Cat. No. 140M-C2E

Cat. No. 140M-F8E

Bulletin 140M Motor Protectors

- **Current Range 0.1...45 A**
  - **With 140-CMN up to 90 A**
- **Type 2 Coordination with Bulletin 100-C Contactors**
- **UL Listed**
  - **“Self-protected” Type E Manual Combination Starters**
  - **Manual Starter**
    - **Motor Disconnect**
    - **Group Motor Installation**
- **Visible Trip Indication**
- **Rotary Actuator**
- **High Current Limiting**
- **High Switching Capacity**

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Description

The Bulletin 140M Motor Protector provides short circuit and overload protection for individual motor loads. A wide range of accessories makes installation and wiring easy. Motor protectors may be applied as Manual Starters, Group Motor Starters, Motor Disconnects, and Manual Combination Starters.

Conformity to Standards:

IEC 947-1/2/4

IEC 204-1

CSA, C22.2 No.14

UL 508

Approvals:

CE

CSA Certified

UL Listed

Your order must include:

- Cat. No. of the motor protector selected.
- If required, Cat. No. of any accessories.

Construction Type E Self-Protected Manual Combination Starter.

Manual Motor Controller suitable for Group Installation.

Meets IEC Circuit Breaker requirements per IEC 947-2.

Does not meet UL489 requirements for molded case circuit breakers in North America.

General Information

The new Bulletin 140M Motor Protectors provide Class 10 overload protection as well as current limiting short-circuit protection for individual motor loads. They are approved for use as circuit breakers per IEC 947-2 for applications outside of North America, but in the United States and Canada, they are UL/CSA listed as Manual Starters with the optional approvals for Motor Disconnecting and Group Motor applications.

Additionally, these new devices are UL/CSA listed as Self-Protected (Type E) Manual Combination Starters — eliminating the requirement for additional short-circuit protection in many applications. This reduces both panel space and cost in multi-motor installations and eliminates the restrictive NEC/CEC rules that pertained to Manual Starters used in Group Motor applications.

The following information is provided to aid in proper system design utilizing the capabilities of the new Bulletin 140M Motor Protectors in North American applications. Please be sure to follow all local and national codes for your particular installation.

Circuit Breaker Applications – IEC

The new Bulletin 140M Motor Protectors are current limiting IEC circuit breakers (IEC 947-2) that also provide Class 10 motor overload protection. Additionally, they meet the IEC requirements for applications such as:

- Disconnector (IEC 947-2)
- Main Switch (IEC 204-1)
- Emergency Off (IEC 204-1)

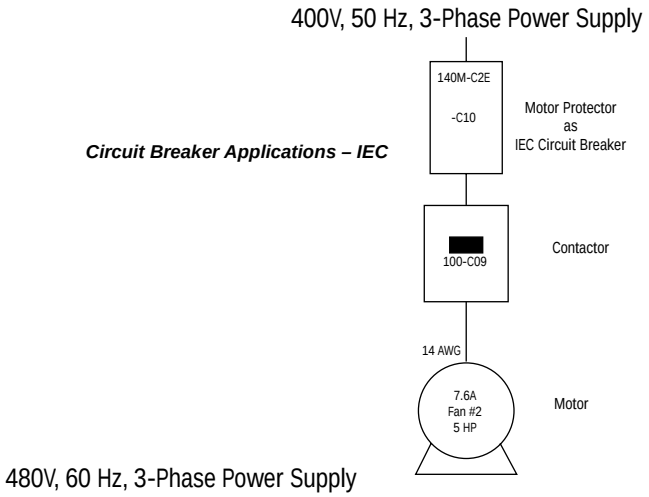
The Bulletin 140M Motor Protectors cannot be applied in North America as circuit breakers, however, since they do not meet the UL specification for circuit breakers (UL 489).

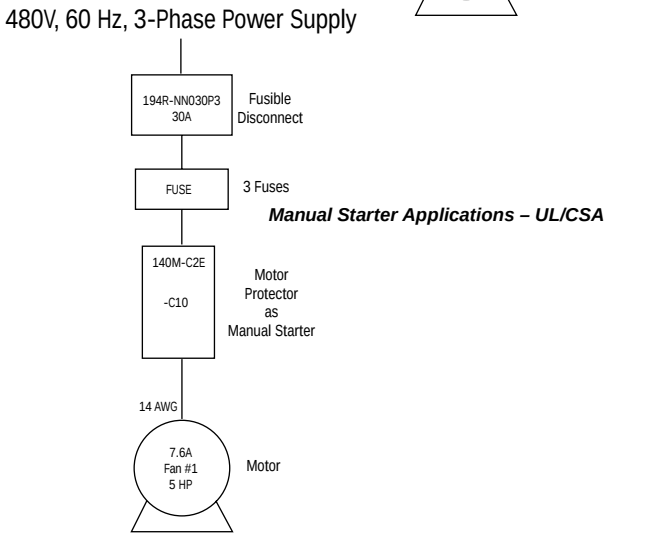
Manual Starter Applications – UL/CSA

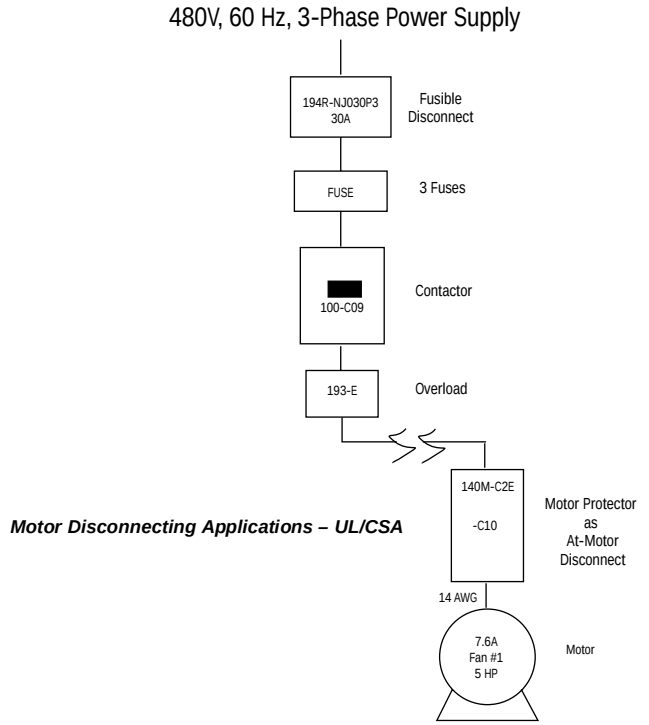
The new Bulletin 140M Motor Protectors are an excellent choice for manual starting applications. As UL/CSA listed manual motor controllers they provide motor overload protection, but a separate short-circuit protective device must still be used. The fuse or circuit breaker used for the short-circuit protection may be sized to the maximum allowable per NEC Article 430 in the U.S. and CEC Rule 28-200 in Canada.

Motor Disconnecting Applications – UL/CSA

The new Bulletin 140M Motor Protectors are also UL/CSA listed as manual motor controllers with the optional approval "Suitable for use as a motor disconnect" when a lockable twist knob is used. This UL listing is new in 1999 and allows the 140M's to be applied as "at-motor" disconnects. All manual starters used in such applications must be marked as "suitable for use as a motor disconnect" per UL 508. At motor disconnects are required by the NEC if the motor cannot be seen from the main panel disconnect.



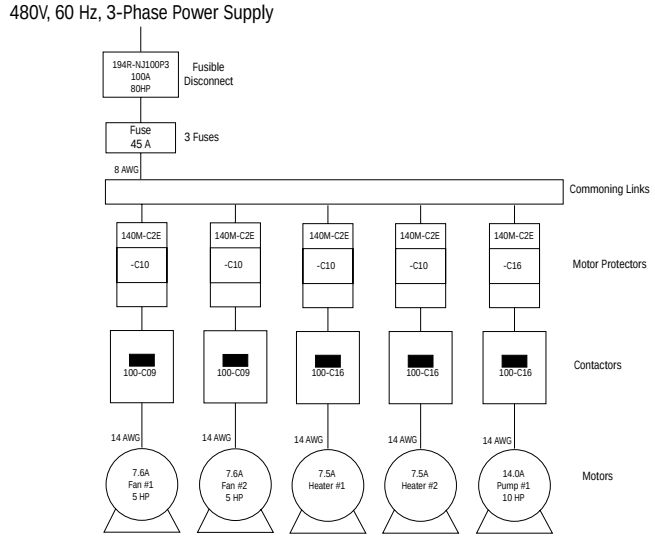




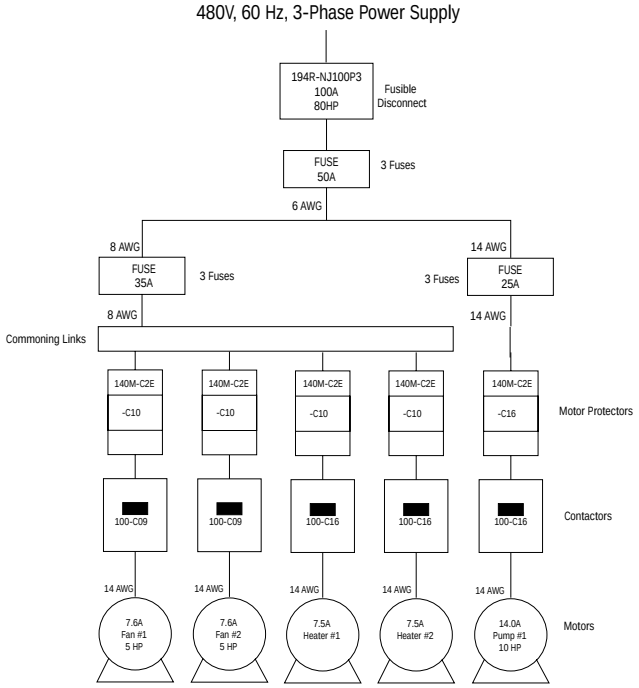
Group Motor Applications – UL/CSA

The new 140M Motor Protectors are also UL/CSA listed as manual starters for use in Group Motor installations. This listing allows the 140M Motor Protectors to be used as manual starters providing individual overload protection with a single set of fuses or a circuit breaker providing the short-circuit protection for the “Group” of motors.

This is the most popular application for these products in North America and greatly reduces both panel space and cost versus the traditional use of fuses or circuit breakers in each motor branch circuit. However, there are several NEC rules to follow for Group Motor installations and one of these rules can dramatically affect panel size and layout. Per NEC Article 430-53(d), the conductors of any tap supplying a single motor must have an ampacity less than one-third that of the branch-circuit conductors. This limits the number of motors that can be “grouped” under one set of fuses or circuit breakers. See the following examples of two typical group motor applications. For further assistance on how to properly apply Bulletin 140M Motor Protectors in Group Motor applications, please see Publications 0140-2.3 and 6219-NP.



In this example, a single panel controls 5 motors. This Group Installation meets all of the required NEC rules resulting in a very compact, cost effective, and attractive panel design.



In this example, we have the same group of 5 motors, only now the pump motor is 10 HP rather than 5 HP. This Group Installation no longer meets the NEC rules since the wire feeding the group has increased from #8 AWG to #6 AWG, and the ampacity of the #14 AWG motor circuit conductors is less than one third that of the #6 AWG branch circuit conductors. This forces the Group to be split, with 1 set of fuses protecting the 4 small motors, and 1 set of fuses protecting the 10 HP pump motor. The third set of fuses just below the disconnect is for protection of the #6 AWG branch circuit conductors.

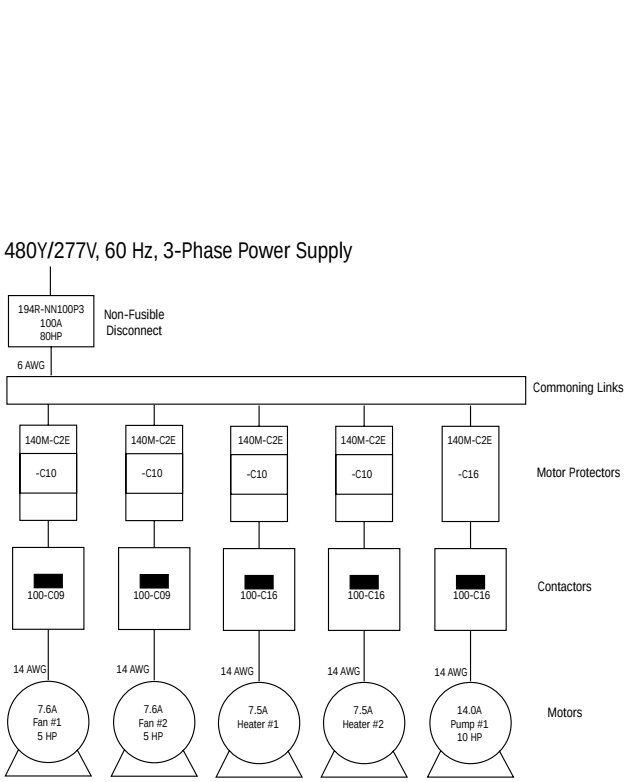
Self-Protected (Type E) Manual Combination Starter Applications – UL/CSA

The new 140M Motor Protectors, with improved current limiting and breaking capacity, are now UL/CSA listed as self-protected (Type E) Manual Combination Starters. This new listing allows the 140M Motor Protectors to be used as short-circuit protection for individual motors, in addition to overload protection. This eliminates the need for fuses or a circuit breaker to provide short-circuit protection and also eliminates all of the NEC/CEC Group Motor rules for installations involving multi-motor panels.

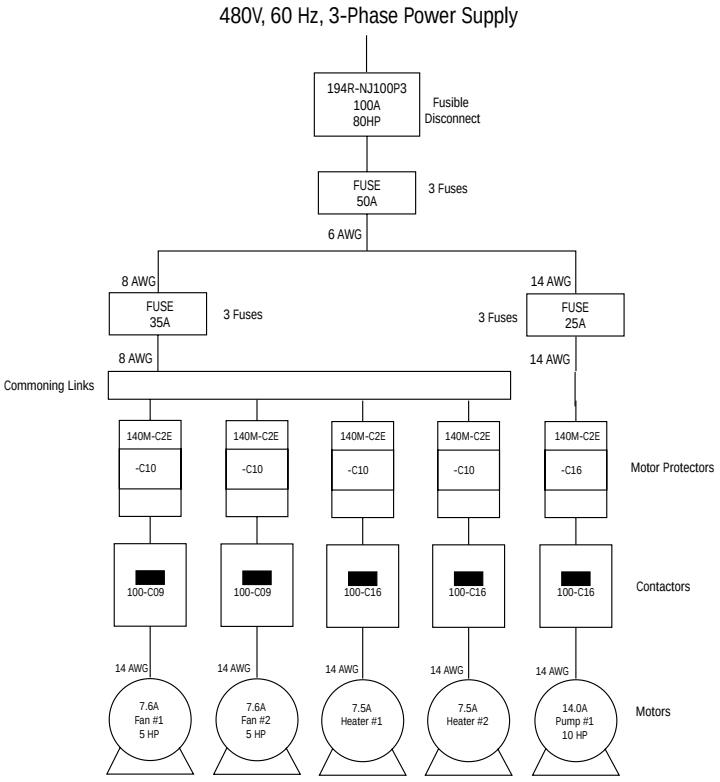
The new Bulletin 140M Motor Protectors are standard components of the MCS Modular Control System. This provides for maximum flexibility and minimum panel size without the restrictive and cumbersome rules involved with typical multi-motor (group) applications.

It should be noted that the 140M Motor Protectors, when used as self-protected (Type E) Manual Combination Starters, are rated only for (Wye) power systems for voltages above 240V (i.e. 480Y/277V or 600Y/347V).

Self-Protected (Type E) Installations for Multi-Motor Panels



Self-Protected (Type E) Installation

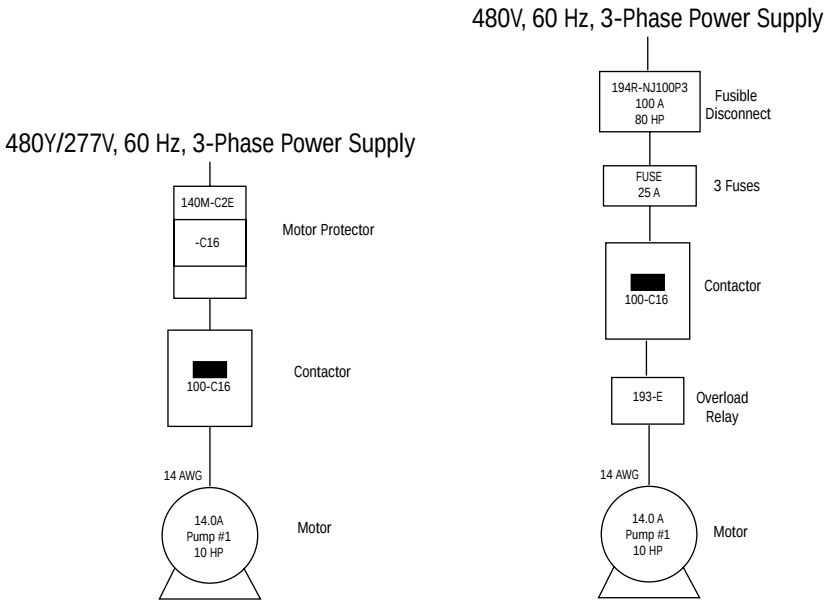


Group Motor Installation

The new listing of the 140M as a self-protected (Type E) combination starter greatly simplifies multi-motor panel design. As a self-protected combination starter the 140M provides both overload and short-circuit protection for the motors and the NEC/CEC group motor rules no longer apply.

