VS1GV Vector Drive

1 thru 3 Hp **115/230 VAC** **1 Phase - 50/60 Hz**
1 thru 60 Hp **230 VAC** **3 Phase - 50/60 Hz**
1 thru 1000 Hp **460 VAC** **3 Phase - 50/60 Hz**
1 thru 300 Hp **600 VAC** **3 Phase - 50/60 Hz**

Applications: Constant torque or constant horsepower applications. New installations, replacements and original equipment manufacturers (OEM).

Features: NEMA 1 and NEMA 4 enclosure. Output frequency 0 to 500 Hz with peak overload capacity of 175%. Digital speed or torque control. Built-in two and three input PID process control loop. Automatic tuning to motor and full rated torque down to zero speed.

Input Ratings	Voltage	115	230	230	460	600
	Voltage Range	95-130	180-264	180-264	340-528	515-660
	Phase	Single Phase		Three Phase (single phase with derating)		
	Frequency	50/60Hz +5%				
	Impedance	1% minimum from mains connection				
Output Ratings	Horsepower	1-3 Hp @ 115/230VAC, 1PH; 1-60 Hp @ 230VAC, 3PH; 1-1000 Hp @ 460VAC, 3PH; 1-300 Hp @ 575VAC, 3PH				
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds				
		Normal Duty (Variable Torque) = 115% for 60 seconds				
	Frequency	0-500Hz				
	Voltage	0 to maximum input voltage (RMS) (Note: 0 to 230 V for 115 V Single Phase Units)				
Protective Features	Trip	Missing control power, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload, encoder loss.				
	Stall Prevention	Over voltage suppression, overcurrent suppression				
	External Output	LED trip condition indicators, 4 assignable logic outputs, 2 assignable analog outputs				
	Short Circuit	Phase to phase, phase to ground				
	Electronic Motor Overload	Meets UL508C (I^2T)				
Environmental Conditions	Temperature	-10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C. (NEMA 4X B-Frame -10-40°C)				
	Cooling	Forced air				
	Enclosure	NEMA 1 NEMA 4X				
	Altitude	Sea level to 3300 Feet (1000 Meters) Derate 2% per 1000 Feet (303 Meters) above 3300 Feet				
	Humidity	NEMA 1: 10 to 90% RH Non-Condensing NEMA 4X: To 100% RH Condensing				
	Shock / Vibration	1G / 0.5G at 10Hz to 60Hz				
	Storage Temperature	-10 to +65°C				
Keypad Display	Display	LCD Graphical 128x64 Pixel				
	Keys	14 key membrane with tactile feedback				
	Functions	Output status monitoring, Digital speed control, Parameter setting and display, Diagnostic and Fault log display, Motor run and jog, Local/Remote toggle, One-step tuning				
	LED Indicators	Forward run command, Reverse run command, Stop command, Jog active				
	Remote Mount	200 feet (60.6m) maximum from control, NEMA 4 Rated				
	Trip	Separate message and trace log for each trip, last 10 trips retained in memory				
Control Specifications	Control Method	Microprocessor controlled PWM output, selectable closed loop vector, encoderless vector or V/Hz inverter				
	PWM Frequency	Adjustable 1.5-5kHz STD, 5-16 kHz quiet				
	Frequency Setting	±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA or 0-20 mA; digital (keypad), Serial Comms/USB 2.0, and Modbus RTU standard				
	Accel/Decel	0-3600 seconds				
	Brake Torque	20% standard on Sizes AA and B, 1% standard on Size C, D, transistor only standard size E, F & G				
	Motor Matching	Automatic tuning to motor with manual override				
	PC Setup Software	MINT® WorkBench Software available using the USB 2.0 port for commissioning wizard, firmware download, parameter viewer, scope capture and cloning				
	Maximum Output Frequency	500 Hz				
	Selectable Operating Modes	Keypad, Standard Run, 2-Wire, Standard Run 3-Wire, 15 Preset Speeds, Fan Pump 2-Wire, Fan Pump 3-Wire, Process Control, 3-SPD ANA 2-Wire, 3-SPD ANA 3-Wire, Electronic Pot 2-Wire, Electronic Pot 3-Wire, Network Profile Run, Bipolar				
Motor Feedback	Feedback Type	Incremental encoder coupled to motor shaft; optional resolver feedback				
	Pulses/Rev	60-20,000 selectable, 1024 standard				
	Voltage Output	2 channel in quadrature, 5 VDC, differential				
	Marker Pulse	Required for position orientation				
	Power Input	5 VDC, 12 VDC, 300 mA maximum				
	Max. Frequency	4 MHz				
	Positioning	Buffered encoder pulse train output for position loop controller				
Analog Inputs	One Differential	±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign				
	One Single Ended	0 - 10 VDC, 11-bit				
	Input Impedance	80 kOhms (Volt mode); 500 Ohms (Current mode)				
Analog Outputs	Analog Outputs	2 Assignable				
	Full Scale Range	AOUT1 (0-5V, 0-10V, 0-20mA or 4-20mA), AOUT2 (+5V, +10V)				
	Source Current	1 mA maximum (volt mode), 20mA (current mode)				
	Resolution	9 bits				
Digital Inputs	Opto-isolated Inputs	8 Assignable, 1 dedicated input (Drive Enable)				
	Rated Voltage	10 - 30 VDC (closed contacts std)				
	Input Impedance	4.71 k Ohms				
	Leakage Current	10 mA maximum				
	Update Rate	16 msec				
Digital Outputs (2 Opto Outputs)	Rated Voltage	5 to 30VDC				
	Maximum Current	60 mA Maximum				
	ON Voltage Drop	2 VDC Maximum				
	OFF Leakage Current	0.1 mA Maximum				
	Output Conditions	31 Conditions				
Digital Outputs (2 Relay Outputs)	Rated Voltage	5 to 30VDC or 240VAC				
	Maximum Current	5A Maximum non-inductive				
	Output Conditions	31 Conditions				

