

Standard Specifications

Standard specifications

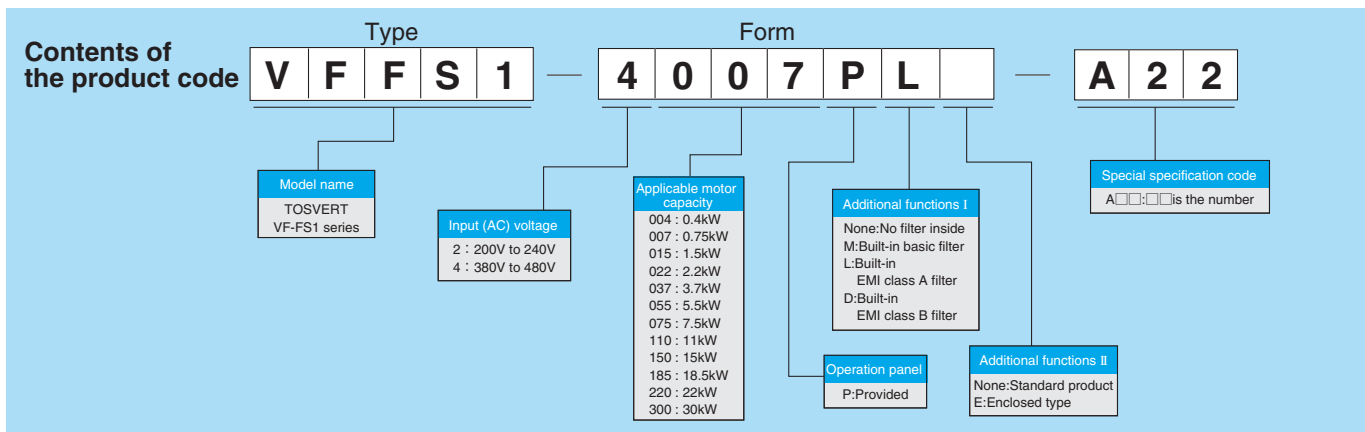
200V class

Item		Specification											
Input voltage		3-phase 200V											
Applicable motor (kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
Rating	Type	VFFS1											
	Form	2004PM	2007PM	2015PM	2022PM	2037PM	2055PM	2075PM	2110PM	2150PM	2185PM	2220PM	2300PM
	Capacity (kVA) Note 1)	1.1	1.8	2.9	4.0	6.7	9.2	12.2	17.6	23.2	28.5	33.5	44.6
	Rated output/current (A) Note 2)	2.8	4.6	7.5	10.6	17.5	24.2	32	46.2	61	74.8 (67.3)	88.0 (79.2)	117.0 (105.3)
	Output voltage Note 3)	3-phase 200V to 240V											
Power supply	Overload current rating	110%-60 seconds, 180%-2 second											
	Voltage-current	3-phase 200V to 240V -50/60Hz											
	Allowable fluctuation	Voltage +10%, -15% Note 4), frequency ±5%											
	Protective method	IP20 Enclosed type (JEM1030)										IP00 Enclosed type (JEM1030) Note 5)	
	Cooling method	Forced air-cooled											
Color	Munsel 5Y-8/0.5												
Built-in filter	Basic filter												

400V class

Item		Specification											
Input voltage		3-phase 400V											
Applicable motor (kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
Rating	Type	VFFS1											
	Form	4004PL	4007PL	4015PL	4022PL	4037PL	4055PL	4075PL	4110PL	4150PL	4185PL	4220PL	4300PL
	Capacity (kVA) Note 1)	1.1	1.6	2.8	3.9	6.9	9.1	12.2	17.1	23.2	28.2	33.2	44.6
	Rated output current (A) Note 2)	1.4	2.2	3.7	5.1	9.1	12.0	16.0	22.5	30.5	37.0 (33.3)	43.5 (39.2)	58.5 (52.7)
	Rated output voltage Note 3)	3-phase 380V to 480V											
Power supply	Overload current rating	110%-60 seconds, 180% -2 second											
	Voltage-current	3-phase 380V to 480V - 50/60Hz											
	Allowable fluctuation	Voltage +10%, -15% Note 4), frequency ±5%											
	Protective method,	IP20 Enclosed type (JEM1030)										IP00 Enclosed type (JEM1030) Note 5)	
	Cooling method	Forced air-cooled											
Color	Munsel 5Y-8/0.5												
Built-in filter	EMI filter												

