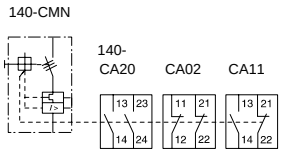
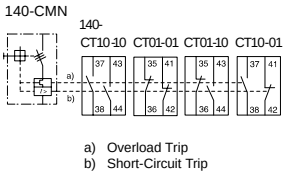
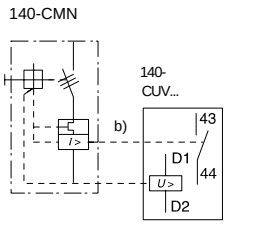
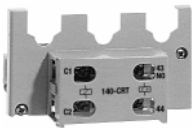
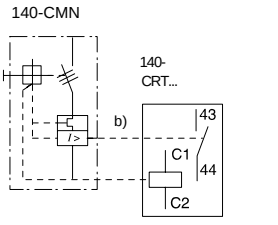
	Description	Wiring Diagram	For Use With	Pkg. Qty.	Cat. No.	✱
	**Auxiliary Contacts** • Internal, front mounted • 2-Pole		140-CMN	1	140-CA20 140-CA02 140-CA11	
	**Trip Indicating Auxiliary Contacts** • Internal, front mounted • 2-Pole	 a) Overload Trip b) Short-Circuit Trip	140-CMN	1	140-CT10-10 140-CT01-01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

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✱ **Prices – Consult Sales Office or price list**

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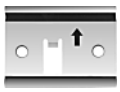
	Description	For Use With	Pkg. Qty.	Cat. No.	✱
	**Current Limiter** • Use in single or group installations to increase short circuit interrupting capacity. • DIN rail mounting next to Bul. 140-MN, or Bul. 140-MN can be snapped on to current limiter.	140-MN	10	140-CL2	
 *Cat. No. 140-LD*	**Three-Phase 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)				
	For linking 2 Bulletin 140 Starters		10	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*	**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	
 *Pilot Light*	**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**.

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✱ **Prices – Consult Sales Office or price list**

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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												

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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			

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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	C IV (per IEC 68)	
Resistance to heat and humidity	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	4 adjustment ranges
	0.1…25A	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	fixed setting	fixed setting
Operating current	11 x $I_e$max.	14 x $I_e$max.
	$I_e$max. = maximum value of adjustment range	
Power Loss P_v		
At rated current and with switch at operating temperature	7 W	33 W

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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	[mm²]	1 x 1…4	1 x 2.5…35
	Stranded	[mm²]	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)		6				10			
At 60°C ambient temperature (A)		4				6			
NEMA Contact Rating									
(CSA/UL approval)	AC	B 600 Standard Pilot Duty				B 600 Standard Pilot Duty			
	DC	R 300 Light Pilot Duty				R 300 Light Pilot Duty			
Contacts									
Contact reliability per DIN 19 240		–				solid-state, hard wired			
Bifurcated contacts									
Back-Up Fuses gl, gL (A)		16				16			
Rated Current		230/240V	400/415V	500V	690V	230/240V	400/415V	500V	690V
AC-15:		2A	1A	0.8A	0.5A	2A	1A	0.8A	0.5A
DC-13:		24V	48V	110V	220V	24V	48V	110V	220V
		2A	0.6A	0.2A	0.1A	2A	0.6A	0.2A	0.1A
Terminals Terminal type									
	Flexible	[mm²]	1 x 0.75…2.5			1 x 0.75…2.5			
	Stranded	[mm²]	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)			

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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)		10	6
At 60°C ambient temperature (A)		6	4
NEMA Contact Rating			
(CSA/UL Approvals)	AC	B 600 Standard Pilot Duty	B 600 Standard Pilot Duty
	DC	R 300 Light Pilot Duty	R 300 Light Pilot Duty
Back-Up Fuses gl, gL (A)		16	16
Rated Current		230/240V 400V 500V 690V	230/240V 400/415V 500V 690V
AC-15:		3A 2.5A 1.5A 0.75A	2A 1A 0.8A 0.5A
DC-13:		24V 48V 110V 220V 440V	24V 48V 110V 230V
		2A 0.6A 0.2A 0.1A 0.04A	2A 0.6A 0.2A 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)		10	2
At 60°C ambient temperature (A)		6	2
NEMA Contact Rating			
(CSA/UL Approvals)	AC	B 600 Standard Pilot Duty	in preparation
	DC	R 300 Light Pilot Duty	
Back-Up Fuses gl, gL (A)		16	–
Rated Current		230V 400V 500V 690V –	AC-14: 24V 110V 230V 400V 500V
AC-15:		3A 2.5A 1.5A 0.75A	1.5A 1.5A 1.0A 1.0A 0.75A
DC-13:		24V 48V 110V 230V 440V	DC-13: 24V 48V 60V 110V –
		2A 0.6A 0.2A 0.1A 0.04A	1.5A 0.5A 0.4A 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)

