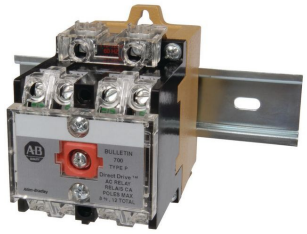
Bulletin 700-P, 700DC-P Industrial Relays

Bulletin 700-P — Direct Drive™ Convertible Contact Cartridge Relays



700-P

- NEMA and IEC ratings
- 600V maximum AC/DC
- Accessories for field installation: contact cartridges, adder decks, time delay, latching, surge suppressors, mounting strip
- Contact Ratings: (10 A) 700-CP1, (20 A) 700-CPM, (35 A) 700-CPH, (Low Power) 700-CPR
- For machine tool and other heavy-duty applications
- Can accommodate ring tongue terminals
- Integral DIN Rail mount on AC relays
- Finger-safe protection standard
- Factory supplied standard at 120V AC and 24V DC - user configurable for field assembly
- Blank relays are available in all coil voltages for field custom configuration

Description

The Bulletin 700/700DC-P family of Direct Drive Industrial Relays offers switching solutions ranging from 200 mA in Low Energy Circuits to 35 A in Heavy Duty Circuits. All of the contacts can easily be changed from the standard N.O. to N.C. configuration. The relays can be accessorized to meet the application needs with the use of time delayed contacts, mechanical latches and NEMA enclosures. All devices are available in the most popular AC and DC control voltages. Combining different cartridges into one relay can yield a custom-tailored application solution. Relays are available without contact cartridges in all of the available AC and DC coil voltages for maximum flexibility.

Bulletin 700/700DC-P relays use standard (10 A) contact cartridges with a double-break and bifurcated design. Bifurcation provides excellent contact reliability and low-contact bounce, while the double-break contact design reduces the possibility of contacts welding and enhances the relay's ability to break DC circuits. These relays can be configured with a maximum of 12 contacts (only 8 may be N.C.).

A Modular Approach to Control Circuit Solutions

The 700-P AC control relay is factory assembled with a standard 10 A contact cartridges with all contacts as N.O.in either 2, 4, 8, or 12 pole configurations with a 120 volt operating coil. Four pole relays are also available at 240 and 480 VAC and can have up to eight contacts added by using adder decks. The 700DC-P control relay is factory assembled with a standard 10 A contact cartridges with all contacts as N.O. in either 4 or 8 poles with a 24 volt operating coil. The 4 pole is also available with a 120 VDC operating coil.

For control relays that require different contact ratings or control voltages we offer a modular design that are easily field configurable. A base blank relay (either AC or DC control), a variety of contact kits, adder decks, and operating coils can be used to make an infinite number of custom control relay solutions.

Master Control 700-PMCKIT master control cartridges provide (20 A) switching capability with large single-contact pads on each side of the spanner for twice the current rating to control heavy loads and provide for master control of a system. The cartridge also has the same double-break design as the standard 700-P relay contact cartridge. Relays can be configured with up to a maximum of 12 contacts (only 8 may be N.C.). Time delay and latching attachments are compatible with master cartridges.

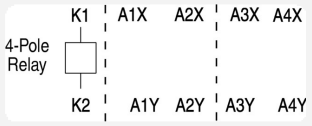
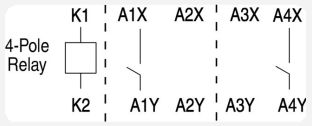
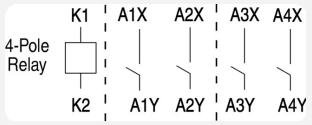
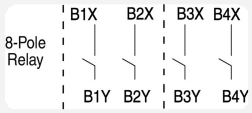
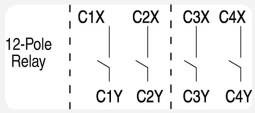
Heavy Duty Control 700-PHDKIT contact cartridges provide (35 A) switching capability through tandem contact cartridges. A jumper allows two (20 A) master contact cartridges to be connected in parallel. A maximum of six poles can be configured in a relay, only four of which can be normally closed. Time delay and latch attachments are available.

