Specifications

Environment

Ambient temperature	Size A-D: 14 to 104 °F (-10 to 40 °C) 14 to 131 °F (-10 to 55 °C) with de-rating
	Size 2-6: 32 to 104 °F (0 to 40 °C) 32 to 122 °F (0 to 50 °C) with de-rating
Cooling method	Forced ventilation
Humidity	95% maximum (non-condensing) at 104 °F (40 °C)
Storage temperature	Size A-D: -40 to 140 °F (-40 to 60 °C)
	Size 2-6: -40 to 122 °F (-40 to 50 °C)
Altitude	0 to 9,900ft (3000m), derate 1% per 328ft (100m) between 3,280ft (1000m) and 9,842ft (3000m)
Vibration	Tested in accordance with IEC60068-2-6, 29, 36 & 64
Enclosure	Circuit boards have conformal coating (standard late 2011) Size A-D: IP20 standard, NEMA1 with optional covers Size 2-6: IP20/NEMA1 standard, IP54/NEMA 12 through-panel mounted heatsink with optional fan kits
Electromagnetic immunity	In compliance with IEC 61000-4-2,3,4,5,6,11, IEC61000-6-1,2 and IEC 61800-3
Electromagnetic emissions	IEC 61800-3 with built-in filter; compliance category depends on installation conditions; external filters are available

AC Supply Requirements

Voltage	100 to 120Vac ±10% 200 to 240Vac ±10% 380 to 480Vac ±10% 500 to 575Vac ±10% 500 to 690Vac ±10%
Phases	100 to 120V 1Ø 200 to 240V 1Ø and 3Ø 380 to 690V 3Ø
Input Phase imbalance	3% between phases or 2% negative phase sequence
Frequency	48 to 62Hz
Input displacement power factor	>0.97

Control

Carrier frequency	Size A-C (200V): 3, 6, 12 & 18kHz Size B-C (400V): 3, 6 & 12kHz Size D: 3, 6 & 12kHz Size 2-3: 3, 6 &12kHz (3 & 6 only for 575V models) Size 4-6: 3 & 6kHz
Output frequency	0 to 1500Hz
Frequency accuracy	0.01%
Frequency resolution	0.1Hz
Analog input resolution	0.1%
Serial communications	2-wire RS485 via RJ45 connector
	Modbus RTU protocol selectable baud rate 2.4, 4.8, 9.6, 19.2 and 38.4k
Braking	DC injection standard, dynamic braking transistor standard on all frames except 115V size A.

Protection

DC under voltage trip	175/330/435Vdc (approximately 124/233/307Vac)
DC over voltage trip	415/830/990/1190Vdc (approximately 293/587/700/841Vac) 0/1190Vdc
Overload trip (from cold)	Size A-D: 150% for 60s Size 2-5: 110% for 215s (Normal Duty), 150 for 60s (Heavy Duty) Size 6: 110% for 165s (Normal Duty), 129% for 97s (Heavy Duty)
Instantaneous over current trip	200%, protects against sudden overloads and output short circuits
Phase loss trip	DC bus ripple threshold exceeded
Over temperature trips	Drive heatsink, DC bus, power module and IGBT monitoring
Motor protection	Motor thermistor and thermostat inputs and motor thermal model

Approvals and Listings

UL, cUL	UL508C file # E171230
IEC	IEC 60146-1-1 general requirements IEC 61800-5-1 safety of power drive systems IEC 61131-2 I/O
CE	CE marked
EN	EN 60529 ingress protection
ISO	ISO 9001 quality management system ISO 14001 environment management

EMERSON
Industrial Automation

Dimensions

Size □
Weight 2.2lbs (1kg)

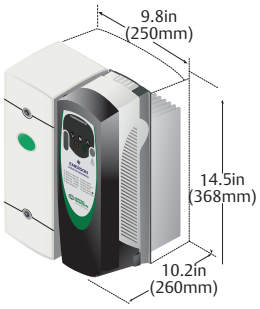
Size B
Weight 3.1lbs (1.4kg)

Size C
Weight 4.6lbs (2.1kg)

Size D
Weight 9.9lbs (4.5kg)

