



- Bulletin 140
- 2 Physical Sizes
 - 0.1...90 A
(0.02...45kW @ 400V)
 - 1/2...60HP @ 460V
 - Accessories for Front and Side Mounting
 - Easy Installation on 35mm DIN Rail (EN 50022)
 - High Current Limiting and Interrupting Capacity (up to 100kA)
 - Short Circuit Trip Indication (140-CMN)
 - Compact Bus Bar System for Reduced Wiring
 - Group Motor Installation Rated for North American Applications

TABLE OF CONTENTS

Description	Page	Description	Page
Product Selection	3-107	Accessories	3-109
Specifications	3-113	Approximate Dimensions	3-124

Description

Bulletin 140 Manual Motor Starter and Protector provides magnetic trips and overload protection with ambient temperature compensation. A wide range of accessories makes installation and wiring easy.

Conformity to Standards:

IEC 947-1/2/4/5
ASE 1090-1, 1092-1, 1093-1
VDE 0660 part 101, 104, 200; 0165/83
CSA 22.2 No. 14
UL 508

Approvals:

ASE, Germ. Lloyd, CEBEC, PTB,
DEMKO, SEMKO, Finland, NEMKO

CE
CSA Certified
UL Listed

Your order must include:

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

3-Pole Manual Motor Starter/Protector ❶



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 ❷						<i>I</i> _{cu} ❸	<i>I</i> _{cs} ❹	Pkg. Qty.	Cat. No.	✱
		3 Ø [kW] (50 Hz)			3 Ø [HP] (60 Hz) ❺			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	

❶ 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.

❷ **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)

❸ Ultimate short circuit breaking capacity.

❹ Rated short circuit breaking capacity.

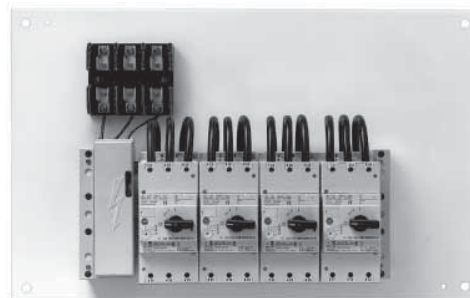
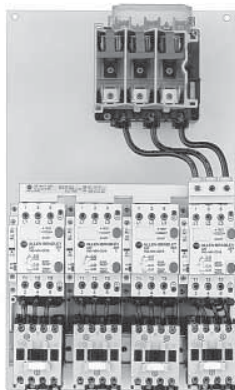
❺ For North American applications: HP ratings shown in the table are for reference. The final selection of the manual starter depends on the actual motor full load current and service factor as follows:

- **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**.

Accessories — Page 3-109

Specifications — Page 3-113

Approximate Dimensions — Page 3-124

Manual Motor Starter/Protectors**Product Selection, Continued****Group Motor Applications — For U. S. and Canada**

Cat. Nos. listed in the table below are CSA Certified and UL Listed for group motor installations ("Group Fusing") as defined in the Canadian and U.S. National Electrical Codes.

Group Motor Applications ① — Series C Devices

Adjustable Range of Overload Release (A)	Max. Short Circuit Current				Max. Backup Protection ②	1Ø HP ③			3Ø HP			Cat. No.	*	
	140-MN-____ / 140-CMN-____		140-MN-____ + CL2											
	(kA) 480V	(kA) 600V	(kA) 480V	(kA) 600V		Fuses or Circuit Breaker (Amperes) 480V 600V	115V 60 Hz	200V 60 Hz	230V 60 Hz	230V 60 Hz	460V 60 Hz			575V 60 Hz
	0.1...0.16	42	42	—		—	1200A	—	—	—	—			—
0.16...0.25	42	42	—	—	1200A	—	—	—	—	—	—	140-MN-0025		
0.25...0.40	42	42	—	—	1200A	—	—	—	—	—	—	140-MN-0040		
0.40...0.63	42	42	—	—	1200A	—	—	—	—	—	—	140-MN-0063		
0.63...1.0	42	42	—	—	1200A	—	—	—	—	—	1/2	140-MN-0100		
1.0...1.6	42	42	—	—	1200A	—	—	—	—	1/2	3/4	140-MN-0160		
1.6...2.5	42	42	—	—	1200A	1/10	1/8	1/6	1/2	1	1-1/2	140-MN-0250		
2.5...4.0	42	42	—	—	1200A	1/8	1/4	1/3	3/4	2	3	140-MN-0400		
4.0...6.3	42	10	42	42	1200A	1/4	1/2	1/2	1-1/2	3	5	140-MN-0630		
6.3...10.0	14	10	42	42	1200A	1/2	1	1-1/2	3	5	7-1/2	140-MN-1000		
10.0...16.0	10	5	42	14	1200A	1	2	2	5	10	10	140-MN-1600		
16.0...20.0	10	5	14	10	1200A	1-1/2	3	3	5	10	15	140-MN-2000		
20.0...25.0	10	5	10	10	1200A	2	3	3	7-1/2	15	20	140-MN-2500		
16.0...25.0	65	42	—	—	2000A	2	3	3	7-1/2	15	20	140-CMN-2500		
25.0...40.0	65	42	—	—	2000A	3	5	7-1/2	10	30	30	140-CMN-4000		
40.0...63.0	65	42	—	—	2000A	5	10	10	20	40	60	140-CMN-6300		
63.0...90.0	65	30	—	—	2000A	7-1/2	15	20	30	60	75	140-CMN-9000		

① For CANADIAN AND U.S. APPLICATIONS:

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 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**.

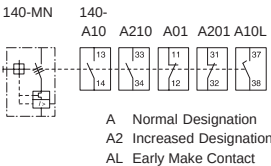
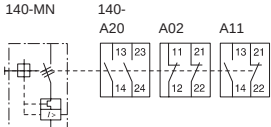
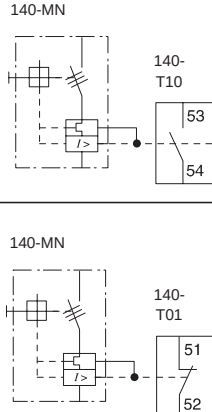
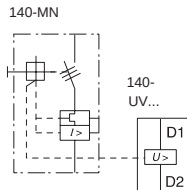
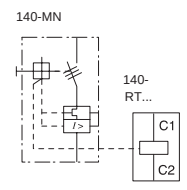
② The maximum fuse or circuit breaker selection for the group will be that dictated by the Canadian or U.S. Electrical Codes.

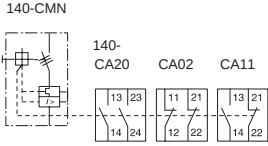
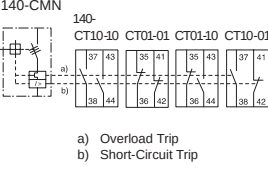
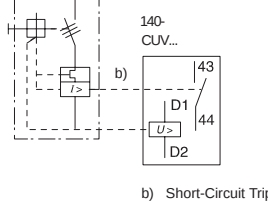
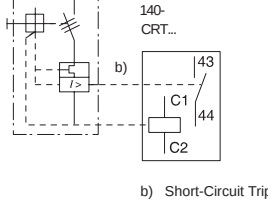
③ The single phase horsepower ratings are based on wiring the 3 poles of the device in series.