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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 x U_s	0.8…1.1 x U_s
Dropout			0.7…0.35 x U_s	0.7…0.35 x 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 x U_s	0.7…1.1 x 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)

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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_{cu}**							
		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)

Product Selection — Page 41

Accessories, Continued

			Cat. No. 140-LD Three-Phase Terminal		Cat. No. 140-L2 Three-Phase Terminal
Terminals Terminal type			No. 2, 4, 6 (over) 	No. 2, 4, 6 (over) 	No. 1, 3, 5 
	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)

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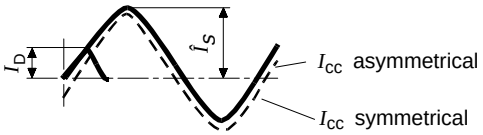
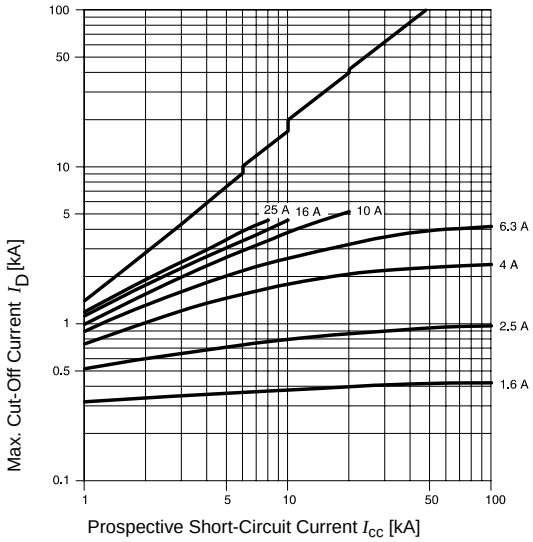
Cut-Off Current



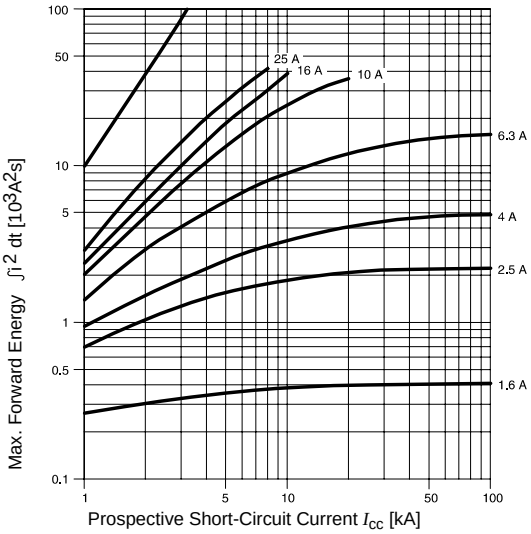
The 140-MN limits solid short-circuit current I_{cc} (prospective short-circuit current). I_D is the maximum cut-off current (highest instantaneous value of the limited short-circuit current). This value is indicated in the following diagrams as a function of the progressive system short-circuit current.

