
	<p>Bulletin 700-M</p> <ul style="list-style-type: none"> • IEC Compact Industrial Relay • 700-M Standard Contacts (10 A) • 700-MB Bifurcated Contacts For Low Energy Loads • Positively Guided/Mechanically Linked Contacts Per IEC 947-5-1 on All 700-M Relays 	<p>Table Of Contents</p> <p>Product Selection 205</p> <p>Accessories 206</p> <p>Specifications 207</p> <p>Approximate Dimensions 210</p>
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AC Control Relays (700-M) and Control Relays with Bifurcated Contacts (700-MB) ①


	Contact Configuration		Pkg. Qty. ②	Cat. No. ③ ④
	N.O.	N.C.		
	2	2	1	700-M220③S
	3	1	1	700-M310③S
	4	—	1	700-M400③S
	2	2	1	700-MB220③S
	3	1	1	700-MB310③S
	4	—	1	700-MB400③S

③ AC Voltage Suffix Code

The Cat. No. as listed is incomplete. Select a voltage suffix code from the table below to complete the Cat. No. Example: **Cat. No. 700-MB400③S** becomes **Cat. No. 700-MB400A24S**. For other voltages, consult your local Allen-Bradley Sales Office.

Voltage	24	48	100	110...120	220...230	230...240	380	440	440...480
50 Hz	A24	A48	A1	—	A2	—	A3	A4	—
60 Hz	A24	A48	—	A1	—	A2	A3	—	A4

DC Control Relays (700DC-M) and Control Relays with Bifurcated Contacts (700DC-MB) ① ②

	Contact Configuration		Pkg. Qty. ②	Cat. No. ③
	N.O.	N.C.		
	2	2	1	700DC-M220③S
	3	1	1	700DC-M310③S
	4	—	1	700DC-M400③S
	2	2	1	700DC-MB220③S
	3	1	1	700DC-MB310③S
	4	—	1	700DC-MB400③S

- ① Positively Guided Contacts — Summary:
700-M, 700-MB, 700DC-M, and 700DC-MB relays are positively guided for 4 main poles. Restrictions apply when using auxiliary contacts.
- ② 10-packs can be ordered for the following voltage codes: A1, A2, A24, Z24, D24. To order a 10-pack, specify quantity in multiples of 10 and drop the final "S" from the catalog number.
- ③ All Cat. Nos. are factory stocked.
- ④ To determine whether a 700DC-M relay has a diode, check the voltage label above the A1 terminal. A green background indicated that the relay has a built-in diode; a white background indicates that there is no diode.

Bulletin 700-M
Industrial Relays
Product Selection, Continued

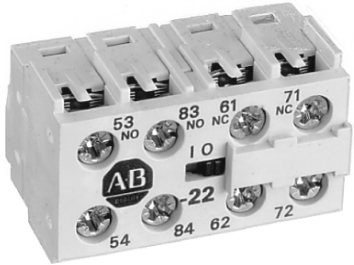
⊗ **DC Voltage Suffix Code**

The Cat. No. as listed is incomplete. Select a voltage suffix code from the table below to complete the Cat. No. Example: **Cat. No. 700DC-MB400**⊗S becomes **Cat. No. 700DC-MB400Z24S**. To order a relay with a diode surge suppressor, in a 24V DC coil, change the letter "Z" to "D". Example: **Cat. No. 700DC-MB220Z24** becomes **Cat. No. 700DC-MB220D24** (coil tab is green for diode.)


Voltage	12	24	24 with Diode	48	80	110	125	220
DC	Z12	Z24	D24⊗	Z48	Z80	Z11	Z3	Z2

Accessories

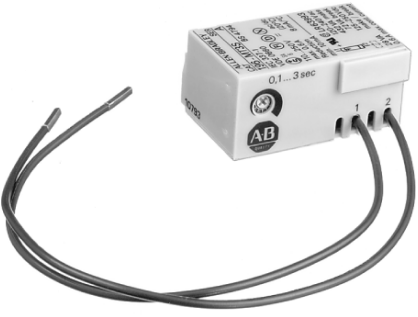
Auxiliary Contact Adder Decks

	For Use with 700-MB Relays		
	Contact Configuration	Pkg. Qty.	Cat. No. ①
	1 N.O.–1 N.C.	10	195-MA11
	2 N.O.	10	195-MA20
	2 N.C.	10	195-MA02
	2 N.O.–2 N.C.	10	195-MA22
	4 N.O.	10	195-MA40
	1 N.O.–3 N.C.	10	195-MA13
	4 N.C.	10	195-MA04

