

VS1SM

AC DRIVES

Compact, cost-effective single phase 230V AC microdrive that is ideal for OEM applications.

The Baldor V*S Drives VS1SM is a V/Hz and Sensorless Vector product that combines performance and reliability. The VS1SM is ideal for OEM applications that require a compact, cost-effective product that is feature rich.



Features

- Input Voltages / Power Ratings
 - 200-230 Vac Single Phase/ 0.5 ~ 3 Hp
- Enclosures / Mounting
 - IP20/UL open type
- Control Modes
 - V/Hz (Fan/Pump, Linear, Custom)
 - Sensorless Vector
 - Auto tune common motor settings
- Operator Interface
 - User friendly control; basic start/stop and speed control potentiometer
 - LED Display
 - Basic parameter group for quick start-up
 - Direction arrows for ease of programming navigation
- Operation Functions
 - DC braking
 - Torque boost (manual 0 ~15% & auto)
 - Frequency limit: (analog, keypad or RS485)
 - Skip frequencies (3)
 - Slip compensation
 - Reverse disable
 - Power-dip ride through & auto restart
 - PID control

Specifications

- Digital Inputs (5)
 - Fully configurable
 - Factory set to common defaults
 - 24 Vdc sink/source
- Digital Outputs (2)
 - NO/NC Relay Output
 - Optically Isolated Output
- Analog Inputs (2)
 - 0 ~ 10V
 - 4 ~ 20mA
- Analog Output (1)
 - 0 ~ 10V
 - Proportional to frequency, output current, ac output voltage or dc bus voltage
- Preset Speeds (8)
 - Independent accel/decel ramps
- Fault Memory
 - Last (5) fault history
- Communications
 - RS485 Modbus RTU
- Environmental
 - -10 ~ 50°C (higher available w/derate)
 - 1000m Altitude w/o derate
 - 0 ~ 90% Humidity, non-condensing

- Aggregate/Cement
- Food/Beverage
- Mining
- Paper/Forest Products
- Petroleum/Chemicals
- Unit/Baggage Handling
- Air Handling
- Power Generation
- Pump/Fluid Handling

Specifications (continued)

- Input Ratings
 - Input voltage $\pm 10\%$ of nominal, 48 ~ 63 Hz
 - Single-phase 230Vac Input
 - 97% efficiency @ full load and frequency
- Output Ratings
 - 0.01 ~ 400Hz Output Frequency
 - 1 ~ 15KHz switching frequency
 - 150% Overload for 1 minute
 - 200% Overload for 30 seconds

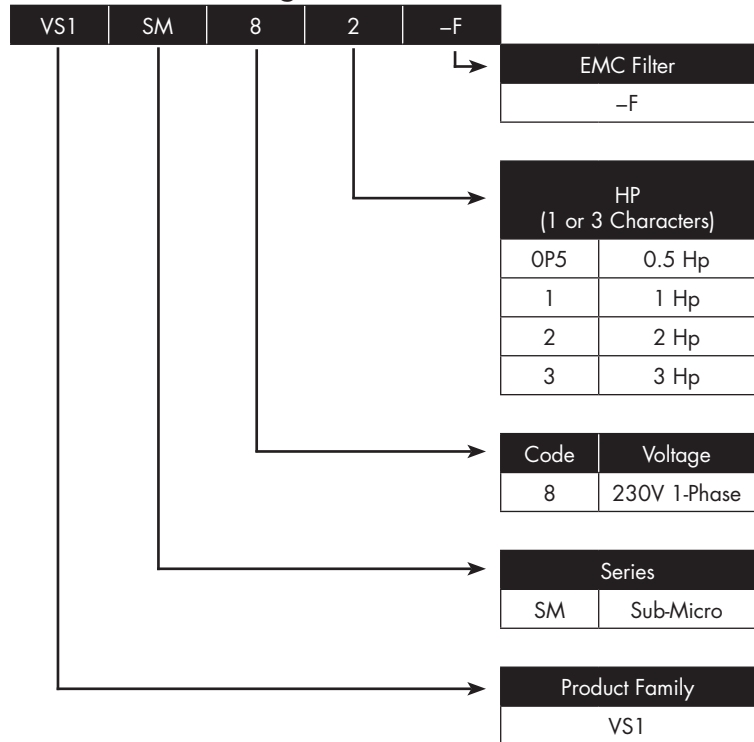
Agency Certifications / Listings:

- UL
- cUL
- CE

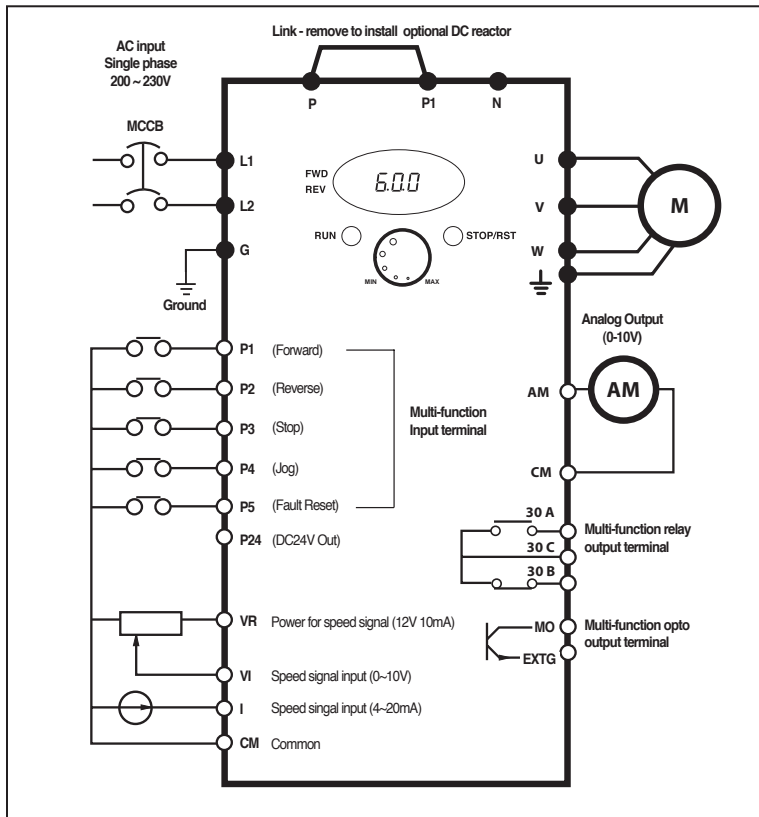
Instruction Manuals:

- MN761

VS1SM Catalog Number Definition



VS1SM Connections



Terminal Description Chart

Power Terminal	Signal	Description
L1, L2	AC Line Input	Single phase AC line input
U, V, W	Drive output	3 phase output terminals to motor
P, P1	DC reactor	Connecting DC reactor
G	Ground	Chassis Ground
Control Terminal	Signal	Description
P1, P2, P3, P4, P5	Digital Inputs	Multi-function input. Factory default: P1 = FX, Forward P2 = RX, Reverse P3 = BX, E-Stop P4 = Jog P5 = RST, Fault Reset
P24	PNP DC24V	DC24V power supply
VR	Analog Power	Power for analog reference
VI	0-10VDC Input	0-10Vdc Analog Speed Reference
I	4-20mA Input	4-20mA Analog Speed Reference
CM	Common	Common Terminal
AM-CM	Analog Output	Max Output: 0-12V, 10mA Output proportional to frequency, current, voltage or dc voltage.
30A, 30B, 30C	Relay Output	Relay: Max: AC250V/1A, DC30V/1A
MO-EXTG	Digital Output	Digital: max DC24V 50mA

Parameter Groups

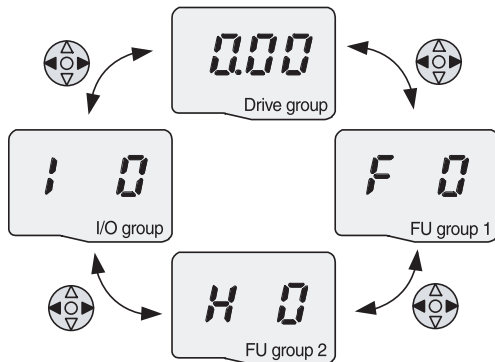
Drive parameters are organized into four logical groups by their operation:	
Drive Group	Basic parameters needed for the drive to run. Start/stop source, speed reference, motor settings and accel/decel times are examples.
Function Group 1	Basic function parameters to adjust output speed/voltage, min/max speeds and braking.
Function Group 2	Advanced function parameters such as PID
I/O Group	Parameters needed to configure the digital and analog I/O or to set up preset speeds

