

3 pole Manual Motor Starter

- For Economical Motor Starters
- Usable as Main Supply Switch



Rated Operational Current (<i>I</i> _e)	Thermal Release Adjustment Range	Magnetic Release Operating Current	Switching of Standard 3-phase AC Motors, AC-2, AC-3						<i>I</i> _{cu} = <i>I</i> _{cs}	Cat. No.
			3-phase [kW] (50 Hz)*			3-phase [HP] (60 Hz)†			400/415V	
			230V	400V	690V	230V	460V	575V	[kA]	
[A]	[A]	[A]	230V	400V	690V	230V	460V	575V	[kA]	
0.16 A	0.1...0.16	1.8	—	0.02	—	—	—	—	65	140A-C2A-A16
0.25 A	0.16...0.25	2.8	—	0.06	—	—	—	—	65	140A-C2A-A25
0.4 A	0.25...0.4	4.4	—	0.09	—	—	—	—	65	140A-C2A-A40
0.63 A	0.4...0.63	6.9	0.06/0.09	0.12/0.18	0.25	—	—	—	65	140A-C2A-A63
1.0 A	0.63...1.0	11	0.12	0.25	0.37/0.55	—	1/2	3/4	65	140A-C2A-B10
1.6 A	1.0...1.6	18	0.18/0.25	0.37/0.55	0.75/1.1	—	1	1	65	140A-C2A-B16
2.5 A	1.6...2.5	28	0.37	0.75	1.8	3/4	1-1/2	2	50	140A-C2A-B25
4.0 A	2.5...4.0	44	0.55/0.75	1.1/1.5	2.2/3.0	1	3	3	10	140A-C2A-B40
6.3 A	4.0...6.3	69	1.1/1.5	2.2	—	2	5	5	10	140A-C2A-B63
10 A	6.3...10	110	2.2	3.0/4.0	—	3	7-1/2	10	8	140A-C2A-C10
16 A	10...16	176	3.0/4.0	5.5/7.5	—	5	10	15	6	140A-C2A-C16

* Power ratings: Preferred values according to IEC 60072-1

† UL 508 approved as manual motor controller. Suitable for use as motor disconnecting means: see page 6

Accessories

	Description	Connection Diagram	For Use With	Cat. No.
	Auxiliary Contact for Flush Mounting 1-pole No additional space required		140A	140A-C-AEA10
				140A-C-AEA210
				140A-C-AEA01
				140A-C-AEA201
	Auxiliary Contact for Left-side Mounting 2-pole Adds 9 mm to the width of the Manual Motor Starter Use compact bus bars with 54 mm spacing		140A	140A-C-ASA20
				140A-C-ASA11
				140A-C-ASA02

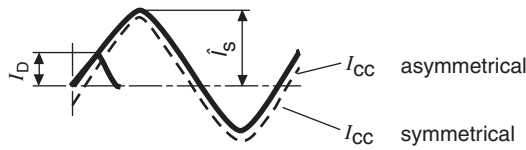
Package Quantity = 1

Preferred Availability

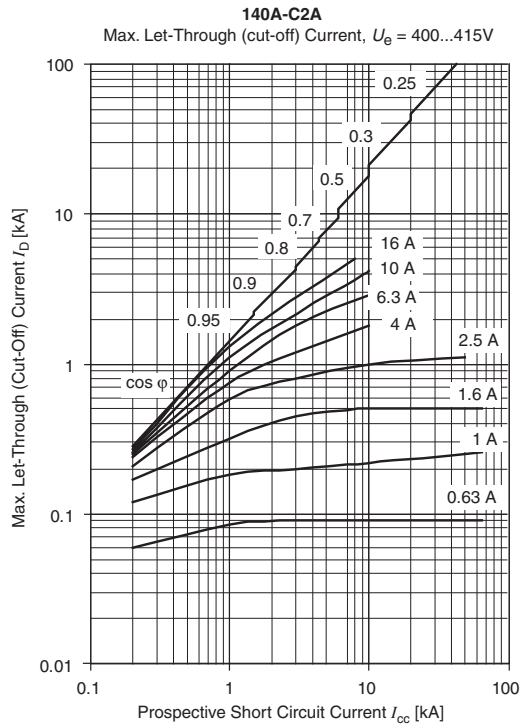
Products so identified are the most commonly ordered and are typically in factory stock.