In the diagrams above, the same 5 motors are shown in both a self-protected (Type E) installation as well as the previous example of a Group Motor Installation. The rules in the NEC/CEC codes for the Group Motor Installation do not apply since each motor already has short circuit protection provided by the 140M's– i.e. the 5 motors are no longer "grouped" under a single short-circuit protective device (fuses or circuit-breaker). The 3 sets of fuses are no longer required and the 140M's may simply be selected for each individual motor load according to the motor full-load current. A non-fusible disconnect switch for the main panel disconnecting function completes the self-protected (Type E) Manual Combination Starter installation. Also, for remote operation a contactor may be added to the installation Type 2 coordination may be achieved with the 100C in this case (see page 43).

Self-Protected (Type E) Installations for Single Motor Panels



The new listing of the 140M as a self-protected combination starter provides for extremely cost-effective and compact single mot or installations as well.

In the diagrams above, a panel consisting of a self-protected (Type E) Manual Combination Starter and a contactor is compared with a traditional fusible combination starter panel. The Type E combination starter consists of a Bulletin 140M and a 100-C contactor. The Bulletin 140M provides both the overload and short circuit protection as well as the disconnecting function for the motor while the 100-C contactor allows for remote operation via push buttons. By contrast, the traditional fusible combination starter consists of a 194R fusible disconnect switch for disconnecting function fuses for short-circuit protection, a 100-C contactor for remote operation and a 193-E overload relay for overload protection.

Motor Protectors For Use as Manual Starters and Motor Disconnects

Cat. No. 140M-C

Cat. No. 140M-D

Cat. No. 140M-F

Motor Protectors — For Use as Manual Starters

Current Adjustment Range [A]	Typical 1-phase [HP] ❶		Typical 3-phase [HP] ❶				Cat. No. ❷
	115V	230V	200V	230V	460V	575V	
140M-C, High Break							
0.10…0.16	—	—	—	—	—	—	140M-C2E-A16❸❹
0.16…0.25	—	—	—	—	—	—	140M-C2E-A25❸❹
0.25…0.40	—	—	—	—	—		140M-C2E-A40❸❹
0.40…0.63	—	—	—	—	—		140M-C2E-A63❸❹
0.63…1.0	—	—	—	—	1/2	3/4	140M-C2E-B10❸❹
1.0…1.6	—	1/10	—	—	3/4	1	140M-C2E-B16❸❹
1.6…2.5	1/10	1/6	1/2	1/2	1-1/2	2	140M-C2E-B25❸❹
2.5…4	1/8	1/3	1	1	3	3	140M-C2E-B40❸
4…6.3	1/4	3/4	1-1/2	2	3	5	140M-C2E-B63❸
6.3…10	1/2	1-1/2	3	3	7-1/2	10	140M-C2E-C10❸
10…16	1	3	3	5	10	10	140M-C2E-C16❸
14.5…20	1-1/2	3	5	7-1/2	15	20	140M-C2E-C20
18…25	2	3	7-1/2	10	20	25	140M-C2E-C25
140M-D, High Break PLUS							
1.6…2.5	1/10	1/6	1/2	1/2	1-1/2	2	140M-D8E-B25❹
2.5…4	1/8	1/3	1	1	3	3	140M-D8E-B40❹
4…6.3	1/4	3/4	1-1/2	2	3	5	140M-D8E-B63❹
6.3…10	1/2	1-1/2	3	3	7-1/2	10	140M-D8E-C10❹
10…16	1	3	3	5	10	10	140M-D8E-C16❸❹
14.5…20	1-1/2	3	5	7-1/2	15	20	140M-D8E-C20❸❹
18…25	2	3	7-1/2	10	20	25	140M-D8E-C25❹
140M-F, High Break PLUS							
6.3…10	1/2	1-1/2	3	3	7-1/2	10	140M-F8E-C10
10…16	1	3	3	5	10	10	140M-F8E-C16
14.5…20	1-1/2	3	5	7-1/2	15	20	140M-F8E-C20
18…25	2	3	5	10	20	25	140M-F8E-C25❸❹
23…32	3	5	10	10	25	30	140M-F8E-C32❸❹
32…45	3	7-1/2	15	15	30	40	140M-F8E-C45❹
140-CMN							
16…25	2	5	7-1/2	10	20	25	140-CMN-2500
25…40	3	7-1/2	10	15	30	40	140-CMN-4000
40…63	5	10	20	20	50	60	140-CMN-6300
63…90	7-1/2	20	30	30	60	75	140-CMN-9000

❶ Horsepower ratings shown in the table above are for reference. The final selection of the manual starter depends on the actual motor full load current and service factor.

- **For motor with service factor less than 1.15.** Use motor nameplate full load current times 0.9 and choose the motor starter with the appropriate current range. Example: Motor F.L.C. = 4.2 A; S.F. = 1.0. (4.2 A x 0.9 = 3.78 A.) Select **Cat. No. 140M-C2E-B40.**

❷ Magnetic trip is fixed at 13x the maximum value of the current adjustment range.

❸ Devices with a fixed magnetic trip set at 16-20x the maximum value of the current adjustment range are available if nuisance tripping occurs (as with some high-efficiency motors). To order these products, change the "E" in the catalog number to a "T" (e.g., Cat. No. **140M-C2E-A16** changes to **140M-C2T-A16**).

❹ Devices without a thermal trip (i.e., current adjustment range) are also available if separate motor overload protection is required. To order these products, change the "E" in the catalog number to an "N" (e.g., Cat. No. **140M-C2E-A16** changes to **140M-C2N-A16**).

Motor Protectors For Use as Manual Starters in Group Installations

Cat. No. 140M-C

Cat. No. 140M-D

Cat. No. 140M-F

Motor Protectors for Group Installation

Current Adjustment Range [A]	Max. Short-Circuit Current [kA]		For Use With Cat. No. ❷	Max Fuse or Circuit Breaker [A]	Cat. No. ❶
	480V	600V			
140M-C, High Break					
0.10…0.16	65	47	100-C09, 100-M05	400	140M-C2E-A16❸❹
0.16…0.25	65	47	100-C09, 100-M05	400	140M-C2E-A25❸❹
0.25…0.40	65	47	100-C09, 100-M05	400	140M-C2E-A40❸❹
0.40…0.63	65	47	100-C09, 100-M05	400	140M-C2E-A63❸❹
0.63…1.0	65	47	100-C09, 100-M05	400	140M-C2E-B10❸❹
1.0…1.6	65	47	100-C09, 100-M05	400	140M-C2E-B16❸❹
1.6…2.5	65	5	100-C09, 100-M05	400	140M-C2E-B25❸❹
2.5…4	65	5	100-C09, 100-M05	400	140M-C2E-B40❸
4…6.3	65	5	100-C09, 100-M05	400	140M-C2E-B63❸
6.3…10	65	5	100-C09, 100-M05	400	140M-C2E-C10❸
10…16	10	5	100-C12	400	140M-C2E-C16❸
14.5…20	10	5	100-C16	400	140M-C2E-C20
18…25	10	5	100-C23	400	140M-C2E-C25
140M-D, High Break PLUS					
1.6…2.5	65	10	100-C09, 100-M05	400	140M-D8E-B25❹
2.5…4	65	10	100-C09, 100-M05	400	140M-D8E-B40❹
4…6.3	65	10	100-C09, 100-M05	400	140M-D8E-B63❹
6.3…10	65	10	100-C09, 100-M05	400	140M-D8E-C10❹
10…16	65	10	100-C12	400	140M-D8E-C16❸❹
14.5…20	65	5	100-C16	400	140M-D8E-C20❸❹
18…25	25	5	100-C23	400	140M-D8E-C25❹
140M-F, High Break PLUS					
6.3…10	65	10	100-C09	500	140M-F8E-C10
10…16	65	10	100-C12	500	140M-F8E-C16
14.5…20	65	10	100-C16	500	140M-F8E-C20
18…25	65	10	100-C23	500	140M-F8E-C25❸❹
23…32	65	10	100-C30	500	140M-F8E-C32❸❹
32…45	50	10	100-C37	500	140M-F8E-C45❹
140-CMN					
16…25	65	42	100-C16	1000	140-CMN-2500
25…40	65	42	100-C30	1000	140-CMN-4000
40…63	65	42	100-C43	1000	140-CMN-6300
63…90	65	30	100-C72	1000	140-CMN-9000

❶ Magnetic trip is fixed at 13x the maximum value of the current adjustment range.

❷ Ratings apply to specified or larger contactor.

❸ Devices with a fixed magnetic trip set at 16-20x the maximum value of the current adjustment range are available if nuisance tripping occurs (as with some high-efficiency motors). To order these products, change the "E" in the catalog number to a "T" (e.g., Cat. No. **140M-C2E-A16** changes to **140M-C2T-A16**).

❹ Devices without a thermal trip (i.e., current adjustment range) are also available if separate motor overload protection is required. To order these products, change the "E" in the catalog number to an "N" (e.g., Cat. No. **140M-C2E-A16** changes to **140M-C2N-A16**).

❺ For Type 2 coordination see pages 43 and 44.

Motor Protectors For Use as Self-Protected (Type E) Manual Combination Motor Controllers

Cat. No. 140M-C

Cat. No. 140M-F

Motor Protectors For Use As Self-Protected (Type E) Manual Combination Motor Controller

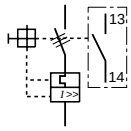
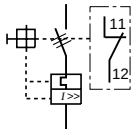
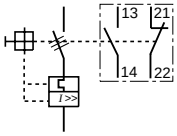
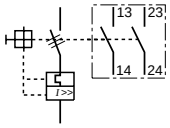
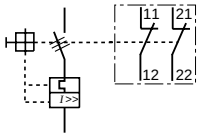
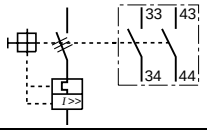
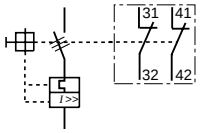
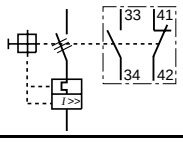
Current Adjustment Range [A]	Typical 1-phase [HP] ❶		Typical 3-phase [HP] ❶				Max. Short-Circuit Current [kA]	Cat. No. ❷
	115V	230V	200V	230V	460V	575V	480Y/277V	
140M-C, High Break								
0.10...0.16	—	—	—	—	—	—	65	140M-C2E-A16
0.16...0.25	—	—	—	—	—	—	65	140M-C2E-A25
0.25...0.40	—	—	—	—	—		65	140M-C2E-A40
0.40...0.63	—	—	—	—	—		65	140M-C2E-A63
0.63...1.0	—	—	—	—	1/2	3/4	65	140M-C2E-B10
1.0...1.6	—	1/10	—	—	3/4	1	65	140M-C2E-B16
1.6...2.5	1/10	1/6	1/2	1/2	1-1/2	2	65	140M-C2E-B25
2.5...4	1/8	1/3	1	1	3	3	65	140M-C2E-B40
4...6.3	1/4	3/4	1-1/2	2	3	5	65	140M-C2E-B63
6.3...10	1/2	1-1/2	3	3	7-1/2	10	65	140M-C2E-C10
10...16	1	3	3	5	10	10	10	140M-C2E-C16
14.5...20	1-1/2	3	5	7-1/2	15	20	10	140M-C2E-C20
18...25	2	3	7-1/2	10	20	25	10	140M-C2E-C25
140M-D, High Break PLUS								
1.6...2.5	1/10	1/6	1/2	1/2	1-1/2	2	65	140M-D8E-B25
2.5...4	1/8	1/3	1	1	3	3	65	140M-D8E-B40
4...6.3	1/4	3/4	1-1/2	2	3	5	65	140M-D8E-B63
6.3...10	1/2	1-1/2	3	3	7-1/2	10	65	140M-D8E-C10
10...16	1	3	3	5	10	10	65	140M-D8E-C16
14.5...20	1-1/2	3	5	7-1/2	15	20	65	140M-D8E-C20
18...25	2	3	7-1/2	10	20	25	25	140M-D8E-C25
140M-F, High Break PLUS								
6.3...10	1/2	1-1/2	3	3	7-1/2	10	❸	140M-F8E-C10
10...16	1	3	3	5	10	10	❸	140M-F8E-C16
14.5...20	1-1/2	3	5	7-1/2	15	20	❸	140M-F8E-C20
18...25	2	3	5—	10	20	25	❸	140M-F8E-C25
23...32	3	5	10	10	25	30	❸	140M-F8E-C32
32...45	3	7-1/2	15	15	30	40	❸	140M-F8E-C45

❶ **Horsepower ratings shown in the table above are for reference.** **The final selection of the manual starter depends on the actual motor full load current and service factor.**

- **For motor with service factor less than 1.15.** Use motor nameplate full load current times 0.9 and choose the motor starter with the appropriate current range. Example: Motor F.L.C. = 4.2 A; S.F. = 1.0. (4.2 A x 0.9 = 3.78 A.) Select **Cat. No. 140M-C2E-B40.**

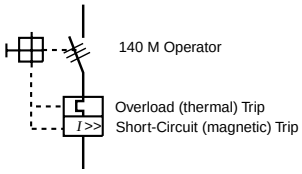
❷ Magnetic trip is fixed at 13x the maximum value of the current adjustment range.

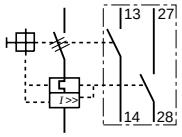
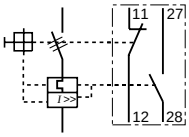
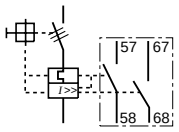
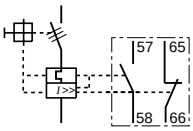
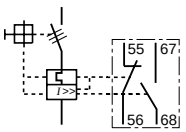
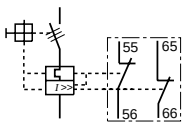
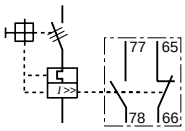
❸ UL Pending. Contact your local Allen-Bradley Sales Office.

