

**EQ1 SERIES**

**FEATURES**

- Same pin-layout as conventional relay (MR301 Series)
- 70% less relay volume than conventional relay (MR301 Series)
- 80% less relay space than conventional relay (MR301 Series)
- 90% less relay height than conventional relay (MR301 Sereis)
- 60% less relay weight than conventional relay (MR301 Sereis)
- Contact switching current of 30A max.
- Flux tight housing
- Delivered in stick-tube for automatic insertion machine
- Washable type available

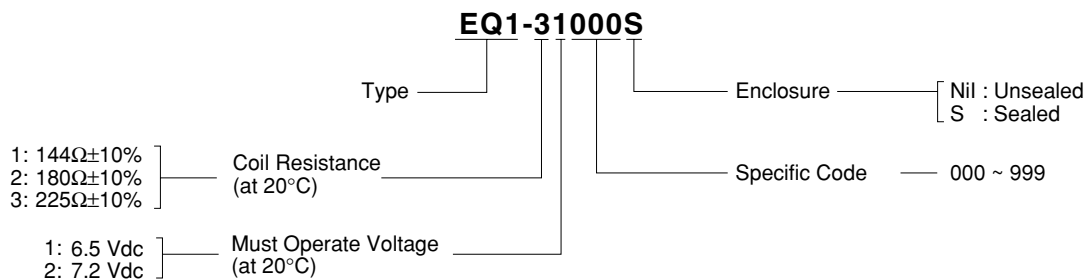


**PART NUMBERS AND COIL RATINGS**

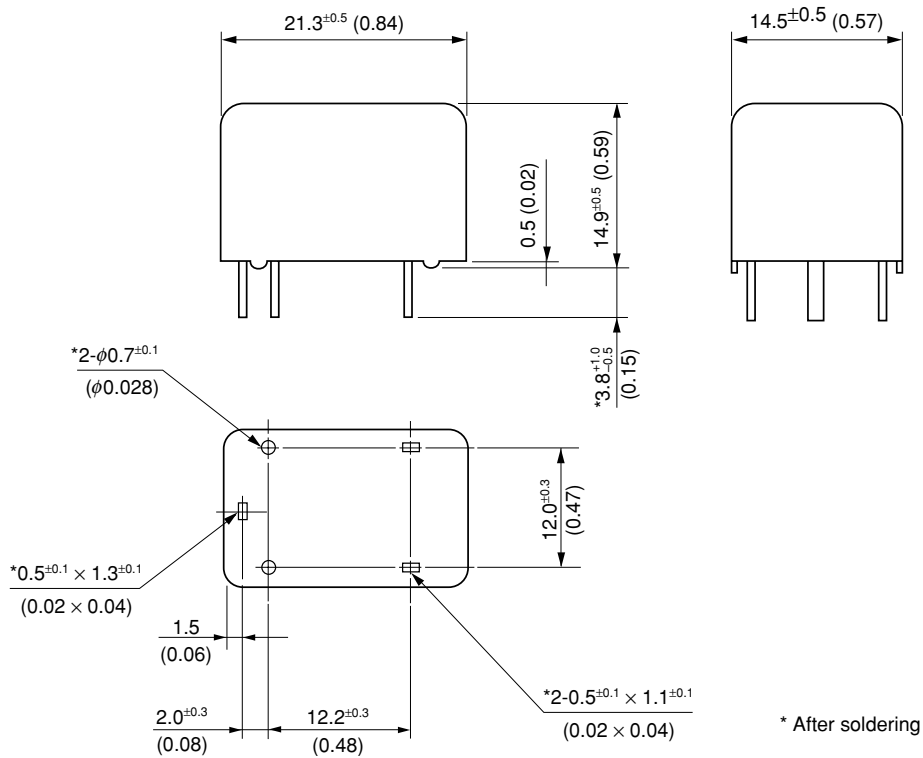
At 20°C (68°F)

Part Number	Nominal Voltage (Vdc)	Coil Resistance ( $\Omega \pm 10\%$ )	Nominal Current (mA)	Must Operate Voltage (Vdc)	Must Release Voltage (Vdc)	Nominal Operate Power (W)
EQ1-31000S	12	225	53.3	6.5	0.9	0.64
EQ1-11040S	12	144	83.3	6.5	0.6	1.00
EQ1-22111S	12	180	66.7	7.2	0.7	0.80
EQ1-11111S	12	144	83.3	6.5	0.6	1.00

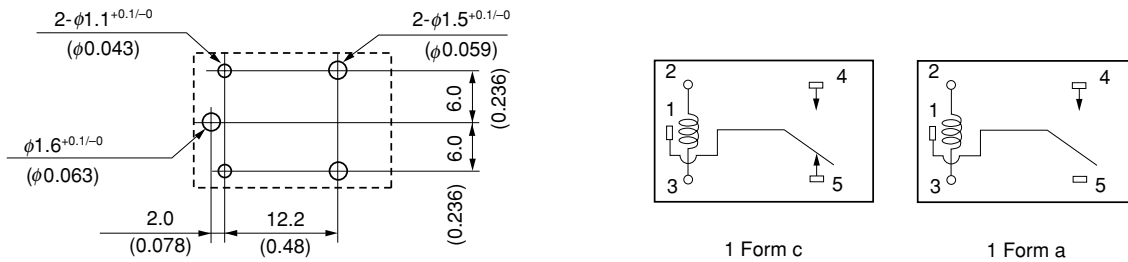
**PART NUMBER SYSTEM**



DIMENSIONS mm (inch)



PCB PAD LAYOUT and SCHEMATICS (bottom view) mm (inch)



SPECIFICATIONS

At 20°C (68°F)

Items	Specification			
	EQ1-31000S	EQ1-11040S	EQ1-11111S	EQ1-22111S
Contact Form	1 form c		1 form a	
Contact Material	Silver oxide complex alloy			
Contact Resistance	5 mΩ typical (measured at 1 A) initial			
Contact Switching Voltage	16 Vdc max. 5 Vdc min.			
Contact Switching Current	30 A max. (at 16 Vdc)			
Contact Carrying Current (2 minutes max.)	40 A (12 Vdc at 25°C) 35 A (12 Vdc at 85°C)	35 A (12 Vdc at 25°C) 30 A (12 Vdc at 85°C)		
Operate Time	3 ms typical (at nominal voltage) initial			
Release Time	4 ms typical (at nominal voltage. with diode) initial			
Nominal Operate Power	640 mW	1000 mW		800 mW
Insulation Resistance	100 MΩ at 500 Vdc			
Breakdown Voltage	500 Vac min. for 1 minute			
Shock Resistance	98 m/s <sup>2</sup> min. [misoperating]			
Vibration Resistance	10 to 300 Hz, 43 m/s <sup>2</sup> min. [misoperating]			
Ambient Temperature	-40°C to +85°C (-40°F to +185°F)		-40°C to +125°C (-40°F to +257°F)	
Coil Temperature	70°C/W (contact carrying current 0 A)			
Life Expectancy	Mechanical	1 × 10 <sup>6</sup> operations		
	Electrical	1 × 10 <sup>5</sup> operations (at 14 Vdc, motor load 20 A/3 A)		1 × 10 <sup>5</sup> operations (at 14 Vdc. Lamp load 120 W)
Weight	Approx. 9 g			

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"Standard," "Special," and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC/TOKIN devices is "Standard" unless otherwise specified in NEC/TOKIN's Data Sheets or Data Books. If customers intend to use NEC/TOKIN devices for applications other than those specified for Standard quality grade, they should contact an NEC/TOKIN sales representative in advance.

(Note)

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