POWERFLEX 70 CONFIGURED DRIVES

Overview

This program enhances standalone drive functionality through additional control, power and packaging options which users with special installation needs.

The program has two levels:

Catalog Configured Drives

The Catalog Configured Drives Program allows users to create drive packages based on their specific needs. A comple specified by assembling a single catalog number string that includes a base drive and all required options. Packaging and 575V requirements in NEMA/UL Type 1 (IP20), NEMA/UL Type 4/12 (IP65) indoor and NEMA/UL Type 3/4 (IP65) ou consists of a fully defined catalog string identified within this price sheet. Focused on higher volume, repeat business provide consistent manufacturing and minimizes customer resources by reducing engineering, manufacturing and inst delivery is 10 business days from order entry and can be ordered through the Passport order entry system.

Modified Configured Drives

The Modified Configured Drives Program offers users the ability to create drive packages beyond the Catalog Configur Options may or may not be defined within this publication. Product can be ordered by:

- Assembling a catalog string from the options listed in this publication.
  Engineered options that are listed within this publication will be specified by the heading *"Modified Configure* and will have varied lead-times.
- Entering a custom quote request for additional options not listed.
  A custom quote will require a Passport quote using "SP-SDB-CUSTOM" as the line item part number and enterir base catalog string and custom options in the Competitive Summary. For questions or help with a custom quote Engineered Drives Group at 262-512-8415.

Lead Times

Lead Times shown on the following pages are based on these codes:

Code	Description	Lead Time (Work Days)
P	Pre-Engineered (applies to Catalog Configured)	10
Q	Quick Turn	20
X	Long Lead Time	40
C	Custom	60 ✶

✶ Dependent on options selected.

Catalog Number Explanation

To interpret the meaning of a catalog number, match the values of the catalog number code in positions **a, b, c,** etc. **b, c,** etc. below.

21A B 9P6 A 3 A Y N A R C 0 NN NN -ND

a b c d e f g h i j k l m n o

a	
Drive	
Code	**Type**
21A	PowerFlex 70 Configured

b		
Voltage Rating		
Code	**Voltage**	**Lead Time**
X	208V ac	X
B	240V ac	P
D	480V ac	P
E	600V ac	P

c1		
Amp Rating ✶		
208V, 60Hz Input		
Code	**Amps**	**kW (Hp)**
2P2	2.5	0.37 (0.5)
4P2	4.8	0.75 (1.0)
6P8	7.8	1.5 (2.0)
9P6	11	2.2 (3.0)
015	17.5	4.0 (5.0)
022	25.3	5.5 (7.5)
028	32.2	7.5 (10)
042	43	11 (15)
054	62.1	15 (20)
070	78.2	18.5 (25)

✶ Maximum continuous rating for normal duty drives.

c2		
Amp Rating ✶		
240V, 60Hz Input		
Code	**Amps**	**kW (Hp)**
2P2	2.2	0.37 (0.5)
4P2	4.2	0.75 (1.0)
6P8	6.8	1.5 (2.0)
9P6	9.6	2.2 (3.0)
015	15.3	4.0 (5.0)
022	22	5.5 (7.5)
028	28	7.5 (10)
042	42	11 (15)
054	54	15 (20)

070	70	18.5 (25)

✶ Maximum continuous rating for normal duty drives.

c3		
Amp Rating ✶		
600V, 60Hz Input		
Code	**Amps**	**kW (Hp)**
0P9	0.9	0.37 (0.5)
1P7	1.7	0.75 (1.0)
2P7	2.7	1.5 (2.0)
3P9	3.9	2.2 (3.0)
6P1	6.1	4.0 (5.0)
9P0	9.0	5.5 (7.5)
011	11	7.5 (10)
017	17	11 (15)
022	22	15 (20)
027	27	18.5 (25)
032	32	22 (30)
041	41	30 (40)
052	52	37 (50)

✶ Maximum continuous rating for normal duty drives.

d	
Enclosure Type	
Code	**Enclosure**
A	NEMA/UL Type 1/IP20
D	NEMA/UL Type 4 Indoor
E	NEMA/UL Type 4 Outdoor
G	NEMA/UL Type 12 Indoor

e	
HIM	
Code	**Version**
0	No HIM - Blank Plastic Inserted (Drive Mounted)
2	Digital LCD HIM (Drive Mounted)
3	Full Numeric LCD HIM (Drive Mounted)
5	Programmer Only LCD HIM (Drive Mounted)
A	Drive Mounted LCD Full Numeric & Door Mounted Bezel w/Blank Cover, NEMA/UL Type 1
B	Drive Mounted LCD Full Numeric & Door Mounted Bezel w/LCD Digital Speed, NEMA/UL Type 1
C	Door Mounted Bezel w/LCD Full Numeric, NEMA/UL Type 1
E	Drive Mounted LCD Full numeric & Door Mounted Bezel w/LCD Programmer Only, NEMA/UL Type 1
F	Drive Mounted LCD Full Numeric & Door Mounted LCD Full Numeric, NEMA/UL Type 1/12
G	Drive Mounted LCD Full Numeric & Door Mounted Programmer Only, NEMA/UL Type 1/12
L	Door Mounted NEMA/UL Type 1/12 Bezel, No HIM, Blank Cover Inserted, NEMA/UL Type 1/12

J	Door Mounted Full Numeric LCD HIM, NEMA/UL Type 1/12
K	Door Mounted NEMA/UL Type 1/12 Programmer Only

f		
Documentation		
Code	**Type**	**Lead Time**
A	English User Manual and Multi-Language Quick Start	P
N	No Manual	P

g		
Brake		
Code	**w/Brake IGBT**	**Lead Time**
Y	Yes	P

h		
Brake Resistor		
Code	**w/Resistor**	**Lead Time**
Y	Yes (Internal)	P
N	No	P

i	
Emission Class	
Code	**Rating**
A	Filtered✶ A❄ & B Frames (Optional) C, D, & E Frames (Standard)
N	Not Filtered✶ A & B Frames (Optional) C, D, & E Frames

