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 Drive performance or better is required, the GV3000/SE will meet your application needs while providing the convenience of using an AC induction motor. GV3000/SE provides simplicity and broad application flexibility with the performance features you need in a cost effective global design.

STANDARD FEATURES

3 control methods are included 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 drive's 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 a CS3000 Windows® based software for those who desire a more powerful interface.

For communications, GV3000/SE networks on several industrial protocols including Reliance Electric's AutoMax®, as well as open architectures such as DeviceNet™, ControlNet™, Profibus™ and Interbus-S™.

- Input Voltages:
  - 200-230 VAC, 50/60 Hz
  - 380-460 VAC, 50/60 Hz
- IP Ratings:
  - 1 HP to 100 HP, 200-230 VAC
  - 1 HP to 400 HP, 380-460 VAC
- Enclosures:
  - 1 to 5 HP: NEMA 1, 12 & 4X/IP20, 52 & 54
  - 7.5 to 60 HP: NEMA 1 & 12/IP20 & 52
  - 30 to 200 HP: NEMA 1/IP20
  - 75 to 400 HP: NEMA 1/IP20 IEC
    0.75 to 43 Amp: IP20 IEC
- Inverter Type:
  - PWM with IGBTs
- Switching Frequency:
  - Adjustable from 2, 4 or 8 kHz
- Isolated Analog Inputs (qty. 1):
  ± 10 VDC, or 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 Speed Operation
  - Ramp Selection
- Programmable Digital Output Relay (qty. 1 each): Form A (N.O.) and Form B (N.C.)
  - Selectable as: Fault, drive running or network comm. active
- Dynamic Response with FVC:
  - 100 Rad/Sec (15 Hz) Speed Loop
  - 1,000 Rad/Sec (150 Hz) Torque Loop
- 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

SPECIFICATIONS
Software Features & Functions

Operation Features
Accel & Decel Ramps w/ S-Curve
Analog 10 Volt or 0(4)-20 mA select via keypad and other adjustments
Auto Reset with Time and Interval selection
Bandwidth Programmable with 3 Programmable Setpoints
Carrier Frequency (Soft Switching) select 2, 4 or 8 kHz
Control Method selection for V/Hz or Vector Modes
Critical Frequency Avoidance in V/Hz Mode
Current Limit with adjustable settings of 30% to 105% V/Hz and 0% to 300% Vector
Discrete I/O Programmable and Assignable
Electronic Thermal Overload (NEC/UL approved)
Encoder PPR selection (64, 512, 1024, 2048 & 4096) in Vector Mode
Jog Speed Programmable with Assigned Accel & Decel
Line Dip "Ride Through" Programmable time setting of 0.1 to 60.0 sec. (4 to Host at 200 ms = Vector
Preset Speed selections 8 standard
Operation Control (Via Keypad, Terminal Strip, Serial Port or optional Communication Boards)
Output Frequency range of 0.5 Hz to 2,000 Hz (V/Hz)
0 RPM to 2 times Base Speed (S/C Mode); 7 RPM to 4 times Base Speed (FVC Mode)
Overload relay limit for reduced speed operation
Output Relays (Form C), 3 Form C standard, Programmable and Assignable
Stop Selection for Coast or Ramp to Rest
Torque Boost Voltage Programmable for 200% of nominal (set for line voltage)
Volts/Hz Select; Linear, Squared & Squared Cubed

Performance Features
Current Compounding for Load Sharing (SVC & FVC)
Dynamic Torque Limit (SVC & FVC)
Field Connection (SVC & FVC)
Speed or Torque Regulation Reference from (SVC & FVC)
S to Connection/Adjustment (V/Hz & SVC)
Slip Error Acceleration & Deceleration (V/Hz & Vector)
Trim Speed or Torque Reference with 20mA signal through the optional analog or frequency input
Tuning of Speed & Torque Loop PI Regulators (Vector)

Special Functions
DC Injection Braking with Programmable Time, Frequency & Current settings in V/Hz Mode
Draw Control Gain for load sharing & cascading multi-drive applications
Elapsed Time Meter for Hours of Operation
Event Log for Diagnostic Information (last 10 trips)
Inverse Analog Reference
MOP (motor operated pot) Function via discrete inputs with programmable rates
Motor Overload with motor cooling selection
Possible Emergency "Coast Out"
PI Setpoint Control via the standard analog input with selections from digital, analog settings or network speed reference sources.
Reset on Local mode selection for start commands
Reverse Disable
Shutdown Restart Braking (Dynamic Braking) Enable
Trip-free Deceleration with rate adaptation for high inertia loads
Ultra ride-through (UTR) capability for loss of less than line-frequency cycles
Zero Speed Hold for Vector Mode control to minimize deceleration to stop and for cycling stops at a preset rate
"Sleep" mode with external run

Dimensions & Weights

Note that NEMA 1 and NEMA 12 or 4X/12 enclosed ratings from 1 HP to 60 HP are identical in dimensions and weights when both enclosure types are not shown.

SERVICE CONDITIONS

Elevation: 3300 FL (1000 meters)

Ambient Temp. NEMA Enclosed and IEC Bookshelf: 0°C to 40°C (32°F to 104°F)

Ambient Temp. Open Chassis (model numbers 1V# thru 7500): 0°C to 50°C (32°F to 122°F)

Ambient Temp. Power Modules (75V4060 thru 200V4060 and 30V2060 thru 100V2060): 0°C to 55°C (32°F to 131°F)

Atmosphere: Non-Condensing Relative Humidity <95%

AC Line Voltage Variation: +10%

AC Line Frequency: 48 Hz to 62 Hz

INSTRUCTION MANUALS

Hardware Reference, Installation and Troubleshooting:

- 200-230 VAC Drives:
  - Model Number 1V2160-20V2160: D2-3388
  - Model Number 30V2060-100V2060: D2-3417
- 380-460 VAC Drives:
  - Model Number 1V4160-60G4160: D2-3360
  - Model Number 50P4160-125P4160 D2-3360
  - Model Number 75T4160 D2-3360
  - Model Number 30V4060-200V4060: D2-3392
  - Model Number 200V4160-400V4160: D2-3360
  - Model Number 3IER4060-430EP4060: D2-3427
  - Model Number 3IET4060-430ET4060 D2-3427

Software Startup and Reference Manuals:

- 200-230 VAC Drives:
  - Model Number 1V2160-20V2160: D2-3387
  - Model Number 30V2060-100V2060: D2-3418
- 380-460 VAC Drives:
  - Model Number 1V4160-60G4160: D2-3358
  - Model Number 50P4160-125P4160 D2-3358
  - Model Number 75T4160 D2-3358
  - Model Number 30V4060-200V4060: D2-3391
  - Model Number 200V4160-400V4160: D2-3358
  - Model Number 3IER4060-430EP4060: D2-3428
  - Model Number 3IET4060-430ET4060 D2-3428

200-230 VAC, 50/60 HZ INPUT; RATINGS 1 HP THROUGH 20 HP

Product Features:

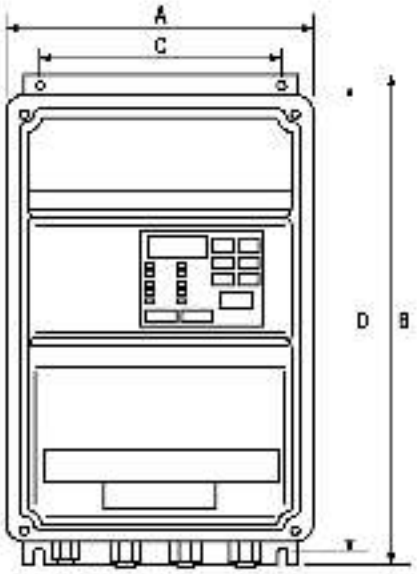
- NEMA 1,12 or 4X/IP20, 52 & 54 enclosures simplify stand alone applications
- General Purpose (Scalar V/HZ) Mode, 100% Continuous Motor Capacity
- In Vector (SVC or FVC) Mode, 150% Overload Capacity for 1 minute
- Full Power Rating from 2 kHz through 8 kHz Carrier Frequency Operation
- Removable cover converts to open chassis and allows 50°C ambient operation
- Local operator keypad with LED display is built-in for convenience

HP (kW) Ratings[1] at Parameter P.048		Drive Selection 200-230 VAC, 3-Phase, 50/60 Hz GV3000/SE					
P.048 = U-H	P.048 = U-C	Max. Continuous Output Amps/Motor Current		NEMA 1/IP20 Enclosed Chassis		NEMA 12/IP52 Enclosed Chassis	
V/Hz Mode	Vector Mode	V/Hz Mode	Vector Mode	Model Number	List	Model Number	List
1 (.4)	1 (.4)	6	6	⊕ 1V2162	$1,431	⊕ 1V2402	$1,463
2 (1.5)	2 (2.2)	8.8	8.8	⊕ 2V2162	1,485	⊕ 2V2402	1,524
3 (3.4)	3 (3.4)	11.8	11.8	⊕ 3V2162	1,553	⊕ 3V2402	1,595
5 (5.6)	5 (5.6)	21	21	⊕ 5V2162	1,808	⊕ 5V2402	1,853
7.5 (7.4)	7.5 (7.4)	28.0	28.0	⊕ 7V2162	1,956	⊕ 7V2402	2,005
10 (9.2)	10 (9.2)	35	35	⊕ 10V2162	2,003	⊕ 10V2302	2,169
15 (14.7)	15 (14.7)	58.8	58.8	⊕ 15V2162	3,445	⊕ 15V2302	3,451
20 (19.2)	20 (19.2)	69.6	69.6	⊕ 20V2162	4,287	⊕ 20V2302	4,289

1) Based on NEMA B motor characteristics. Applications not exceeding drive rated continuous output current and overload capacity.

HP and kW ratings are met at 230 V and 200 V for U.S. and European motors, respectively. kW ratings are met at nominal motor efficiency and power factor.

2) Refer to Appendix B-NEMA 4X/IP65 rating for outdoor and severe application environments.



