



Bulletin 100-B IEC Contactors

- 110...608 A
- Dual Terminal Markings
- Wide Range of Accessories
 - Side-Mounting Auxiliary Contacts
 - Timers
 - Surge Suppressors
 - Mechanical/Electrical Interlocks

Bulletin 100-B modular line of contactors, when combined with the Bulletin 193 SMP or bimetallic overload relays, auxiliary contacts, timers, interlocks and suppressors, provides a highly flexible grouping of devices accepted worldwide

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Standards Compliance

IEC 60947-4-1
 BS 5424
 VDE 0660
 EN/IEC 60947-4-1 Type 2 Co-ordination
 (UL and ASTA Certified)

Approvals

UL Listed (File No. E3125, Guide No. NLDX)
 CSA Certified (File No. LR1234)
 CE

Your order must include: Cat. No. of the contactor selected with coil voltage code and, if required, Cat. No. of any accessories, replacement coils, or contact kits.

Product Selection
AC-Operated Contactors



Cat. No. 100-B110...B600

Max. I _e (A)	Ratings (AC3, AC4)										Non-Reversing Contactors Cat. No. ①②	Reversing Contactors Cat. No.	
	kW (50 Hz)					Hp (60 Hz)							
	3∅					1∅		3∅					
	220V	380V — 415V	500V	690V		115V	230V	200V	230V	460V	575V		
110	30	55	75	75	—	—	30	40	75	100		100-B110N③	104-B110N③
180	45	90	110	110	—	—	60	60	150	150		100-B180N③	104-B180N③
250	75	132	160	160	—	—	75	100	200	250		100-B250N③	104-B250N③
304	90	160	200	200	—	—	100	100	250	300		100-B300N③	104-B300N③
414	120	220	280	280	—	—	125	150	350	400		100-B400N③	104-B400N③
608	180	315	445	445	—	—	200	250	500	600		100-B600N③	104-B600N③

⊗ **Coil Voltage 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. 100-B110N③** becomes **Cat. No. 100-B110ND3**. For other voltages, consult your local Allen-Bradley distributor. **Note:** Coils below 110V are not available for **100-B400** and **100-B600** Contactors.

Voltage	24V	42V	48V	100V	100-110V	110V	120V	200V	208V	220V	240V	277V	347V	380V	415V	440V	480V	500V	550V	600V
50 Hz	K	W	Y	KF	—	D	KE	—	—	A	T	—	—	N	I	B	—	M	C	—
60 Hz	J	—	X	—	KF	—	D	—	H	L	A	F	—	E	—	G	B	—	—	C
50/60 Hz	KD⑤	—	KH⑤	KF	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

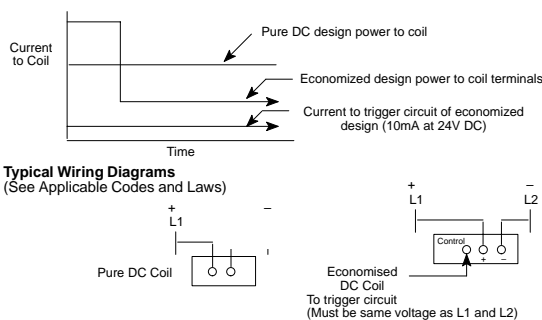
① **Power Terminal Lugs** — Contactor Cat. No. 100-B110 through 100-B600 have terminal pads with a bolt and nut for connection of bus bars or crimp-type connectors. If lugs are required, see accessories on page 3-13.

② **Auxiliary Contacts** — All sizes have a normally open auxiliary contact rated specifically for auxiliary circuits. Contactor Cat. Nos. 100-B400 and 100-B600 are furnished with one additional normally closed auxiliary contact.

③ Available for Cat. Nos. 100-B110 and 100-B180 only.

Product Selection, Continued

DC-Operated Contactors



Pure DC Coil Contactors

Max. I_e (A)	Ratings (AC3, AC4)										Non-Reversing Contactors Cat. No.	Reversing Contactors Cat. No.
	kW (50 Hz)					Hp (60 Hz)						
	3 ϕ					1 ϕ		3 ϕ				
220V	380V — 415V	500V	690V	115V	230V	200V	230V	460V	575V			
110	30	55	75	75	—	—	30	40	75	100	100-B110NZ \otimes 3	104-B110NZ \otimes 3

DC Solid-State Economized Dual-Wound Coil Contactors

Max. I_e (A)	Ratings (AC3, AC4)										Non-Reversing Contactors Cat. No.
	kW (50 Hz)					Hp (60 Hz)					
	3 ϕ					1 ϕ		3 ϕ			
220V	380V — 415V	500V	690V	115V	230V	200V	230V	460V	575V		
110	30	55	75	75	—	—	30	40	75	100	100-B110NE \otimes 3
180	45	90	110	110	—	—	60	60	150	150	100-B180NE \otimes 3

Coil Voltage Code

The Cat. No. as listed is incomplete. Select a Voltage Suffix Code from the table below to complete the Cat. No. For other voltages, consult your local Allen-Bradley distributor.

Voltage	Type	12V	24V	48V	64V	80V	115V	125V	230V	250V
Coil Code	Pure DC	12	24	48	64	80	01	03	23	25
	Economized DC	—	24	48	—	—	01	—	23	—

Wye-Delta Starter Kits

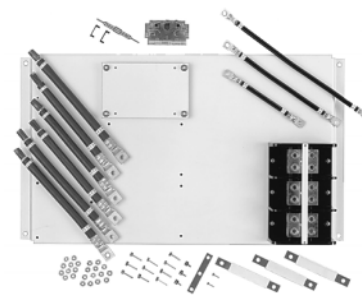
Wye-Delta Starter Kits have been designed to aid in the field assembly of open-transition Wye-Delta starters using Bulletin 100 Contactors. These kits include power wiring, shorting straps, mechanical interlocks, incoming terminal blocks, and the necessary mounting plate. Assembling a complete Wye-Delta starter requires the use of the following additional components:

- Contactors
- Overload Relay
- On-Delay Timer:

For 199-YD7 and 199-YD8, use Bulletin 700-CF Control Relay with Cat. No. 100-FPTA30

or

Use Cat. No. 700-FYS2DU23 Electronic Timing Relay



Cat. No. 199-YD7

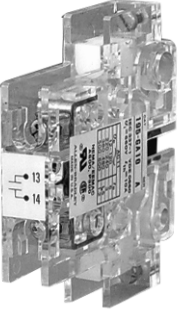



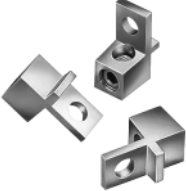

Product Selection

Use the table below to select the proper Wye-Delta starter assembly kit for your application.