✶ 600V Frames A through D available only without filter (Cat. Code N). 600V Frame E available only with filter (Cat. Code A).
❄ Increases size to Frame B.

j		
Comm Slot		
Code	**Version**	**Lead Time**
N	None	P
C	ControlNet (Coax)	P
D	DeviceNet	P
E	EtherNet	P
H	RS485 HVAC	P
I	Interbus	P
L	LonWorks	P
P	PROFIBUS	P
Q	ControlNet (Fiber)	P
R	RIO	P
S	RS485 DF-1	P

k			
I/O			
Code	Control	I/O Volts	Lead Time
C	Enhanced	24V dc	P
D	Enhanced	115V ac	P

l		
Feedback		
Code	Type	Lead Time
0	None	P
1	Encoder, 5/12V	P

m		
Code	Rating	Lead Time
NN	Reserved	P

n		
Code	Rating	Lead Time
NN	None	P

o		
Options (as required)		
Code	Description	Lead Time
ND	Normal Duty	P
HD	Heavy Duty	P
B0	No Bypass	P
B2/B52❄	Automatic Bypass	P
B5/B55❄	Manual Bypass	P
C1	Drive Only Control Power	P
C5	Customer Supplied Control Power	P
J1	Control Power On Aux. Contact	P
J2	Drive Fault Auxiliary Contact	P
J3	Alarm Auxiliary Contact	P
J4	Drive Run Auxiliary Contact	P
J5	At Speed Auxiliary Contact	P
J8/J58❄	Motor Heater Control	P
L1	3% Input Line Reactor	P
L2	3% Output Line Reactor	P
L6, L7, L8	Input Filter	X
M3	Drive/Bypass Motor Run Time Meter	P
N1	Iso. Analog Input - 0-10V dc	P
N2	Iso. Analog Input - 4-20 mA	P
N3	Iso. Analog Output - 0-10V dc	P

N5	Building Management Control Interface	P
P1	No Input Protection	P
P2	Drive Input Fuses	P
P3	Drive Breaker	P
P4	Drive Bypass Mode Breaker	P
P6	Drive Disconnect Switch, Fused	P
P7	Drive Bypass Mode, Fused Disconnect	P
P11	Drive Input Contactor	P
P12	Drive Output Contactor	P
S1/S51❄	Hand/Off/Auto S.S. (Start/Stop/Speed Ref)	P
S9/S59❄	Run PL	P
S10/S60❄	Drive Fault PL	P
S11/S61❄	At Speed PL	P
S12/S62❄	Drive Alarm PL	P
S13/S63❄	Control Power On PL	P
S14/S64❄	Drive Mode P.I. & Bypass Mode PL	P
S15/S65❄	Bypass Mode PL & Auto Bypass Enable PL	P
S16/S66❄	Drive Disable Mushroom PB	P
S17/S67❄	Motor Fault PL	P
S18/S68❄	Analog Potentiometer	P

❄ Denotes 800F/800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the sa

Catalog Configured Drives Program

How to Order a Catalog Configured Drive

- **Step 1.** Select the basic PowerFlex 70 drive catalog number based on application requirements (i.e. nominal H cycle).
- **Step 2.** Specify Options – The following pages list and describe the available options. The listing is divided into assist in quickly locating specific needs. Some options are horsepower and/or voltage specific, or will have spe them – Read all footnotes.

Example: An application requires a variable speed control for an existing 3 Hp, 480V, normal duty, AC conveyor motc will be located in a clean environment. Local control is required on the door for programming, start, stop, speed and across the line (with selection and mode indication at drive) is required. A system disconnect switch should be availal required.

Description	Cat. No./Option Code	Position
Basic Drive w/IP 20 (NEMA/UL Type 1 Enclosure)	21AD5P0A	1…8
Human Interface Module - LCD (Drive Mounted)	3	9
User Manual	A	10
w/Brake IGBT	Y	11
No Brake Resistor	N	12
Not Filtered	N	13
No Communication Module	N	14
115V Enhanced Control	D	15

No Feedback Option	0	16
Reserved for Future Options	NN	17...18
Special Options	NN	19...20
Normal Duty	-ND	22...23
Bypass, Manual with D/O/B Switch	-B5	
Control Power	-C1	
Drive/Bypass Fused Disconnect Switch	-P7	
Drive & Bypass Mode Pilot Lights	-S14	
"Drive Disable" Pushbutton	-S16	
21AD5P0ACAYNNND0NNNN-ND-B5-C1-P7-S14-S16		

Product Selection

Build a Catalog Number

208...240V ac, Three-Phase Drives

Output Amps			Nominal Power Ratings				Frame Size	IP20, NEMA/UL Type 1	IP65, NEMA/UL Type 4 Indoor	IP65, NEMA/UL Typ 4 Outdoor
208...240V ac Input			Normal Duty		Heavy Duty			Cat. No.	Cat. No.	Cat. No.
Cont.	1 Min.	3 Sec.	kW	Hp	kW	Hp		21A... ✶	21A... ✶	21A... ✶
0.9	1.0	1.4	0.37	0.5	0.25	0.33	A	B2P2A	B2P2D	B2P2E
1.7	1.9	2.6	0.75	1.0	0.55	0.75	A	B4P2A	B4P2D	B4P2E
2.7	3.6	4.8	1.5	2.0	1.1	1.0	B	B6P8A	B6P8D	B6P8E
3.9	4.3	5.8	2.2	3.0	1.5	1.5	B	B9P6A	B9P6D	B9P6E
6.1	6.7	9.1	4.0	5.0	3.0	3.0	C	B015A	B015D	B015E
9.0	9.9	13.5	5.5	7.5	4.0	5.0	D	B022A	B022D	B022E
11	13.5	18	7.5	10	5.5	7.5	D	B028A	B028D	B028E
17	18.7	25.5	11	15	7.5	10	D	B042A	B042D	B042E
22	25.5	34	15	20	11	15	E	B054A	B054D	B054E
27	33	44	18.5	25	15	20	E	B070A	B070D	B070E

