



CENTERLINE® 2100 Motor Control Centers

**Inverse Time Circuit Breakers in Combination NEMA
Starter, Soft Starter (SMC) and Variable Frequency AC
Drive Units**



K-Frame Thermal Magnetic Circuit Breakers

Application

Circuit breaker application is valid for the following CENTERLINE 2100 MCC products:

- Bulletin 2107 Full Voltage Reversing Combination Starters
- Bulletin 2113 Full Voltage Non-Reversing Combination Starters
- Bulletin 2123 Two Speed Non-Reversing Combination Starters
- Bulletin 2127 Two Speed Reversing Combination Starters
- Bulletin 2155 Combination Soft Starter Controllers
- Bulletin 2163 Variable Frequency AC Combination Drive Units
- Bulletin 2165 Variable Frequency AC Combination Drives with Manual Isolated Drive Bypass
- Bulletin 2173 Reduced Voltage Autotransformer Combination Starters

The information in this publication applies to Allen-Bradley and Cutler-Hammer inverse time, thermal magnetic or solid-state circuit breakers, when they are used in NEMA (size 1 through size 6) combination starter, soft starter controller, and variable frequency AC drive units.

The information in this publication does not apply to instantaneous trip motor circuit protectors. For combination starter units, soft starter controller units, and variable frequency AC drive units with instantaneous trip motor circuit protectors, refer to Publication 2100-TD001x-EN-P, *Instantaneous Trip Motor Circuit Protectors (MCP) in Combination NEMA Starter, Soft Starter (SMC) and Variable Frequency AC Drive Units*.

Circuit Breaker Operation

Inverse time circuit breakers are designed to trip at 100% to 125% of their continuous current rating. They are also designed to trip, on an inverse-time basis, at overcurrents up to the magnetic or electronic trip current setting of the circuit breaker. The circuit breaker manufacturer sets the continuous current ratings for the thermal magnetic circuit breakers. The continuous current rating of circuit breakers with solid-state trip mechanisms depends on the installed rating plug.

Allen-Bradley I-frame circuit breakers have a non-adjustable, instantaneous magnetic trip mechanism, which is set by the circuit breaker manufacturer. All other frame sizes have an adjustable instantaneous trip mechanism, which can be set to a desired current value. Refer to Tables 1-24 (pages 4-29) for the instantaneous trip ranges and settings.

Circuit Breaker Size and Adjustment

Rockwell Automation has made engineering evaluations for the protective device (circuit breaker) selection, sizing, and setting range based on the protection rules/requirements and motor criteria as stipulated in NEC, CEC, NEMA, UL, and CSA Standards, e.g. motor full load currents (FLC), X/R ratios, locked rotor currents, nominal utilization voltages, etc. Should the motor application have criteria that deviates from those stated in the aforementioned standards, higher FLC and/or motor inrush currents (greater than 1300% of the nominal FLC) may be experienced, e.g. special motors, non off standard NEMA motors, energy efficient motors, Design B energy efficient, Design E motors, IEC N motors, etc.

For frame sizes larger than 150 amps, determine the desired instantaneous trip current, using the National Electrical Code (NEC) or Canadian Electrical Code (CEC), and the instructions provided with the combination starter unit. Refer to the tables on pages 4-29 and choose the trip setting which has the desired trip current value. Make certain that the circuit breaker operating handle is in the **OFF/O** position. Depress each trip setting dial with a screwdriver, and turn clockwise to the determined setting. If there is more than one dial on the circuit breaker, all should be set to the same value.

Push-To-Trip Mechanism

The push-to-trip mechanism provides a manual means for tripping the circuit breaker. Use a small screwdriver to depress the red button on the circuit breaker cover. When the button is pushed, a plunger rotates the trip bar and causes the breaker to trip.

Horsepower and Kilowatt Ratings

The horsepower and kilowatt ratings for combination starter units, soft starter controller units, and variable frequency AC drive units listed in the tables on pages 4 - 29 were determined from full load currents as specified in the NEC/CEC.