Description		Operator Position ❶			Term. No.	Desc.	Connection Diagram❷	For Use With	Cat. No.
		OFF	ON	Tripped					
	**Front-Mounted Auxiliary Contact** • 1-pole or 2-pole • No additional space required • For use with 140M	O	X	O	13-14	N.O. Aux		140M	140M-C-AFA10
		X	O	X	11-12	N.C. Aux		140M	140M-C-AFA01
		O	X	O	13-14	N.O. Aux		140M	140M-C-AFA11
		X	O	X	21-22	N.C. Aux			
		O	X	O	13-14	N.O. Aux		140M	140M-C-AFA20
		O	X	O	23-24	N.O. Aux			
		X	O	X	11-12	N.C. Aux		140M	140M-C-AFA02
		X	O	X	21-22	N.C. Aux			
	**Right Side -Mounted Auxiliary Contact** • 2-pole • Adds 9 mm to the width of the device • For use with 140M	O	X	O	33-34	N.O. Aux		140M	140M-C-ASA20
		O	X	O	43-44	N.O. Aux			
		X	O	X	31-32	N.C. Aux		140M	140M-C-ASA02
		X	O	X	41-42	N.C. Aux			
		O	X	O	33-34	N.O. Aux		140M	140M-C-ASA11
		X	O	X	41-42	N.C. Aux			

❶ X = Contact Closed
O = Contact Open

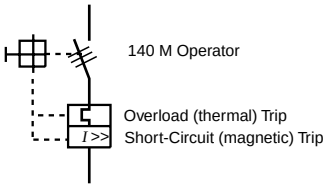
❷

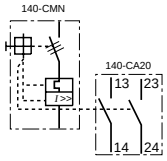
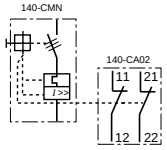
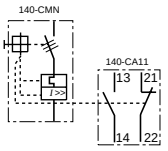
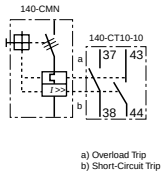
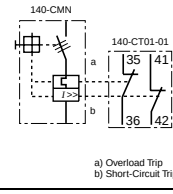
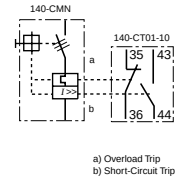
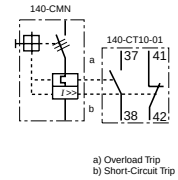


Description		Operator Position ❶			Term. No.	Desc.	Connection Diagram❷	For Use With	Cat. No.
		OFF	ON	Tripped					
	**Front-Mounted Trip Contact** • 2-pole • Indicates tripping of device • No additional space required • For use with 140M	O	X	O	13-14	N.O. Aux		140M	140M-C-AFAR10A10
		O	O	X	27-28	N.O. Trip (Short-Circuit & Overload)			
		X	O	X	11-12	N.C. Aux		140M	140M-C-AFAR10A01
		O	O	X	27-28	N.O. Trip (Short-Circuit & Overload)			
	**Right Side-Mounted Trip Contact** • 2-pole • Indicates tripping of Motor Protector • Adds 9 mm to the width of the circuit breaker • For use with 140M	O	O	X	57-58	N.O. Trip (Short-Circuit & Overload)		140M	140M-C-ASAR10M10
		O	O	X	67-68	N.O. Trip (Short-Circuit)			
		O	O	X	57-58	N.O. Trip (Short-Circuit & Overload)		140M	140M-C-ASAR10M01
		X	X	O	65-66	N.C. Trip (Short-Circuit)			
		X	X	O	55-56	N.C. Trip (Short-Circuit & Overload)		140M	140M-C-ASAR01M10
		O	O	X	67-68	N.O. Trip (Short-Circuit)			
		X	X	O	55-56	N.C. Trip (Short-Circuit & Overload)		140M	140M-C-ASAR01M01
		X	X	O	65-66	N.C. Trip (Short-Circuit)			
		O	O	X	77-78	N.O. Trip (Short-Circuit)		140M	140M-C-ASAM11
		X	X	O	65-66	N.C. Trip (Short-Circuit)			

❶ X = Contact Closed
O = Contact Open

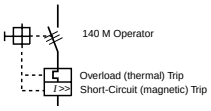
❷

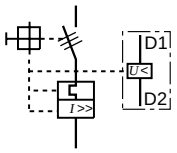
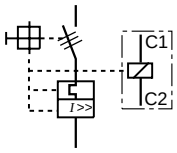
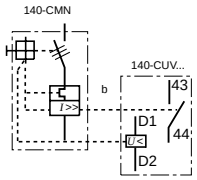
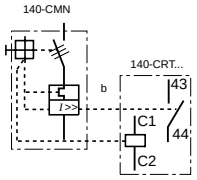


Description		Operator Position ❶			Term. No.	Desc.	Connection Diagram❷	For Use With	Cat. No.
		OFF	ON	Tripped					
	**Front-Mounted Auxiliary Contacts** • Internal • 2-Pole	O	X	O	13-14	N.O. Aux		140-CMN	140-CA20
		O	X	O	23-24	N.O. Aux			
		X	O	X	11-12	N.C. Aux			140-CA02
		X	O	X	21-22	N.C. Aux			
		O	X	O	13-14	N.O. Aux			140-CA11
		X	O	X	21-22	N.C. Aux			
	**Front-Mounted Trip Indicating Auxiliary Contacts** • Internal • 2-Pole	O	O	X	37-38	N.O. Trip (Overload)		140-CMN	140-CT10-10
		O	O	X	43-44	N.O. Trip (Short-Circuit)			
		X	X	O	35-36	N.C. Trip (Overload)			140-CT01-01
		X	X	O	41-42	N.C. Trip (Short-Circuit)			
		X	X	O	35-36	N.C. Trip (Overload)			140-CT01-10
		O	O	X	43-44	N.O. Trip (Short-Circuit)			
		O	O	X	37-38	N.O. Trip (Overload)			140-CT10-01
		X	X	O	41-42	N.C. Trip (Short-Circuit)			

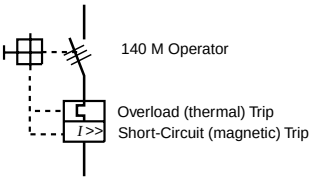
❶ X = Contact Closed
O = Contact Open

❷

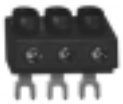


Description		Connection Diagram❶		For Use With	Cat. No.
	**Undervoltage Trip** • Left-side mounted • Adds 18 mm to the width of the circuit breaker • Trips motor protector when voltage is removed		24V, 50 Hz/28V, 60 Hz 110V, 50 Hz/127V, 60 Hz 220...230V, 50 Hz 240...260V, 60 Hz 240V, 50 Hz/277V, 60 Hz 380...400V, 50 Hz/440...460V, 60 Hz 415V, 50 Hz/480V, 60 Hz 21V, 50 Hz/24V, 60 Hz 110V, 50Hz/27V, 60 Hz	140M	140M-C-UXK 140M-C-UXD 140M-C-UXF 140M-C-UXA 140M-C-UXT 140M-C-UXN 140M-C-UXB 140M-C-UXJ 140M-C-UXC
	Shunt Trip • Left-side mounted • Adds 18 mm to the width of the circuit breaker • Trips motor protector when voltage is applied		24V, 50 Hz/28V, 60 Hz 110V, 50 Hz/127V, 60 Hz 220...230V, 50 Hz 240...260V, 60 Hz 240V, 50 Hz/277V, 60 Hz 380...400V, 50 Hz/440...460V, 60 Hz 415V, 50 Hz/480V, 60 Hz 21V, 50 Hz/24V, 60 Hz 110V, 50 Hz/127V, 60 Hz	140M	140M-C-SNK 140M-C-SND 140M-C-SNF 140M-C-SNA 140M-C-SNT 140M-C-SNN 140M-C-SNB 140M-C-SNJ 140M-C-SNC
	**Undervoltage Trip Unit** • Internal, front mounted • Integrated short-circuit trip indication • Trips motor protector when voltage is removed	 b) Short-Circuit Trip	24V 50/60 Hz 110V 50 Hz/120V 60 Hz 220V 50 Hz/240V 60 Hz	140-CMN	140-CUV-KJ 140-CUV-D 140-CUV-A
	**Shunt Trip Unit** • Internal, front mounted • Integrated short-circuit trip indication • Trips motor protector when voltage is applied	 b) Short-Circuit Trip	24V 50/60 Hz 110V 50 Hz/120V 60 Hz 220V 50 Hz/240V 60 Hz	140-CMN	140-CRT-KJ 140-CRT-D 140-CRT-A

❶



	Description		For Use With	Cat. No.
	**Anti Tamper Shield** • Provides protection against inadvertent adjustment of the current setting		140M	140M-C-CA
	**Lockable Twist Knob** • For 1 padlock 4...8 mm (5/16") dia. shackle • Can be locked in OFF position	black	140M	140M-C-KN
		red/yellow	140M	140M-C-KRY
	**Padlockable Operating Knob** • Accepts 8mm (5/16") padlock — up to three padlocks. • Permits padlocking in the off position.	black	140-CMN	140-KN
		red/yellow		140-KRY
	**Door Coupling Handle** • For 3 padlocks 4...8 mm (5/16") in diameter • IP66 Protection/Type 1,3,3R,4,4x,13 • Interlock override capability • Can be modified for locking in "ON" position • Ships with coupling — order extension shaft and legend plate separately • Mounting depth (adapter-door): 140-C: 105.5 mm ± 5 mm (4.15" ± 3/16") 140-D: 114.5 mm ± 5 mm (4.5" ± 3/16") 140-F: 137.1 mm ± 5 mm (5.4" ± 3/16")	black	140M	140M-C-DN66
			140-CMN	140-CDN66
		red/yellow	140M	140M-C-DRY66
			140-CMN	140-CDRY66
	**Extension Shaft** • Cut to required length for mounting depth (adapter-door) 140-C: 117...338 mm (4.6"…13.3") 140-D: 126...347 mm (5.0"…13.7") 140-F: 149...369 mm (5.4"…14.5")		140M-C-DN66 140M-C-DRY66	140M-C-DS
	**Legend Plate** • Marking: "Haupschalter" and "Main Switch" • Marking: "Not-Aus" and "Emergency Off"		140M-C-DN66	140M-C-DFCN
			140M-C-DRY66	140M-C-DFCRY
	**Locking Tag** • Padlock attachment to the lockable handles • Up to three padlocks 4...8 mm (5/16") shackle		140M-C-KN 140M-C-KRY 140M-F-KRY	140M-C-M3
	**IP65 Non-Metallic Enclosure** • Knockouts for PG16 and PG21 fittings • Suitable for flexible cable with internal ground wire or conduit when externally grounded around the outside of the enclosure	black handle	140M-C 140M-D	198E-AYTJ2
	IP65 Non-Metallic Enclosure • Knockouts for PG16 and PG21 fittings • Suitable for flexible cable with internal ground wire or conduit when externally grounded around the outside of the enclosure	red/yellow handle	140M-C 140M-D	198E-AYTG2

	Description		For Use With	Cat. No.
	**Connecting Modules - 25 A** • The Eco-connecting modules provide electrical and mechanical interconnection of 140M and 100M (with AC or DC coils) or 100C (with AC coils) for use as combination starters • Suitable for reversing and star/delta kits • Eco-starters mount on single DIN Rail (140M on DIN Rail)		140M-C to 100-M	140M-C-PEM12
			140M-C to 100-C09...C23	140M-C-PEC23
			140M-D to 100-C09...C23	140M-D-PEC23
	Connecting Modules - 45 A • Electrical interconnection between 140M-F motor protector and 100-C contactors (with AC coils) • Contactor and motor protector must be mounted separately		140M-F to 100-C30...C37	140M-F-PNC37
			140M-F to 100-C43	140M-F-PNC43
	**Commoning Link Feeder Terminal** • For supply of commoning links — 600V, 65 A max. • Top feed — overlaps commoning link		140M-C 140M-D	140M-C-WT
			140M-F	140M-F-WT
	Three-Phase Commoning Link for 25A Motor Protectors – 63A Max. Continuous Current			
	• 45 mm spacing • For use with front-mounted auxiliary contact	2 x 3 connections	140M-C 140M-D	140M-C-W452
		3 x 3 connections		140M-C-W453
		4 x 3 connections		140M-C-W454
		5 x 3 connections		140M-C-W455
	• 54 mm spacing • For use with side-mounted auxiliary contact	2 x 3 connections	140M-C 140M-D	140M-C-W542
		3 x 3 connections		140M-C-W543
		4 x 3 connections		140M-C-W544
		5 x 3 connections		140M-C-W545
	• 63 mm spacing • For use with side-mounted undervoltage trip and shunt trip	2 x 3 connections	140M-C 140M-D	140M-C-W632
		3 x 3 connections		140M-C-W633
		4 x 3 connections		140M-C-W634
		5 x 3 connections		140M-C-W635
 *140M-D* *140M-C*	**Jumper for 140M-D to 140M-C** • Accommodates difference in depth from 140M-D to 140M-C • Can be used with all other commoning links • 54 mm spacing	2 x 3 connections	140M-D to 140M-C	140M-C-WD542
	Three-Phase Commoning Link for 45A Motor Protectors			
	• 54 mm spacing • For use with front-mounted auxiliary contact	2 x 3 connections	140M-F	140M-F-W542
		3 x 3 connections		140M-F-W543
		4 x 3 connections		140M-F-W544
	• 63 mm spacing • For use with side-mounted auxiliary contact	2 x 3 connections	140M-F	140M-F-W632
		3 x 3 connections		140M-F-W633
		4 x 3 connections		140M-F-W634
	**Terminal Cover** • For covering of unused connection terminals • IP2X finger protection		140M-C 140M-D	140M-C-WS
			140M-F	140M-F-WS
	Screw Adapter • For screw arrangement of a motor protector		140M	140M-C-N45
	**DIN (#3) Symmetrical Rail** • 35mm x 7.5mm x 1m long • Zinc-plated, yellow chromated • EN 50022	10 pcs per Pkg		199-DR1

UL / CSA Performance Data

Manual Motor Controller
(UL 508, CSA C22.2 No.14 for Group Installation, in Connection with a Short-Circuit Protection Device)

	Cat. No. 140M-C2E-												
	A16	**A25**	**A40**	**A63**	**B10**	**B16**	**B25**	**B40**	**B63**	**C10**	**C16**	**C20**	**C25**
Rated Operational Current, I_e [A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	16	20	25
Magnetic Release Current [A]	2.1	3.3	5.2	8.2	13	21	33	52	82	130	208	260	325
Max. Short-Circuit Current													
480V [kA]	65	65	65	65	65	65	65	65	65	65	10	10	10
600V [kA]	47	47	47	47	47	47	5	5	5	5	5	5	5
Motor Load, Single-Phase													
115V [HP]	—	—	—	—	—	—	1/10	1/8	1/4	1/2	1	1-1/2	2
230V [HP]	—	—	—	—	—	1/10	1/6	2/3	3/4	1-1/2	3	3	3
Motor Load, Three-Phase													
230V [HP]	—	—	—	—	—	—	1/2	1	2	3	5	7-1/2	10
460V [HP]	—	—	—	—	1/2	3/4	1-1/2	3	3	7-1/2	10	15	20
575V [HP]	—	—	—	—	3/4	1	2	3	5	10	10	20	25
Maximum Rated Current of Protection Device [A]	400												

Self-Protected (Type E) Manual Combination Motor Controller

(UL 508)

	Cat. No. 140M-C2E-												
	A16	**A25**	**A40**	**A63**	**B10**	**B16**	**B25**	**B40**	**B63**	**C10**	**C16**	**C20**	**C25**
Rated Operational Current, I_e [A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	16	20	25
Magnetic Release Current [A]	2.1	3.3	5.2	8.2	13	21	33	52	82	130	208	260	325
Max. Short-Circuit Current													
480Y/277V [kA]	65	65	65	65	65	65	65	65	65	65	10	10	10
600Y/347V [kA]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶
Motor Load, Single-Phase													
115V [HP]	—	—	—	—	—	—	1/10	1/8	1/4	1/2	1	1-1/2	2
230V [HP]	—	—	—	—	—	1/10	1/6	2/3	3/4	1-1/2	3	3	3
Motor Load, Three-Phase													
230V [HP]	—	—	—	—	—	—	1/2	1	2	3	5	7-1/2	10
460V [HP]	—	—	—	—	1/2	3/4	1-1/2	3	3	7-1/2	10	15	20
575V [HP]	—	—	—	—	3/4	1	2	3	5	10	10	20	25

❶ Contact your local Allen-Bradley Sales Office.

UL / CSA Performance Data

Manual Motor Controller
(UL 508, CSA C22.2 No.14 for Group Installation, in Connection with a Short-Circuit Protection Device)

	Cat. No. 140M-D8E-							Cat. No. 140M-F8E-					
	B25	B40	B63	C10	C16	C20	C25	C10	C16	C20	C25	C32	C45
Rated Operational Current, I_e [A]	2.5	4.0	6.3	10	16	20	25	10	16	20	25	32	45
Magnetic Release Current [A]	33	52	82	130	208	260	325	130	208	260	325	416	585
Max. Short-Circuit Current													
480V [kA]	65	65	65	65	65	65	25	65	65	65	65	65	50
600V [kA]	10	10	10	10	10	5	5	10	10	10	10	10	10
Motor Load, Single-Phase													
115V [HP]	1/10	1/8	1/4	1/2	1	1-1/2	2	1/2	1	1-1/2	2	3	3
230V [HP]	1/6	1/3	3/4	1-1/2	3	3	3	1-1/2	3	3	3	5	7-1/2
Motor Load, Three-Phase													
230V [HP]	1/2	1	2	3	5	7-1/2	10	3	5	7-1/2	10	10	15
460V [HP]	1-1/2	3	3	7-1/2	10	15	20	7-1/2	10	15	20	25	30
575V [HP]	2	3	5	10	10	20	25	10	10	20	25	30	40
Maximum Rated Current of Protection Device [A]	400							500					

Type E Combination Motor Controller

(UL 508)

	Cat. No. 140M-D8E-							Cat. No. 140M-F8E-					
	B25	B40	B63	C10	C16	C20	C25	C10	C16	C20	C25	C32	C45
Rated Operational Current, I_e [A]	2.5	4.0	6.3	10	16	20	25	10	16	20	25	32	45
Magnetic Release Current [A]	33	52	82	130	208	260	325	130	208	260	325	416	585
Max. Short-Circuit Current													
480Y/277V [kA]	65	65	65	65	65	65	25	❶	❶	❶	❶	❶	❶
500Y/347V [kA]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶
Motor Load, Single-Phase													
115V [HP]	1/10	1/8	1/4	1/2	1	1-1/2	2	1/2	1	1-1/2	2	3	3
230V [HP]	1/6	1/3	3/4	1-1/2	3	3	3	1-1/2	3	3	3	5	7-1/2
Motor Load, Three-Phase													
230V [HP]	1/2	1	2	3	5	7-1/2	10	3	5	7-1/2	10	10	15
460V [HP]	1-1/2	3	3	7-1/2	10	15	20	7-1/2	10	15	20	25	30
575V [HP]	2	3	5	10	10	20	25	10	10	20	25	30	40

❶ Contact your local Allen-Bradley Sales Office.