3 ϕ Ratings											Cat. No.
kW (50 Hz)				Hp (60 Hz)				Use with Cat. No. 100- \otimes			
220V	380/415V	500V	690V	200V	230V	460V	575V	Delta		Wye	
								M1	M2	S1	
80	150	180	180	75	100	225	250	B180	B180	B110	199-YD7
110	220	280	280	125	150	350	400	B250	B250	B180	199-YD8
140	257	315	315	150	200	400	450	B300	B300	B180	199-YD8

\otimes For use with AC-operated contactors only.

Accessories

	Description	Used with Cat. No.	Type	Cat. No.
	Auxiliary Contact ^❶ Adder Deck (Side Mounted)	All B110...B300	1 N.O. 1 N.C. 1 N.O....1 N.C. 2 N.O. 2 N.C. 1 N.C. (Late Break)	195-GA10 195-GA01 195-GA11 195-GA20 195-GA02 195-GL01
		All B400...B600	1 N.O. 1 N.C. 1 N.O....1 N.C. 2 N.O. 2 N.C.	195-GA10 195-GB01 195-GB11 195-GA20 195-GB02
	Low-Level Switching Auxiliary Contact ^❶ (8mA, 24V min.)	All B110...B300	2 N.O. ^❷ 2 N.C. ^❷	195-NX19 195-NX18
	Electronic Timing Relay	100-B110...B300	WYE-DELTA ON/OFF Delay	700-FS ^❸
	Interlock Kit	100-B110...B300	Dual Interlock with Mechanical and Electrical Interlocks in One Unit	199-MCD1
		100-B400	Mechanical Interlock Only	199-MXH1 ^❹
		100-B600		199-MXJ1 ^❹
 <p>Cat. No. 599-K04</p>	Surge Suppressor	All B110...B180	12...120V AC Varistor	599-K04
All B250...B600		12...240V AC Varistor	599-KA04	
	Terminal Lug Kit	100-B110	3 Lugs per kit	199-LE1
		100-B180, 100W-B180_		199-LF1
		100-B250, -B300, 100W-B300_		199-LG1
		100-B400		199-LH1
		100-B600, 100W-B600_		199-LJ1
	Terminal Cover Kit	100-B110	Provides Finger Protection (1 Pair Per Kit)	199-TCE1
		100-B180		199-TCF1
		100-B250, B300		199-TCG1
		100-B400		199-TCH1
		100-B600		199-TCJ1
	Power Wiring Kit	100-B110	Provides Interconnecting Power Wires for 3 ∅ Squirrel-Cage Reversing Motors	199-PWE1 ^❺
		100-B180		199-PWF1 ^❺
		100-B250, B300		199-PWG1 ^❺
		100-B400		199-PWH1
		100-B600		199-PWJ1

- ❶ See page 3-2 for maximum number of auxiliary circuits
- ❷ The Cat. No. as listed is incomplete. For more information, see Bulletin 700-FS section
- ❸ Includes mounting plate and hardware for assembly of reversing contactors
- ❹ For maximum reliability, both contacts should be wired in parallel and used as a single circuit

Specifications

Electrical Ratings

Contactor Cat. No. Suffix		B110	B180	B250	B300	B400	B600	
Rated thermal current I_{th} @ +40°C (+104°F)		[A]	160	225	400	400	800	
Rated insulation voltage IEC (U _i)/UL		[V]	690/600					
Ratings: AC1 @ +40°C (+104°F)		I_e [A]	160	225	400	400	600	800
Ratings: AC2, AC3, AC4 50 Hz @ +55°C	I_e [A]		110	180	255	304	414	608
	220V [kW]		30	45	75	90	120	180
	380/415V [kW]		55	90	132	160	220	315
	500V [kW]		75	110	160	200	280	445
	690V [kW]		75	110	160	200	280	445
Star-Delta/Wye-Delta Ratings: AC3, 50 Hz, Non-Reversing Contactors Carry Phase Current	220V [kW]		45	80	110	140	220	277
	380/415V [kW]		90	150	220	257	350	545
	500V [kW]		110	180	280	315	450	—
	690V [kW]		110	180	280	315	445	—
Ratings: AC2, AC3, AC4 60 Hz @ +55°C	I_e [A]		110	180	250	304	414	608
	200V [Hp]		30	60	75	100	125	200
	230V [Hp]		40	60	100	100	150	250
	460V [Hp]		75	150	200	250	350	500
	575V [Hp]		100	150	250	300	400	600
Star-Delta/Wye-Delta Ratings: AC3, 60 Hz, Non-Reversing Contactors Carry Phase Current	200V [Hp]		60	75	125	150	225	350
	230V [Hp]		60	100	150	200	250	400
	460V [Hp]		150	225	350	400	500	—
	575V [Hp]		150	250	400	450	600	—
Maximum fuse size Type 2 co-ordination		[A]	200	315	400	500	630	1000
Average impedance per pole mΩ			0.5	0.4	0.3	0.3	0.3	0.1
AC Coil Data								
Coil consumption ±10%	50 Hz Inrush	[VA]	537	825	1562	1562	3300	4884
	50 Hz Sealed	[VA]	72	85	124	124	290	281
	60 Hz Inrush	[VA]	552	840	1596	1596	3312	4860
	60 Hz Sealed	[VA]	64	75	113	113	253	254
Power factor ±10%	50 Hz Sealed	[VA]	0.21	0.22	0.25	0.25	0.22	0.22
	60 Hz Sealed	[VA]	0.21	0.25	0.28	0.28	0.24	0.26
Heat dissipation[Watts]			12.5	19.0	35.4	35.4	61.2	65.7
Coil operating limits			85...110% of rated voltage					
DC Coil Data								
DC Coil consumption ± 10%	Pure DC Coil	Watts	24	—	—	—	—	—
	Economized DC Coil	Inrush Watts	383	518	—	—	—	—
		Sealed Watts	3.32	3.57	—	—	—	—
Coil operating limits			80...110% of rated voltage					
Auxiliary Contacts								
Rated thermal current I_{th}			10 A					
Rated insulation voltage IEC (U _i)/UL			660/600V					
Terminal size			2...4 mm ² /#12 AWG					
Ratings AC15	12...120V		6 A					
	220...240V		3 A					
	380...480V		1.5 A					
	500...690V		1.2 A					
Ratings DC13	28		5.0 A					
	110		1.25 A					
	220		0.62 A					
	440		0.27 A					
	690		0.20 A					

