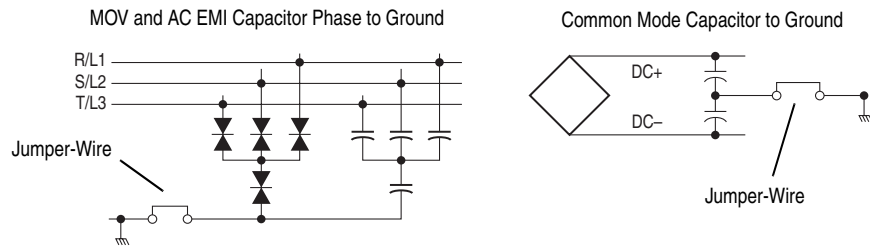


# PowerFlex 70 Power Jumpers



## Installation Instructions

The PowerFlex 70 drive contains protective MOVs and Common Mode Capacitors referenced to ground (see below). To guard against unstable operation and/or damage, the drive must be properly configured as shown in [Table A on page 2](#).



**Important:** All PowerFlex 70 drives are shipped with the DC bus common mode capacitors referenced to ground.

The information in this document supersedes the MOV and Common Mode Capacitor material in the following:

Title	Publication
PowerFlex 70 User Manual	20A-UM001M
PowerFlex 70 Installation Instructions	20A-IN009B

For additional general information, refer to:

Title	Publication	Available Online at ...
PowerFlex 70 User Manual	20A-UM001	<a href="http://www.rockwellautomation.com/literature">www.rockwellautomation.com/literature</a>
Wiring and Grounding Guidelines for PWM AC Drives	DRIVES-IN001	
Guarding Against Electrostatic Damage	8000-4.5.2	

Before proceeding, ensure that all power to the drive has been removed.



**ATTENTION:** This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference A-B publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection guide.



**ATTENTION:** Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should perform maintenance/repair of the system. Failure to comply may result in personal injury and/or equipment damage.



**ATTENTION:** To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the following points (refer to the User Manual for locations):

- +DC terminal of the Power Terminal Block and the -DC test point (Frames A...D) or the -DC terminal of the Power Terminal Block (Frame E)
- +DC terminal of the Power Terminal Block and the chassis
- -DC test point (Frames A...D) or the -DC terminal of the Power Terminal Block (Frame E) and the chassis

The voltage must be zero for all three measurements.



**ATTENTION:** The following information is merely a guide for proper installation. Rockwell Automation cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.

**Table A Recommended Power Jumper Configurations**

Power Source Type <sup>(1)</sup>	MOV/Input Filter Caps <sup>(2)</sup>	DC Bus Common Mode Caps	Benefits Of Correct Configuration on Power Source Type
<b>Solid Ground</b> <ul style="list-style-type: none"> <li>• AC fed, solidly grounded</li> <li>• DC fed from passive rectifier which has an AC source and solid ground</li> </ul>	Connected	Connected	<ul style="list-style-type: none"> <li>• UL compliance,</li> <li>• Reduced electrical noise,</li> <li>• Most stable operation,</li> <li>• EMC compliance,</li> <li>• Reduced voltage stress on components and motor bearings</li> </ul>
<b>Non-Solid Ground</b> <ul style="list-style-type: none"> <li>• AC fed ungrounded</li> <li>• Impedance grounded</li> <li>• High resistive ground</li> <li>• B phase ground</li> <li>• Regenerative unit such as common DC bus supply &amp; brake</li> <li>• DC fed from an active converter</li> </ul>	Disconnected	Disconnected	<ul style="list-style-type: none"> <li>• Helps avoid severe equipment damage when ground fault occurs</li> </ul>

<sup>(1)</sup> It is highly recommended to accurately determine the power source type and then configure appropriately.

<sup>(2)</sup> When MOVs are disconnected, the power system must have its own transient protection to ensure known and controlled voltages.

To connect or disconnect these devices, refer to pages [4](#) and [5](#).

**Important:** Common mode capacitors are used to conform with the EMC directives. Removing these devices may withdraw the associated directive.

In addition, on an ungrounded distribution system where the line-to-ground voltages on any phase could exceed 125% of the nominal line-to-line voltage, an isolation transformer should be installed. See *Wiring and Grounding Guidelines for PWM AC Drives*, publication DRIVES-IN001 for more information on impedance grounded and ungrounded systems.


## Jumper Installation, Removal and Storage

PowerFlex 70 drives utilize plug-in style jumpers. Most drives will have a jumper storage area inside the front cover. Extra jumpers or jumpers that have been removed should be stored in this location for use at a later time.

In some cases a protective cover may be present over the jumper pins that extend from the board. If present, simply remove the protective cover, install (or remove) jumper and replace cover.

## Drive Identification

Refer to the drive nameplate and locate the “Voltage Code,” “Frame” and “Internal EMC Option” (Frame B drives). Use this information to locate the proper procedure in the following tables.