230 V Dimensions: 1 HP to 20 HP

Model Number	A	B	C	D	Depth	Weight
1V2162						
1V2402						
2V2162	9.75	11.26	7.6	10.0"	7.87	
2V2402	(299.5)	(286.7)	(193.1)	(254.0)	(199.7)	(6.4)
3V2162						
3V2402						
5V2162						
5V2402						
7V2162						
7V2302	11.75	13.39	9.72	12.17	7.87	20
10V2302	(298.7)	(339.9)	(247.9)	(309.1)	(199.8)	(9.1)
10V2362						
15V2302						
15V2362	11.75	13.39	9.72	12.4	9.37	36
20V2302	(298)	(340)	(247)	(315)	(238)	(16.3)
20V2362						

Inches (mm)
pounds (kg)

200-230 VAC, 50/60 HZ INPUT; RATINGS 30 HP THROUGH 100 HP

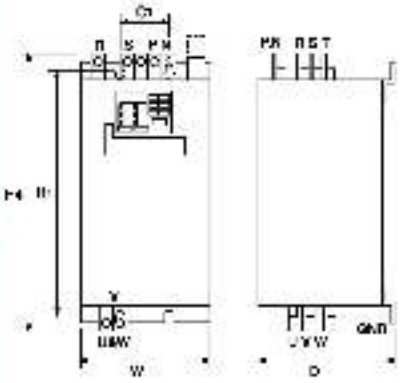
Product Features:

- NEMA 0/IP00 power module construction for panel mounting
- 55°C ambient
- Exposed line & load stabs for easy access and wiring
- Compact size
- Built-in keypad and RS-232 port

HP (kW) Rating* at Parameter "P.040"						Drive Selection 200-230 VAC, 3-Phase, 50/60 Hz GV3000/SE							
P.040 = U-H			P.040 = UEC			Continuous Output Amps Motor Current						Model Number**	List
V/Hz Mode			Vector Mode			V/Hz Mode			Vector Mode				
2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz		
30 (22)	30 (22)	25 (18)	30 (22)	30 (22)	25 (18)	80	80	64	80	80	64	GV3030/SE	$8,470
40 (30)	40 (30)	30 (22)	40 (30)	40 (30)	30 (22)	105	105	108	105	105	108	GV3040/SE	8,852
50 (37)	50 (37)	40 (30)	50 (37)	50 (37)	40 (30)	130	130	100	130	130	100	GV3050/SE	10,031
60 (45)	60 (45)	50 (37)	60 (45)	60 (45)	50 (37)	155	155	156	155	155	156	GV3060/SE	11,848
75 (55)	75 (55)	60 (45)	75 (55)	75 (55)	60 (45)	240	240	196	240	240	196	GV3075/SE	12,848
100 (75)	100 (75)	75 (55)	100 (75)	100 (75)	75 (55)	275	275	220	275	275	220	GV3100/SE	14,805

1) Motor must be NEMA design B, standard motor with standard speed range, standard service factor, and standard temperature rise. Inverter capacity must be equal to or greater than motor rating. For applications requiring 240 V operation, use 230 V rated inverter. Derating may be necessary for operation at altitudes above 1000 m or ambient temperatures above 40°C.

2) For input protection, 45 A, 3-pole fuse (Bussmann KTK-R-45 or equivalent) or 45 A, 3-pole circuit breaker (Allen-Bradley 1492-SP3D045 or equivalent) is required. For input protection, 65 A, 3-pole fuse (Bussmann KTK-R-65 or equivalent) or 65 A, 3-pole circuit breaker (Allen-Bradley 1492-SP3D065 or equivalent) is required.



230 V Dimensions: 30 HP to 100 HP

Physical Dimensions - IP00 Power Module						
HP	D1	H1	H4	W	D	Weight
30	3.9 (100)	21.7 (544)	23.9 (606)	9.0 (255)	13.8 (351)	75 (34)
40	3.9 (100)	21.7 (544)	23.9 (606)	9.0 (255)	13.8 (351)	75 (34)
50	3.9 (100)	21.7 (544)	23.9 (606)	9.0 (255)	13.8 (351)	75 (34)
60	7.9 (200)	28.1 (714)	28.1 (776)	9.6 (245)	14.4 (365)	97 (44)
75	7.9 (200)	28.1 (714)	28.1 (776)	9.6 (245)	14.4 (365)	97 (44)
100	7.9 (200)	28.1 (714)	28.1 (776)	9.6 (245)	14.4 (365)	97 (44)

380-460 VAC, 50/60 HZ, INPUT; RATINGS 1 HP THROUGH 60 HP

Product Features:

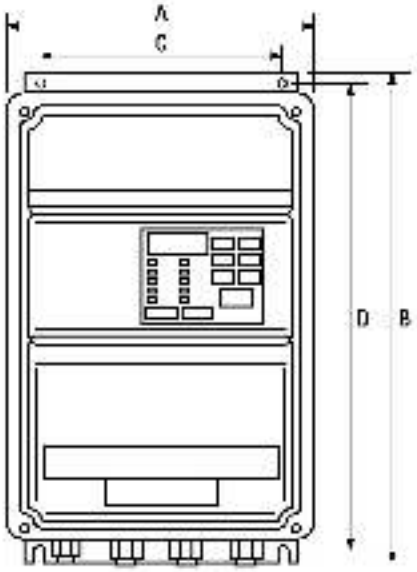
- NEMA 1,12 or 4X/IP20, 52 & 54 enclosures simplify stand alone applications
- In General Purpose (Scalar V/Hz) Mode, 110% Continuous Motor Overload Capacity
- In Vector (SVC or FVC) Mode, 150% Overload Capacity for 1 minute
- Full Power Rating from 2 kHz through 8 kHz Carrier Frequency Operation
- Removable cover converts to open chassis and allows 50° C ambient operation
- Local operator keypad with LED display is built-in for convenience

HP (kW) Rating[1] at Parameter "P.046"		Drive Selection 380-480 VAC, 3-Phase, 50/60 Hz GV3000/SE					
P.046 = H-H	P.046 = LHC	Max. Continuous Amps/Motor Current		NEMA 1/IP20 Enclosed Chassis		NEMA 12/IP32 Enclosed Chassis	
V/Hz Mode	Vector Mode	V/Hz Mode	Vector Mode	Model Number	List	Model Number	List
1 (1.1)	1 (1.1)	2.1	2.1	✱ 1V4116C	$1,285	✱ 1V4120[2]	$1,310
2 (1.8)	2 (1.8)	3.4	3.4	✱ 2V4116C	1,460	✱ 2V4120[2]	1,414
3 (2.9)	3 (2.9)	5.3	5.3	✱ 3V4116C	1,540	✱ 3V4120[2]	1,607
5 (3.5)	5 (4.5)	6.2	6.2	✱ 5V4116C	2,014	✱ 5V4120[2]	2,030
7-1/2 (5.1)	7-1/2 (5.1)	11.1	11.1	✱ 7V4116C	2,311	✱ 7V4120[2]	2,331
10 (7.5)	10 (7.5)	14.9	14.9	✱ 10V4116C	2,887	✱ 10V4120[2]	2,897
15 (11.2)	15 (11.2)	21	21	✱ 15V4150	3,641	✱ 15V4280	3,662
20 (14.9)	20 (14.9)	27	27	✱ 20V4150	4,330	✱ 20V4280	4,376
25 (18.6)[3]	25 (14.9)[3]	33.0[3]	27[3]	✱ 25G4150[3]	4,701	✱ 25G4280[3]	4,740
25 (18.6)	25 (18.6)	34.5	34.5	✱ 25V4150	6,238	✱ 25V4280	6,304
30 (22.4)	30 (22.4)	40	40	✱ 30V4150	7,722	✱ 30V4280	7,000
40 (29.8)	40 (29.8)	54	54	✱ 40V4150	8,082	✱ 40V4280	8,787
50 (37.3)	50 (37.3)	67	67	✱ 50V4150	9,249	✱ 50V4280	9,340
60 (48.2)[3]	60 (37.3)[3]	78[3]	67[3]	✱ 60G4150[3]	11,342	✱ 60G4280[3]	11,455

[1] Based on NEMA B induction motor ratings. Application-related speed reductions may be possible for some drives. HP and kW ratings are based on 460 V and 60 Hz unless specified. kW ratings are based on standard motor. Power Factor = 0.85.

[2] Enclosure carries NEMA 12/IP32 rating when using Quick Disconnect and Bypass options.

[3] Derate HP (kW) rating in Vector Mode operation.



460 V Dimensions: 1 HP to 60 HP

Model Number		A	B	C	D	Depth	Weight
1V4116C	1V4480						
2V4116C	2V4480	8.75	11.06	7.8	10.31	7.87	14 lb
3V4116C	3V4480	(222.3)	(281.2)	(198.1)	(261.9)	(199.9)	(6.4) kg
5V4116C	5V4480						
7V4116C	7V4480	8.81	13.39	8.75	10.17	7.87	20 lb
10V4116C	10V4230	(223.8)	(339.9)	(222.3)	(258.3)	(199.9)	(9.1) kg
10V4150C	10V4280						
15V4150	15V4280	11.34	16.23	8.75	17.4	9.37	35 lb
20V4150	20V4280	(288.0)	(412.2)	(222.3)	(442.0)	(238.0)	(15.9) kg
25G4150	25G4280						
25V4150	25V4230						
30V4150	30V4280	14.8	25.39	10.13	26.25	13.78	57 lb
40V4150	40V4230	(376.0)	(645.0)	(257.3)	(666.8)	(350.0)	(25.9) kg
50V4150	50V4280	14.8	25.39	10.13	26.25	13.78	57 lb
60G4150	60G4280	(376.0)	(645.0)	(257.3)	(666.8)	(350.0)	(25.9) kg

DISCOUNT VS-1AC

380-460 VAC, 50/60 HZ INPUT: RATINGS 50 HP THROUGH 150 HP

Product Features:

- NEMA 1/IP20 Enclosed Design
- Wall Mount Construction
- 40° C Ambient Enclosed/50° C Open
- CE Filter Options for Europe[1][2]
- Enclosed Line & Load Terminations
- Built-in Keypad and RS-232 Port

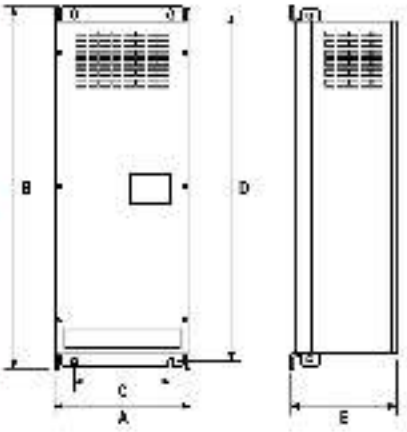
HP [kW] Rating [1] at Parameter "P.040"						Drive Selection 380-460 VAC, 3-Phase, 50/60 Hz GV3000/SE							
P.040 = U-H			P.040 = ULC			Maximum Continuous Output Amps/Motor Current						Model Number	List
V/Hz Mode			Vector Mode			V/Hz Mode			Vector Mode				
2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz		
75 (45)	60 (25)	45 (22)	67 (27)	40 (30)	37 (22)	80	79	64	70	58	4	* 50R4160	$14,363
75 (45)	60 (25)	45 (22)	67 (27)	40 (30)	37 (22)	80	79	64	70	58	4	50T4160 [3]	(Discontinued)[3]
100 (55)	80 (44)	60 (33)	75 (40)	60 (33)	45 (22)	96	93	70	91	7	52	* 75R4160	14,363
100 (55)	80 (44)	60 (33)	75 (40)	60 (33)	45 (22)	96	93	70	91	7	52	* 75T4160 [3]	17,585
150 (110)	120 (88)	90 (66)	125 (75)	100 (60)	75 (40)	240	158	126	159	132	7	* 125R4160 [4]	26,871

[1] Drive rating is NEMA Design B motor nameplate amps. Applicable for 4 pole motors. Actual motor amps may vary depending on motor design. Amps may be limited by drive thermal protection. HP & kW ratings are for 460 V operation. For 400 V operation, select drive with next higher HP & kW rating. See derating guidelines for more information.

[2] Model number 50T4160 and 75T4160 include built-in EMI filter. Limited to Restricted Sales Distribution.

[3] Drive model number 125R4160 and EMI filter model number 23D4125 must be installed in a single enclosure to meet CE Conducted Emissions requirements. Limited to Restricted Sales Distribution.

[4] Use 75T4160.



460 V Dimensions: Model Number 50R4160 to 125R4160 and 50T4160 to 75T4160

Model Number	A	B	C	D	F	Weight
50R4160 50T4160 75R4160 75T4160	16.6 (421)	34.35 (873)	14.17 (360)	35.45 (900)	12.65 (321)	154 (70)
125R4160	19.3 (489)	57.26 (1455)	12.99 (330)	55.82 (1418)	12.97 (329)	211 (96)

(Dimensions are in inches (mm))

© Rockwell Automation, Inc.

380-460 VAC, 50/60 HZ INPUT; RATINGS 200 HP THROUGH 400 HP

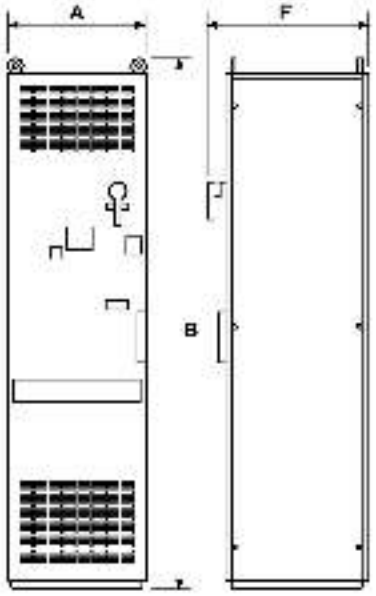
Product Features:

- NEMA 1/IP20 Floor Standing Enclosure with forced ventilation and door mounted filter
- In General Purpose (Scalar V/Hz) Mode, 110% Continuous Overload Capacity
- In Vector (SVC or FVC) Mode, 150% Overload Capacity for 1 minute
- Local operator keypad with LED display is built-in for convenience
- Input Disconnect (optional) built-in
- Input Line Fuses are built-in as standard for input short circuit protection

HP (kW) Rating [1] at Parameter "P.045"				Drive Selection 380-460 VAC, 3-Phase, 50/60 Hz GV3000/SE						
P.045 = U-H		P.045 = ULC		Maximum Continuous Output Amps/Motor Current				Floor Standing NEMA 1 Enclosure Force Ventilated w/Filter		
V/Hz Mode		Vector Mode		V/Hz Mode		Vector Mode		Without Built-In Disconnect Model Number	With Built-In Disconnect Model Number	List
2 kHz	4 kHz	2 kHz	4 kHz	2 kHz	4 kHz	2 kHz	4 kHz			
200 (150)	200 (150)	200 (150)	200 (150)	240	240	240	240	GV3004160E	-	$27,354
									GV3004160EDS	30,500
250 (187)	250 (187)	250 (187)	250 (187)	302	302	302	302	GV3005160E	-	30,808
									GV3005160EDS	33,256
300 (224)	300 (224)	300 (224)	300 (224)	361	361	361	361	GV3006160E	-	36,868
									GV3006160EDS	39,493
350 (261)	350 (261)	350 (261)	350 (261)	414	414	414	414	GV3007160E	-	38,861
									GV3007160EDS	41,386
400 (298)	400 (298)	400 (298)	400 (298)	477	477	477	477	GV3008160E	-	42,853
									GV3008160EDS	44,878

[1] Based on NEMA Design B motor ratings only. Application of standard motors requires that the drive be derated. For operation at low input line, HP and kW ratings are based upon 180 V and 360 V input respectively. kW ratings are based on an assumed motor power factor of 95%.

[2] Includes internal operation at 1.5 sec at 110% Overload. 3 sec at 200% or 1.0 sec at 240% GV3000/SE drive selection is based on 4 pole induction motors.



460 V Dimensions: 200 HP to 400 HP

Model Number		A	B	C	D	F	Weight
200/4160	200/4160DS	20.6 (523)	96.6 (2454)	-	-	29.6 (752)	850 (385.5)
250/4160	250/4160DS						
300/4160	300/4160DS						
350/4160	350/4160DS						
400/4160	400/4160DS						

Inches (mm)
pounds (kg)

© Rockwell Automation, 2004

380-460 VAC, 50/60 HZ INPUT; RATINGS 3.1 AMPS THROUGH 43.0 AMPS

Product Features:

- IP20 IEC Bookshelf construction for panel mounting
- 7th IGBT built-in for Snubber Resistor Braking[1]
- 40° C ambient
- Front access control terminals for easy access and wiring
- Compact size for zero side clearance mounting

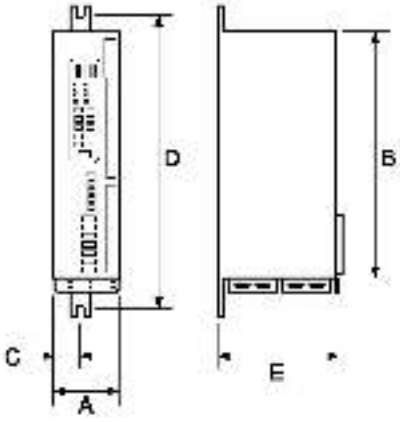
Drive Selection w/o Built-in CE Filters 380-460 VAC, 3-Phase, 50/60 Hz GV3000/SE									
Continuous Output Amps/Motor Current						N. American Model & Order Number	European Stock Number	Unit Type	List
V/Hz Mode			Vector Mode						
2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz				
3.1	3.1	2.8	3.1	3.1	2.1	⊗ 3P1H4060	896.01.1	AC003	$1,570
3.8	3.8	2.8	3.1	3.1	2.6	⊗ 3P8T4060	896.02.1	AC004	1,691
5.0	5.0	5.0	5.4	5.4	3.4	⊗ 5P0H4060	896.04.1	AC005	1,728
6.5	6.5	5.5	6.7	6.7	5	⊗ 6P5T4060	896.05.1	AC006	1,791
12.6	12	8.5	9.2	9.2	8	⊗ 012H4060	896.06.1	AC012	1,942
15	12	8.5	11	11	8	⊗ 015T4060	896.07.1	AC015	2,348
24	18.5	12.6	18.6	18	11	⊗ 024H4060	896.08.1	AC024	2,483
30	24	13.5	22	22	15	⊗ 030T4060	896.09.1	AC030	3,614
43	31	22	32	32	15	⊗ 043H4060	896.10.1	AC044	3,927

Drive Selection w/ Built-in CE Filters[2] 380-460 VAC, 3-Phase, 50/60 Hz GV3000/SE									
Continuous Output Amps/Motor Current						N. American Model & Order Number	European Stock Number	Unit Type	List
V/Hz Mode			Vector Mode						
2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz				
3.1	3.1	2.8	3.1	3.1	2.1	⊗ 3P1H4060	896.01.31	AC003	$1,692
3.8	3.8	2.8	3.1	3.1	2.6	⊗ 3P8T4060	896.02.31	AC004	1,826
5.0	5.0	5.0	5.4	5.4	3.4	⊗ 5P0H4060	896.04.31	AC005	1,866
6.5	5.5	5.5	6.7	6.7	5	⊗ 6P5T4060	896.05.31	AC006	2,009
12.6	12	8.5	9.2	9.2	8	⊗ 012H4060	896.06.31	AC012	2,328
15	12	8.5	11	11	8	⊗ 015T4060	896.07.31	AC015	2,806
24	18.5	12.6	18.6	18	11	⊗ 024H4060	896.08.31	AC024	3,466
30	24	13.5	22	22	15	⊗ 030T4060	896.09.31	AC030	4,336
43	31	22	32	32	15	⊗ 043H4060	896.10.31	AC044	4,710

[1] For more information on braking, see page D-54.

