

VS1PM Permanent Magnet Drive

**10 Hp
10 thru 200 Hp**

**230 VAC
460 VAC**

**3 Phase - 50/60 Hz
3 Phase - 50/60 Hz**



Applications: Constant or Variable Torque Applications. New installations and original equipment manufactures (OEM).

Features: Exclusively for use with our RPMAC Interior Permanent Magnet Motors. Very high efficiency motor/drive packages. NEMA 1 Enclosures. Output frequency 0 to 66 Hz with peak overload capacity of 175%. Built-in two and three input PID process control loop. Automatically tuned to Baldor RPMAC Interior PM Motors. Uses same Graphic Keypad and Expansion Boards as the VS1SP/GV Families.

Output Ratings	Horsepower	10 HP @ 230VAC, 3PH; 10-200 HP @ 460VAC, 3PH
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds Normal Duty (Variable Torque) = 115% for 60 seconds
	Frequency	0-66 Hz
Input Ratings	Voltage	0-Maximum input voltage (RMS)
	Frequency	50 or 60 Hz ±5%
	Voltage	230 = 180-234 & 460 = 340-528
Control Spec	Phase	Three Phase (single phase with derating)
	Impedance	1% minimum from mains connection
	Control Method	Microprocessor controlled PWM, selectable closed loop vector
	PWM Frequency	Adjustable 4-5 kHz STD, 5-16 kHz quiet
	Speed 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
	Accel/Decel	0-3600 sec
	Brake Torque	20% standard on Sizes AA and B, 1% standard on Size C, D, E requires external resistor
	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	66 Hz
Motor Feedback Protective Functions	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
	Feedback Type	Resolver Feedback (Std.); Optional Incremental Encoder Feedback for VT Loads.
	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
Environmental Conditions	Electronic Motor Overload	Meets UL508C (I ² T)
	Temperature	10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C.
	Cooling	Forced air
	Enclosure	NEMA 1 (-1B, -1T)
	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
Keypad Display	Shock/Vibration	1G / 0.5G at 10Hz to 60Hz
	Storage Temperature	-10 to +65°C
	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
Analog Inputs	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
	One Differential	±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign
Analog Outputs	One Single Ended	0 - 10 VDC, 11-bit
	Input Impedance	80 kOhms (Volt mode); 500 Ohms (Current mode)
	Analog Outputs	2 Assignable
Digital Inputs	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
	Opto-isolated Inputs	8 Assignable, 1 dedicated input (Drive Enable)
	Rated Voltage	10 - 30 VDC (closed contacts std)
	Input Impedance	4.71 k Ohms
Digital Outputs (2 Opto Outputs)	Leakage Current	10 mA maximum
	Update Rate	16 msec
	Rated Voltage	5 to 30VDC
	Maximum Current	60 mA Maximum
	ON Voltage Drop	2 VDC Maximum
	OFF Leakage Current	0.1 mA Maximum
Digital Outputs (2 Relay Outputs)	Output Conditions	31 Conditions
	Rated Voltage	5 to 30VDC or 240VAC
	Maximum Current	5A Maximum non-inductive
	Output Conditions	31 Conditions

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

VS1PM Permanent Magnet Drive Output Ratings

Catalog Number	Size	Heavy Duty			Normal Duty			List Price	Mult. Sym.
		Hp/kW	Continuous	Peak	Hp/kW	Continuous	Peak		
460 Volts - Three Phase									
VS1PM410-1B	AA	10/7.5	11.9	20.8	10/7.5	11.9	13.7	3,055	EC
VS1PM415-1B	B	15/11	17.9	31.2	20/15	23.0	26.4	3,830	EC
VS1PM420-1B	B	20/15	23.0	40.2	25/18.7	28.9	33.2	4,469	EC
VS1PM425-1B	B	25/18.7	28.9	50.6	30/22	34.0	39.1	5,638	EC
VS1PM430-1B	C	30/22	35.2	61.6	40/30	45.1	51.9	6,596	EC
VS1PM440-1B	C	40/30	44.2	77.4	50/37	55.3	63.5	8,298	EC
VS1PM450-1B	C	50/37	55.3	96.7	60/45	65.5	75.3	9,787	EC
VS1PM460-1B	D	60/45	74.2	129.9	75/55	90.8	104.4	10,532	EC
VS1PM475-1B	D	75/55	90.8	158.9	100/75	116.6	134.0	12,340	EC
VS1PM4100-1B	D	100/75	106.9	187.1	125/93	136.3	156.8	14,255	EC
VS1PM4125-1B	D	125/93	137.3	240.2	125/93	143.8	165.4	15,106	EC
VS1PM4150-1T *	E	150/112	153.0	262.8	200/150	204.0	234.6	18,150	EC
VS1PM4200-1T *	E	200/150	204.0	357.0	250/187	256.7	295.2	24,200	EC
VS1PM4250-1T *	E	250/187	256.7	449.2	300/224	306.7	352.9	30,250	EC

* VS1PM "-1T" drives include an internal braking transistor. An integral braking resistor is not included.

Dimensions in/(mm)

Size	Outside			Mounting		Ap'x Shpg. Wgt. Lbs. (kg)
	Height	Width	Depth	Height	Width	
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	41.00(1041)	18.75(476)	16.00(406)	39.75(1010)	15.75(400)	250(113.4)

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