

255 Series - Mechanical Latching Relays

10 Amp, Up to 4PST Contact Combination

Nuclear Grade Available

The 255 Series is a Dual-Coil Latching version of the 219 relay that is used in many applications including Nuclear.



File No. E13224



When the operate coil is momentarily energized, contacts transfer and remain so even after coil power is removed. The Reset coil, when momentarily energized, provides electrical reset of the contacts.

Armatures are mechanically interlocked to hold the position to high shock and vibration Nuclear standards.

•Optional Manual Set and/or Reset actuators for manual override - must be specified when ordering.

•All contacts operate from a common armature to prevent contact overlapping.

Coils are rated for continuous duty. Both coils can be energized at the same time with no damage.

The operate coil is dominant.

GENERAL SPECIFICATIONS (@ 25° C)

Contacts:

Contact Configuration	Up to 3PDT or 4PST	See Page 2 for Additional Options
Contact Material	Silver Alloy Gold Diffused	
Contact Rating		
120VAC Resistive	1/6 hp, 10 Amp	See Page 3 for Additional UL Ratings
240VAC Resistive	1/3 hp, 5 Amp	
28VDC Resistive	10 Amp	
Minimum current Load	Standard Contacts:	See Page 3 & 5 For Other Ratings
	Bifurcated Contacts:	
Contact Resistance, Initial	50 milliohms max @ 6VDC	

Coil:

Coils Available	AC and DC
Nominal Coil Power	4.9VA 1.8W
Input Voltage Tolerance - AC	85% to 110% of nominal
Input Voltage Tolerance - DC	80% to 110% of nominal
Drop out voltage	Not Applicable
Duty	Continuous

Timing:

Operate Time (max)	25mS
Release Time (max)	25mS

Dielectric Strength:

Across Open Contacts	1500Vrms
Between Mutually Insulated	1500Vrms
Insulation Resistance	100 Megohms min @ 500VDC

Temperature:

Operating	-20 to 60°C (-4 to 140°F)
Storage	-40 to 105°C (-40 to 221°F)

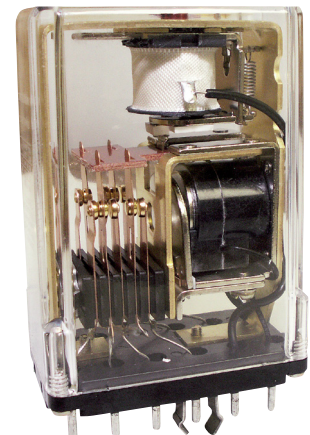
Life Expectancy:

Electrical (full load operations)	100,000
Mechanical (no load operations)	10,000,000

Miscellaneous:

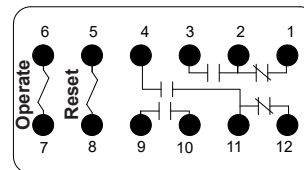
Mounting Position	Any
Enclosure	Clear Polycarbonate
Weight	8.5oz (241 grams)
Mating Socket	12 PIN: 27390 (D) Purchased Separately
	14 PIN: 33377 (D) Purchased Separately

(D) is option for DIN Rail Mount - Not UL listed

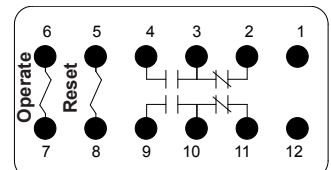


NOTE:
Contacts are shown in their normal, reset position.

