

VIEW LEVELS

There are three View Levels to the menu

Operator – A very simple level . No setup allowed
Basic – Default mode of the menu. Allows quick setup, save, restore and full diagnostics

Advanced - Allows full access to the comprehensive set of function blocks in the Setup menu and more choices in the System menu to choose Language defaults and more
View Levels may be selected from the Quick Setup menu, under View Level

MACROS

The 690+ comes packaged with several Macros, which are preconfigured schemes. Current macros include

Basic speed control - Load this to return to factory default parameters

Raise/Lower – Pushbutton ramp using increase/decrease inputs

PID – Provides closed loop process control

SPW – Speed program winder (closed loop trim)

PRESET SPEEDS – Provides 8 preset speeds

To load a Macro, go to SYSTEM|RESTORE CONFIG and select the macro you wish to load

INTERNAL LINKS

Under SETUPLINKS, you may connect and disconnect internal block diagram connections, to use special functions like PID, winder blocks, diameter block, etc., and to tag analog and digital I/O to selected points inside the drive to suit your application needs. Specify sources and destinations to 50 internal links.

TECHNOLOGY BOXES

The 6055 series of Technology boxes is available to communicate with protocols such as DeviceNet, PROFlbus, ModBus, RS485 serial comms, CAN bus and LON works. Any of these may be plugged into the right-side techbox port. Securely snap into place, then tighten the ground screw

Networking a standard 690+ to **LINK** is done with the **LINK** techbox. This has a built-in processor that can be configured using DSD, the **LINK** configuration software.

Associated Literature

690+ Installation Manual HA465492Uxxx

690+ Software Manual HA465038Uxxx



690+ Quick Start



Flux Vector Sensorless Vector Volts/Hertz

frames C-F

15 - 150 HP

7.5 - 90 kW

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BEFORE YOU START

This document covers the steps necessary for a basic start up of the 690+ drive. Drive start ups should be performed by qualified electrical technicians who are familiar with AC drives and their applications. For detailed installation and safety information refer to the Installation Manual. For advanced features and applications, refer to the Software Manual.

Ensure that all local electric codes are met while installing the drive. Check that all live parts are covered to protect against electric shock and that unexpected rotation of the motor will not result in bodily harm or injury. This document expects that the drive is already installed in its intended location and that all relevant installation procedures have been followed. Please ensure that the drive has adequate ventilation so that ambient temperature does not exceed 45°C (112°F) under normal operating conditions.

To access the terminals, loosen the two retaining screws at the bottom of the drive, pull up gently on the terminal cover and slide it off.

CONTROL MODES

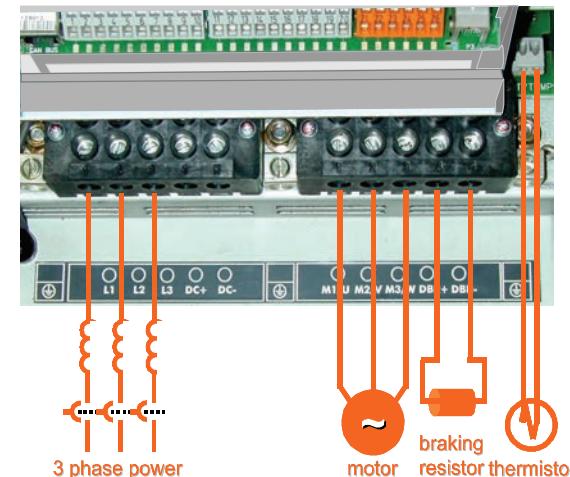
The 690+ supports 3 different control modes

Volts/Hertz mode – Most basic open loop operation, used in fans/pumps and multi-motor applications. No options needed

Sensorless Vector mode – Tight speed regulation with good transient torque capability, without the need for speed feedback. No options needed

