

Bulletin 2106

Full Voltage Reversing Starter Unit with Fusible Disconnect Switch (FVR)

See page 31 for product description.

4

NEMA Size	Line Voltage				Fuse Clip (See Appendix for short circuit withstand ratings.)		Space Factor	Catalog Number ^[1] Wiring Type B—Class I		Delivery Program
	208V Hp	240V Hp	380V–415V Hp	480V/600V Hp	Rating (Amperes)	Class		NEMA Type 1 and Type 1 w/ gasket	NEMA Type 12	
1	0.125-7.5	0.125-7.5	0.125-10	0.125-10	30	CC, J, R, H, HRCII-C	1.5	2106B-BA_ _	2106B-BD_ _	SC
					60	J, R, H, HRCII-C				
2	10	10-15	15-25	15-25	30 ^[2]	J, R, H, HRCII-C	1.5	2106B-CA_ _	2106B-CD_ _	
					60	J, R, H, HRCII-C				
					100	R, H, HRCII-C				
3	15-25	20-30	30-50	30-50	60 ^[2]	J, R, H, HRCII-C	3.0	2106B-DA_ _	2106B-DD_ _	
					100	J, R, H, HRCII-C				
					200	J, R, H, HRCII-C				
4	30-40	40-50	60-75	60-100	100 ^[2]	J, R, H, HRCII-C	4.0	2106B-EA_ _	2106B-ED_ _	
					200	J, R, H, HRCII-C				
					400	J				
5	50-75	60-100	100-150	125-200	200 ^[2]	J, R, H, HRCII-C	6.0	2106B-FA_ _	2106B-FD_ _	PE-II
					400	J, R, H, HRCII-C				
					600	J				

- [1] The catalog numbers listed are not complete:
- Select control voltage type from table on page 205 (e.g., 2106B-BABD).
 - Select horsepower from table on page 206 (e.g., 2106B-BABD-31).
 - If power fuse will NOT be selected, select fuse clip from table above. Then select clip designator from table on page 207 (e.g., 2106B-BABD-31-24J).
 - If power fuse WILL be selected, first select clip designator from table on page 207 (e.g., 2106B-BABD-31-20J). Then select power fuse from table on page 209 (e.g., 2106B-BABD-31GT-20J).
 - For fuse rating based on load horsepower, see publication 2100-TD003x-EN-P.
- The catalog numbers listed include an external reset button for the overload relay. To order catalog numbers **without** the external reset button, replace the letter “A” with the letter “K” (e.g., 2106B-BK_ _) or replace the letter “D” with the letter “J” (e.g., 2106B-BJ_ _).
- [2] Available on 480V and 600V applications only.
- [3] For 208V and 240V applications with Class R or H fuses, unit only requires 1.5 space factors.

Bulletin 2107

Full Voltage Reversing Starter Unit with Circuit Breaker (FVR)

See page 31 for product description.

NEMA Size	Line Voltage				Space Factor	Catalog Number ^[1] Wiring Type B—Class I		Delivery Program
	208V Hp	240V Hp	380V-415V Hp	480V/600V Hp		NEMA Type 1 and Type 1 w/ gasket	NEMA Type 12	
1	0.125-7.5	0.125-7.5	0.125-10	0.125-10	1.5	2107B-BA_ _	2107B-BD_ _	SC
2	10	10-15	15-25	15-25	1.5	2107B-CA_ _	2107B-CD_ _	
3	15-25	20-30	30-50	30-50	3.0	2107B-DA_ _	2107B-DD_ _	
4	30-40	40-50	60-75	60-100	4.0	2107B-EA_ _	2107B-ED_ _	
5	50-75	60-100	100-150	125-200	6.0	2107B-FA_ _	2107B-FD_ _	

- [1] The catalog numbers listed are not complete:
- Select control voltage type from table on page 205 (e.g., 2107B-BABD).
 - Select horsepower from table on page 206 (e.g., 2107B-BABD-30).
 - Select circuit breaker type from Circuit Breaker Type table on page 211 (e.g., 2107B-BABD-30CA).
 - For circuit breaker size based on load horsepower, refer to publications 2100-TD001x-EN-P and 2100-TD002x-EN-P.
- The catalog numbers listed include an external reset button for the overload relay. To order catalog numbers **without** the external reset button, substitute the letter “A” for the letter “K” (e.g., 2107B-BK_ _) or replace the letter “D” with the letter “J” (e.g., 2107B-BJ_ _).