Acceptable performance should occur when the motor full load current is within 15% of the value which corresponds to the horsepower or kilowatt ratings and voltages listed in the NEC/CEC. Consult your local Rockwell Automation sales office or distributor if the motor full load current is not within these limits.

ATTENTION

ATTENTION: The horsepower and kilowatt ratings and corresponding trip settings in Table 1 are only valid when the combination starter units are equipped with an Allen-Bradley solid-state or electronic overload relay or a Bulletin 592 eutectic alloy overload relay with correctly sized heater elements.

When correctly selected, this combination of circuit breaker and overload relay protects against short circuit and ground fault damage, and provides coordinated overcurrent protection in the motor branch circuit for continuous-duty rated motors, as defined in the NEC and CEC.

The circuit breaker which has tripped may indicate the interruption of a high fault current. To ensure protection against fire and/or shock hazard, examine the current carrying parts of the combination starter units, soft starter controller units, and variable frequency AC drive units and replace if damaged. (Refer to NEMA Standards Publication Number ICS 2.2, *Maintenance of Motor Controllers After a Fault Condition*, and NEMA Standard Publication Number ICS 2, Parts ICS 2-302.

Table 1 Combination 2107, 2113, 2123, 2127, and 2173 Starter Units - I-Frame Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"	Medium Interrupting Capacity with Current Limiter Suffix Letter "CD"
		200V	230V	380 - 415V	460V	575V	Min.	Max.			
15	1	0.125 - 1.5	0.125 - 2	0.125 - 3	0.125 - 3	0.125 - 5	500	800	140U-I3C3-C15	140U-I6C3-C15	140U-I3C3-C15 140U-I-CLC70
20	1	2	3	5	5	7.5		1000	140U-I3C3-C20	140U-I6C3-C20	140U-I3C3-C20 140U-I-CLC70
30	1	3	5	7.5 - 10	7.5 - 10	10			140U-I3C3-C30	140U-I6C3-C30	140U-I3C3-C30 140U-I-CLC70
40	1 2	5 —	— —	— —	— —	15 15			140U-I3C3-C40	140U-I6C3-C40	140U-I3C3-C40 140U-I-CLC70
50	1 2	7.5 —	7.5 10	— 15	— 15 - 20	— 20 - 25	600	140U-I3C3-C50	140U-I6C3-C50	140U-I3C3-C50 140U-I-CLC70	
60	2 3	10 —	— —	20 —	25 —	30 —		140U-I3C3-C60	140U-I6C3-C60	140U-I3C3-C60 140U-I-CLC70	
70	2 3	— —	15 —	25 —	— 30	— 40		140U-I3C3-C70	140U-I6C3-C70	140U-I3C3-C70 140U-I-CLC70	
100	3	15	—	30	40	50		700	1400	140U-I3C3-D10	140U-I6C3-D10
125	3	20	20	40	50	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S	140U-I3C3-D12-S 140U-I-CLD15
150	3	25	25 - 30	50	—	—			140U-I3C3-D15-S	140U-I6C3-D15-S	140U-I3C3-D15-S 140U-I-CLD15

Table 2 Combination 2107, 2113, 2123, 2127 and 2173 Starter Units - JD-Frame and K-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"	High Interrupting Capacity Suffix Letter "CM"
		200V	230V	380 - 415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X			
125	4	—	—	—	60	60 - 75	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12	140U-JD6D3-D12	
150	4	30	40	60 - 75	75	100	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15	140U-JD6D3-D15	
175	4 5	40 —	50 —	— —	100 —	— 125	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17	140U-JD6D3-D17	
250	5	50 - 60	60 - 75	100 - 125	125 - 150	150 - 200	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25	140U-JD6D3-D25	
300	5	75	—	150	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	140U-K3D3-D30	140U-K6D3-D30	
400 ⁽¹⁾	5	—	100	—	200	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	140U-K3D3-D40	140U-K6D3-D40	

(1) For 460V, 125 Hp or 150 Hp specified with circuit breaker suffix "CTH" or "CMH," use the line for 400A, 460V, 200 HP.