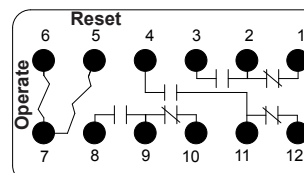
255 Wire Diagram (Top View)



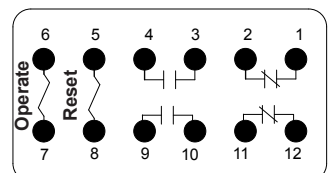
255ABX (1 N.O. + DPDT)



255XBX (DPDT)

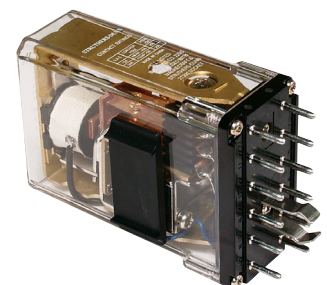
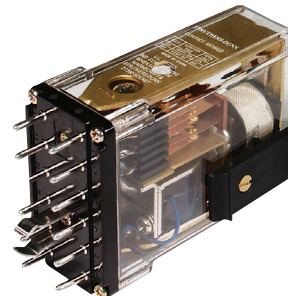


255XCX (3PDT)



255BXX (2 N.O. + 2 N.C.)

More Configurations shown on page 3



255 relays with Optional Manual Actuators installed

2631

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UL Contact Load Ratings

Contact Configuration	Current / HP	Load Voltage	Load Frequency	Type of Load
All Styles EXCEPT Code 33	10 Amp	120 VAC	50/60Hz	Resistive
	5 Amp	240 VAC	50/60Hz	Resistive
	10 Amp	28 VDC	DC	Resistive
	0.5 Amp	125 VDC	DC	Resistive
	1/6HP	120 VAC	50/60Hz	Motor
	1/3HP	240 VAC	50/60Hz	Motor
Code 33	5 Amp	120 VAC	50/60Hz	General Purpose
	2.5 Amp	240 VAC	50/60Hz	General Purpose

Use Code "33" for bifurcated contacts when switching low level current below 50mA

Additional UL Ratings for code "69" relays incorporating a blowout magnet.

Contact Configuration	Current / HP	Load Voltage	Load Frequency	Type of Load
All Styles EXCEPT Code 33	3 Amp	125 VDC	DC	Resistive
	1Amp	250 VDC	DC	Resistive

See Page 5 for Additional Lab-tested Contact Ratings

Coil Specifications

*AC Coil, 50/60HZ				
Reset coil (3VA)			Operate Coil (5VA)	
Nominal voltage	Resistance ohms ±10%	Coil Power (mA) ±10%	Resistance ohms	Coil Current (mA)
6	6	1000	1.10	5454
12	21	571	4.20	2857
24	85	282	15.5	527
120	2250	53	540	222
240	9110	26	2150	112

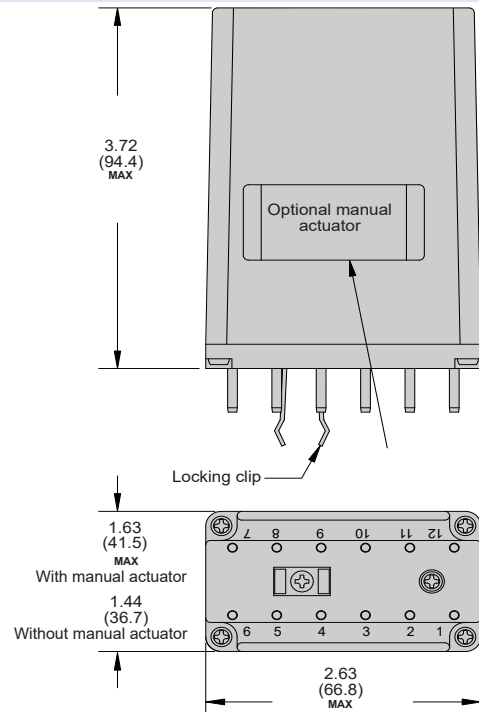
Current inrush on all AC coils is less than twice the listed milliamperes ratings as shown in the AC coil data table. *Currents shown in table measured at 60Hz

DC Coil				
Reset coil (1.4W)			Operate Coil (1.8W)	
Nominal voltage	Resistance ohms ±10%	Coil Current (mA) ±10%	Resistance ohms	Coil Current (mA)
6	32.1	187	15.5	385
12	120	100	63.5	189
24	360	67	250	96.0
48	1800	26.7	975	49.2
115/125	8000	14.4	6200	20.0
250	24600	10.2	27777	9.0

