GV3000/SE

RELIANCE ELECTRIC

The multi-purpose Industrial AC Drive that solves 90% of all stand-alone and system variable speed motor needs

Whether your applications are simple fans or pumps, or more complex applications such as web processing systems where DC performance or better is required, the GV3000/SE drive will meet your application needs while providing the convenience of using an AC induction motor.

This GV3000/SE package provides simplicity and broad application flexibility with the performance features you need in an ultra-compact, Power Module design. Ideal for integration into new panels or retrofit applications where high power density is required.

Standard Features

A Power Module design that's horsepower rated with 3 methods of control as standard:

- General Purpose (Scalar V/Hz)
- Sensorless Vector Control (SVC)
- Flux Vector Control (FVC)

Each method provides a cost effective means to address the wide range of applications required by today's demanding drives customers. All methods are standard without the need for expensive or complicated option boards.

A simple, yet powerful keypad built into every GV3000/SE drive allows the bright 7-segment LED display to provide Output Frequency (Hz), RPM, kW, Motor Volts, Motor Current, and % Motor Torque. All of these functions are easily displayed by using the ENTER key for scrolling.

LEDs also identify the drive's status: Running, Remote, Jog, Auto, Forward, Reverse, or Program.

The intuitive nature of the drive's keypad makes the GV3000/SE drive the obvious choice for users and OEMs who demand "operator-friendly" products. For added convenience, a remote-mounted operator interface (OIM) with text selection in 5 languages is available as well as CS3000 Windows® based software for those who desire a more powerful interface.

An internal option slot is standard on every GV3000/SE drive. For I/O interfaces, select the Super RMI card to expand digital and analog I/0 connections or the 115 VAC interface card. For communications, select from over a half dozen networks.

- Input Voltages:
  - 200 - 230 VAC, 50/60 Hz
  - 380 - 460 VAC, 50/60 Hz
- HP Ratings:
  - 30 HP to 100 HP, 200 - 230 VAC
  - 30 HP to 200 HP, 380 - 460 VAC
- Enclosure:
  - IP0 Power Module design
  - NEMA 1 with optional conversion kit (460 V drives only)
- Inverter Type:
  - PWM with IGBTs
- Switching Frequency:
  - Adjustable to 2, 4 or 8 kHz
- Isolated Analog Input (Qty 1):
  - ±10 or 0 - 10 VDC, 0/4 - 20 mA
- Analog Output (Qty 1):
  - 0 - 10 VDC or 4 - 20 mA
- Isolated digital inputs (Qty 8 std.): Start, Stop, Reset, Fwd/Rev, Run/Jog, Function Loss, Preset Speeds, MOP Operation, Ramp Selection
- Dynamic Response with FVC:
  - 100 rad/sec (15 Hz) Speed
  - 1,000 rad/sec (150 Hz) Torque
- Operating Speed Range:
  - 20:1 V/Hz
  - 120:1 SVC
  - 1000:1 FVC
- Steady State Speed Regulation: (% Base RPM):
  - V/Hz = 1.0%, 20:1 CT range
  - SVC = 0.5%, 40:1 CT range
  - FVC = 0.01%, 100:1 CT range
- Encoder PPR selection:
  - SE, 512, 1024, 2048 & 4096

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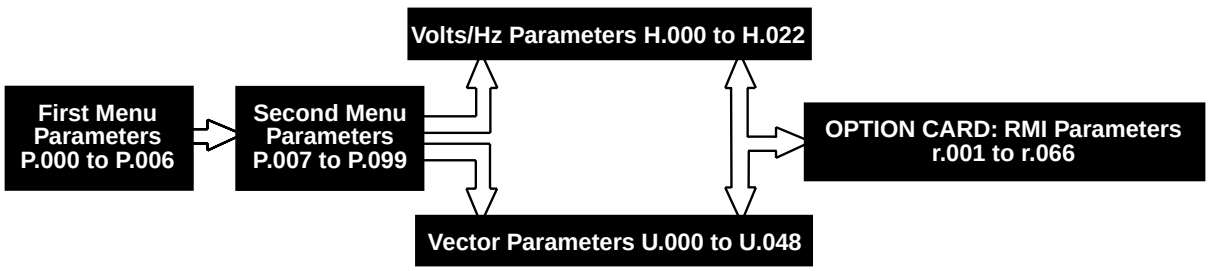
Parameter Highlights