UL / CSA Performance Data

Manual Motor Controller
(UL 508, CSA C22.2 No.14 for Group Installation, in Connection with a Short-Circuit Protection Device)

	Cat. No. 140M-C2N-						
	A16	A25	A40	A63	B10	B16	B25
Rated Operational Current, I_e [A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5
Magnetic Release Current [A]	2.1	3.3	5.2	8.2	13	20	32
Max. Short-Circuit Current							
480V [kA]	65	65	65	65	65	65	65
600V [kA]	47	47	47	47	47	47	5
Motor Load, Single-Phase							
115V [HP]	—	—	—	—	—	—	1/10
230V [HP]	—	—	—	—	—	1/10	1/6
Motor Load, Three-Phase							
230V [HP]	—	—	—	—	—	—	1/2
460V [HP]	—	—	—	—	1/2	3/4	1-1/2
575V [HP]	—	—	—	—	3/4	1	2
Maximum Rated Current of Protection Device [A]	400						

	Cat. No. 140M-D8N-						Cat. No. 140M-F8N-		
	B25	B40	B63	C10	C16	C25	C25	C32	C45
Rated Operational Current, I_e [A]	2.5	4.0	6.3	10	16	25	25	32	45
Magnetic Release Current [A]	32	52	82	130	208	325	325	416	585
Max. Short-Circuit Current									
480V [kA]	65	65	65	65	65	25	65	65	50
600V [kA]	10	10	10	10	10	5	10	10	10
Motor Load, Single-Phase									
115V [HP]	1/10	1/8	1/4	1/2	1	2	2	3	3
230V [HP]	1/6	1/3	3/4	1-1/2	3	3	3	5	25
Motor Load, Three-Phase									
230V [HP]	1/2	1	2	3	5	10	10	10	15
460V [HP]	1-1/2	3	3	7-1/2	10	20	20	25	30
575V [HP]	2	3	5	10	10	25	25	30	40
Maximum Rated Current of Protection Device [A]	400						500		

UL / CSA Performance Data

Manual Motor Controller
(UL 508, CSA C22.2 No.14 for Group Installation, in Connection with a Short-Circuit Protection Device)

	Cat. No. 140M-C2T-										
	A16	A25	A40	A63	B10	B16	B25	B40	B63	C10	C16
Rated Operational Current, I_e [A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5	4.0	6.3	10	16
Magnetic Release Current [A]	3.2	5.2	8.2	13	21	32	52	82	130	208	260
Max. Short-Circuit Current											
480V [kA]	65	65	65	65	65	65	65	65	65	65	10
600V [kA]	47	47	47	47	47	47	5	5	5	5	5
Motor Load, Single-Phase											
115V [HP]	—	—	—	—	—	—	1/10	1/8	1/4	1/2	1
230V [HP]	—	—	—	—	—	1/10	1/6	2/3	3/4	1-1/2	3
Motor Load, Three-Phase											
230V [HP]	—	—	—	—	—	—	1/2	1	2	3	5
460V [HP]	—	—	—	—	1/2	3/4	1-1/2	3	3	7-1/2	10
575V [HP]	—	—	—	—	3/4	1	2	3	5	10	10
Maximum Rated Current of Protection Device [A]	400										

	Cat. No. 140M-D8T-		Cat. No. 140M-F8T-	
	C16	C20	C25	C32
Rated Operational Current, I_e [A]	16	20	25	32
Magnetic Release Current [A]	260	325	416	585
Max. Short-Circuit Current				
480V [kA]	65	65	65	65
600V [kA]	10	10	10	10
Motor Load, Single-Phase				
115V [HP]	1	1-1/2	2	3
230V [HP]	3	3	3	5
Motor Load, Three-Phase				
230V [HP]	5	7-1/2	10	10
460V [HP]	10	15	20	25
575V [HP]	10	20	25	30
Maximum Rated Current of Protection Device [A]	400		500	

IEC Performance Data

		Cat. No. 140M-C2E-												
		A16	A25	A40	A63	B10	B16	B25	B40	B63	C10	C16	C20	C25
Rated Operational Current, I_e [A]		0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	16	20	25
Magnetic Release Current [A]		2.1	3.3	5.2	8.2	13	21	33	52	82	130	208	260	325
Switching of Standard Three-Phase Motors AC-2, AC-3														
230/240V	[kW]	—	—	—	0.06/ 0.09	0.12	0.18/ 0.25	0.37	0.55/ 0.75	1.1/ 1.5	2.2	3.0/ 4.0	4.0/ 5.5	—
400/415V	[kW]	0.02	0.06	0.09	0.12/ 0.18	0.25	0.37/ 0.55	0.75	1.1/1.5	2.2	3.0/ 4.0	5.5/ 7.5	7.5/10	11
500V	[kW]	—	—	—	0.18	0.25/ 0.37	0.55/ 0.75	1.1	1.5/2.2	2.5/ 3.0	4.0/ 6.3	7.5/10	11	15
690V	[kW]	—	—	—	0.25	0.37/ 0.55	0.75/ 1.1	1.8	2.2/3.0	4.0	5.5/ 7.5	11/13	15/17	18.5/ 22
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$														
230/240V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	100	100
400/415V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	80	100	100
440/460V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	63	63	80	80
500V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	80	80	80	80
690V	[A]	❶	❶	❶	❶	❶	16	20	35	50	50	63	63	63
Ultimate Short-Circuit Breaking Capacity I_{cu}														
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	50	50
400/415V	[kA]	100	100	100	100	100	100	100	100	100	100	50	15	15
440/460V	[kA]	100	100	100	100	100	100	100	100	100	50	10	10	10
500V	[kA]	100	100	100	100	100	100	100	100	100	50	10	6	6
690V	[kA]	100	100	100	100	100	8	8	8	4	4	3	3	3
Rated Service Short-Circuit Breaking Capacity I_{cs}														
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	50	50
400/415V	[kA]	100	100	100	100	100	100	100	100	100	100	50	15	15
440/460V	[kA]	100	100	100	100	100	100	100	100	100	50	6	6	6
500V	[kA]	100	100	100	100	100	100	100	100	100	50	6	6	6
690V	[kA]	100	100	100	100	100	8	8	8	4	4	3	3	3

❶ No back-up fuse required.

IEC Performance Data

		Cat. No. 140M-D8E-							Cat. No. 140M-F8E-					
		B25	B40	B63	C10	C16	C20	C25	C10	C16	C20	C25	C32	C45
Rated Operational Current, I_e [A]		2.5	4.0	6.3	10	16	20	25	10	16	20	25	32	45
Magnetic Release Current [A]		33	52	82	130	208	260	325	130	208	260	325	416	585
Switching of Standard Three-Phase Motors AC-2, AC-3														
230/240V	[kW]	0.37	0.55/ 0.75	1.1/1.5	2.2	3.0/4.0	4.0/5.5	—	2.2	3.0/4.0	4.0/5.5	5.5/6.3	7.5	11/13
400/415V	[kW]	0.75	1.1/1.5	2.2	3.0/4.0	5.5/7.5	7.5/10	11	3.0/4.0	5.5/7.5	7.5/10	11	15	18.5/ 22
500V	[kW]	1.1	1.5/2.2	2.5/3.0	4.0/6.3	7.5/10	11	15	4.0/6.3	7.5/10	11	15	15/20	22/30
690V	[kW]	1.8	2.2/3.0	4.0	5.5/7.5	11/13	15/17	18.5/ 22	5.5/7.5	11/13	15/17	18.5/22	22/25	30/40
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$														
230/240V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶
400/415V	[A]	❶	❶	❶	❶	❶	100	100	80	100	100	100	125	125
440/460V	[A]	❶	❶	❶	❶	80	100	100	❷	❷	❷	❷	❷	❷
500V	[A]	❶	❶	❶	❶	80	80	80	80	80	80	80	100	100
690V	[A]	20	35	50	50	63	63	63	50	63	63	63	80	80
Ultimate Short-Circuit Breaking Capacity I_{cu}														
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	50	50	50	50	50	50	50	50
440/460V	[kA]	100	100	100	100	50	50	50	❷	❷	❷	❷	❷	❷
500V	[kA]	100	100	100	40	25	25	25	10	10	10	10	10	10
690V	[kA]	10	10	10	10	6	6	6	6	6	6	6	6	6
Rated Service Short-Circuit Breaking Capacity I_{cs}														
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	50	25	25	50	50	25	25	25	25
440/460V	[kA]	100	100	100	100	50	25	25	❷	❷	❷	❷	❷	❷
500V	[kA]	100	100	100	100	50	25	25	10	10	10	10	10	10
690V	[kA]	10	10	10	6	4	4	4	6	6	6	6	6	4

❶ No back-up fuse required.
❷ Contact your local Allen-Bradley Sales Office.

IEC Performance Data

		Cat. No. 140M-C2N-						
		A16	A25	A40	A63	B10	B16	B25
Rated Operational Current, I_e [A]		0.16	0.25	0.4	0.63	1	1.6	2.5
Magnetic Release Current [A]		2.1	3.3	5.2	8.2	13	21	32
Switching of Standard Three-Phase Motors AC-2, AC-3								
230/240V	[kW]	—	—	—	0.06/0.09	0.12	0.18/0.25	0.37
400/415V	[kW]	0.02	0.06	0.09	0.12/0.18	0.25	0.37/0.55	0.75
500V	[kW]	—	—	—	0.18	0.25/0.37	0.55/0.75	1.1
690V	[kW]	—	—	—	0.25	0.37/0.55	0.75/1.1	1.8
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$ þ								
230/240V	[A]	❶	❶	❶	❶	❶	❶	❶
400/415V	[A]	❶	❶	❶	❶	❶	❶	❶
440/460V	[A]	❶	❶	❶	❶	❶	❶	❶
500V	[A]	❶	❶	❶	❶	❶	❶	❶
690V	[A]	❶	❶	❶	❶	❶	16	20
Ultimate Short-Circuit Breaking Capacity I_{cu}								
230/240V	[kA]	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100
440/460V	[kA]	100	100	100	100	100	100	100
500V	[kA]	100	100	100	100	100	100	100
690V	[kA]	100	100	100	100	100	8	8
Rated Service Short-Circuit Breaking Capacity I_{cs}								
230/240V	[kA]	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100
440/460V	[kA]	100	100	100	100	100	100	100
500V	[kA]	100	100	100	100	100	100	100
690V	[kA]	100	100	100	100	100	8	8

❶ No back-up fuse required.

IEC Performance Data

		Cat. No. 140M-D8N-						Cat. No. 140M-F8N-		
		B25	B40	B63	C10	C16	C25	C25	C32	C45
Rated Operational Current, I_e [A]		2.5	4.0	6.3	10	16	25	25	32	45
Magnetic Release Current [A]		32	52	82	130	208	325	325	416	585
Switching of Standard Three-Phase Motors AC-2, AC-3										
230/240V	[kW]	0.37	0.55/0.75	1.1/1.5	2.2	3.0/4.0	—	5.5/6.3	7.5	11/13
400/415V	[kW]	0.75	1.1/1.5	2.2	3.0/4.0	5.5/7.5	11	11	15	18.5/22
500V	[kW]	1.1	1.5/2.2	2.5/3.0	4.0/6.3	7.5/10	15	15	15/20	22/30
690V	[kW]	1.8	2.2/3.0	4.0	5.5/7.5	11/13	18.5/22	18.5/22	22/25	30/40
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$										
230/240V	[A]	❶	❶	❶	❶	❶	❶	❶	❶	❶
400/415V	[A]	❶	❶	❶	❶	❶	100	100	125	125
440/460V	[A]	❶	❶	❶	❶	80	100	❷	❷	❷
500V	[A]	❶	❶	❶	❶	80	80	80	100	100
690V	[A]	20	35	50	50	63	63	63	80	80
Ultimate Short-Circuit Breaking Capacity I_{cu}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	50	50	50	50
440/460V	[kA]	100	100	100	100	50	50	❷	❷	❷
500V	[kA]	100	100	100	10	50	25	10	10	10
690V	[kA]	10	10	10	6	6	6	6	6	6
Rated Service Short-Circuit Breaking Capacity I_{cs}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	25	25	25	25
440/460V	[kA]	100	100	100	100	50	25	❷	❷	❷
500V	[kA]	100	100	100	100	50	25	10	10	10
690V	[kA]	10	10	10	6	4	4	6	6	4

❶ No back-up fuse required.
❷ Contact your local Allen-Bradley Sales Office.

IEC Performance Data

	Cat. No. 140M-C2T-										
	A16	**A25**	**A40**	**A63**	**B10**	**B16**	**B25**	**B40**	**B63**	**C10**	**C16**
Rated Operational Current, I_e [A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5	4.0	6.3	10	16
Magnetic Release Current [A]	3.2	5.2	8.2	13	21	32	52	82	130	208	260
Switching of Standard Three-Phase Motors AC-2, AC-3											
230/240V [kW]	—	—	—	0.06/ 0.09	0.12	0.18/ 0.25	0.37	0.55/ 0.75	1.1/1.5	2.2	3.0/4.0
400/415V [kW]	0.02	0.06	0.09	0.12/ 0.18	0.25	0.37/ 0.55	0.75	1.1/1.5	2.2	3.0/4.0	5.5/7.5
500V [kW]	—	—	—	0.18	0.25/ 0.37	0.55/ 0.75	1.1	1.5/2.2	2.5/3.0	4.0/6.3	7.5/10
690V [kW]	—	—	—	0.25	0.37/ 0.55	0.75/ 1.1	1.8	2.2/3.0	4.0	5.5/7.5	11/13
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$											
230/240V [A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶
400/415V [A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	❶	80
440/460V [A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	63	63
500V [A]	❶	❶	❶	❶	❶	❶	❶	❶	❶	80	80
690V [A]	❶	❶	❶	❶	❶	16	20	35	50	50	63
Ultimate Short-Circuit Breaking Capacity I_{cu}											
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	15
440/460V [kA]	100	100	100	100	100	100	100	100	100	50	10
500V [kA]	100	100	100	100	100	100	100	100	100	50	6
690V [kA]	100	100	100	100	100	8	8	8	4	4	3
Rated Service Short-Circuit Breaking Capacity I_{cs}											
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	15
440/460V [kA]	100	100	100	100	100	100	100	100	100	50	6
500V [kA]	100	100	100	100	100	100	100	100	100	50	6
690V [kA]	100	100	100	100	100	8	8	8	4	4	3

❶ No back-up fuse required.

IEC Performance Data

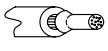
		Cat. No. 140M-D8T-		Cat. No. 140M-F8T-	
		C16	C20	C25	C32
Rated Operational Current, I_e [A]		16	20	25	32
Magnetic Release Current [A]		260	325	416	585
Switching of Standard Three-Phase Motors AC-2, AC-3					
230/240V	[kW]	3.0/4.0	4.0/5.5	5.5/6.3	7.5
400/415V	[kW]	5.5/7.5	7.5/10	11	15
500V	[kW]	7.5/10	11	15	15/20
690V	[kW]	11/13	15/17	18.5/22	22/25
Back-Up Fuses gG, gL, only if $I_{cc} > I_{cu}$					
230/240V	[A]	❶	❶	❶	❶
400/415V	[A]	80	100	100	125
440/460V	[A]	80	100	❷	❷
500V	[A]	80	80	80	100
690V	[A]	63	63	63	80
Ultimate Short-Circuit Breaking Capacity I_{cu}					
230/240V	[kA]	100	100	100	100
400/415V	[kA]	50	50	50	50
440/460V	[kA]	50	50	❷	❷
500V	[kA]	25	25	10	10
690V	[kA]	6	6	6	6
Rated Service Short-Circuit Breaking Capacity I_{cs}					
230/240V	[kA]	100	100	100	100
400/415V	[kA]	25	25	25	25
440/460V	[kA]	25	25	❷	❷
500V	[kA]	25	25	10	10
690V	[kA]	4	4	6	6

❶ No back-up fuse required.
❷ Contact your local Allen-Bradley Sales Office.