Configuration Tables

Control Voltage Type for Bulletins 2102L, 2103L, 2106, 2107, 2112, 2113, 2122, 2123, 2126, 2127, 2172, and 2173 *

Control Voltage Code							Control Type
208V	240V	380V	400V	415V	480V	600V	
H	A	—	—	—	B	C	120V, 60Hz, Transformer Control ^[1]
HD	AD	—	—	—	BD	CD	120V, 60Hz, Separate Control ^[2]
—	—	N	—	I	—	—	110V, 50Hz, Transformer Control ^{[1],[3]}
—	—	NS	—	IS	—	—	110V, 50Hz, Separate Control ^[2]
—	—	—	KN	—	—	—	115V, 50Hz, Transformer Control ^{[1],[3]}
—	—	—	KNS	—	—	—	115V, 50Hz, Separate Control ^[2]
—	—	NP	—	—	—	—	220V, 50Hz, Transformer Control ^{[1],[3]}
—	—	NP	—	—	—	—	220V, 50Hz, Separate Control ^[2]
—	—	—	KNP	—	—	—	230V, 50Hz, Transformer Control ^{[1],[3]}
—	—	—	KNP	—	—	—	230V, 50Hz, Separate Control ^[2]
—	—	—	—	IT	—	—	240V, 50Hz, Transformer Control ^{[1],[3]}
—	—	—	—	IT	—	—	240V, 50Hz, Separate Control ^[2]
—	—	NLP	—	—	—	—	220V, 50Hz, Line to Neutral Control, (Separate Control) ^{[4],[5]}
—	—	—	KNLP	—	—	—	230V, 50Hz, Line to Neutral Control, (Separate Control) ^{[4],[5]}
—	—	—	—	ILT	—	—	240V, 50Hz, Line to Neutral Control, (Separate Control) ^{[4],[5]}
H	A	—	—	—	B	C	Common Control ^[6]

[1] Select a control circuit transformer. See Options section.

[2] Control circuit fusing (option 21) and/or disconnect interlock (option 98) may be required to comply with NEC. See Options section.

[3] Incorporates primary taps for future conversion to new global IEC voltage standards (e.g., 400V/115V/230V). Allows conversion without the need to replace transformers or coils.

[4] Requires horizontal neutral bus and vertical neutral bus in 9" vertical wireway. Refer to Section Modifications to select.

[5] Select control circuit fusing (see option 21 in Options section).

[6] Select control circuit fusing (see option 22 in Options section). Required to comply with NEC.

Primary Voltage Code for Bulletins 2195, 2196, and 2197

240V	380V	400V	415V	480V	600V
A	N	KN	I	B	C

Control Voltage Type for Bulletins 2154 and 2155

Control Voltage Code								Control Type
220V ^[1]	230V ^[1]	240V	380V ^[1]	400V ^[1]	415V ^[1]	480V	600V	
P	—	—	N	—	I	—	—	110V, 50Hz Transformer Control
—	P	—	—	KN	—	—	—	115V, 50Hz Transformer Control
—	—	A	—	—	—	B	C	120V, 60Hz Transformer Control

[1] Units at these voltages are not UL listed or CSA certified.

* Blue type indicates PE delivery program.

Fuse Clip Designator Selection and Power Fuse Selection for Bulletins 2106, 2112, 2122, 2126, 2154F, 2154G and 2172 * †

Fuse Clip Rating (Amperes)	Fuse Clip Type	To select Fuse Clip Designator, select code from one of these two columns.		To select Power Fuses, select power fuse manufacturer code from these columns [1],[2].		
		When NO power fuses will be selected, select fuse clip designator from this column.	When power fuses will be selected, select fuse clip designator from this column [1],[2]. The "20" portion of your Fuse Clip Designator (e.g., 20J) means that the power fuse will be selected automatically based on load horsepower.	Power Fuse Manufacturer Code [3]		Fuse Class [2]
				Typical (T) Accel. Time ≤ 5 sec.	Long (L) Accel. Time > 5 sec.	
30	CC [4]	24C	20C	LT	LL	CC
30	J R H [1],[4] HRCII-C [5]	24J 24R 24 24E	20J 20R — 20E	GT or BT	GL or BL	J R — HRCII-C
60	J R H [1],[4] HRCII-C [5]	25J 25R 25 25E	20J 20R — 20E	GT or BT	GL or BL	J R — HRCII-C
100	J R H [1],[4] HRCII-C [5]	26J 26R 26 26E	20J 20R — 20E	GT or BT	GL or BL	J R — HRCII-C
200	J R H [1],[4] HRCII-C [5]	27J 27R 27 27E	20J 20R — 20E	GT or BT	GL or BL	J R — HRCII-C
400	J R H [1],[4] HRCII-C [5]	28J 28R 28 28E	20J 20R — 20E	GT or BT	GL or BL	J R — HRCII-C
600	J R HRCII-C [5]	29J 29R 29E	20J 20R 20E	GT or BT	GL or BL	J R HRCII-C
800	L	24L	20L	GT or BT	GL or BL	L