Low Energy Control Logic Reed 700-PLRKIT contact cartridges provide switching to 200 mA @ 30 VDC. These contacts are matched with standard control (10 A) contact cartridges for low energy switching applications.

Overlapping Contact 700-POLKIT contact cartridges provide (10 A) switching capabilities with the same rating as the standard contact. These cartridge used in pairs operate with the N.O. contact closing before the N.C. contact opens on pick-up and vice versa on the drop-out.

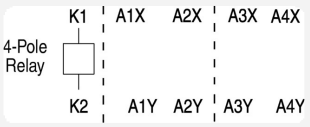
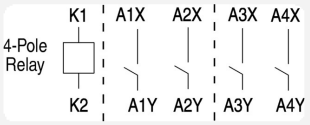
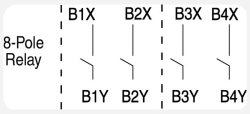
Standard Contact Cartridge (10 A)

AC-Operated Relays - In-stock Contact Configurations

	Contacts N.O.⋆	Contact Arrangement and Markings	Open Type, DIN Rail, or Relay Rail Mount (700-MP)		
			120V AC	240V AC	480V AC
	0		700-P000A1	–	–
	2		700-P200A1	–	–
	4		700-P400A1	700-P400A2	700-P400A4
	8		700-P800A1	–	–
	12		700-P1200A1	–	–

⋆ Factory assembled N.O. contacts can be easily to N.C. in the field.

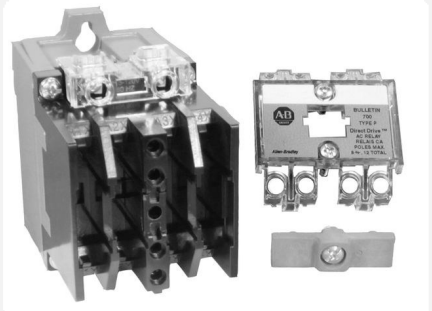
DC-Operated Relays - In-stock Contact Configurations

	Contacts N.O.⋆	Contact Arrangement and Markings	Open Type Relay Rail Mount ‡	
			24V DC	120V DC
			Cat. No.	Cat. No.
	0		700DC-P000Z24	–
	4		700DC-P400Z24	700DC-P400Z1
	8		700DC-P800Z24	–

⋆ Factory assembled N.O. contacts can be easily to N.C. in the field.

‡ For DIN Rail mounting, order Cat. No. 700-DRA.

Base Blank Relay - Factory Assembled

Base Blank Relay		
	Type of Control Circuit	Cat. No.
	AC	700-P000
	DC	700DC-P000

⊗AC Coil Voltage Code

Hz	24	110	115-120	200-208	230-240	277	460-480	575-600
50	–	A1	–	–	–	–	–	–
60	A24	–	A1	A20	A2	A27	A4	A6

⊗DC Coil Voltage Code

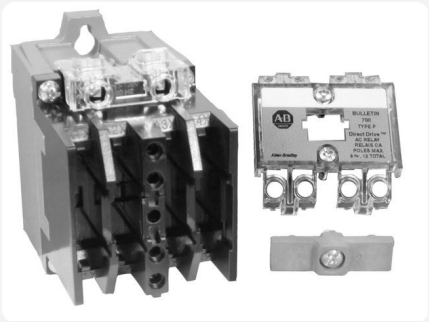
24	48	72	115-125	230-250	575-600
Z24	Z48	Z72	Z1	Z2	Z6

Master (20 A) and Heavy Duty (35 A) Contact Cartridge Options

Follow this process to order a relay that utilizes: 20 A master contact cartridges or 35 A heavy duty contact cartridges.

Base Blank Relay + Cartridge Kit + Adder Decks + Coil♣

Base Blank Relay

	Type of Control Circuit	Cat. No.
	AC	700-P000A1
	DC	700DC-P000Z24

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Contact Cartridge Kits

	Description	Contents	Continuous Carrying Current [A]	Cat. No.
	**Master Contact Cartridge** AC Rating Twice NEMA A600 DC Rating NEMA N150 P600	4 Master Cartridges (Cat. No. 700-CPM)	20	700-PMCKIT
	Heavy Duty Contact Kit	4 Master Cartridges and two sets of jumper terminals, rating label (makes two 35 A poles)	35	700-PHDKIT

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Adder Decks

Do you have more than four circuits or more than two 35 A circuits in the relay?

