

Variable Speed Drive

VSD Series

Special Features

VSD-Communication Control



VSD series drives with the communication feature enhances the drive controllability by varieties of remote control schemes. VSD series drives with RS-485 interface along with ModBus communication protocol are capable of connecting portable remote control device such PLC/Tablet/Mobile Phone /Laptop PC /Scada to meet user remote control demands

DC Braking and Stall Prevention



DC braking function is to prevent the motor from coasting after the motor stops to ensure the motor completely stops and idle . This function is also to hold the motor from running before motor starts the motor . Stall prevention function can prevent the motor from sudden load applied causing the stall of the motor speed when the driver runs at constant speed or during the acceleration / deceleration.

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Standard VSD Constant Pressure System



Variable Speed Transfer/Booster System -
JMI-Simavis Horizontal Multistage Centrifugal Pump

- Weather Proof and suitable for outdoor services
- Built pre-setting and running pressure reading display
- Maintain at all-time constant pressure irrespectively to demand
- Instantly response to minor drop of water pressure and operate pumps at low speed to stable the set point
- Dry Running Protection and Auto Start for 10 times to detect water supply resume
- Auto Restart on power failure resume
- Save on maintenance as well operation running cost
- Trim down the cost of servicing as well the down time



Variable Speed Transfer/Booster System -
JMI-Simavis Vertical Multistage In-Line Centrifugal Pump

Single Phase Operation Variable Speed Control Booster Pumpset System



Variable Speed System (Single Phase Operation)
JMI-Simavis Horizontal Multistage Centrifugal Pump

- Required only single phase power supply
- Required no electrical starter panel
- Weather proof and suitable for outdoor services
- Easy and less skilled to operate as well as maintenance
- Compact and saving space
- In built automatic switchover pump operation sequence
- In built two pumps in operation if sudden demand increase
- Auto restart on power resume
- Auto restart on water supply resume after dry running activated
- Convenience and suitable for small scale water supply demand , such as budget hotel, medium size shopping mall, office block , light industrial factory, school, mosque , clinic , recreation club house and bungalows lot.



Variable Speed System (Single Phase Operation)
JMI-Simavis Vertical Multistage In-Line Centrifugal Pump

Variable Speed Drives

VSD Series AC Motor Controller and Programmer

Variable Speed Drive

VSD Series

Features & Benefits:

- VSD series are suitable for constant and variable torque loads on various pumping and treatment process.
- Overload capacity with 150% drive’s rated output current for 1 min can sustain heavy load conditions at drive's operation.
- Programmable digital input terminals can be defined for various control application.
- Portable external display units (DU-501) can be Connected to display drive statuses (maximum 3 units of DU-501).
- Programmable 8 preset speeds are suitable for multi-speed control demands.
- Stall prevention function can prevent the drive from the surge current occurred when the motor accelerates or runs at the constant speed.
- Built-in DC braking function enhances the motor stop completely to prevent unexpected rotations of the motor.
- Programmable jump frequency can prevent the system running at unstable frequency regions.
- Communication control allows portable remote control devices (HMI/PLC/Laptop PC/Mobile Phone/Tablet/Scada) to operate the drive via RS485 interface.
- Automatic restart the drive after power failure resume.
- Reducing the water hammering effect on long distance and high static head pumping line.
- Solving the long distance pumping line filling difficulty when initial starting.
- Built in effective & efficient self-cooling design.
- Variable the speed means less consumption of energy, less noise and extend the lifespan of drive.
- Less downtime follow by less maintenance services and replacement of spare part required.
- Overloading protection to prevent malfunction of drive.
- Built in protection against over/under voltage supply.
- Compact for space saving. Easy to install at confined area.

Model Number Scheme

VSD

2

075

B

A

B

C

D

A

VSD Product Series

B

2: 200V Series - 200~240V
4: 400V Series - 380~480V

C

075: Rated HP (75HP)

D

B: Braking Resistor
(Built-in Braking Transistor)