[2] Add suffix "-31FT-005" to the 4P0FT-060 to make it a CE Filtered drive. See CE Components Section.

Bookshelf Drive Dimensions



Unit Type	Physical Dimensions in mm					Weight
A	B	C	D	E		
AC003	85	378	36	222	202	5.5 kg
AC004	85	378	36	222	202	5.5 kg
AC005	85	378	36	222	202	5.5 kg
AC006	85	378	36	222	202	5.5 kg
AC012	85	378	36	222	202	5.5 kg
AC015	85	378	36	222	202	5.5 kg
AC024	185	374	61	222	202	10.0 kg
AC030	185	374	61	222	202	10.0 kg
AC044	214	374	150	222	202	15.5 kg

⊗ Manufactured in the U.S.A.

RELIANCE ELECTRIC

380-460 VAC, 50/60 HZ INPUT; RATINGS 30 HP THROUGH 200 HP

Product Features:

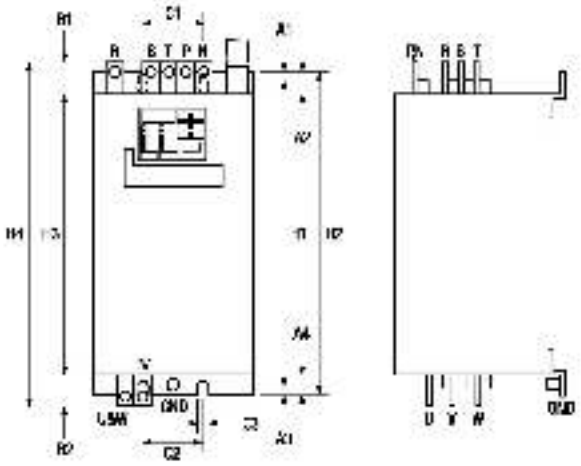
- NEMA 0/IP00 power module construction for panel mounting
- Optional NEMA 1 conversion kit [2]
- 55° C ambient
- Exposed line & load slabs for easy access and wiring
- Compact size
- Built-in keypad and RS-232 port

HP (kW) Rating[1] at Parameter P.040						Drive Selection 380-460 VAC, 3-Phase, 50/60 Hz GV3000/SE							
P.044 = II-H			P.044 = UFC			Continuous Output Amps/Motor Current						Model Number[2]	List
V/Hz Mode			Vector Mode			V/Hz Mode			Vector Mode				
2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz	2 kHz	4 kHz	8 kHz		
30 (22.1)	30 (22.1)	25 (18.5)	30 (22.1)	30 (22.1)	25 (18.5)	46	46	38	46	46	38	✻ 30V4030	$8,650
40 (29.5)	40 (29.5)	30 (22.1)	40 (29.5)	40 (29.5)	30 (22.1)	61	61	46	61	61	46	✻ 40V4030	7,238
50 (37.3)	50 (37.1)	40 (29.8)	50 (37.3)	50 (37.1)	40 (29.8)	87	87	65	87	87	65	✻ 50V4030	8,100
60 (44)	60 (44)	50 (37.1)	60 (44)	60 (44)	50 (37.1)	78	75	62	78	75	62	✻ 60V4030	8,437
75 (55)	75 (56)	60 (44)	75 (55)	75 (56)	60 (44)	100	90	80	100	90	80	✻ 75V4030	12,100
100 (77)	100 (77)	75 (62)	100 (77)	100 (77)	75 (62)	140	110	112	140	110	112	✻ 100V4030	12,461
125 (94)	125 (94)	100 (75)	125 (94)	125 (94)	100 (75)	170	150	135	170	150	135	✻ 125V4030	14,800
150 (111)	150 (111)	125 (93)	150 (111)	150 (111)	125 (93)	200	200	160	200	200	160	✻ 150V4030	17,600
200 (148)	200 (148)	150 (106)	200 (148)	200 (148)	150 (106)	240	240	187	240	240	187	✻ 200V4030	18,102

(1) Drives are NEMA Design B constant torque ratings only. Acceleration torque and overload requirements must be considered when operating at the natural rating. HP and kW ratings are based upon 230 V and 460 V input respectively. Working at other voltages will require derating. Will not provide full rated torque at 50Hz.

(2) An input reactance of 3% is required for distribution systems 3 MVA and 4 MVA. Consult factory for applications where the input reactance is less than 3%, or where the 3-phase short circuit power is greater than 6 MVA at the drive.

(3) Optional NEMA 1 conversion kit available - refer to page D-52



460 V Dimensions: 30 HP to 200 HP

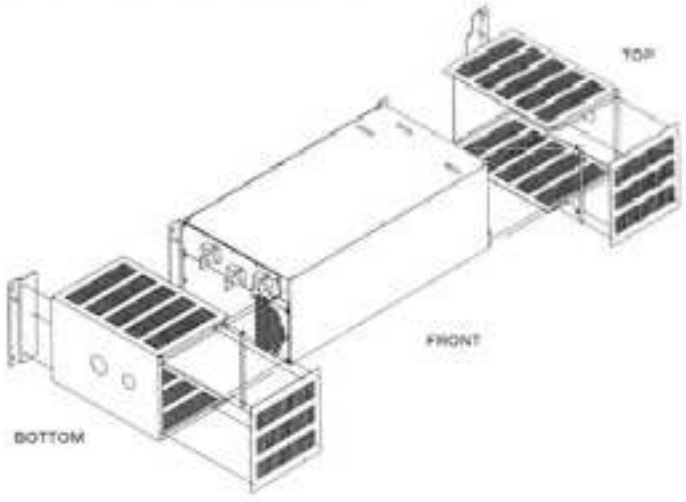
HP	H1	H2	H3	H4	Width	Depth	Weight
30-40	17.7 (450)	16.5 (419)	16.2 (410)	15.8 (402)	8.2 (207)	13.9 (354)	13 (29)
50-60	21.4 (544)	20.2 (514)	20.8 (528)	20.6 (523)	8.2 (207)	13.9 (354)	19 (42)
75-100	25 (634)	23.7 (604)	23.4 (594)	22.4 (569)	8.2 (207)	13.9 (354)	27 (59)
125	28 (714)	27.5 (699)	26.5 (674)	25.6 (650)	9.5 (241)	14.4 (366)	37 (81)
150-200	34.4 (874)	33 (838)	30.5 (774)	29.1 (739)	11.1 (282)	14.4 (366)	57 (125)

Inches (mm)
pounds (kg)

HP	A1	A2	A3	A4	B1	B2	D1	D2	D3	t
75-100	0.4 (10)	1.2 (30)	0.4 (10)	1.2 (30)	2 (51)	2 (51)	3.9 (100)	3.9 (100)	0.35 (9)	0.25 (6)
125	0.4 (10)	1.2 (30)	0.4 (10)	1.2 (30)	2 (51)	2 (51)	7.9 (200)	7.9 (200)	0.35 (9)	0.25 (6)
150-200	0.6 (14)	2.4 (60)	1 (25)	2.8 (70)	1.8 (45)	1.8 (45)	8.5 (216)	8.5 (216)	0.5 (13)	0.31 (11)

Inches (mm)

NEMA 1 CONVERSION KITS FOR 75-200 HP 460V IP00 GV3000/SE

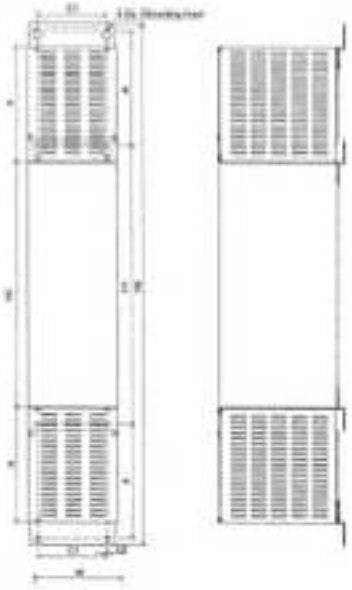


Includes top covers, bottom covers, and mounting brackets required for converting the IP00 Power Module GV3000/SE to a NEMA 1 wall-mountable drive.

NEMA 1 Kit Model Number[1]	For GV3000/SE Drive Model Number(s)	List
20K4100	75V4060 or 100V4060	$650
20K4125	125V4060	710
20K4200	150V4060 and 200V4060	760

[1] Kit includes: [illegible]

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 the statement "Suitable for NEMA 1 type". NEMA 1 kits cannot be used with older rev. GV3000/SE drives. NEMA 1 conversion kits are not available for 230 V, 30-100 HP or 460 V, 50-60 HP drives.



Model Number of NEMA Type 1 Kit	Applicable GV3000/SE Drive	Dimensions millimeters (inches)									Weight
		H1	H2	H3	W	D	A	C1	C2	d	
20K4100	75V4060	694	1074	694	394	368	310	100	9	9	7.7
	100V4060	(21.98)	(42.25)	(20.29)	(8.27)	(11.02)	(5.27)	(3.94)	(0.35)	(0.35)	(16)
20K4125	125V4060	774	1154	774	394	368	338	100	9	9	8.4
		(25.11)	(47.13)	(26.51)	(8.61)	(11.02)	(5.25)	(3.97)	(0.35)	(0.35)	(19)
20K4200	150V4060	972	1352	774	540	368	338	216	12	9	12.5
	200V4060	(34.45)	(51.49)	(30.47)	(11.02)	(11.57)	(14.25)	(8.52)	(0.51)	(0.51)	(28)

[illegible]
applied

[illegible]

DISCOUNT VS-1AC

RELIANCE ELECTRIC

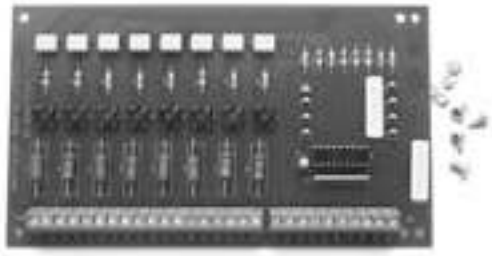
GV3000/SE Options

I/O EXPANSION
115 VAC Control Interface Board

115 VAC control power to 24 VDC logic. Start, Stop, Jog, Forward, Reverse & Function Loss.

Available as a loose kit only. Please note that this board normally mounts inside the GV3000/SE. This board may also be remote/panel mounted when other I/O boards or network boards are used.

