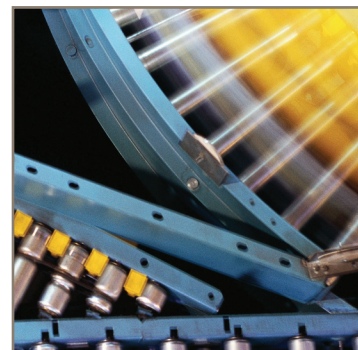


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## AC650/AC650V Series

General Purpose AC Inverter  
0.25HP–150HP



ENGINEERING YOUR SUCCESS.

# AC650/AC650V Series

AC Inverters 0.25HP–150HP (0.25kW–110kW)

## Product Overview

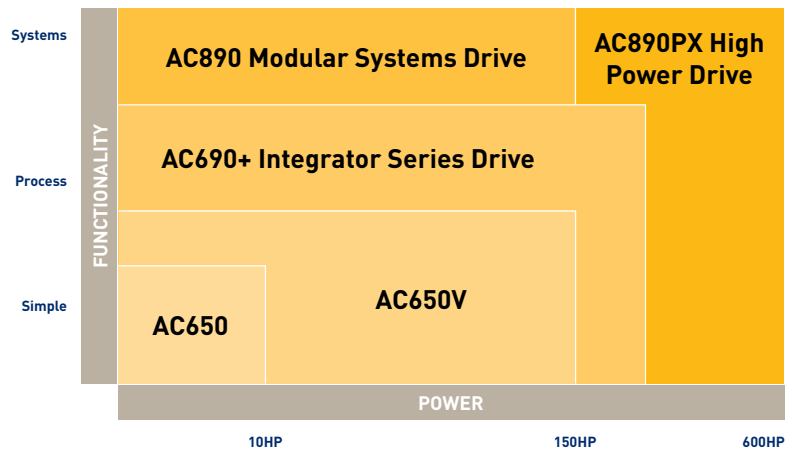
The AC650 series, consisting of AC650 General Purpose and AC650V Sensorless Vector, has been specifically designed to provide simple, user friendly speed control of standard three phase AC induction motors from 0.25HP to 150HP.

Designed with a full range of useful features including pre-programmed applications, integrated EMC filter, and options for local or remote mountable operator controls, the drives are simple to set-up, install and operate.

With the AC650 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.



## AC Drives Product Overview



### Easy-to-use Operator/ Programming Controls

- Bright Backlit LCD Display ..... 4 Digit Readout
- Diagnostic or Parameter Indicator ..... Parameter Units
- Motor Rotating and Direction Indicator ..... Local/Remote Indicator
- Local Start ..... Local Stop
- Raise/Lower Speed ..... Program Menu



# AC650 General Purpose

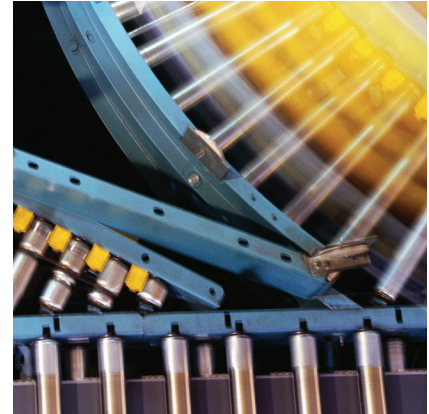
Ratings 0.25HP–10HP (0.25kW–7.5kW)

Whether you need to control a conveyor belt, automatic barrier, machine spindle, or other general purpose application, the AC650 delivers reliable, cost-effective voltage/frequency speed control of your motor.

Designed with simplicity in mind the AC650 comes in a compact format with DIN rail mounting as standard allowing easy integration into any electrical control panel.

The operator/programming keypad can be removed to prevent unauthorized changes to inverter configuration.

For simple motor speed control up to 10HP, the AC650 is an easy to use, out of the box solution that will have your system up and running in no time.



## 220 – 240Vac (+/-10%) 50-60Hz Single-Phase Supply

Part Number	HP	Amp Rating	Built-in Reactor	Frame
650/00F3/230/SNN	0.25	1.5A	-	1
650/00F5/230/SNN	0.5	2.2A	-	1
650/00F7/230/SNN	0.75	3A	-	1
650/0001/230/SNN	1	4A	-	1
650/0002/230/SNN	2	7A	-	2

Change last character from 'N' to 'F' to add RFI Filter.

## 220 – 240Vac (+/-10%) 50-60Hz Three-Phase Supply

Part Number	HP	Amp Rating	Built-in Reactor	Frame
650/0003/230/SBN	3	9.6A	-	3
650/0005/230/SBN	5	16.4A	-	3

Change last character from 'N' to 'F' to add RFI Filter.