Surge Suppressors

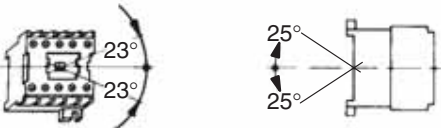
	Description		Pkg. Qty.	Cat. No. ①
	R-C Suppressor	24...48V AC	10	199-MSMA48
110...280V AC		10	199-MSMA1	
MOV Suppressor	12...55V AC	10	199-MSMV1	
	56...136V AC	10	199-MSMV2	
	137...277V AC	10	199-MSMV3	
Diode Suppressor	12...250V DC	10	199-MSMD1	

Timers

	Description		Pkg. Qty.	Cat. No. ①
	Solid State Timing Element 110...250V 50/60 Hz, DC	0.1...3 s On-Delay	10	196-MT3S
1...30 s On-Delay		10	196-MT30S	
Star-Delta Timer 1...30 s The Star (K3) contactor is energized for the time setting and de-energized. Then after 90 ± 30 ms the Delta (K2) contactor is energized.	220...250V 50/60Hz	10	196-MTSDA2	
	110...120V 50/60 Hz	10	196-MTSDA1	
35 mm DIN Rail Mounting Adapter For Above Timers			10	196-MTM


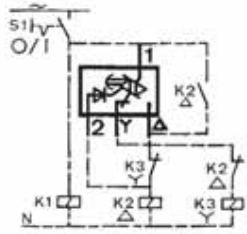
①All Cat. Nos. are factory stocked.

Mini-Relays

			Cat. Nos. 700-M... and 700-MB...
Electrical			
Operating Range	AC	Pick-Up	85...110% nominal coil voltage
		Drop-Out	35...65% nominal coil voltage
	DC	Pick-Up	80...110% nominal coil voltage
		Drop-Out	10...25% nominal coil voltage
Coil Consumption	AC	Inrush	22 VA
		Sealed	4 VA
	DC	Inrush	2.5 W
		Sealed	2.5 W
Mechanical			
Operating Time	AC	Pick-Up	15...40 ms
		Drop-Out	15...25 ms
	DC	Pick-Up	18...40 ms
		Drop-Out	6...12 ms
Environmental			
Ambient Temperature	In storage, transport		-55...+80°C (-67...176°F)
	At rated operational current		-50...+60°C (-58...140°F)
	At 85% rated operational current		-50...+70°C (-58...158°F)
Resistance to Climatic Change	Humid heat		40°C (104°F), 95% relative humidity, 56 days
	Alternating climatic conditions		23°C (73.4°F), 83%/40°C (104°F), 93%, 56 cycles
Mounting Position			
Construction			
Protection Class	IP20		
Protection Against Accidental Contact	Finger and back-of-hand proof according to VDE 0106, part 100		
Terminals	Wire	2 x 0.75...2.5 mm ² (#18...14 AWG)	
	Stranded lead without connector sleeve	2 x 0.75...2.5 mm ² (#18...14 AWG)	
	Stranded lead with connector sleeve	2 x 0.75...2.5 mm ² (#18...14 AWG)	
Weight	700-M = 153 g, 700-MB = 153 g		