Table 3 Combination 2113 and 2173 Starter Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
500	6	100	—	200	—	250 - 300	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W 6LES500T	25103-406-01 25107-447-04	HLDB3600FT33W 6LES500T	25103-406-02 25107-447-04	
600	6	125 - 150	125 - 150	250 - 300	250 - 350	350 - 400	1200	1800	2400	3000	3600	4200	4800	LDB3600FT33W 6LES600T	25103-406-01 25107-447-05	HLDB3600FT33W 6LES600T	24103-406-02 25107-447-05	

Table 4 Combination 2113 and 2173 Starter Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
800	6	—	200	—	400	—	1600	2400	3200	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	

Table 5 Combination 2155G SMC Dialog Plus Soft Starter Units - I-Frame, Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Dialog Plus Soft Starter Unit is the output ampere rating.)</small>					Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220V	230V	380 - 415V	460V	575V	Min.	Max.	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number	
15	24	(0.75 - 1.5)	1 - 2	(0.75 - 2.2)	1 - 3	1 - 5	500	800	140U-I3C3-C15		140U-I6C3-C15	
20	24	(2.2)	3	(3.7)	5	7.5			140U-I3C3-C20		140U-I6C3-C20	
30	24	(3.7)	5	(5.5 - 7.5)	7.5 - 10	10			140U-I3C3-C30		140U-I6C3-C30	
40	24	—	—	—	—	15			140U-I3C3-C40		140U-I6C3-C40	
50	24	(5.5)	7.5	(11)	15	20	600	1200	140U-I3C3-C50		140U-I6C3-C50	
	35	—	10	—	20	25			140U-I3C3-C60		140U-I6C3-C60	
60	35	(7.5)	—	(15)	25	30			140U-I3C3-C70		140U-I6C3-C70	
70	54	(11)	15	(18.5 - 22)	30	40			140U-I3C3-D10		140U-I6C3-D10	
100	54	(15)	—	—	40	50	700	1400				
125	54	—	20	—	—	—	800	1600	140U-I3C3-D12-S		140U-I6C3-D12-S	
	97	(18.5)	—	(30)	50	—			140U-I3C3-D15-S		140U-I6C3-D15-S	
150	97	(22)	25 - 30	(37)	—	—						

Allen-Bradley PLCs

Table 6 Combination 2155G SMC Dialog Plus Soft Starter Units - JD-Frame, K-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown are nominal. The limiting factor in the application of the SMC Dialog Plus soft start unit is the output ampere rating.)					Magnetic Trip Setting (Amperes)									Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		220 - 230V	230V	380 - 415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number	
125	97	—	—	—	60	60 - 75	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12		140U-JD6D3-D12	
150	97	—	—	(45)	75	—	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15		140U-JD6D3-D15	
	135	—	40	—	—	100	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15		140U-JD6D3-D15	
175	135	—	50	—	100	125	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17		140U-JD6D3-D17	
250	135	(30-37)	—	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25		140U-JD6D3-D25	
	180	—	60	(75)	125 - 150	150	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25		140U-JD6D3-D25	
300	180	(45)	—	(90)	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	140U-K3D3-D30		140U-K6D3-D30	
	240	—	75	—	—	200	1500	1690	1875	2065	2250	2440	2630	2815	3000	140U-K3D3-D30		140U-K6D3-D30	
400	240	(55)	—	(110)	200	250	2000	2250	2500	2750	3000	3250	3500	3750	4000	140U-K3D3-D40		140U-K6D3-D40	
400	240	(75) ⁽¹⁾	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	

(1) Thermal-Magnetic trip breakers are not available for this rating. Refer to publication 2100-TD001x-EN-P for instantaneous trip motor circuit protectors.