VS1GV Closed Loop Vector
NEMA 1 Enclosure

Catalog Number	Size	Heavy Duty				Normal Duty				List Price	Mult. Sym.
		Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps		
115/230 Volts - Single Phase Input											
VS1GV61-1B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,545	EC
VS1GV62-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,744	EC
VS1GV63-1B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	1,943	EC
230 Volts - Three Phase Input											
VS1GV21-1B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,404	EC
VS1GV22-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,585	EC
VS1GV23-1B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,766	EC
VS1GV25-1B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	2,043	EC
VS1GV27-1B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	2,309	EC
VS1GV210-1B	B	10	7.5	28	49	15	11	42	52.5	3,138	EC
VS1GV215-1B	B	15	11	42	73.5	20	15	54	67.5	3,836	EC
VS1GV220-1B	B	20	15	54	94.5	25	18.7	68	85	4,895	EC
VS1GV225-1B	C	25	18.7	68	119	30	22.4	80	92	5,745	EC
VS1GV230-1B	C	30	22.4	80	140	40	29.8	104	120	7,564	EC
VS1GV240-1B	C	40	29.8	104	182	40	29.8	104	120	8,723	EC
VS1GV250-1B	D	50	37	130	228	60	45	154	177	11,170	EC
VS1GV260-1B	D	60	45	154	270	60	45	154	177	14,303	EC
460 Volts - Three Phase Input											
VS1GV41-1B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,915	EC
VS1GV42-1B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	1,989	EC
VS1GV43-1B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	2,075	EC
VS1GV45-1B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	2,340	EC
VS1GV47-1B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	2,690	EC
VS1GV410-1B	AA	10	7.4	14	24.5	10	7.5	14	17.5	3,055	EC
VS1GV415-1B	B	15	11	21	36.75	20	15	27	33.75	3,277	EC
VS1GV420-1B	B	20	15	27	47.25	25	18.7	34	42.5	3,979	EC
VS1GV425-1B	B	25	18.7	34	60	30	22	40	50	4,915	EC
VS1GV430-1B	C	30	22.4	40	70	40	29.8	52	60	5,851	EC
VS1GV440-1B	C	40	29.8	52	91	50	37.3	65	75	6,787	EC
VS1GV450-1B	C	50	37.3	65	114	60	44.8	77	89	8,426	EC
VS1GV460-1B	D	60	45	77	135	75	56	96	110	10,532	EC
VS1GV475-1B	D	75	56	96	168	100	75	124	143	12,340	EC
VS1GV4100-1B	D	100	75	124	217	125	93	156	179	14,255	EC
VS1GV4125-1B	D	125	93	156	273	125	93	156	179	15,106	EC
VS1GV4150-1T *	E	150	112	180	315	200	149	240	300	18,150	EC
VS1GV4200-1T *	E	200	149	240	420	250	187	302	378	24,200	EC
