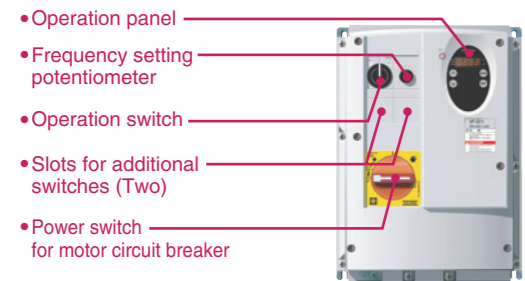


Totally enclosed box type



<UL compliant type>



Compliance with IP55

IP54-compliant structures refer to structures that protect the contents from dust and harmful effects of water that drops from every direction. The inverter can be brought into compliance with IP55 specifications by making the wiring port watertight.

Note) 500V class 5.5 to 15kW range are IP00 type.

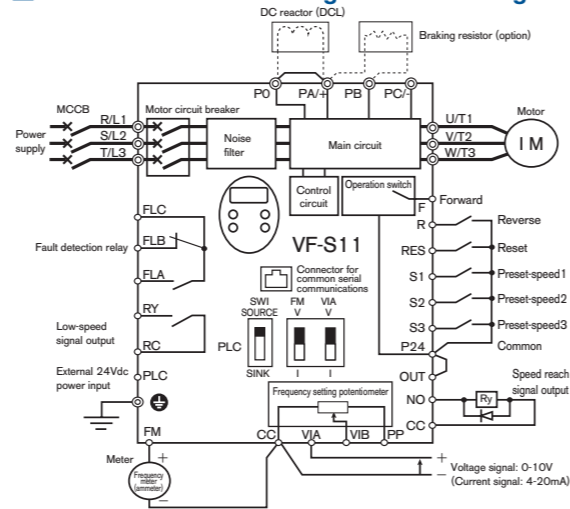
Standard specifications

Item		Specification										
Input voltage class		1-phase 240V input class/3-phase 240V input class/3-phase 500V input class					3-phase 500V input class					
Applicable motor (kW)		0.2	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	
Model	VFS11S/VFS11	VFS11S/VFS11										
	Model	VFS11S/VFS11										
	1φ-240V class	VFS11S-	2002PLE	2004PLE	2007PLE	2015PLE	2022PLE	—	—	—	—	
	3φ-240V class	VFS11-	—	2004PME	2007PME	2015PME	2022PME	2037PME	—	—	—	
Rating	Capacity (kVA)	—	—	4007PLE	4015PLE	4022PLE	4037PLE	4055PLU	4075PLU	4110PLU	4150PLU	
	Rated output current (A)	1φ-240V class	0.6	1.3/1.3/1.1	1.8	3.0/3.0/3.1	4.2	6.7/7.2	11	13	21	25
		3φ-240V class	1.5	3.3	4.8	8.0	11.0	—	—	—	—	—
3φ-500V class		—	—	2.3	4.1	5.5	9.5	14.3	17.0	27.7	33	
Power supply	Voltage-frequency	240V class : 200V to 240V -50/60Hz, 500V class : 380V to 500V -50/60Hz										
	Allowable fluctuation	Voltage +10%, -15% (±10% when the inverter is used continuously load of 100%), frequency ±5%										
Protective method		IP54 Totally enclosed type (JEM1030) / Possible to bring into compliance with IP55					IP00 Open type (JEM1030) / Cooling fin mountable out side					
Cooling method		Self-cooling					Forced air-cooling					
Color		Munsell 5Y-8/0.5					Not painted					
Built-in filter		1-phase 240V and 500V class : High-attenuation EMI filter, 3-phase 240V class : Basic filter					High-attenuation EMI filter					
Environments	Service environments Note 6)	Indoor, altitude 1000m or less. Place not exposed to direct sunlight and free from of corrosive and explosive gases.										
	Ambient temperature	-10 to +40°C										
	Storage temperature	-25 to +70°C										
	Relative humidity	20 to 93%										
	Vibration	5.9 m/s ² or less (10 to 55Hz)										