✶ For 208V replace Code B with Code X. B2P2A = 240V and X2P2A = 208V

480V ac, Three-Phase Drives

Output Amps			Nominal Power Ratings				Frame Size	IP20, NEMA/UL Type 1	IP65, NEMA/UL Type 4 Indoor	IP65, NEMA/UL Typ 4 Outdoor
480V ac Input			Normal Duty		Heavy Duty			Cat. No.	Cat. No.	Cat. No.
Cont.	1 Min.	3 Sec.	kW	Hp	kW	Hp		21A...	21A...	21A...
1.1	1.2	1.6	0.37	0.5	0.25	0.33	A	D1P1A	D1P1D	D1P1E
2.1	2.4	3.2	0.75	1.0	0.55	0.75	A	D2P1A	D2P1D	D2P1E
3.4	4.5	6.0	1.5	2.0	1.1	1.5	A	D3P4A	D3P4D	D3P4E
5.0	5.5	7.5	2.2	3.0	1.5	2.0	B	D5P0A	D5P0D	D5P0E

8.0	8.8	12	4.0	5.0	3.0	3.0	B	D8P0A	D8P0D	D8P0E
11	12.1	16.5	5.5	7.5	4.0	5.0	C	D011A	D011D	D011E
14	16.5	22	7.5	10	5.5	7.5	C	D014A	D014D	D014E
22	24.2	33	11	15	7.5	10	D	D022A	D022D	D022E
27	33	44	15	20	11	15	D	D027A	D027D	D027E
34	40.5	54	18.5	25	15	20	D	D034A	D034D	D034E
40	51	68	22	30	18.5	25	D	D040A	D040D	D040E
52	60	80	30	40	22	30	E	D052A	D052D	D052E
65	78	104	37	50	30	40	E	D065A	D065D	D065E

600V ac, Three-Phase Drives

Output Amps			Nominal Power Ratings				Frame Size	IP20, NEMA/UL Type 1	IP65, NEMA/UL Type 4 Indoor	IP65, NEMA/UL Typ 4 Outdoor
600V ac Input			Normal Duty		Heavy Duty			Cat. No.	Cat. No.	Cat. No.
Cont.	1 Min.	3 Sec.	kW	Hp	kW	Hp		21A...	21A...	21A...
0.9	1.0	1.4	0.37	0.5	0.25	0.33	A	E0P9A	E0P9D	E0P9E
1.7	1.9	2.6	0.75	1.0	0.55	0.75	A	E1P7A	E1P7D	E1P7E
2.7	3.6	4.8	1.5	2.0	1.1	1.0	A	E2P7A	E2P7D	E2P7E
3.9	4.3	5.8	2.2	3.0	1.5	1.5	B	E3P9A	E3P9D	E3P9E
6.1	6.7	9.1	4.0	5.0	3.0	3.0	B	E6P1A	E6P1D	E6P1E
9.0	9.9	13.5	5.5	7.5	4.0	5.0	C	E9P0A	E9P0D	E9P0E
11	13.5	18	7.5	10	5.5	7.5	C	E011A	E011D	E011E
17	18.7	25.5	11	15	7.5	10	D	E017A	E017D	E017E
22	25.5	34	15	20	11	15	D	E022A	E022D	E022E
27	33	44	18.5	25	15	20	D	E027A	E027D	E027E
32	40.5	54	22	30	18.5	25	D	E032A	E032D	E032E
41	48	64	30	40	22	30	E	E041A	E041D	E041E
52	61.5	82	37	50	30	40	E	E052A	E052D	E052E

Factory Installed Options

Human Interface Modules (HIM) - *Position e*

Catalog Code: 0
Drive Mounted Blank Cover
No HIM

Catalog Code: 2
Drive Mounted LCD Digital Speed

Catalog Code: 3
Drive Mounted LCD Full
Numeric

Catalog Code: C
Door Mounted Beze
Full Numeric (NEM

Catalog Code: L
Door Mounted Bezel w/Blank Cover (NEMA/UL Type 1)

Catalog Code: 5
Drive Mounted LCD Programmer Only

Catalog Code: J
Door Mounted LCD Full Numeric (NEMA/UL Type 12) ✶

Catalog Code: K
Door Mounted Prog Only (NEMA/UL Typ

Catalog Code: A
Drive Mounted LCD Full Numeric &
Door Mounted Bezel w/Blank Cover
(NEMA/UL Type 1)

Catalog Code: B
Drive Mounted LCD Full Numeric & Door Mounted Bezel w/LCD Digital Speed (NEMA/UL Type 1)

Catalog Code: E
Drive Mounted LCD Full Numeric & Door Mounted Bezel w/LCD Programmer Only (NEMA/UL Type 1)

Catalog Code: F
Drive Mounted LCD LCD Full Numeric (

Catalog Code: G
Drive Mounted LCD Full Numeric
& Door Mounted Programmer Only (NEMA/UL Type 12) ✶

✶ NEMA/UL Type 12 HIMs can be substituted for NEMA/UL Type 1 to eliminate the removable HIM feature.