	Device Description	Adder Decks Required	Additional Cartridge Kits Required
	8 Pole Device	700-PB00	1 additional kit
	12 Pole Device	700-PB00 - 1 700-PC00 - 1	2 additional kits

♣ If required, see **Operating Coils** for coil selection.

Example:

- Heavy Duty circuit (35 A) application that requires 4 circuits and 240 AC control circuit:

- Base Unit: Cat. No. 700-P000A1

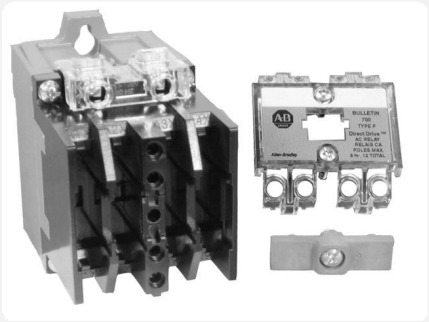
- Cartridge Kits: Cat. No. 700-PHDKIT - Qty 2 (Each kit makes two circuits)

- Adder Deck: Cat. No. 700-PB00
- Coil: Cat. No. PA254

Logic Reed and Overlapping Contact Cartridge Option

Follow this process to order a relay that utilizes: low energy contact cartridges or overlapping late make or late break cartridges.

Base Blank Relay + Cartridge Kit + Adder Decks + Coil♣

Base Blank Relay		
Image	**Type of Control Circuit**	**Cat. No.**
	AC	700-P000A1
	DC	700DC-P000Z24

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Contact Cartridge Kits				
Image	**Description**	**Contents**	**Continuous Carrying Current [A]**	**Cat. No.**
	**Logic Reed Cartridge for Low Energy Circuits** 150V AC 500 mA 25 VA Max. 30V DC 200 mA 6W Max.	2 Logic Reed Cartridges (Cat. No. 700-CPR)	500 mA 150V AC 200 mA 30V DC	700-PLRKIT
		2 Standard Cartridges (Cat. No. 700-CP1)	10	
	Overlap Contact Cartridges Overlapping Used in pairs. N.O. contact closes before N.C. contact opens on pick-up and vice versa on drop-out.	4 Overlapping Cartridges (Cat. No. 700-CP11Z)	10	700-POLKIT

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Adder Decks			
Do you have more than four circuits or more than two 35 A circuits in the relay?			
Image	**Device Description**	**Adder Decks Required**	**Additional Cartridge Kits Required**
	8 Pole Device	700-PB00	1 additional kit
	12 Pole Device	700-PB00 - 1 700-PC00 - 1	2 additional kits

♣ If required, see **Operating Coils** for coil selection.

Example:

- Low Voltage Circuit 24V DC less than 200 mA
- Base Unit: Cat. No. 700-P000A1
- Cartridge Kits: Cat. No. 700-PLRKIT - Qty 1
- Coil: Cat. No. PA254