Instruction Manual No.: D2-3376
Model Number: ✱ 2LB3000 ..... $830 List



115 VAC Interface Board

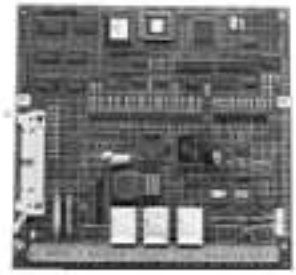
Super RMI Board - I/O Expansion

The Super RMI (Remote Meter Interface) Board provides additional Discrete and Analog Inputs & Outputs along with added functionality for application flexibility of the GV3000/SE AC Drive.

Added Inputs (Isolated): (4) Programmable Digital Inputs; (1) Programmable Analog Input - 0/4-20 mA or 0-10 VDC; and (1) Frequency Input.

Added Outputs: (4) Programmable Digital Outputs; (1) Programmable Analog Output, 0/4-20 mA or 0-10 VDC; (2) Programmable Analog Outputs - 0-10 VDC; (2) Programmable N/O Relay Outputs; and (1) Form "C" Fault Relay (1 N/O, 1 N/C).

Added Functionality with Super RMI:
- Up to 8 Preset Speeds
- PI Regulator with Setpoint Control
- Speed or Torque Reference Trim
- Current Limit Adjustment
- Relay Output w/Configurable Indication of:
  - At Speed (i.e.: speed reached)
  - Run Condition (i.e.: drive enabled)
  - Torque Setpoint (i.e.: torque proving)



Super Remote Meter Interface (RMI) Board

This board can be mounted inside every GV3000/SE. Hardware provided: (4 mounting screws) and a multi-pin connector.

Available as a Loose Kit only. Please note that no other I/O Cards or Network Cards will be usable with this option installed.

Instruction Manual No.: D2-3341

Super RMI Board (for NEMA and IP00 Power Modules)
Model Number: ✱ 2SI3000 ..... $575 List

Super RMI Board (for Book-shelf drives)
Model Number: ✱ 2SI3000E ..... $575 List

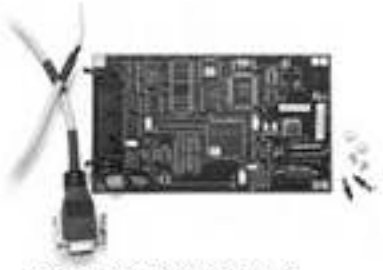
✱ Normally stocked item

DISCOUNT VS-1AC

NETWORK COMMUNICATIONS

AutoMax™ Network Board

Provides the necessary interface when a GV3000/SE must communicate on a Reliance Electric AutoMax DCS Network. Configurable and Tunable Parameters are accessible with 100 msec. scan times. Control and Reference Functions for speed and torque commands are accessible with 5 msec. scan times.



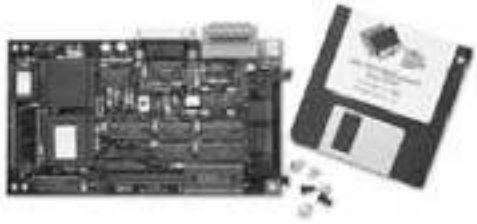
AutoMax Network Board

Available as a loose kit only. Please note that this card mounts inside the GV3000/SE.

Instruction Manual No. D2-3508
Model Number: ▪ 2AX3000.....S530 List

DeviceNet ™ Network Board

For simple and robust communications on a CAN based protocol for connection to a host device. DeviceNet provides access to Configurable and Tunable Parameters that are updated every 100 msec, and Control and Reference Functions such as speed or torque commands, are updated every 5 msec. DeviceNet also allows monitoring and data logging for operation diagnostics or trending needs.



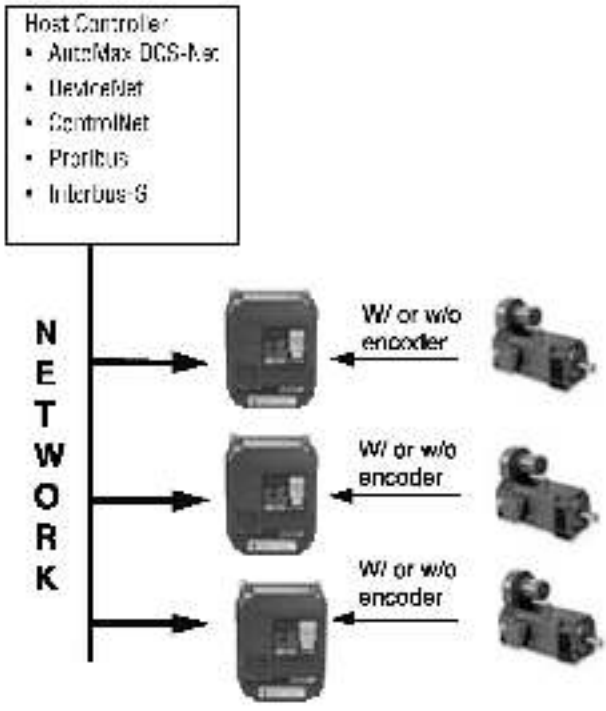
DeviceNet Network Board

Available as a Loose Kit only. The kit contains (1) Network Option Board, (1) 3.5" Floppy Disk containing an EDS file, (1) manual and (1) set of 4 mounting screws. Please note that this card mounts inside the GV3000/SE.

Instruction Manual: HE-HGV3DN
Model Number: ▪ 2DV3000.....S950 List

Network Applications

- Extrusion Systems
- Material Handling
  - Conveyor sections
  - Hoist & Trolley
  - Transfer lines
- Process Control
  - Flow & Pressure
  - Metering
  - Mixing
- Web Processing
  - Cascade/Draw/Radio
  - Dancer & Tension
  - Follower & Helper
  - Load Sharing
  - Unwind & Rewind



(1) Number 0 (zero) is Reference and will be visible on the control display.
▪ Normally stocked item.

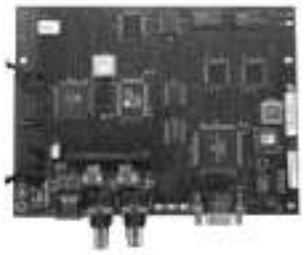
DISCOUNT VS-1AC

RELIANCE ELECTRIC

ControlNet ™ (Version 1.5) Network Board

The ControlNet Network Board mounts in a GV3000/SE drive, allowing it to communicate over the open ControlNet network. ControlNet is a highly deterministic and repeatable control layer network. It provides real-time high speed transport of time-critical I/O data and messaging data, all on one link. ControlNet is ideal for complex control systems that require synchronized and coordinated real-time performance.

ControlNet provides high speed updates to all scheduled reference and control data. It also provides access to all drive parameters through unscheduled traffic.



ControlNet Network Board

The board allows parameter configuration and tuning and has redundant A and B ports for critical applications.

Available as a loose kit only. This card mounts inside the GV3000/SE.(1)

Instruction Manual No. D2-3390
Model Number: ✱2CN3000.....$860 List

Interbus-S ™ Network Board

The Interbus-S Network Card allows the GV3000/SE to communicate over the Interbus-S network. This card allows the GV3000/SE to be controlled and monitored over the network.

Available as a loose kit only. This card mounts inside the GV3000/SE.(1)

Instruction Manual No.: 49-1338
Model Number: ✱2NB3000.....$880 List

Profibus ™ Network Board

The Profibus Network Board allows the GV3000/SE to communicate over the Profibus network. This card allows the GV3000/SE to be controlled and monitored over the network.

Available as a loose kit only. This card mounts inside the GV3000/SE.(1)

Instruction Manual No.: 49-1355
Model Number: ✱2PB3000.....$1050 List

(1) Requires (2) cards. Ordered and shipped as individual cards.
✱ Specify series letter.

DISCOUNT VS-1AC

OPERATOR INTERFACE & VECTOR DUTY ENCODER FEEDBACK CABLES

Operator Interface Module (OIM)

To allow remote keypad operation or when parameter text display is desired, the OIM provides a user-friendly LCD display and additional features. Communication between the drive and OIM Module is performed serially over RS-232. A dedicated connector just above the 9-pin D-shell connector on the drive provides the OIM connection. Note that only one device may be connected at one time to either of these RS-232 port connections.

Operation features:

- NEMA 12 rated when installed on an enclosure door or remote station.
- 5 Languages to choose from
  English, German, Spanish, Italian & French
- Quick Start Menu for fast setup
- Monitor Mode or Program Mode Selection
  - Display 2, 4 or 6 values at one time
  - Text displays Programming Functions
- Help features simplify setup programming

Hardware included:

- OIM Display & Keypad Assembly
- 6 Meter Serial Cable
- Gasket
- 2 Mounting Screws and Hex Nuts
- Bezel

Operator Interface (OIM) Module

Operator Interface Module Display

Available as a loose kit only. Please note that local mounting onto the drive chassis is not possible except on 200 HP to 400 HP enclosures. When installed, the standard drive keypad remains on the drive and remains operational as the LOCAL control.

Instruction Manual No. D2-3342
Model Number: ✳ 2RK3000.....$470 List

Encoder Feedback Cables

For flux vector operation, these cable kits simplify the installation process.

Connector Type	Encoder Mfr. & Series	Cable Length	Cable Model Number	List
15 Pin HD	Dynapar HS35 Series	25	✳ 2TD3025	$185
		75	✳ 2TD3075	310
15 Pin HD	Hengstler, -A Series	25	✳ 2TD4025	185
		75	✳ 2TD4075	345
Cable only (MS connector not included)	Dynapar HS35, Hengstler RI Resolver	100	✳ 2TD4100	345
		300	✳ 2TD4300	810

✳ Where ✳ = connector type

DISCOUNT VS-1AC

SOFTWARE PROGRAMMING & RS-232 CABLES

CS3000 Control & Configuration Software

This is a Windows based software package which allows drive control and configuration via the standard 9-pin D-Shell RS-232 port. The user is allowed to create, store, upload, download, monitor, control and/or compare parameter values in a user-friendly environment. CS3000 runs under Windows 3.1/9x/NT/2000.

