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VSS SERIES DRIVES

The Ultimate Solution for
Single-Phase Industrial Applications



VSS Series Drives:

The Ultimate Solution for Single-Phase Industrial Applications



The VSS drive is a compact and versatile AC drive, rich in features, offering cost-effectiveness, simple installation, and user-friendliness for single-phase supply systems in demanding industrial settings. VSS series meets user's needs and runs variety of applications like packaging, wood working, pumps, blowers, mixers and other machineries. It is ideal for machineries running on single phase supply, for better control and higher reliability.

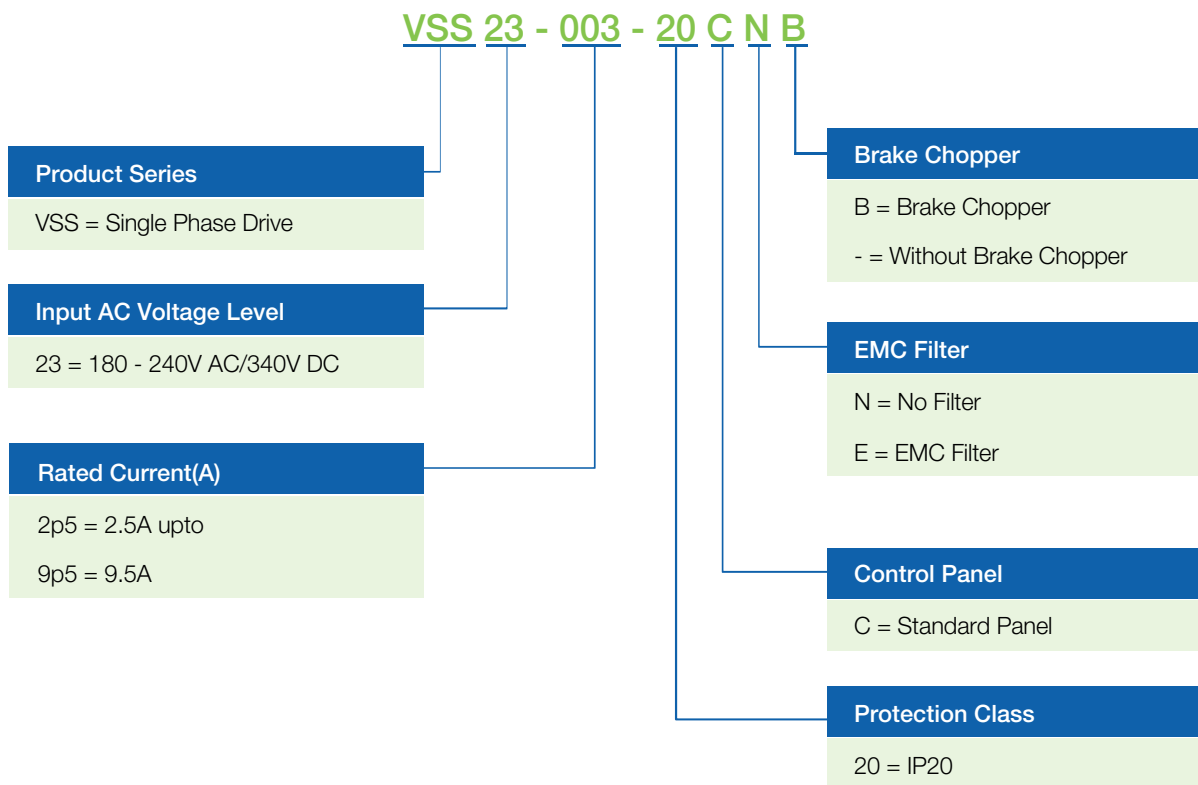
Main Features:

- Various master & auxiliary command and switchover.
- Flexible fan control.
- Field-weakening control.
- Process PID control, simple PLC, 16-step speed control programmable.
- Wobble frequency control.
- Multi-functional key programmable.
- Programmable overvoltage protection and under voltage protection.
- V/f separated control, torque control at sensor-less vector control.
- Can be used with a single-phase supply in three-phase motors.



Model Explanation:

Model Shown on the Product Nameplate Showcases the Following Information.