DC relays, 1.8 Watts (2.5 Watts @ 125VDC)

Outline Dimensions

Dimensions Shown in inches & (millimeters)



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Our series 255 is a Mechanical Latching Relay:

- Our 255 Latched relay can remain in that state until it is released electrically or by using an optional manual reset button.
- The 255 has a variety of contact combinations that can be used making it a very versatile relay.
- Our contacts have a Gold diffused plating for long life and lower contact resistance.
- Our standard contacts operate at from 50 mA up to 10A depending on the voltage and optional Bifurcated contacts that operate below 50 mA up to 5A. Both types can be used on the same relay as an option.
- The wiping action of the contact blades and the higher contact pressures used assure that oxidation that can form on ordinary contacts over a period of time are mechanically cleaned with each activation.
- Duty cycle is continuous.
- If needed, both coils can be energized at the same time because the operate coil is dominant. Interrupting the voltage to the operate coil will unlatch the relay.
- 255 has higher and longer reliability and are used a variety of applications from Airport runways to Nuclear plants and airport runways for examples.
- The 255 Relay functions in sever ambient temperatures.

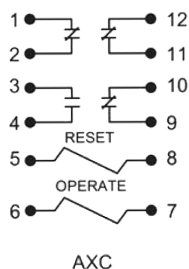
Also, the 255 is qualified.

- IEEE 344 project;
- Mild EQ aging assessment
 - Justified $1.0\text{E}+5$ Rads γ
 - supports 40 service life @ 104°F with assumption of AOO of 120°F.
 - Measured coil temperature rise
 - Simulated operation aging
- Seismic sequence: resonance search, five (5) OBEs, four (4) SSEs
 - SSE RRS (#1 - #3) peak of ~10g horizontal and ~7 g vertical; and ZPA of 1.9g.
 - SSE #4 was High-g test peak of 15g horizontal and 10g vertical

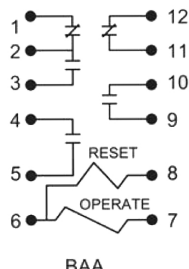


Note: The above qualification was done by Framatome. For further information please contact Framatome at www.us.areva-np.com

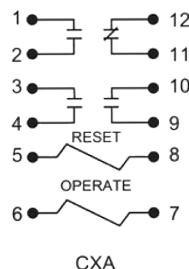
Additional Configurations



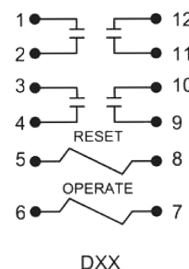
AXC



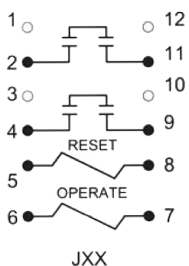
BAA



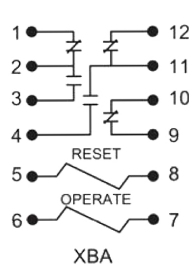
CXA



DXX

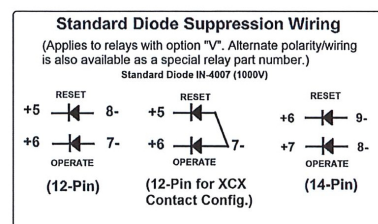


JXX



XBA

NOTE:
Contacts are shown in their
normal, reset position.

