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 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 with designs in NEMA 1, 12 and 4X enclosures. Ideal for Wall or Machine Mounting as well as free-standing Floor Mounted applications 200 Horsepower & above.

Standard Features

A NEMA enclosed 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 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.

LED's also identify the drives status; Running, Remote, Jog, Auto, Forward, Reverse, or Program.

The intuitive nature of the drive's keypad makes GV3000/SE 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. For I/O interfaces, select the Super RMI card to expand digital and analog I/0 connections or the 115VAC Interface card. For communications, select from over a half dozen networks.

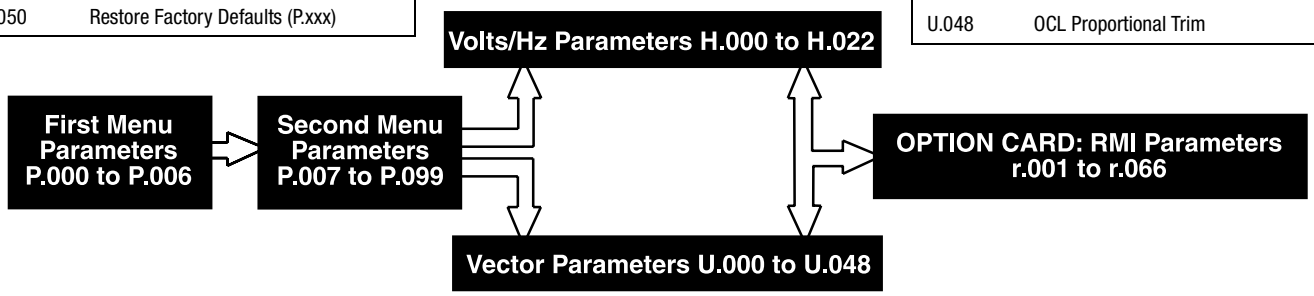
- Input Voltages:
  - 200 - 230 VAC, 50/60 Hz
  - 380 - 460 VAC, 50/60 Hz
- HP Ratings:
  - 1 HP to 20 HP, 200 - 230 VAC
  - 1 HP to 400 HP, 380 - 460 VAC
- Enclosures:
  - NEMA 1, 1A, 12 & 4x
- Inverter Type:
  - PWM with IGBT's
- Switching Frequency:
  - Adjustable to 2, 4 or 8 kHz
- Isolated Analog Input (Qty 1):
  - ±10 or 0 - 10VDC, 0/4 - 20mA
- 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:
  - 20:1V/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

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	NEMA 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	
1	1	1.3	1, 4X, 12	5	5	5	5	5	5	1V2_60
2	2	2.2	1, 4X, 12	8	8	8	8	8		2V2_60
3	3	3.3	1, 4X, 12	12	12	12	12	12	12	3V2_60
5	5	6.1	1, 4X, 12	22	22	22	22	22	22	5V2_60
7.5	7.5	8.0	1, 12	29	29	29	29	29	29	7V2_60
10	10	9.7	1, 12	35	35	35	35	35	35	10V2_60
15	15	13.0	1, 12	47	47	47	47	47	47	15V2_60
20	20	19.4	1, 12	70	70	70	70	70	70	20V2_60

460 VAC Ratings and Model Numbers

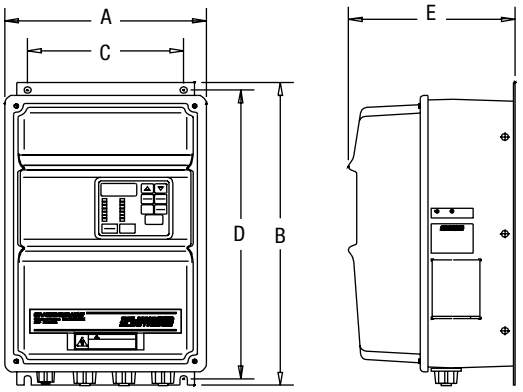
V/Hz HP Rating	Vector HP Rating	400 V kw Rating	NEMA Enclosure Rating	Continuous Amps by Mode @ Carrier Frequency						Model* Number
				V/Hz FLA			Vector FLA			
				2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	
1	1	1.1	1, 4X, 12	2.1	2.1	2.1	2.1	2.1	2.1	1V4_60
2	2	1.8	1, 4X, 12	3.4	3.4	3.4	3.4	3.4	3.4	2V4_60
3	3	2.9	1, 4X, 12	5.3	5.3	5.3	5.3	5.3	5.3	3V4_60
5	5	4.5	1, 4X, 12	8.2	8.2	8.2	8.2	8.2	8.2	5V4_60
7.5	7.5	6.1	1, 12	11.1	11.1	11.1	11.1	11.1	11.1	7V4_60
10	10	7.8	1, 12	14.2	14.2	14.2	14.2	14.2	14.2	10V4_60
15	15	11.6	1, 12	21	21	21	21	21	21	15V4_60
20	20	14.9	1, 12	27	27	27	27	27	27	20V4_60
25	20	16.8	1, 12	30.4	30.4	30.4	27	27	27	25G4_60
25	25	19.1	1, 12	34.5	34.5	34.5	34.5	34.5	34.5	25V4_60
30	30	22.1	1, 12	40	40	40	40	40	40	30V4_60
40	40	29.9	1, 12	54	54	54	54	54	54	40V4_60
50	50	37.1	1, 12	67	67	67	67	67	67	50V4_60
60	60	43.2	1, 12	78	78	78	67	67	67	60G4_60
75	50	53.0	1	90	72	54	70	56	41	50R4160
100	75	68.3	1	116	93	70	89	71	53	75R4160
100	75	68.3	1	116	93	70	89	71	53	75T4160
150	125	131.0	1	210	168	126	152	122	91	125R4160
200	200	150.0	1A	240	240	-	240	240	-	200V4160
250	250	188.0	1A	302	302	-	302	302	-	250V4160
300	300	225.0	1A	361	361	-	361	361	-	300V4160
350	350	258.0	1A	414	414	-	414	414	-	350V4160
400	400	297.0	1A	477	477	-	477	477	-	400V4160