Documentation

Description	Cat. Code	Lead Time
	(Position f)	
User Manual (Standard)	A	P

Internal Brake IGBT

Frame	Cat. Code	Lead Time
	(Position g)	
A...E	Y	P

Small Duty Internal Dynamic Brake Resistors

These resistors have a limited duty cycle. Refer to the PowerFlex Dynamic Braking Selection Guide to determine if an sufficient for your application. An external resistor may be required. See Small Duty Internal Dynamic Brake Resistors

Drive Input Voltage	Frame	Brake Resistance	Cat. Code	Lead Time
		Ω	*(Position h)*	
208/240V ac	A...E	-	N	P
	A	62	Y	P
	B	62	Y	P
	C	62	Y	P
	D	22	Y	P
	E	Not Available	N	P
480V ac	A...E	-	N	P
	A	115	Y	P
	B	115	Y	P
	C	115	Y	P
	D	62	Y	P
	E	Not Available	N	P
600V ac	A...E	-	N	P
	A	115	Y	P
	B	115	Y	P
	C	115	Y	P
	D & E	Not Available	N	P

Internal EMC Filter §

Drive Input Voltage	Frame	CE Filter	Cat. Code
			(Position i)
208/240V ac	A	No	N
	B	No	N
		Yes	A
	C	Yes	A
	D	Yes	A
	E	Yes	A
480V ac	A	No	N
	B	No	N
		Yes	A
	C	Yes	A
	D	Yes	A
	E	Yes	A
600V ac	A...D	Not Available	N
	E	Yes	A

§ Internal CE filters are not available for PowerFlex 70 Frame A drives. If a Frame A rating is ordered with an internal filter option Frame B.
‡ Lead Time = X for 208V ac.

Internal Communication Adapters

Description	Cat. Code *(Position j)*	Lead Time
BACnet® MS/TP RS-485 Communication Adapter	B	P
ControlNet™ Communication Adapter (Coax)	C	P
DeviceNet™ Communication Adapter	D	P
EtherNet/IP™ Communication Adapter	E	P
HVAC Communication Adapter	H	P
Interbus™ Communication Adapter	I	P
LonWorks™ Communication Adapter	L	P
None	N	P
PROFIBUS™ DP Communication Adapter	P	P
ControlNet Communication Adapter (Fiber)	Q	P
Remote I/O Communication Adapter	R	P
RS-485 DF1 Communication Adapter	S	P

I/O Options

Description *(One Required)*	Cat. Code *(Position k)*	Lead Time
Enhanced 24V dc ✶ ❄	C	P
Enhanced 115V ac ✶ ❄ ♣	D	P

✶ Drive input interface only. Other configured options may require option -C1 or -C5, user supplied 115V.
❄ Enhanced Control option utilizes DPI Only.
♣ 115V control uses 24V I/O plus 115V Interface Card.

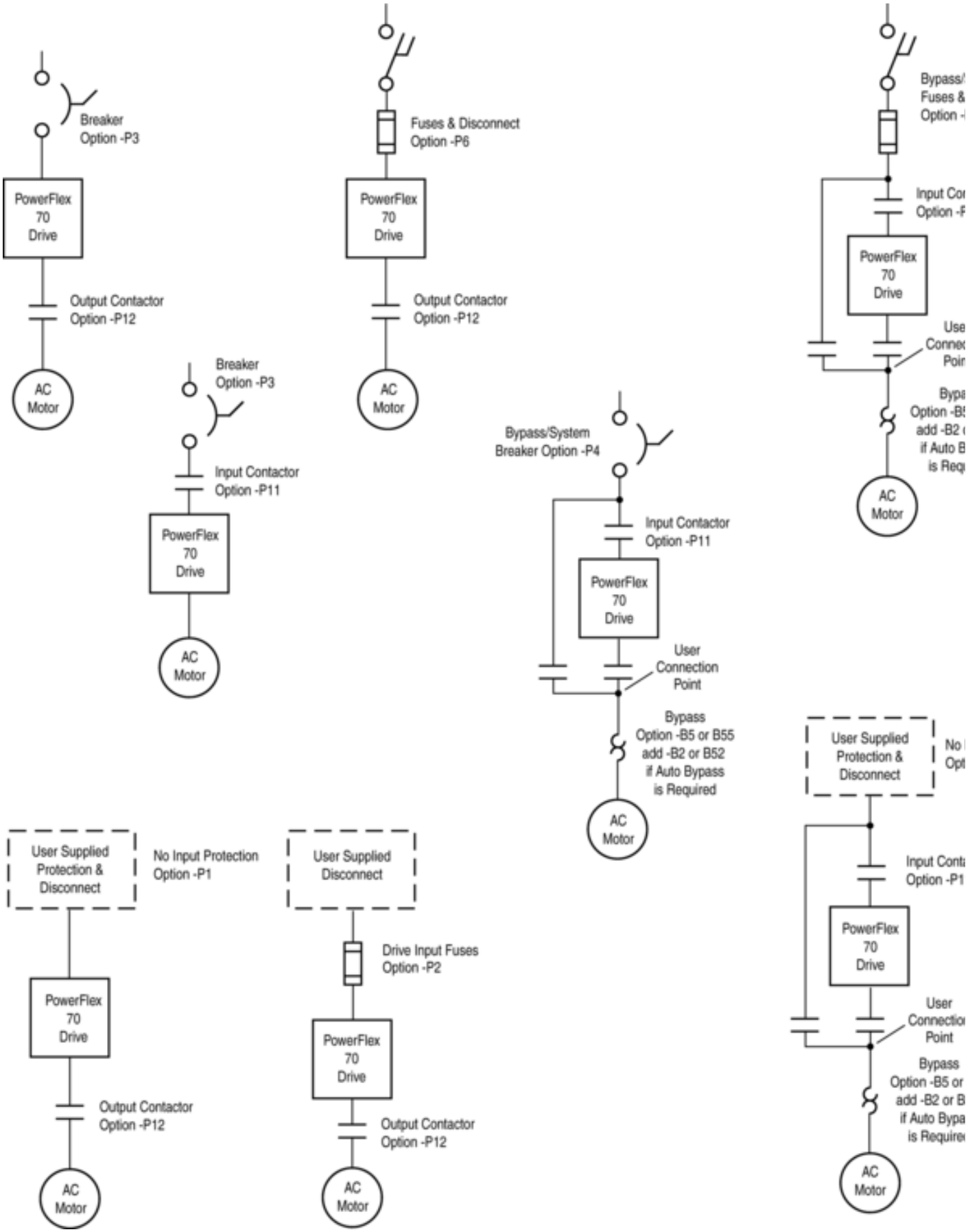
Feedback Options (Enhanced Control Only)

