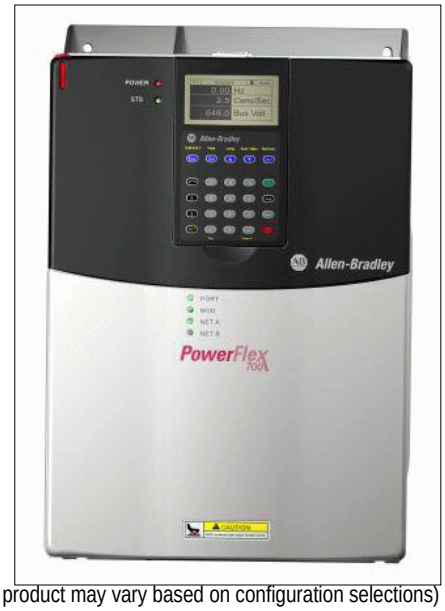
Product Details and Certifications

Product: 20BD027M0AYNAND0

Description: PowerFlex700 AC Drive, 480 VAC, 3 PH, 27 Amps, 20 HP Normal Duty, 15 HP Heavy Duty, IP20/Type 1 w/Conformal Coating, No HIM (Blank Plate), Brake IGBT Installed, Without Drive Mounted Brake Resistor, Second Environment Filter per CE EMC directive (89/336/EEC), No Communication Module, Vector Control with 120V I/O, No Feedback



Representative Photo Only (actual product may vary based on configuration selections)

BASE DRIVE INFORMATION

Input Voltage	480 VAC, 3 PH
Current Rating	27 Amps
Enclosure	IP20/Type 1 w/Conformal Coating
Frame Size	Frame Size 2
Output Current Information	Output Amps: 27A Cont, 33A 1 Min, 44A 3 Sec
I/O Options	Vector Control with 120V I/O
Documentation	User Manual
Brake IGBT	Brake IGBT Installed
Filter Options	Second Environment Filter per CE EMC directive (89/336/EEC)

OPTIONS INFORMATION

Base Plus Options	Base Plus Options Method
Internal Communication Module	No Communication Module
Feedback Option	No Feedback

Dimensions and Weight

Weight (kg / lbs)	12.5 / 27.5

Recommended Spare Parts

SK-G9-TB1-S1	1	PF700 Removable I/O Terminal Block
SK-G9-FAN1-F2	1	Fan, Heatsink, Frame 2
SK-G9-FAN2-F23	1	Fan, Internal, Frames 2 & 3
SK-G1-CVR1-F234	1	PF700 F2, F3, F4 Front Cover, Upper
SK-G9-CPLT1-F2	1	PF700 F2 Conduit Plate
SK-G9-PLAS1-F06	1	Kit, PF700 Cassette Plastics
20-HIM-A0	1	PowerFlex Architecture Class HIM Filler Plate
20B-VECTB-D0-MX3	1	Conformal Coated PF700 Vector Control Cassette with 115 VAC I/O (Series B) ?
20BD027M0AYNAND0	1	PowerFlex700 AC Drive, 480 VAC, 3 PH, 27 Amps, 20 HP Normal Duty, 15 HP Heavy Duty, IP20/Type 1 w/Conformal Coating, No HIM (Blank Plate), Brake IGBT Installed, Without Drive Mounted Brake Resistor, Second Environment Filter per CE EMC directive (89/336/EEC), No Communication Module, Vector Control with 120V I/O, No Feedback

Specifications

Category	Specification	
Agency Certification	c UL us	Listed to UL508C and CAN/CSA-C2.2 No. 14-M91.
	CE	Marked for all applicable European Directives(1) EMC Directive (89/336/EEC) EN 61800-3 Adjustable Speed electrical power drive systems Low Voltage Directive (73/23/EEC) EN 50178 Electronic Equipment for use in Power Installations
	N223	Certified to AS/NZS, 1997 Group 1, Class A.
	Ex II (2) G D	Certified to ATEX directive 94/9/EC. Group II Category (2) GD Applications with ATEX Approved Motors.
	The drive is also designed to meet the following specifications: NFPA 70 - US National Electrical Code NEMA ICS 3.1 - Safety standards for Construction and Guide for Selection, Installation and Operation of Adjustable Speed Drive Systems. IEC 146 - International Electrical Code. CMAA Specification #70 (Crane Manufacturers of America Association)	

(1) Applied noise impulses may be counted in addition to the standard pulse train causing erroneously high [Pulse Freq] readings.