- [1] Power fuse option not available for Class H fuse clips.
- [2] Available on 480V and 600V applications only.
To select power fuses for Bulletins 2106, 2112, 2122, 2126, and 2172:
 - Select fuse clip designator and add to catalog string number (e.g., 2106B-BABD-31__-20J).
 - Then select power fuse manufacturer code and add to catalog string number (e.g., 2106B-BABD-31GT-20J). Only use power fuse code when selecting power fuses.
- [3] Select power fuse manufacturer code by indicating choice of power fuse manufacturer—GT or GL = Ferraz Shawmut and BT or BL = Bussmann. When selecting Bussmann Class J or R, delivery program changes to PE. The Ferraz Shawmut Class J fuse incorporates blown fuse indication for fuses above 8A.
- [4] Not available with Bulletin 2154F and 2154G units.
- [5] HRCII-C fuses are available in Canada only. HRCII-C Bussmann (BT or BL) fuses are not available; use HRCII-C Ferraz Shawmut (option code GT or GL). They are CSA certified but are NOT UL listed.

* For Bulletins 2100D, 2102L, 2192F, and 2192M, see table on page 208. For Bulletin 2196, see page 209.
 † Refer to publication 2100-TD003x-EN-P, CENTERLINE Motor Control Centers Power Fuses, for more information.



Configuration Tables

Control Voltage Type for Bulletins 2162, 2163, 2164, and 2165

Line Voltage	Voltage Code
220/230	P ^{[1],[2]}
240	A ^[2]
380	N ^{[1],[2]}
400	KN ^{[1],[2]}
415	I ^{[1],[2]}
480	B
600	C

[1] Units at these voltages are not UL listed or CSA certified.

[2] Not applicable to 2164 or 2165.

Horsepower Ratings for All Bulletins

Motor Hp	Number	Motor Hp	Number	Motor Hp	Number	Motor Hp	Number
0.125	30	3	38	40	46	250	56
0.25	31	5	39	50	47	300	57
0.33	32	7.5	40	60	48	350	58
0.50	33	10	41	75	49	400	59
0.75	34	15	42	100	50		
1	35	20	43	125	51	450	60
1.5	36	25	44	150	52	500	61
2	37	30	45	200	54		

kW Ratings for Bulletins 2154, 2155, 2162, and 2163 ^[1]

kW	Number	kW	Number
0.25	32K	37	47K
0.37	33K	45	48K
0.55	34K	55	49K
0.75	35K	75	50K
1.1	36K	90	51K
1.5	37K	110	52K
2.2	38K	132	53K
3.7	39K	150	54K
5.5	40K	160	55K
7.5	41K	185	56K
11	42K	200	57K
15	43K	220	58K
18.5	44K	250	59K
22	45K		
30	46K		

[1] kW rated units are not UL listed, cUL listed or CSA certified.

Fuse Clip Designator for Bulletin 2196 *

Fuse Clip Size	Fuse Clip Type	Fuse Clip Designator	Fuse Manufacturer Code [1]	Fuse Clip Class
30	J	24J	Select G or B	J
	R	24R	G=Ferraz Shawmut, B=Bussmann	R
	H [2]	24		H
60	J	25J	Select G or B	J
	R	25R	G=Ferraz Shawmut, B=Bussmann	R
	H [2]	25		H
100	J	26J	Select G or B	J
	R	26R	G=Ferraz Shawmut, B=Bussmann	R
	H [2]	26		H
200	J	27J	Select G or B	J
	R	27R	G=Ferraz Shawmut, B=Bussmann	R
	H [2]	27		H

[1] The Ferraz Shawmut Class J fuse incorporates blown fuse indication for fuses above 8A.

[2] Power fuse option not available for Class H fuse clip.

Trip Current for Bulletin 2103L

Contacting Rating (Amperes)	Number	Trip Current (Amperes)
30 or 60	30	15
	31	20
30, 60, or 100	32	30
	34	40
60 or 100	35	50
	36	60
	37	70
100, 200, or 300	38 [1]	80
	39	90
	40	100
	41	125
200 or 300	42	150
	43	175
	44	200
	45	225
300	46	250
	47	300
	48	300

[1] Available only on 100A contactors.

Trip Current for Bulletin 2197

Number	Trip Current (Amperes)	Number	Trip Current (Amperes)
30	15	37	70
31	20	40	100
32	30	41	125
34	40	42	150
35	50	44	200
36	60	—	—

* See Appendix for short circuit withstand ratings. For fuse rating based upon kVA of transformer, see publication 2100-TD003x-EN-P. Selecting Bussmann or Littelfuse power fuse changes delivery program to PE. Power fuses are not available for Type H fuse clip. Power fuses are available on 480V and 600V only.