

## 650/650V 0.25 to 110kW

The 650 and 650V series is a family of ac drives that provide a no-fuss, cost effective solution for the simplest to most complex open-loop ac motor control applications. The 650 has single key selectable pre-programmed applications so set-up is quick and easy without unnecessary complications. In addition the 650V has the added benefit of an ultra-high torque sensorless vector algorithm and the control flexibility of fully configurable Function Block Programming. Powers are available up to 110kW on 400V three-phase supplies and 45kW on 230V supplies and all units are available with integral EMC compliant filters.



**EXTREMELY SIMPLE SET-UP  
AND OPERATION**

**INTEGRAL OPERATOR CONTROLS  
WITH OPTIONAL REMOTE MOUNTING**

**EXCEPTIONALLY COMPACT DESIGN**

**150% OVERLOAD FOR 30 SECONDS**

**MOTOR THERMISTOR INPUT**

### TECHNICAL SPECIFICATION

**Power Supply** - Single phase units; 220-240Vac  $\pm 10\%$ ; 50-60Hz  $\pm 5\%$

Three phase units; 380-460Vac  $\pm 10\%$ ; 50-60Hz  $\pm 5\%$

**Ambient** - 0-40°C

**Overload** - 150% for 30 seconds

**Output Frequency** - 0-240Hz

**Environmental Protection** - IP20

#### Inputs/Outputs

**Analogue Inputs** - 2; Speed control (0-10V, 4-20mA)

**Analogue Outputs** - 1; User configurable output frequency/load (0-10V)

**Digital Inputs** - 3 (650V 6); User configurable start/stop/direction/pre-set speeds (8)

**Digital Input/Outputs** - 1 (650V 2); User configurable as inputs or outputs

**Digital Relay Outputs** - 1; User configurable relay output (1A @ 240V)

All outputs configurable for; at (not at ) speed / at (above) min speed / running (stopped) / healthy (tripped) / above (below) preset load.

#### Motor Thermistor Input

#### Integral Programming/Control Module

**6 Button password protectable keypad giving control of**

- start/stop
- direction
- raise/lower speed
- menu navigation
- parameter setting

**Back lit LCD giving 4 digit readout of**

- output current
- setpoint frequency
- output frequency
- drive rotating warning
- status alarms
  - drive ready
  - overcurrent trip
  - overvoltage trip
  - heatsink overtemperature
  - motor overtemperature
  - I x t overload
  - undervoltage
  - 4-20mA signal loss
  - stall trip
  - external trip
  - dynamic brake trip

# 690+ Integrator

## 0.75 to 355kW

The 690+ series is a single range of ac drives designed to meet the requirements of all variable speed applications from simple single motor speed control through to the most sophisticated integrated multi drive systems. At the heart of the 690+ is a highly advanced, 32-bit microprocessor based, motor control algorithm, to which can be added a host of control options that allow you to tailor the drive to meet your exact requirements.

Three phase (380-500V) ratings are available from 0.37 to 355kW and single phase ratings (220-240V) from 0.37 to 2.2kW.



**OPEN LOOP (V/F), SENSORLESS VECTOR AND CLOSED LOOP VECTOR IN A SINGLE DRIVE**

**POWERS UP TO 355kW**

**FUNCTION BLOCK PROGRAMMING**

**COMMON PROGRAMMING, FIELDBUS AND SOFTWARE TOOLS WITH THE 590+ INTEGRATOR DC SERIES**

**DUAL RATED FOR CONSTANT OR QUADRATIC "FAN" TORQUE**

**INTEGRAL EMC COMPLIANT FILTERS**

### TECHNICAL SPECIFICATION

**Power Supply** – 220-240Vac ( $\pm 10\%$ ) single or three phase; 380-460Vac ( $\pm 10\%$ ) three phase; (500V option available)

**Ambient** – Constant torque ratings – 0-45°C (40°C with IP40 cover); Quadratic torque ratings – 0-40°C (35°C with IP40 cover)

Derate from above temperatures to 50°C max

Altitude up to 1000m ASL, derate 1% per 100m above 1000m

**Overload** – Constant torque ratings – 150% for 60 seconds, 180% for 1 second; Quadratic torque ratings – 115% for 10 seconds

**Output Frequency** – 0-480Hz

**Switching Frequency** – Frame B 3,6 or 9kHz; Frame C, D, E and F 3 or 6kHz (all with audibly silent switching pattern)

**Dynamic Braking** – Frame B and C standard; Frame D,E and F optional

#### Inputs/Outputs

**Analogue Inputs** – 4 User configurable, 10bit (12 bit with systems expansion module). 0-10V, 0- $\pm 10$ V, 0-20mA, 4-20mA

**Analogue Outputs** – 3 User configurable, 10 bit. 0-10V, 0- $\pm 10$ V, 0-20mA, 4-20mA

**Digital Inputs** – 8 User configurable, nominal 24V dc (30V dc max).

**Digital Outputs** – 3 User configurable, volt free contact 3A at 230 Vac

**Reference Supplies** – +10V dc, -10V dc, +24V dc.

#### Function Block Programming

Function Block Programming allows almost limitless combinations of user functions to be realised with ease. Out of the box the Function Blocks are pre-configured to perform as a standard inverter for immediate use.

However by using the programming module or Configured Lite+ software package (see page 62) each function of the drive can be interconnected to any other to perform the required control action.

#### Function Blocks include;

**Value Functions:** If, Addition, Difference, Multiplication, Division, Greater than, Less than, Counter, Timer

**Logic Functions:** Not, And, Nand, Or, Nor, Xor, Trigger, Flip-Flop

**Standard Macro's:** Basic Speed Control, Forward/Reverse, Raise/Lower, Process PID, Preset Speeds, Closed Loop Speed Feedback, Winder Control

#### 6901 Man Machine Interface

The 6901 Man Machine Interface is used for configuring, parametising and controlling the drive. It has been ergonomically designed to provide intuitive access to all functions in a logical menu driven format.

Key features include:

Detachable for 690+ or control panel mounting

Back lit display

Multilingual 32 character alphanumeric readout

Local control of speed, start/stop, jog and direction

Customised displays and legend

Password and function lockout

Quick set up menu

#### Systems Expansion Module

An optional add-on systems expansion module is available for more advanced applications including phase locking between drives and register control. Key features include:

5 Extra configurable digital inputs/outputs

4 High resolution (12 bit plus sign) analogue inputs

2 Extra encoder inputs

2 High speed register mark inputs

#### STANDARDS

The 690+ series meets the following standards when installed in accordance with the relevant product manuals.

CE marked to EN50178 (Safety, Low Voltage Directive)

EN61800-3 (EMC Compliance) with integral filter



listed to US and cUL listed to Canadian safety standards