Note 1: Capacity is calculated at 230V for the 200V models, at 440V for the 400V models.
 Note 2: The rated output current in the parenthesis is at 12kHz of PWM carrier frequency (F300) setting.
 Note 3: Maximum output voltage is the same as the input voltage.
 Note 4: ±10% when the inverter is used continuously (load of 100%).
 Note 5: Inverter, 22kW or greater, do not have wiring port covers, they have large openings, but there is no space to bend the external cables inside the unit. If they are fitted external to the cabinet, please use an optional wiring port cover.



Common specifications

Item	Specification	
Principal control functions	Control system	Sinusoidal PWM control
	Output voltage adjustment	Adjustable within the range of 50 to 660V by correcting the supply voltage (not adjustable above the input voltage)
	Output frequency range	0.5 to 200.0Hz, default setting: 0.5 to 80Hz, maximum frequency: 30 to 200Hz
	Minimum setting steps of frequency	0.1Hz: analog input (when the max. frequency is 100Hz), 0.01Hz: Operation panel setting and communication setting.
	Frequency accuracy	Digital setting: within ±0.01% of the max. frequency (-10 to +60°C) Analog setting: within ±0.5% of the max. frequency (25°C ±10°C)
	Voltage/frequency characteristics	V/F constant, variable torque, automatic torque boost, vector control, automatic energy-saving, PM motor control. Auto-tuning. Base frequency (25 - 200Hz) adjusting to 1 or 2, torque boost (0 - 30%) adjusting to 1 or 2, adjusting frequency at start (0.5 - 10Hz)
	Frequency setting signal	External frequency potentiometer (connectable to a potentiometer with a rated impedance of 1 - 10kΩ), 0 - 10Vdc (input impedance: VIA/VIB=30kΩ, 4 - 20mAdc (Input impedance: 250Ω).
	Terminal board base frequency	The characteristic can be set arbitrarily by two-point setting. Possible to set individually for three functions: analog input (VIA and VIB) and communication command.
	Frequency jump	Three frequencies can be set. Setting of the jump frequency and the range.
	Upper- and lower-limit frequencies	Upper-limit frequency: 0 to max. frequency, lower-limit frequency: 0 to upper-limit frequency
PWM carrier frequency	Adjustable within a range of 6.0 to 16.0Hz (default: 8 or 12kHz).	
PID control	Setting of proportional gain, integral gain, differential gain and control wait time. Checking whether the amount of processing amount and the amount of feedback agree.	
Operation specifications	Acceleration/deceleration time	Selectable from among acceleration/deceleration times 1 and 2 (0.0 to 3200 sec.). Automatic acceleration/deceleration function. S-pattern acceleration/deceleration 1 and 2 and S-pattern adjustable. Control of forced rapid deceleration and dynamic rapid deceleration
	DC braking	Braking start-up frequency: 0 to maximum frequency, braking rate: 0 to 100%, braking time: 0 to 20 seconds, emergency DC braking
	Input terminal function (programmable)	Possible to select from among 57 functions, such as forward/reverse run signal input, operation base signal input and reset signal input, to assign to 4 input terminals. Logic selectable between sink and source.
	Output terminal functions (programmable)	Possible to select from among 58 functions, such as upper/lower limit frequency signal output, low speed detection signal output, specified speed reach signal output and failure signal output, to assign to FL relay output, RY output terminals.
	Forward/reverse run	The RUN and STOP keys on the operation panel are used to start and stop operation, respectively. The switching between forward run and reverse run can be done from one of the three control units: operation panel, terminal board and external control unit.
	Preset speed operation	Base frequency + 7-speed operation possible by changing the combination of 3 contacts on the terminal board.
	Retry operation	Capable of restarting automatically after a check of the main circuit elements in case the protective function is activated. 10 times (Max.) (selectable with a parameter)
	Various prohibition settings	Possible to write-protect parameters and to prohibit the change of panel frequency settings and the use of operation panel for operation, emergency stop or resetting.
