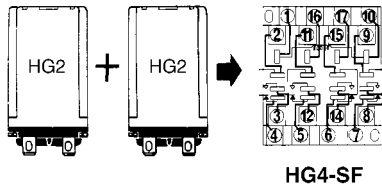


Use two brackets for HG3 and HG4

Notes:

1. This bracket is unavailable for UL, CSA and VDE applications.
2. When using any other non-standard bracket mounting-screw length should not exceed bracket thickness plus 7 mm to avoid damage to relay coils.

Socket Combinations



NOTES

Please use the hold-down clip whenever HG relays will be used in applications where strong vibrating or shock force occurs. When used in such applications,

mount the relay so that this force does not parallel the direction of contact movement.