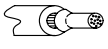
General Data

Cat. No.	140M-C...	140M-D...	140M-F...
Rated Insulation Voltage			
IEC, SEV, VDE 0660	690 V		
UL, CSA	600 V		
Rated Impulse Withstand Voltage			
U_{imp}/pollution degree	6 kV / 3		
Rated Frequency	50/60 Hz		
Utilization Category:			
- IEC 947-2 (Motor Protector)	A		
- IEC 947-4-1 (Motor Starter)	AC-3		
Life Span			
Mechanical [operations]	100,000		30,000
Electrical (I_e max.) [operations]	100,000		30,000
Switching Frequency [operations]	max. 25 / h. (motor starts)		
Ambient Temperature			
Storage	- 40 °C ... + 80 °C		
Operation	- 25 °C ... + 60 °C		
Resistance to Climatic Change	IEC 68-2		
Site Altitude	to 2,000 m N.N.		
Protection Class	IP20 all round, when wired		
Resistance to Shock	30 G, 11 ms		
Resistance to Vibration	IEC 68-2		
Rated Thermal Current I_{th}			
IEC, SEV, VDE 0660			
Up to 60 °C ambient temperature [A]	0.1 ... 25	1.6 ... 25	6.3 ... 45
Overload Protection			
Characteristics	IEC 947-4-1 Motor protection (except 140M-C2N, 140M-D8N, 140M-F8N)		
Ambient temperature compensation	- 20°C...+ 60°C		
Phase-failure protection	yes differential release		
Magnetic Release			
Response current	fixed setting 13 x $I_e$max. (for 140M-C2E, 140M-D8E, 140M-F8E, 140M-C2N, 140M-D8N, 140M-F8N) 16…20 x $I_e$max. (for 140M-C2T, 140M-D8T, 140M-F8T) $I_e$max. = maximum values of setting ranges		
Total Power Loss P_v			
Motor protector at rated load operating temperature [W]	6…8	6…8	9…16

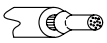
General Data

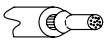
Cat. No.		140M-C...	140M-D...	140M-F...
Conformity to Standards		IEC 947; EN 60947; UL 508; CSA 22.2		
Approvals		CE, UL, CSA		
Terminal Parts				
Type of terminals				
Screwdriver		Pozidriv No. 2 / Blade No. 3		Pozidriv No. 2 / Blade No. 3
 1.conductor	[mm²] / [AWG]	1...4 / No. 16...12		2.5...16 / No.14...6
2.conductor	[mm²] / [AWG]	1...4 / No. 16...12		2.5...10 / No. 14...8
 1.conductor	[mm²] / [AWG]	1...6 / No. 16...8		2.5...25 / No. 14...4
2.conductor	[mm²] / [AWG]	1...6 / No. 16...8		2.5...16 / No. 14...6
 1.conductor	[mm²] / [AWG]	1.5...6 / No. 16...8		2.5...25 / No. 14...4
2.conductor	[mm²] / [AWG]	1.5...6 / No. 16...8		2.5...16 / No. 14...6
Tightening torque	[Nm] / [lb-in]	1…2.5 / 8.9…22		1.5...3.5 / 13…31

Accessories for Bulletin 140M Motor Protectors

		Auxiliary Contact Blocks for Front Mounting Cat. No. 140M-C-AFA.., 140M-C-AFAR...			Auxiliary Contact Blocks for Right-Side Mounting Cat. No. 140M-C-ASA.., 140M-C-ASAR...				
Rated Thermal Current I_{th}									
at 40°C ambient temperature	[A]	5			10				
at 60°C ambient temperature	[A]	4			6				
Contact Class Coordination According to NEMA									
(UL/CSA-Standards)	AC	B 300			B 600				
	DC	Q 300			Q 600				
Back-Up Fuses gG, gL	[A]	10			10				
Rated Supply Current	[V]	24	120	240	24	120	240	415	690
AC-15:	[A]	4	3	1.5	6	5	3	2	0.7
DC-13:	[V]	24	120	240	24	120	240	415	
	[A]	2	0.5	0.25	2	0.5	0.25	0.15	
Terminal Parts									
Type of terminals									
Screwdriver		Pozidriv No. 2 / Blade No. 3							
 1. conductor	[mm²] / [AWG]	0.5…2.5 / No. 18…14							
2. conductor	[mm²] / [AWG]	0.5…2.5 / No. 18…14							
 1. conductor	[mm²] / [AWG]	0.75…2.5 / No. 18…14							
2. conductor	[mm²] / [AWG]	0.75…2.5 / No. 18…14							
 1. conductor	[mm²] / [AWG]	0.75…2.5 / No. 18…14							
2. conductor	[mm²] / [AWG]	0.75…2.5 / No. 18…14							
Tightening torque	[Nm] / [lb-in]	1.5 / 13.3							

Accessories for Bulletin 140M Motor Protectors

		Undervoltage Trip for Left-Side Mounting Cat. No. 140M-C-UX...	Undervoltage Trip with 2 Auxiliary Contacts for Left-Side Mounting Cat. No. 140M-C-UC...	Shunt Trip for Left-Side Mounting Cat. No. 140M-C-SN...
Actuating Voltage Pull-in Drop-out		0.85...1.1 x U_S 0.7...0.35 x U_S	0.85...1.1 x U_S 0.7...0.35 x U_S	0.7...1.1 x U_S
Rated Control Voltage	min.: max.:	21V 50 Hz, 24V 60 Hz 600V 50 Hz	21V 50 Hz, 24V 60 Hz 600V 50 Hz	21V 50 Hz, 24V 60 Hz 600V 50 Hz
On-Time		100%	100%	100%
Coil Rating	Pull-in Hold	8.5 VA, 6 W 3 VA, 1.2 W	8.5 VA, 6 W 3 VA, 1.2 W	8.5 VA, 6 W 3 VA, 1.2 W
Terminal Parts Type of terminals				
Screw Driver		Pozidriv No. 2 / Blade No. 3		
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	0.5...2.5 / No. 18...14 0.5...2.5 / No. 18...14		
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	0.75...2.5 / No. 18...14 0.75...2.5 / No. 18...14		
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	0.75...2.5 / No. 18...14 0.75...2.5 / No. 18...14		
Tightening torque	[Nm] / [lb-in]	1.5 / 13.3		

		Commoning Link FeederTerminal 140M-C-WT	Commoning Link 140M-C-W
Rated Thermal Current I_{th} at 60×C ambient temperature	[A]	63	63
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	4…16 4…10	—
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	6…25 / No. 14…4 6…16 / No. 14…6	—
	1.conductor [mm²] / [AWG] 2.conductor [mm²] / [AWG]	6…25 / No. 14…4 6…16 / No. 14…6	—
Tightening torque	[Nm] / [lb-in]	3 / 27	—

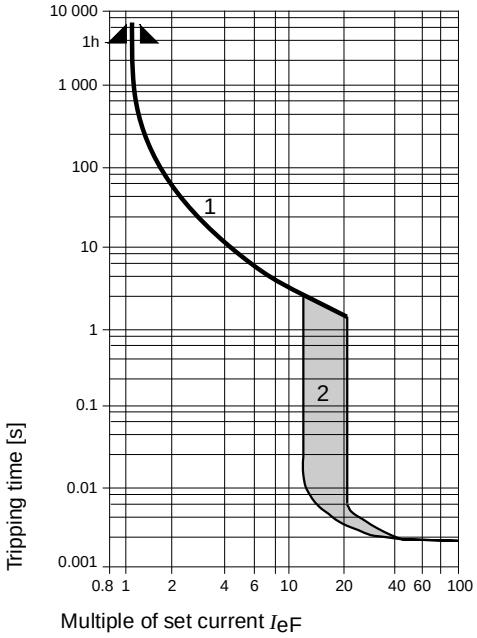
Weights

Description	Cat. No.	Weight
Motor Protectors	140M-C2E-... 140M-D8E-... 140M-F8E-...	317 g 373 g 782 g
	140M-C2N-... 140M-D8N-... 140M-F8N-...	315 g 365 g 782 g
	140M-C2T-... 140M-D8T-... 140M-F8T-...	315 g 365 g 782 g
Auxiliary Contacts	140M-C-AFA10 140M-C-AFA01	10 g
	140M-C-AFA11 140M-C-AFA20	
	140M-C-ASA...	
	140M-C-AFAR10A...	15 g
	140M-C-ASAR...M... 140M-C-ASAM11	
Undervoltage Trip	140M-C-UX...	108 g
	140M-C-SN...	110 g
	140M-C-UC...	116 g
Anti-tamper Cover	140M-C-CA	2 g

Description	Cat. No.	Weight
Lockable Twist Knob	140M-C-KN 140M-C-KRY	5 g
Locking Tag	140M-C-M3	30 g
Door Coupling Handle	140M-C-DN66 140M-C-NRY66	123 g
Extension Shaft	140M-C-DS	46 g
Legend Plate	140M-C-DFC...	4 g
Feeder Terminal	140M-C-WT 140M-F-WT	172 g
Commoning Links	140M-C-W452 140M-C-W453 140M-C-W454 140M-C-W455	47 g 80 g 104 g 132 g
	140M-C-W542 140M-C-W543 140M-C-W544 140M-C-W545	52 g 86 g 118 g 154 g
	140M-C-W632 140M-C-W633 140M-C-W634 140M-C-W635	56 g 92 g 134 g 170 g

Time-Current Characteristic

140M Motor Protector



1) Thermal Release Trip Current:

The adjustable current-dependent delayed bimetal release protects motors against overload. The curve shows the mean operating current at an ambient temperature of 20°C starting from the cold state. Careful testing and setting ensures effective motor protection even in the case of single-phasing. The overload characteristic is also valid for transformer protection.

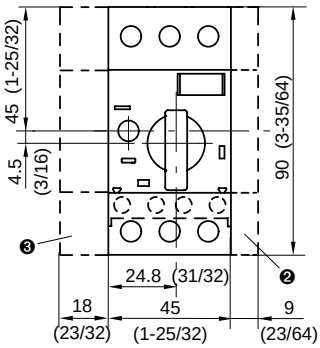
2) Magnetic Release Trip Current:

The instantaneous magnetic trip has a fixed operating current setting. This corresponds to 13 times the maximum value of setting range. (Transformer protection up to 20 x I_e max.) At a lower setting it is correspondingly higher.

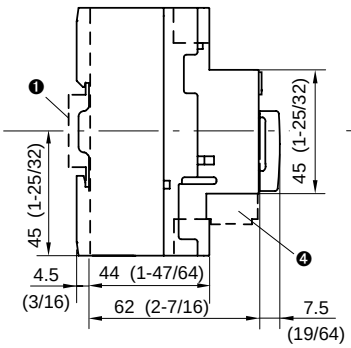
Current Setting I_{eF}:

The overload trip corresponds to a thermal overload relay in a motor starter conforming to IEC 947-4-1. If a different value is prescribed (e.g. reduced I_e for cooling medium having a temperature higher than 40°C or a place of installation higher than 2000 m above sea level), the setting current is equal to the reduced rated current I_e of the motor.

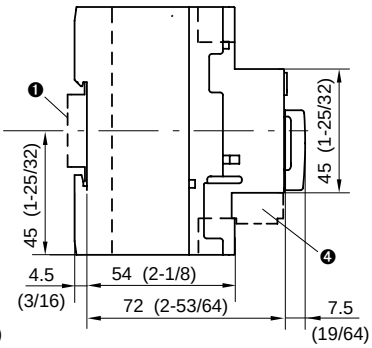
Dimensions are shown in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes



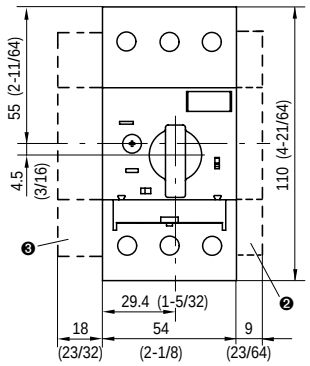
140M-C..., 140M-D...

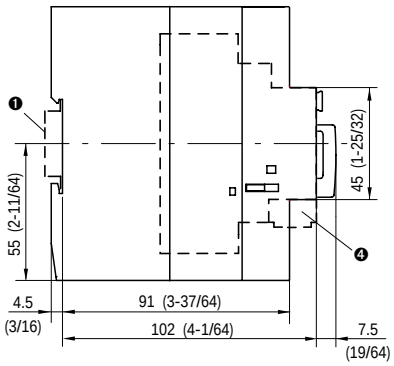


140M-C....



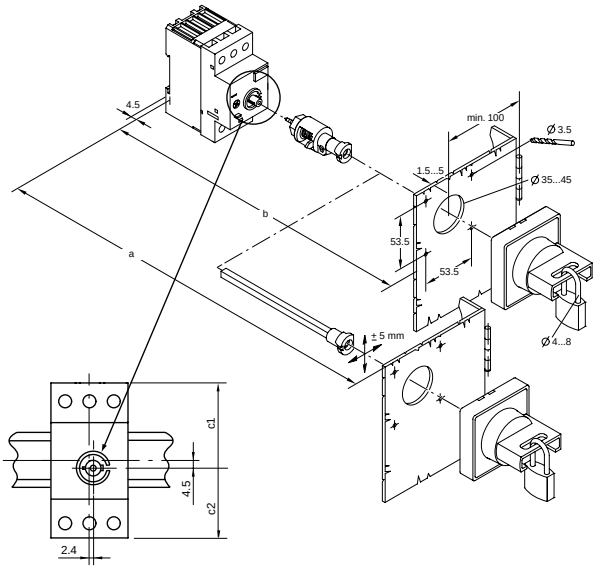
140M-D...



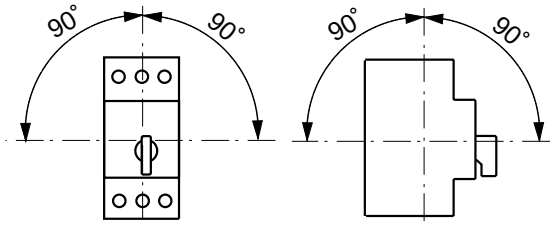


140M-F....

❶ Mounting on 35 mm DIN Rail EN 50 022-35
❷ Auxiliary contact (side-mounted)
❸ Undervoltage trip or Shunt trip
❹ Auxiliary contact (front-mounted)



140M-C-D...66

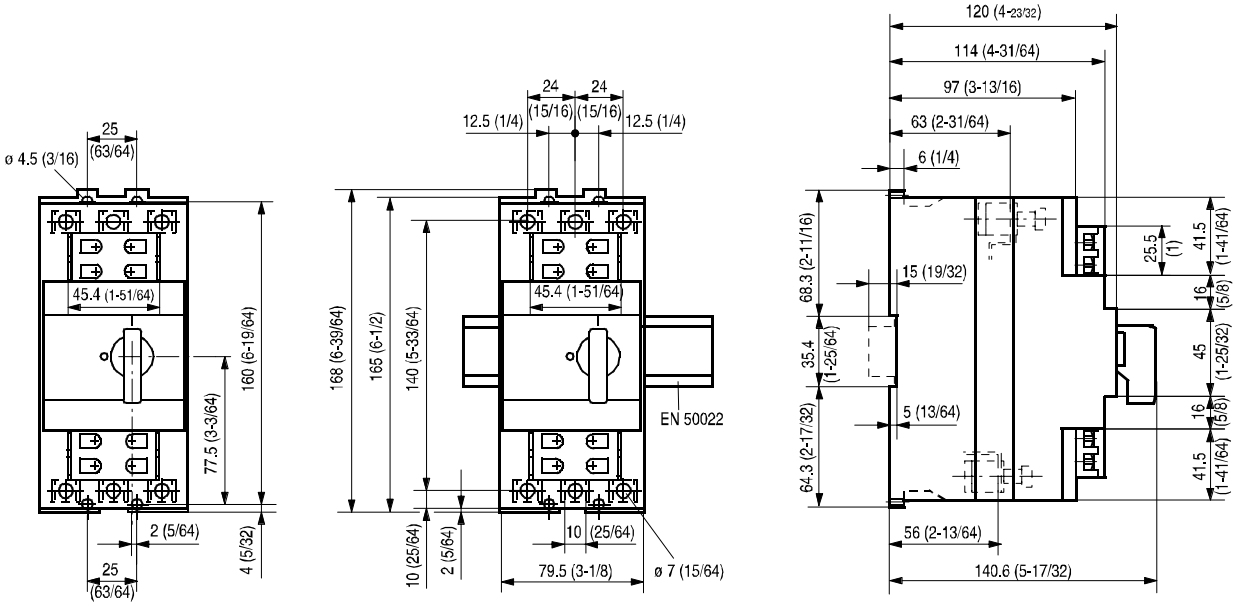


Mounting position 140M-C..., 140M-D..., 140M-F...