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Specifications

VSD 200V Series -- 1 Phase				VSD 200V Series -- 3 Phase							
VSD Series	200V 1Φ			2001/2	2001	2002	2003	2005	2007	2010	2015
	2001/2 - 1 PH	2001 - 1 PH	2002 - 1 PH								
Maximum applicable motor (HP / kW)	0.5/0.4	1/0.75	2/1.5	0.5/0.4	1/0.75	2/1.5	3/2.2	5/3.7	7.5/5.5	10/7.5	15/11.
Rated output capability (kVA)	1.1	1.9	3	1.1	1.9	3	4.2	6.5	9.5	13	18
Rated output current (A)	3	5	8	3	5	8	11	17	25	33	46
Rated output voltage (V)	Three-phase 200~240V			Three-phase 200~240V							
Range of output frequency (Hz)	0.1~400.00Hz			0.1~400.00Hz							
Power source (Ψ ,V,Hz)	Single-phase 200~240V 50/60Hz			Three-phase 200~240V 50/60Hz							
Input current (A)	7	13.5	19	5	6	10	14	18	30	40	60
Permissible AC power source fluctuation	176-264V 50/60Hz / ±5%			176~264V 50/60Hz / ±5%							
Overload protection	150% of drive rated output current for 1 min.			150% of drive rated output current for 1 min.							
Cooling method	Nature cooling		Fan cooling	Nature cooling		Fan cooling					
Applicable safety standards	UL508C, CSA C22.2 No. 14-05			UL508C, CSA C22.2 No. 14-05							
Protective structure	IP20,UL open type			IP20, UL open type							
Weight / Mass(kg)	1.8	1.9	2	1.8	1.8	1.9	2	2.1	5.3	5.4	5.7

VSD 200V Series -- 3 Phase												
VSD Series (200V, 3Φ)	2020	2025	2030	2040	2050	5060	2075	2100	2125	2150	2200	2250
Maximum applicable motor (HP//kW)	20/15	25/18.5	30/22	40/30	50/37	60/45	75/55	100/75	125/90	150/110	200/160	250/200
Rated output capability (kVA)	23	28	34	44	55	67	84	112	132	154	223	267
Rated output current (A)	60	74	90	115	145	175	220	295	346	405	585	700
Rated output voltage (V)	Three-phase 200~240V						Three-phase 200~240V					
Range of output frequency (Hz)	0.1~400.00Hz						0.1~400.00Hz					
Power source (Ψ ,V, Hz)	Three-phase 200~240V 50/60Hz						Three-phase 200~240V 50/60Hz					
Input current (A)	71	98	110	133	176	200	240	280	330	380	550	660
Permissible AC power source fluctuation	176~264V 50/60Hz / ±5%						176~264V 50/60Hz / ±5%					
Overload protection	150% of drive rated output current for 1 min						150% of drive rated output current for 1 min.					
Cooling method	Fan cooling						Fan cooling					
Applicable safety standards	UL508C, CSA C22.22 No. 14-05						-					
Protective structure	IP00 (IP20 OPTION)						IP00 (IP20 OPTION)					
Weight / Mass (kg)	16	16	16	17	40	41	44	61	89	90	164	167

VSD 400V Series -- 3 Phase																
VSD Series (400V,3Φ)	4001	4002	4003	4005	4007	4010	4015	4020	4025	4030	4040	4050	4060	4075	4100	4125
Maximum applicable motor (HP /kW)	1/0.75	2/1.5	3/2.2	5/3.7	7.5/5.5	10/7.5	15/11.	20/15	25/18.5	30/22	40/30	50/37	60/45	75/55	100/75	125/90
Rated output capability (kVA)	1.9	3	4.6	6.9	11	14	18	23	30	34	46	56	66	84	114	134
Rated output current (A)	2.5	4	6	9	14	18	24	30	39	45	61	73	87	110	150	176
Rated output voltage (V)	Three-phase 380~480V															
Range of output frequency (Hz)	0.1~ 400.00Hz															
Power source (Ψ ,V, Hz)	Three-phase 380~480V 50/60Hz															
Input current (A)	3.5	5	8	12	16	22	28	38	50	61	74	90	105	130	155	177
Permissible AC power source fluctuation	332~528V 50/50Hz / ±5%															
Overload protection	150% of drive rated output current for 1 min															
Cooling method	Nature cooling		Fan cooling													
Applicable safety standards	UL508C				UL508C,CSA C22.2 No.14-05											
Protective structure	IP20, UL open type				IP20, UL open type				IP20				IP00 (IP20 OPTION)			
Weight / Mass (kg)	1.8	1.9	2	2	5.3	5.4	5.6	5.7	15	16	16	17	18	44	45	47