Table 7 Combination 2155G SMC Dialog Plus Soft Starter Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Dialog Plus soft starter unit is the output ampere rating.)					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CM"	
		220 - 230V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
500	360	(90)	100	(132 - 160)	—	300	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W 6LES500T	25103-406-01 25107-447-04	HLDB3600FT33W 6LES500T	25103-406-02 25107-447-04	
600	360	(110)	125 - 150	(185)	250 - 300	350	1200	1800	2400	3000	3600	4200	4800	LDB3600FT33W 6LES600T	25103-406-01 25107-447-05	HLDB3600FT33W 6LES600T	25103-406-02 25107-447-05	
600	500	—	—	(200)	350	400 - 450												

Table 8 Combination 2155G SMC Soft Starter Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Dialog Plus soft starter unit is the output ampere rating.)					Magnetic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CM"	
		220 - 230V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
800	500	(132 - 150)	200	(220 - 250)	400	500	1600	2400	3600	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	

Table 9 Combination 2155H SMC-3 Soft Starter Units - I-Frame Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Horsepower Ratings (Nominal Kilowatt Rating) (The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC-3 soft starter unit is the output ampere rating.)					Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220 - 230V	230V	380 - 415V	460V	575V	Min.	Max.	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number	
15	3	(0.25 - 0.55)	0.5	(0.37 - 1.1)	0.5 - 1.5	0.75 - 2	500	800	140U-I3C3-C15		140U-I6C3-C15	
15	9	(0.75 - 1.5)	0.75 - 2	(1.5 - 2.2)	2 - 3	3 - 5			140U-I3C3-C15		140U-I6C3-C15	
20	9	(2.2)	—	(3.7)	5	7.5			140U-I3C3-C20		140U-I6C3-C20	
20	19	—	3	—	—	—			140U-I3C3-C20		140U-I6C3-C20	
30	19	(3.7)	5	(5.5 - 7.5)	7.5 - 10	10	600	1200	140U-I3C3-C30		140U-I6C3-C30	
40	19	—	—	—	—	15			140U-I3C3-C40		140U-I6C3-C40	
50	25	(5.5)	7.5	(11)	15	20			140U-I3C3-C50		140U-I6C3-C50	
50	30	—	10	—	20	25			140U-I3C3-C50		140U-I6C3-C50	
60	30	(7.5)	—	(15)	—	—	600	1200	140U-I3C3-C60		140U-I6C3-C60	
60	37	—	—	—	25	30			140U-I3C3-C60		140U-I6C3-C60	
70	37	—	—	(18.5)	—	—			140U-I3C3-C70		140U-I6C3-C70	
70	43	(11)	15	(22)	30	40			140U-I3C3-C70		140U-I6C3-C70	
100	60	(15)	—	—	40	50	600	1200	140U-I3C3-D10		140U-I6C3-D10	
125	60	—	20	(30)	—	—	800	1600	140U-I3C3-D12-S		140U-I6C3-D12-S	
125	85	(18.5)	—	—	50	—	800	1600	140U-I3C3-D12-S		140U-I6C3-D12-S	
150	85	(22)	25 - 30	(37)	—	—	800	1600	140U-I3C3-D15-S		140U-I6C3-D15-S	

Table 10 Combination 2155H SMC-3 Soft Starter Units - JD-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the SMC-3 soft starter unit is the output ampere rating.)					Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		220 - 230V	240V	380 - 415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number		
125	85	—	—	—	60	60 - 75	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12		140U-JD6D3-D12		
150	85	—	—	(45)	—	—	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15		140U-JD6D3-D15		
	108	—	40	—	75	100	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15		140U-JD6D3-D15		
175	135	—	50	—	100	125	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17		140U-JD6D3-D17		
250	108	(30)	—	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25		140U-JD6D3-D25		
	135	(37)	—	—	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25		140U-JD6D3-D25		