Preferred Availability products are identified in the catalog with blue catalog numbers and options.

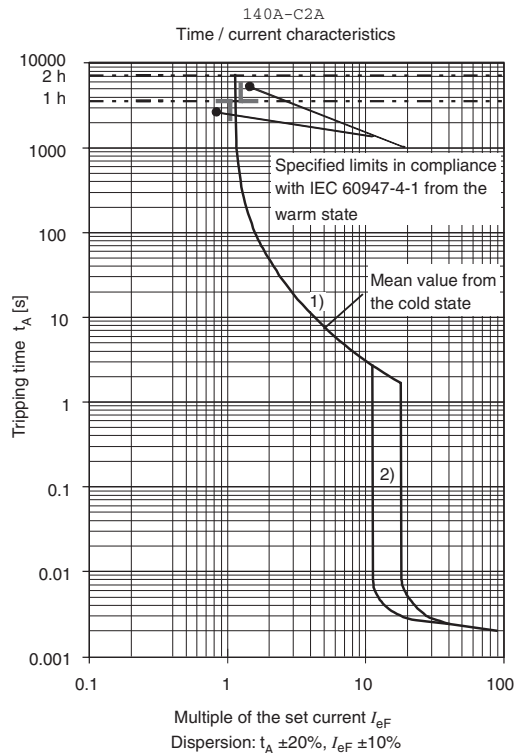
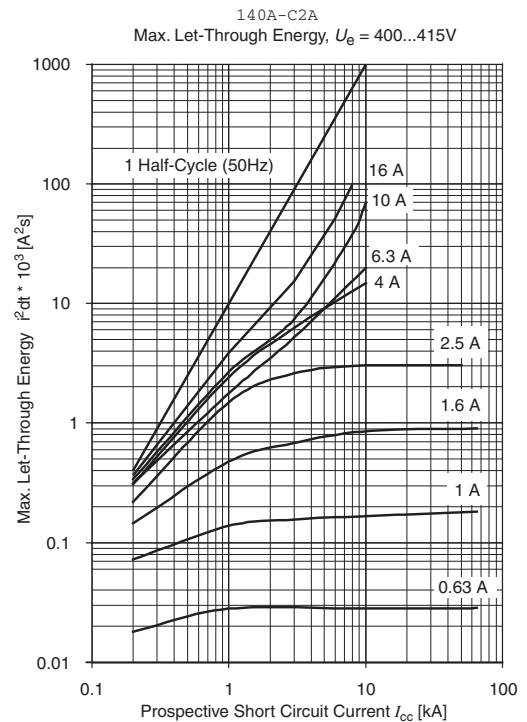
Cut-off current



The Bulletin 140A-C2A manual motor starter limits short-circuit current I_{CC} (prospective short-circuit current). I_D is the maximum cut-off current (highest instantaneous value of the limited short-circuit current). This value is indicated in the following diagram as a function of the system short-circuit current.



Correspondingly the maximum forward $i^2 dt$ energy is limited. This value is indicated in the following diagram as a function of the system short-circuit current.



1) Operating Current of Thermal Releases:

The adjustable inverse bimetal trip reliability protects motors against overloads. The curve shows the mean operating current at an ambient temperature of 20 °C starting from cold.

In equipment at operating temperature, release time is less than or equal to release time from the cold state.

2) Operating Current of Magnetic Releases:

Electromagnetic instantaneous releases react at a fixed tripping current.

At the upper thermal release setting, this tripping current is 11 times the set current.

Current To Be Set:

Thermal releases meet the requirements for a thermal release of a starter in accordance with IEC 60947-4-1 f. If a different value is specified (such as reduced I_e in motors with an ambient temperature higher than 40 °C or a site altitude >2000 m above sea level), the rated operating current I_e must be adjusted.