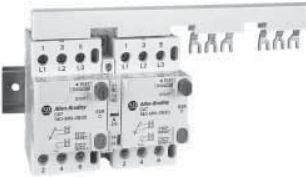
Accessories — Page 3-109

Specifications — Page 3-113

Approximate Dimensions — Page 3-124

	Description	Wiring Diagram	For Use With	Pkg. Qty.	Cat. No.	*
	Auxiliary Contacts - Internal mounting 1-Pole - Use with compact bus-bars with 45mm spacing	 A Normal Designation A2 Increased Designation AL Early Make Contact	140-MN	10	140-A10	
					140-A210	
					140-A01	
					140-A201	
					140-A10L	
	Auxiliary Contacts - External, for left side mounting 2-Pole - Use with compact bus-bars with 54mm spacing		140-MN	10	140-A20	
					140-A02	
					140-A11	
	Trip Indicating Auxiliary Contact - Internal mounting 1-Pole - Use with compact bus-bars with 45mm spacing		140-MN	10	140-T10	
					140-T01	
	Undervoltage Trip Unit		140-MN	10	140-UV-KJ	
	Right side mounting				140-UV-DD	
	Voltage: 24V 50 Hz				140-UV-H	
	120V 60 Hz				140-UV-A	
	208V 60 Hz				140-UV-B	
	240...260V 60 Hz					
	Shunt Trip Unit		140-MN	10	140-RT-KJ	
	Right side mounting				140-RT-DD	
	Voltage: 24V 50 Hz					
	120V 60 Hz				140-RT-A	
	240...260V 60 Hz					

	Description	Wiring Diagram	For Use With	Pkg. Qty.	Cat. No.	*
	Auxiliary Contacts - Internal, front mounted 2-Pole		140-CMN	1	140-CA20	
					140-CA02	
					140-CA11	
	Trip Indicating Auxiliary Contacts - Internal, front mounted 2-Pole		140-CMN	1	140-CT10-10	
					140-CT01-01	
					140-CT01-10	
					140-CT10-01	
	Undervoltage Trip Unit - Internal, front mounted - Integrated short-circuit trip indication		140-CMN	1	140-CUV-KJ	
	Voltage: 24V 50/60 Hz				140-CUV-D	
	110V 50 Hz/120V 60 Hz				140-CUV-A	
	220V 50 Hz/240V 60 Hz					
	Shunt Trip Unit - Internal, front mounted - Integrated short-circuit trip indication		140-CMN	1	140-CRT-KJ	
	Voltage: 24V 50/60 Hz				140-CRT-D	
	110V 50 Hz/120V 60 Hz				140-CRT-A	
	220V 50 Hz/240V 60 Hz					

	Description	For Use With	Pkg. Qty.	Cat. No.	*
	Current Limiter - Use in single or group installations to increase short circuit interrupting capacity. - DIN rail mounting next to Bul. 140-MN, or Bul. 140-MN can be snapped on to current limiter.	140-MN	10	140-CL2	
 Cat. No. 140-LD	Three-Phase Terminal For use with three-phase commoning link 65A 600V maximum Bottom feed	140-MN	10	140-LD	
 Cat. No. 140-L2	For use with three-phase commoning link 65A 600V maximum Top feed, overlaps commoning link, 5.260mm ² ...13.296mm ² (#10...#6 AWG)		10	140-L2	
	Three-Phase Commoning Link For lineside connection of adjacent starters 65A For 45mm Spacing (Can not be used with 140-DC1 Adapter Plate)	140-MN	10		
	For linking 2 Bulletin 140 Starters			140-L452	
	For linking 3 Bulletin 140 Starters			140-L453	
	For linking 4 Bulletin 140 Starters			140-L454	
	For linking 5 Bulletin 140 Starters			140-L455	
	For lineside connection of adjacent starters 65A For 54mm Spacing (Can be used with 140-DC1 Adapter Plate)				
	For linking 2 Bulletin 140 Starters			140-L12	
	For linking 3 Bulletin 140 Starters			140-L13	
	For linking 4 Bulletin 140 Starters			140-L11	
	For linking 5 Bulletin 140 Starters			140-L1	
	Terminal Cover For use with three-phase commoning link Covers unused terminations.		10	140-L3	
 Adapter Plate	Adapter Plate — Installs on 35mm DIN rail Holds manual motor starter and Cat. No. 100-A09, -A12, -A18 or -A24 contactor	140-MN	3	140-DC1	
	Connector Kit — Simplifies power wiring between: Bulletin 140 and Bulletin 100 Contactor	140-MN	1	140-N11	
	Bulletin 140 and Bulletin 100M Miniature Contactor		1	140-N21	
	Bulletin 140 and Bulletin 100DC Operated Contactor		1	140-N31	

		Description	For Use With	Pkg. Qty.	Cat. No.	*	
 Cat. No. 140-E41	 Cat. No. 140-E55	IP41 Enclosure IP41 Non-Metallic Enclosure with 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.	140-MN	1	140-E41		
		IP55 Enclosure IP55 Non-Metallic Enclosure with 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.		1	140-E55		
	Push Button Membrane	1		140-N18			
 <i>Pilot Light</i>	Pilot Light — For above enclosures	Red Pilot Light		1	140-LR___❶		
		Green Pilot Light			140-LG___❶		
		White Pilot Light			140-LW___❶		
		Yellow Pilot Light			140-LY___❶		
	Locking Attachment For IP55 and IP41 enclosures, permits locking starter in the “OFF” position with up to 3 padlocks. Accepts up to 8.5mm (5/16”) locks. Note: Not compatible with pilot lights.			140-MN	1	140-N22	
	Padlock Attachment Permits padlocking the “Start” button in the off position. Accepts 8mm (5/16”) padlock — up to three padlocks.			140-MN	1	140-N24	
	Panel Mounting Adapter Permits screw mounting of Bulletin 140			140-MN	1	140-N12	
	Padlockable Operating Knob - Accepts 8mm (5/16”) padlock — up to three padlocks. - Permits padlocking in the off position.	black	140-CMN	1	140-KN		
		red/yellow			140-KRY		

❶ Voltages: 120, 240, 400, 415, 480. Insert voltage selected at the end of Cat. No. Example: **Cat. No. 140-LR120**. Not compatible with locking attachment **Cat. No. 140-N22**.