	Auto-restart operation	In the event of a momentary power failure, the inverter reads the rotational speed of the coasting motor and outputs a frequency appropriate to the rotational speed in order to restart the motor smoothly. This function can also be used when switching to commercial power.
	Drooping function	The motor is allowed to "slip" according to the load torque current.
Protective function	Failure detection signal	1c-contact output: (250Vac-0.5A-cosφ=0.4)
	Protective function	Stall prevention, current limitation, over-current, output short circuit, over-voltage, over-voltage limitation, undervoltage, ground fault, power supply phase failure, output phase failure, overload protection by electronic thermal function, armature over-current at start-up, load side over-current at start-up, over-torque, undercurrent, overheating, cumulative operation time, life alarm, emergency stop, various pre-alarms
	Electronic thermal characteristic	Switching between standard motor and constant-torque VF motor, switching between motors 1 and 2, setting of overload trip time, adjustment of stall prevention levels 1 and 2, selection of overload stall
	Reset function	Function of resetting by closing contact 1a or by turning off power or the operation panel. This function is also used to save and clear trip records.
Display function	Alarms	Stall prevention, overvoltage, overload, under-voltage, setting error, retry in process, upper/lower limits
	Causes of failures	Over-current, overvoltage, overheating, short-circuit in load, ground fault, overload on inverter, over-current through arm at start-up, over-current through load at start-up, CPU fault, EEPROM fault, RAM fault, ROM fault, communication error. (Selectable: Emergency stop, under-voltage, low voltage, over-torque, motor overload, output open-phase)
	Monitoring function	Operation frequency, operation frequency command, forward/reverse run, output current, voltage in DC section, output voltage, torque, torque current, load factor of inverter, input power, output power, information on input terminals, information on output terminals, version of CPU1, version of CPU2, version of memory, PID feedback amount, frequency command (after PID), integral input power, integral output power, rated current, output speed, communication counter, normal state communication counter, causes of past trips 1 through 4, parts replacement alarm, cumulative operation time
	Past trip monitoring function	Stores data on the past four trips: number of trips that occurred in succession, operation frequency, direction of rotation, load current, input voltage, output voltage, information on input terminals, information on output terminals, and cumulative operation time when each trip occurred.
	Output for frequency meter	Analog output: (1mAdc full-scale DC ammeter or 7.5Vdc full-scale DC ammeter/Rectifier-type AC voltmeter, 120% current Max. 1mAdc, 7.5Vdc full-scale), 4 to 20mA/0 to 20mA output
	4-digit 7-segments LED	Frequency: inverter output frequency. Alarm: stall alarm "C", overvoltage alarm "P", overload alarm "L", overheat alarm "H". Status: inverter status (frequency, cause of activation of protective function, input/output voltage, output current, etc.) and parameter settings. Free-unit display: arbitrary unit (e.g. rotating speed) corresponding to output frequency.
	Indicator	Lamps indicating the inverter status by lighting, such as RUN lamp, MON lamp, PRG lamp, % lamp, Hz lamp, LOC/REM key lamp, UP/DOWN key lamp and RUN key lamp. The charge lamp indicates that the main circuit capacitors are electrically charged.
Environments	Use environments	Indoor, altitude: 1000m (Max.), not exposed to direct sunlight, corrosive gas, explosive gas or vibration (less than 5.9m/s ²) (10 to 55Hz)
	Ambient temperature	-10 to +60°C Note1) Note2)
	Storage temperature	-20 to +65°C
	Relative humidity	20 to 93% (free from condensation and vapor).

Note 1: Above 40°C: Remove the seal from the top of the inverter and use the inverter with the rated output current reduced.
 Note 2: If inverters are installed side by side (with no sufficient space left between them): Remove the seal from the top of each inverter.
 When installing the inverter where the ambient temperature will rise above 40°C, remove the seal from the top of the inverter and use the inverter with the rated output current reduced.