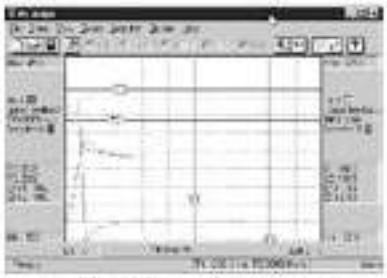
Configuration and operation of the drive from a PC provides the flexibility and power desired by today's sophisticated users and OEMs alike.

- Compare: allows quick verification of any changed parameters. Differences are displayed on the PC and may be printed.
- Edit: allows programming via PC.
- Download/Upload
- Drive Control:
  Monitors 6 display values:
  - Speed Reference (scalable)
  - Motor Speed
  - Motor Current
  - Motor Volts
  - Motor Torque (%)
  - Output Power (kW)
- Configured Displays are
  - Speed Reference
  - Local/Terminal/Serial/Network
  - Auto/Manual Mode
  - Fwd/Rev Direction
- Operational Keys Displayed
  - Run, Jog, Stop and Reset
- Fault/Alarm Log: allows fault and alarm history for diagnosis of operation
- PC Scope feature: allows monitoring and trace of top drive parameters for diagnostics and tuning of the drive. Captured data can also be saved as an ASCII text file or can be compared to previous traces. (1)
- Vector Drive Tuning: allows the user (for GV3000/SE in Vector Mode only) to fine tune the torque/flux loop gains and the speed loop gains to the application.

(1) Requires version 6.0 or higher registration

Provided on a 3.5" diskette with manual. Note that this software is also compatible with Reliance Electric FlexPak 3000 DC drives and LiquiFlo AC drives.

Instruction Manual No. D2-3348
Model Number: ✳ 2CS3000 ..... $350 List



PC Scope Screen From CS3000

Configuration Editor Screen From CS3000

CS3000 RS-232 Computer Cable

The 9 pin to 9 pin D-shell connectors on this cable allow connection between a laptop or notebook-style PC and the GV3000/SE RS-232 port. This is a standard industrial RS-232 cable, 10 ft. length.
Model Number: ✳ 2CA3000 ..... $120 List

AutoMax RS-232 Adapter Cable

The 25 pin to 9 pin D-shell connections on this cable adapt from the standard AutoMax cable (Model Number 61C127) with a 25 pin connection to the GV3000/SE 9 pin RS-232 port.
Model Number: ✳ 2CA3001 ..... $120 List

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BRAKING, LOOSE SNUBBER RESISTOR KITS FOR GV3000/SE BOOKSHELF

Resistor Sizing Data for GV3000/SE Bookshelf Drives with Built-In Braking Transistor
(Maximum Braking Power and Permitted Braking Resistors)

GV3000/SE Bookshelf Model Number	Maximum Drive Input Voltage	Turn-on Voltage [1]	Turn-off Voltage [2]	Maximum Braking Current	Resistor Minimum Ohms	Braking Power Continuous	Braking Power @ 25% Duty Cycle
2[illegible]	460	750	720	6 Amps	125	4500 W	4500 W
3[illegible]	460	750	720	6 Amps	125	4500 W	4500 W
5[illegible]	460	750	720	6 Amps	125	4500 W	4500 W
7[illegible]	460	750	720	6 Amps	125	4500 W	4500 W
125[illegible]	460	750	720	10 Amps	75	7500 W	7500 W
150[illegible]	460	750	720	10 Amps	75	7500 W	7500 W
240[illegible]	460	750	720	15 Amps	50	11250 W	11250 W
300[illegible]	460	750	720	20 Amps	37.5	15000 W	15000 W
420[illegible]	460	750	720	30 Amps	25	22500 W	22500 W

[1] Turn-on and Turn-off voltages will be proportional to the braking transistor in the GV3000/SE.

Use the pre-packaged Snubber Resistor Braking Kits in the table below or contact a local snubber resistor supply house for alternate size loose resistors for panel mounting.

Snubber Resistor Kit Sizing for GV3000/SE Bookshelf

Snubber Resistor Kits can be connected to the GV3000/SE Bookshelf drive's built-in braking transistor for dissipation of regenerative energy as heat. By selecting the proper resistor, the user can optimize the braking performance of the drive package.

Note: Resistor maximum "On" rating is 60 seconds.

Model Number M3575RH8B
Snubber Resistor Kit

GV3000/SE Bookshelf Model Number	Braking HP	Braking Duty Cycle	Snubber Resistor Module Model Number	Cabinet Dimen. (inches) (inches) W x H x D	Peak Braking Watts	Continuous Braking Watts	Resistor Load Ohms	Amp Rating	List
3[illegible] 5[illegible] 7[illegible] 125[illegible] 150[illegible] 240[illegible] 300[illegible] 420[illegible]		6%	* M3575RH[illegible]	4 x 12.75 x 8.7	745	50	750	1	559
	1	20%	* M3575RH[illegible]	4 x 12.75 x 8.7	745	150	750	1	634
	2	6%	* M3575RH2M	4 x 12.75 x 8.7	1489	100	375	2	736
	2	20%	* M3575RH2M	4 x 12.75 x 8.7	1489	300	375	2	808
	3	6%	* M3575RH3M	4 x 12.75 x 8.7	2978	150	250	3	788
	3	20%	* M3575RH3M	4 x 12.75 x 8.7	2978	450	250	3	942
	4	6%	* M3575RH4M	7 x 12.75 x 8.7	2954	200	125	4	855
	4	20%	* M3575RH4M	7 x 12.75 x 8.7	2954	600	125	4	1,025
	5	6%	* M3575RH5F	4 x 17.75 x 8.7	4000	250	100	5	865
	5	20%	* M3575RH5F	4 x 17.75 x 8.7	4000	750	100	5	1,050
	6	6%	* M3575RH6M	7 x 12.75 x 8.7	4476	300	100	6	958
	6	20%	* M3575RH6M	7 x 12.75 x 8.7	4476	900	100	6	1,123
1[illegible] 2[illegible] 3[illegible] 4[illegible] 5[illegible] 6[illegible]	5	6%	* M3575RH5F	4 x 17.75 x 8.7	5000	300	80	8	973
	5	20%	* M3575RH5F	4 x 17.75 x 8.7	5000	1250	80	8	1,138
	6	6%	* M3575RH6M	10 x 12.75 x 8.7	5214	350	57	9	1,128
	6	20%	* M3575RH6M	10 x 12.75 x 8.7	5214	1050	57	9	1,391
240[illegible] 300[illegible] 420[illegible]	10	6%	* M3575RH10S	7 x 17.75 x 8.7	5000	400	50	11	1,128
	10	20%	* M3575RH10S	7 x 17.75 x 8.7	5000	1200	50	11	1,416
300[illegible] 420[illegible]	15	6%	* M3575RH15S	7 x 17.75 x 8.7	12000	600	45	13	1,140
	15	20%	* M3575RH15S	7 x 17.75 x 8.7	12000	1800	45	13	1,442
420[illegible]	20	6%	* M3575RH20S	10 x 17.75 x 8.7	15000	800	30	21	1,257
	20	20%	* M3575RH20S	10 x 17.75 x 8.7	15000	2400	30	21	1,676

* Denotes current release.

DISCOUNT VS-1AC

BRAKING, LOOSE SNUBBER TRANSISTOR KITS & SNUBBER RESISTOR KITS

Snubber Transistor Braking Kits - Transistor Only, Protected Enclosure (IP20) Type

For deceleration of high inertia loads as well as for correction of speed command overshoot. Snubber Transistor Braking Kits provide the circuitry needed to connect to the DC bus and to a matched resistor package for regulation of regenerative energy.

These snubber transistor circuits are packaged in wall mountable, protected enclosures with IP20 type connections.

Note: Maximum "On" rating is 60 seconds with a 20% duty cycle.

AC Line Voltage	Snubber Model Number	Amps DC Max	Minimum Load Ohms	Cabinet Style	List
230	M3575T_15	15	25	M3	$1,339
	M3575T_30	30	12.5	M4	1,671
	M3575T_60	60	6.25	M4	1,854
	M3575T_125	125	3	B5	2,070
	M3575T_180	180	2.5	B5	3,682
460	M3575TH15	15	50	M3	1,339
	M3575TH30	30	25	M4	1,671
	M3575TH60	60	12.5	M4	1,854
	M3575TH125	125	6	B5	2,070
	M3575TH180	180	5	B5	3,682
	M3575TH250	250	4.5	B7	4,120
	M3575TH370	370	2.5	B7	4,429
	M3575TH500	500	1.25	D7	6,098

Model Number M3575TH30 Snubber Transistor Kit and Model Number M3575RH8B Snubber Resistor Kit

Cabinet Style	Enclosed Dimensions - Inches			
	Style	Width	Height	Depth
M3	Wall	3.00	12.75	5.70
M4	Wall	4.00	12.75	5.70
M7	Wall	7.00	12.75	5.70
M10	Wall	10.00	12.75	5.70
B4	Wall	4.00	17.75	5.00
B5	Wall	5.38	17.75	5.00
B7	Wall	7.00	17.75	5.00
B10E	Wall	10.00	17.75	11.70
D1	Floor	20.00	38.00	22.00
D7	Floor	26.00	47.00	22.00
D9	Floor	26.00	56.00	22.00

Snubber Resistor Kits - Resistor Only, Protected Enclosure (IP20) Type

Snubber Transistor Kits require a resistor for dissipation of regenerative energy as heat. By selecting the proper resistor, the user can optimize the braking performance.

Note: Maximum "On" rating is 60 seconds.

