

Closed Transition Reduced Voltage Autotransformer Type Starter Unit with Circuit Breaker (RVAT)

- See page 32 for product description.
- Autotransformers (≤200 Hp) allow a starting time of 10, 15, or 25 seconds (at 80%, 65%, or 50% TAPS, respectively) out of each four minutes for one hour, followed by a rest period of two hours. Autotransformers > 200 Hp allow a starting time of 20, 30, or 50 seconds (at 80%, 65%, or 50% TAPS, respectively). This is followed by an off time of 30 seconds for a maximum of three starts, followed by a rest period of one hour. If starting times are excessive, contact your local Rockwell Automation Sales Office. Duty cycle may be changed or components may have to be changed or added. See NEC Article 430. Both interposing relay and incomplete starting sequence protection are provided as standard. Standard factory settings are underlined.

NEMA Size	Line Voltages		Space Factor	Catalog Number ^[1] Wiring Type B—Class I		Delivery Program
	240V Hp	480V/600V Hp ^[2]		NEMA Type 1 and Type 1 w/ gasket	NEMA Type 12	
2	10-15	15-25	3.5	2173B-CA_ _	2173B-CD_ _	PE-II
3	20-30	30-50	4.5	2173B-DA_ _	2173B-DD_ _	
4 ^[3]	40-50	60-100	6.0	2173B-EA_ _	2173B-ED_ _	
5 ^[3]	60-100	125-200	6.0, 25" W	2173B-FA_ _	2173B-FD_ _	
6 ^{[3],[4],[5]}	125-200	250-400	6.0, 35" W 20" D ^[6]	2173B-GA_ _	2173B-GD_ _	

[1] The catalog numbers listed are not complete:

- Select the control voltage type from table on page 205 (e.g., 2173B-EABD).
- Select the horsepower from table on page 206 (e.g., 2173B-EABD-48).
- Select the circuit breaker type from table on page 211 (e.g., 2173B-EABD-48CA).
- 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, replace the letter "A" for the letter "K" (e.g., 2173B-BK_ _) or replace the letter "D" with the letter "J" (e.g., 2173B-BJ_ _).

[2] Delivery program is PE-II in United States and SC-II in Canada for 600V and SC-II in United States and PE-II in Canada for 480V.

[3] Available with Type B wiring only.

[4] Vertical section contains horizontal power bus that is mounted 5" deeper than standard. A special bus splice kit is provided when a NEMA size 6 starter is selected adjacent to a standard 20" deep vertical section. Not available in NEMA Type 3R, Type 4, or back-to-back construction.

[5] For 200 Hp at 240V or 400 Hp at 480V, suffix letter identifying circuit breaker must be CT or CM only.

[6] Frame mounted 20" deep section without vertical wireway. Horizontal bus is 5" deeper than standard.

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.

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.

Circuit Breaker Type for Bulletins 2107, 2113, 2123, 2127, and 2173*

NEMA Size	Instantaneous Circuit Breakers ^[1] (For motor applications where transient inrush current exceeds 13 times the full load current, contact your local Rockwell Automation Sales Office.)						Inverse Time ^[2] (Thermal Magnetic) Circuit Breakers					
	Standard I.C. ^{[3],[4]}		High I.C.		High I.C. with Current Limiter		Standard I.C.		Standard I.C. with Current Limiter		High I.C.	
	Suffix	Frame	Suffix	Frame	Suffix	Frame	Suffix	Frame	Suffix	Frame	Suffix	Frame
1 (0.5 SF)	—	—	CA	HMCP	—	--	CT	FDB	—	—	CM	HFD
1	CZ	HMCP	CA	HMCP	CC	HMCP-ELC ^[5]	CT	FDB	CD	FDB-LFD ^[5]	CM	HFD
2	CZ	HMCP	CA	HMCP	CC	HMCP-ELC ^[5]	CT	FDB	CD	FDB-LFD ^[5]	CM	HFD
3	CZ	HMCP	CA	HMCP	CC ^[6]	HMCP-ELC ^[7]	CT	FDB	CD ^[6]	FDB-LFD ^[7]	CM	HFD
4	—	—	CA	HMCP ^[8]	CC	HMCP-ELC ^{[7],[9]}	CT	JD ^[7]	—	—	CM	HJD ^[7]
5	—	—	CA CAH ^[10] CA ^[11]	HMCP250 HMCP400 HMCP400	—	—	CT CTH ^[10] CT ^[11]	JD KD KD	—	—	CM CMH ^[10] CM ^[11]	HJD HKD HKD
6	—	—	CA	HMCP600	—	—	CT	LD	—	—	CM	HLD
6 ^[12]	—	—	—	—	—	—	CT	MDL	—	—	CM	HMDL

- [1] Refer to publication 2100-TD001x-EN-P, *CENTERLINE Motor Control Centers HMCP Circuit Breakers*, for more information.
- [2] Refer to publication 2100-TD002x-EN-P, *CENTERLINE Motor Control Centers Thermal Magnetic Circuit Breakers*, for more information.
- [3] For Bulletins 2107, 2113, 2123E, 2123F, 2127E, 2127F, 2127J, 2127K and 2173: 25kA short circuit withstand rating. CZ is available at 600V only.
- [4] For Bulletin 2113, circuit breakers with current limiters are not available on dual mounted units.
- [5] For Bulletin 2107, add 0.5 space factor.
- [6] For Bulletin 2123F, add 0.5 space factor.
- [7] For Bulletin 2113, add 0.5 space factor.
- [8] HMCP250 supplied on Bulletin 2173 size 4.
- [9] Not available for Bulletin 2173, size 4
- [10] For special applications where higher than normal inrush exists. Substitute a 400A frame circuit breaker for a 250A frame circuit breaker in Bulletins 2107, 2113, 2123E, and 2123F in size 5, 125-150 Hp, 480V applications only.
- [11] 200 HP Applications *Only*
- [12] For Bulletins 2113 and 2173, for 200 Hp at 240V or 400 Hp at 480V, suffix letter identifying circuit breaker must be CT or CM only.

Inverse Time (Thermal Magnetic) Circuit Breaker Options for Bulletin 2197 *

Rating (Amperes)	Standard I.C.		Std. I.C. w/ Current Limiter		Medium I.C.		High I.C.	
	Suffix	Frame	Suffix	Frame	Suffix	Frame	Suffix	Frame
15-50	CT	FDB	CD	FDB-LFD	CB	FD	CM	HFD
60-100	CT	FDB	CD	FDB-LFD	CB	FD	CM	HFD
125-150	CT	FDB	CD	FDB-LFD	CB	FD	CM	HFD
200	CT	JD	—	—	—	—	CM	HJD

* Refer to Appendix for interrupting capacity and short circuit withstand rating.