Description *(One Required)*	Cat. Code *(Position l)*	Lead Time
No Encoder	0 (Std)	P
Encoder Feedback	1	P

Reserved/Special Options

Description *(One Required)*	Cat. Code *(Position m)*	*(Position n)*	Lead Time
No Special Option	NN	NN	P

Suggested Power Distribution Schemes



Power Disconnecting Means

Important: Customer must select one of the following; -P1, P2, P3, P4, P6 or -P7. If option -P1 is selected, power dis drive branch circuit protection must be supplied by user.

Description	Option Code	Lead Time
No Input Protection	-P1	P ‡
Drive Input Fuses	-P2 ✶	P ‡
Drive Breaker	-P3 ✶	P ‡
Drive Bypass Mode, Breaker	-P4 ❄	P ‡
Drive Disconnect Switch, Fuses	-P6 ✶	P ‡
Drive Bypass Mode, Fuses, Disconnect	-P7 ❄	P ‡

✶ This option can not be used with Bypass.
❄ This option must be used in conjunction with a Bypass Option.
‡ Lead Time = X for 208V ac.

Power and Bypass Options

Description	Option Code	Lead Time
Contactor, Drive Input	-P11 ✶ ♣	P ‡
Contactor, Drive Output	-P12 ✶ ❄ ♣	P ‡
No Bypass Required	-B0 ➢	P ‡
Manual Bypass	-B5/B55 ♣ ➢ ⌘	P ‡
Automatic Bypass	-B2/B52 § ⌘	P ‡

✶ An output contactor may not be chosen when Bypass is selected.
❄ This option must be used in conjunction with the Auxiliary Fault Contact option -J2.
‡ Lead Time = X for 208V ac.
§ Option includes “Drive-Off-Bypass” selector switch and must be used in conjunction with the Auxiliary Fault Contact option (-J2)
♣ Requires option -C1 or user supplied 115V (option -C5).
➢ B0 or B5 must be selected.
⌘ Includes a Class 10 Adjustable Thermal Overload Relay that does not require separate heater elements.

Control Power, 3% Line Reactor and Harmonic Filter Options

Description	Option Code	Lead Time
115V Control Power, Drive/Options Only	-C1 ✶	P ‡
115V Control Power, User Supplied	-C5 ✶	P ‡
3% Input Line Reactor Mounted in Enclosure	-L1	P ‡
3% Output Line Reactor Mounted in Enclosure	-L2	P ‡
Input Filter	-L6, L7, L8 ❄	X

✶ C1 or C5 must be selected.
❄ 480V ac Only. These options will increase enclosure size. Consult factory for details.
‡ Lead Time = X for 208V ac.

Descriptions for L6, L7 & L8 follow, note that these options will incease enclosure size. Consult factory for details.

- L6 Harmonic Filter - This option is used to reduce harmonic current and voltage distortion at the AC line. This compliance with the harmonic distortion limits and requirements set forth in IEEE519-1992. Sometimes known

consists of a tuned LC (inductor capacitor) network and buffering reactor employed as an integral harmonic inp harmonic distortion is very dependent on system parameters. Typical voltage distortion limits will be less than distortion varying based on the system source impedance.

- L7 Harmonic Filter with Capacitor Contactor - In addition to the L6 option, the L7 option includes a dropout co tuned LC network portion of the filter when the drive is not running (input line reactor portion of the filter wil Disengaging the LC network will reduce or eliminate leading power factor conditions that might exist under lov feature is especially useful on larger drive filter installations.
- L8 Harmonic Filter with Adjustable Capacitor Contactor - In addition to the L6 option, the L8 option includes a disengage the tuned LC network portion of the filter when the drive is running at a lightly loaded condition (in the filter will still be in place). Disengaging the LC network will reduce or eliminate leading power factor cond under low power operation. This feature allows adjustment of the drop out point to be adjusted between appr the input current with a small hysteresis band of about 5% to prevent contactor chatter. This option is especial filter installations and is recommended for use on back up generator installations.

Technical Information for Thermal Overload Relays

Class 10 (Bulletin 193-T) Relays:

- Will trip in 10 seconds or less at 600% of device current rating.
- Trip setting is adjustable per the range chart shown.
- Range is chosen to cover the NEC motor circuit for the horsepower selected.
- If a motor outside the published adjustability range is to be used - enter customer order and provide complete

208…240V AC, Three-Phase Drives

Drive Rating ND Hp	Drive Rating HD Hp	Class 10 Adjustable Thermal Overload Relay		
		Adjustable Range (Amps)		
		Normal Duty		Heavy Duty
		208V	240V	208/240V
0.5	0.33	2.4…4.0	1.6…2.4	1.6…2.4
1.0	0.75	4.0…6.0	4.0…6.0	2.4…4.0
2.0	1.5	6.0…10	6.0…10	4.0…6.0
3.0	2.0	10…16	10…16	6.0…10
5.0	3.0	16…24	16…24	6.0…10
7.5	5.0	18…30	18…30	10…16
10	7.5	30…45	30…45	18…30
15	10	30…45	30…45	18…30
20	15	45…60	45…60	30…45
25	20	60…75	60…75	45…60

480V AC, Three-Phase Drives

Drive Rating ND Hp	Drive Rating HD Hp	Class 10 Adjustable Thermal Overload Relay	
		Adjustable Range (Amps)	
		Normal Duty	Heavy Duty
0.5	0.33	1.0…1.6	0.6…1.0
1.0	0.75	1.6…2.4	1.6…2.4
2.0	1.5	2.4…4.0	2.4…4.0
3.0	2.0	4.0…6.0	2.4…4.0