1st and 2nd Menu Parameters	
P.000	Control Source
P.001	Accel 1
P.002	Decel 1
P.003	Min. Speed
P.004	Max. Speed
P.005	Current Limit
P.006	2nd Menu Password
P.007	Digital Input Configuration
P.008	Speed Ref. Source Select
P.009	Analog In Offset
P.010	Analog In Gain
P.011	Analog In Config.
P.012	Analog Out Source
P.013	Output Relay Config.
P.014	Trim Ref. Source
P.015	Trim Gain %
P.016	Draw Gain %
P.017	Accel 2
P.018	Decel 2
P.019	S-Curve
P.020	Jog Speed Ref.
P.021	Jog Accel Time
P.022	Jog Decel Time
P.023	MOP Accel/Decel
P.025	Stop Type
P.026	Function Loss Response
P.027	Forward/Reverse Config.
P.028	Speed Display Scaling
P.029	Elapsed Time Meter
P.031-P.038	Preset Speeds 1 through 8
P.039	Encoder Loss
P.041	Motor Overload Type
P.042	Line Dip Ride-Through
P.043	Auto Restart
P.045	Output Phase Loss
P.047	Carrier Frequency Select
P.048	V/Hz or Vector Mode Select
P.050	Restore Factory Defaults (P.xxx)

General Purpose Mode - Volts/Hz	
H.000	Motor Voltage
H.001	Motor Base Frequency
H.002	Motor Amps
H.003	Torque Boost
H.004	Slip Compensation
H.005	DC Injection Braking
H.006	DC Injection Frequency
H.007	DC Injection Current
H.008	DC Injection Time
H.009	Avoidance Freq. Enable
H.010	Avoid Freq. Midpoint 1
H.011	Avoid Freq. Band 1
H.012	Avoid Freq. Midpoint 2
H.013	Avoid Freq. Band 2
H.014	Avoid Freq. Midpoint 3
H.015	Avoid Freq. Band 3
H.016	Auto Restart Direction
H.017	Input/Snubber Config.
H.018	Volts/Hz Curve Select
H.019	Motor ID Result
H.020	Motor ID Request
H.021	AC Line Voltage
H.022	Overfrequency Limit

Vector Mode - SVC & FVC	
U.000	Torque Ref. Source
U.001	Encoder PPR
U.002	Motor Poles
U.003	Motor Base Frequency
U.004	Motor Full Load Amps
U.005	Motor Base RPM
U.006	Magnetizing Current
U.007	Motor Voltage
U.008	Self Tune Enable
U.009	Self Tune Result
U.012	Speed Regulator P Gain
U.013	Speed Regulator I Gain
U.014	Torque Regulator P Gain
U.015	Torque Regulator I Gain
U.016	Field Weakening RPM
U.017	Motor Top Speed
U.018	AC Line Voltage
U.019	Flux Current P Gain
U.020	Flux Current I Gain
U.021	Rotor Time Constant
U.022	Motor Nameplate HP
U.023	Low DC Bus Avoidance
U.024	High DC Bus Avoidance
U.025	Zero Speed Hold
U.026	Current Compounding
U.027	Inertia Compensation
U.028	Losses Compensation
U.030	SVC Slip Adjustment
U.031	SVC Auto Restart Direction
U.032	SVC Flux Current Gain
U.040	OCL Feedback Source
U.041	OCL Lead/Lag Select
U.042	OCL Lead/Lag Freq.
U.043	OCL Lead/Lag Ratio
U.044	OCL Reference Gain
U.045	OCL P Gain
U.046	OCL I Gain
U.047	OCL Trim Range %
U.048	OCL Proportional Trim



230 VAC Ratings and Model Numbers

V/Hz HP Rating	Vector HP Rating	200 V kw Rating	IEC Enclosure Rating	Continuous Amps by Mode @ Carrier Frequency						Model Number
				V/Hz FLA			Vector FLA			
				2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	
30	30	28	IP00	105	105	84	105	105	84	30V2060
40	40	37	IP00	135	135	108	135	135	108	40V2060
50	50	41	IP00	150	150	120	150	150	120	50V2060
60	60	53	IP00	195	195	156	195	195	156	60V2060
75	75	67	IP00	245	245	196	245	245	196	75V2060
100	100	75	IP00	275	275	220	275	275	220	100V2060

