

255 Series - Industrial Latching Relays

3PDT or 4PST, 10 Amp

Nuclear Grade Available



File No. E13224



The 255 Series is a two coil latching version of the general purpose type 219 relay. When the operate coil is momentarily energized, contacts transfer and remain so even after coil power is removed. The second coil when momentarily energized, provides electrical reset of the contacts. There is an optional manual reset actuator. 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
Contact Material	Silver Alloy Gold Diffused
Contact Rating	
120VAC Resistive	1/6 hp, 10 Amp
240VAC Resistive	1/3 hp, 5 Amp
28VDC Resistive	10 Amp
Minimum current	50 mA
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	10% of nominal
Duty	Continuous

Timing:

Operate Time (max)	25mS
Release Time (max)	20mS

Dielectric Strength:

Across Open Contacts	1500Vrms
Between Mutually Insulated Points	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

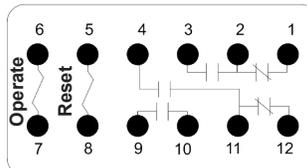
Miscellaneous:

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

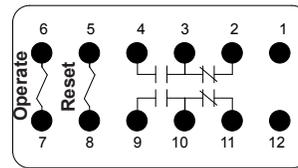
(D) is option for DIN Rail Mount - Not UL listed



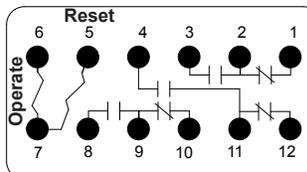
255 Wire Diagram (Top View)



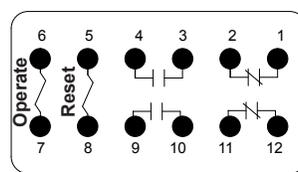
255ABX (1 N.O + DPDT)



255XBX (DPDT)



255XCX (3PDT)



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

Latching / Sequencing Relays

10 Amp

Series 255 Part Numbering System

Series Part Number: 255 XBX *69 P L M V1 33 N 120VAC

Contact Type : ← Standard 10 Amp Gold Diffused Silver Alloy (minimum 50 mA)
Bifurcated – 5 Amp Gold Diffused Silver Alloy (Ideal for less than 50 mA)

Contact Combination: Standard – 12 Pin Plug (others available)

- XBX (DPDT) (2 Form C)**
- XCX (3PDT) (3 Form C)**
- AAX (SPST- NO & SPDT) (1 Form A & 1 Form C)
- AAB (SPST & SPDT & DPST-NC) (1 Form A & 1 Form C & 2 Form B)
- ABX (SPST- NO & DPDT) (1 Form & 2 Form C)
- AXB (SPST- NO & 2PST- NC) (1 Form A & 2 Form B)**
- AXC (SPST- NO, 3PST- NC) (1 Form A, 3 Form, B)
- BAA (DPST & SPDT & SPST-NC) (2 Form A & 1 Form C & 1 Form B)
- BXB (DPST- NO & DPST- NC) (2 Form A & 2 Form B)**
- XBA (DPDT & SPST- NC) (2 Form C & 1 Form B)
- CXA (3PST- NO & SPST- NC) (3 Form A & 1 Form B)
- DXX (4PST- NO) (4 Form A)
- XXD (4PST- NC) (4 Form B)
- HXX (SPST- NO-DM) (Form X)
- XXH (SPST- NC-DB) (1 Form Y)
- HXH (SPST-NO-DM & SPST-NC-DB) (1 Form X & 1 Form Y)
- JXX (DPST- NO-DM) (2 Form X)
- XXJ (DPST- NC-DB) (2 Form Y)
- XHX (SPDT- DM-DB) (1 Form Z)

Other special options available – 14 Pin, special adjustments, special wiring, octal plug

Enclosure: ← Lexan Finger Protective Cover – P (Standard)
Other special options available – Gasket sealed cover, colored covers

Other Option Codes: ←

- Blowout Magnet – Code 69 ***NOTE: 69 places before “P” in part # order**
- LED indicator – Code L (Special optional LED available)
- Manual Actuator – Code M (Special option available - Locking Manual Actuator)
- Coil Suppression Diode – Code V (VDC version only)
- AC Coil - Arc Suppression Network – V1 (VAC only) (Not UL Listed)
- Bifurcated Contacts – Code 33 (5 Amp@120VAC UL - Rated) (Special option - mixed bifurcated and standard contacts)
- Cover Gasket - Code N

Other special options available: Arc Suppressor (back EMF) Network across coil,

Coil Voltage – Class B, 105C Insulation system ←

- VAC – 6, 12, 24, 120, 208, 220, 240
- VDC - 6, 12, 24, 48, 110/125, 250

Other special options available: special coil resistances & voltages, Arc Suppressor (back EMF) Network across coil

Latching / Sequencing Relays

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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

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 the next page for additional Contact Ratings

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

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

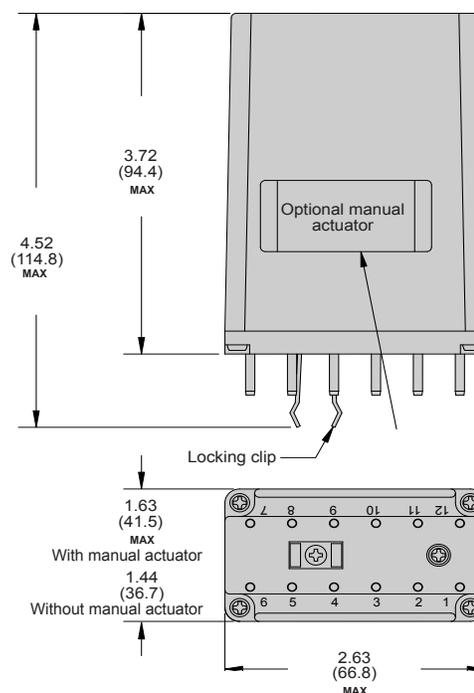
DC Coil

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)



Latching / Sequencing Relays

10 Amp

Additional Contact 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"	4A	Make & Break
DOUBLE MAKE	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"	1.5A	Make & Break
DOUBLE MAKE	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

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

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

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

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

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

Advantages of the Series 255 Latching Relay

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
 - o Justified 1.0E+5 Rads γ
 - o supports 40 service life @ 104°F with assumption of AOO of 120°F.
 - o Measured coil temperature rise
 - o Simulated operation aging
- Seismic sequence: resonance search, five (5) OBEs, four (4) SSEs
 - o SSE RRS (#1 - #3) peak of ~10g horizontal and ~7 g vertical; and ZPA of 1.9g.
 - o 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.aveva-np.com

Additional Configurations