5.0	3.0	6.0...10	4.0...6.0
7.5	5.0	10...16	6.0...10
10	7.5	10...16	10...16
15	10	16...24	10...16
20	15	18...30	18...30
25	20	30...45	18...30
30	25	30...45	30...45
40	30	45...60	30...45
50	40	60...75	45...60

600V AC, Three-Phase Drives

Drive Rating ND Hp	Drive Rating HD Hp	Class 10 Adjustable Thermal Overload Relay	
		Adjustable Range (Amps)	
		Normal Duty	Heavy Duty
0.5	0.33	1.6...2.4	1.0...1.6
1.0	0.75	1.6...2.4	1.0...1.6
2.0	1.5	2.4...4.0	1.6...2.4
3.0	2.0	2.4...4.0	2.4...4.0
5.0	3.0	6.0...10	4.0...6.0
7.5	5.0	6.0...10	6.0...10
10	7.5	10...16	10...16
15	10	16...24	16...24
20	15	16...24	16...24
25	20	16...24	16...24
30	25	30...45	16...24
40	30	30...45	30...45
50	40	45...60	30...45

Control Interface & Feedback Options

Description	Option Code	Lead Time
Analog Inputs/Outputs		
Isolated Analog Input, 0-10V dc	-N1 ❄	P
Isolated Analog Input, 4-20 mA	-N2 ❄	P
Isolated Analog Output, 0-10V dc	-N3 ❄	P
Control Relay Option		
Control Power On	-J1 ❄	P
Auxiliary Contacts, (2) Form C 2-N.O., 2-N.C. ✶		
Drive Fault	-J2 ❄	P
Alarm	-J3 ❄	P
Drive Run	-J4 ❄	P
At Speed	-J5 ❄	P
Programmable Relay A	-J6 ❄	P
Programmable Relay B	-J7 ❄	P

Building Management Control Interface	-N5 ❄	P

✶ Maximum of two drive digital options can be selected.
NOTE: S9 + J4 = One Digital Output
S10 + J2 = One Digital Output
S11 + J5 = One Digital Output
S12 + J3 = One Digital Output
All other combinations = One Digital Output.
❄ This requires option -C1 or user supplied 115V (option -C5).

Motor Interface Options

Description	Option Code ‡	Lead Time
Motor Heater Control	-J8/J58 ‡	P

‡ Requires user supplied control power.
‡ 800F/800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

Operator Devices - Door Mounted

Description	Option Code ‡	Lead Time
H/O/A S.S. (Start/Stop/Spd. Ref.)	-S1/S51 ⌘	P
Run Pilot Light	-S9/S59 ✶ ❄	P
Drive Fault Pilot Light	-S10/S60 ✶ ❄	P
At Speed Pilot Light	-S11/S61 ✶ ❄	P
Drive Alarm Pilot Light	-S12/S62 ✶ ❄	P
Control Power On Pilot Light	-S13/S63 ❄	P
Drive & Bypass Mode Pilot Lights	-S14S64 ❄ ♣	P
Bypass Mode & Auto Bypass En. P.L.	-S15/S65 ❄ ➢	P
Drive Disable Mushroom P.B.	-S16/S66 ⌘	P
Motor Fault Pilot Light	-S17/S67 ❄ ♣	P
Analog Potentiometer	-S18/S68 ✦	P

✶ Maximum of two drive digital options can be selected.
NOTE: S9 + J4 = One Digital Output
S10 + J2 = One Digital Output
S11 + J5 = One Digital Output
S12 + J3 = One Digital Output
All other combinations = One Digital Output.
❄ This requires option -C1 or user supplied 115V (option -C5).
‡ 800F/800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).
♣ Option available when -B5/B55 is selected.
➢ Option available when -B2/B52 is selected.
⌘ Requires option -C1 or -C5 if 115V ac interface is selected.
✦ Cannot be used with -N1 or -N3 options.

Meters - Door Mounted

Description	Option Code	Lead Time
Drive/Bypass Motor Run Time Meter (Elapsed Hours) Non-Resettable	-M3 ❄	P

❄ This requires option -C1 or user supplied 115V (option -C5).

Codes and Standards

Code/Standard		Action
CE ✦ (European Conformance Standard)		Consult the factory with requirements to meet the separate Low Voltage and/or EMC direc

	CE	
IEEE519 ✦ (Harmonic Distortion Levels)		Provide a one-line power distribution drawing, and the associated specification to the fact
UL, c-UL	c UL us	This program provides UL panel recognition from the factory as standard.