Drive Groups Parameter

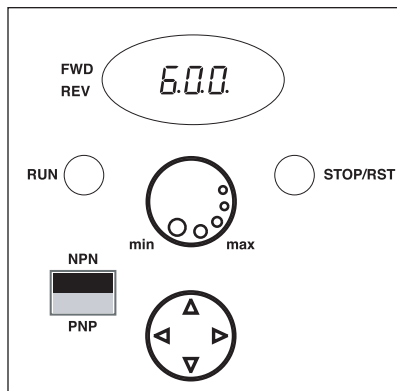
Keypad Display	Description	Range	Default
0.00	Output Frequency	0 to Max.Hz	0.00
ACC	Accel Time	0 to 60.00 sec	5
DEC	Decel Time	0 to 60.00 sec	5
Drv	Control Source	0 (Keypad) 1 (Fx: Forward Run/ Rx: Reverse Run) 2 (Fx: Run-Stop/ Rx: Reverse Select) 3 (Modbus)	1
Frq	Speed Reference	0 (Keypad 1) 1 (Keypad 2) 2 Potentiometer 3 (V1) 4 (I) 5 (Potentiometer + I) 6 (V1 + I) 7 (Potentiometer + V1) 8 (Modbus)	0
St1	Preset Speed 1	0 to Max. Hz	10.00
St2	Preset Speed 2		20.00
St3	Preset Speed 3		30.00
Cur	Output Current	*[A]	*
RPM	Motor Speed	*[rpm]	*
DCL	DC voltage	*[V]	*
vOL/Por/fOR	User Display	*	*
nOn	Fault Display	*	*
drC	Motor Direction	F (Forward) R (Reverse)	F

Parameter Group Navigation

Navigation between program groups by using the Right (▶) or Left (◀) Arrow Keys.



Keypad Operation

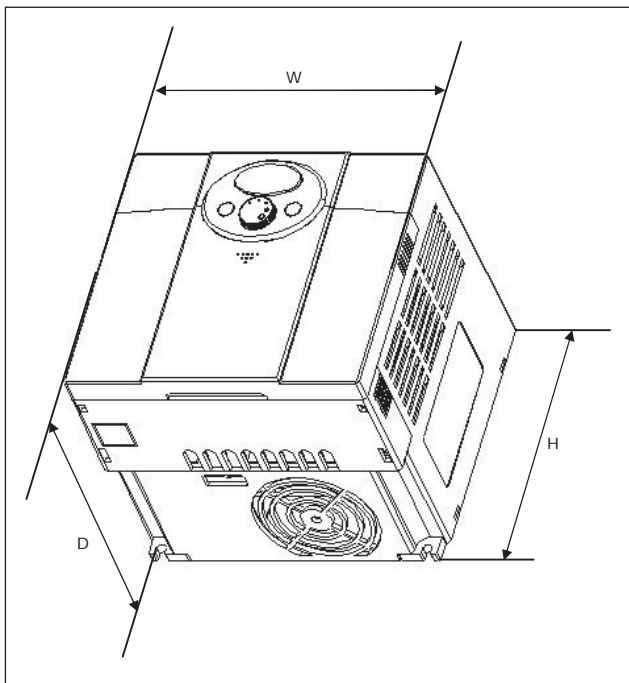


Key	Function	Description
RUN	Run Key	Run the drive
STOP/RESET	Stop/Reset Key	Stop the drive or reset faults
Button	Program/Enter	Change parameters and save them
Potentiometer	Speed Control	Change the speed of the drive
NPN/PNP	Selection	Mode selection between NPN and PNP
Up Arrow	Up	To increase parameter values
Down Arrow	Down	To decrease parameter values
Left Arrow	Left	Move the cursor left
Right Arrow	Right	Move the cursor right

RATINGS AND DIMENSIONS

Frame	HP	EMC Filter	Catalog Number	W Inches (mm)	H Inches (mm)	D Inches (mm)	Weight lbs (kg)
A	0.5	No	VS1SM80P5 *	3.11 (79)	5.63 (143)	5.63 (143)	1.9 (0.87)
A	0.5	Yes	VS1SM80P5-F *	3.11 (79)	5.63 (143)	5.63 (143)	2.1 (0.95)
A	1	No	VS1SM81 *	3.11 (79)	5.63 (143)	5.63 (143)	2 (0.89)
A	1	Yes	VS1SM81-F *	3.11 (79)	5.63 (143)	5.63 (143)	(2.1) 0.97
B	2	No	VS1SM82	6.14 (156)	5.63 (143)	5.63 (143)	3.9 (1.79)
B	2	Yes	VS1SM82-F	6.14 (156)	5.63 (143)	5.63 (143)	4.3 (1.94)
B	3	No	VS1SM83	6.14 (156)	5.63 (143)	5.63 (143)	4.1 (1.85)
B	3	Yes	VS1SM83-F	6.14 (156)	5.63 (143)	5.63 (143)	4.4 (2)

* Custom model available



www.baldor.com www.ptplace.com www.dodge-pt.com www.reliance.com



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This material is not intended to provide operational instructions. Appropriate instruction manuals and precautions should be studied prior to installation, operation or maintenance of equipment.