IEC Performance Data

	Cat. No. 140-MN...												
	0.16A	0.25A	0.4A	0.63A	1A	1.6A	2.5A	4A	6.3A	10A	16A	20A	25A
Switching of Standard Three-Phase Motors AC-2, AC-3													
230/240V [kW]	—	—	—	0.06/0.09	0.09/0.12	0.18/0.25	0.37	0.55/0.75	1.1/1.5	1.5/3.0	3.7/4.0	5.5	5.5/7.5
400/415V [kW]	0.02	0.04	0.06/0.09	0.09/0.12	0.18/0.37	0.37/0.55	0.55/0.75	1.1/1.5	2.2/2.5	3.0/5.5	5.5/7.5	7.5/10	11/12.5
500V [kW]	—	—	—	0.25	0.37	0.55/0.75	1.1	1.5/2.2	2.5/3.0	3.7/6.3	7.5/10	11	12.5/16
690V [kW]	—	—	—	0.25	0.37/0.55	0.75/1.1	1.5	2.2/3.0	3.7/4.0	5.5/7.5	10/12.5	15/16	18.5/22
Back-Up Fuses gG, aM, only if $I_{cc} > I_{cu}$													
230/240V [A]	—	—	—	—	—	—	—	—	—	—	125	125	125
400/415V [A]	—	—	—	—	—	—	—	—	—	125	125	125	125
500V [A]	—	—	—	—	—	—	—	—	100	100	100	100	100
690V [A]	—	—	—	—	—	—	50	50	63	80	80	80	80
Ultimate Short-Circuit Breaking Capacity I_{cu}													
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	30	20	20
400/415V [kA]	100	100	100	100	100	100	100	100	100	20	10	8	8
500V [kA]	100	100	100	100	100	100	100	100	30	6	6	6	6
690V [kA]	100	100	100	100	100	100	4.5	8	8	4.5	3	3	3
Rated Short-Circuit Breaking Capacity I_{cs}													
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	20	16	16
400/415V [kA]	100	100	100	100	100	100	100	100	100	16	6	6	6
500V [kA]	100	100	100	100	100	100	100	100	20	6	4.5	4.5	4.5
690V [kA]	100	100	100	100	100	100	4.5	6	6	3	3	3	3

Specifications: UL/CSA Ratings as a Manual Motor Starter

(UL 508, CSA C22.2 No. 14)

	Cat. No. 140-MN...												
	0.16A	0.25A	0.4A	0.63A	1A	1.6A	2.5A	4A	6.3A	10A	16A	20A	25A
Max. Short-Circuit Current													
480V [kA]	42	42	42	42	42	42	42	42	42	14	10	10	10
600V [kA]	42	42	42	42	42	42	42	42	10	10	5	5	5
Motor Load, 1 Phase													
115V [HP]	—	—	—	—	—	—	1/10	1/8	1/4	1/2	1	1-1/2	2
200V [HP]	—	—	—	—	—	—	—	—	—	—	—	—	—
230V [HP]	—	—	—	—	—	—	1/6	1/3	1/2	1-1/2	2	3	3
Motor Load, 3 Phase													
200V [HP]	—	—	—	—	—	—	1/2	3/4	1-1/2	2	3	5	5
230V [HP]	—	—	—	—	—	—	1/2	1	1-1/2	3	5	5	7-1/2
460V [HP]	—	—	—	—	1/2	3/4	1	2	3	5	10	10	15
575V [HP]	—	—	—	—	1/2	1	1-1/2	3	5	7-1/2	10	15	20
Max. Back-Up Short-Circuit Protective Device (Fuse or Circuit Breaker) [A]	1200												

Manual Motor Starter/Protectors

Specifications, Continued

IEC Performance Data

	Cat. No. 140-CMN...			
	25A	40A	63A	90A
Switching of Standard Three-Phase Motors				
AC-2, AC-3				
230/240V [kW]	5.5/7.5	10/11	12.5/20	22/25
400/415V [kW]	7.5/12.5	15/22	25/31.5	37/45
500V [kW]	11/16	18.5/25	30/40	45/55
690V [kW]	15/22	25/30	37/55	63/75
Back-Up Fuses				
gG, aM, only if $I_{cc} > I_{cu}$				
230/240V [A]	—	—	—	—
400/415V [A]	160	160	160	160
500V [A]	160	160	160	160
690V [A]	160	160	160	160
Ultimate Short-Circuit Breaking Capacity I_{cu}				
230/240V [kA]	100	100	100	100
400/415V [kA]	65	65	65	50
500V [kA]	50	30	30	25
690V [kA]	15	8	8	6
Rated Short-Circuit Breaking Capacity I_{cs}				
230/240V [kA]	100	100	100	100
400/415V [kA]	65	50	50	25
500V [kA]	50	25	25	13
690V [kA]	15	6	6	6

Specifications: CSA/UL Ratings as a Manual Motor Starter

(CSA C22.2, UL 508 No. 14)

	Cat. No. 140-CMN...			
	25A	40A	63A	90A
Max. Short-Circuit Current				
480V [kA]	65	65	65	65
600V [kA]	42	42	42	30
Motor Load, 1 Phase				
115V [HP]	2	3	5	7-1/2
200V [HP]	3	5	10	15
230V [HP]	3	7-1/2	10	20
Motor Load, 3 Phase				
200V [HP]	—	—	—	—
230V [HP]	7-1/2	10	20	30
460V [HP]	15	30	40	60
575V [HP]	20	30	60	75
Max. Back-Up Short-Circuit Protective Device (Fuse or Circuit Breaker)				
[A]	2000			

General

	Cat. No. 140-MN...	Cat. No. 140-CMN...
Rated Insulation Voltage IEC, SEV, VDE 0660	690V	
CSA, UL	600V	
Rated Frequency	40...60 Hz	
Life Span Mechanical	100 000 operations	30 000 operations
Electrical	100 000 operations	10 000 operations at 63A 5 000 operations at 90A
Frequency of Operation	max. 30 operations/hour	max. 20 operations/hour
Ambient Temperature Storage	-25...+80°C (-13...176°F)	
Operation	-25...+60°C (-13...140°F)	
Corrosion Resistance Resistance to heat and humidity	C IV (per IEC 68) 40°C, 92%, 56 days	
Resistance to cyclic temperature stress and humidity	23°C, 83% / 40°C, 93%, 56 cycles	
Type of Protection	IP20 in closed state	
Shock Resistance	30 G, 20 ms	in testing
Resistance to Vibration Frequency range	10...150 Hz	
In all directions	>7.5 G	in testing
Rated Thermal Current I_{th} IEC, SEV, VDE 0660 At 40°C ambient temperature	—	—
At 60°C ambient temperature	0.1...25A	16...90A
Rated Current I_e	13 adjustment ranges 0.1...25A	4 adjustment ranges 16...90A
Rated Impulse Voltage/Pollution Degree U_{imp} /Degree		
Main circuits	—	6 kV/3
Auxiliary circuits	—	6 kV/3
Overload Protection Characteristic	motor protection per IEC 947	
Temperature compensation	-20...+60°C (-4...140°F)	
Phase failure protection	—	differential release
Magnetic Release Operating current	fixed setting 11 x $I_{e\max}$. $I_{e\max}$ = maximum value of adjustment range	fixed setting 14 x $I_{e\max}$.
Power Loss P_v At rated current and with switch at operating temperature	7 W	33 W