Voltage Code	Internal EMC Option	Frame
Cat No. 20A <b>D</b> xxx x x xxxxxx		
UL TYPE 1/IP20 and SOC (122F) Ambient Limit See Manual for additional ratings		
Normal Duty Power	xxx kW	xxx HP
Heavy Duty Power	xxx kW	xxx HP
Input: 3 Phase, 47-63Hz		
AC Voltage Range	342-440	432-528
Amps	xxx	xxx
Output: 3 Phase, 0-400 Hz		
AC Voltage Range	0-400	0-460
Base Frequency (default)	50 Hz	60 Hz
Continuous Amps	xxx	x
3 Sec / 60 Sec Ovld Amps	xxx	xxx / xx
Mfg. in 2008 on Jan 19	Serial No. xxxxxxx	Original Firmware No. x.xxx
 <b>Allen-Bradley</b>	Mfg. in U.S.A. (FAC1J)	

Series: A  
Frame: A

400V Class    480V Class

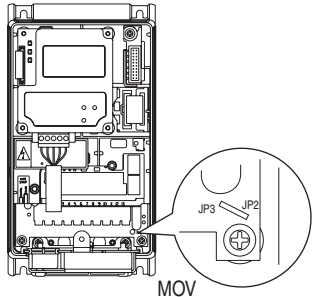
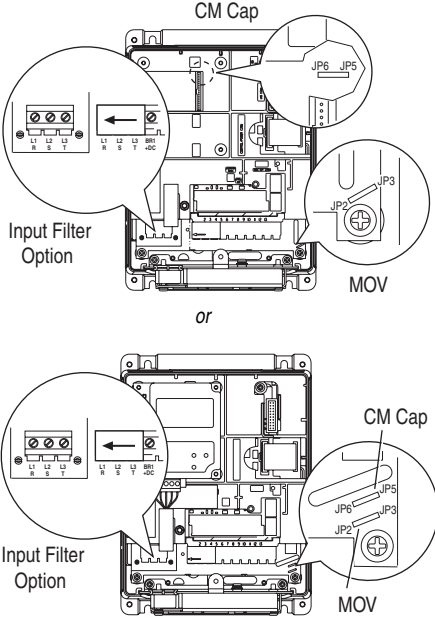
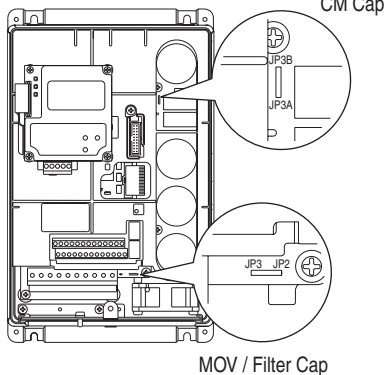
UL US LISTED INDUSTRIAL CONTROL EQUIPMENT 9864

EN223 CE

EMC EN 50178

Serial Number  
catalog numbers

### Jumper Settings and Locations

Frame	Voltage Code	Factory Default Jumper Settings		Power Source Type	
		MOV/Input Filter Caps	DC Bus Common Mode Caps		
A	B	JP2/JP3 Installed	Not Applicable	<b>Solid Ground</b> Insert jumper at the "JP2/JP3" location.  <b>Non-Solid Ground</b> Remove the jumper at "JP2/JP3."	
	C				
	D				
	E				
B	B	JP2/JP3 Installed	JP5/JP6 Installed	<b>Important:</b> The Internal EMC Filter (input filter) is a factory installed option on Frame B drives. If the option is installed, the drive <u>cannot</u> be used on a non-solid ground power source. To verify: an extra "R, S, T" terminal block will be present if the option is installed (as shown). Additionally, the 13th character of the nameplate catalog number will be an "A" (see <a href="#">page 3</a> ).  <b>Solid Ground</b> Jumpers should be installed at both locations (JP2/JP3 and JP5/JP6).  <b>Non-Solid Ground</b> Remove the jumpers at "JP2/JP3" and "JP5/JP6." In addition, verify that the Input Filter option is not installed.	
	C				
	D				
	E				
C	B	JP2/JP3 Installed	JP3A/JP3B Installed	<b>Solid Ground</b> Jumpers should be installed at both locations (JP2/JP3 and JP3A/JP3B).  <b>Non-Solid Ground</b> Remove the jumpers at "JP2/JP3" and "JP3A/JP3B."	
	C				
	D				
	E				

Frame	Voltage Code	Factory Default Jumper Settings		Power Source Type	
		MOV/Input Filter Caps	DC Bus Common Mode Caps		
D	B	JP2/JP3 Installed	JP3A/JP3B Installed	<b>Solid Ground</b> Jumpers should be installed at both locations (JP2/JP3 and JP3A/JP3B).  <b>Non-Solid Ground</b> Remove the jumpers at "JP2/JP3" and "JP3A/JP3B."	
	C				
	D				
	E				
	F				
E	B	JP1/JP2 Installed	JP3/JP4 Installed	<b>Solid Ground</b> Jumpers should be installed at both locations (JP1/JP2 and JP3/JP4).  <b>Non-Solid Ground</b> Remove the jumpers at "JP1/JP2" and "JP3/JP4."	
	C				
	D				
	E				
	F				



PN-73465

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