Category	Specification						
Protection	Drive	200-208V	240V	380/400V	480V	600V *Frames 0-4*	600/690V *Frames 5-6*
	AC Input Overvoltage Trip:	285VAC	285VAC	570VAC	570VAC	716VAC	818VAC
	AC Input Undervoltage Trip:	120VAC	138VAC	233VAC	280VAC	345VAC	345VAC
	Bus Overvoltage Trip:	405V DC	405V DC	810V DC	810V DC	1013V DC	1162VAC
	Bus Undervoltage Shutoff/ Fault:	153V DC	153V DC	305V DC	305V DC	381V DC	437VAC
	Nominal Bus Voltage:	281V DC	324V DC	540V DC	648V DC	810V DC	932VAC
Protection *(continued)*	All Drives						
	Heat Sink Thermistor:	Monitored by microprocessor overtemp trip					
	Drive Overcurrent Trip Software Overcurrent Trip: Hardware Overcurrent Trip:	 200% of rated current (typical) 220-300% of rated current (dependent on drive rating)					
	Line transients:	up to 6000 volts peak per IEEE C62.41-1991					
	Contro Logic Noise Immunity:	Showering arc transients up to 1500V peak					
	Power Ride-Thru:	15 milliseconds at full load					
	Logic Control Ride-Thru:	0.5 seconds minimum, 2 seconds typical					
	Ground Fault Trip:	Phase-to-ground on drive output					
	Short Circuit Trip:	Phase-to-phase on drive output					

2 Specifications

Category	Specification			
Environment	Altitude:	1000 m (3300 ft) max. without derating		
	Maximum Surrounding Air Temperature w/o Derating: IP20, NEMA Type 1:	0 to 50 degrees C (32 to 122 degrees F), typical.		
	Storage Temp. (all const.):	–40 to 70 degrees C (–40 to 158 degrees F)		
	Atmosphere:	**Important:** Drive **must not** be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors or dust. If the drive is not going to be installed for a period of time, it must be stored in an area where it will not be exposed to a corrosive atmosphere.		
	Relative Humidity:	5 to 95% non-condensing		
	Shock:	15G peak for 11ms duration (±1.0 ms)		
	Vibration:	0.152 mm (0.006 in.) displacement, 1G peak		
	Sound:	Frame	Fan Speed	Sound Level
		0	30 CFM	58 dB
		1	30 CFM	59 dB
		2	50 CFM	57 dB
		3	120 CFM	61 dB
		4	190 CFM	59 dB
		5	200 CFM	71 dB
		6	300 CFM	72 dB
Electrical	Voltage Tolerance:	See Appendix C of the User Manual		
	Frequency Tolerance:	47-63 Hz.		
	Input Phases:	Three-phase input provides full rating for all drives. Single-phase operation provides 50% of rated current.		
	Displacement Power Factor:	0.98 across entire speed range.		
	Efficiency:	97.5% at rated amps, nominal line volts.		
	Max. Short Circuit Rating:	200,000 Amps symmetrical.		
	Actual Short Circuit Rating:	Determined by AIC rating of installed fuse/circuit breaker.		
Control	Method:	Sine coded PWM with programmable carrier frequency. Ratings apply to all drives (refer to the *Derating Guidelines* in the PowerFlex Reference Manual). The drive can be supplied as 6 pulse or 12 pulse in a configured package.		
	Carrier Frequency:	2, 4, 8 & 10 kHz. Drive rating based on 4 kHz		
	Output Voltage Range:	0 to rated motor voltage		
	Output Frequency Range:	0 to 420 Hz		
	Frequency Accuracy Digital Input:	Within +0.01% of set output frequency		

Category	Specification	
Control *(continued)*	Frequency Control	Speed Regulation - w/Slip Compensation (Volts per Hertz Mode) 0.5% of base speed across 40:1 speed range 40:1 operating range 10 rad/sec bandwidth
		Speed Regulation - w/Slip Compensation (Sensorless Vector Mode) 0.5% of base speed across 80:1 speed range 80:1 operating range 20 rad/sec bandwidth
		Speed Regulation - w/Feedback (Sensorless Vector Mode) 0.1% of base speed across 80:1 speed range 80:1 operating range 20 rad/sec bandwidth
	Speed Control:	Speed Regulation - w/o Feedback (Vector Control Mode) 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth
		Speed Regulation - w/Feedback (Vector Control Mode) 0.001% of base speed across 120:1 speed range 1000:1 operating range 250 rad/sec bandwidth
	Torque Regulation:	Torque Regulation - w/o Feedback ±5%, 600 rad/sec bandwidth
		Torque Regulation - w/Feedback ±2%, 2500 rad/sec bandwidth
	Selectable Motor Control:	Sensorless Vector with full tuning. Standard V/Hz with full custom capability and Vector Control.
	Stop Modes:	Multiple programmable stop modes including - Ramp, Coast, DC-Brake, Ramp-to-Hold and S-curve.
	Accel/Decel:	Two independently programmable accel and decel times. Each time may be programmed from 0 - 3600 seconds in 0.1 second increments.
	Intermittent Overload:	110% Overload capability for up to 1 minute 150% Overload capability for up to 3 seconds
	Current Limit Capability:	Proactive Current Limit programmable from 20 to 160% of rated output current. Independently programmable proportional and integral gain.
	Electronic Motor Overload Protection:	Class 10 protection with speed sensitive response. Investigated by U.L. to comply with N.E.C. Article 430. U.L. File E59272, volume 12.
Encoder	Type:	Incremental, dual channel
	Supply:	12V, 250 mA. 12V, 10 mA minimum inputs isolated with differential transmitter, 250 kHz maximum.
	Quadrature:	90°, ±27 degrees at 25 degrees C.
	Duty Cycle:	50%, +10%
	Requirements:	Encoders must be line driver type, quadrature (dual channel) or pulse (single channel), 8-15V DC output (4-6V DC when jumpers are in 5V position), single-ended or differential and capable of supplying a minimum of 10 mA per channel. Maximum input frequency is 250 kHz. The Encoder Interface Board accepts 12V DC square-wave with a minimum high state voltage of 7.0V DC. With the jumpers in the 5V position, the encoder will accept a 5V DC square-wave with a minimum high state voltage of 3.0V DC. In either jumper position, the maximum low state voltage is 0.4V DC.