Manual Motor Starter/Protectors

Specifications, Continued

General, Continued

	Cat. No. 140-MN...	Cat. No. 140-CMN...
Standards	IEC 947-1/2/4/5; EN 60947; UL 508; CSA 22.2	
Approvals	CE, SEV, Germ. Lloyd, CEBEC, PTB, DEMKO, SEMKO, SETI, NEMKO, UL, CSA, Bureau Veritas, Lloyd's Reg. of Shipping, Maritime Reg. of Shipping, RINA, KEMA	CE, CSA, UL, Lloyd's Reg. of Shipping (in preparation)
Terminals Terminal type		
 Flexible [mm ²]	1 x 1...4	1 x 2.5...35
 Stranded [mm ²]	1 x 1...6	1 x 4...50
Breakaway torque [Nm]	2.5	6...10
 Stranded [AVG]	No. 16...10	No. 12...2
Breakaway torque [lb-in.]	20...26	53...120
Weight 3-pole [g (lb)]	290 (0.64)	1845 (4.10)

Accessories

	Auxiliary Contacts for Internal Mounting on Cat. No. 140-MN, 140-A...				Auxiliary Contacts for Left Side Mounting on Cat. No. 140-MN, 140-A...			
Rated Thermal Current I_{th} At 40°C ambient temperature (A) At 60°C ambient temperature (A)	6 4				10 6			
NEMA Contact Rating (CSA/UL approval) AC DC	B 600 Standard Pilot Duty R 300 Light Pilot Duty				B 600 Standard Pilot Duty R 300 Light Pilot Duty			
Contacts Contact reliability per DIN 19 240 Bifurcated contacts	—				solid-state, hard wired			
Back-Up Fuses gl, gL (A)	16				16			
Rated Current AC-15: DC-13:	230/240V 2A	400/415V 1A	500V 0.8A	690V 0.5A	230/240V 2A	400/415V 1A	500V 0.8A	690V 0.5A
	24V 2A	48V 0.6A	110V 0.2A	220V 0.1A	24V 2A	48V 0.6A	110V 0.2A	220V 0.1A
Terminals Terminal type								
 Flexible [mm ²]	1 x 0.75...2.5				1 x 0.75...2.5			
 Stranded [mm ²]	1 x 0.75...4				1 x 0.75...4			
Breakaway Torque [Nm]	2.5				2.5			
 Stranded [AWG]	No. 18...14				No. 18...14			
Breakaway Torque [lb-in.]	20...26				20...26			
Weight [g (lb)]	12 (0.03)				35 (0.08)			

Accessories, Continued

	Auxiliary Contacts for Front Mounting on Cat. No. 140-CMN, 140-CA...						Auxiliary Trip Indicating Contacts for Internal Mounting on Cat. No. 140-MN, 140-T...			
Rated Thermal Current I_{th} At 40°C ambient temperature (A) At 60°C ambient temperature (A)	10 6						6 4			
NEMA Contact Rating (CSA/UL Approvals) AC DC	B 600 Standard Pilot Duty R 300 Light Pilot Duty						B 600 Standard Pilot Duty R 300 Light Pilot Duty			
Back-Up Fuses gl, gL (A)	16						16			
Rated Current AC-15: DC-13:	230/240V 3A	400V 2.5A	500V 1.5A	690V 0.75A			230/240V 2A	400/415V 1A	500V 0.8A	690V 0.5A
	24V 2A	48V 0.6A	110V 0.2A	220V 0.1A	440V 0.04A		24V 2A	48V 0.6A	110V 0.2A	230V 0.1A
Terminals Terminal type										
 Flexible [mm ²]	2 x 0.75...2.5						1 x 0.75...2.5			
 Stranded [mm ²]	2 x 0.75...2.5						1 x 0.75...4			
Breakaway Torque [Nm]	1...1.5						2.5			
 Stranded [AWG]	No. 18...14						No. 18...14			
Breakaway Torque [lb-in.]	8.8...10.3						20...26			
Weight [g (lb)]	31 (0.07)						13 (0.03)			

	Trip Indicating Contacts for Front Mounting on Cat. No. 140-CMN, 140-CT...						Integrated Short-Circuit Indicator in Cat. No. 140-CUV...and 140-CRT...				
Rated Thermal Current I_{th} At 40°C ambient temperature (A) At 60°C ambient temperature (A)	10 6						2 2				
NEMA Contact Rating (CSA/UL Approvals) AC DC	B 600 Standard Pilot Duty R 300 Light Pilot Duty						in preparation				
Back-Up Fuses gl, gL (A)	16						—				
Rated Current AC-15: DC-13:	230V 3A	400V 2.5A	500V 1.5A	690V 0.75A	—		AC-14: 24V 1.5A	110V 1.5A	230V 1.0A	400V 1.0A	500V 0.75A
	24V 2A	48V 0.6A	110V 0.2A	230V 0.1A	440V 0.04A		DC-13: 24V 1.5A	48V 0.5A	60V 0.4A	110V 0.2A	—
Terminals Terminal type											
 Flexible [mm ²]	2 x 0.75...2.5						2 x 0.75...2.5				
 Stranded [mm ²]	2 x 0.75...2.5						2 x 0.75...2.5				
Breakaway Torque [Nm]	1...1.5						1...1.5				
 Stranded [AWG]	No. 18...12						No. 18...12				
Breakaway Torque [lb-in.]	8.8...10.3						8.8...10.3				
Weight [g (lb)]	31 (0.07)						91 (0.21)				

Bulletin 140
Manual Motor Starter/Protectors
Specifications, Continued

Accessories, Continued

	Undervoltage Trip Unit for Right Side Mounting on Cat. No. 140-MN, 140-UV...	Undervoltage Trip Unit for Front Mounting on Cat. No. 140-CMN, 140-CUV...
Operating Voltage		
Pickup	$0.8...1.1 \times U_s$	$0.8...1.1 \times U_s$
Dropout	$0.7...0.35 \times U_s$	$0.7...0.35 \times U_s$
Duty Cycle	Continuous	Continuous
Control Voltages		
min.:	12V 50 Hz/14V 60 Hz	12V 50 Hz/14V 60 Hz
max.:	600V 50 Hz	600V 50 Hz
Coil Performance		
Pickup	8.5 VA, 6 W	upon inquiry
Dropout	3 VA, 1.2 W	upon inquiry
Terminals		
Terminal type		
 Flexible [mm ²]	1 x 0.75...2.5	2 x 0.75...2.5
 Stranded [mm ²]	1 x 0.75...4	2 x 0.75...2.5
Breakaway Torque [Nm]	2.5	1...1.5
 Stranded [AWG]	No. 18...14	No. 18...12
Breakaway Torque [lb-in.]	20...26	8.8...10.3
Weight [g (lb)]	104 (0.23)	94 (0.21)