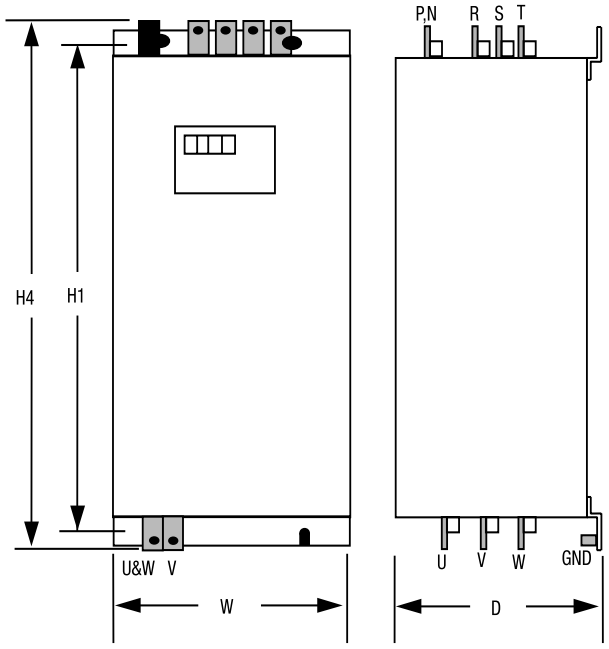
460 VAC Ratings and Model Numbers

V/Hz HP Rating	Vector HP Rating	400 V kw Rating	IEC Enclosure Rating	Continuous Amps by Mode @ Carrier Frequency						Model Number
				V/Hz FLA			Vector FLA			
				2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	
30	30	22	IP00	40	40	32	40	40	32	30V4060
40	40	30	IP00	54	54	43	54	54	43	40V4060
50	50	37	IP00	67	67	53	67	67	53	50V4060
60	60	45	IP00	78	78	62	78	78	62	60V4060
75	75	55	IP00	100	100	80	100	100	80	75V4060
100	100	77	IP00	140	140	112	140	140	112	100V4060
125	125	94	IP00	170	170	136	170	170	136	125V4060
150	150	111	IP00	200	200	160	200	200	160	150V4060
200	200	133	IP00	240	240	192	240	240	192	200V4060

Dimensions by Horsepower

230 VAC HP	Physical Dimensions - IP00 Chassis				Weight
	H1	H4	Width	Depth	
30 to 50	544 mm 21.4 in	606 mm 23.9 in	235 mm 9.3 in	354 mm 13.6 in	34 kg 75 lbs
60 to 100	714 mm 28.1 in	776 mm 30.6 in	245 mm 9.6 in	366 mm 14.4 in	44 kg 97 lbs

460 VAC HP	Physical Dimensions - IP00 Chassis				Weight
	H1	H4	Width	Depth	
30 to 40	450 mm 17.7 in	480 mm 18.9 in	207 mm 8.2 in	354 mm 13.6 in	23 kg 51 lb
50 to 60	544 mm 21.4 in	606 mm 23.9 in	235 mm 9.3 in	354 mm 13.6 in	30 kg 66 lbs
75 to 100	634 mm 25.0 in	696 mm 27.4 in	235 mm 9.3 in	354 mm 13.6 in	35 kg 77 lbs
125	714 mm 28.1 in	776 mm 30.6 in	245 mm 9.6 in	366 mm 14.4 in	45 kg 99 lbs
150 to 200	875 mm 34.4 in	866 mm 34.1 in	281 mm 11.1 in	366 mm 14.4 in	55 kg 121 lbs



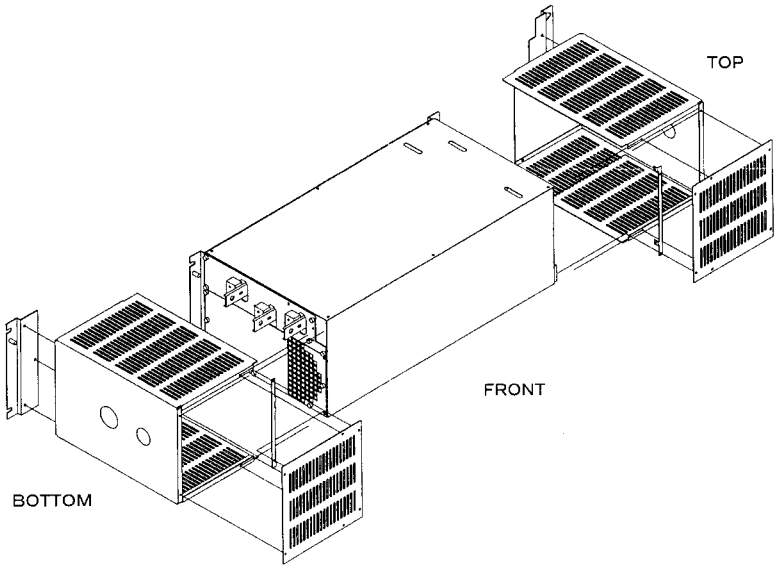
3 phase AC input power and DC bus connections are located at the top of the Power Module for easy connection in panel mounted applications.