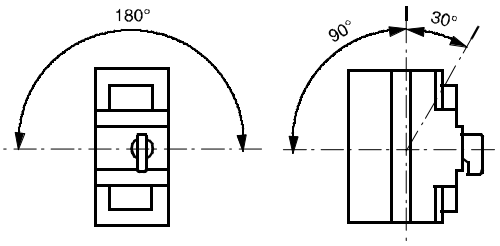
	a	b	c1	c2
140M-C…	117...338	105.5 ±5	49.5	40.5
140M-D…	126...347	114.5 ±5	49.5	40.5
140M-F…	148.6...369.6	137.1 ±5	59.35	50.35

Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



Cat. No. 140-CMN



Mounting position of
Cat. No. 140-CMN

Type 2 Coordination per UL508E

Voltage: 480V, 60 HZ

Motor Protector Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Contactor Cat. No. ❶	Short-Circuit Current, I_q [kA]
140M-C2E-A16	0.10...0.16	2.1	100-C09, 100-M05	65
140M-C2E-A25	0.16...0.25	3.3	100-C09, 100-M05	65
140M-C2E-A40	0.25...0.40	5.2	100-C09, 100-M05	65
140M-C2E-A63	0.40...0.63	8.2	100-C09, 100-M05	65
140M-C2E-B10	0.63...1.0	13	100-C09, 100-M05	65
140M-C2E-B16	1.0...1.6	21	100-C09, 100-M05	65
140M-C2E-B25	1.6...2.5	33	100-C09	50
140M-C2E-B40	2.5...4.0	52	100-C30	50
140M-C2E-B63	4.0...6.3	82	100-C30	50
140M-C2E-C10	6.3...10.0	130	100-C30	50
140M-C2E-C16	10.0...16.0	208	100-C30	10
140M-C2E-C20	14.5…20.0	260	100-C30	10
140M-C2E-C25	18.0…25.0	325	100-C30	10
140M-D8E-B25	1.6...2.5	33	100-C09	65
140M-D8E-B40	2.5...4.0	52	100-C09	65
140M-D8E-B63	4.0...6.3	82	100-C09	65
140M-D8E-C10	6.3...10.0	130	100-C09	65
140M-D8E-C16	10.0...16.0	208	100-C12	65
140M-D8E-C20	14.5…20.0	260	100-C23	65
140M-D8E-C25	18.0…25.0	325	100-C23	50
140M-F8E-C10	6.3...10.0	130	100-C16	65
140M-F8E-C16	10.0...16.0	208	100-C16	65
140M-F8E-C20	14.5…20.0	260	100-C23	65
140M-F8E-C25	18.0…25.0	325	100-C23	65
140M-F8E-C32	23.0...32.0	416	100-C30	65
140M-F8E-C45	32.0...45.0	585	100-C37	50
140-CMN-2500	16.0…25.0	350	100-C30	65
140-CMN-4000	25.0…40.0	560	100-C30	65
140-CMN-6300	40.0...63.0	882	100-C43	65
140-CMN-9000	63.0...90.0	1260	100-C72	65

Definition of Type "2" short-circuit coordination per UL 508E:

- The contactor or starter must not endanger persons or plant in the event of a short-circuit.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts if these can be easily separated without appreciable deformation (such as with a screwdriver).

In the event of short-circuit, fast-opening, strong current-limiting Bulletin 140M motor protectors make it possible to build economical, fully short-circuit coordinated starter combinations in accordance with UL508E, Type "2" coordination.

❶ Ratings apply to specified or larger contactor.

Type 2 Coordination according to UL 508E

Voltage: 600V, 60 HZ

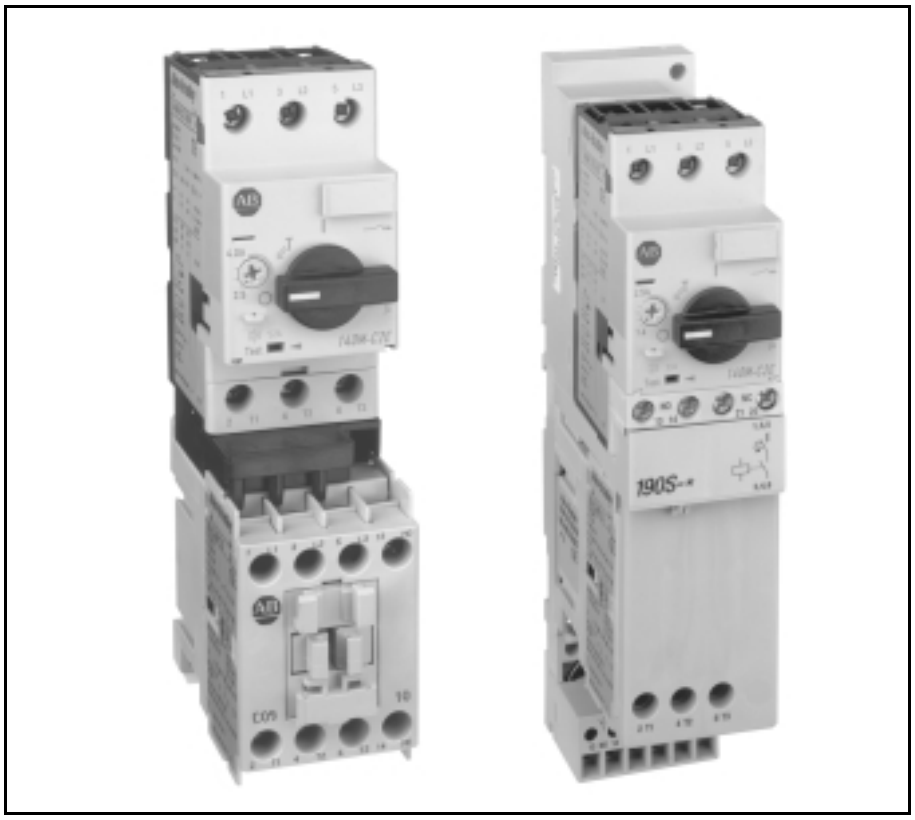
Motor Protector Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Contactor Cat. No. ❶	Short-Circuit Current, I_q [kA]
140M-C2E-A16	0.10...0.16	2.1	100-C09, 100-M05	47
140M-C2E-A25	0.16...0.25	3.3	100-C09, 100-M05	47
140M-C2E-A40	0.25...0.40	5.2	100-C09, 100-M05	47
140M-C2E-A63	0.40...0.63	8.2	100-C09, 100-M05	47
140M-C2E-B10	0.63...1.0	13	100-C09, 100-M05	47
140M-C2E-B16	1.0...1.6	21	100-C09, 100-M05	47
140M-C2E-B25	1.6...2.5	33	100-C09	10
140M-C2E-B40	2.5...4.0	52	100-C16	5
140M-C2E-B63	4.0...6.3	82	100-C23	5
140M-C2E-C10	6.3...10.0	130	100-C30	5
140M-C2E-C16	10.0...16.0	208	100-C30	5
140M-C2E-C20	14.5…20.0	260	100-C30	5
140M-C2E-C25	18.0…25.0	325	100-C30	5
140M-D8E-B25	1.6...2.5	33	100-C09	10
140M-D8E-B40	2.5...4.0	52	100-C16	10
140M-D8E-B63	4.0...6.3	82	100-C23	10
140M-D8E-C10	6.3...10.0	130	100-C30	10
140M-D8E-C16	10.0...16.0	208	100-C30	10
140M-D8E-C20	14.5…20.0	260	100-C30	5
140M-D8E-C25	18.0...25.0	325	100-C30	5
140M-F8E-C10	6.3...10.0	130	100-C30	10
140M-F8E-C16	10.0...16.0	208	100-C30	10
140M-F8E-C20	14.5…20.0	260	100-C30	10
140M-F8E-C25	18.0…25.0	325	100-C30	10
140M-F8E-C32	23.0...32.0	416	100-C30	10
140M-F8E-C45	32.0...45.0	585	100-C37	10
140-CMN-2500	16.0…25.0	350	100-C30	42
140-CMN-4000	25.0…40.0	560	100-C30	42
140-CMN-6300	40.0...63.0	882	100-C43	30
140-CMN-9000	63.0...90.0	1260	100-C72	15

Definition of Type "2" short-circuit coordination per UL 508E:

- The contactor or starter must not endanger persons or plant in the event of a short-circuit.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts if t hese can be easily separated without appreciable deformation (such as with a screwdriver).

In the event of short-circuit, fast-opening, strong current-limiting Bulletin 140M motor protectors make it possible to build economical, fully short-circuit coordinated starter combinations in accordance with UL508,Type "2" coordination.

❶ Ratings apply to specified or larger contactor.



Bulletin 190 Compact Combination Starters

- **Power Range 0.1...45 A**
- **Bulletin 190E Modular Eco Starters**
- **Bulletin 190S Pre-wired Compact Starters**
- **Uses Bulletin 140M Motor Protectors and Bulletin 100-C Contactors**
  - **140M is UL/CSA Approved as Self-Protected (Type E) Manual Combination Starters**
- **Type 2 Coordination with 100-C Contactors**
- **Mounts to DIN Rail(s) or Screw Mounts**

TABLE OF CONTENTS

Conformity to Standards:

IEC 947-1/2/4

IEC 204-1

Approvals:

CE

Your order must include:

- Cat. No. of the motor protector selected.
- If required, Cat. No. of any accessories.

- **190E Modular Eco Starter using 140M Motor Protector and 100M Mini Contactor**
- **Mounting Options:**
  - Snap Fixing on (1) 35 mm DIN Rail
- **AC or DC Control Coils**

Thermal Trip [A]	Magnetic Trip [A]	I_{cu}	Typical 3-phase [HP]				Non-Reversing Starter ❶ Cat. No.
			200V	230V	460V	575V	
Uses 140M-C, High Break							
0.10...0.16	2.1	65	—	—	—	—	190E-MN⊗2-CA16X
0.16...0.25	3.3	65	—	—	—	—	190E-MN⊗2-CA25X
0.25...0.40	5.2	65	—	—	—	—	190E-MN⊗2-CA40X
0.40...0.63	8.2	65	—	—	—	—	190E-MN⊗2-CA63X
0.63...1.00	13	65	—	—	0.5	0.75	190E-MN⊗2-CB10X
1.00...1.60	21	65	—	—	1	1	190E-MN⊗2-CB16X
1.60...2.50	33	65	0.5	0.5	1.5	2	190E-MN⊗2-CB25X
2.50...4.00	52	65	1	1	3	3	190E-MN⊗2-CB40X
4.00...6.30	82	65	1.5	2	3	5	190E-NN⊗2-CB63X
6.30...10.0	130	65	3	3	5	5	190E-NN⊗2-CC10X

❶ 1 N.O. auxiliary contact on contactor is standard. See Factory Options on p. 49 for additional auxiliary contact configurations

⊗ Standard Voltage Suffix Codes for DC Control

Voltage	24V	48V	100V	100…120V	220…230V	230…240V	380V
50 Hz	KD	KH	D	—	A	—	KK
60 Hz	KD	KH	—	D	—	A	KK
DC	24	—	—	—	—	—	—

Factory Installed Options — Page 49
140M Accessories — Page 21
100M Accessories — Publication No. 0100C-1.0.1

- **190E Modular Eco Starter using 140M Motor Protector and 100C MCS Contactor**
- **Mounting Options:**
  - Snap Fixing on (1) 35 mm DIN Rail
- **AC Control Coils**

Thermal Trip [A]	Magnetic Trip [A]	I_{cu}	Typical 3-phase [HP]				Non-Reversing Starter ❶ Cat. No.
			200V	230V	460V	575V	
Uses 140M-C, High Break							
0.10...0.16	2.1	65	—	—	—	—	190E-AN⊗2-CA16X
0.16...0.25	3.3	65	—	—	—	—	190E-AN⊗2-CA25X
0.25...0.40	5.2	65	—	—	—	—	190E-AN⊗2-CA40X
0.40...0.63	8.2	65	—	—	—	—	190E-AN⊗2-CA63X
0.63...1.00	13	65	—	—	0.5	0.75	190E-AN⊗2-CB10X
1.00...1.60	21	65	—	—	1	1	190E-AN⊗2-CB16X
1.60...2.50	33	65	0.5	0.5	1.5	2	190E-AN⊗2-CB25X
2.50...4.00	52	65	1	1	3	3	190E-AN⊗2-CB40X
4.00...6.30	82	65	1.5	2	3	5	190E-AN⊗2-CB63X
6.30...10.0	130	65	2	3	7.5	10	190E-BN⊗2-CC10X
10.0…16.0	208	10	3	5	10	10	190E-CN⊗2-CC16X
14.5…20.0	260	10	5	7.5	15	15	190E-DN⊗2-CC20X
18.5…25.0	325	10	5	7.5	15	15	190E-DN⊗2-CC25X
Uses 140M-D, High Break PLUS							
1.60…2.50	33	65	0.5	0.5	1.5	2	190E-AN⊗2-DB25X
2.50…4.00	52	65	1	1	3	3	190E-AN⊗2-DB40X
4.00…6.30	82	65	1.5	2	3	5	190E-AN⊗2-DB63X
6.30…10.0	130	65	2	3	7.5	10	190E-BN⊗2-DC10X
10.0…16.0	208	65	3	5	10	10	190E-CN⊗2-DC16X
14.5…20.0	260	65	5	7.5	15	15	190E-DN⊗2-DD20X
18.5…25.0	325	25	5	7.5	15	15	190E-DN⊗2-DD25X

❶ 1 N.O. auxiliary contact on contactor is standard. See Factory Options on p. 49 for additional auxiliary contact configurations.

⊗ Standard Voltage Suffix Codes for AC Control

Type	[V]	12	24	32	36	42	48	100	100… 110	110	120	127	200	200… 220	200… 230	208	208… 240
190E	50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	—	—	—	—
	60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	—	H	L
	50/60 Hz	—	KJ	—	—	—	KY	KP	—	KD	—	—	KG	—	KL	—	—
	[V]	220… 230	230	230… 240	240	277	347	380	380... 400	400	400… 415	440	480	500	550	600	
	50 Hz	F	—	VA	T	—	—	—	N	—	G	B	—	M	C	—	
	60 Hz	—	—	—	A	T	I	E	—	—	—	N	B	—	—	C	
	50/60 Hz	—	KF	—	KA	—	—	—	—	KN	—	KB	—	—	—	—	

Factory Installed Options — Page 49
140M Accessories — Page 21
100M Accessories — Publication No. 0100C-1.0.1

- **190S Compact Combination Starter using 140M Motor Protector and 100-C Contactor**
- **Auxiliary Contacts Wired to Terminal Block at Bottom of Starter Assembly**
- **Mounting Options:**
  - Screw Fixing
  - Snap Fixing on (1) or (2) 35 mm DIN Rails
  - Snap Fixing on (1) 75 mm DIN Rail
- **AC or DC Control Coils**

Thermal Trip [A]	Magnetic Trip [A]	I_{cu}	Typical 3-phase [HP]				Non-Reversing Starter ❶ Cat. No.
			200V	230V	460V	575V	
Uses 140M-C, High Break							
0.10...0.16	2.1	65					190S-AN⊗2-CA16C
0.16...0.25	3.3	65					190S-AN⊗2-CA25C
0.25...0.40	5.2	65					190S-AN⊗2-CA40C
0.40...0.63	8.2	65					190S-AN⊗2-CA63C
0.63...1.00	13	65			0.5	0.75	190S-AN⊗2-CB10C
1.00...1.60	21	65			1	1	190S-AN⊗2-CB16C
1.60...2.50	33	65	0.5	0.5	1.5	2	190S-AN⊗2-CB25C
2.50...4.00	52	65	1	1	3	3	190S-AN⊗2-CB40C
4.00...6.30	82	65	1.5	2	3	5	190S-AN⊗2-CB63C
6.30...10.0	130	65	2	3	7.5	10	190S-BN⊗2-CC10C
10.0...16.0	208	10	3	5	10	10	190S-CN⊗2-CC16C
14.5...20.0	260	10	5	7.5	15	15	190S-DN⊗2-CC20C
18.5...25.0	325	10	5	7.5	15	15	190S-DN⊗2-CC25C
Uses 140M-D, High Break PLUS							
1.60...2.50	33	65	0.5	0.5	1.5	2	190S-AN⊗2-DB25C
2.50...4.00	52	65	1	1	3	3	190S-AN⊗2-DB40C
4.00...6.30	82	65	1.5	2	3	5	190S-AN⊗2-DB63C
6.30...10.0	130	65	2	3	7.5	10	190S-BN⊗2-DC10C
10.0...16.0	208	65	3	5	10	10	190S-CN⊗2-DC16C
14.5...20.0	260	65	5	7.5	15	15	190S-DN⊗2-DC20C
18.5...25.0	325	25	5	7.5	15	15	190S-DN⊗2-DC25C

❶ 1 N.O. + 1 N.C. auxiliary contacts on 140M is standard. 1 N.O. auxiliary contact on 100C contactor is standard. See Factory Options on p. 50 for additional auxiliary contact configurations.