140-MN Manual Motor Starter/Protector

Maximum cut-off current
Rated operating voltage 400V

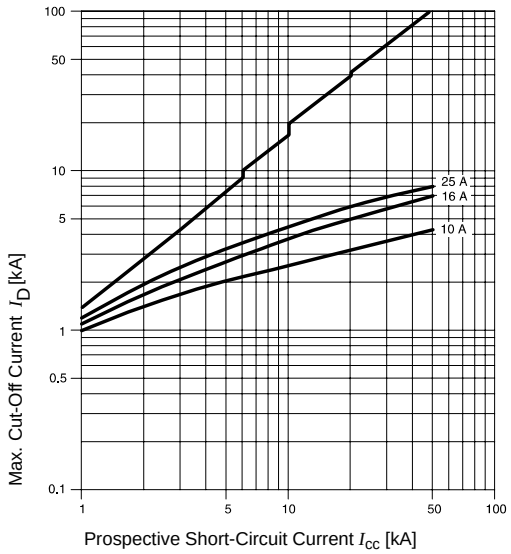


Maximum forward energy
Rated operating voltage 400V

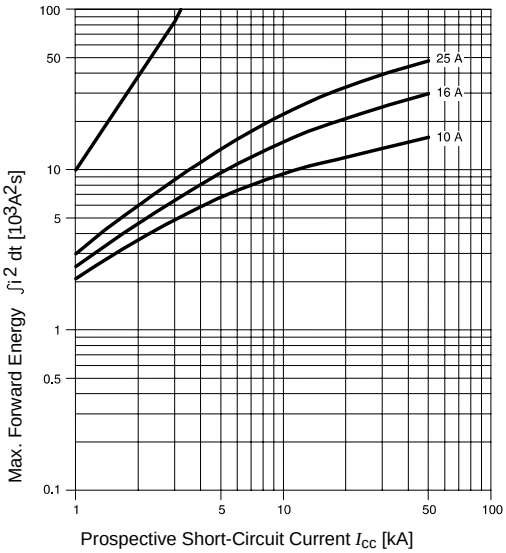


140-MN Manual Motor Starter/Protector with 140-CL2 Current Limiter

Maximum cut-off current
Rated operating voltage 400V



Maximum forward energy
Rated operating voltage 400V

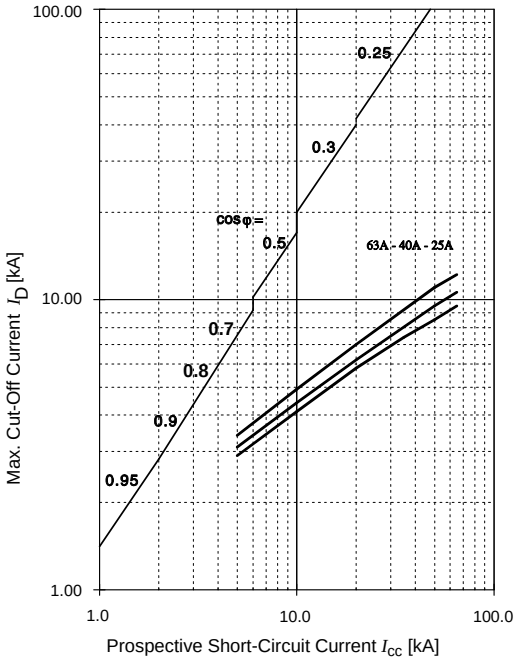


Product Selection — Page 41

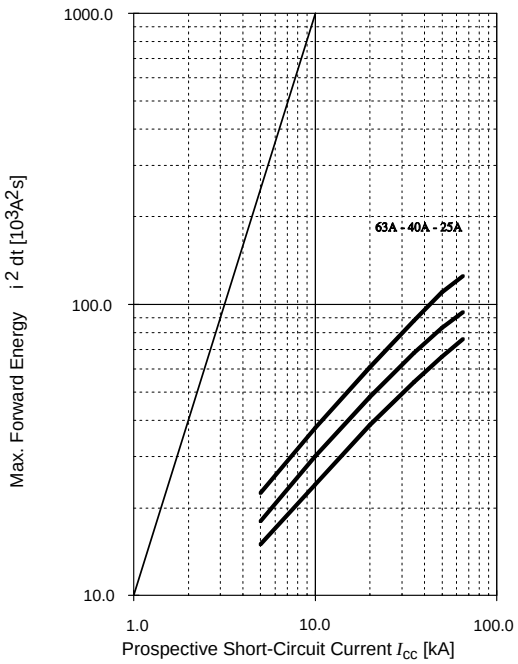
Cut-Off Current, Continued

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.
	10mm²	6mm²	4mm²	2.5mm²	1.5mm²	1mm²	0.75mm²	
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	●	–	–	–				