Allen-Bradley PLCs

Table 11 Combination 2155J SMC-Flex Soft Starter Units - I-Frame, Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Horsepower Ratings (Nominal Kilowatt Rating) (The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC-Flex soft starter unit is the output ampere rating.)					Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
		220 - 230V	230V	380 - 415V	460V	575V	Min.	Max.		
15	5	(0.25 - 1.1)	0.5 - 1	(0.37 - 2.2)	0.5 - 3	0.75 - 3	500	800	140U-I3C3-C15	140U-I6C3-C15
	25	(1.5)	1.5 - 2	—	—	5			140U-I3C3-C15	140U-I6C3-C15
20	25	(2.2)	3	(3.7)	5	7.5	1000	140U-I3C3-C20	140U-I6C3-C20	
30	25	(3.7)	5	(5.5 - 7.5)	7.5 - 10	10		140U-I3C3-C30	140U-I6C3-C30	
40	25	—	—	—	—	15	600	140U-I3C3-C40	140U-I6C3-C40	
50	25	(5.5)	7.5	(11)	15	20		140U-I3C3-C50	140U-I6C3-C50	
	43	—	10	—	20	25	140U-I3C3-C50	140U-I6C3-C50		
60	43	(7.5)	—	(15)	25	30	1200	140U-I3C3-C60	146U-I6C3-C60	
70	43	(11)	15	(18.5 - 22)	30	40		140U-I3C3-C70	140U-I6C3-C70	
100	60	(15)	—	—	40	50	700	1400	140U-I3C3-D10	140U-I6C3-D10
125	60	—	20	(30)	—	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S
	85	(18.5)	—	—	50	60			140U-I3C3-D12-S	140U-I6C3-D12-S
150	85	(22)	25 - 30	(37)	60	75			140U-I3C3-D15-S	140U-I6C3-D15-S

Table 12 Combination 2155J SMC-Flex Soft Starter Units - JD-Frame and K-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the SMC-Flex soft starter unit is the output ampere rating.)					Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"	High Interrupting Capacity Suffix Letter "CM"
		220 - 230V	230V	380 - 415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		
150	108	—	40	(45)	75	100	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15	140U-JD6D3-D15	
175	135	—	50	—	100	125	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17	140U-JD6D3-D17	
250	108	(30)	—	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25	140U-JD6D3-D25	
	135	(37)	—	—	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500			
	201	—	60 - 75	(75)	125 - 150	150 - 200	1250	1405	1565	1720	1875	2030	2185	2340	2500			
300	201	(45)	—	(90)	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	140U-K3D3-D30	140U-K6D3-D30	
400	201	(55)	—	—	—	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	140U-K3D3-D40	140U-K6D3-D40	
	251	—	100	(110)	200	250	2000	2250	2500	2750	3000	3250	3500	3750	4000			

Table 13 Combination 2155J SMC-Flex Soft Starter Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Ratings (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the SMC-Flex soft starter unit is the output ampere rating.)					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
500	251	(75)	—	(132)	—	—	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W	25103-406-01	HLDB3600FT33W	25103-406-02	
	317	(90)	—	(150 - 160)	—	300	1000	1500	2000	2500	3000	3500	4000	6LES500T	25107-447-04	6LES500T	25107-447-04	
600	317	—	125	—	250	—	1200	1800	2400	3000	3600	4200	4800	LDB3600FT33W	25103-406-01	HLDB3600FT33W	25103-406-02	
	361	(110)	150	(185)	300	350	1200	1800	2400	3000	3600	4200	4800	6LES600T	25107-447-05	6LES600T	25107-447-05	
	480	—	—	(200)	350	400 - 450	1200	1800	2400	3000	3600	4200	4800					

Table 14 Combination 2155J SMC-Flex Soft Starter Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Ratings (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the SMC-Flex soft starter unit is the output ampere rating.)</small>					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
800	480	(132)	200	(220 - 250)	400	500	1600	2400	3200	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	

Table 15 Combination 2163P Bulletin 1336 PLUS II Drive Units (220 - 230V and 230V Constant Torque) - I-Frame, Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)</small>		Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220 - 230V (50 Hz)	230V (60Hz)	Min.	Max.	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number	
15	2.3	(0.37)	0.5	500	800	140U-I3C3-C15	140U-I6C3-C15		
	3	(0.55)	0.75						
	4.5	(0.75 - 1.1)	1						
	6	(1.5)	1.5						
	8	—	2						
20	12	(2.2)	3	600	1200	140U-I3C3-C20	140U-I6C3-C20		
30	18	(3.7)	5			140U-I3C3-C30	140U-I6C3-C30		
50	27	(5.5)	7.5			140U-I3C3-C50	140U-I6C3-C50		
	34	—	10	700	1400	140U-I3C3-C60	140U-I6C3-C60		
60	27	(7.5)	—			140U-I3C3-C70	140U-I6C3-C70		
70	48	(11)	15			140U-I3C3-D10	140U-I6C3-D10		
100	65	(15)	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S		
125	65	(18.5)	20			140U-I3C3-D15-S	140U-I6C3-D15-S		
150	77	—	25						
	80	—	30						