IP20 (NEMA Type 1) Watts Loss (Rated Load, Speed & PWM)(1)

Voltage	ND HP	External Watts	Internal Watts	Total Watts Loss
240V	0.5	9	37	46
	1	22	39	61
	2	38	39	77
	3	57	41	98
	5	97	82	179
	7.5	134	74	208
	10	192	77	269
	15	276	92	368
	20	354	82	436
	25	602	96	698
	30	780	96	876
	40	860	107	967
	50	1132	138	1270
	60	1296	200	1496
	75	1716	277	1993
	100	1837	418	2255
480V	0.5	11	42	53
	1	19	44	63
	2	31	45	76
	3	46	46	93
	5	78	87	164
	7.5	115	79	194
	10	134	84	218
	15	226	99	326
	20	303	91	394
	25	339	102	441
	30	357	103	459
	40	492	117	610
	50	568	148	717
	60	722	207	930
	75	821	286	1107
	100	1130	397	1527
	125	1402	443	1845
	150	1711	493	2204
	200	1930	583	2513
600V	0.5	9	37	46
	1	14	40	54
	2	25	40	65
	3	41	42	83
	5	59	83	142
	7.5	83	75	157
	10	109	77	186
	15	177	93	270
	20	260	83	343
	25	291	95	385
	30	324	95	419
	40	459	109	569
	50	569	141	710
	60	630	195	825
	75	1053	308	1361
	100	1467	407	1874
	125	1400	500	1900
	150	1668	612	2280

(1) Worst case condition including Vector Control board, HIM and Communication Module

IP54 (NEMA Type 12) Watts Loss

Voltage	ND HP	External Watts (Heatsink)	Internal Watts	Total Watts Loss
480V	75	873	234	1107
	100	1237	290	1527
	125	1563	282	1845
	150	1874	330	2204
	200	2100	413	2513
600V	75	1091	270	1361
	100	1537	337	1874
	125	1584	316	1900
	150	1895	385	2280

Short Circuit Ratings Data Sheet for 20BD027M0AYNAND0

Operational Rating	Dual Element Time Delay Fuses			Non-Time Delay Fuses			Circuit Breakers							Rating Reference	File Ref: UL	File Ref: CSA	Comments
	SCCR [kA] 600V	Max Fuse Size [A]	Fuse Class	SCCR [kA] 600V	Max Fuse Size [A]	Fuse Class	CB Type	Catalog Number	SCCR [kA] 240V	SCCR [kA] 480V	SCCR [kA] 480Y/277V	SCCR [kA] 600V	SCCR [kA] 600Y/347V				
ND: 20 HP	200	60	CC, T, RK1 or J	200	100	CC, T, RK1 or J	UL 508 Manual Motor Controller	140M-F8E-C32	—	65	—	30	—	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 508 Type E Comb. Motor Controller	140M-F8E-C32	—	—	65	—	30	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCCB	140U-H6C3-D10	100	65	—	—	25	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCP	TBD	TBD	TBD	TBD	TBD	TBD	User Guide	E59272	cUL	
HD: 15 HP	200	60	CC, T, RK1 or J	200	100	CC, T, RK1 or J	UL 508 Manual Motor Controller	140M-F8E-C32	—	65	—	30	—	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 508 Type E Comb. Motor Controller	140M-F8E-C32	—	—	65	—	30	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCCB	140U-H6C3-D10	100	65	—	—	25	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCP	TBD	TBD	TBD	TBD	TBD	TBD	User Guide	E59272	cUL	

ND: 25 HP	200	60	CC, T, RK 1 or J	200	100	CC, T, RK 1 or J	UL 508 Manual Motor Controller	140M-F8E-C25	—	65	—	30	—	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 508 Type E Comb. Motor Controller	140M-F8E-C25	—	—	65	—	30	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCCB	140U-H6C3-D10	100	65	—	—	25	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCP	TBD	TBD	TBD	TBD	TBD	TBD	User Guide	E59272	cUL	
HD: 20 HP	200	60	CC, T, RK 1 or J	200	100	CC, T, RK 1 or J	UL 508 Manual Motor Controller	140M-F8E-C25	—	65	—	30	—	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 508 Type E Comb. Motor Controller	140M-F8E-C25	—	—	65	—	30	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCCB	140U-H6C3-D10	100	65	—	—	25	User Guide	E59272	cUL	
—	—	—	—	—	—	—	UL 489 MCP	TBD	TBD	TBD	TBD	TBD	TBD	User Guide	E59272	cUL	