Control wiring is terminated just below the keypad under the access plate shown. Wires are then routed through an internal channel to mechanically isolate wiring for exit at the bottom of the Power Module.

Motor terminals located at the bottom of each Power Module provides separation between incoming and outgoing power.

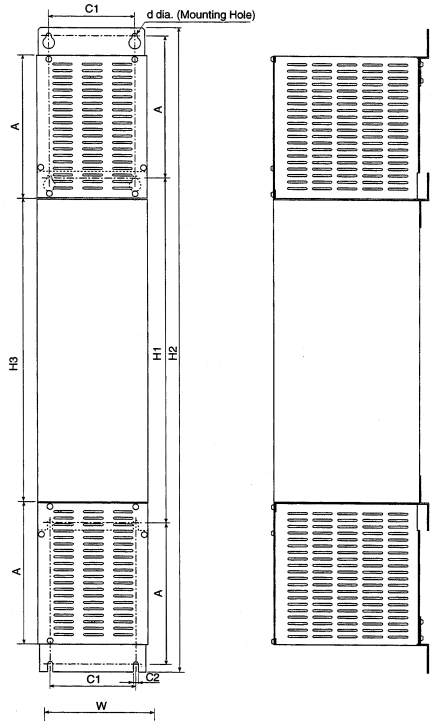
GV3000/SE

NEMA 1 Conversion Kits for 30-200 HP 460 V IPO GV3000/SE Drives



Includes top covers, bottom covers, and mounting brackets required for converting the GV3000/SE IPO Power Module to a NEMA 1, wall mountable drive.