*Fourth digit determines enclosure type: 1=NEMA 1, 2=NEMA 12, 4=NEMA 4x/12.

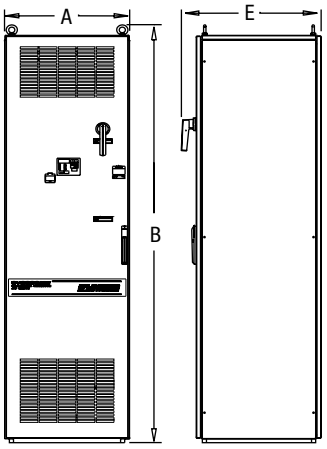
Dimensions by Model Number

230 VAC Model Number	Enclosure Rating	Physical Dimensions					Weight
		Width Dim. A	Height Dim. B	CC Width Dim. C	CC Height Dim. D	Depth Dim. E	
1V to 5V	NEMA 1, 4X/12	222.3 mm 8.75 in	280.7 mm 11.05 in	198.1 mm 7.80 in	254.3 mm 10.01 in	199.9 mm 7.87 in	6.4 kg 14 lbs
7V to 10V	NEMA 1, 12	280.7 mm 11.05 in	338.7 mm 13.32 in	247.9 mm 9.76 in	309.1 mm 12.17 in	199.9 mm 7.87 in	9.1 kg 20 lbs
15V to 20V	NEMA 1, 12	388.0 mm 11.34 in	463.0 mm 18.23 in	223.0 mm 8.78 in	442.0 mm 17.4 in	238.0 mm 9.37 in	15.9 kg 35 lbs

460 VAC Model Number	Enclosure Rating	Physical Dimensions					Weight
		Width Dim. A	Height Dim. B	CC Width Dim. C	CC Height Dim. D	Depth Dim. E	
1V to 5V	NEMA 1, 4X/12	222.3 mm 8.75 in	280.7 mm 11.05 in	198.1 mm 7.80 in	254.3 mm 10.01 in	199.9 mm 7.87 in	6.4 kg 14 lbs
7V to 10V	NEMA 1, 12	280.7 mm 11.05 in	338.7 mm 13.32 in	247.9 mm 9.76 in	309.1 mm 12.17 in	199.9 mm 7.87 in	9.1 kg 20 lbs
15V to 25G	NEMA 1, 12	288.0 mm 11.34 in	463.0 mm 18.23 in	223.0 mm 8.78 in	442.0 mm 17.4 in	238.0 mm 9.37 in	15.9 kg 35 lbs
25V to 40V	NEMA 1, 12	376.0 mm 14.8 in	605.0 mm 23.82 in	308.0 mm 12.13 in	565.2 mm 22.5 in	350.0 mm 13.78 in	23.6 kg 52 lbs
50R & 50T	NEMA 1	421.0 mm 16.6 in	880.0 mm 34.65 in	360.0 mm 14.17 in	850.0 mm 33.46 in	322.0 mm 12.68 in	70.0 kg 154 lbs
50V & 60G	NEMA 1, 12	376.0 mm 14.8 in	605.0 mm 23.82 in	308.0 mm 12.13 in	565.2 mm 22.5 in	350.0 mm 13.78 in	23.6 kg 52 lbs
75R & 75T	NEMA 1	421.0 mm 16.6 in	880.0 mm 34.65 in	360.0 mm 14.17 in	850.0 mm 33.46 in	322.0 mm 12.68 in	70.0 kg 154 lbs
125R	NEMA 1	465.0 mm 18.3 in	1,457.0 mm 57.36 in	330.0 mm 12.99 in	1,414.0 mm 55.56 in	355.0 mm 13.97 in	96.0 kg 221.0 lbs
200V	NEMA 1A	600.0 mm 23.6 in	2,200.0 mm 86.6 in	- -	- -	600.0 m 23.6 in	350.0 kg 800 lbs
250V to 400V	NEMA 1A	600.0 mm 23.6 in	2,200.0 mm 86.6 in	- -	- -	600.0 mm 23.6 in	382.5 kg 850 lbs