	Shunt Trip for Right Side Mounting on Cat. No. 140-MN, 140-RT...	Shunt Trip for Front Mounting on Cat. No. 140-CMN, 140-CRT...
Operating Voltage		
Pickup	$0.7...1.1 \times U_s$	$0.7...1.1 \times U_s$
Dropout	—	—
Duty Cycle	Continuous	Continuous
Control Voltages		
min.:	12V 50 Hz/14V 60 Hz	12V 50 Hz/14V 60 Hz
max.:	600V 50 Hz	600V 50 Hz
Coil Performance		
Pickup	8.5 VA, 6 W	upon inquiry
Dropout	3 VA, 1.2 W	upon inquiry
Terminals		
Terminal type		
 Flexible [mm ²]	1 x 0.75...2.5	2 x 0.75...2.5
 Stranded [mm ²]	1 x 0.75...4	2 x 0.75...2.5
Breakaway Torque [Nm]	2.5	1...1.5
 Stranded [AWG]	No. 18...14	No. 18...12
Breakaway Torque [lb-in.]	20...26	8.8...10.3
Weight [g (lb)]	100 (0.22)	94 (0.21)

Accessories, Continued

				Cat. No. 140-CL2 Current Limiter													
Rated Voltage (V)				690													
Continuous Current (A)				65													
Rated Short-Circuit Breaking Capacity I_{cu} / I_{cs}																	
Thermal Release	Magnetic Release	140-MN Manual Motor Starter/Protector								140-MN Manual Motor Starter/Protector with 140-CL2 Current Limiter							
		Breaking Capacity I_{cu} / I_{cs}								Breaking Capacity I_{cu} / I_{cs}							
		per IEC 947-2, 40...60 Hz at:								per IEC 947-2, 40...60 Hz at:							
Adjustment Range	Operating Current	230/240V		400/415V		500V		690V		230/240V		400/415V		500V		690V	
		I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
[A]	[A]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]
0.1...0.16	1.8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.16...0.25	2.8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.25...0.4	4.4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.4...0.63	6.9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.63...1.0	11	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1.0...1.6	18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1.6...2.5	28	100	100	100	100	100	100	4.5	4.5	100	100	100	100	100	100	4.5	4.5
2.5...4.0	44	100	100	100	100	100	100	8	6	100	100	100	100	100	100	8	6
4.0...6.3	69	100	100	100	100	30	20	8	6	100	100	100	100	50	50	8	6
6.3...10	110	100	100	20	16	6	6	4.5	3	100	100	50	50	50	50	4.5	3
10...16	176	30	20	10	6	6	4.5	3	3	50	50	50	50	20	20	3	3
16...20	220	20	16	8	6	6	4.5	3	3	50	50	50	50	10	4.5	3	3
20...25	275	20	16	8	6	6	4.5	3	3	50	50	50	50	10	4.5	3	3
Terminals				No. 2, 4, 6 (over)								No. 1, 3, 5 (under)					
Terminal type																	
	Flexible	[mm ²]		1 x 0.75...4								1x 4...16					
	Stranded	[mm ²]		1 x 0.75...6								1 x 6...25					
	Breakaway Torque	[Nm]		2.5								2.5					
	Stranded	[AWG]		No. 14...10								No. 14...6					
	Breakaway Torque	[lb-in.]		25...29								20...26					
Weight				[g (lb)]		210 (0.46)											

I_{cs} Rated short-circuit breaking capacity

I_{cu} Ultimate short-circuit breaking capacity

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)

Bulletin 140
Manual Motor Starter/Protectors
Specifications, Continued

Accessories, Continued

	Cat. No. 140-LD Three-Phase Terminal		Cat. No. 140-L2 Three-Phase Terminal
Terminals	No. 2, 4, 6 (over)	No. 2, 4, 6 (over)	No. 1, 3, 5
Terminal type			
 Flexible [mm ²]	1 x 0.75...4	1 x 4...16	1 x 4...16
 Stranded [mm ²]	1 x 0.75...6	1 x 6...25	—
Breakaway Torque [Nm]	2.5	2.5	4
 Stranded [AWG]	No. 14...6	No. 14...10	No. 14...6
Breakaway Torque [lb-in.]	25...29	20...26	36
Weight [g (lb)]	151 (0.33)		36 (0.08)

	Cat. No. 140-L45 Compact Bus Bars	Cat. No. 140-L1 Compact Bus Bars
Rated Insulation Voltage	690V	690V
Rated Thermal Current I_{th}	63A	63A
Weight [g (lb)]	42 (0.09) (140-L452) 69 (0.15) (140-L453) 94 (0.21) (140-L454) 119 (0.26) (140-L455)	45 (0.10) (140-L12) 76 (0.17) (140-L13) 104 (0.23) (140-L11) 135 (0.30) (140-L1)

	Cat. No. 140-L3 Blank Space Cover
Weight [g (lb)]	3.3 (0.01)

	Cat. No. 140-E41 Enclosure	Cat. No. 140-E55 Enclosure
Type of Protection	IP41	IP55 (with seal and protective membrane)
Ambient Temperature	–25°C...+ 40°C (–13...104°F)	–25°C...+ 40°C (–13...104°F)
Weight [g (lb)]	250 (0.55)	258 (0.57)

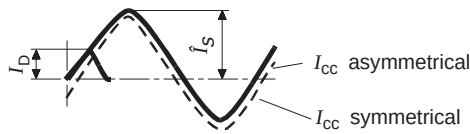
	Cat. No. 140-N18 Push Button Membrane
Weight [g (lb)]	8 (0.02)

	Cat. No. 140-L-...Pilot Light
Type of Protection	IP54
Operating Voltages	120, 240, 400, 415, 480V
Weight [g (lb)]	10 (0.02)

	Cat. No. 140-N22 Locking Attachment	Cat. No. 140-N24 Locking Attachment
Weight [g (lb)]	19 (0.04)	11 (0.02)

	Cat. No. 140-N12 Screw Adapter	Cat. No. 140-K...Operating Knob
Weight [g (lb)]	16 (0.04)	16 (0.04)

Cut-Off Current

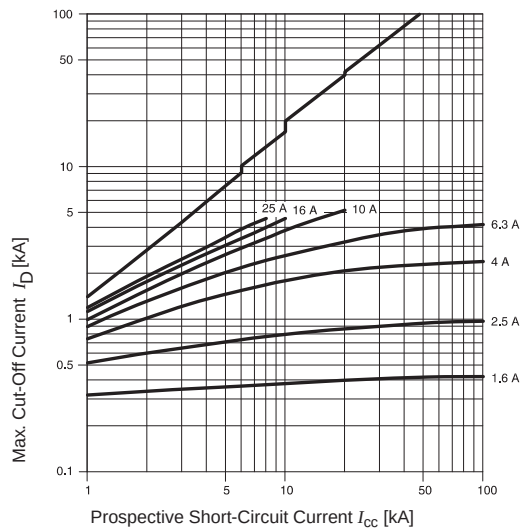


The 140-MN limits solid short-circuit current I_{cc} (prospective short-circuit current). I_D is the maximum cut-off current (highest instantaneous value of the limited short-circuit current). This value is indicated in the following diagrams as a function of the prospective system short-circuit current.