VS1GV4250-1T *	E	250	187	302	529	300	224	361	451	30,250	EC
VS1GV4300-1T *	F	300	224	361	632	350	261	414	476	33,511	EC
VS1GV4350-1T *	F	350	261	414	725	400	298	477	549	39,096	EC
VS1GV4400-1T *	F	400	298	477	835	450	336	534	614	44,681	EC
VS1GV4450-1T *	F	450	336	534	935	500	373	590	679	51,382	EC
VS1GV4500-1 *	F	500	373	590	1033	500	373	590	679	60,319	EC
VS1GV4600-1 *	G	600	450	690	1208	700	522	875	1006	CF	—
VS1GV4700-1 *	G	700	522	875	1531	800	600	975	1121	CF	—
VS1GV4800-1 *	G	800	600	975	1706	900	671	1095	1259	CF	—
VS1GV4900-1 *	G	900	671	1095	1916	1000	750	1202	1382	CF	—
VS1GV41000-1 *	G	1000	750	1202	2104	1000	750	1202	1382	CF	—

* VS1GV "-1T"; "-1" drives do not include an internal braking transistor. An integral braking resistor is not included.
CF = Contact Factory

NOTE: For higher HP Ratings, see pages 296-297 for information on the Baldor 18H Drives.

VS1GV Closed Loop Vector
NEMA 1 Enclosure

Catalog Number	Size	Heavy Duty				Normal Duty				List Price	Mult. Sym.
		Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps		
575 Volts - Three Phase Input											
VS1GV51-1B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	2,106	EC
VS1GV52-1B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	2,188	EC
VS1GV53-1B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	2,282	EC
VS1GV55-1B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	2,574	EC
VS1GV57-1B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	2,959	EC
VS1GV510-1B	AA	10	7.5	11	19.3	10	7.5	11	13.8	3,361	EC
VS1GV515-1B	B	15	11	17	29.8	20	15	22	27.5	4,213	EC
VS1GV520-1B	B	20	15	22	38.5	25	18.7	27	33.8	4,915	EC
VS1GV525-1B	B	25	18.7	27	47.2	30	22	32	40	6,202	EC
VS1GV530-1B	C	30	22.4	32	56	40	29.8	41	47	7,255	EC
VS1GV540-1B	C	40	29.8	41	72	50	37.3	52	60	9,128	EC
VS1GV550-1B	C	50	37.3	52	91	60	45	62	71	10,766	EC
VS1GV560-1B	D	60	45	62	109	75	56	77	89	11,585	EC
VS1GV575-1B	D	75	56	77	135	100	75	99	114	13,574	EC
VS1GV5100-1B	D	100	75	99	173	125	93	125	144	15,681	EC
VS1GV5125-1B	D	125	93	125	219	150	112	144	166	16,617	EC
VS1GV5150-1T *	E	150	112	144	252	200	149	192	240	19,950	EC
VS1GV5200-1T *	E	200	149	192	336	250	187	242	302	26,600	EC
VS1GV5250-1T *	E	250	187	242	423	300	224	289	361	33,250	EC
VS1GV5300-1T *	E	300	224	289	506	300	224	289	361	36,860	EC

* VS1GV E-frame drives include an internal braking transistor. An internal braking resistor is not included.