✦ Modified Configured Drives Program Only

Enclosures

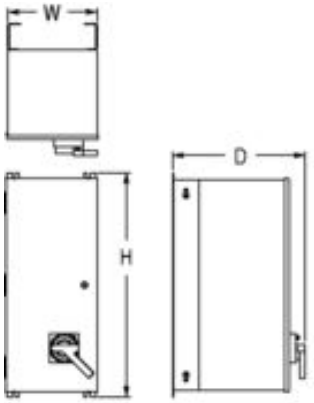


Figure 1

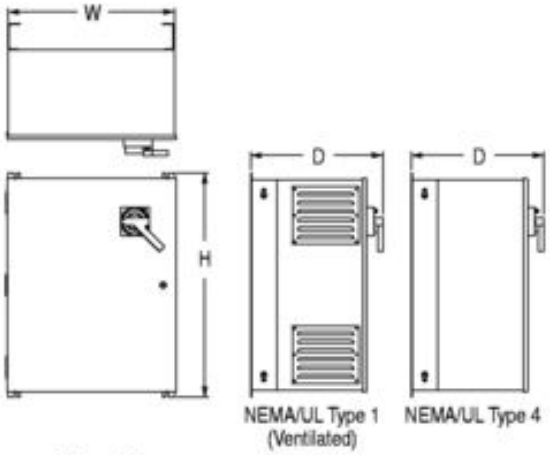


Figure 2

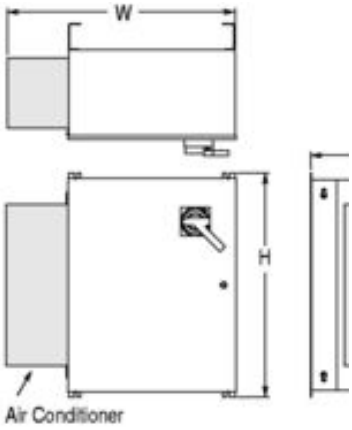


Figure 3

Maximum Enclosure Dimensions

Ratings		Drive Frame Size	Power Flex 70 Flange Drive Cat. No.	Enclosure Style for Flange Mounted Drives												
				NEMA/UL Type 1, Option Code A				NEMA/UL Type 12 & 4 Indoor, Option Code D/G						NEMA/UL Type 4 Ou Option Code E		
ND Hp	HD Hp			B0, C1, C5, S1/S51, S9/S59… S13/S63, S16/S66, P1…P3 or P6, Drive Mounted Options & All HIMs		All Options		B0, C1, C5, S1/S51, S9/S59… S13/S63, S16/S66, P1…P3 or P6, Drive Mounted Options & All HIMs		All options Less Line Reactor		All Options		B0, C1, C5, S1/S51, S9/S59… S13/S63, S16/S66, P1…P3 or P6 & Drive Mounted Options & All HIMs		Al Le Re
				Figure	Style	Figure	Style	Figure	Style	Figure	Style	Figure	Style	Figure	Style	Fi
230V ac, Three-Phase Drives																
0.5	0.33	A	B2P2	1	1	2	3	1	1	2	3	2	3	1	1	2
1.0	0.75	A	B4P2	1	1	2	3	1	1	2	3	2	3	1	1	2
2.0	1.5	B	B6P8	1	1	2	3	1	1	2	3	2	4	1	1	2
3.0	2.0	B	B9P6	1	1	2	3	1	1	2	3	2	4	1	1	2
5.0	3.0	C	B015	1	1	2	3	1	1	2	3	2	4	1	1	2
7.5	5.0	D	B022	1	1	2	4	1	1	2	4	2	4	1	1	2

10	7.5	D	B028	1	1	2	4	1	1	2	4	2	5	1	1	2
15	10	D	B042	1	1	2	4	1	1	2	4	2	5	1	1	2
20	15	E	B054	1	2	2	6	1	2	2	6	2	6	1	2	2
25	20	E	B070	1	2	2	6	1	2	2	6	2	6	1	2	2
480V ac, Three-Phase Drives																
0.5	0.33	A	D1P1	1	1	2	3	1	1	2	3	2	3	1	1	2
1.0	0.75	A	D2P1	1	1	2	3	1	1	2	3	2	3	1	1	2
2.0	1.5	A	D3P4	1	1	2	3	1	1	2	3	2	3	1	1	2
3.0	2.0	B	D5P0	1	1	2	3	1	1	2	3	2	4	1	1	2
5.0	3.0	B	D8P0	1	1	2	3	1	1	2	3	2	4	1	1	2
7.5	5.0	C	D011	1	1	2	3	1	1	2	3	2	4	1	1	2
10	7.5	C	D014	1	1	2	3	1	1	2	3	2	4	1	1	2
15	10	D	D022	1	1	2	4	1	1	2	4	2	5	1	1	2
20	15	D	D027	1	1	2	4	1	1	2	4	2	5	1	1	2
25	20	D	D034	1	1	2	4	1	1	2	4	2	5	1	1	2
30	25	D	D040	1	1	2	4	1	1	2	4	2	5	1	1	2
40	30	E	D052	1	2	2	6	1	2	2	6	2	6 or 7 ✶	1	2	2
50	40	E	D065	1	2	2	6	1	2	2	6	2	6 or 7 ✶	1	2	2
600V ac, Three-Phase Drives																
0.5	0.33	A	E0P9	1	1	2	3	1	1	2	3	2	3	1	1	2
1.0	0.75	A	E1P7	1	1	2	3	1	1	2	3	2	3	1	1	2
2.0	1.5	A	E2P7	1	1	2	3	1	1	2	3	2	3	1	1	2
3.0	2.0	B	E3P9	1	1	2	3	1	1	2	3	2	4	1	1	2
5.0	3.0	B	E6P1	1	1	2	3	1	1	2	3	2	4	1	1	2
7.5	5.0	C	E9P0	1	1	2	3	1	1	2	3	2	4	1	1	2
10	7.5	C	E011	1	1	2	3	1	1	2	3	2	4	1	1	2
15	10	D	E017	1	1	2	4	1	1	2	4	2	4	1	1	2
20	15	D	E022	1	1	2	4	1	1	2	4	2	5	1	1	2
25	20	D	E027	1	1	2	4	1	1	2	4	2	5	1	1	2
30	25	D	E032	1	1	2	4	1	1	2	4	2	5	1	1	2
40	30	E	E041	1	2	2	6	1	2	2	6	2	6	1	2	2
50	40	E	E052	1	2	2	6	1	2	2	6	2	6 or 7 ✶	1	2	2

✶ x or x denotes Figure/Style with one line reactor "or" Figure/Style with two line reators. For Example: "2 or 3" denotes Figure 2 reactor is selected and Figure 3, Style 8 when two line reactors are selected.