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Table 16 Combination 2163P Bulletin 1336 PLUS II Drive Units (380 - 415V and 460V Constant Torque) - I-Frame, Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)		Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
		380 - 415V	460V	Min.	Max.		
15	1.1	(0.25)	0.5	500	800	140U-I3C3-C15	140U-I6C3-C15
	1.6	(0.37 - 0.55)	0.75				
	2.1	(0.75)	1				
	2.8	(1.1)	1.5				
	3.8	(1.5)	2				
	5.3	(2.2)	3				
20	8.4	(3.7)	5		1000	140U-I3C3-C20	140U-I6C3-C20
30	13.3	(5.5)	7.5		1000	140U-I3C3-C30	140U-I6C3-C30
	16.1	(7.5)	10				
50	24	(11)	15	600	1200	140U-I3C3-C50	140U-I6C3-C50
	27	—	20				
60	27	(15)	—			140U-I3C3-C60	140U-I6C3-C60
	39	—	25				
70	39	(18.5)	—			140U-I3C3-C70	140U-I6C3-C70
	45	(22)	30				
100	60	—	40	700	1400	140U-I3C3-D10	140U-I6C3-D10
125	60	(30)	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S
	75	—	50				
150	75	(37)	—			140U-I3C3-D15-S	140U-I6C3-D15-S

Table 17 Combination 2163P Bulletin 1336 PLUS II Drive Units (220 - 230V, 230V, 380 - 415V and 460V, Constant Torque) - JD-Frame and K-Frame Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)				Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"	High Interrupting Capacity Suffix Letter "CM"
		220 - 230V	230V	380 - 415V	460V	5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		
125	77	—	—	—	60	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12	140U-JD6D3-D12	
150	77	(22)	—	—	—	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15	140U-JD6D3-D15	
	85	—	—	(45)	—												
	106	—	—	—	75												
175	138	—	—	—	100	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17	140U-JD6D3-D17	
250	106	—	—	(55)	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25	140U-JD6D3-D25	
	138	—	—	(75)	—												
	173	—	—	—	125 - 150												
400	173	—	—	(90)	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	140U-K3D3-D40	140U-K6D3-D40	

Table 18 Combination 2163P Bulletin 1336 PLUS II Drive Units (460V, Variable Torque) - I-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (The horsepower ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)	Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
			460V	Min.		
15	1.2	0.5	500	800	140U-I3C3-C15	140U-I6C3-C15
	1.7	0.75				
	2.3	1				
	3	1.5				
	4	2				
	6	3				
20	9	5	1000	140U-I3C3-C20	140U-I6C3-C20	
30	15.4	7.5 - 10				140U-I3C3-C30
50	22	15	600	1200	140U-I3C3-C50	140U-I6C3-C50
	27	20				
60	34	25			140U-I3C3-C60	140U-I6C3-C60
70	42	30			140U-I3C3-C70	140U-I6C3-C70
100	65	40	700	1400	140U-I3C3-D10	140U-I6C3-D10
125	65	50	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S

Table 19 Combination 2163P Bulletin 1336 PLUS II Drive Units (460V, Variable Torque) - JD-Frame and K-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (The horsepower ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)	Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"	High Interrupting Capacity Suffix Letter "CM"
			5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		
125	75	60	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12	140U-JD6D3-D12	
150	96	75	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15	140U-JD6D3-D15	
175	120	100	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17	140U-JD6D3-D17	
250	150	125	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25	140U-JD6D3-D25	
	180	150												