3-Pole Manual Motor Starter/Protector ①



Cat. No. 140-MN-1000



Cat. No. 140-CMN-9000

Adjustable Range of Overload Release [A]	Instantaneous (Magnetic) Trip Current [A]	Ratings AC-2, AC-3 ②						<i>I</i> _{cu} ③	<i>I</i> _{cs} ④	Pkg. Qty.	Cat. No.	*
		3 Ø [kW] (50 Hz)			3 Ø [HP] (60 Hz) ⑤			400/415 V				
		230V	400V	690V	230V	460V	575V	[kA]	[kA]			
0.1...0.16	1.8	—	0.02	—	—	—	—	100	100	1	140-MN-0016	
0.16...0.25	2.8	—	0.04	—	—	—	—	100	100		140-MN-0025	
0.25...0.4	4.4	—	0.06/0.09	—	—	—	—	100	100		140-MN-0040	
0.4...0.63	6.9	0.06/0.09	0.09/0.12	0.25	—	—	—	100	100		140-MN-0063	
0.63...1.0	11	0.09/0.12	0.18/0.37	0.37/0.55	—	1/2	1/2	100	100		140-MN-0100	
1.0...1.6	18	0.18/0.35	0.37/0.55	0.75/1.1	—	3/4	1	100	100		140-MN-0160	
1.6...2.5	28	0.37	0.55/0.75	1.5	1/2	1	1-1/2	100	100		140-MN-0250	
2.5...4.0	44	0.55/0.75	1.1/1.5	2.2/3.0	1	1	3	100	100		140-MN-0400	
4.0...6.3	69	1.1/1.5	2.2/2.5	3.7/4.0	1-1/2	3	5	100	100		140-MN-0630	
6.3...10	110	1.5/3.0	3.0/5.5	5.5/7.5	3	5	7-1/2	20	16		140-MN-1000	
10...16	176	3.7/4.0	5.5/7.5	10/12.5	5	10	10	10	6		140-MN-1600	
16...20	220	5.5	7.5/10	15/16	5	10	15	8	6		140-MN-2000	
20...25	275	5.5/7.5	11/12.5	18.5/22	7-1/2	15	20	8	6	140-MN-2500		
16...25	350	5.5/7.5	7.5/12.5	15/22	7-1/2	15	20	65	65	1	140-CMN-2500	
25...40	560	10/11	15/22	25/30	10	30	30	65	50		140-CMN-4000	
40...63	882	12.5/20	25/31.5	37/55	20	40	60	65	50		140-CMN-6300	
63...90	1260	22/25	37/45	63/75	30	60	75	50	25		140-CMN-9000	

① The Bulletin 140 MCS-M meets the circuit breaker requirements of IEC 947-2. This device, however, does not meet CSA and UL circuit breaker requirements. The Bulletin 140 is CSA Certified and UL Listed as a Manual Motor Controller and is rated for Group Motor Installation.

② Utilization categories and conditions for testing for alternating current per IEC 947:

- AC-2 starting and reversing of wound-rotor motors
- AC-3 starting and stopping squirrel cage induction motors

IEC 947-2 performance categories:

- I_{cu} Operational after completing O-t-CO test sequence
- I_{cs} Suitable for normal operation after completing O-t-CO-t-CO test sequence
- O = Open
- CO = Close and open
- t = Time (open)

③ Ultimate short circuit breaking capacity.

④ Rated short circuit breaking capacity.

⑤ For North American applications: HP ratings shown in the table are for reference. The final selection of the manual starter depends on the actual motor full load current and service factor as follows:

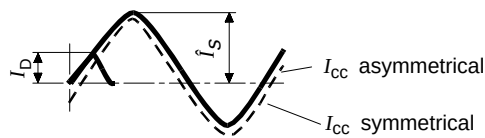
- **For motor with service factor of 1.15, or greater.** Use motor nameplate full load current and choose the motor starter with the appropriate current range. Example: Motor F.L.C. = 4.2A; S.F. = 1.15. Select **Cat. No. 140-MN-0630**.
- **For motor with service factor less than 1.15.** Use motor nameplate full load current times 0.9 and choose the motor starter with the appropriate current range. Example: Motor F.L.C. = 4.2A; S.F. = 1.0; 4.2A x 0.9 = 3.78A. Select **Cat. No. 140-MN-0400**.