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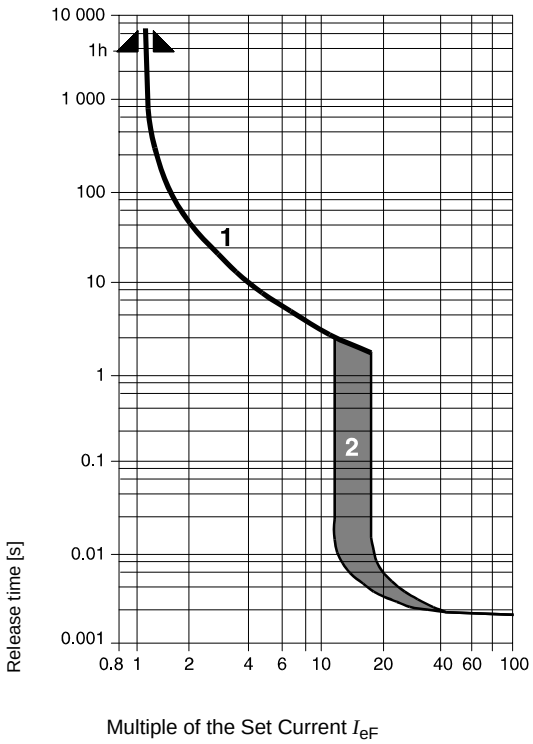
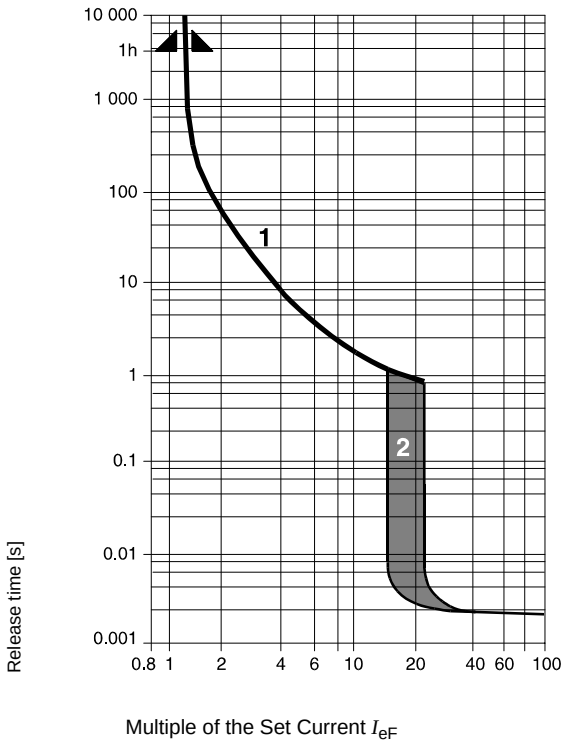
Time-Current Characteristic

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.

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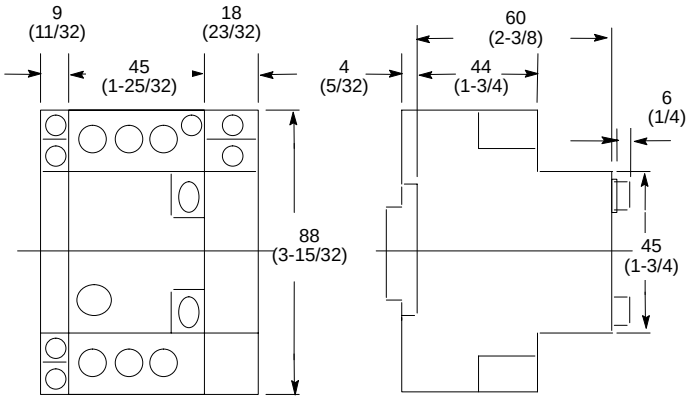
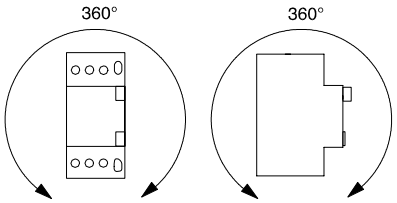
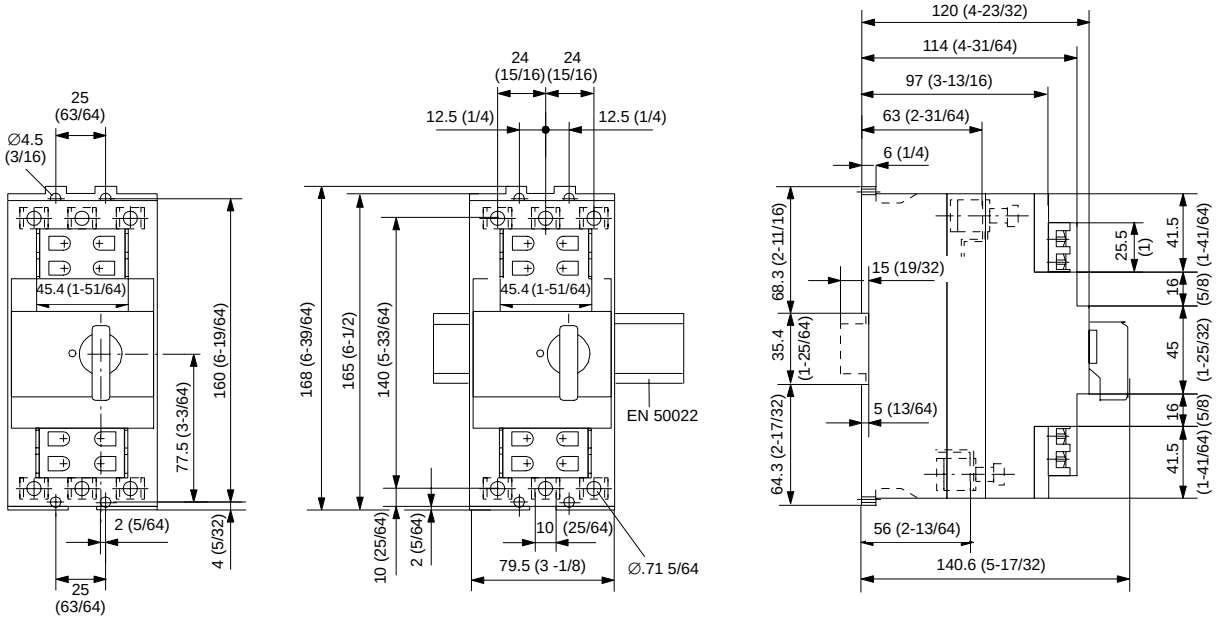
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