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Table 20 Combination 2163P Bulletin 1336 PLUS II Drive Units (575V Constant Torque) - I-Frame, Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (The horsepower ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)	Magnetic Trip Range (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
			575V	Min.		
15	2	1	500	800	140U-I3C3-C15	140U-I6C3-C15
	4	2				
	6	3				
	8	5				
20	10	7.5	500	1000	140U-I3C3-C20	140U-I6C3-C20
30	12	10	500	1000	140U-I3C3-C30	140U-I6C3-C30
40	19	15	500	1000	140U-I3C3-C40	140U-I6C3-C40
50	24	20	600	1200	140U-I3C3-C50	140U-I6C3-C50
	30	25				
60	35	30	600	1200	140U-I3C3-C60	140U-I6C3-C60
70	45	40	600	1200	140U-I3C3-C70	140U-I6C3-C70
100	57	50	700	1400	140U-I3C3-D10	140U-I6C3-D10
125	62	60	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S

Table 21 Combination 2163P Bulletin 1336 PLUS II Drive Units (575V Constant Torque) - JD-Frame Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (The horsepower ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS II drive unit is the output ampere rating.)	Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"	High Interrupting Capacity Suffix Letter "CM"
			575V	5X	—	—	—	7.5X	—	—	—	10X		
125	85	75	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12	140U-JD6D3-D12	
150	109	100	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15	140U-JD6D3-D15	
175	138	125	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17	140U-JD6D3-D17	

Table 22 Combination 2163Q PowerFlex 70 Drive Units (380 - 415, 460 and 575V) and 2165Q PowerFlex 70 Drive Units with Manual Isolated Drive Bypass (460 and 575V) - I-Frame, Thermal Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the PowerFlex 70 drive unit is the output ampere rating.)			Magnetic Trip Setting (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
		380 - 415V	460V	575V	Min.	Max.	Allen-Bradley Catalog Number	Allen-Bradley Catalog Number
15	0.9	—	—	0.5	500	800	140U-I3C3-C15	140U-I6C3-C15
	1.1	—	0.5	—				
	1.3	(0.37)	—	—				
	1.7	—	—	0.75 - 1				
	2.1	(0.55 - 0.75)	0.75 - 1	—				
	2.2	—	—	—				
	2.7	—	—	1.5 - 2				
	3.4	—	1.5 - 2	—				
	3.5	(1.1 - 1.5)	—	—				
	3.9	—	—	3				
	4.2	—	—	—				
	5	(2.2)	3	—				
	6.1	—	—	5				
6.8	—	—	—					
20	8	—	5	—	500	1000	140U-I3C3-C20	140U-I6C3-C20
	8.7	(3.7)	—	—				
	9	—	—	7.5				
	9.6	—	—	—				
30	9.6	—	—	—	500	1000	140U-I3C3-C30	140U-I6C3-C30
	11	—	7.5	10				
	11.5	(5.5)	—	—				
	14	—	10	—				
	15.3	—	—	—				
40	15.4	(7.5)	—	—	500	1000	140U-I3C3-C40	140U-I6C3-C40
	17	—	—	15				
50	22	(11)	15	20	600	1200	140U-I3C3-C50	140U-I6C3-C50
	27	—	20	25				
	28	—	—	—				
60	30	(15)	—	—	600	1200	140U-I3C3-C60	140U-I6C3-C60
	32	—	—	30			140U-I3C3-C60	140U-I6C3-C60
	34	—	25	—			140U-I3C3-C60	140U-I6C3-C60
70	37	(18.5)	—	—	600	1200	140U-I3C3-C70	140U-I6C3-C70
	40	—	30	—			140U-I3C3-C70	140U-I6C3-C70
	41	—	—	40			140U-I3C3-C70	140U-I6C3-C70
100	43	(22)	—	—	700	1400	140U-I3C3-D10	140U-I6C3-D10
	52	—	40	50			140U-I3C3-D10	140U-I6C3-D10
125	60	(30)	—	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S
150	72	(37)	—	—	800	1600	140U-I3C3-D15-S	140U-I6C3-D15-S