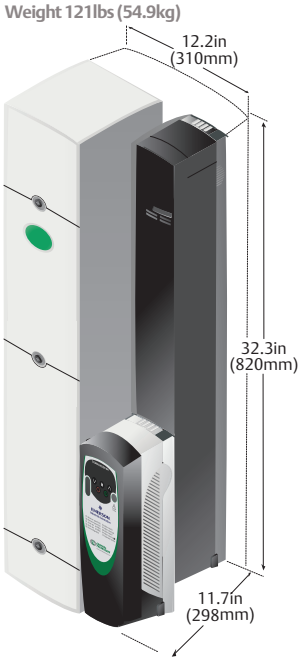
Size 2
Weight 15.4lbs (6.9kg)

Size 3
Weight 33lbs (14.9kg)

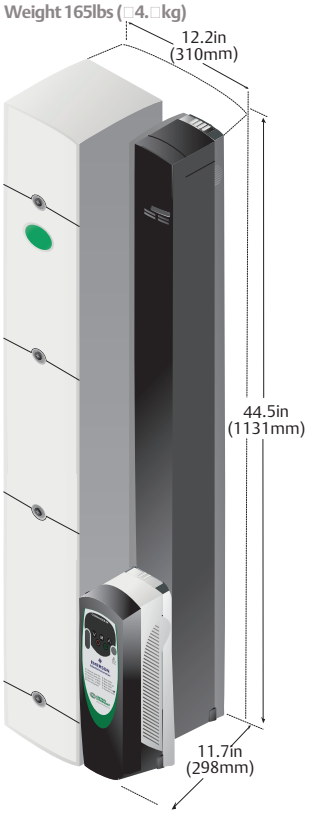


Size 4
Weight 66lbs (29.9kg)

Size 5
Weight 121lbs (54.9kg)



Size 6
Weight 165lbs (□4.□kg)



How to Select a Drive

1. Electrical Considerations
   - What is the supply voltage?
   - Single- or 3-phase input power?
   - What is the motor rating?
     - Continuous current - FLA (Full Load Amps)
     - Select the drive based on Amps rather than horsepower
   - Add capability with SM option modules for drive sizes B-D and 2-6 and/or the LogicStick PLC option.
2. Load Type (choose one)
   - Normal Duty: 110% overload (fans and pumps)
   - Heavy Duty: 150% overload (mixers, conveyors, etc.)
3. Drive Mechanical Mounting
   - Panel mounting - standard
   - Wall mounting - select conduit kit

Conduit Box Dimensions

Dimensions of conduit boxes for Commander SK (sizes A-D and 2-6).

Frame Size	Order Code	Overall Dimensions	
		Height in (cm)	Width in (cm)
Size A	SK-NEMA1-KIT-A	8.46 (21.5)	2.95 (7.5)
Size B	SK-NEMA1-KIT-B	8.89 (26.6)	3.35 (8.5)
Size C	SK-NEMA1-KIT-C	12.56 (31.9)	3.94 (10.0)
Size D	SK-NEMA1-KIT-D	15.45 (39.2)	4.53 (11.5)
Size 2	C-BOX-S2	17.8 (45.2)	6.1 (15.5)
Size 3	C-BOX-S3B* C-BOX-S3T*	21.7 (55.1)	9.9 (25.1)
Size 4	C-BOX-S4	33 (83.9)	12.2 (31.0)
Size 5	C-BOX-S5	45.3 (115)	12.2 (31.0)
Size 6	C-BOX-S6	57.5 (146)	12.2 (31.0)

*C-BOX-S3T (top) is only necessary when a DC input power or dynamic braking resistor is required.

Ratings

Frame Size	100-120 Vac +/- 10% 1Ø (200 / 240 Vac output) Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
A[1]	SKA1100025	1.7	0.33	0.25	1.7	0.33	0.25
	SKA1100037	2.2	0.5	0.37	2.2	0.5	0.37
B	SKB1100075	4	1	0.75	4	1	0.75
	SKB1100110	5.2	1.5	1.1	5.2	1.5	1.1

Frame Size	200-240 Vac +/- 10% 1Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
A[1]	SKA1200025	1.7	0.33	0.25	1.7	0.33	0.25
	SKA1200037	2.2	0.5	0.37	2.2	0.5	0.37
	SKA1200055	3	0.75	0.55	3	0.75	0.55
	SKA1200075	4	1	0.75	4	1	0.75
B	SKBD200110	5.2	1.5	1.1	5.2	1.5	1.1
	SKBD200150	7	2	1.5	7	2	1.5
C	SKCD200220	9.6	3	2.2	9.6	3	2.2
D	SKDD200300	12.6	3	3	12.6	3	3