Flux Vector mode – Precise flux vector control with full torque down to zero speed and improved dynamic performance. Optional Speed Feedback Technology Card required on the drive and an encoder on the motor

POWER CONNECTIONS



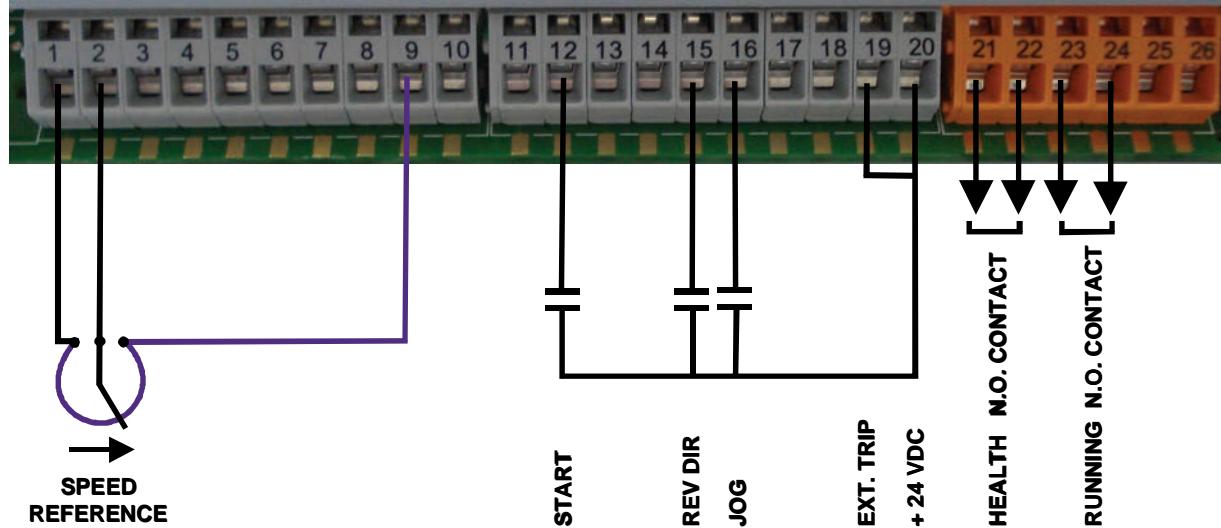
The power terminals shown are for frame D. Although other frames may vary slightly in appearance, their terminal designations and functionality are identical

- 3-phase supply to L1, L2, L3
- Motor connections to M1, M2, M3
- Brake resistor between DBR+, DBR-
- Motor thermistor to MOT TEMP
- Common Bus to DC+, DC-
- Frame F only: 115/230V fan supply to L,N

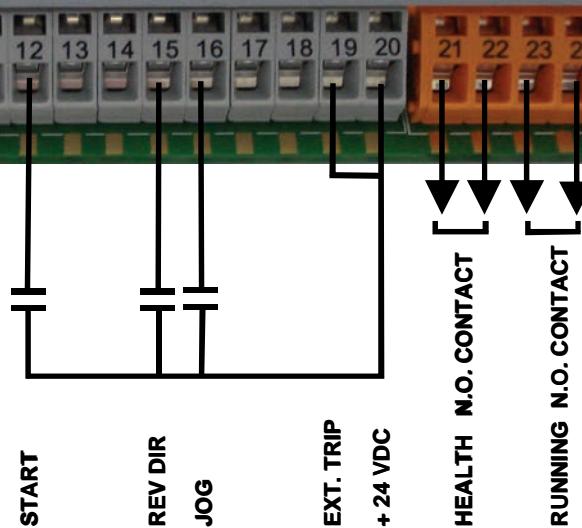
Ground lugs have been provided for each of the power circuits. Follow proper grounding and shielding methods as described in chapter 3 of the Installation Manual.

If the stop time is expected to be less than the natural coasting time of the load, order the factory mounted braking module option on frames D through F. Frame C has a built-in braking module. Connect the braking resistor across DBR+ and DBR-.