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Cut-Off Current

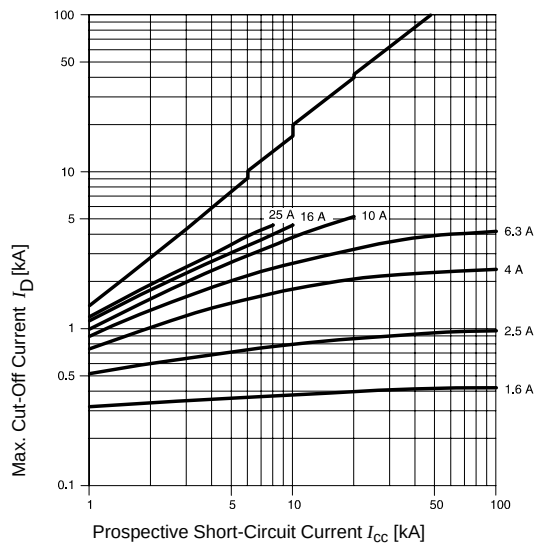


The 140-MN limits solid short-circuit current I_{cc} (prospective short-circuit current). I_D is the maximum cut-off current (highest instantaneous value of the limited short-circuit current). This value is indicated in the following diagrams as a function of the prospective system short-circuit current.

140-MN Manual Motor Starter/Protector

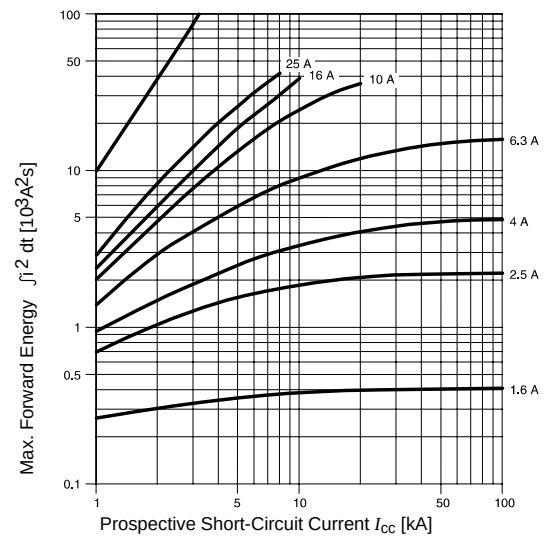
Maximum cut-off current

Rated operating voltage 400V



Maximum forward energy

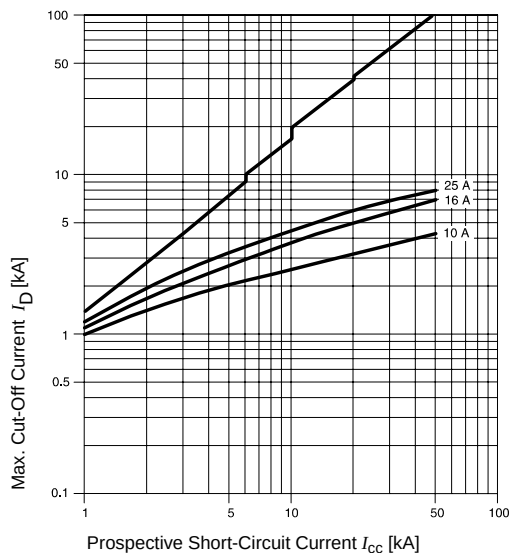
Rated operating voltage 400V



140-MN Manual Motor Starter/Protector with 140-CL2 Current Limiter

Maximum cut-off current

Rated operating voltage 400V



Maximum forward energy

Rated operating voltage 400V