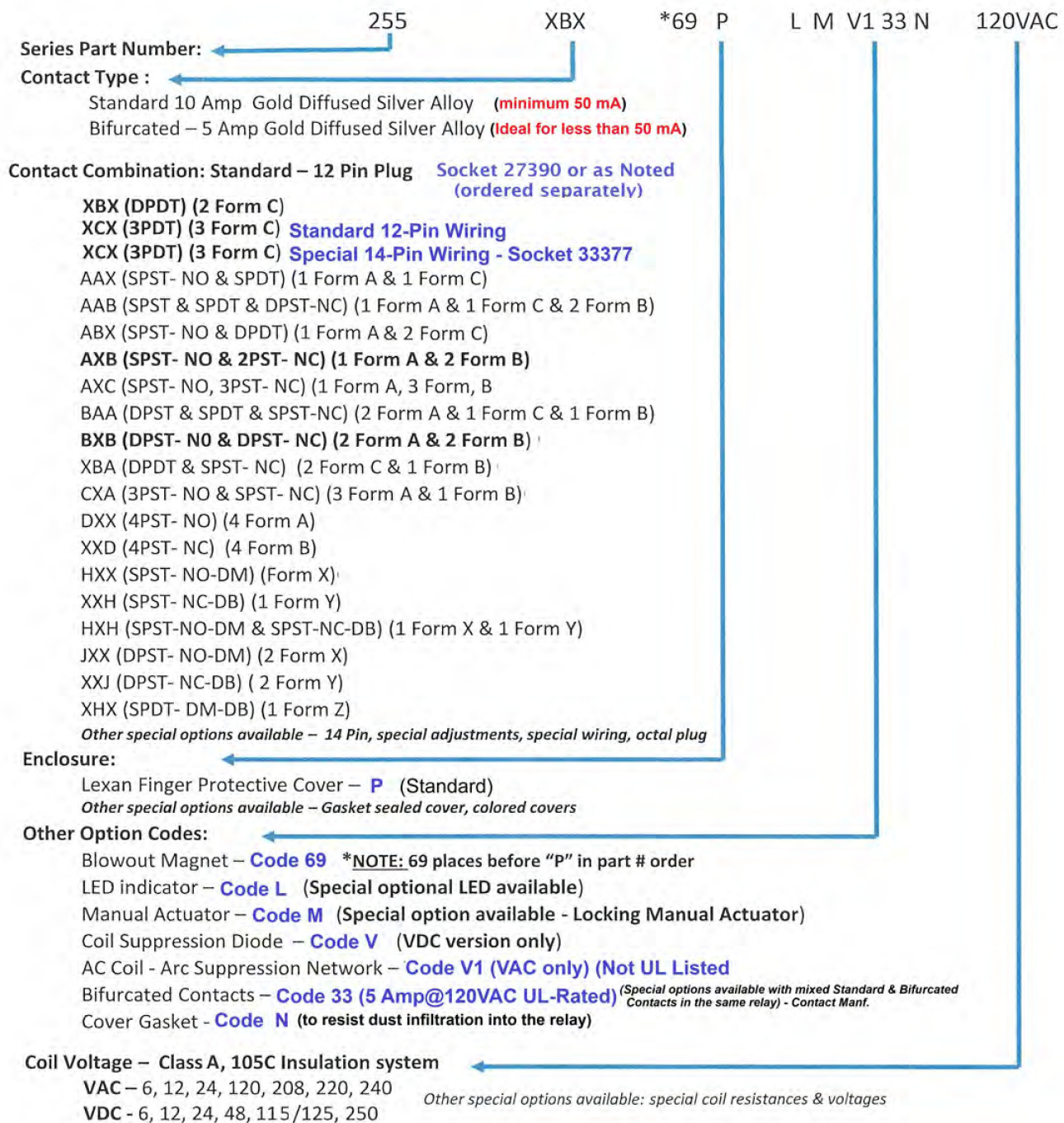


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Series 255 Part Numbering System



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Below are optionally lab-tested contact load factors based on switching configurations and various Voltage/Cirrent Loads that are for reference only. (Not official UL ratings)