Frame Size	200-240 Vac +/- 10% 3Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
B	SKBD200110	5.2	1.5	1.1	5.2	1.5	1.1
	SKBD200150	7	2	1.5	7	2	1.5
C	SKCD200220	9.6	3	2.2	9.6	3	2.2
D	SKDD200300	12.6	3	3	12.6	3	3
	SKD3200400	17	5	4	17	5	4
2	SK2201	15.5	5	4	12.6	3	3
	SK2202	22	7.5	5.5	17	5	4
	SK2203	28	10	7.5	25	7.5	5.5
3	SK3201	42	15	11	31	10	7.5
	SK3202	54	20	15	42	15	11
4	SK4201	68	25	18.5	56	20	15
	SK4202	80	30	22	68	25	18.5
	SK4203	104	40	30	80	30	22

Frame Size	380-480 Vac +/- 10% 3Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
B	SKB3400037	1.3	0.5	0.37	1.3	0.5	0.37
	SKB3400055	1.7	0.75	0.55	1.7	0.75	0.55
	SKB3400075	2.1	1	0.75	2.1	1	0.75
	SKB3400110	2.8	1.5	1.1	2.8	1.5	1.1
	SKB3400150	3.8	2	1.5	3.8	2	1.5
C	SKC3400220	5.1	3	2.2	5.1	3	2.2
	SKC3400300	7.2	3	3	7.2	3	3
	SKC3400400	9	5	4	9	5	4
D	SKD3400550	13	7.5	5.5	13	7.5	5.5
	SKD3400750	16.5	10	7.5	16.5	10	7.5

[1] Size A drives do not accept SM option modules.
[2] Size 6 drives require a +24Vdc - 3.5A power supply for the heatsink fans not provided with unit. See the *Options & Accessories* brochure for available power supplies.
NOTE: Motor power based on typical motors. Select model based on actual current rating.

Frame Size	380-480 Vac +/- 10% 3Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
2	SK2401	15.3	10	7.5	13	7.5	5.5
	SK2402	21	15	11	16.5	10	7.5
	SK2403	29	20	15	25	20	11
	SK2404	29	20	15	29	20	15
3	SK3401	35	25	18.5	32	25	15
	SK3402	43	30	22	40	30	18.5
	SK3403	56	40	30	46	30	22
4	SK4401	68	50	37	60	40	30
	SK4402	83	60	45	74	50	37
	SK4403	104	75	55	96	75	45
5	SK5401	138	100	75	124	100	55
	SK5402	168	125	90	156	125	75
6[2]	SK6401	205	150	110	180	150	90
	SK6402	236	200	132	210	150	110

Frame Size	575 Vac +/- 10% 3Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
3	SK3501	5.4	3	3	4.1	2	2.2
	SK3502	6.1	5	4	5.4	3	3
	SK3503	8.4	7.5	5.5	6.1	5	4
	SK3504	11	10	7.5	9.5	7.5	5.5
	SK3505	16	15	11	12	10	7.5
	SK3506	22	20	15	18	15	11
	SK3507	27	25	18.5	22	20	15
4	SK4603	36	30	22	27	25	18.5
	SK4604	43	40	30	36	30	22
	SK4605	52	50	37	43	40	30
	SK4606	62	60	45	52	50	37
5	SK5601	84	75	55	63	60	45
	SK5602	99	100	75	85	75	55
6[2]	SK6601	125	125	90	100	100	75
	SK6602	144	150	110	125	125	90

Frame Size	690 Vac +/- 10% 3Ø Order Code	Normal Duty Max Continuous Current (A)	Normal Duty Motor Power (hp)	Normal Duty Typical Output (kW)	Heavy Duty Max Continuous Current (A)	Heavy Duty Motor Power (hp)	Heavy Duty Typical Output (kW)
4	SK4601	22	25	18.5	19	20	15
	SK4602	27	30	22	22	25	18.5
	SK4603	36	40	30	27	30	22
	SK4604	43	50	37	36	40	30
	SK4605	52	60	45	43	50	37
	SK4606	62	75	55	52	60	45
5	SK5601	84	100	75	63	75	55
	SK5602	99	125	90	85	100	75
6[2]	SK6601	125	150	110	100	125	90
	SK6602	144	175	132	125	150	110

Normal Duty	Heavy Duty
110% overload current for 165s; for applications which use self-ventilated induction motors and require a low overload capability (e.g. fans, pumps)	150% overload current for 60s; for constant torque applications which require a high overload capability (e.g. cranes, hoists)