

**VS1SM  
AC Micro Drive**

**1/2 thru 3 Hp 230 VAC 1 Phase - 50/60 Hz Input / 3 Phase Output**

**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** Volts per Hertz or Sensorless Vector Control with peak overload capacity of 200%, PID capability and built in MODBUS RS-485 Communications. Integral keypad, operator interface and local speed control. Programming by Groups makes it easy to navigate and find parameters. Basic Program Group contains the most common application related parameters. Power ratings up to 3 Hp 230V Single Phase. Available with or without built in CE Filters. Built-in braking transistor allows connection to remote braking resistor for enhanced performance needs.



<b>Performance Features</b>	Control Modes	V/Hz or Sensorless Vector
	Operator Interface Module	Integral Drive Mounted
	Display Lines	3-Character LED Display
	Programmable Preset Speeds	Eight
	Analog Outputs	One (0-10 VDC)
	Local Speed Control	Built-in Speed Potentiometer
	Auto Restart	Yes – Up to 10 attempts
	Frequency Avoidance	Three Bands
	Fault History	Last Five Faults
	Digital Inputs	Five Completely Configurable Inputs
Digital Inputs Type	Pull-up or Pull-down	
<b>Drive Specifications</b>	Analog Inputs: Two Total	One: 0-10VDC; One: 4-20mADC
	Digital Outputs: Two Total	One Opto-coupled (Configurable); Form C Relay
	Meter Outputs	0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage, DC Voltage)
	Maximum Load	3 Hp @ 230VAC
	Overload Capacity	Drive Output 150% for One Minute
	Frequency Accuracy	Digital Command: 0.01% of Max. Output Frequency; Analog Command: 0.1% of Max. Output Frequency
	Input Voltage Ranges	190-253VAC - 1-Phase
	Rated Input Frequency	50-60Hz (±5%)
	Carrier Frequency	1-15 kHz (3 kHz default)
	Operating Temperature	-10° to 50°C (IP20)
	Snubber (Dynamic Braking)	Use External Braking Unit
	Dynamic Braking External	Dynamic Braking via External Braking Unit connected to DC bus.
	DC Injection Braking	Included
	Volts/Hz	Linear V/Hz; Quadratic V/Hz; Custom 4-point V/Hz Curve
	Sensorless Vector	Full Sensorless Vector; Control with Autotune Function and motor model
	Frequency Control Range	0-400 Hz
	Accel/Decel	Eight independently adjustable sets of ramps
	Time Range	0.1 to 6000 Seconds
	S Curve Accel. & Decel.	Yes, with adjustable rounding percentage
	Keypad Speed Control	Yes
Sink/Source Inputs	Selectable, 24 VDC Logic	
Electronic Overload Trip	Electronic motor Overload Inverse Time calculation with program warning level	
Communications	Built-in MODBUS-RTU (RS-485) Communications	
PID Control	Built-in	
<b>Protective Features</b>	Under Voltage	Level Depends on Voltage Class (240, 480)
	Ground Fault Protection	Ground Fault protection active during run
	Output Short Circuit	Phase-to-Phase on Drive Output
	Over Temperature	Heatsink Monitor
	DC Bus Overvoltage	DC Bus Level Trip
	Drive Overload	Exceed Drive rating of 150% for one minute
	Over Current	Over-current/short-Circuit protection
	Output Phase	Trips on open Output Phase
	Loss of Reference	Trips on Loss of Speed Command Signal
	Cooling Fan	Detects an inverter fan failure (replace fan)
<b>Agency Certifications</b>	Listings	UL, cUL, CE
<b>Service Conditions</b>	Altitude	1,000 m (3,300 ft.), derate by 1% per 100 m up to 2,000m maximum.
	Ambient Temperature	IP20: -10°C (14°F) to 50°C (122°F)
	Storage Temperature	-20°C (-2°F) to 65°C (149°F)
	Relative Humidity	10% to 95%, non-condensing

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

**VS1SM – 230V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output)**

Catalog Number	EMC Filter	Frame	Hp (Normal Duty)	Output Current	List	Mult. Sym.
VS1SM80P5	No	A	0.5	2.5A	328	EA
VS1SM80P5-F	Yes	A	0.5	2.5A	382	EA
VS1SM81	No	A	1	5.0A	405	EA
VS1SM81-F	Yes	A	1	5.0A	459	EA
VS1SM82	No	B	2	8.0A	513	EA
VS1SM82-F	Yes	B	2	8.0A	568	EA
VS1SM83	No	B	3	12.0A	655	EA
VS1SM83-F	Yes	B	3	12.0A	720	EA

**Mounting Dimensions**

Frame	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
A	5.63 (143)	3.11 (79)	5.64 (143)	1.96 (0.89)
A (with Filter)	5.63 (143)	3.11 (79)	5.64 (143)	2.14 (0.97)
B	5.63 (143)	6.14 (156)	5.64 (143)	4.08 (1.85)
B (with Filter)	5.63 (143)	6.14 (156)	5.64 (143)	4.41 (2.0)

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