Bulletin 700-M
Industrial Relays
Specifications, Continued

Timers

Cat. No.	196-M	196-MSD
Electrical		
Operational Voltage	AC and DC 110V -23%...250V +10%	AC only, 50/60 Hz 110V -23%...120V +10% 220V -20%...240V +10%
Voltage Drop	5V maximum	5V maximum
Load current for reliable function	10 mA minimum	10 mA minimum
Load current at 20°C (68°F)	600 mA	600 mA
40°C (104°F)	440 mA	440 mA
55°C (131°F)	320 mA	320 mA
Leakage current at 220V	5 mA	Y 17 mA, Δ 6 mA
Time range (delayed operation)	0.1...3 s 1...30 s	1...30 s
Transition time Y/Δ	—	90 ms ± 30 ms
Reset time	≥ 200 ms	≥ 200 ms
Voltage failure duration having no influence on time sequence	≤ 15 ms	≥ 20 ms
Repeat accuracy At fixed temperature With temperature range of -5...+55°C (+23...+131°F)	±1% ±5%	±1% ±5%
Time interval for start commands	1.4 X set time	2 X set time
General		
Functional description	After the set time has expired, the timer completes the circuit and switches on the series connected relay or contactor.	After the set time has expired, contactor KY is switched off, and after the fixed switching interval 90 ± 30 ms, contactor KΔ is switched on.
Circuit diagrams		
Time setting	The 0.1...3 s and 1...30 s delay period is preset by means of the seconds marking and then corrected according to the process sequence or by checking with a stop watch.	
Environmental		
Ambient temperature	Operation	-20...+55°C (-40...+131°F)
	Storage	-40...+80°C (-4...+176°F)
Construction		
Terminals: 0.8 mm ² (AWG 18)	2 free cable ends, each 250 mm long	4 free cable ends, each 250 mm long

Surge Suppressors

Cat. No.	196-M	196-MSD
Electrical		
Overvoltage factor	$n = U_{max}/U_n = 0.8...2.5$	

Contact Ratings

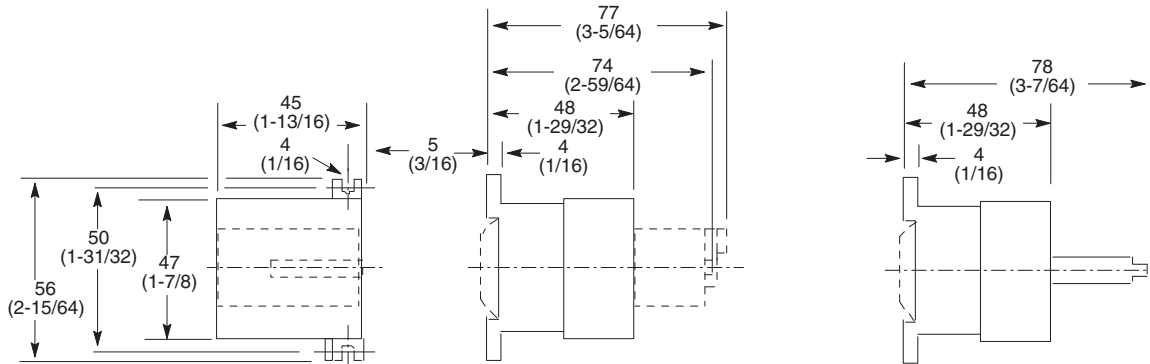
Cat. No.		Description					
		700-MB... and Auxiliary Contacts		700-M...			
Rated Thermal Current	I_{th} Open ❶	10 A		16 A			
	I_{th} Enclosed ❶	6 A		12 A			
Contact Ratings Continuous		10 A @ 300V AC NEMA A300 ❷ 2.5 A @ 300V DC NEMA Q300 ❷		10 A @ 600V AC NEMA A600 ❷ 2.5 A @ 600V DC NEMA Q600 ❷			
Make/Break IEC 947 AC-15 (Switching Solenoid)		12...120V	5.0 A	12...120V	10.0 A		
		220...240V	2.5 A	220...240V	6.0 A		
		360...400V	2.0 A	360...400V	2.5 A		
		480...500V	2.0 A	480...500V	1.25 A		
Make/Break IEC 947 DC-13		24V	5.0 A	24V	5.0 A		
		48V	0.6 A	48V	4.0 A		
		110V	0.45 A	110V	0.6 A		
		220V	0.1 A	220V	0.2 A		
Minimum Switching Recommendation		17V, 5 mA		17V, 25 mA			
Rated Voltage Withstand U_i	IEC, AS, BS, ASE, VDE 0660	500V		500V			
	UL, NEMA, CSA, EEMAC	600V		600V			
	IEC 947-4, IEC 158-1	2500V		2500V			
Back-Up Fuse IEC 158-1		10 A		16 A			
Life	Mechanical	10 million operations		10 million operations			
	AC-1 Electrical (230V / 6 A)	0.7 million operations		0.7 million operations			
Continuous Rating		300V	10 A	300V	12 A		
		600V	10 A	600V	12 A		
DC Switching (DC-1 Slightly Inductive Loads at 60°C)		—		24/48V	1 pole 6/4	2 poles 6.0 A	3 poles 6.0 A
				110V	0.6 A	4.0 A	6.0 A
				220V	0.2 A	0.8 A	3.0 A
				440V	0.08 A	0.2 A	0.4 A
Certifications		SEV, CEBEC, DEMKO, NEMKO, SEMKO, Finland, Germ. Lloyd, Bureau Veritas, USSR Register, CSA Certified, UL Listed, File E14840					
Standards		IEC 947, BS 5424, 4794, CEE24; SEV 1025, UTE NF C63-110; VDE 0660; CSA C22.2 No. 14; UL 508					