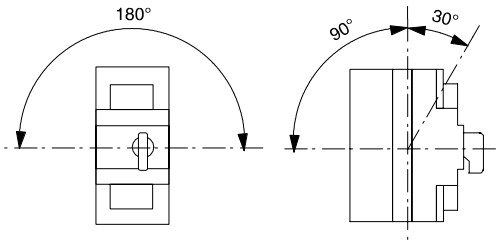
Cat. No. 140-MN +
Cat. No. 140-UV/RT +
Auxiliary Contacts ***Cat. No. 140-A11/A20/A02***



Mounting Position
Cat. No. 140-MN



Cat. No. 140-CMN



Mounting Position
Cat. No. 140-CMN

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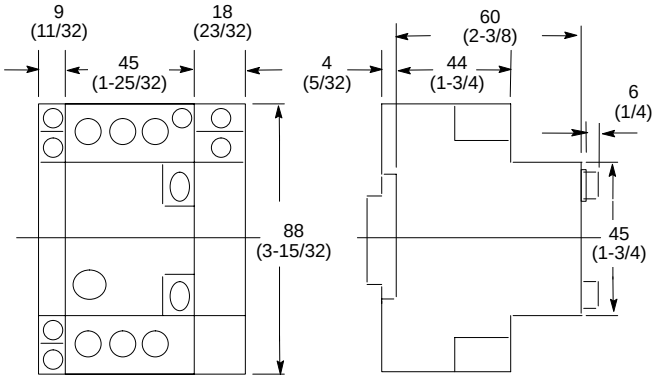
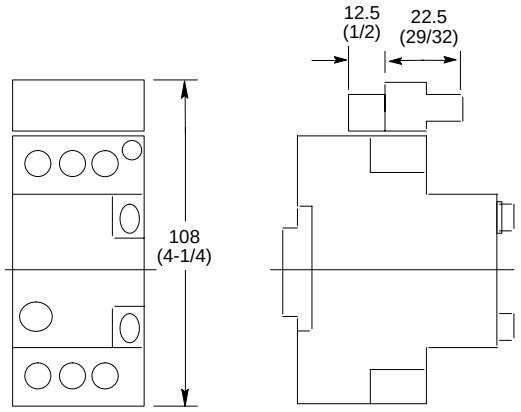
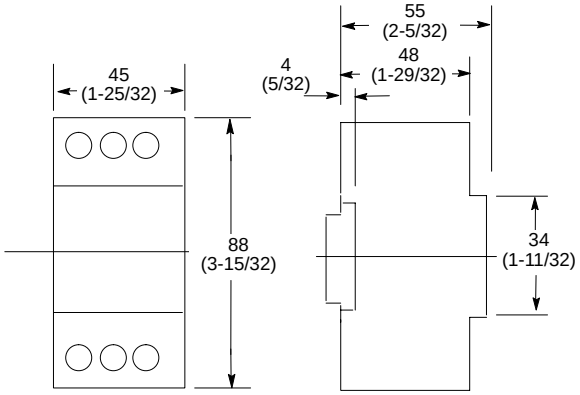
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