Bulletin 100 Line Contactors

Mechanical	Contactor Cat. No. Suffix	B110	B180	B250	B300	B400	B600
Degree of protection (Open Type) IEC 529		IP 00	IP 00	IP 00	IP 00	IP00	IP00
Mechanical life, operations in millions		10	10	5	5	5	5
Max. number of auxiliary circuits (includes aux. contact supplied as standard with contactor)	AC Coil	5	5	5	5	6	6
	DC Coil	5	—	—	—	—	—
Operating times at normal voltage at +20°C in milliseconds	Pick-up AC	16...35	20...24	18...42	18...42	16...36	25...79
	Pure DC	181...191	—	—	—	—	—
	Econ. DC	35...38	36...40	—	—	—	—
	Drop-out AC	5...14	9...20	7...17	7...17	6...18	10...22
	Pure DC	20...25	—	—	—	—	—
Econ. DC	17...18	18...23	—	—	—	—	
DC with suppression		—	—	—	—	—	—
Maximum operating rates all contactors (operations/hr)	AC3	400	300	150	150	150	150
	AC4	Consult your local Allen-Bradley distributor					

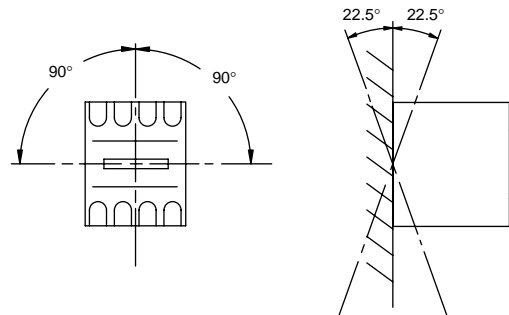
Construction

Contact material: Main contacts	Silver Alloy					
Auxiliary contacts	Silver					
Terminal markings	CENELEC EN50 012 and NEMA					
Terminal sizes	M8.0 (5/16...18)	M10.0 (3/8...16)	M12.0 (1/2...13)	M12.0 (1/2...13)	M12.0 (1/2...13)	M12.0 (1/2...13)
Cable size maximum (1 or 2 wires)	1-50mm ² (1-#1/0 AWG)	1-120mm ² (1-#4/0 AWG)	1-240mm ² (1-500 MCM AWG)	1-240mm ² (1-500 MCM AWG)	2-185mm ² (2-350 MCM AWG)	2-240mm ² (2-500 MCM AWG)
Recommended tightening torque ① (Power cables)	16.9 N-m (150 in-lbs)	31 N-m (275 in-lbs)	42 N-m (375 in-lbs)	42 N-m (375 in-lbs)	31 N-m (275 in-lbs)	31 N-m (275 in-lbs)

Environmental (Common Data)

Temperature	Operation	(open)	—25°C...+55°C (—13°F...+131°F)
		(enclosed)	—25°C...+40°C (—13°F...+104°F)
	Storage		—40°C...+65°C (—40°F...+149°F)
Altitude	2000m per IEC 947-4		
Resistance to corrosion	Steel parts zinc-plated and chromated		

Operating position



① Recommended torque when using the proper Bulletin 199 terminal lug kit.

Application Data

Guidelines for Short-Circuit Protective Device Selection

Determine the level of protection required for the application; i.e., is Type 2 Coordination, ASTA Certification or UL Listing of the application required? Select the protective device required for the application from the column labeled for the level of protection required. For U.S. applications, in no case should the protective device selected exceed the maximum device rating as allowed per Article 430 of the National Electric Code.

UL Listed Combinations

UL Listed for the combination of contactor, or contactor and overload relay, and the maximum size short-circuit protection device. UL List combinations are listed for a maximum short-circuit current of 10 kA.

UL Certified Type 2 Combinations

Certified to provide Type 2 coordination under short-circuit conditions (as defined by IEC Standard 947-4-1) with the combination of contactor, overload relay and maximum size short-circuit protective device. UL Certified Type 2 combinations are certified for a maximum short-circuit current of 100kA. For additional information about UL Type 2 Certification, refer to Allen-Bradley Publication 100-2.8.

ASTA Certified Type 2 Combinations

Certified by ASTA (Association of Short Circuit Testing Authorities) to provide Type 2 coordination under short-circuit conditions when using the listed combination of contactor, overload relay and GEC manufactured type BS88 fuses. This certification is applicable in countries where British Standards or derivatives of such are applied to electrical installation. ASTA Certified combinations are certified for a maximum short-circuit current of 80kA.

Contactors Only

Contactor Cat. No. Suffix	Maximum Short-circuit Protection Device Rating/Setting in Amperes				
	Type 2 Coordination			UL Listed Combinations	
	UL Class K1/RK1, J, ①	BS88 Fuses	gL Fuses	UL Class K5/RK5/L Fuses ②	Circuit Breakers
B110	300	200	200	300	300
B180	400	315	315	400	400
B250	450	400	400	450	450
B300	601 (Class L) ③	500	500	601 (Class L) ③	450
B400	800 (Class L) ③	630	630	800 (Class L) ③	800
B600	1200 (Class L) ③	1000	1000	1200 (Class L) ③	—

① In Canada, CSA Certified when using CSA fuse designation HRCI-J.

② In Canada, CSA Certified when using CSA fuse designation HRCI-R.

③ In Canada, CSA Certified when using CSA fuse designation HRC-L.

Contactors and Overload Relays Used Together (Starters)

Contactor Cat. No. Suffix	Overload Relay	Maximum Short-circuit Protection Device Rating/Setting in Amperes			
		UL Listed Combinations		UL Certified Type 2 Combination	ASTA ⑦ Certified Type 2 Combinations
		UL Class K5/RK5 Fuses ④	Circuit Breakers	UL Class J Fuses (CSA HRCI-J) Fuse ⑤	Using GEC BS88 Fuses
-B110	HPC66	250	250	—	—
	HPD110	300	300	150	TF160
-B180	DPC88	350	350	—	—
	DPD120	400	350	200	TF200
	DPD200	400	400	—	TF200M250
-B250	EPD180	450	450	300	TF200M250
	EPD300	450	450	—	TK315M355
-B300	EPD180	450 ⑥	450 ⑥	300	—
	EPD300	450 ⑥	450 ⑥	—	TK315M355
-B400	FPD240	700 ⑧⑩	700	—	—
	FPD400	800 ⑧⑩	800	—	—
-B600	GPD378	1000 ⑧⑩	—	—	TTM500
	GPD630	1200 ⑧⑩	—	—	—

④ In Canada, CSA Certified when using CSA fuse designation HRCII-C, HRCI-R.