140-MN Manual Motor Starter/Protector

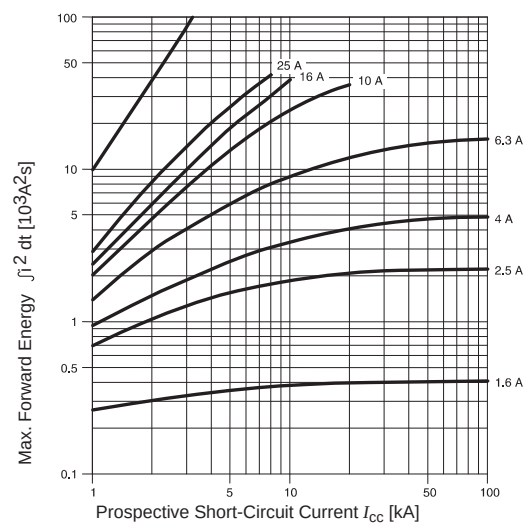
Maximum cut-off current

Rated operating voltage 400V



Maximum forward energy

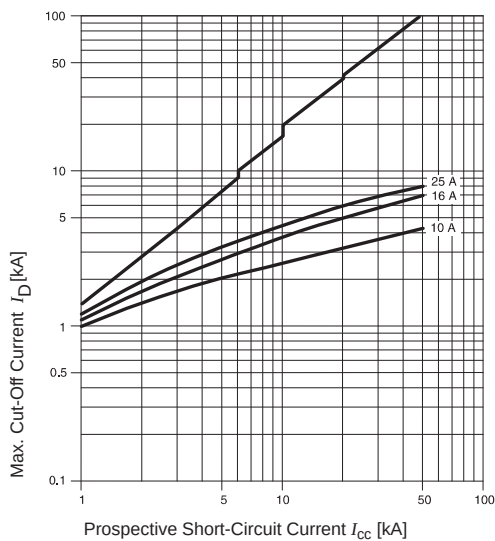
Rated operating voltage 400V



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

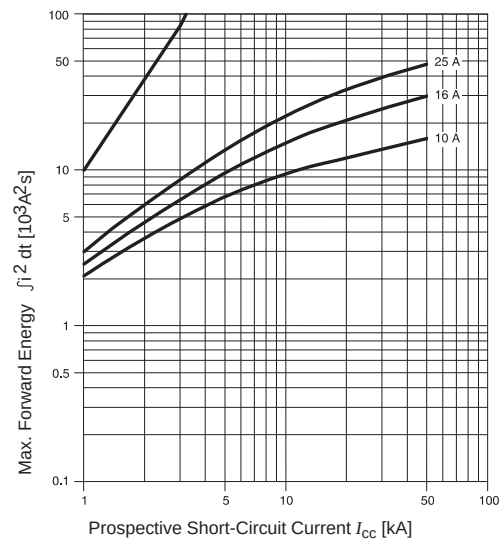
Maximum cut-off current

Rated operating voltage 400V



Maximum forward energy

Rated operating voltage 400V

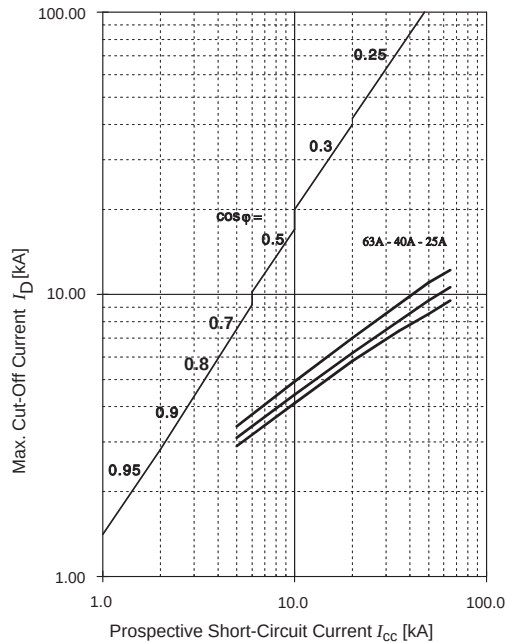


Bulletin 140
Manual Motor Starter/Protectors
Specifications, Continued

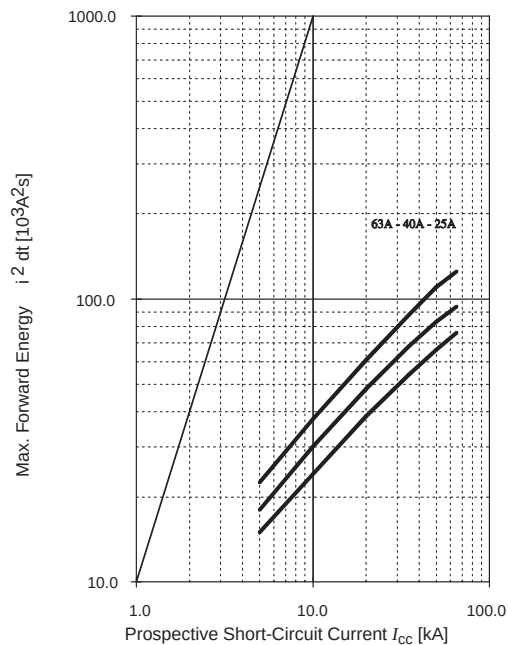
Cut-Off Current, Continued

140-CMN Manual Motor Starter/Protector

Maximum cut-off current
Rated operating voltage 415V



Maximum forward energy
Rated operating voltage 415V

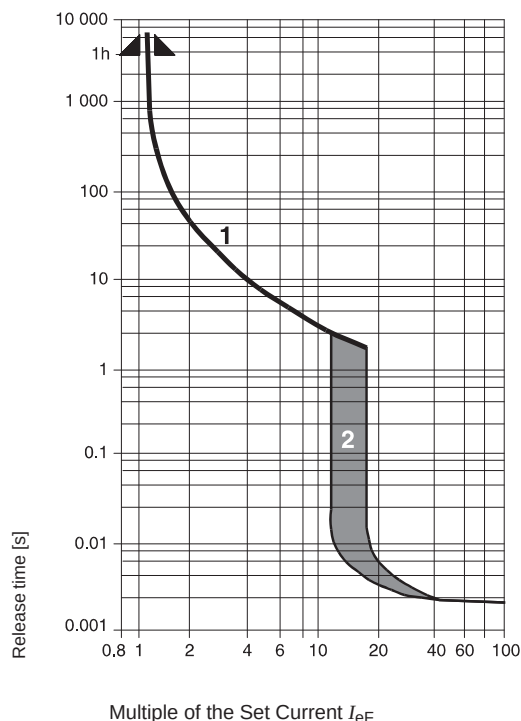


Protection of PVC Insulated Leads Against Overload and During Short-Circuit

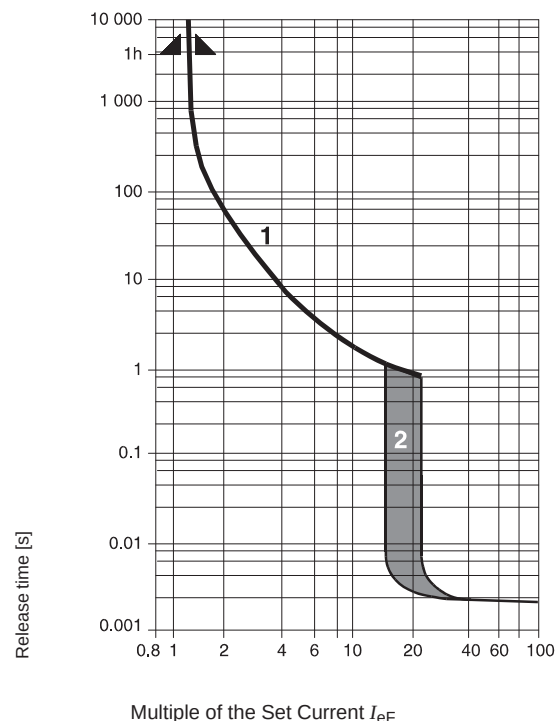
Cat. No.	Protected Min. Copper Cross-Section at 400V 50 Hz							As per IEC 364 and CENELEC coordination documents 384-3 and 384-4.
	10mm ²	6mm ²	4mm ²	2.5mm ²	1.5mm ²	1mm ²	0.75mm ²	
140-MN-0400		●	●	●	●	●	●	In the 140 series manual motor starter/protector, overload protection is achieved by means of the adjustable thermal releases. The maximum possible tripping current is substantially lower than in fused overload protection. Short-circuit protection is provided by the non-adjustable magnetic release which is capable of opening the main contacts very quickly. The short total breaking time limits temperature rise in the lead to a minimum in the event of a short-circuit.
140-MN-0630		●	●	●	●	●	●	
140-MN-1000		●	●	●	●	●	—	
140-MN-1600		●	●	●	●	—	—	
140-MN-2000		●	●	●	—	—	—	
140-MN-2500		●	●	●	—	—	—	
140-CMN-2500	●	●	●	●				
140-CMN-4000	●	●	●	—				
140-CMN-6300	●	●	—	—				
140-CMN-9000	●	—	—	—				

Time-Current Characteristic

140-MN Manual Motor Starter/Protector



140-CMN Manual Motor Starter/Protector



1) Thermal Releases Operating Current:

The adjustable current-dependent delayed bimetal release protects motors against overload. The characteristic shows the mean at 20°C ambient temperature starting from the cold state. In equipment at operating temperature, release time is less than or equal to release time from the cold state. The precise routine test guarantees motor protection even when a phase is interrupted.