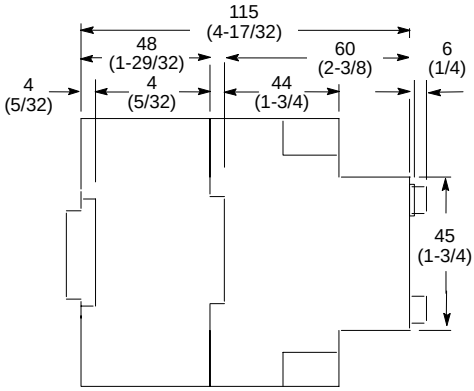
Cat. No. 140-MN +
Cat. No. 140-UV/RT +
Auxiliary Contacts ***Cat. No. 140-A11/A20/A02***



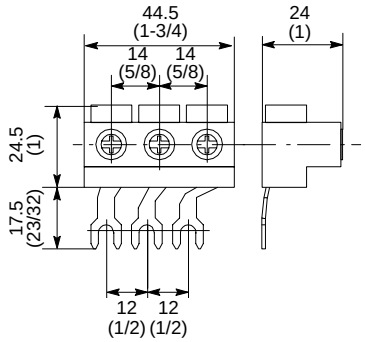
Cat. No. 140-MN +
Commoning Link ***Cat. No. 140-L__***
Terminal ***Cat. No. 140-L_***



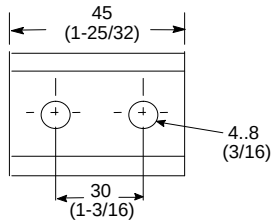
Current Limiter ***Cat. No. 140-CL2*** *or*
Terminal ***Cat. No. 140-LD***



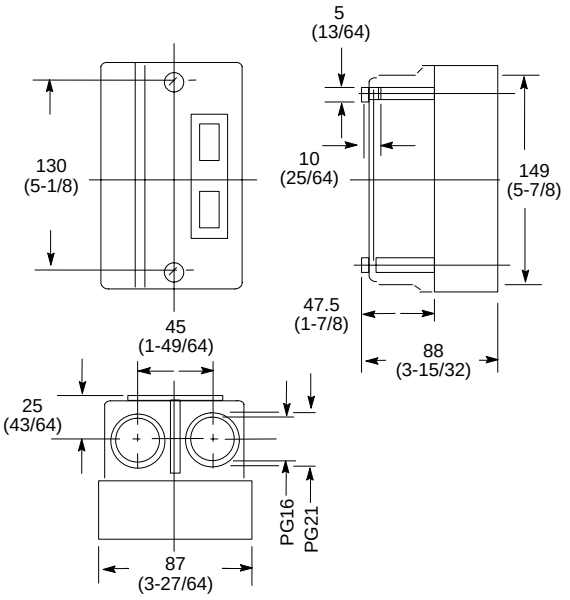
Cat. No. 140-MN + Cat. No. 140-CL2 *or*
Cat. No. 140-LD



Cat. No. 140-L2



Panel Mounting Adaptor
Cat. No. 140-N12



Enclosure
Cat. No. 140-E__

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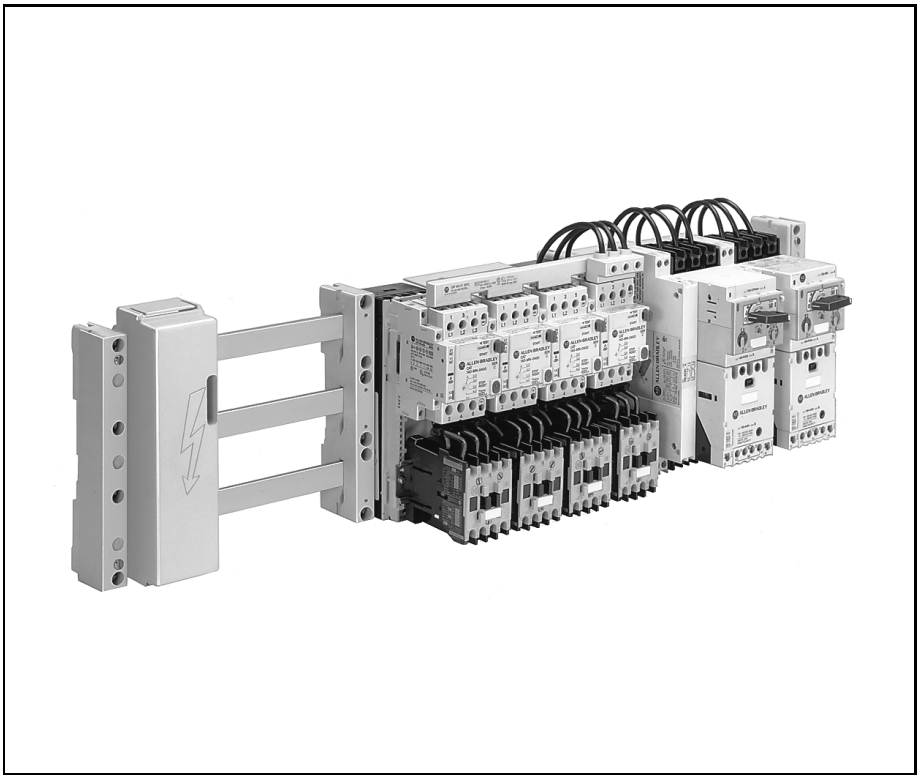