REFERENCE



SEQUENCING



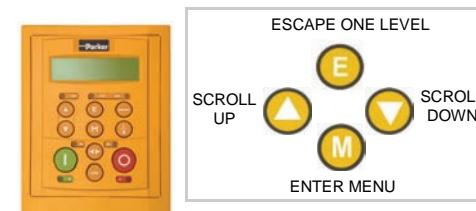
SPEED FEEDBACK



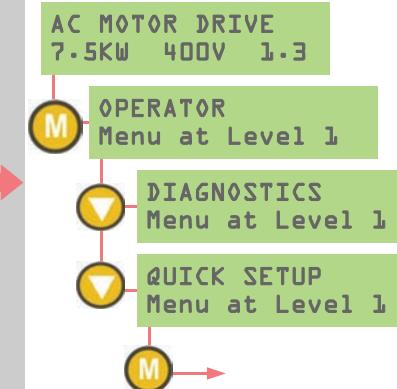
- The 6054 Encoder Techbox is required only for closed loop Flux Vector Control
- Plug the 6054 into the left hand techbox port, as shown. Securely snap into place, then tighten the ground screw
- DIP switches 1,2,3,4 (blue arrow) set the threshold voltage of the encoder signals. Set all switches to ON (up position) for complementary encoder signals
- Encoder connections to terminal block are:
 - 1 (FUTURE) Health pulse H
 - 2 (FUTURE) Health pulse H complement
 - 3 Channel A
 - 4 Channel A complement
 - 5 Channel B
 - 6 Channel B complement
 - 7 Marker pulse M
 - 8 Marker pulse M complement
 - 9 Encoder Supply positive (5–15VDC)
 - 10 Encoder Supply negative (0V)
 - 11 Ground / Shield

POWER ON

POWER ON



The 690+ can also be calibrated using the programming tool software



This is the power-up welcome screen. If a different screen appears, press E a few times to return to the this screen

Press the M key to get to OPERATOR LEVEL

DOWN arrow to get to the DIAGNOSTICS menu

DOWN arrow to get to the QUICK SETUP menu

Press M to enter QUICK SETUP and set parameters relevant to the operating mode of the drive by scrolling UP or DOWN

The following is a list of the relevant parameters that you may need to check before starting the drive. Several of these may not need adjustment if you are running a standard 60Hz, 460V 1800 RPM induction motor

- 1 Control Mode
- 2 Max Speed
- 3 Min Speed
- 4 V/Hz shape
- 5 Motor Current
- 6 Motor Base Freq
- 7 Motor Voltage
- 8 Nameplate RPM
- 9 Motor Poles
- 10 Encoder Supply
- 11 Encoder Lines
- 12 Encoder Invert
- 13 Autotune Enable

Select the intended operating mode
 Set max speed in RPM
 Set min speed in %
 Choose fan only for square curve
 Motor full load current
 Motor nameplate frequency
 Motor nameplate voltage
 Motor nameplate RPM
 for 1800rpm=4, for 1200rpm=6
 set between 5-15V to match encoder
 Pulses per Revolution of encoder
 Changes polarity of encoder feedback
 Drive will Autotune if started

V/Hz	SV	Vector
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x
x	x	x

AUTOTUNE

Note
 In V/Hz mode, Autotune is not necessary and will not activate

- In the QUICK SETUP menu, set AUTOTUNE ENABLE to TRUE
- MAX SPEED should be greater than NAMEPLATE RPM for a successful autotune
- On the keypad press L/R for LOCAL mode
- Ensure that the motor is uncoupled and free to rotate without causing problems
- Press RUN. Drive will begin autotuning. The drive will stop without errors if autotune is successful
- Go to SYSTEM\SAVE CONFIG\APPLICATION and UP arrow to save your settings

CALIBRATION

All calibration is done in software, through the keypad