Motor protection in protection type EExe:

Pursuant to VDE 0165/83, the release time of the cold overload release must be less than the allowed locked-rotor time t_E of the motor.

The specific tripping characteristics must be available at the operating site. If necessary, they can be ordered from the appropriate Allen-Bradley sales office. For new systems, protection equipment must be provided for motors in accordance with VDE 0165/83, section 6.1.4.3.3. Such protection equipment must ensure motor protection even in the event of a phase failure.

The 140-MN Manual Motor Starter/Protector meets this condition for motors of up to 3 kW rated output. In motors with a rated output greater than 3 kW, additional protection devices must be provided which ensure motor protection even in the event of a phase failure.

The 140-CMN Manual Motor Starter/Protector meets these conditions for all rated power outputs.

2) Operating Current for Magnetic Releases:

Electromagnetic instantaneous releases react at a set tripping current.

At the upper thermal release setting, this tripping current is 11 times (140-MN) or 14 times (140-CMN) the set current; at a lower setting it is correspondingly higher.

Current To Be Set:

Thermal releases meet the requirements for a thermal release for a starter in accordance with IEC 947. If a different value is specified (such as reduced I_e in motors with a coolant temperature higher than 40°C or a site altitude >2000 m above M.S.L.), the rated operating current I_e must be adjusted.

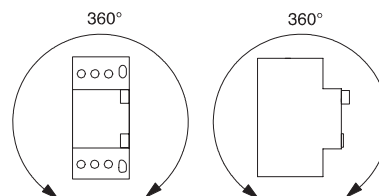
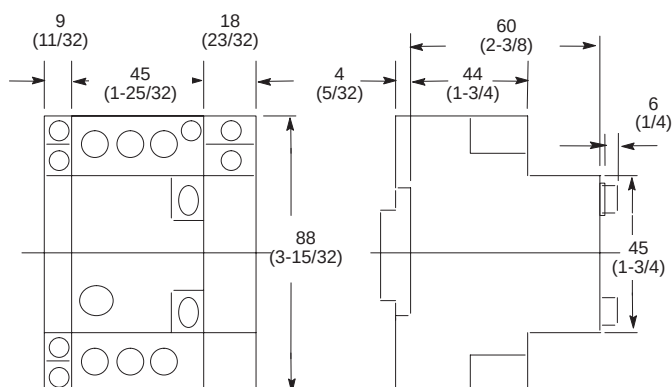
Note:

In certain applications such as in multi-speed motors or star-delta starters for heavy duty start and/or reduced motor lead cross-sections, the Bulletin 140 devices are used only as short-circuit protection, while overload protection is accomplished by thermal overload relays.

The Bulletin 140 circuit breaker must be set for a 20% higher current so that only the downstream thermal overload relays trip in the event of an overload.

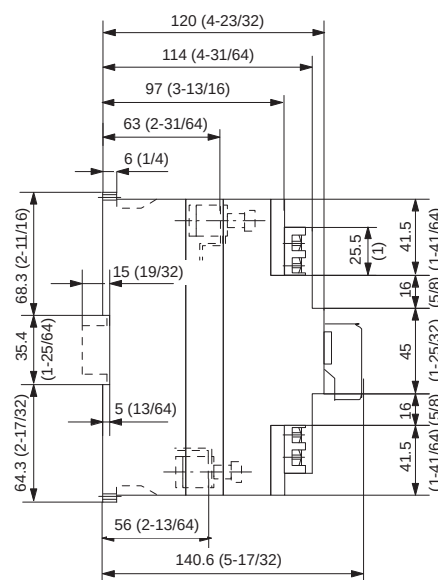
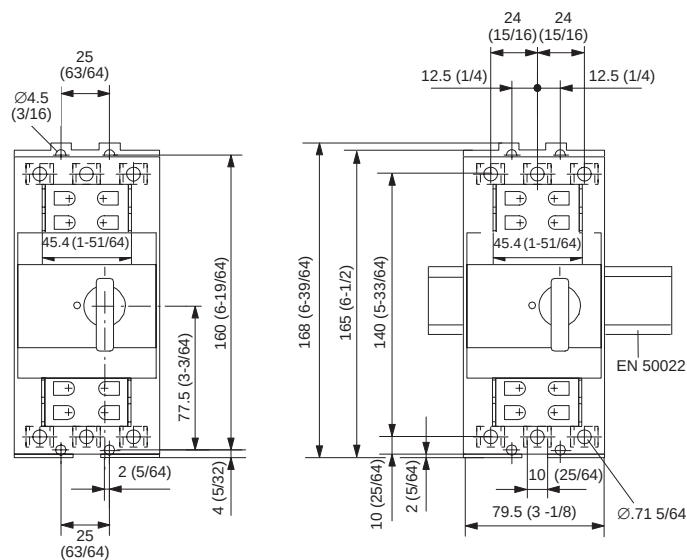
Approximate Dimensions