⊗ Standard Voltage Suffix Codes for AC Control

190S	[V]	12	24	32	36	42	48	100	100-110	110	120	127	200	200-220	200-230	208	208-240
	50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	—	—	—	—
	60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	—	H	L
	50/60 Hz	—	KJ	—	—	—	KY	KP	—	KD	—	—	KG	—	KL	—	—
	[V]	220-230	230	230-240	240	277	347	380	380-400	400	400-415	440	480	500	550	600	
	50 Hz	F	—	VA	T	—	—	—	N	—	G	B	—	M	C	—	
	60 Hz	—	—	—	A	T	I	E	—	—	—	N	B	—	—	C	
	50/60 Hz	—	KF	—	KA	—	—	—	—	KN	—	KB	—	—	—	—	

⊗ Standard Voltage Suffix Codes for DC Control

190S	Voltage [V]	6...12	12	24	24 w/ diode	36	48	60	64	72	80	110	115	125	220	230	240
	Code	ZR	ZQ	ZJ	DJ	ZW	ZY	ZZ	ZB	ZG	ZE	ZD	ZP	ZS	ZA	ZF	ZT

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140M Accessories — Page 21
100M Accessories — Publication No. 0100C-1.0.1

190E Factory Options:

- For modifications add **(option code ❶)** and **— (option code ❷)** for desired features to catalog number.

❶ Replace option code **X** with desired auxiliary contact: 190E-MND2-CA16**X**

140M Auxiliary and Trip Contacts	
X	**Without Auxiliary and Trip Contacts (STANDARD)**
A	Auxiliary Contact 1 N.C.
B	Auxiliary Contact 1 N.C.
C	Auxiliary Contact 1 N.O. + 1 N.C.
D	Auxiliary Contact 2 N.O.
R	1 N.O. Trip + 1 N.C. Auxiliary Contact
S	1 N.O. Trip + 1 N.O. Auxiliary Contact

❷ Add desired option codes AFTER auxiliary contact option code: 190E-MND2-CA-16**X-Y**

Modifications, Accessories	
JE	Electronic Interfaces (100-C)
R	Surge Suppressor RC (100-C)
V	Surge Suppressor Varistor (100-C)
D	Surge Suppressor Diode (100-C)
KN	Lockable Twist Knob (140M) - Black
KY	Lockable Twist Knob (140M) - Red/Yellow
Additional Contactor Auxiliaries (Side Mount)	
S01	1 N.C.
S10	1 N.O.
S11	1 N.O. + 1 N.C.
S20	2 N.O.
Additional Contactor Auxiliaries (Front Mount)	
F11	1 N.O. + 1 N.C.
F20	2 N.O.
F22	2 N.O. + 2 N.C.
Additional 140M Auxiliaries (Side Mount)	
A02	2 N.C.
A20	2 N.O.
A11	1 N.O. + 1 N.C.
Additional 140M Trip Contacts (Side Mount)	
R00	1 N.O. Thermal-Mag + 1 N.O. Mag Only
R01	1 N.O. Thermal-Mag + 1 N.C. Mag Only
R10	1 N.C. Thermal-Mag + 1 N.O. Mag Only
M11	1 N.O. Mag Only + 1 N.C. Mag Only

190S Factory Options:

- For modifications add **(option code ❶)** and **— (option code ❷)** for desired features to catalog number.

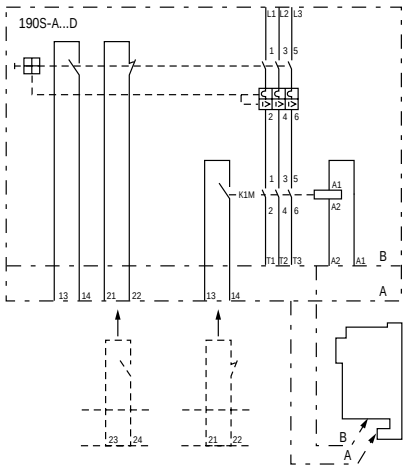
❶ Replace option code **C** with desired auxiliary contact: 190S-AND2-CA16**C**

140M Auxiliary and Trip Contacts	
C	**Auxiliary Contact 1 N.O. + 1 N.C. (STANDARD)**
D	Auxiliary Contact 2 N.O.
R	1 N.O. Trip + 1 N.C. Auxiliary Contact
S	1 N.O. Trip + 1 N.O. Auxiliary Contact

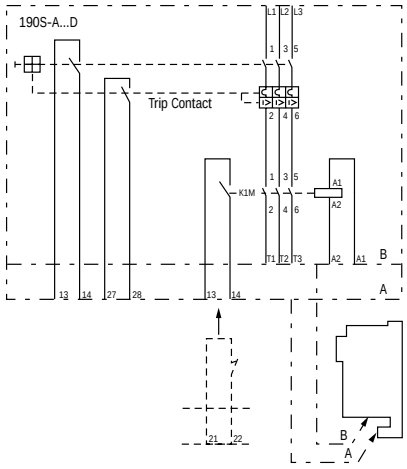
❷ Add desired option codes AFTER auxiliary contact option code: 190S-AND2-CA16C-**Y**

Modifications, Accessories	
JE	Electronic Interfaces (100-C)
R	Surge Suppressor RC (100-C)
V	Surge Suppressor Varistor (100-C)
D	Surge Suppressor Diode (100-C)
SP	Socket and Plug for Control Circuit
KN	Lockable Twist Knob (140M) - Black
KY	Lockable Twist Knob (140M) - Red/Yellow
Additional Contactor Auxiliaries (Side Mount)	
S01	1 N.C.
S10	1 N.O.
S11	1 N.O. + 1 N.C.
S20	2 N.O.
Additional 140M Auxiliaries (Side Mount)	
A02	2 N.C.
A20	2 N.O.
A11	1 N.O. + 1 N.C.
Additional 140M Trip Contacts (Side Mount)	
R00	1 N.O. Thermal-Mag + 1 N.O. Mag Only
R01	1 N.O. Thermal-Mag + 1 N.C. Mag Only
R10	1 N.C. Thermal-Mag + 1 N.O. Mag Only
M11	1 N.O. Mag Only + 1 N.C. Mag Only

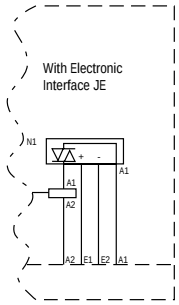
Wiring Diagram 190S-A…D



190S-___2-____C

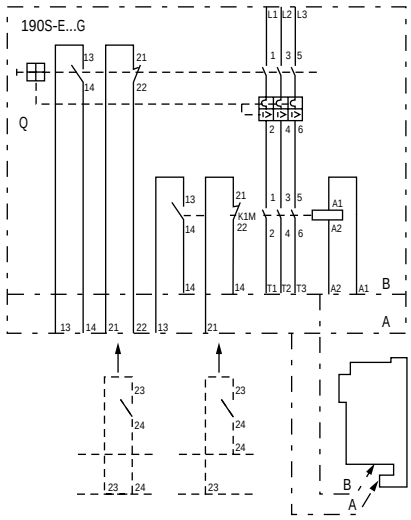


190S-___2-____S

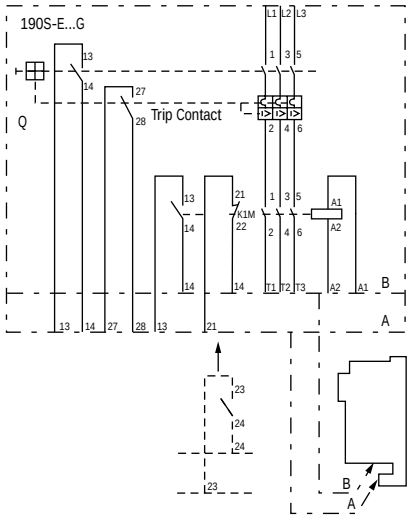


- JE Option

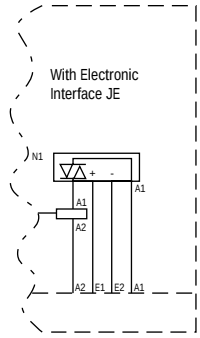
Wiring Diagram 190S-E…G



190S-___2-____C



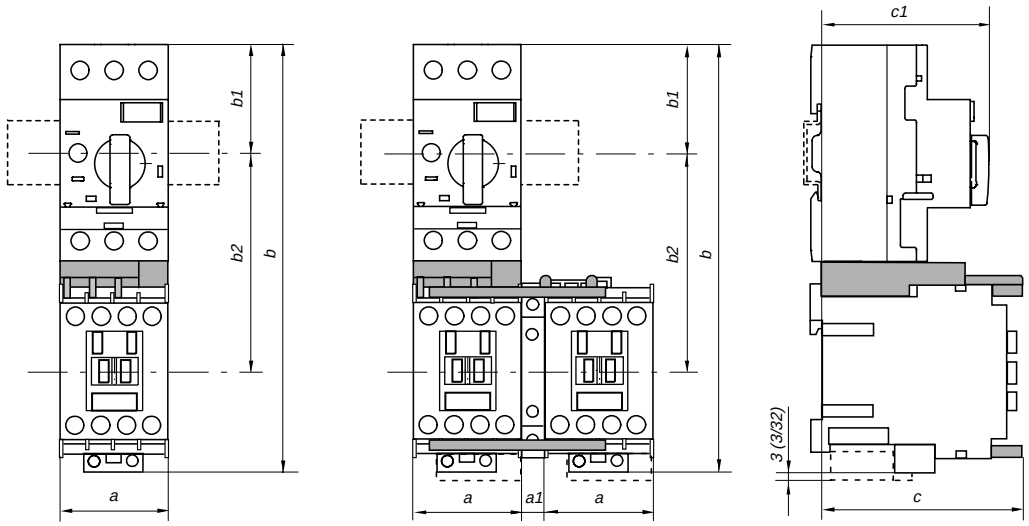
190S-___2-____S



- JE Option

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

190E Approximate Dimensions

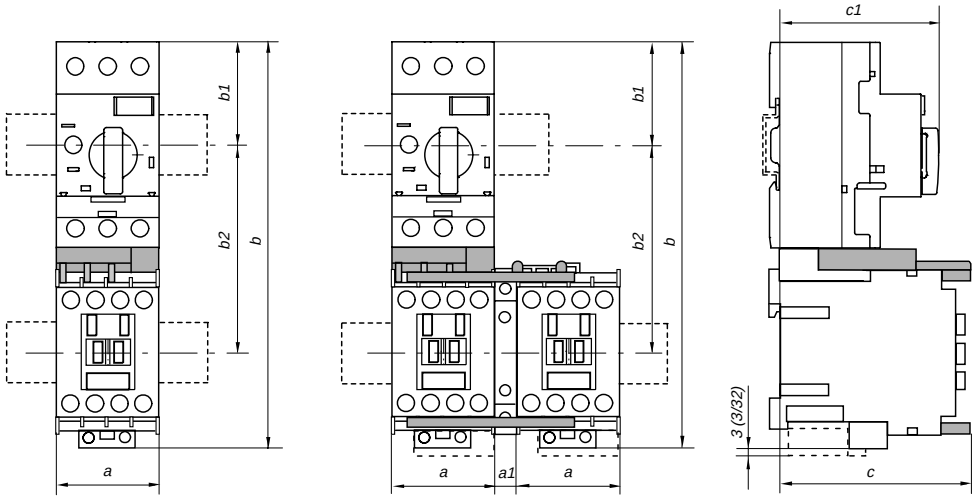


Cat. No.	a	a1	b	b1	b2	c	c1
190E Eco Starters							
190E-MN…190E-NN	45 (1-25/32)	0	164 (6-15/32)	45 (1-25/32)	—	45 (1-25/32)	70 (2-49/64)
190E-AN…190E-DN			178 (7)			83.5 (3-19/64)	
191E Reversing Eco Starters							
191E-MN…191E-NN	45 (1-25/32)	0	164 (6-15/32)	45 (1-25/32)	—	45 (1-25/32)	70 (2-49/64)
191E-AN…191E-DN			178 (7)			83.5 (3-19/64)	

Approximate Dimensions, Continued

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

140M + 100-C/104-C Approximate Dimensions – Separate Mount

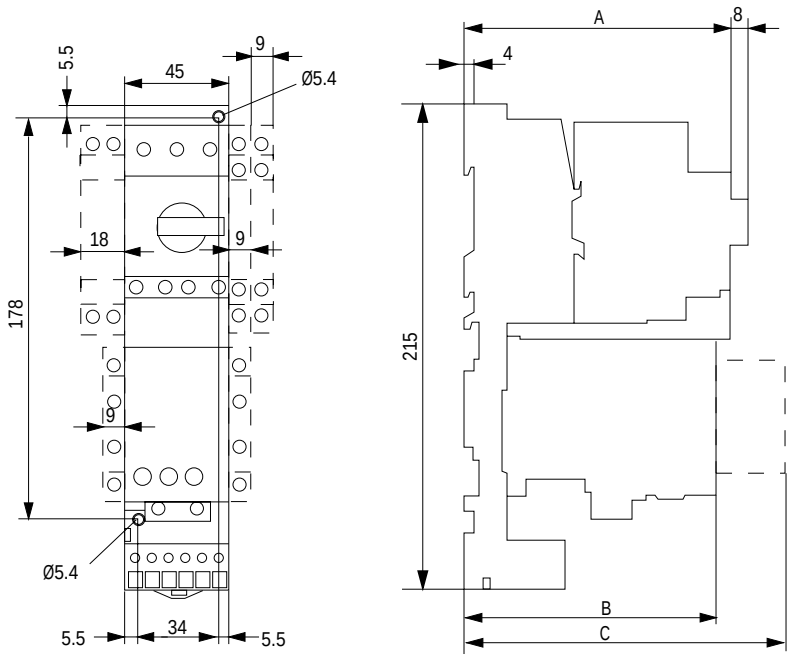


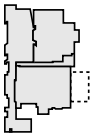
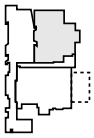
140M + 100-C *140M + 104-C*

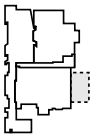
Cat. No.	a	a1	b	b1	b2	c	c1
140M-C2 OR 140M-D8 + 100C…(must be separately mounted on 2 DIN Rails)							
100-C09ZU…100-C16ZU	45 (1-25/32)	0	178 (7)	45 (1-25/32)	—	109 (4-19/64)	70 (2-49/64)
100-C23ZU						127 (5)	
140M-C2 OR 140M-D8 + 104C…(must be separately mounted on 2 DIN Rails)							
100-C09ZU…100-C16ZU	45 (1-25/32)	10 (25/64)	178 (7)	45 (1-25/32)	—	109 (4-19/64)	70 (2-49/64)
100-C23ZU						127 (5)	
140M-F8 + 100-C Contactors (must be separately mounted on 2 DIN Rails)							
100-C30…100-C37	45 (1-25/32)	0	164 (6-15/32)	55 (2-11/64)	105 (4-9/64)	101 (4)	110 (4-21/64)
100-C30Z…100-C37Z						145 (5-45/64)	
100-C43	54 (2-1/8)	0	178 (7)	55 (2-11/64)	105 (4-9/64)	104 (4-1/8)	110 (4-21/64)
100-C43Z						148 (5-13/16)	
140M-F8 + 104-C Reversing Contactors (must be separately mounted on 2 DIN Rails)							
100-C30…100-C37	45 (1-25/32)	10 (25/64)	164 (6-15/32)	55 (2-11/64)	105 (4-9/64)	101 (4)	110 (4-21/64)
100-C30Z…100-C37Z						145 (5-45/64)	
100-C43	54 (2-1/8)	10 (25/64)	178 (7)	55 (2-11/64)	105 (4-9/64)	104 (4-1/8)	110 (4-21/64)
100-C43Z						148 (5-13/16)	