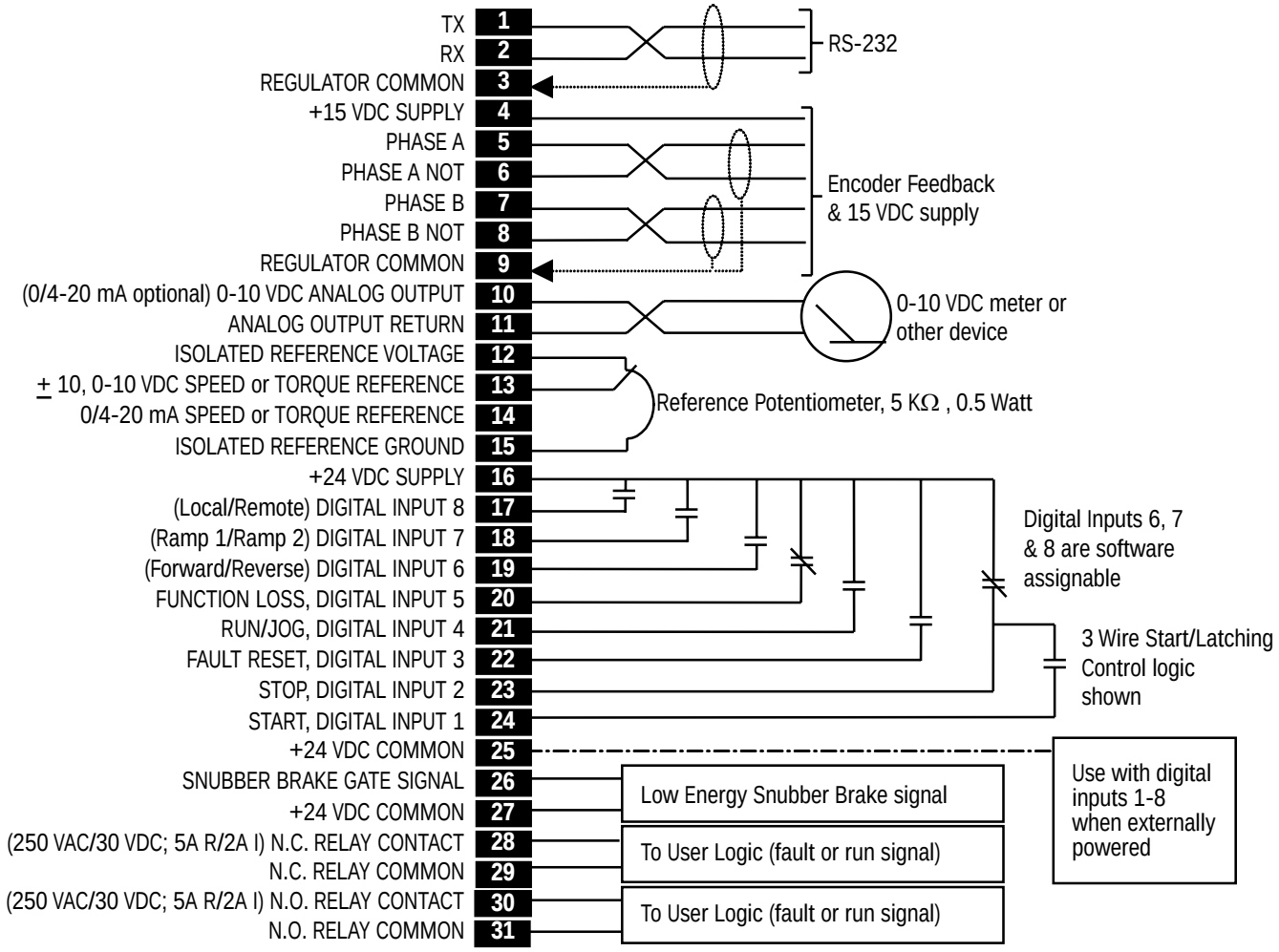
Note: The drive must be a mechanical Rev. 0.7 or higher version to accept this kit. The outside carton and the drive (near the nameplate) will have a label showing the Rev. number as well a statement “Suitable for NEMA 1 type”. NEMA 1 kits cannot be used with mechanical Rev. 0.6 or older GV3000/SE drives. NEMA 1 conversion kits are not available for 230 V, 30 - 100 HP drives.



Model No. of NEMA Type 1 Kit	Applicable GV3000/ SE Drive	Dimensions									Weight (kgs)*
		H1	H2	H3	W	D	A	C1	C2	d	
2CK4100	75V40XX 100V40XX	634 mm 24.96 in	1074 mm 42.28 in	594 mm 23.39 in	234 mm 9.21 in	356 mm 14.02 in	210 mm 8.27 in	100 mm 3.94 in	9 mm 0.35 in	9 mm 0.35 in	7.2 kg 16 lbs
2CK4125	125V40XX	714 mm 28.11 in	1204 mm 47.40 in	674 mm 26.54 in	244 mm 9.61 in	368 mm 14.49 in	235 mm 9.25 in	200 mm 7.87 in	9 mm 0.35 in	9 mm 0.35 in	8.4 kg 19 lbs
2CK4200	150V40XX 200V40XX	875 mm 34.45 in	1638 mm 64.49 in	774 mm 30.47 in	280 mm 11.02 in	370 mm 14.57 in	362 mm 14.25 in	216 mm 8.50 in	13 mm 0.51 in	13 mm 0.51 in	12.8 kg 28 lbs

* For one set top and bottom.

Typical Control Wiring



Service Conditions

Elevation: To 3,300 feet above sea level (1,000 meters)

Ambient Temperature: 0° C to 55° C (32° F to 131° F) panel mounted

Atmosphere: Non-condensing relative humidity, 5% to 95%

AC Line Voltage: ± 10% of rated input voltage

AC Line Frequency: 48 Hz to 62 Hz

Instruction Manuals

Software Start-Up and Reference:
D2-3391 (460 V)
D2-3416 (230 V)

Hardware Reference, Installation, and Troubleshooting: D2-3392 (460 V)
D2-3417 (230 V)

NEMA 1 Conversion Kit:
D2-3450 (460 V)

GV3000/SE

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This document located at:
http://www.reliance.com/drives

NOTE: This material is not intended to provide operational instructions. Appropriate Reliance Electric Drives instruction manuals precautions should be studied prior to installation, operation, or maintenance of equipment.

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