Braking HP	Duty Cycle	Snubber Resistor Module Model Number	Use with Transistor Module Model Number	Cabinet Style	Braking Watts		Fused Ohms	Amps Rating	List
					Peak	Cont			
			230 V Snubber Resistor Kits						
½	5%	M3575R_2M	M3575T_15	M4	240	30	67	2	$380
½	20%	M3575R_12F	M3575T_15	M4	240	150	133	2	851
2	5%	M3575R_2M	M3575T_30	M4	960	120	66	4	786
2	20%	M3575R_12F	M3575T_30	M4	960	600	33	4	1,131
3	5%	M3575R_3M	M3575T_15	M4	2263	150	63	6	788
3	5%	M3575R_3S	M3575T_30	B4	2263	150	63	6	721
3	20%	M3575R_18F	M3575T_15	M4	2263	750	63	6	1,127
5	20%	M3575R_18F	M3575T_30	B4	3840	1200	33	8	970
7½	5%	M3575R_12M	M3575T_30	M7	5531	600	40	8	855
7½	20%	M3575R_12F	M3575T_30	M7	5531	3000	20	8	1,025
5	5%	M3575R_9S	M3575T_30	B4	9870	600	38	12	788
5	20%	M3575R_12F	M3575T_30	B4	9870	3000	20	12	832
8	5%	M3575R_12M	M3575T_30	M7	14476	800	32	12	968
8	20%	M3575R_12F	M3575T_30	M7	14476	4000	16	12	1,123
4	5%	M3575R_6S	M3575T_15	B4	5760	300	25	15	814
8	20%	M3575R_18F	M3575T_30	B4	9868	1200	25	15	980
4	5%	M3575R_6M	M3575T_15	M7	5760	600	25	15	1,023
10	20%	M3575R_18F	M3575T_30	M7	14760	6000	10	15	1,398
10	5%	M3575R_12M	M3575T_30	B7	14760	6000	10	20	922
15	20%	M3575R_18F	M3575T_30	B7	22140	9000	6.7	20	1,158
15	5%	M3575R_18M	M3575T_30	B7	22140	9000	6.7	20	1,051
15	20%	M3575R_36F	M3575T_30	B7	22140	9000	6.7	20	1,232
20	5%	M3575R_24M	M3575T_30	B10	29520	12000	5	25	1,262
20	20%	M3575R_24F	M3575T_30	B10	29520	12000	5	25	1,571
			460V Snubber Resistor Kits						
½	5%	M3575R_9M	M3575TH15	M4	240	30	267	1	$845
½	20%	M3575R_18F	M3575TH15	M4	240	150	133	1	884
2	5%	M3575R_9M	M3575TH15	M4	960	120	133	2	736
2	20%	M3575R_18F	M3575TH15	M4	960	600	133	2	889
3	5%	M3575R_9M	M3575TH15	M4	2263	150	253	3	788
3	5%	M3575R_9S	M3575TH30	M4	2263	150	253	3	807
3	20%	M3575R_18F	M3575TH15	M4	2263	750	253	3	1,127
5	20%	M3575R_18F	M3575TH30	M7	3840	1200	80	5	1,005
7½	5%	M3575R_18M	M3575TH15	M7	5531	600	80	8	1,023
7½	20%	M3575R_18F	M3575TH15	M7	5531	3000	40	8	1,198
5	5%	M3575R_9S	M3575TH15	B4	9870	600	38	12	788
5	20%	M3575R_18F	M3575TH15	B4	9870	3000	20	12	832
8	5%	M3575R_18M	M3575TH15	M7	14476	800	32	12	968
8	20%	M3575R_18F	M3575TH15	M7	14476	4000	16	12	1,123
10	5%	M3575R_18M	M3575TH15	B7	22140	6000	10	20	922
10	20%	M3575R_36F	M3575TH15	B7	22140	9000	6.7	20	1,158
15	5%	M3575R_24M	M3575TH30	B7	29520	12000	5	25	1,262
15	20%	M3575R_24F	M3575TH30	B7	29520	12000	5	25	1,571
20	5%	M3575R_36M	M3575TH30	B10	39360	16000	3.8	30	1,578
20	20%	M3575R_36F	M3575TH30	B10	39360	16000	3.8	30	1,788
25	5%	M3575R_60M	M3575TH30	B10	51200	20000	2.5	40	1,714
25	20%	M3575R_60F	M3575TH30	B10	51200	20000	2.5	40	1,988
30	5%	M3575R_60M	M3575TH30	D1	61440	24000	2.5	40	2,301
30	20%	M3575RH12_2F	M3575TH30	D2	61440	24000	2	50	2,685
40	20%	M3575RH12_2F	M3575TH30	D2	81920	32000	1.5	60	3,991

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(1) List price is for the resistor module only.

(2) Normally carried in stock.

DISCOUNT VS-1AC

BRAKING, PRE-PACKAGED SNUBBER TRANSISTOR/RESISTOR KITS

Complete Snubber Transistor Resistor Brake Kits NEMA 1 Enclosed

For Deceleration of High Inertia Loads as well as for correction of speed command overshoot. Snubber Resistor Kits dissipate excess DC Bus energy into heat, thereby allowing quick step change commands in both acceleration and deceleration.

Snubber Resistor Kits include both the transistor circuitry and resistor elements in a wall mountable open ventilated enclosure.

Note: Maximum "On" rating is 60 seconds.

For sizing instructions, refer to the calculations on page D-xx.

Snubber Resistor Module

Style	Enclosed Dimensions		
	Height	Width	Depth
B	18.2 (476)	9.5 (241)	8.5 (216)
C	18.2 (476)	13.5 (343)	10.5 (267)

Inches (mm)

Drive Rating	Snubber Model Number	Cabinet Style	Resistance Value	Cont. Watt Dissipation	Instant. Watt Dissipation	Continuous Duty Cycle	List
1 HP, 230 V	⊗ 2SS20402	C	30	400	4,000	50%	$2,580
2 HP, 230 V	⊗ 2SS20402	B	30	400	4,000	50%	2,568
	⊗ 2SS20602	C	20	600	6,000	50%	2,827
3 HP, 230 V	⊗ 2SS20402	B	30	400	4,000	50%	2,568
	⊗ 2SS20602	C	20	600	6,000	50%	2,827
	⊗ 2SS21202	B	10	1,200	12,000	50%	2,925
5 HP, 230 V	⊗ 2SS20602	C	20	600	6,000	50%	2,827
	⊗ 2SS21202	B	10	1,200	12,000	50%	2,925
	⊗ 2SS21402	C	5	1,400	14,000	50%	3,744
7.5 HP, 230 V	⊗ 2SS21202	B	10	1,200	12,000	50%	2,925
	⊗ 2SS21402	C	5	1,400	14,000	50%	3,744
10 HP, 230 V	⊗ 2SS21202	B	10	1,200	12,000	20%	2,925
	⊗ 2SS21402	C	5	1,400	14,000	40%	3,744
1 HP, 460 V	⊗ 2SS40402	B	120	400	4,000	50%	2,699
2 HP, 460 V	⊗ 2SS40402	B	120	400	4,000	50%	2,699
	⊗ 2SS40602	B	75	600	6,000	50%	2,833
3 HP, 460 V	⊗ 2SS40402	B	120	400	4,000	50%	2,699
	⊗ 2SS40602	B	75	600	6,000	50%	2,833
	⊗ 2SS41202	B	40	1,200	12,000	50%	3,165
5 HP, 460 V	⊗ 2SS40602	B	75	600	6,000	20%	2,833
	⊗ 2SS41202	B	40	1,200	12,000	50%	3,165
	⊗ 2SS41302	C	25	1,300	13,000	50%	3,998
7.5 HP, 460 V	⊗ 2SS41202	B	40	1,200	12,000	50%	3,165
	⊗ 2SS41302	C	25	1,300	13,000	50%	3,998
10 HP, 460 V	⊗ 2SS41202	B	40	1,200	12,000	20%	3,165
	⊗ 2SS41302	C	25	1,300	13,000	40%	3,998
15 HP, 460 V	⊗ 2SS41402	C	25	1,400	14,000	20%	3,966
20 HP, 460 V	⊗ 2SS41302	C	25	1,300	13,000	20%	3,998
5 HP, 575 V	⊗ 2SS31202	B	50	1,200	12,000	40%	3,579
10 HP, 575 V	⊗ 2SS31202	C	50	1,200	12,000	20%	3,579

⊗ Not UL Listed or CSA Certified

DISCOUNT VS-1AC

RELIANCE ELECTRIC

BRAKING, LOOSE SNUBBER TRANSISTOR KITS & RESISTOR INFORMATION

Snubber Transistor Braking Kits - Transistor Only, Enclosed Chassis

For deceleration of high inertia loads as well as for correction of speed or manual overshoot. Snubber Transistor Braking Kits provide the circuitry needed to connect the drive's DC bus to a matched resistor package for regulation of regenerative energy.

Model Number M3452H15087 Snubber Transistor Kit

These snubber transistor circuits are designed to be utilized in engineered applications. Matching the appropriate resistor package then allows the user to optimize the braking capacity of the snubber based on peak and continuous loads. Be sure to follow the minimum resistance values provided in the table. Using resistances lower than the published data will result in excess current being allowed through the circuit and damaging the snubber transistor.

AC Line Voltage	Snubber Model Number	Max Amps DC	Min. Ohms	Max. On Time	UL Listed	Cabinet Style(1)	List
230	25T2003	No longer available, see page D-66 for alternate selections					
	25T2004	No longer available, see page D-66 for alternate selections					
460	25T4003	No longer available, see page D-66 for alternate selections					
	25T4007	No longer available, see page D-66 for alternate selections					
	25T4075	No longer available, use M3452H7587					
	M3452H7587	75	9	Continuous	Yes	B7	2,380
	25T4125	No longer available, use M3452H15087					
	25T4150	No longer available, use M3452H15087					
	M3452H15087	150	5	Continuous	Yes	B7	4,272
	25T4200	No longer available, use M3452H20K2					
	M3452H20K2	200	3.3	Continuous	Yes	K2	4,746
	25T4300	No longer available, use M3452H30K2					
	M3452H30K2	300	2.5	Continuous	Yes	K2	5,128
	M3452H60K6	600	.25	60 Seconds	Yes	K7	6,606

(1) See page D-68 for Cabinet Dimensions

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Snubber Resistor Selection Information - For use with the Snubber Transistor Kits

Snubber Transistor Kits require a resistor for dissipation of regenerative energy as heat. By selecting the proper resistor the user can optimize the braking performance of the drive system. The following table provides resistor sizing information based on application horsepower and duty cycle. Resistors must be purchased from the selection on page D-65 or from a local resistor supply house.