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

190S-A…D Approximate Dimensions

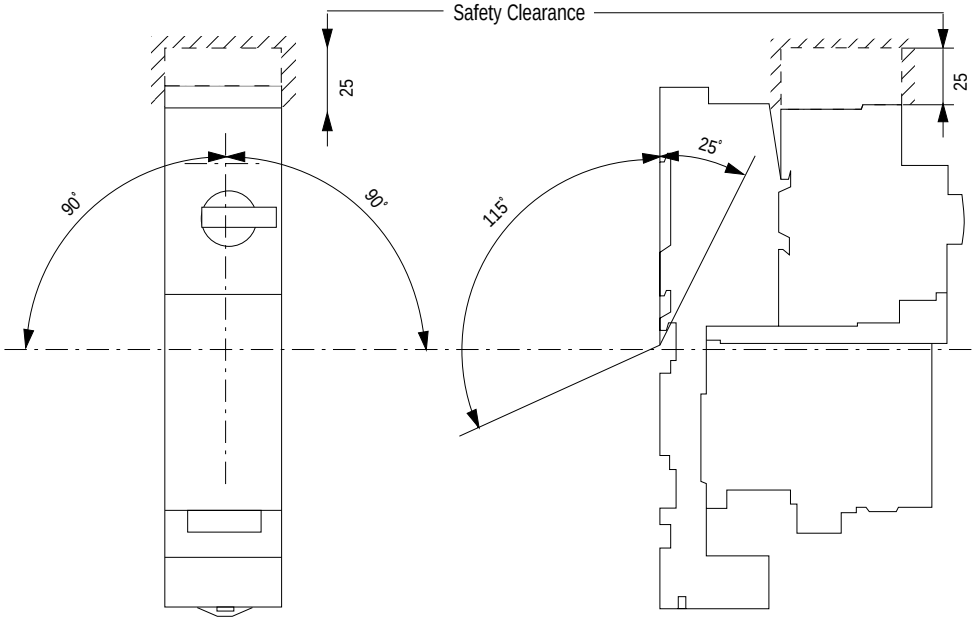


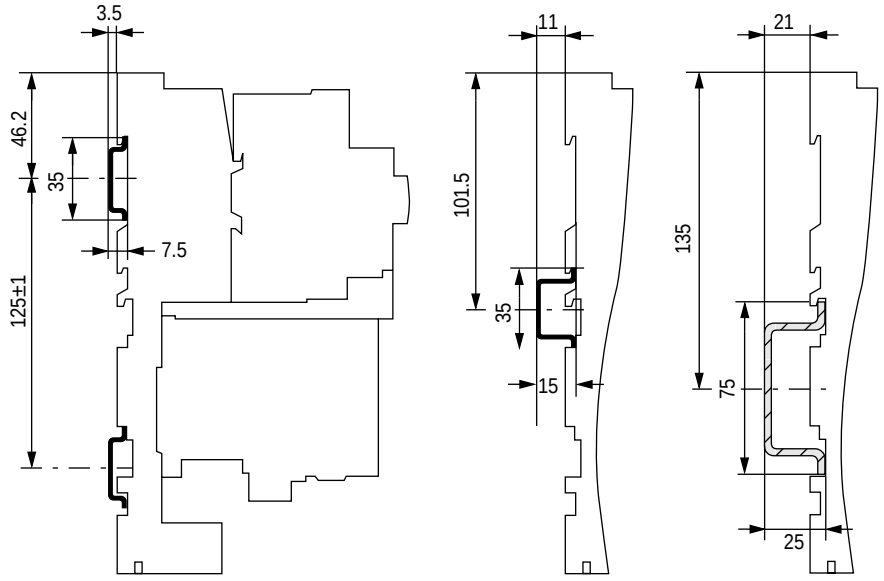
		A [mm]	B [mm]
190S-AN	140M-C	112	107
190S-BN			
190S-CN	140M-D	122	
190S-DN			
190S-ANZ	140M-C	134.5	132.5
190S-BNZ			
190S-CNZ	140M-D	144.5	
190S-DNZ	140M-C	157	150
	140M-D	167	

	C [mm]
100-FA, 100-FC 100-FPT 100-FL	138 157 160
100-FA, 100-FC	163.5
100-FA, 100-FC	181

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

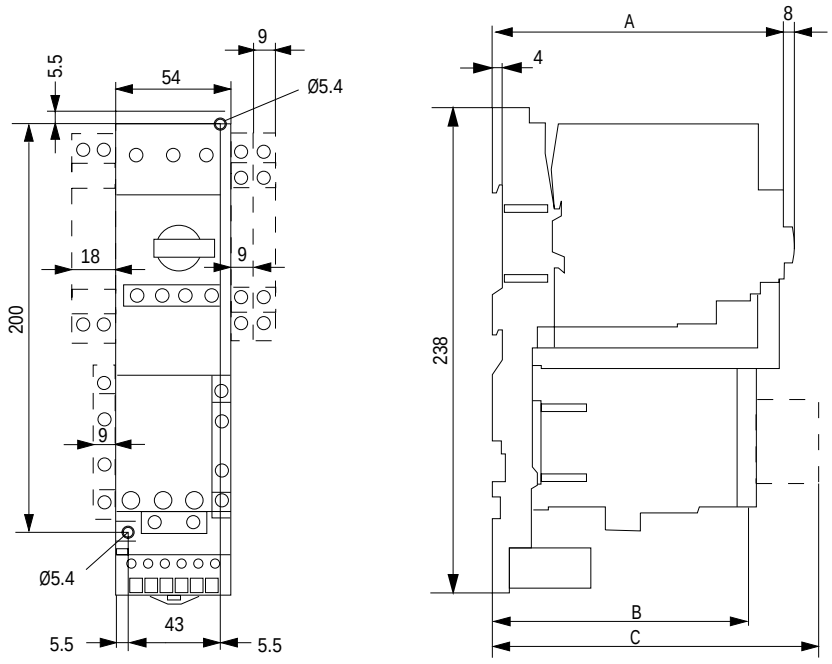
190S-A…D Approximate Dimensions

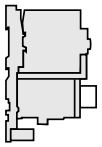
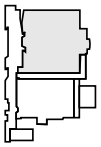


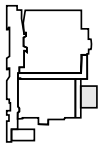


Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

190S-E and 190S-F Approximate Dimensions



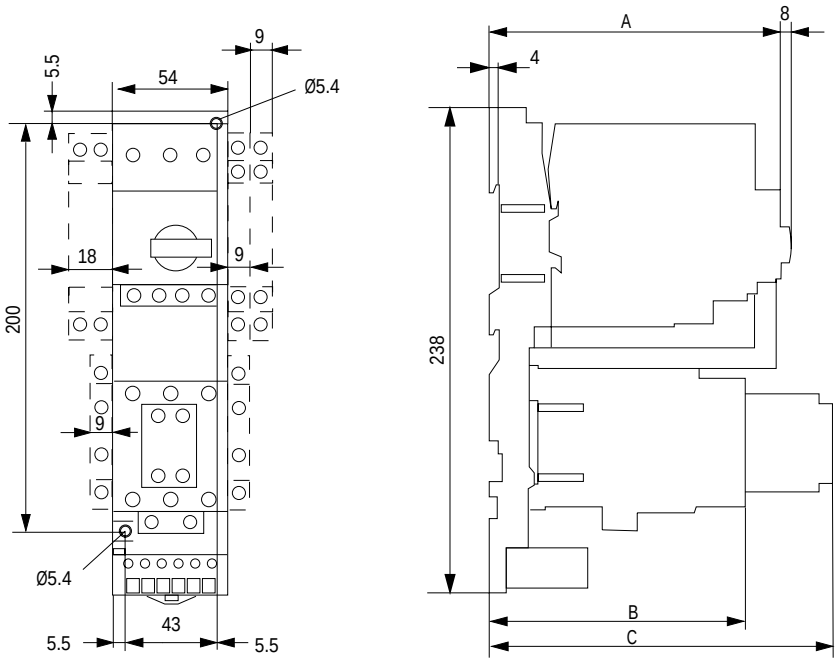
		A [mm]	B [mm]
190S-EN	140M-F	135	124
190S-FN			
190S-ENZ		179	168
190S-FNZ			

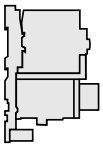
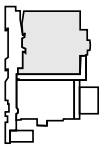
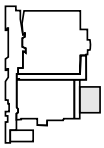
	C [mm]
100-FB	154.5
100-FPT	173.5
100-FL	176.5
100-FB	198.5

Approximate Dimensions, Continued

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

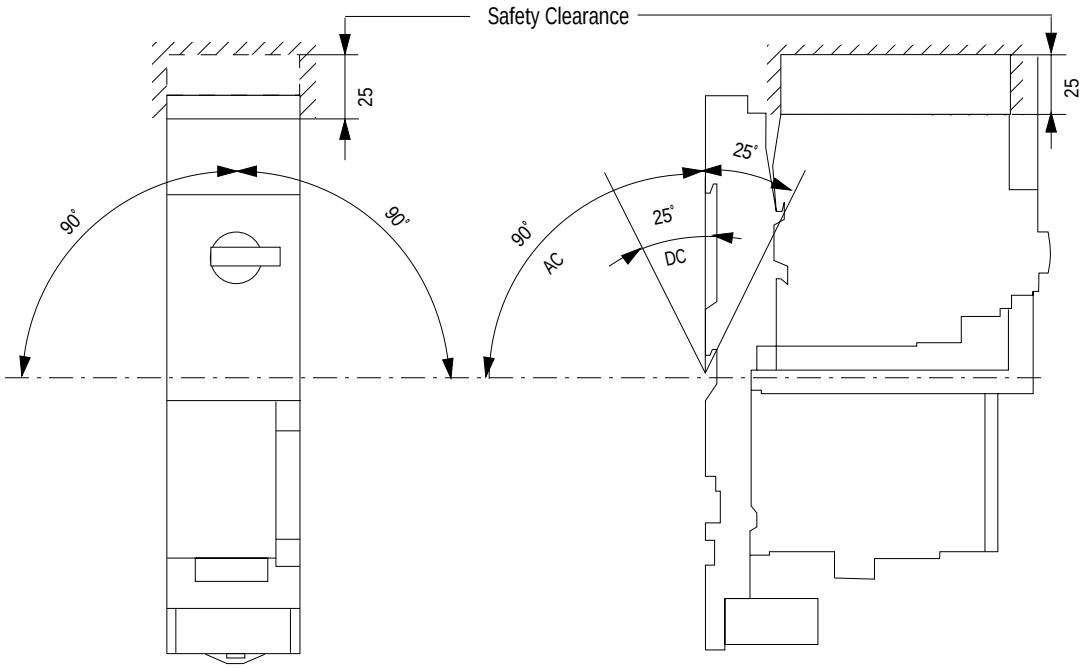
190S-G Approximate Dimensions

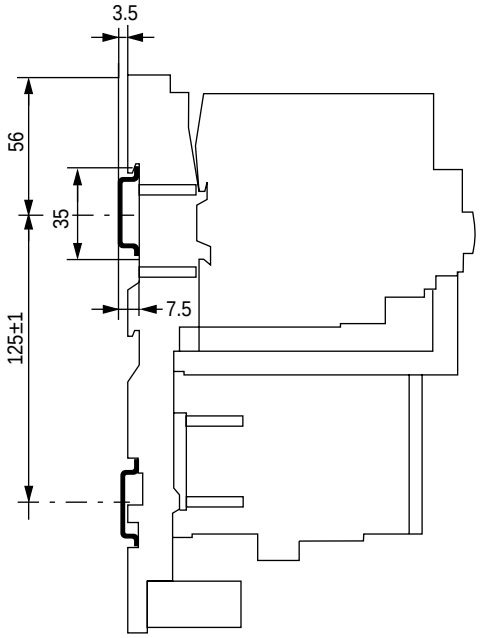


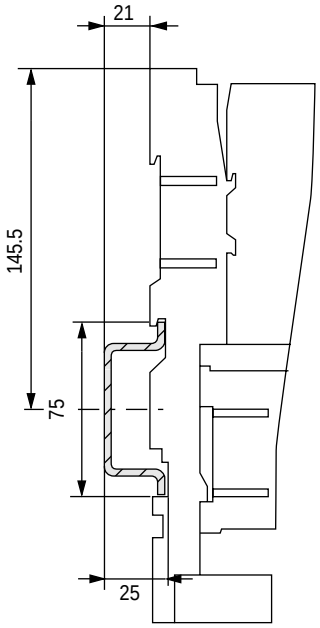
		A [mm]	B [mm]		C [mm]
190S-GN	140M-F	135	118.5	100-FB 100-FPT 100-FL	157 176 179
190S-GNZ		179	162.5	100-FB	201

Dimensions are shown in millimeters. Dimensions are not intended for manufacturing purposes.

190-E…G Approximate Dimensions







Type 2 Coordination per UL 508E

- **190E Modular Eco Starter using 140M Motor Protector and 100M Mini Contactors or 100-C MCS Contactors**

Voltage: 480V, 60 HZ

Eco Starter Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Short-Circuit Current, I_q [kA]
190E-MN⊗2-CA16X	0.10...0.16	2.1	65
190E-MN⊗2-CA25X	0.16...0.25	3.3	65
190E-MN⊗2-CA40X	0.25...0.40	5.2	65
190E-MN⊗2-CA63X	0.40...0.63	8.2	65
190E-MN⊗2-CB10X	0.63...1.0	13	65
190E-MN⊗2-CB16X	1.0...1.6	21	65
190E-AN⊗2-CA16X	0.10...0.16	2.1	65
190E-AN⊗2-CA25X	0.16...0.25	3.3	65
190E-AN⊗2-CA40X	0.25...0.40	5.2	65
190E-AN⊗2-CA63X	0.40...0.63	8.2	65
190E-AN⊗2-CB10X	0.63...1.0	13	65
190E-AN⊗2-CB16X	1.0...1.6	21	65
190E-AN⊗2-CB25X	1.6…2.5	33	50
190E-AN⊗2-DB25X	1.6…2.5	33	65
190E-AN⊗2-DB40X	2.5...4.0	52	65
190E-AN⊗2-DB63X	4.0...6.3	82	65
190E-BN⊗2-DC10X	6.3...10.0	130	65
190E-CN⊗2-DC16X	10.0...16.0	201	65
190E-DN⊗2-DC20X	14.5...20.0	260	65
190E-DN⊗2-DC25X	18.0...25.0	325	50

Voltage: 600V, 60 HZ

Eco Starter Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Short-Circuit Current, I_q [kA]
190E-MN⊗2-CA16X	0.10...0.16	2.1	47
190E-MN⊗2-CA25X	0.16...0.25	3.3	47
190E-MN⊗2-CA40X	0.25...0.40	5.2	47
190E-MN⊗2-CA63X	0.40...0.63	8.2	47
190E-MN⊗2-CB10X	0.63...1.0	13	47
190E-MN⊗2-CB16X	1.0...1.6	21	47
190E-AN⊗2-CA16X	0.10...0.16	2.1	47
190E-AN⊗2-CA25X	0.16...0.25	3.3	47
190E-AN⊗2-CA40X	0.25…0.40	5.2	47
190E-AN⊗2-CA63X	0.40…0.63	8.2	47
190E-AN⊗2-CB10X	0.63…1.0	13	47
190E-AN⊗2-CB16X	1.0…1.6	21	47
190E-AN⊗2-CB25X	1.6…2.5	33	10
190E-AN⊗2-DB25C	1.6…2.5	33	10

Definition of Type "2" short-circuit coordination per UL 508E:

- The contactor or starter must not endanger persons or plant in the event of a short-circuit.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts if these can be easily separated without appreciable deformation (such as with a screwdriver).

In the event of short-circuit, fast-opening, strong current-limiting Bulletin 140M motor protectors make it possible to build economical, fully short-circuit coordinated starter combinations in accordance with UL 508E, Type "2" coordination.

Type 2 Coordination per UL 508E

- **190S Compact Combination Starter using 140M Motor Protector and 100-C Contactor**

Voltage: 480V, 60 HZ

Compact Starter Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Short-Circuit Current, I_q [kA]
190S-AN⊗2-CA16C	0.10...0.16	2.1	65
190S-AN⊗2-CA25C	0.16...0.25	3.3	65
190S-AN⊗2-CA40C	0.25...0.40	5.2	65
190S-AN⊗2-CA63C	0.40...0.63	8.2	65
190S-AN⊗2-CB10C	0.63...1.0	13	65
190S-AN⊗2-CB16C	1.0...1.6	21	65
190S-AN⊗2-CB25C	1.6…2.5	33	65
190S-AN⊗2-DB25C	1.6…2.5	33	65
190S-AN⊗2-DB40C	2.5…4.0	52	65
190S-AN⊗2-DB63C	4.0…6.3	82	65
190S-BN⊗2-DC10C	6.3…10.0	130	65
190S-CN⊗2-DC16C	10.0…16.0	208	65
190S-DN⊗2-DC20C	14.5…20.0	260	65
190S-DN⊗2-DC25C	18.0…25.0	325	50

Voltage: 600V, 60 HZ

Compact Starter Cat. No.	Thermal Overload Release Setting Range [A]	Magnetic Release Response Current [A]	Short-Circuit Current, I_q [kA]
190S-AN⊗2-CA16C	0.10...0.16	2.1	47
190S-AN⊗2-CA25C	0.16...0.25	3.3	47
190S-AN⊗2-CA40C	0.25...0.40	5.2	47
190S-AN⊗2-CA63C	0.40...0.63	8.2	47
190S-AN⊗2-CB10C	0.63...1.0	13	47
190S-AN⊗2-CB16C	1.0...1.6	21	47
190S-AN⊗2-CB25C	1.6…2.5	33	10
190S-AN⊗2-DB25C	1.6…2.5	33	10

Definition of Type "2" short-circuit coordination per UL 508E:

- The contactor or starter must not endanger persons or plant in the event of a short-circuit.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts if t hese can be easily separated without appreciable deformation (such as with a screwdriver).

In the event of short-circuit, fast-opening, strong current-limiting Bulletin 140M motor protectors make it possible to build economical, fully short-circuit coordinated starter combinations in accordance with UL 508E, Type "2" coordination.

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