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

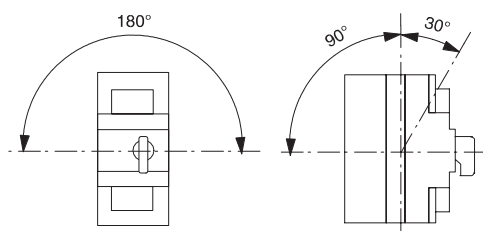


Mounting Position
Cat. No. 140-MN

**Cat. No. 140-MN +
Cat. No. 140-UV/RT +
Auxiliary Contacts Cat. No. 140-A11/A20/A02**

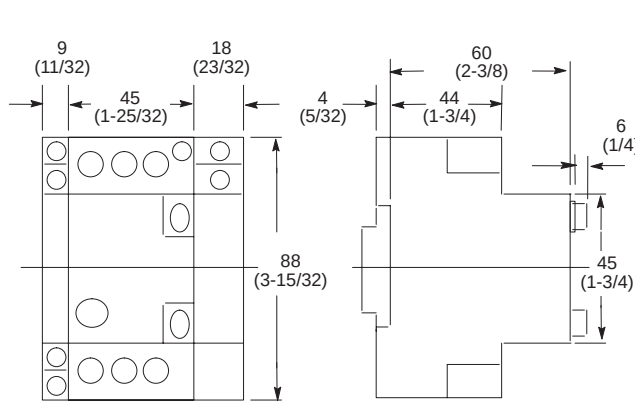


Cat. No. 140-CMN

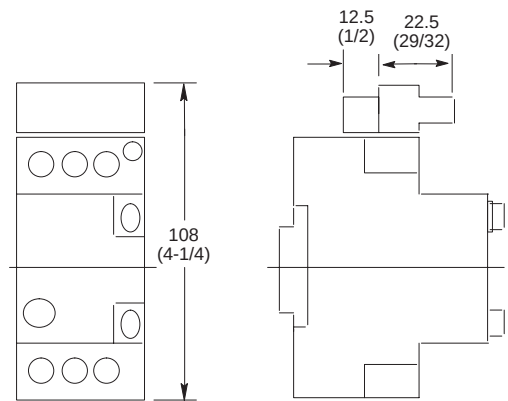


Mounting Position
Cat. No. 140-CMN

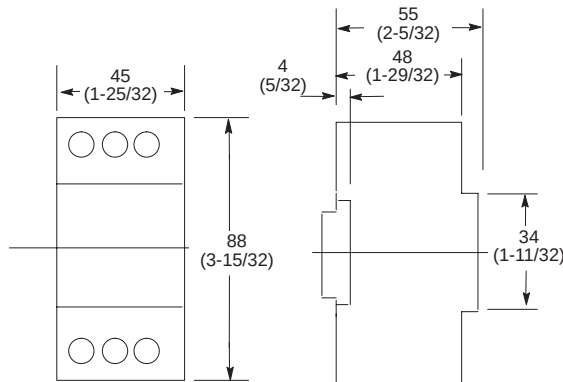
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



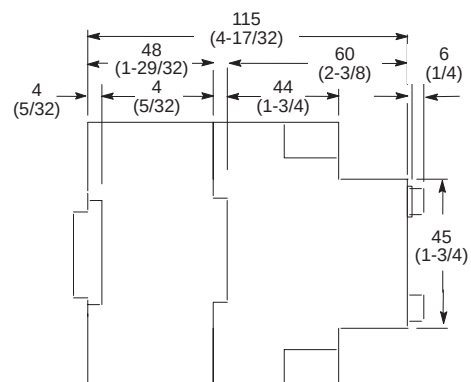
**Cat. No. 140-MN +
 Cat. No. 140-UV/RT +
 Auxiliary Contacts Cat. No. 140-A11/A20/A02**



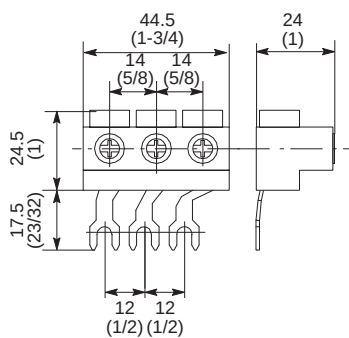
**Cat. No. 140-MN +
 Commoning Link Cat. No. 140-L_
 Terminal Cat. No. 140-L_**



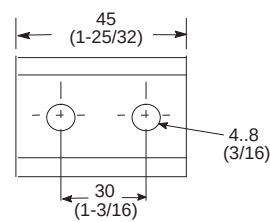
**Current Limiter Cat. No. 140-CL2 or
 Terminal Cat. No. 140-LD**



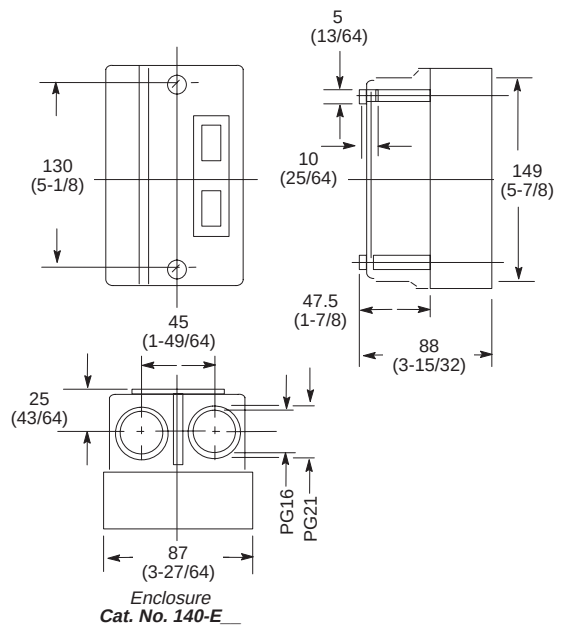
**Cat. No. 140-MN + Cat. No. 140-CL2 or
 Cat. No. 140-LD**



Cat. No. 140-L2



**Panel Mounting Adaptor
 Cat. No. 140-N12**



**Enclosure
 Cat. No. 140-E**