## 380 – 460Vac (+/-10%) 50-60Hz Three-Phase Supply

Part Number	HP	Amp Rating	Built-in Reactor	Frame
650/00F5/460/SBN	0.5	1.5A	-	1
650/00F7/460/SBN	0.75	2A	-	1
650/0001/460/SBN	1	2.5A	-	1
650/0002/460/SBN	2	4.5A	-	2
650/0003/460/SBN	3	5.5A	-	2
650/0005/460/SBN	5	9A	-	2
650/0007/460/SBN	7.5	11A	-	3
650/0010/460/SBN	10	14A	-	3

Change last character from 'N' to 'F' to add RFI Filter.

Contact factory for other product configurations and additional options.

## Features

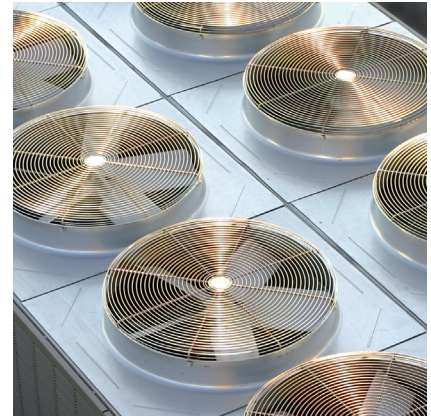
- Pre-programmed application macros allowing quick and simple setup
- Optional integrated EMC filter allows compliance with regulations while maintaining compact footprint
- Flexible I/O including analog and relay output and motor thermistor input allows greater control options
- Integrated operator/programming controls with option for remote mounting
- DIN rail mount on all AC650 inverters up to 10HP reduces installation time
- 6514 cloning module allows easy back-up and transfer of parameters between different inverters
- RS485/RS232 communications giving additional control capabilities

# AC650V Sensorless Vector –

Ratings 0.25HP–150HP (0.25kW–110kW)

The AC650V expands upon the simple, no-fuss philosophy of the AC650 and provides reliable, robust motor control from 0.25HP through to 150HP. With the addition of sensorless flux vector technology, the AC650V allows improved control at lower

speeds, better speed regulation of variable loads and higher starting torques for high inertia systems. The variable torque configuration option above 10HP makes the AC650V ideally suited to energy saving in pump and fan applications.



## 220 – 240Vac (+/-10%) 50Hz-60Hz Single-Phase Supply (3 Phase Output)

Part Number	HP	Amp Rating	Built-in Reactor	Frame
650V/00F3/230/RNN	0.3	1.5A	-	1
650V/00F5/230/RNN	0.5	2.2A	-	1
650V/00F7/230/RNN	0.75	3A	-	1
650V/0001/230/RNN	1	4A	-	1
650V/0002/230/RNN	2	7A	-	2

Change last character from 'N' to 'F' to add RFI Filter.

## 220 – 240Vac (+/-10%) 50-60Hz Three Phase Supply

Part Number	CT/VT Rating	CT/VT Amp Rating	Built-in Reactor	Frame
650V/0003/230/RBN	3	9.6A	-	3
650V/0005/230/RBN	5	16.4A	-	3
650V/0007/230/1BN	7.5/10	22A/28A	DC	C
650V/0010/230/1BN	10/15	28A/42A	DC	C
650V/0015/230/1BN	15/20	42A/54A	DC	D
650V/0020/230/1BN	20/25	54A/68A	DC	D
650V/0025/230/1BN	25	68A	DC	D
650V/0030/230/1BN	30/40	80A/104A	DC	E
650V/0040/230/CBN	40/50	104A/130A	AC	F
650V/0050/230/CBN	50/60	130A/154A	AC	F
650V/0060/230/CBN	60/75	154A/192A	AC	F

Change last character from 'N' to 'F' to add RFI Filter. available on frame 3 only.

Change second to last character from 'B' to 'N' to delete Brake Module, frame C,D,E,F only.

Units with third to last character 'C' are chassis units.

## 380 – 460Vac (+/-10%) 50-60Hz Three Phase Supply

Part Number	HP	Amp Rating	Built-in Reactor	Frame
650V/00F5/460/RBN	0.5	1.5A	-	2
650V/00F7/460/RBN	0.75	2A	-	2
650V/0001/460/RBN	1	2.5A	-	2
650V/0002/460/RBN	2	4.5A	-	2
650V/0003/460/RBN	3	5.5A	-	3
650V/0005/460/RBN	5	9A	-	3
650V/0007/460/RBN	7.5	11A	-	3

Table continued overleaf

### Features and Benefits

#### As AC650 plus...

- High torque sensorless vector control mode for advanced motor control
- Selectable constant torque or (higher) variable torque rating for centrifugal pump and fan applications allowing optimum inverter sizing to suit the application
- Fully configurable with graphical software tools such as DSE Lite
- Additional user configurable I/O points giving increased control capabilities
- Additional PROFIBUS communications options for integration into PLC systems
- Wall and through panel mounting options above 10HP
- Extended power range to 150HP makes the AC650V suited to a wide range of uses