Bulletin 140

- **Modularity = Flexibility**
- **Simplifies Installation and Engineering Layouts**
- **Labor Saving Pre-Construction**
- **Greater Flexibility for Modifications, Replacing Components, and Extending Existing Systems**

TABLE OF CONTENTS

Description

The Bulletin 140 Panel System simplifies panel design and installation using three phase bus bar. The system consists of modules which accommodate 35mm DIN rail mounting motor starters, contactors, overload relays and accessories. Assembly of the modules including installation and interwiring of electrical components may be accomplished at the work bench. These modules can then be “snapped on” the bus bar for line side power connection. The modules may be easily moved or rearranged as future circuit changes may require.

Conformity to Standards:

CEC Part 1/87

IEC 947-1

IEC 439-1

IEC 364

NEC 88

VDE 0106, Part 100

CSA C22.2 No. 14

UL 486

Approvals:

CE

CSA Certified

UL Listed

Your order must include:

- Cat. No. of bus bar, terminal, terminal cover, end cover and support selected.
- Cat. No. of any accessories, if required.

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	Description	DIN Rail 35mm	Size [mm]	Pkg. Qty.	Cat. No.	✱
	**Component Mounting Plate** Mounting plate for installation of equipment. Snaps on to bus bar snap-on modules.	1 x 7.5	54 x 180	10	140-B154	
		2 x 7.5		10	140-B254	
		1 x 15	81 x 180	10	140-B181	
		2 x 7.5		10	140-B281	
		2 x 7.5	108 x 180 ❶	10	140-B2108	
		without DIN rail	54 x 180	10	140-B054	
		without DIN rail	81 x 180	10	140-B081	
	**Screw-On Module** For mounting component mounting plates on standard panels or to a DIN rail.		54	10	140-W1	
	**Bus Bar Snap-On Modules** Clips onto bus bar and provides feed to the components. Model without equipment feed to be used for mechanical stabilization when several modules are used.	**Rated Current [A]**	**Pole Center Spacing [mm]**	**Pkg. Qty.**	**Cat. No.**	✱
		25	40	10	140-S125	
		25 long leads	40	10	140-S125L	
		63 ❶	40	1	140-S163	
		63 ❶ long leads	40	1	140-S163L	
		100	40	1	140-S1100	
		without equipment feed		10	140-S10	
		25	60	10	140-S225	
		25 long leads	60	10	140-S225L	
		63 ❶	60	1	140-S263	
		63 ❶ long leads	60	1	140-S263L	
		100	60	1	140-S2100	
		without equipment feed		10	140-S20	
	Bus Bar 1500mm in length	**Rated Current [A]**	**Size [mm]**	**Pkg. Qty.**	**Cat. No.**	✱
		204	12 x 5	6	140-BB125	
		240	15 x 5	6	140-BB155	
		274	20 x 5	6	140-BB205	
		327	25 x 5	6	140-BB255	
		379	30 x 5	6	140-BB305	

❶ Rated 45A UL.