Note: '-XS' suffix denotes drive with 7 segment LCD display

Types and Ratings - VSS Series 1-Phase, 220V:

Model No.	Power Capacity kVA	Rated Input Current	Rated Output Current	Applicable Motor	
		A	A	kW	HP
VSS23-2p5-20CNB	1.0	6.5	2.5	0.37, 0.4	0.5
VSS23-4p2-20CNB	1.5	9.3	4.2	0.75	1.0
VSS23-7p5-20CNB	3.0	15.7	7.5	1.5	2.0
VSS23-9p5-20CNB	4.0	24	9.5	2.2	3.0

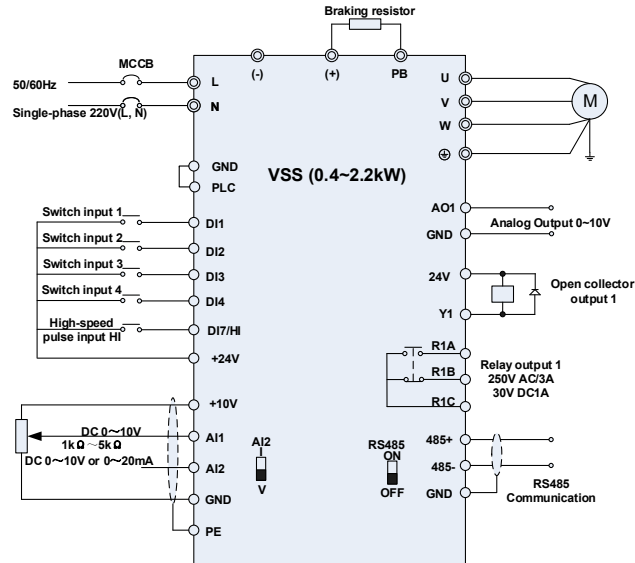


General Specifications of Single-Phase Drives:

Function		Specifications
Power Input	Rated Input Voltage (V)	1-phase 220 V (-20%~+20%)
	Rated Input Frequency (Hz)	50Hz/60Hz, tolerance±5%
Power Output	The Maximum Output Voltage (V)	0~rated input voltage, error<±3%
	The Maximum Output Frequency (Hz)	0~590 Hz, resolution 0.01Hz
Control Characteristics	V/f Patterns	V/f control Sensor-less vector control 1 & 2
	Speed Range	1:50 (V/f control) 1:100 (sensor-less vector control 1) 1:200 (sensor-less vector control 2)
	Speed Accuracy	±0.5% (V/f control) ±0.2% (sensor-less vector control 1 & 2)
	Speed Fluctuation	±0.3% (sensor-less vector control 1 & 2)
	Torque Response	<10ms (sensor-less vector control 1 & 2)
	Starting Torque	0.5Hz: 180% (V/f control, sensor-less vector control 1) 0.25Hz: 180% (sensor-less vector control 2)
Basic Functions	Overload Capability	150% Rated Current 60s, 180% Rated Current 10s, 200% Rated Current 1s.
Protection Function	Overcurrent, Overvoltage, Under Voltage, Over Temperature, Overload etc. Protection.	
Environment	Place of Operation	Indoors, no direct sunlight, free from dust, corrosive gases, flammable gases, oil mist, water vapour, water drop and salt, etc.
	Altitude	0~2000m De-rate 1% for every 100m when the altitude is above 1000m
	Ambient Temperature	-10 °C ~ 50 °C
	Relative Humidity	5 ~ 95%, no condensation
	Vibration	Less than 5.9m/s ² (0.6g)
	Storage Temperature	-20 °C ~ +70 °C
Others	Efficiency	Rated power ≥93%
	Installation	Wall-mounted or flange mounting
	IP Grade	IP20
	Cooling Method	Fan cooled

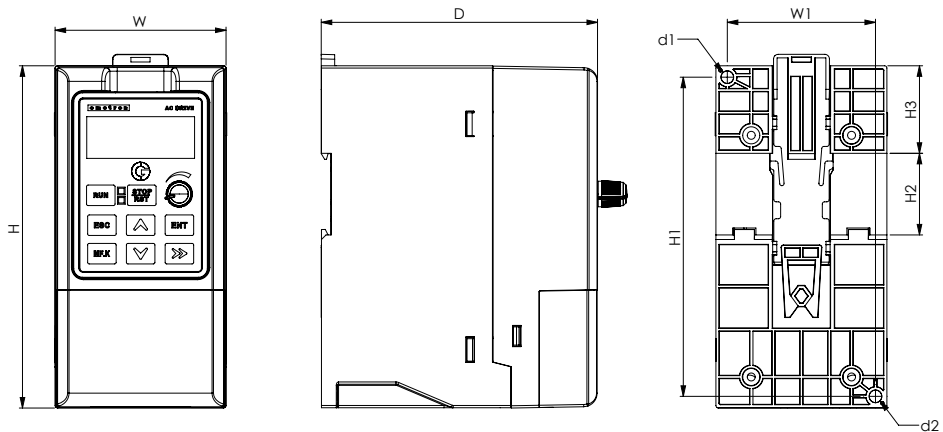
Circuit Wiring Diagram:

VSS (0.4~2.2kW):



Model Mounting & Design:

0.4 ~ 2.2kW Dimensions and Wall Mounting Dimensions:



Mechanical Specifications for VSS Model:

Model No.	External and Installation Dimensions (mm)									Weight (kg)	Air Flow (CFM)
	W	H	D	W1	H1	H2	H3	Install Hole (d)	Install Hole (d1)		
VSS23-2p5-20CNB	75	150	120	65	140	35	38.5	4.5	4.5	0.95	10
VSS23-4p2-20CNB											10
VSS23-7p5-20CNB	93	171	130	82	160	35	39	4.5	4.5	1.45	15
VSS23-9p5-20CNB											15

Terminals of VSS23:

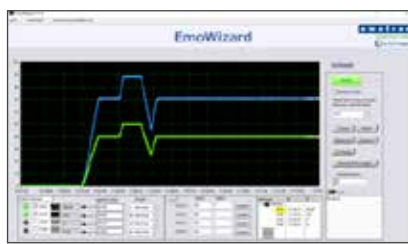
Model	VSS23	Functional Description
	0.4~2.2kW	
DI	5 (DI1~DI4, DI7)	Maximum input frequency: 200Hz (100 kHz for DI7) Impedance: 2.4kΩ Voltage range for level input: 9V~30V
DO	1 (Y1)	Voltage range: 0 ~ 24V Current range: 0 ~ 50mA
AI	2 (AI1, AI2)	Input voltage range: DC 0 ~ 10V/0 ~ 20mA Impedance: 250kΩ (voltage input), 250Ω (current input)
AO	1 (AO1)	Output voltage range: DC 0 ~ 10V/0 ~ 20mA Impedance requirements ≥10kΩ
RO	1 (R1)	Contact driving capacity: AC 250V, 3A, CosØ=0.4, DC 30V, 1A
RS485	1 (485+, 485-)	Rate: 4800/9600/19200/38400/57600/115200bps

Accessories:

Standard Option	Part No.	Description	Connection Mode
Keypad - Basic	PPU-VSmicro	LED display	RJ45
Keypad - Standard	S-PPU-VSmicro	LCD display	RJ45
Profibus Card	VSPROFIBUS-DP	Profibus card	DB9

Application Software:

EmoWizard software helps in the easy commissioning and troubleshooting of VSS series drives, offering user-friendly tools for viewing, manipulation, and exchanging data with the drive. Statistics data can be plotted using the oscilloscope, and drive control with control panel.



Applications:



Conveyors



Packaging Machines



Printing Machines



Cheese Winders

VSS series drives can also be used in a variety of single-phase supply machine applications beyond these applications, offering better control and higher reliability

Other Products from CG Drives and Automation:



Emotron FDU & VFX 2.1

Variable / Constant Torque Drive Applications.

Rated Power	0.55-4,000 kW
Supply Voltage	230-690 V, 3-phase



Emotron Active Front End Drive (AFE)

Available as Low Harmonic or Regenerative Version.

Rated Power	55-2,200 kW (AC) / 200-4,000 kW
Supply Voltage	380-690 V (AC) / 380-690 V, 3-phase



Emotron VSX

Compact Machinery Drive with High Functionality.

Rated Power	VSX48: 0.75-55 kW, 3-phase
Supply Voltage	380-480 V, 3-phase



Emotron VSR

Solar Drive with High Functionality.

Rated Power	VSR48: 0.75-55 kW, 3-phase
	VSRE48: 0.75-4 kW, 3-phase
	VSR23: 0.37-4 kW, 1-phase
	VSR11: 1.1 kW, 1-phase
Supply Voltage	110 / 230 V 1-phase, 380-480 V 3-phase



Emotron TSA

Starts, Stops and Protects.

Rated Power	5.5-1,000 kW
Supply Voltage	230-690 V, 3-phase



Emotron M20

Shaft Power Monitors

Rated Power	100-240/380-500/525-690 VAC
Supply Voltage	Up to 999A via current transformer

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