⑤ CSA fuse designation HRCI-J must be UL Listed as Class J fuses.

⑥ 10 kA max. short-circuit current available.

⑦ ASTA Certification requires the use of these GEC fuses.

⑧ 10 kA maximum short-circuit current available. Class K5 fuse.

⑨ 18 kA maximum short-circuit available — Class L fuse.

⑩ In Canada, CSA Certified when using CSA fuse designation HRC-L.

Switching Three-Phase Capacitors

Operating Conditions

Maximum Rated Voltage — 690 Volts AC.
Maximum Ambient Temperature — +40°C.

Operating Rate

Single-capacitor banks with damping. No more than 10 operations per hour. For applications requiring more than 10 operations per hour consult your local Allen-Bradley distributor for information.

Power Rating in KVAR ❶

Cat. No. Suffix	60Hz				50Hz			
	200V	240V	480V	600V	220V	380V	500V	690V
B110	30	38	75	75	35	60	75	75
B180	40	50	100	100	45	80	100	100
B400	105	125	250	200	115	200	250	200
B600	160	190	380	300	170	300	400	300

❶ Maximum available current of 10kA. For systems with larger available current, consult your local Allen-Bradley distributor.

Lighting Loads

Typical Electric Discharge Loads

Mercury vapor, sodium vapor, metal halogen and fluorescent lamps.

Compensated Loads

Loads that use a power factor correction capacitor to improve the power factor of the load. These loads typically exhibit an inrush current of 15 to 20 times the continuous current of the load.

Selection Information

To select a contactor for controlling a lighting load, use the following procedure:

1. Determine the type of load to be controlled. For example — is it a incandescent type load or an electric discharge type; compensated or non-compensated type?
2. Determine the continuous current of the lighting load.
3. Select a contactor that has a current rating greater than or equal to the continuous rating of the load that is being switched.

Cat. No. Suffix	Circuit Closing Inrush Current (Amps Peak Including Offset)	Maximum Switching Current		
		Electric Discharge Lamp Loads <= 300V		Incandescent Lamp Loads (Amps)
		Non-Compensated (Amps)	Compensated Amps	
B110	1667	140	110	110
B180	2727	225	180	180
B250	3788	317	250	250
B300	4546	380	300	300
B400	6061	520	400	400
B600	9091	720	600	600

Controller Ratings for Transformer Primary - Switching kVA

Operating Conditions

Maximum Rated Voltage — 690 Volts
Maximum Ambient Temperature — +40°C.

Operating Rate

Less than 120 operations per hour, but no more than 2 per minute.

Inrush Currents of Not More Than 20 Times Peak Continuous Current Ratings

Cat. No. Suffix	kVA for Single-Phase Volts				kVA for Three-Phase Volts					
	120V	240V	480V	600V	208V	240V	380V	480V	600V	690V
B110	9	16	32	36	24	28	44	56	62	69
B180	12	23	46	52	35	40	63	80	90	99
B250	16	32	64	72	48	56	88	111	125	138
B300	19	39	77	87	58	67	106	134	150	165
B400	26	51	92	92	77	89	140	160	160	160
B600	39	77	139	139	116	134	210	240	240	240

Application Data, Continued

Switching DC Loads

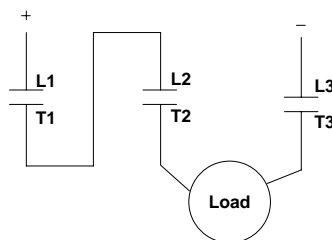
Use the following tables as a guideline for selecting the proper Bulletin 100 contactor for switching DC loads. Notice that these guidelines are only for three power poles wired in series. **Note:** L/R in the tables below is equal to the ratio of inductance to resistance in the circuit being switched and is measured in milliseconds. The higher this ratio or time constant the more stored energy the circuit contains.

DC1 Ratings L/R ≤ 1 ms (3 poles in series)		
Cat. No. Suffix	Maximum Operational Current at +40°C [A]	
	115V	230V
B110	150	150
B180	200	200
B250	300	300
B300	300	300
B400	400	400
B600	630	630

DC3 & DC5 Ratings L/R ≤ 15 ms (3 poles in series)		
Cat. No. Suffix	Maximum Operational Current at +40°C [A]	
	115V ①	230V
B110	110	110 ①
B180	180	180 ①
B250	250	250 ①
B300	300	300 ①
B400	400	200 ①
B600	600	300 ①

① Minimum application current must be 25% of maximum operational current.

Example of 3 Poles Wired in Series



DC Utilization Categories

Category

DC1

DC3

DC5

Typical Applications

Non-inductive or slightly inductive loads; resistive furnaces.

Shunt motors; starting, plugging or inching; Dynamic breaking of DC motors.

Series motors; starting, plugging or inching; Dynamic breaking of DC motors.