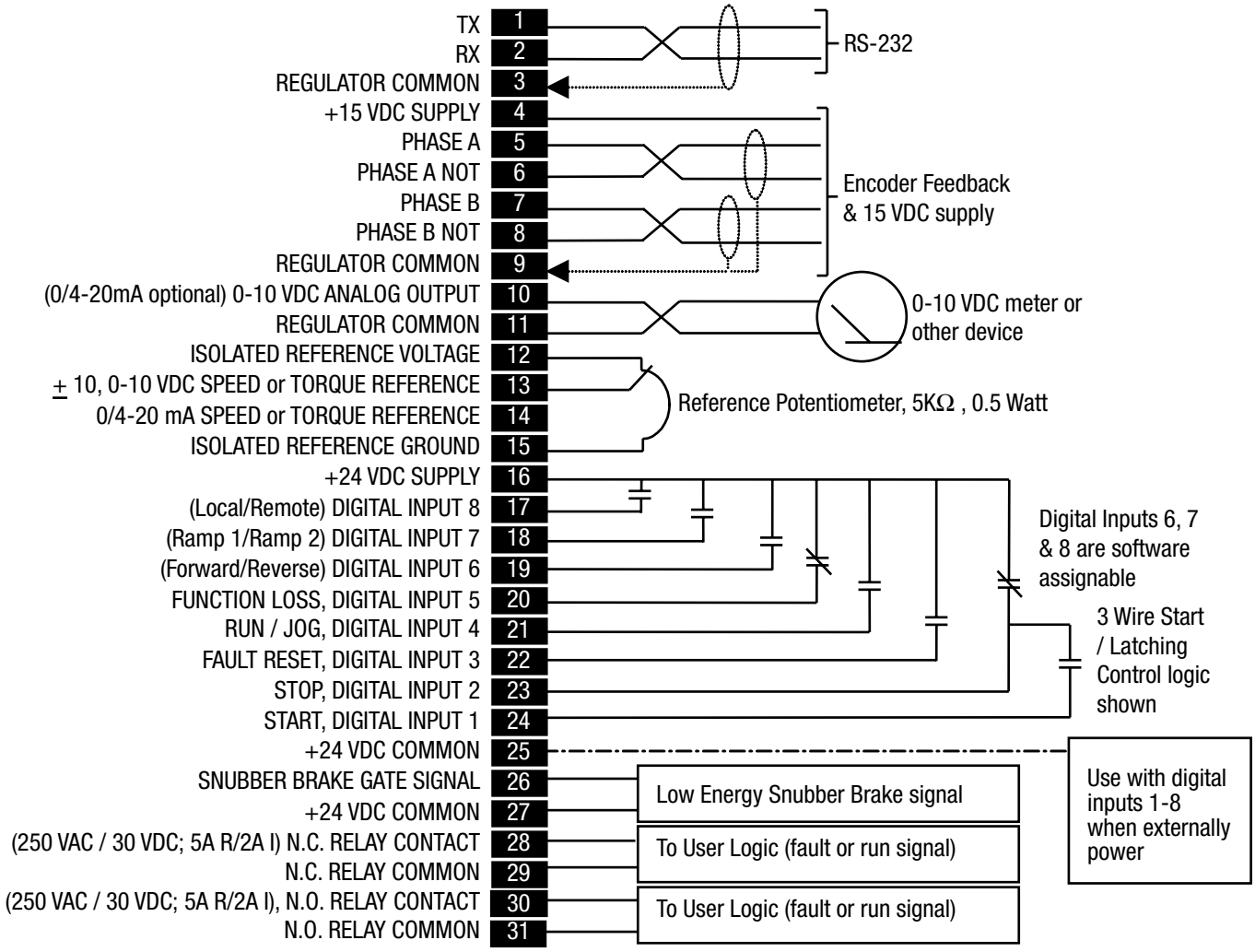
MN/s: 1V-125V Wall Mounted Enclosure



Note: Shown with optional through the door disconnect switch

MN/s: 200V to 400V Floor Standing Rittal® Enclosure

Typical Control Wiring



Service Conditions

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

Ambient Temperature:
0° C to 40° C (32° F to 104° F) - wall mounted
0° C to 50° C (32° F to 122° 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 Startup and Reference Manuals: D2-3387-2 (230 V)
D2-3359-2 (460 V)

Hardware Reference, Installation, and Troubleshooting: D2-3388-2 (230 V)
D2-3360-2 (460 V)