VS1GV Closed Loop Vector
NEMA 4 Washdown Enclosure

Catalog Number	Size	Heavy Duty				Normal Duty				List Price	Mult. Sym.
		Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps		
115/230 Volts - Single Phase Input											
VS1GV61-4B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,655	EC
VS1GV62-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,884	EC
VS1GV63-4B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	2,195	EC
230 Volts - Three Phase Input											
VS1GV21-4B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,504	EC
VS1GV22-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,713	EC
VS1GV23-4B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,996	EC
VS1GV25-4B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	2,309	EC
VS1GV27-4B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	2,869	EC
VS1GV210-4B	B-N4X	10	7.5	28	49	15	11	42	52.5	3,452	EC
VS1GV215-4B	B-N4X	15	11	42	73.5	20	15	54	67.5	4,220	EC
VS1GV220-4B	B-N4X	20	15	54	94.5	25	18.7	68	85	5,385	EC
460 Volts - Three Phase Input											
VS1GV41-4B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,995	EC
VS1GV42-4B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	2,115	EC
VS1GV43-4B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	2,393	EC
VS1GV45-4B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	2,738	EC
VS1GV47-4B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	3,319	EC
VS1GV410-4B	AA	10	7.4	14	24.5	10	7.4	14	17.5	3,511	EC
VS1GV415-4B	B-N4X	15	11	21	36.75	20	15	27	33.75	4,213	EC
VS1GV420-4B	B-N4X	20	15	27	47.25	25	18.7	34	42.5	4,916	EC
VS1GV425-4B	B-N4X	25	18.7	34	60	30	22	40	55	6,202	EC
575 Volts - Three Phase Input											
VS1GV51-4B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	2,194	EC
VS1GV52-4B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	2,326	EC
VS1GV53-4B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	2,632	EC
VS1GV55-4B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	3,012	EC
VS1GV57-4B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	3,651	EC
VS1GV510-4B	AA	10	7.5	11	19.3	10	7.5	11	13.8	3,862	EC
VS1GV515-4B	B-N4X	15	11	17	29.8	20	15	22	27.5	4,634	EC
VS1GV520-4B	B-N4X	20	15	22	38.5	25	18.7	27	33.8	5,407	EC
VS1GV525-4B	B-N4X	25	18.7	27	47.2	30	22	32	40	6,822	EC

Mounting Dimensions

Frame	Dimensions inches (mm)					Ap'x. Shpg. Wgt.
	Outside			Mounting		
	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Height Inches (mm)	Width Inches (mm)	lbs. (kg)
AA	12.27 (312)	7.97 (202)	8.21 (209)	11.75 (298)	7.38 (187)	20 (9.1)
B	18.00 (457)	9.10 (231)	9.77 (248)	17.25 (438)	7.00 (178)	30 (13.6)
C	22.00 (559)	9.10 (231)	9.77 (248)	21.25 (540)	7.00 (178)	60 (27.2)
D	28.00 (711)	11.50 (292)	13.00 (330)	27.25 (692)	9.50 (241)	120 (54.4)
E	42.81 (1087)	18.75 (476)	16.00 (406)	39.75 (1010)	15.75 (400)	250 (113.4)
F	86.56 (2199)	31.78 (i807)	2459 (625)	Floor Mount		915 (415)*
G	Consult Factory					
B-N4X	17.5 (444)	10.73 (273)	10.47 (266)	16.5 (419)	9.76 (248) or 7.88 (210)	3.2 (14.5)

Note: E-Frame dimensions include a 3.0" H x 17.5" W x 5.2" D conduit box which is removable for panel mount (chassis) applications.
Frame size F Drives supplied as standard for bottom entry of conduits. Top entry styles available in wider cabinet.
*VS1GV4300-1 weighs 825 lbs. (374 kg); all other F-Frame models are 915 lbs. (415 kg)