Electrical Life in Utilization Categories AC1 and AC2

Life-Load Curves

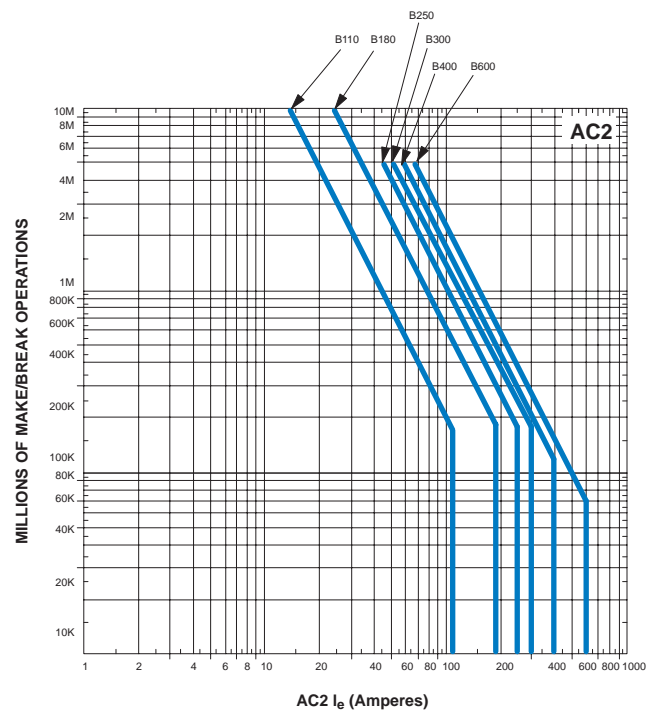
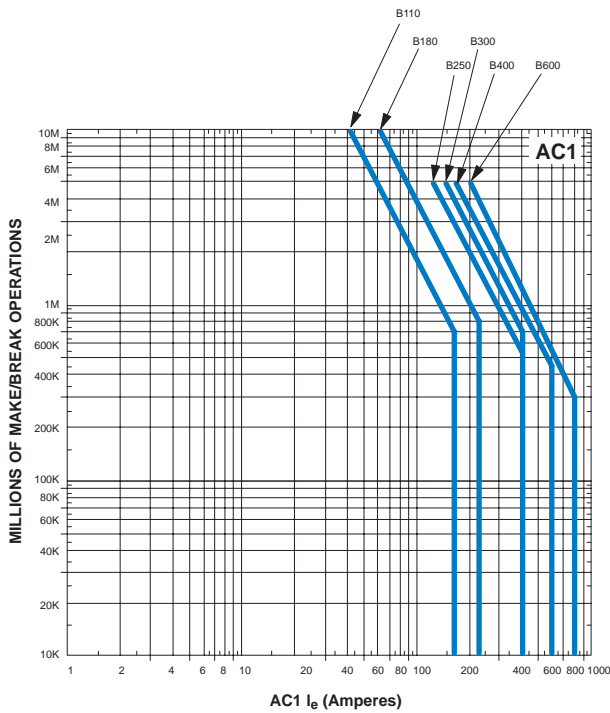
Bulletin 100 IEC contactors are designed for superior performance in a wide variety of applications. When selecting IEC-based products, the user must give consideration to the specific load, utilization category and required electrical life of the application. The life-load curves listed here are based on Allen-Bradley tests according to the requirements defined in IEC 60947-4-1. Since contact life in application conditions is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

To find the contactor's estimated electrical life, follow these guidelines:

1. Choose the appropriate graph that most closely approximates the utilization category of the application.
2. Locate the intersection of the life-load curve of the appropriate contactor with the application's operational current (I_e) found on the horizontal axis.
3. Read the estimated contact life in millions of operations along the vertical axis.

Utilization Categories

Category	Typical Duty
AC1	Non-inductive or slightly inductive loads.
AC2	Starting of slip-ring motors.
AC3	Starting of squirrel cage motors and switching off only after the motor is up to speed.
AC4	Starting of squirrel cage motors with inching and plugging duty.



Application Data, Continued

Contact Life for Mixed Utilization Categories AC3 and AC4

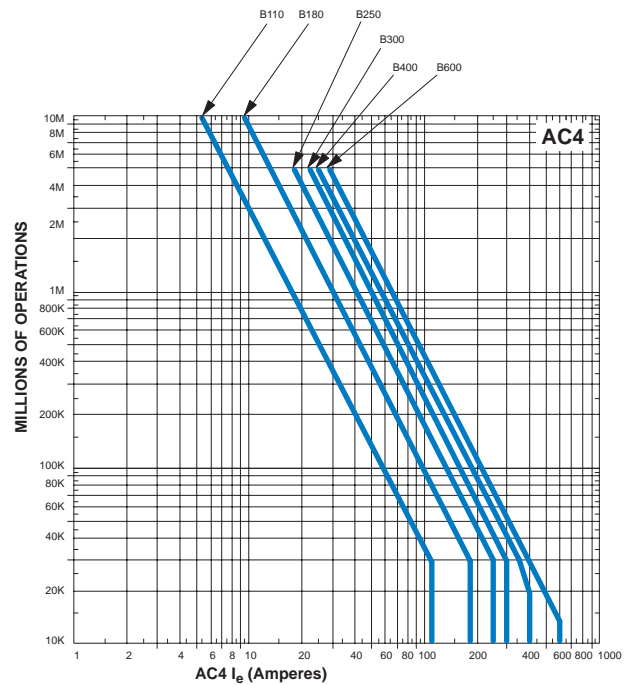
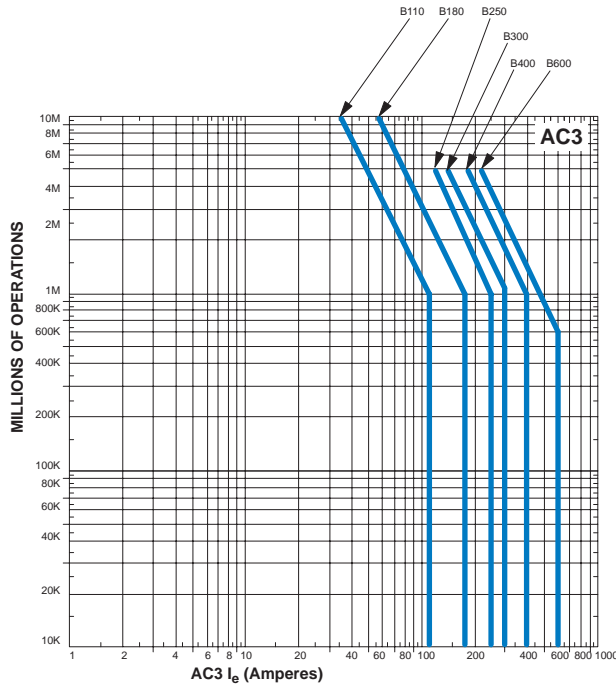
In many applications, the utilization category cannot be defined as either purely AC3 or AC4. In those applications, the electrical life of the contactor can be estimated from the following equation:

$$L_{\text{mixed}} = \frac{L_{\text{AC3}}}{1 + P_{\text{AC4}} \left(\frac{L_{\text{AC3}}}{L_{\text{AC4}}} - 1 \right)}$$