Type		Standard Cartridge						Master Cartridge						Heavy duty					
Bulletin No.		**700-P**						**700-PMKIT**						**700-PHDKIT**					
Electrical																			
Contact Rating Continuous		10 A @ 600V AC 5 A @ 600V DC						20 A @ 600V AC 10 A @ 600V DC						35 A @ 600V AC 20 A @ 600V DC					
Ratings Make/Break	AC	NEMA A600						2 x NEMA A600						2 x NEMA A600					
	DC	NEMA P600						N150 P600						N150 P600					
Additional Contact Ratings for AC single-phase loads		–						3 Hp @ 240V AC - N.O. 2 Hp @ 240V AC - N.O./N.C. 1 Hp @ 120V AC - N.O./N.C. 20 A Resistive Heating to 600V AC 20 A Tungsten Lighting Load to 480V AC						5 Hp @ 240V AC - N.O. 3 Hp @ 240V AC - N.O./N.C. 2 Hp @ 120V AC - N.O./N.C. 35 A General Use At 0.75 PF to 600V AC 35 A Tungsten Lighting Load to 480V AC					
DC Current Ratings Make/Break		Cartridge Cat. No. 700-CP1						Cartridge Cat. No. 700-CPM						Cartridge Cat. No. 700-CPH					
DC Switching Inductive Load	Contacts in Series	Volts DC																	
		24	64	125	250	500	600	24	64	125	250	500	600	24	64	125	250	500	600
														480W	480W	275W	138W	135W	120W
	1	5 A	2.2 A	1.1 A	.55 A	.24 A	.2 A	10 A	5 A	2.2 A	.55 A	.24 A	.2 A	10 A	5 A	2.2 A	.55 A	.24 A	.2 A
	2	10 A	10 A	5 A	2 A	.7 A	.5 A	20 A	10 A	5 A	2 A	.7 A	.5 A	20 A	10 A	5 A	2 A	.7 A	.5 A
	3	–	–	7 A	3 A	1.5 A	1.0 A	–	15 A	7 A	3 A	1.5 A	1.0 A	–	15 A	7 A	3 A	1.5 A	1.0 A
	4	–	–	10 A	5 A	2.5 A	1.5 A	–	20 A	10 A	5 A	2.5 A	1.5 A	–	20 A	10 A	5 A	2.5 A	1.5 A
Coil Voltage Range	AC	85…110%						85…110%						85…110%					
	DC	80…110%						80…110%						80…110%					
	Battery Charging	85…115%						85…115%						85…115%					
Coil Consumption			50 Hz		60 Hz			50 Hz			60 Hz			50 Hz			60 Hz		
	AC Inrush		132VA‡		138VA‡			132VA‡			138VA‡			132VA‡			138VA‡		
	AC Sealed		19.3VA‡		19VA‡			19.3 VA‡			19VA‡			19.3VA‡			19VA‡		
	DC Inrush		12.7VA‡					12.7VA‡						12.7VA‡					
	DC Sealed		12.7VA‡					12.7VA‡						12.7VA‡					
PLL - PKLL AC Latch Unit	Inrush		15VA‡		15.6VA‡			5VA‡			15.6VA‡			15VA‡			15.6VA‡		
	Sealed		5.4VA‡		5.5VA‡			5.4VA‡			5.5VA‡			5.4VA‡			5.5VA‡		
PLL - PKLL DC Latch Unit	Unlatch		35VA‡					35VA‡						–					
	Intermittent		35 W‡					35 W‡						–					
Reset Time	PT - PKT		75 ms					75 ms						–					
Minimum Pulse	PLL-PKLL		75 ms					75 ms						–					
Mechanical																			
Operating Time	Pickup		AC - 10…20 ms DC - 30…50 ms					AC - 10…20 ms DC - 30…50 ms						AC - 10…20 ms DC - 30…50 ms					
	Dropout		AC - 10…20 ms DC - 20…33 ms					AC - 10…20 ms DC - 20…33 ms						AC - 10…20 ms DC - 20…33 ms					
Mechanical Life			10 million operations																
Construction																			
Contact Arrangement			Up to 12 Poles, Convertible to N.O. or N.C. (8 N.C. Maximum)					Up to 12 Poles, Convertible to N.O. or N.C. (8 N.C. Maximum)						Up to 6 Poles, Convertible to N.O. or N.C. (4 N.C. Maximum)					
Contact Material			Silver Nickel					Silver Cadmium Oxide						Silver Cadmium Oxide					
Mounting			Panel, Strip Mount, or DIN Rail Horizontal Mounting Recommended					Panel, Strip Mount, or DIN Rail Horizontal Mounting Recommended						Panel, Strip Mount, or DIN Rail Horizontal Mounting Recommended					
Environmental																			
Temperature	Operating*		-20…+65 °C (-4…149 °F)					-20…+65 °C (-4…149 °F)						-20…+65 °C (-4…149 °F)					
	Storage		-40…+65 °C (-40…149 °F)					-40…+65 °C (-40…149 °F)						-40…+65 °C (-40…149 °F)					
Wire Terminations																			
Wire size per UL/CSA			#18 AWG…(2) #12 AWG																
Tightening Torque			8…12 lb•in (0.9…1.4 N•m)																

* Temperature inside the panel.

‡ Average value for all coils within range. For values on a specific coil voltage, contact your local Rockwell Automation sales office or Allen-Bradley distributor.

International Symbol for Mechanically Linked Contacts