### 380 – 460Vac (+/-10%) 50-60Hz Three Phase Supply

Part Number	CT/VT HP Rating	CT/VT Amp Rating	Built-in Reactor	Frame
650V/0010/460/RBN	10	14A	-	3
650V/0015/460/1BN	15/20	21A/27A	DC	C
650V/0020/460/1BN	20/25	27A/34A	DC	C
650V/0025/460/1BN	25/30	38A/45A	DC	D
650V/0030/460/1BN	30/40	45A/52A	DC	D
650V/0040/460/1BN	40/50	52A/65A	DC	D
650V/0050/460/1BN	50/60	73A/87A	DC	E
650V/0060/460/1BN	60/75	87A/105A	DC	E
650V/0075/460/CBN	75/100	105A/125A	DC	F
650V/00100/460/CBN	100/125	125A/156A	DC	F
650V/00125/460/CBN	125/150	156A/180A	DC	F
650V/00150/460/CBN	150	180A	DC	F

## Specifications

### Power Supply

#### Single phase units;

220-240Vac ± 10%, 50-60Hz ± 5%

#### Three phase units;

380-460Vac ± 10%, 50-60Hz ± 5%

### Ambient

0-40°C (derate to 50°C)

Up to 1000m ASL (derate > 1000m)

IP20 protected

### Overload

150% Constant torque ratings

110% Variable torque rating (pump and fan)

### Output Frequency

0-240Hz (AC650), 0-120Hz (AC650V)

### Standards

The AC650 series meets the following standards when installed in accordance with the relevant product manual.

- CE Marked to EN50178 (Safety, Low Voltage Directive).
- CE Marked to EN61800-3 (EMC Directive).
- UL listed to US standard UL508C.
- cUL listed to Canadian standard C22.2 #14.

### Inputs/Outputs

#### Analog Inputs

2; Speed Control.

0-10V, 0-10V/4-20mA (summing)

#### Analog Outputs

1; User configurable output frequency/load

0-10V

#### Digital Inputs

3-AC650, 5-AC650V; User configurable start/stop/direction/ pre-set speeds (8)

#### Digital Input/Outputs

1-AC650, 2-AC650V; User configurable as inputs or outputs

#### Digital Relay Outputs

1; Relay output 4A @ 240V

All digital outputs configurable for; at (not at) speed/at (above) min speed/running (stopped)/healthy (tripped)/above (below) pre-set load

#### Motor Thermistor Input

#### Power Supply Outputs

24V dc (50mA) – Digital I/O supply

10V dc (10mA) – Analog reference supply

#### Communications Options

RS485/RS232 – AC650V and 650 PROFIBUS – AC650V only

Change last character from 'N' to 'F' to add RFI Filter. available on frame 2 and 3 only.

Change second to last character from 'B' to 'N' to delete Brake Module, frame C,D,E,F only.

Units with third to last character 'C' are chassis units. All others are IP20/NEMA 1

\*Variable torque (VT) rating for centrifugal pump and fan applications

Contact your local Sales Office for other product configurations and additional options.

**DSE Lite programming software is available for download on our website:**  
**www.ssddrives.com**

(RS485/RS232 option required)

### User Selectable

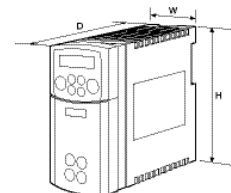
#### Pre-programmed Application Macros

Simply select your relevant application and the drive's inputs, outputs and parameter list are automatically configured for you.

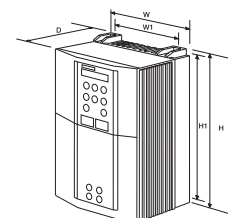
- **Basic Speed Control** – voltage or current source speed demand with digital start/stop and direction.
- **Manual/Auto Control** – switch between a local or remote speed demand signal.
- **Preset Speeds** – select up to 8 preprogrammed speeds selected by digital inputs.
- **Raise/Lower** – increase and decrease speed from raise/lower digital inputs. (Digital MOP)
- **PID Control** – control pressure, flow, temperature or other variable by monitoring transducer feedback.



Correct at time of going to press.



Frame 1,2,3



Frame C, D, E, F

### Dimensions

Frame Size	H (in/mm)	W (in/mm)	D (in/mm)	Weight (lb/kg)
1	5.4/137	2.9/73	5.6/142	2.0/0.85
2	7.6/192	2.9/73	6.8/173	3.0/1.4
3	10.1/257	3.8/96	7.7/195	6.0/2.7

### Dimensions

Frame Size	Overall Dimensions			Mtg Hole Center		Weight (lb/kg)
	H (in/mm)	W (in/mm)	D (in/mm)	H1 (in/mm)	W1 (in/mm)	
Frame C	13.7/348	7.9/201	8.1/208	13.2/335	5.9/150	20.5/9.3
Frame D	17.8/453	9.9/252	9.6/245	17.3/440	5.9/150	38.4/17.4
Frame E	26.3/668	10.1/257	12.2/312	24.8/630	5.9/150	71.7/32.5
Frame F	28.9/720	10.1/257	13.7/349	27.6/700	5.9/150	90.4/41.0

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