External dimensions and weight

Input voltage class	Applicable motor (kW)	Inverter model	Dimensions (mm)			Approx. weight (kg)
			Width	Height	Depth	
3-phase 240V	0.4	VFS11-2004PME	210	240	163.3	3.9
	0.75	VFS11-2007PME	—	—	—	—
	1.5	VFS11-2015PME	215	297	192.3	5.9
	2.2	VFS11-2022PME	—	—	—	—
	4.0	VFS11-2037PME	230	340	208.3	7.6
3-phase 500V	0.75	VFS11-4007PLE	215	297	192.3	6.1
	1.5	VFS11-4015PLE	—	—	—	—
	2.2	VFS11-4022PLE	230	340	208.3	8.0
	4.0	VFS11-4037PLE	—	—	—	—
	5.5	VFS11-4055PLU	400	600	243	11.8
	7.5	VFS11-4075PLU	—	—	—	—
1-phase 240V	11	VFS11-4110PLU	450	700	267	17.0
	15	VFS11-4150PLU	—	—	—	—
	0.2	VFS11S-2002PLE	210	240	163.3	4.0
	0.4	VFS11S-2004PLE	—	—	—	—
	0.75	VFS11S-2007PLE	215	297	192.3	6.0
1-phase 240V	1.5	VFS11S-2015PLE	—	—	—	—
	2.2	VFS11S-2022PLE	230	340	208.3	7.6

Standard connection diagram : Source logic



To users of our inverters : Our inverters are designed to control the speeds of three-phase induction motors for general industry.

Precautions

- * Read the instruction manual before installing or operating the inverter unit and store it in a safe place for reference.
- * When using our inverters for equipment such as nuclear power control equipment, aviation and space flight control equipment, traffic equipment, and safety equipment, and there is a risk that any failure or malfunction of the inverter could directly endanger human life or cause injury, please contact our headquarters, branch, or office printed on the front and back covers of this catalogue. Such applications must be studied carefully.
- * When using our inverters for critical equipment, even though the inverters are manufactured under strict quality control always fit your equipment with safety devices to prevent serious accident or loss should the inverter fail (such as failure to issue an inverter trouble signal).
- * Do not use our inverters for any load other than three-phase induction motors.
- * None of Toshiba, its subsidiaries, affiliates or agents, shall be liable for any physical damages, including, without limitation, malfunction, anomaly, breakdown or any other problem that may occur to any apparatus in which the Toshiba inverter is incorporated or to any equipment that is used in combination with the Toshiba inverter. Nor shall Toshiba, its subsidiaries, affiliates or agents be liable for any compensatory damages resulting from such utilization, including compensation for special, indirect, incidental, consequential, punitive or exemplary damages, or for loss of profit, income or data, even if the user has been advised or apprised of the likelihood of the occurrence of such loss or damages.

For further information, please contact your nearest Toshiba Representative or International Operations-Producer Goods. The information in this brochure is subject to change without notice.

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TOSHIBA

Transistor Inverter

You thought they were all the same...



New Global Standard Inverter TOSVERT™

VF-S11

1-phase 240V 0.2kW to 2.2kW
3-phase 240V 0.4kW to 15kW
3-phase 500V 0.4kW to 15kW
3-phase 600V 0.75kW to 15kW

1.High Torque

Initial torque surpasses 1Hz-200%* at start up instantly from low speed. Smooth operation in regeneration area as well as motoring area is possible through proprietary power vector control. Moreover, you can make settings in a single step by using the automatic torque boost function with auto tuning accomplished at the same time. Equipped with an energy saving mode, application reach a higher level of efficiency.

* When running a standard Toshiba 4-pole motor. (Depends on the voltage and range.)

2.Compact

Save space with its ultra compact design that has greatly reduced dimensions. Also, you can mount multiple units side by side for high-density installation. Despite being such a compact model, it has a surprisingly high level of functionality. Its ease-of-use makes it a top class inverter.

* Refer to the specifications.

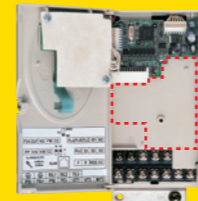
■ Side by side installation



3.Removable terminal board

It is the first in its class with a removable control terminal. Wiring and ease of maintenance are improved exceptionally. The control terminal circuit board can be removed leaving space for an internally mounted communications option board.

■ Removable terminal board



terminal board Communication option board

4.Built-in EMI Noise Filter

Environmental considerations are also the very best in its class. Single-phase and 500V devices are equipped with a high-attenuation EMI noise filter greatly reducing the RFI noise limited by the inverter.