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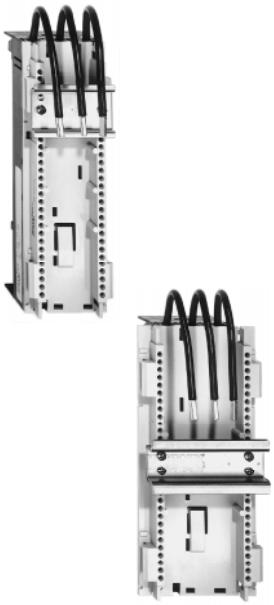
Specifications — Page 65
Approximate Dimensions — Page 66

	Description	DIN Rail 35mm	Size [mm]	I_{th} ❶ [A]	Pkg. Qty.	Cat. No.	✱
	**Equipment Modules 40mm Pole Center Spacing** Pre-assembled module snaps onto bus bar. Consists of a component mounting plate and bus bar snap-on module.	1 x 7.5	54 x 180	25	1	140-GS1125	
		2 x 7.5	54 x 180	25	1	140-GS1225	
		1 x 7.5	54 x 180	63 ❷	1	140-GS1163	
		1 x 7.5	54 x 180	63 ❷	1	140-GS1163L	
		2 x 7.5	54 x 180	–	1	140-GS120	
		1 x 15	81 x 180	25	1	140-GS2125	
		1 x 7.5	81 x 180	63 ❷	1	140-GS2163	
		1 x 15	81 x 180	100	1	140-GS21100	
		1 x 15	81 x 180	–	1	140-GS210	
	Equipment Modules 60mm Pole Center Spacing Pre-assembled module snaps onto bus bar. Consists of a component mounting plate and bus bar snap-on module.	1 x 7.5	54 x 180	25	1	140-GS3125	
		2 x 7.5	54 x 180	25	1	140-GS3225	
		1 x 7.5	54 x 180	63 ❷	1	140-GS3163	
		1 x 7.5	54 x 180	63 ❷	1	140-GS3163L	
		2 x 7.5	54 x 180	–	1	140-GS320	
		1 x 15	81 x 180	25	1	140-GS4125	
		1 x 7.5	81 x 180	63 ❷	1	140-GS4163	
		1 x 15	81 x 180	100	1	140-GS41100	
		1 x 15	81 x 180	–	1	140-GS410	
	**Equipment Module with Movable DIN Rail 40mm Pole Center Spacing** The movable DIN rail makes it possible to move the lower DIN rail in a vertical direction.	2 x 7.5	54 x 180	25	1	140-GSMR12-25	
	Equipment Module with Movable DIN Rail 60mm Pole Center Spacing The movable DIN rail makes it possible to move the lower DIN rail in a vertical direction.	1 x 15	54 x 180	25	1	140-GSMR32-25	
	**Power Terminal 40mm Pole Center Spacing** Equipment mount specially designed for group feed via current limiters. Equipment feed is from bus-bars.	1 x 7.5	54 x 140	63 ❷	1	140-S11V35	

❶ I_{th} = Rated Thermal Current.
❷ Rated 45A UL.

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Specifications — Page 65
Approximate Dimensions — Page 66

✱ **Prices – Consult Sales Office or price list**

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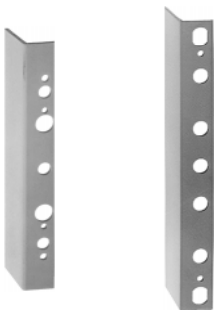
	Description	Conductor Cross-Section [mm^2]	Bus Bar Thickness [mm]	Pkg. Qty.	Cat. No.	*
	**Supply Terminals** Individual terminals for bus-bar feed.	2.5…16 (#14-6 AWG)	5	25	140-V116	
			10	25	140-V216	
		2.5…35 (#14-2 AWG)	5	25	140-V135	
			10	25	140-V235	
		35…70 (#2-00 AWG)	5	25	140-V170	
			10	25	140-V270	
	**Terminal Cover** Cover provides protection against accidental contact with terminals and bus bar. Can be used with 40mm and 60mm pole center spacing.		180 (Height)	1	140-BK60	

	Description	Bus-Bar [mm]	Size [mm]	Pkg. Qty.	Cat. No.	*
	**Bus-Bar Support** **40mm Pole Center Spacing** 3-pole, 660V 50/60 Hz. Flame-resistant polymer.	12 x 5 15 x 5		10	140-T40	
	60mm Pole Center Spacing 3-pole, 660V 50/60 Hz. Flame-resistant polymer. The bus bar support can easily be adjusted with a locking slide to accommodate different sizes of bus bar.	12 x 5 15 x 5, 15 x 10 20 x 5, 20 x 10 25 x 5, 25 x 10 30 x 5, 30 x 10		10	140-T60	
	**End Cover** Prevents contact with the bus-bar ends. The end cover is screwed to the bus-bar support.		40	10	140-T40E	
			60	10	140-T60E	
	**Dovetail Connector Clip** Dovetail connector clips are used to provide more stability between equipment modules.			10	140-K	

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