

650/650V Series V/F and Sensorless Inverter from 0.3 to 150HP

DESCRIPTION

The 650 series inverters provide basic speed control of standard three phase AC motors from 0.3 to 10 HP (0.25 to 7.5 Kw). They are full of useful features including pre-programmed applications - all designed to simplify set-up, installation and operation.

The 650V series inverters provide simple, no-fuss speed control of standard three-phase AC motors from 0.3 to 150 HP. Sensorless vector provides exceptional dynamic response.

With the 650 series you are in control of your application immediately - no complicated set-up procedures, no confusing menu navigation: just quick and easy operation straight from the box.



- PRE-LOADED MACRO APPLICATIONS**
- BUILT-IN EMC FILTERS**
- EXTREMELY SIMPLE SET-UP AND PROGRAMMING**
- REMOVABLE KEYPAD**
- EXTREMELY COMPACT**
- MOTOR THERMISTOR INPUT**

SPECIFICATIONS

Supply	Single Phase 220–240Vac ±10% Three Phase 220–240Vac ±10% Three Phase 380–460Vac ±10%
Operating Temperature	0–40°C
Altitude	1000m ASL (Derate 1%/100m between 1000 and 5000m max)
Overload	150% for 30 seconds (heavy duty) 110% for 30 seconds (standard duty)
Output Frequency	0-240Hz
Degree of Protection	IP20
Control	V/F Control with linear or quadratic law Sensorless Vector Control (650V)

650 Inputs/Outputs

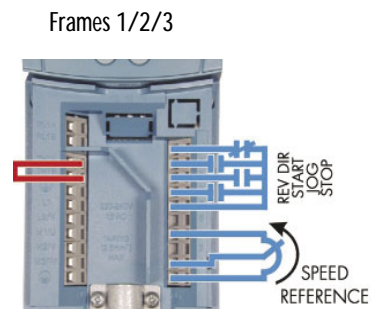
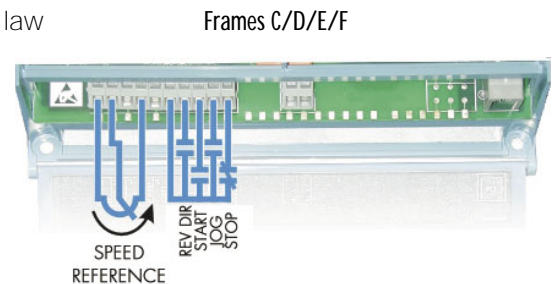
Analog Inputs:	2 total, 1 (0-10V) + 1 (4-20mA)
Analog Outputs:	1 (0V/10V)
Digital Inputs:	3 configurable (24V)
Digital Relay Outputs:	1 configurable
Digital Inputs or Outputs:	1 configurable (24V)
Motor Thermistor Input:	1

650V Inputs/Outputs

Analog Inputs:	2 total, 1 (0-10V) + 1 (4-20mA)
Analog Outputs:	1 (0V/10V)
Digital Inputs:	5 configurable (24V), 2 for encoder input
Relay Digital Outputs:	1 configurable
Digital Inputs or Outputs:	2 configurable (24V)
Motor Thermistor Input:	1

Reference Supplies

Digital I/O:	24Vdc (50mA)
Analog I/O:	10Vdc (10mA)



USER FRIENDLY

- No language to learn
- Simplified menu, displaying only key parameters
- Programmable software with remote keypad option

Programming

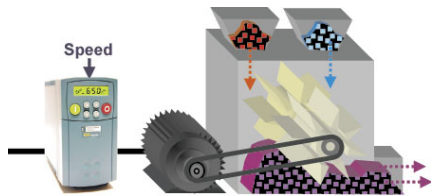
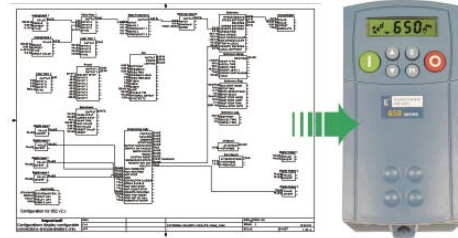
Keypad 6511 is used for inverter configuration and control. The keypad includes a 4-digit backlit LCD display, depicting:

- Motor rotation and direction indicator
- Local/Remote operating Indicator
- Diagnostic or Parameter Indicator
- Units of measurement

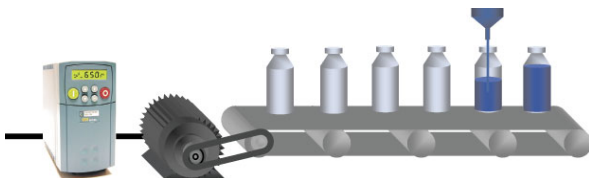
The standard keypad mounted on the inverter is removable; it comes with remote mounting on panel board (up to 3m max. distance) as an option. The 650V also includes a P3 port that can be used for programming the inverter with CELite software.