Highest Load for Standard Contacts

*Current - A, Resistive unless otherwise noted

Voltage	Current, A	Switching Type
28 VDC, "69"	10A	Make & Break
48 VDC, "69"	10A	Make & Carry
	5A	Make & Break
125 VDC, "69"	10A	Make & Carry
	4A	Carry & Break
	3A	Make & Break
	0.5A, Inductive	Make & Break
125 VDC, "69" DOUBLE MAKE	4A	Make & Break
	1.1A, Inductive	Make & Break
250 VDC, "69"	4A	Make & Carry
	2A	Carry & Break
	1A	Make & Break
	0.15A, Inductive	Make & Break
250 VDC, "69" DOUBLE MAKE	1.5A	Make & Break
	0.55A, Inductive	Make & Break
120 VAC	10A, 3A Inductive, 1/6 HP	Make & Break
240 VAC	10A, 1/3 HP	Make & Break
277 VAC	10A	Make & Carry
	7A	Carry & Break
	4.5A	Make & Break

Lowest Load for Standard Contacts

*Current - A, Resistive unless otherwise noted

Voltage	Current, A	Switching Type
5 VDC	1A	Make & Break
12 VDC	0.75A	Make & Break
28 VDC	0.050A	Make & Break
48 VDC	0.050A	Make & Break
125VDC	0.050 A	Make & Break
250 VDC	0.050A	Make & Break
120 VAC	0.050A	Make & Break
240 VAC	0.050A	Make & Break
480 VAC	0.050A	Make & Break

Use Code "69" for blowout magnet when switching voltages above 40VDC.

Lowest Load for Bifurcated Contacts

*Current - A, Resistive unless otherwise noted

Voltage	Current, A	Switching Type
5 VDC	0.1A	Make & Break
12 VDC	0.075A	Make & Break
28 VDC	0.01A	Make & Break
48 VDC	0.005A	Make & Break
125VDC	0.005A	Make & Break
250 VDC	0.001A	Make & Break
120 VAC	0.01A	Make & Break
240 VAC	0.005A	Make & Break
480 VAC	0.001A	Make & Break

Highest Load for Bifurcated Contacts

*Current - A, Resistive unless otherwise noted

Voltage	Current, A	Switching Type
28 VDC	5A	Make & Carry
	3A	Carry & Break
	2.5	Make & Break
48 VDC	3A	Make & Carry
	2A	Carry & Break
	1.5A	Make & Break
125VDC	1A	Make & Carry
	0.5	Carry & Break
	0.25	Make & Break
250 VDC	0.5A	Make & Carry
	0.25A	Carry & Break
	0.1A	Make & Break
120 VAC	5A	Make & Carry
	3A	Carry & Break
	5	Make & Break
240 VAC	2.5A	Make & Carry
	1.5A	Carry & Break
	2.5 A	Make & Break
277 VAC	2.5A	Make & Carry
	1.5A	Carry & Break
	1.0A	Make & Break
480 VAC	0.5A	Make & Carry
	0.2A	Make & Break

Use Code "33" for bifurcated contacts when switching low level current below 50mA.

Bifurcated Contacts - Explanation

What are the advantages of Bifurcated contacts?

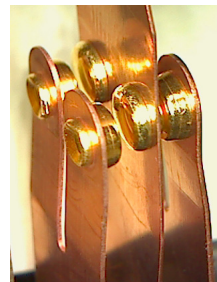
Bifurcated contacts are a set of contacts that are on a blade that is split into two parts. (See Photo)

Advantages: Bifurcated contacts are used specifically for low-level switching of current and voltages that are not reliably possible with standard contacts. The bifurcated contacts provide an increased amount of contact surface to transfer low-current signals with greater reliability.

The contacts can be set up like regular contacts **in any combination** with Normally Closed and/or Open contacts. The blades with the "dual contacts" move simultaneously to make contact with the Open and Closed set of contacts - just like Standard contacts.

Bifurcated contacts can be in a separate relay by themselves using the **Code 33** in the part number (See Pg. 2 for Ordering Codes) or combined in a relay alongside standard contacts. Relays with dual-type contacts are given special part numbers that would need to be assigned to ensure future compliance if replacements are needed.

Example of what Bifurcated contacts look like.



Direct 255 Series Website
Link to configure a 255 to
meet your needs.



Let us design a relay for
your needs!