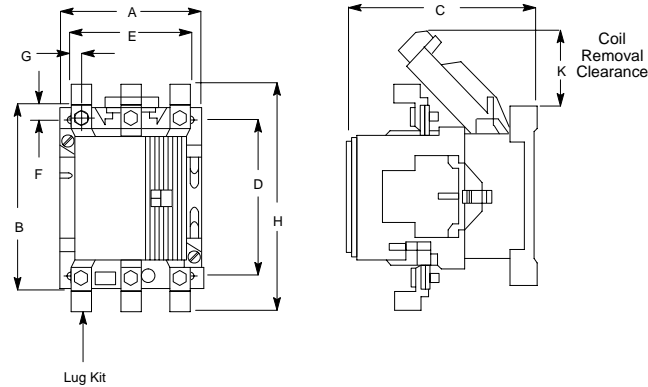
Where

L_{mixed}
 L_{AC3}
 L_{AC4}
 P_{AC4}

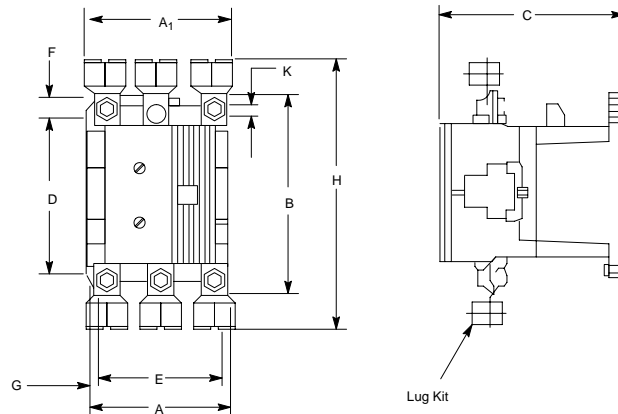
Approximate contact life for a mixed AC3/AC4 utilization category application.
Approximate contact life in operations for AC3 utilization category (from AC3 life-load curves below).
Approximate contact life in operations for AC4 utilization category (from AC4 life-load curves below).
Percentage of AC4 operations.



Dimensions in millimeters (inches) and shipping weights in kg (lbs). Dimensions are not intended for manufacturing purposes.



Contactor Size	A Wide	B High	C Deep	D	E	F	G	H	K	Mounting Screw	Approx. Ship Wt. kg (lbs.)
100-B110	119 (4-11/16)	154 (6-1/16)	155 (6-7/64)	130 (5-1/8)	100 (3-15/16)	12 (15/32)	9 (11/32)	187.3 (7-3/8)	62 (2-29/64)	M6 (1/4-20)	3.85 (8.49)
100-B180	134 (5-9/32)	187.8 (7-25/64)	190 (7-31/64)	160 (6-5/16)	110 (4-21/64)	13.9 (35/64)	13 (33/64)	227 (8-15/16)	90 (3-35/64)	M6 (1/4-20)	7.00 (15.43)
100-B250 and 100-B300	154 (6-5/64)	226 (8-29/32)	212 (8-11/32)	180 (7-3/32)	130 (5-1/8)	18 (45/64)	15 (19/32)	292 (11-1/2)	109 (4-19/64)	M8 (5/16-18)	8.24 (18.17)



Contactor Size	A Wide	A1 Wide	B High	C Deep	D	E	F	G	H	K	Mounting Screw	Approx. Ship Wt. kg (lbs.)
100-B400	176 (6-15/16)	189 (7-29/64)	255 (10-3/64)	230 (9-3/64)	199 (7-27/32)	154 (6-1/16)	28 (1-7/64)	11 (7/16)	344 (13-35/64)	10.5 (13/32)	M10 (3/8-16)	13.88 (30.60)
100-B600	255 (10)	—	306 (12-3/64)	267 (10-17/32)	220 (8-1/16)	226 (8-29/32)	33 (1-19/64)	145 (5-45/64)	433 (17-3/64)	10 (25/64)	M12 (1/2-13)	23.32 (51.41)

DC Operated (Pure DC Coil) Contactors

	Cat. No.	A Wide	B High	C Deep	D	E
	100-B110	119 (4-11/16)	154 (6-1/16)	197 (7-3/4)	130 (5-1/8)	100 (3-15/16)

DC Operated (Economized DC Coil) Contactor

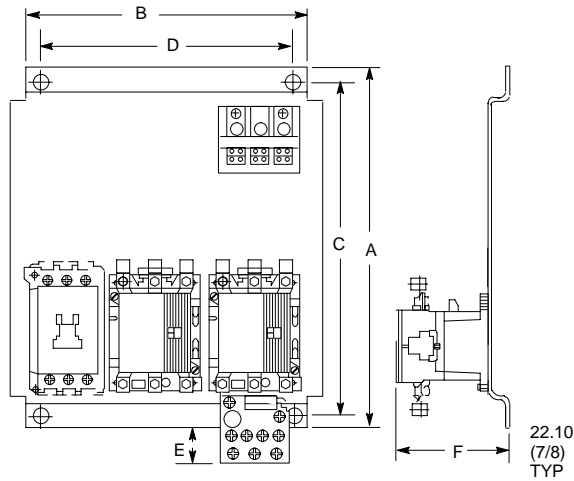
	Cat. No.	A Wide	B High	C Deep	D	E	F
	100-B110	119 (4-11/16)	177.4 (6-63/64)	155 (6-7/64)	130 (5-1/8)	100 (3-15/16)	89 (3-1/2)
	100-B180	134 (5-9/32)	212 (8-11/32)	190 (7-31/64)	160 (6-5/16)	110 (4-21/64)	119 (4-11/16)

Bulletin 100-B
IEC Contactors

Approximate Dimensions, Continued

Bulletin 199 — Wye-Delta (Star-Delta) Starter Kits

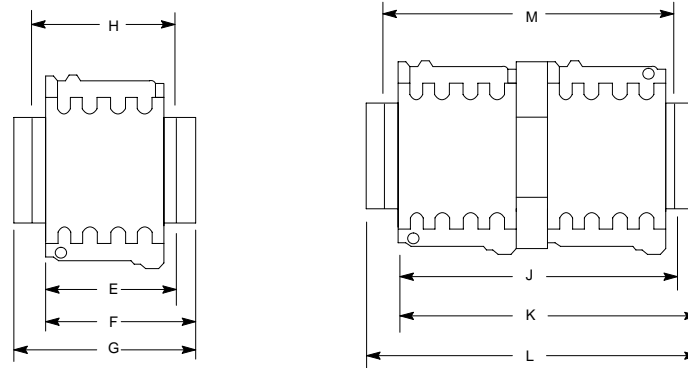
Dimensions are shown in millimeters (inches) and shipping weights in kg (lbs). Dimensions are not intended for manufacturing purposes.