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Table 23 Combination 2163R PowerFlex 700 Drive Units (380 - 415V, 460V and 575V) and 2165R PowerFlex Drive Units with Manual Isolated Drive Bypass (460V and 575V) - I-Frame, Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the PowerFlex 700 drive unit is the output ampere rating.)			Magnetic Trip Setting (Amperes)		Medium Interrupting Capacity Suffix Letter "CB"	High Interrupting Capacity Suffix Letter "CM"
		380-415V	460V	575V	Min.	Max.	Allen-Bradley Catalog Number	Allen-Bradley Catalog Number
15	1.1	—	0.5	—	500	800	140U-I3C3-C15	140U-I6C3-C15
	1.3	(0.37)	—	—				
	1.7	—	—	1				
	2.1	(0.55 - 0.75)	0.75 - 1	—				
	2.7	—	—	1.5 - 2				
	3.4	—	1.5 - 2	—				
	3.5	(1.1 - 1.5)	—	—				
	3.9	—	—	3				
	5	(2.2)	3	—				
6.1	—	—	5					
20	8	—	5	—	500	1000	140U-I3C3-C20	140U-I6C3-C20
	8.7	(3.7)	—	—				
	9	—	—	7.5				
30	11	—	7.5	10	500	1000	140U-I3C3-C30	140U-I6C3-C30
	11.5	(5.5)	—	—				
	14	—	10	—				
	15.4	(7.5)	—	—				
40	17	—	—	15	500	1000	140U-I3C3-C40	140U-I6C3-C40
50	22	(11)	15	20	600	1200	140U-I3C3-C50	140U-I6C3-C50
	27	—	20	25				
60	30	(15)	—	—	600	1200	140U-I3C3-C60	140U-I6C3-C60
	32	—	—	30				
	34	—	25	—				
70	37	(18.5)	—	—	600	1200	140U-I3C3-C70	140U-I6C3-C70
	40	—	30	—				
	41	—	—	40				
100	43	(22)	—	—	700	1400	140U-I3C3-D10	140U-I6C3-D10
	52	—	40	50				
125	56	(30)	—	—	800	1600	140U-I3C3-D12-S	140U-I6C3-D12-S
	62	—	—	60				
	65	—	50	—				
150	72	(37)	—	—	800	1600	140U-I3C3-D15-S	140U-I6C3-D15-S

Table 24 Combination 2163R PowerFlex 700 Drive Units (380 - 415V, 460, 575V) and 2165R PowerFlex 700 Drive Units with Manual Isolated Drive Bypass (460 and 575V) - JD-Frame, K-Frame, KHD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the LD, MLD PowerFlex 700 drive unit is the output ampere rating.)			Magnetic Trip Setting (Amperes)									Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"					
		380 - 415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Allen-Bradley Catalog Number		Allen-Bradley Catalog Number					
125	77	—	60	75	625	700	780	860	940	1020	1050	1170	1250	140U-JD3D3-D12		140U-JD6D3-D12					
150	96	—	75	—	750	840	935	1030	1125	1220	1315	1410	1500	140U-JD3D3-D15		140U-JD6D3-D15					
	105	(45)	—																		
175	125	—	100	100	875	980	1090	1200	1310	1420	1530	1640	1750	140U-JD3D3-D17		140U-JD6D3-D17					
	105	(55)	—																		
250	125	—	—	125	1250	1405	1565	1720	1875	2030	2185	2340	2500	140U-JD3D3-D25		140U-JD6D3-D25					
	144	—	—	150																	
	156	—	125	—																	
	180	—	150	—																	
300	170	(75 - 90)	—	—	1500	1690	1875	2065	2250	2440	2650	2815	3000	140U-K3D3-D30		140U-K6D3-D30					
400	255	(110)	200	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	140U-K3D3-D40		140U-K6D3-D40					

Table 25 Combination 2163R PowerFlex 700 Drive Units (380 - 415V) - LD, HLD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)

Circuit Breaker Continuous Current Rating (Amperes)	Unit Output Rating (Amperes)	Nominal Kilowatt Rating (The kW rating shown here is nominal. The limiting factor in the application and use of the LD, HLD PowerFlex 700 drive unit is the output ampere rating.)			Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		380 - 415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	Cutler-Hammer Catalog Number	Allen-Bradley Catalog Number	
500	255	(132)	—	—	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W 6LES500T	25103-406-01 25107-447-04	HLDB3600FT33W 6LES500T	25103-406-02 25107-447-04	

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