Pre-loaded Applications

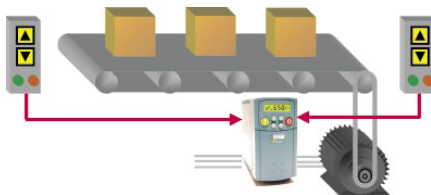
Select from 5 pre-loaded applications to automatically configure inputs/outputs and adapt the parameter list of the drive:



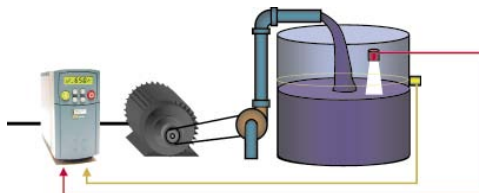
Basic Speed Control: voltage or current speed reference with digital start/stop and direction.



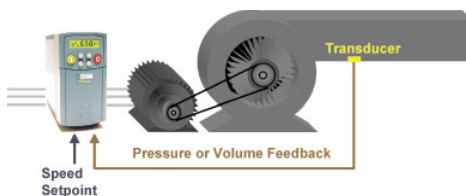
Preset Speed: select up to 8 pre-programmed speed references using digital input combinations.



Increase/Decrease: increase and decrease speed via digital inputs.



Manual/Auto Control: switch between a local and a remote speed reference signal.



PID Control: control pressure, flow, temperature and other variables by monitoring the feedback transducer.

650/650V Series 220–240Vac Single/Three Phase Controllers

Part Number	Frame	Power in HP Heavy (Standard) Duty	Current in A Heavy (Standard) Duty
+650(V)/00F3/230/SNN*	1	0.3	1.5
+650(V)/00F5/230/SNN*		0.5	2.2
+650(V)/00F7/230/SNN*		0.75	3
+650(V)/0001/230/SNN*		1	4
+650(V)/0002/230/SNN*	2	2	7
+650(V)/0003/230/SBN	3	3	9.6
+650(V)/0005/230/SBN		5	16.4
650V/0007/230/1BN	C	7.5 (10)	22 (28)
650V/0010/230/1BN		10 (15)	28 (42)
650V/0015/230/1BN		15 (20)	42 (54)
650V/0020/230/1BN	D	20 (25)	54 (68)
650V/0025/230/1BN		25 (-)	68 (-)
650V/0030/230/1BN	E	30 (40)	80 (104)
650V/0040/230/CBN	F	40 (50)	104 (130)
650V/0050/230/CBN		50 (60)	130 (154)
650V/0060/230/CBN		60 (75)	154 (192)

650/650V Series 380–460Vac Three Phase Controllers

Part Number	Frame	Power in HP Heavy (Standard) Duty	Current in A Heavy (Standard) Duty
+650(V)/00F5/460/SBN	2	0.5	1.5
+650(V)/00F7/460/SBN		0.75	2
+650(V)/0001/460/SBN		1	2.5
+650(V)/0002/460/SBN		2	4.5
+650(V)/0003/460/SBN		3	5.5
+650(V)/0005/460/SBN		5	9
+650(V)/0007/460/SBN	3	7.5	12
+650(V)/0010/460/SBN		10	16
650V/0015/460/1BN		C	15 (20)
650V/0020C/460/1BN	D	20 (25)	27 (34)
650V/0025/460/1BN		25 (30)	38 (45)
650V/0030/460/1BN		30 (40)	45 (52)
650V/0040D/460/1BN		40 (50)	52 (65)
650V/0050/460/1BN		E	50 (60)
650V/0060/460/1BN	F	60 (75)	87 (105)
650V/0075/460/CBN		75 (100)	100 (125)
650V/0100/460/CBN		100 (125)	130 (156)
650V/0125/460/CBN		125 (150)	156 (180)
650V/0150/460/CBN		150 (-)	180 (-)

* Single-phase supply only and no brake switch

+ (V) To be added to Part Number for the Sensorless version

Note: Overload values:

150% Heavy Duty for 30 seconds

110% Standard Duty for 30 seconds

650 Braking Resistor Kits

NEMA ICS 3-301.62 Dynamic braking stop option. Min. 100% flt from base speed with 6X motor inertia and 4 stops per hour. Includes the overload, protective cage and enclosure top or panel mounting.