- ❶ "Open" values refer to 40°C (104°F) ambient temperature. "Enclosed" values refer to 60°C (140°F) ambient temperature.
❷ Refer to page 19 for NEMA Contact Rating information.

Bulletin 700-M
Industrial Relays

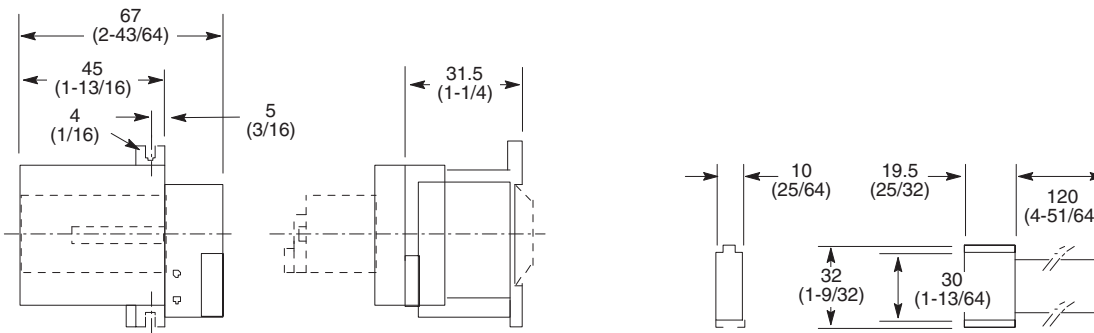
Approximate Dimensions

Approximate Dimensions are shown in millimeters (inches). Approximate Dimensions are not intended to be used for manufacturing purposes.



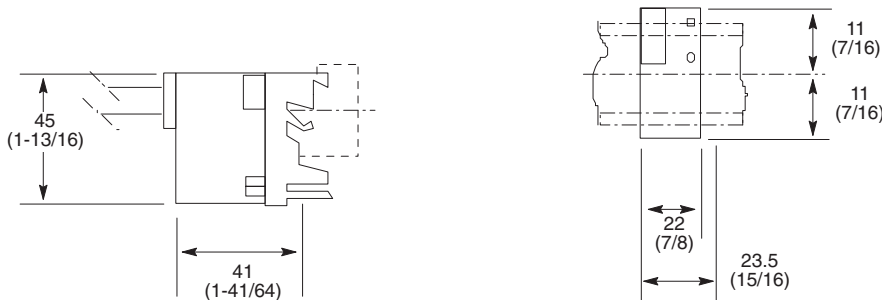
Mini-contactor or mini-relay with auxiliary contact adder deck or timer mounted to front.
 Cat. No. 700-M and 700-MB

Mini-contactor or mini-relay with surge suppressor mounted to front.
 Cat. No. 700-M and 700-MB



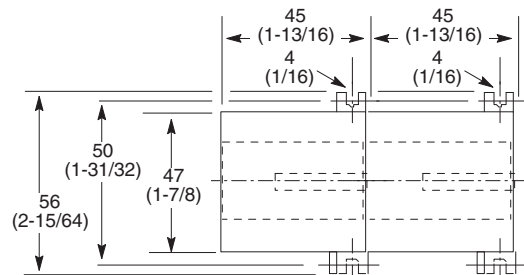
Mini-contactor or mini-relay with auxiliary contact adder deck mounted to front and timer mounted to side
 Cat. No. 700-M and 700-MB

Surge Suppressor
 Cat. No. 199-MSM



Timer with DIN Rail mounting adapter on 35 mm DIN Rail
 Cat. No. 196-MT

Timer with DIN Rail mounting adapter on 35 mm DIN Rail
 Cat. No. 196-MT



Mini-contactors or mini-relays latched
 Cat. No. 700-ML