Cat. No.	A	B	C	D	E	F	Mounting Screw	Approx. Ship. Wt.
199-YD7	723.9 (28-1/2)	421.1 (16-9/16)	700 (27-9/16)	380 (14-15/16)	—	277 (11-3/32)	10.3 (13/32)	27.69 (61)
199-YD8	876 (34-1/2)	491 (19-5/16)	850 (33-1/2)	450 (17-3/4)	—	292 (11-11/16)	12.3 (1/2)	42.68 (94)

Bulletin 100 Line Accessories

Dimensions are shown in millimeters (inches) and shipping weights in kg (lbs). Dimensions are not intended for manufacturing purposes.



AC Operated Contactor With Side Mounted Auxiliary Contact Adder

Reversing Contactor With Side Mounted Auxiliary Contact Adder

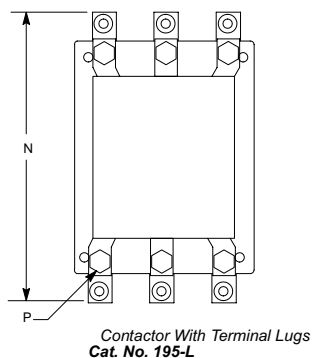
Contactor Size	Contactor with Front Mounted Accessories				Contactor with Side Mounted Accessories				Reversing Contactor with Side Mounted Accessories			
	A	B	C	D	E ❶	F ❷	G ❷	H	J ❶	K ❷	L ❷	M
B110	—	—	—	—	119 (4-11/16)	131 (5-5/32)	143 (5-5/8)	119 (4-11/16)	239 (9-27/64)	251 (9-7/8)	263 (10-11/32)	239 (9-27/64)
B180	—	—	—	—	134 (5-9/32)	146 (5-3/4)	158 (6-7/32)	134 (5-9/32)	245 (9-21/32)	281 (11-1/16)	293 (11-35/64)	245 (9-41/64)
B250 and B300	—	—	—	—	154 (6-1/16)	166 (6-17/32)	178 (7)	154 (6-1/16)	311 (12-15/64)	322.5 (12-45/64)	334 (13-5/32)	311 (12-15/64)
B400	—	—	—	—	176 (6-15/16)	188 (7-13/32)	200 (7-7/8)	176 (6-15/16)	—	—	—	—
B600	—	—	—	—	255 (10-3/64)	265 (10-7/16)	275 (10-53/64)	255 (10-3/64)	—	—	—	—

- ❶ Overall width with standard auxiliary contacts as supplied from Allen-Bradley.
- ❷ Dimensions represent contactors with double stacked auxiliary contact blocks.

Approximate Dimensions, Continued

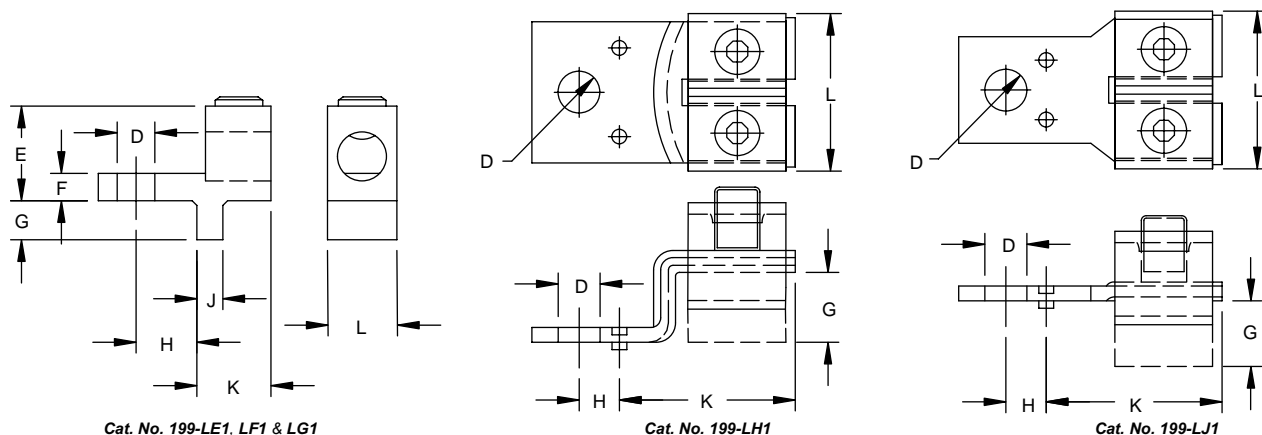
Bulletin 100 Line Accessories, Continued

Dimensions are shown in millimeters (inches) and shipping weights in kg (lbs). Dimensions are not intended for manufacturing purposes.



Contactor Size	N	P
B110	187.3 (7-3/8)	M8 (5/16-18)
B180	227 (8-59/64)	M10 (3/8-16)
B250 and B300	292 (11-31/64)	M12 (1/2-13)
B400	344 (13-35/64)	M12 (1/2-13)
B600	430 (17-3/64)	M12 (1/2-13)

Terminal Lug Kits



Cat. No.	D	E	F	G	H	J	K	L
199-LE1	8.33 (21/64)	19.1 (3/4)	4.06 (5/32)	7.11 (9/32)	9.91 (25/64)	4.06 (5/32)	16.8 (21/32)	16 (5/8)
199-LF1	10.3 (13/32)	25.4 (1)	4.75 (3/16)	9.53 (3/8)	13.8 (35/64)	4.75 (3/16)	21.3 (27/32)	22.2 (7/8)
199-LG1	13.1 (33/64)	36.8 (1-29/64)	5.84 (15/64)	9.53 (3/8)	19.9 (25/32)	5.84 (15/64)	31.8 (1-1/4)	32.3 (1-17/64)
199-LH1	13.1 (33/64)	—	—	19.1 (3/4)	11.2 (7/16)	—	63.5 (2-1/2)	53.3 (2-7/64)
199-LJ1	13.1 (33/64)	—	—	25.4 (1)	17 (43/64)	—	90 (3-9/16)	60.5 (2-3/8)