230V

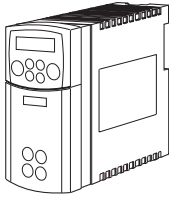
Frame	Heavy Duty HP	Standard Duty HP	Part Number	Ohms	Amps	Watts	L x W x H
3	3	-	LA471358	56	1.9	202	6.5x1.2x2.4
3	5	-	LA471358	56	1.9	202	6.5x1.2x2.4
C	7.5	10	LA471406	30	3.5	368	13.5x4x5
C	10	15	LA471406	30	3.5	368	13.5x4x5
D	15	20	LA471386	15	5.0	375	13.5x4x5
D	20	25	LA471378	10.0	8.7	757	13.5x7x5
D	25	x	LA471378	10.0	8.7	757	13.5x7x5
E	30	40	LA471407	7.0	10.40	757	13.5x7x5
F	40	50	LA471379	6	13.7	1126	13.5x10x5
F	50	60	LA471380	4.0	19.4	1505	13.5x13x5
F	60	75	LA471380	4.0	19.4	1505	13.5x13x5

460V

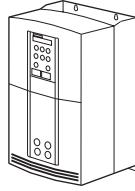
Frame	Heavy Duty HP	Standard Duty HP	Part Number	Ohms	Amps	Watts	L x W x H
2	0.5	0.50	LA471353	500	0.3	60	4x1x2
2	0.75	0.75	LA471353	500	0.3	60	4x1x2
2	1	1.00	LA471353	500	0.3	60	4x1x2
2	1.5	2	LA471353	500	0.3	60	4x1x2
2	2	2	LA471355	200	0.7	100	6.5x1x2
2	3	3	LA471355	200	0.7	100	6.5x1x2
3	5	5	LA471356	100	1.0	100	6.5x1x1.6
3	7.5	7.5	LA471357	100	1	200	6.5x1.2x2.4
3	10	10	LA471358	56	2	200	6.5x1.2x2.4
C	15	20	LA471359	56	3	500	13.2x1.2x2.4
C	20	25	LA471405	60	3.5	735	13.5x7x5
D	25	30	LA471361	30	5	750	13.5x7x5
D	30	40	LA471361	30	5	750	13.5x7x5
D	40	50	LA471350	22.5	7.1	1134	13.5x10x5
E	50	60	LA471364	18	7.9	1123	13.5x10x5
E	60	75	LA471365	15	8.7	1135	13.5x10x5
F	75	100	LA471367	8	13.7	1502	13.5x13x5
F	100	125	LA471367	8	13.7	1502	13.5x13x5
F	125	150	LA471369	6	19.4	2258	13.5x10x5
F	150	-	LA471369	6	19.4	2258	13.5x10x5

Dimensions and Weight

Frames 1, 2, 3



Frames C, D, E, F



Frame	H	W	D	Weight
1	5.6 (143)	2.9 (73)	5.6 (142)	2.0 (0.85)
2	7.9 (201)	2.9 (73)	6.8 (173)	3.0 (1.4)
3	10.2 (260)	3.8 (96)	7.9 (200)	6.0 (2.7)
C	13.7 (348)	7.9 (201)	8.1 (208)	20 (9.3)
D	17.8 (453)	9.9 (252)	9.6 (245)	38 (17.4)
E	26.3 (668)	10.1 (257)	12.2 (312)	72 (32.5)
F	28.9 (720)	10.1 (257)	14.0 (355)	92.4 (41)

All dimensions are in inches (mm). Weight is in lbs. (kg).

OPTIONS

Part Number	Description
6901	Alphanumeric Operator Panel
6052	Remote mount Kit for removable operator panel for 650V C/D/E/F - (3m cable included)
6511/RS232/00	Remote mounted keypad (Frames 1-3)
6513/00	Serial communications techbox RS-485 (Frames 1-3)
6514/00	Cloning Module

INTERNATIONAL STANDARDS

Conforms to EC Directive 89/336/EEC in compliance with standard:

- EN61800-3

Conforms to EC Directive 73/23/EEC in compliance with standard:

- EN50178 (Low Voltage)

Complies with UL508C safety standards



EMC Filters	P. 32
Line Reactors	P. 33
Braking Resistors	P. 24
Programming Software	P. 52