Enclosure Dimensions

Figure	Style	Enclosure Rating	Option Code	Dimensions ❄

			(Position d)	H x W x D *(mm)*	H
1	1	NEMA/UL Type 1	A	812.8 x 330.2 x 484.1	32
1	2	NEMA/UL Type 1	A	1,270.0 x 406.4 x 484.1	50
2	3	NEMA/UL Type 1	A	812.8 x 609.6 x 484.1	32
2	4	NEMA/UL Type 1	A	965.2 x 609.6 x 484.1	38
2	6	NEMA/UL Type 1	A	1,270.0 x 762.0 x 484.1	50
1	1	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	812.8 x 330.2 x 484.1	32
1	2	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	1,270.0 x 406.4 x 484.1	50
2	3	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	812.8 x 609.6 x 484.1	32
2	4	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	965.2 x 609.6 x 484.1	38
2	5	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	1,270.0 x 609.6 x 484.1	50
2	6	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	1,270.0 x 762.0 x 484.1	50
2	7	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	1,270.0 x 914.4 x 484.1	50
3	8	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	812.8 x 831.9 x 484.1	50
3	9	NEMA/UL Type 4/12 for Indoor use, NEMA/UL Type 4 for Outdoor use	D or E	1,270.0 x 984.3 x 484.1	50

❄ Depth includes 6.35 mm (2.5 in) for Operator Handle when ordered. Options L6, L7 & L8 will increase enclosure size. Consult fa

Drawing and Test Options (For Configured Drives Only)

Description — One Set of...
Manufacturing Drawings 279 x 432 mm (11 x 17 in.) One set of schematics — **"Information Only - Manufacture Proceeding"** Not to be used as Approval Drawings
Diskette
Electronic Drawings
Black & Whites
Vellums
Final Drawings (as shipped) 279 x 432 mm (11 x 17 in.) One set of schematics — **"Copy of Drawings that Shipped with the Job"**
Diskette
Electronic Drawings
Black & Whites
Vellums
Mylar
Test Report, Drive Only
Modified Configured Drives Program Only
Approval Drawings 279 x 432 mm (11 x 17 in.) One set of schematics — **"Manufacture Held Until Approved Prints are Received"**
Diskette
Electronic Drawings
Black & Whites
Vellums
As Commissioned Drawings 279 x 432 mm (11 x 17 in.) One set of schematics — **"Provided after Field Changes are Returned to the Factory"**

Black & Whites
Certified Motor Dimension Drawing
Disk Copy of "Final As Shipped" Schematics (Autocad 2000)
Basic Harmonic Analysis - Pre-order review of customer's one line power distribution diagram.
Complete Harmonic Analysis - Post-order detailed harmonic spectrum analysis and a written report.
Deluxe Harmonic Analysis - Post-order site verification of actual harmonics, detailed spectrum analysis and a detailed written report.
Witness Test, User Viewing of Rockwell Automation Standard Test Procedures

‡ Includes viewing Rockwell Automation standard test only. Any special requirements must be reviewed by Rockwell Automation f price changes.

Option Selection Reference Guide

Required Options

- Normal Duty or Heavy Duty
- Power Input or Disconnecting Means
- Bypass or No Bypass
- Control Power or No Control Power when dependent options are selected

Note that option codes 51 and higher are 800T devices. These are not compatible with codes 19 and lower.

Description	Must be Used with…	Cannot
Base Drive	Enclosure (A, D, E or G), HIM (0, 2, 3, 5, A…G & L…J), Brake IGBT (Y), Emission (A or N), Comm Option (C, D, E, H, I, L, P, Q, R, S or N), I/O Option (C or D), Feedback (0 or 1), ND or HD Option. Option C1 or C5, B1/B51 or B0	
HIM Options (0, 2, 3, 5, A…G) (L…J)		Only one 2, 3, 5, A Enclosure with HIM
Comm Options		Only one can be se
I/O Options		Only one
Feedback Options	Enhanced 24V dc or Enhanced 115V ac	Only one selected.
Enclosure Options D & E		Any door J, K)
-B0	-C1 or C5	-B5/B55
-B2	-B5 & J2	-B52…B55
-B52	-B55 & J2	-B2…B5, S
-B5	-C1 or C5	-B0, P2, F
-B55	-C1 or C5	-B0, P2, F
-C1		-C5
-C5		-C1
-HD	Any base drive unless ND is selected	-ND
-J1		
-J2		Only 2 dri

-J3		Only 2 dri
-J4		Only 2 dri
-J5		Only 2 dri
-J8	-J4	-J58
-J58	-J4	-J8
-L1		-L6, L7, L
-L6		-L1
-L7		-L1
-L8		-L1
-M3	-J4	
-N1		-S18/S68
-N2		
-N3		-S18/S68
-N5	-S1/S51	
-ND	Any base drive unless HD is selected	-HD
-P1	-C1 or C5	-P2, P3, P
-P2	-B0, C1 or C5	-P1, P3, P
-P3	-B0, C1 or C5	-P1, P2, P
-P4	-B5/B55, C1 or C5	-P1, P2, P
-P6	-B0, C1 or C5	-P1, P2, P
-P7	-B5/B55, C1 or C5	-P1, P2, P
-P11	-C1 or C5	
-P12	-J2, C1 or C5	-B5/B55
-S1		-B52...B55
-S9		Only 2 dri S51...S68
-S10		Only 2 dri S51...S68
-S11		Only 2 dri S51...S68
-S12		Only 2 dri S51...S68
-S13		-B52...B55
-S14	-B5	-S15, B52
-S15	-B2	-S14, B52
-S16		-B52...B55
-S17	-B5	-B52...B55
-S18		-N1, N3, I
-S51		-B2...B5, S
-S59		Only 2 dri S1...S18
-S60		Only 2 dri S1...S18
-S61		Only 2 dri S1...S18
-S62		Only 2 dri S1...S18

-S63		-B2...B5, S
-S64	-B5	-S65, -B2.
-S65	-B2	-S64, -B2.
-S66		-B2...B5, S
-S67	-B5	-B2...B5, S
-S68		-N1, N3, -