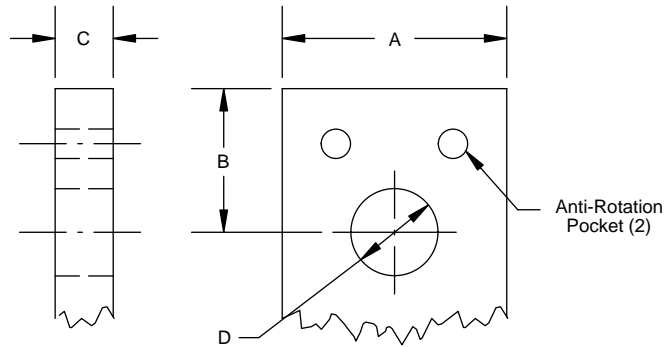
Bulletin 100-B
IEC Contactors

Approximate Dimensions, Continued

Bulletin 100 Line Accessories, Continued

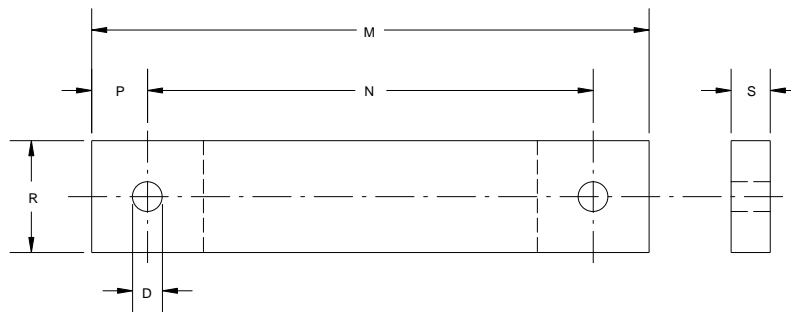
Dimensions are shown in millimeters (inches) and shipping weights in kg (lbs). Dimensions are not intended for manufacturing purposes.

Terminal Pads for Contactors and Current Transformer Overload Relays



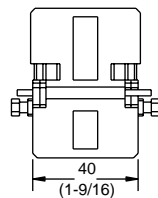
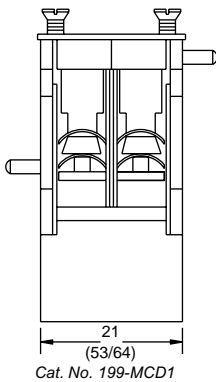
Cat. No.	A	B	C	D
100-B110 & 193-HPD	15 (19/32)	10 (25/64)	3.18 (1/8)	8.41 (21/64)
100-B180 & 193-DPD	20 (25/32)	13.8 (35/64)	4.75 (3/16)	10.4 (13/32)
100-B250 & B300, 193-EPD	32 (1-17/64)	18.1 (23/32)	4.75 (3/16)	13 (33/64)
100-B400 & 193-FPD	35 (1-3/8)	19 (3/4)	5 (13/64)	13 (33/64)
100-B600 & 193-GPD	50 (1-31/32)	27 (1-1/16)	5 (13/64)	13 (33/64)

Flexible Connector Kits



Cat. No.		D	M	N	P	R	S
199-PCE1		8.74 (11/32)	127 (5)	108 (41-1/4)	9.53 (3/8)	15.9 (5/8)	3.18 (1/8)
199-PCF1		10.3 (13/32)	153 (6-3/64)	128 (5-3/64)	12.7 (1/2)	19.1 (3/4)	3.56 (9/54)
199-PCG1		12.7 (1/2)	170 (6-11/16)	144 (5-9/16)	14.2 (9/16)	26.9 (1-1/16)	5.59 (7/32)
199-PCH1	Qty 1	12.7 (1/2)	226 (8-29/32)	191 (7-17/32)	17.5 (11/16)	34.9 (1-3/8)	4.95 (13/64)
	Qty 2	12.7 (1/2)	164 (6-15/32)	129 (5-5/64)	17.5 (11/16)	34.9 (1-3/8)	4.95 (13/64)
199-PCJ1		12.7 (1/2)	284 (11-13/64)	241 (9-1/2)	21.3 (27/32)	38.1 (1-1/2)	6.6 (17/64)

Mechanical/Electrical Interlocks



SMP-1 Overload Relay for 3Ø Applications: Phase Loss Protection, Class 10 or 20

For Use with Bulletin 105, 106, 109, 112, 113, 120E, 132 and 133	Full Load Current Adjustment Range (A)	3Ø Overload Relay Code Manual Reset ❶	3Ø Overload Relay Code Auto/Manual Reset ❷
B110	23...75	A1K	A4K
	66...110	A1L	A4L
A180 & B180	57...180	A1M	A4M
B250 & B300	96...300	A1N	A4N
B400	128...400	A1P	A4P
B600	200...630	A1R	A4R
All Sizes — No overload relay		XXX	XXX

- ❶ Starter Cat. Nos. listed have Class 10 overload relays. To order Class 20 overload relays, change the overload relay from **A1_** to **A2_**.
 Example: **Cat. No. 112-B110ABA1L** becomes **Cat. No. 112-B110ABA2L**.
- ❷ Starter Cat. Nos. listed have Class 10 overload relays. To order Class 20 overload relays, change the overload relay from **A4_** to **A5_**.
 Example: **Cat. No. 112-B110ABA4L** becomes **Cat. No. 112-B110ABA5L**.

SMP-2 Overload Relay: Auto/Manual Reset, Selectable Trip Class 10, 15, 20 or 30, Phase Loss, Ground Fault, and Jam Protection

For Use with Cat. No. 105, 106, 109, 112, 113, 120, 132 and 133	Full Load Current Range (A)	Overload Relay Code
B110	23...75	B1K
	66...110	B1L
A180 & B180	57...180	B1M
B250 & B300	96...300	B1N
B400	128...400	B1P
B600	200...630	B1R
All Sizes — No overload relay		XXX

SMP-3 Overload Relay

Contact your local Allen-Bradley distributor for price, availability and dimensions.

Bimetallic Overload Relay: Auto/Manual Reset, Class 10

For Use With Cat. No. 105, 106, 109, 112, 113, 120, 132 and 133	Full Load Current Range (A)	Overload Relay Code
B110	44...66	C66 ❶
	66...110	D110 ❶
A180 & B180	80...120	D120 ❶
	120...200	D200 ❶
B250 & B300	120...180	D180
	180...300	D300
B400	160...240	D240
	240...400	D400
B600	252...378	D378
	378...630	D630
All Sizes — No Overload Relay		XXX

- ❶ Not part of A-B Express Program when ordered on Bulletin 112 Starters.