HP	Duty	Snubber Transistor Model Number	Resistor Min. Ohms	Resistor Max. Ohms	Approx. Resistor KW
230 Volt Drive Snubber Resistor Sizing					
1.5 7-1/2 - 10 15 HP		See page D-36 for transistor and resistor selection			
460 Volt Drive Snubber Resistor Sizing					
1.5 7-1/2 - 10 15 HP		See page D-36 for transistor and resistor selection			
40-60	20%	M3452H7587	6	50	9
	40%	M3452H7587	6	20	37
	100%	M3452H7587	6	12	45
75-100	20%	M3452H7587	6	35	15
	40%	M3452H7587	6	12	45
	100%	M3452H15087	5	7	75
125-200	20%	M3452H15087	5	17	40
	40%	M3452H15087	5	6	80
	100%	M3452H30K2	2.2	4	90
250	20%	M3452H7587	6	11	37
	40%	M3452H15087	5	7	75
	60%	M3452H15087	5	6	112
	80%	M3452H30K2	2.2	4	90
	100%	M3452H30K2	2.5	3	187
300	20%	M3452H7587	6	17	45
	40%	M3452H15087	5	3.5	90
	60%	M3452H15087	5	3.5	112
	80%	M3452H30K2	3.3	4	135
	100%	M3452H60K6	2.5	3	224
400	20%	M3452H7587	6	11	52
	40%	M3452H15087	5	5.5	104
	60%	M3452H30K2	2.5	4	157
	80%	M3452H60K6	2.5	3	205
450	20%	M3452H15087	5	9	80
	75%	M3452H60K6	2.5	3	225

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BRAKING, LINE REGENERATION

Line Regeneration Modules

As in snubber braking, Line Regeneration modules allow for the dissipation of high DC bus voltages to provide braking of high inertia loads at the motor. In this case, however, energy is supplied back to the incoming power line. The benefit of line regeneration is the elimination of the braking resistors and the heat they develop, as well as recovering the energy to reduce power consumption. Fuses come as standard on both the 3-phase AC input connections, as well as DC connections.

Adjustments include:
- Voltage Trip
- Bus Limit
- Overload Limit

Protection features include:
- AC Line Phase Loss
- AC Line Undervoltage
- Current Limit
- DC Bus Overload
- Thermal Overload

For instructions on sizing, see page D-xvi.

AC Line Volts	Module Model Number	RMS DC Amps	w/o Fan Option		w/Fan	List
			40 sec. KW	Cont. KW	Cont. KW	
230V	✻1RG20075	30	7	4	7	$5,355
	✻1RG20155	60	7	4	7	$,499
	✻1RG20225	90	14	4	10	$,511
	✻1RG20455	180	14	4	12.5	$,210
460V	✻1RG40075	15	7	4	7	$,974
	✻1RG40155	30	14	4	12.5	$,541
	✻1RG40225	45	21	4	12.5	$,722
	✻1RG40455	90	28	4	12.5	$,476
	✻1RG40750	150	42	37.5	Consult	$,081
	✻1RG41050	180	56	37.5	Consult	$,236

Line Regeneration Module

	Regeneration Module Dimensions				Weight
	Amp Rating	Height	Width	Depth	
w/ Fan Option	15, 30, 60, 90	17.5 (444)	16.2 (411)	8.2 (211)	45 (59)
	15, 30, 60, 90	17.5 (444)	18.5 (470)	8.2 (211)	58 (117)
w/Fan Option	180	20 (508)	23 (584)	10.4 (264)	115 (264)

Inches (mm)
pounds (kg)

Fan Kit for Regeneration Modules

Increases the continuous current ratings as shown in the "w/Fan" column above.
Model Number: ✻1RG10000 ..... S474 List

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CE COMPLIANCE

Compliance to CE Directives

Compliance to the following European Community standards can be met when the listed options are installed along with the GV3000/SE drive product and while following installation guidelines in the instruction manual.

EN5008-1 Electromagnetic compatibility - generic standard.
Part 1: residential, commercial, and light industry.

EN5008-2 Electromagnetic compatibility - generic immunity.
Part 2: Industrial Environment

Compliance Requirements

Compliance is maintained by fitting the GV3000/SE with a Reliance Electric Mains Filter [1] and following installation guidelines below. Refer also to the drive instruction manual.

- Motor leads must not exceed 250 ft. from the drive
- Motor leads must be 3 conductor plus a ground wire, screened or armored cables, or run in a rigid conductive conduit and electrically connected to both the GV3000/SE and the motor
- Remote operator controls and signal wiring must be either screened or armored cables, or run in a rigid conductive conduit. The operator station must be electrically conductive as well.

Mains Filters

Filter selections vary between GV3000/SE models to best accommodate each frame style available. Refer to the drive model numbers shown in the table to identify the filter option required to comply with CE [1].

Incoming power is connected to the input of each Mains Filters, with output connections from the filter connected to terminals L1, L2 and L3 of the GV3000/SE.

GV3000/SE Model Number	Mains Filter Model Number	Mounting Configuration	Filter List
25V4160 50V4160 60V4160 75V4160	⊕ 2CK4785	mounts under drive chassis	$580
25V4160 10D4160	⊕ 2CF4128	mounts under drive chassis	765
1D04160 2D04160 3D04160	⊕ 2CK4785	mounts under drive chassis	2080
5D04160 7D04160 10D4160 15D4160 20D4160	⊕ 2CF4128[3]	mounts under drive chassis[2]	1,085
30D4160 75V4080	use 75T4160	N/A	-
75T4160	Standard	mounts internal	
75V4080 100V4080	-	-	-
125T4160	⊕ 2CF4125	mounts remote	6,830
125V4080 150V4080 200V4080	-	-	-
200V4160 250V4160 300V4160 350V4160 400V4160	-	-	-

Technical Data for GV3000/SE Mains Filter

Filter Model Number	Dimensions Height	Width	Depth	Watt Loss	Amps Cont.
2CK4785	13.2 (335)	8.6 (217)	3 (78)	46	92
2CF4128[3]	17.3 (440)	10.7 (272)	2 (50)	45	22
2CK4785	29.5 (679)	10.7 (272)	3.6 (91.5)	46	92
2CF4126	37.7 (958)	14.1 (335.5)	3.6 (91.5)	75	100
2CK4125	29.5 (684)	9.8 (249)	5.31 (135)	97	250

(1) [illegible]

Cover Kit [1] (For 25-60 HP GV3000/SE)

A non-ventilated cover for GV3000/SE control models numbers 25V4160 through 60D4160. This cover must be used in conjunction with a Mains Filter in order to comply with CE requirements.

Model Number: ⊕ 2CK4160.....$350 List

(1) Cover Kit 2CK4160 must also be used in conjunction with the Mains Filter (for drive model numbers 25V4160 thru 60D4160 only) to comply with CE requirements.

(2) Filament from the assembly.

RECOMMENDED MOTOR LEAD LENGTHS FOR GV3000/SE DRIVES

To reduce line disturbances and noise, motor lead length should not exceed 75 meters (250 feet) for any non-Reliance Electric motor or any non-inverter duty motor.

When total lead length exceeds 75 meters (250 feet), nuisance trips can occur caused by capacitive current flow to ground. Note that these capacitively-coupled currents should be taken into consideration when working in areas where drives are running. If the motor lead length must exceed these limits, the addition of output line reactors or other steps must be taken to correct the problem. Refer to the table titled Compatible Reactors below for a list.

For Reliance Electric inverter duty motors, use the recommended lead lengths shown in the table below as a guideline.

Your application may be restricted to a shorter lead length due to:

- the type of wire
- the placement of wire (for example, in conduit or a cable tray)
- the type of line reactor
- the type of motor

Recommended Motor Lead Lengths for Reliance Electric Inverter Duty Motors

GV3000/SE HP Rating	Filter Type	Maximum Lead Length in Feet with 460 VAC Motor		
		Carrier Frequency		
		2 kHz	4 kHz	8 kHz
1 to 2	None	500	500	500
3 to 5		500	500	500
7.5 to 10		500	500	500
15 to 20		500	500	500
25 to 30		500	500	500
40 to 100		500	500	500
125 to 150		500	500	500
200 to 400		1000	1000	1000
1 to 2	0.5% impedance reactor	1000	1000	1000
3 to 5		1000	1000	1000
7.5 to 10		1000	1000	1000
15 to 20		1000	1000	1000
25 to 30		1000	1000	1000
40 to 100		1000	1000	1000
125 to 150		1000	1000	1000
200 to 400		1000	1000	1000

GV3000/SE Compatible Reactors

GV3000/SE HP Rating	460 Volt 5% Reactor
1	RL-00202
2	RL-00402
3	RL-00702
5	RL-01002
7.5	RL-01502
10	RL-02002
15	RL-03502
20	RL-04502
25	RL-05502
30	RL-06502

GV3000/SE HP Rating	460 Volt 3% Reactor
50	TL-08003
60	RL-08003
75	TL-10003
100	RL-13003
125	TL-16003
150	RL-19003
200	TL-25003
250	RL-32003
300	TL-40003
350	RL-45003
400	TL-50003

Standard reactors can be used on GV3000/SE drives with carrier frequency settings up to 8 kHz.
All reactors listed are UL-recognized (UL-506 File #E59184) and CSA certified (CSA File #: LR29753). They are available from MTE Corporation.