VSD 400V Series -- 3 Phases										
VSD Series (400V, 3Φ)	4150	4175	4200	4250	4300	4350	4420	4500	4600	
Maximum applicable motor (HP / kW)	150/110	175/132	200/160	250/200	300/220	350/250	420/315	500/375	600/450	
Rated output capability (kVA)	160	193	232	287	316	366	446	533	655	
Rated output current (A)	210	253	304	377	415	480	585	700	860	
Rated output voltage (V)	Three-phase 380~480V									
Range of output frequency (Hz)	0.1~400.00Hz									
Power source (Ψ ,V, Hz)	Three-phase 380~480V 50/60Hz									
Input current (A)	196	217	282	355	385	440	540	650	800	
Permissible AC power source fluctuation	332-528V 50/60Hz / ±5%									
Overload protection	150% of drive rated output current for 1 min.									
Cooling method	Fan cooling									
Applicable safety standards	-									
Protective structure	IP00 (IP20 OPTION)									
Weight / Mass(kg)	65	91	95	97	159	163	164	217	225	

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VSD General Specification

Item			Description
User interface			Digital operating keypads with remote control and communication link (RS-485 Modbus)
Control characteristics	Control method		Voltage vector sinusoidal PWM control
	Range of frequency setting		0.1~400.00Hz
	Resolution of frequency setting		Digital keypad: 0.01 Hz Analog input: 0.06/60 Hz
	Resolution of output frequency		0.01 Hz
	Analog voltage of frequency setting		DC 0~10 V (20 kΩ), 4~20 mA (250 Ω)
	Overload protection		150% drive rated current for 1 minute (inverse time characteristics)
	Five steps acc. / dec. times		0 second (coast to stop), 0.1~3200.0 seconds (each setting of acc and dec.) 0.015 ~ 19200000 sec (Acceleration from 0 to 60Hz)
	Braking torque		About 20% (with build-in braking transistor can reach about 100%)
	V/F curve		The V/F curve can be set arbitrarily
	Stall prevention		The current of stall prevention can be set arbitrarily
		Start method	Forward (FWD) / reverse (REV) rotation, 3-wire self -holding FWD/REV control, or 9-speed control can be selected
Operational characteristics	Input	Multi-function inputs	Stop command by 3-wire start/stop jogging operation, secondary acc/dec time, multi-speed command 1~3, reset alarm, external fault command , command of inhibiting output, coast to a stop, max. frequency search command, frequency setting search command, acc/dec inhibition command, UP/DOWN command, UP/DOWN frequency command clear/enter, analog input select, DC braking enable, current limit enable
		Analog inputs	Vin-GND (0~10 V), Lin-GND (4~20 mA / 2~10 V or 0~20 mA / 0~10 V)
	Output	Multi-function outputs	Running constant speed, zero speed, frequency, overload, stall prevention, under-voltage, braking detections, restart after fault, fault condition, and instantaneous power interruption to restart detections, pro-grammable a and b ports
		Analog outputs	Analog sigal (DC 0~10 V) output, adjustable gain, output frequency salection, frequency setting or output current
Display	Keypad display (controller)		Frequency output , frequency setting, voltage output, DC bus voltage, current output, motor RPM, linear speed, terminal status
	External display (external connection)		Independent external display can be added for up to three sets (96mm x 48mm, 5 digits) to show voltage, current, frequency, linear speed, etc.
Protections	Fault Protection		Over-current (OC), over-voltage (OE), low-voltage (LE), motor overload (OL), drive overload (OL1), overheat (OH), fuse open (SC), ground fault (GF), voltage low during running (LE1)
	Diagnostics		Digital keypad linking disconnected (Err_00,Err_01), EEPROM error (EEr)
	Cooling method		Force air cooling (200V series 1/2, 1HP and 400V series 1HP, 2HP are natural air cooling)
	Environment Atmosphere		Non- corrosive or non- conductive, or non-explosive gas or liquid, and non-dusty
	Surrounding temperature		(-10 ℃), (14°F) ~ +50°C (122°F) non-freezing and non-condensing
	Storage temperature		(-20 ℃), (-4°F) ~ 60°C (149°F)
	Relative humidity		90% RH or less (no-condensing atmosphere)
	Vibration		Less then 5.9m/sec² (0.6G)
	Altitude		Less then 1000m (3280ft.)