For 1-ph 240V, and 3-ph 500V models : IEC61800-3 category C2 or C3(Max.5m*) - standard built-in, IEC61800-3 category C1(Max.20m*) - external noise filter option.

For 3-ph 240V : IEC61800-3 category C2(Max.5m*) - external noise filter option.

* Length of motor connecting cable.

5.Easy maintenance

A warning signal is output to the display panel when the electrolytic capacitors on the main circuit, the cooling fan and the control board have been reached the replacement period. A valuable indicator which can be used as a maintenance guideline. The cooling fan can be replaced easily, and the automatic on/off function provides extended machine life. On top of that, the main circuit capacitors are designed with a 10year lifetime*making this a long-life inverter. It is designed to be used in an ambient temperature up to 60 °C for maximum environmental resistance. (Minimum current de-rating required)

* Ambient temperature: average yearly temperature of 40 °C. Output voltage: Operating 24 hours per day for 365 days at 80% of the current rating for Toshiba's 4-pole motor.

6.Extended power range

Wide range of powers up to 15kW for this class of inverter. The VF-S11 also comes in a lineup of totally enclosed box types that can be used in severe installation environments subject to lots of water end dust.

■ Line-up

Input Voltage Class	Applicable motor (kW)										
	0.2	0.4	0.55	0.75	1.5	2.2	4.0	5.5	7.5	11	15
1-phase 240V	IP20										
3-phase 240V	IP54*2										
3-phase 500V	IP20										
3-phase 600V	IP54*2										

* 1: 0.55kW model is 3-phase 240V class IP20 type only.
* 2: IP54 type is possible to bring into compliance with IP55 specification.

ISO-9001 certification
This product is designed and manufactured at plants that have acquired ISO-9001 certification, the worldwide quality assurance benchmark.

ISO-14001 certification
The plants that manufacture this product are registered as compliant with ISO-14001, the environmental management system.

Compatible with the World's Main Standards
(EC Directive (CE marking), UL, CSA, C-tick)

Standard specifications VF-S11

Item			Specification										
Input voltage class			1-phase 240V class/3-phase 240V class/3-phase 500V class/3-phase 600V class										
Applicable motor (kW)			0.2	0.4	0.55	0.75	1.5	2.2	4.0	5.5	7.5	11	15
Machine type	VFS11S/VFS11	Model	VFS11S/VFS11										
	1φ-240V class	VFS11S-	2002PL	2004PL	—	2007PL	2015PL	2022PL	—	—	—	—	—
	3φ-240V class	VFS11-	—	2004PM	2005PM	2007PM	2015PM	2022PM	2037PM	2055PM	2075PM	2110PM	2150PM
	3φ-500V class	VFS11-	—	4004PL	—	4007PL	4015PL	4022PL	4037PL	4055PL	4075PL	4110PL	4150PL
	3φ-600V class	VFS11-	—	—	—	6007P	6015P	6022P	6037P	6055P	6075P	6110P	6150P
Rating	Capacity (kVA)	1φ-240V class	0.6	1.3	—	1.8	3.0	4.2	—	—	—	—	—
		3φ-240V class	—	1.3	1.4	1.8	3.0	4.2	6.7	10	13	21	25
		3φ-500V class	—	1.1	—	1.8	3.1	4.2	7.2	11	13	21	25
	Output current(A)	3φ-600V class	—	—	—	1.7	2.7	3.9	6.1	9.0	11	17	22
		1φ-240V class	1.5	3.3	—	4.8	8.0	11.0	—	—	—	—	—
Power supply	Voltage-frequency	3φ-240V class	—	3.3	3.7	4.8	8.0	11.0	17.5	27.5	33	54	66
		3φ-500V class	—	1.5	—	2.3	4.1	5.5	9.5	14.3	17.0	27.7	33
	Allowable fluctuation	3φ-600V class	—	—	—	1.7	2.7	3.9	6.1	9.0	11.0	17.0	22.0
		240V class: 200V to 240V - 50/60Hz, 500V class: 380 to 500V - 50/60Hz, 600V class: 525 to 600V - 50/60Hz											
Rated output voltage			Voltage +10%, -15% (±10% when the inverter is used continuously load of 100%), frequency ±5%										
Output frequency range			Adjustable within a range of the corrected supply voltage 50 to 660V by correcting the supply voltage (not adjustable above the input voltage). 0.5 to 500.0Hz (default setting 0.5 to 80.0Hz)										
Voltage/frequency characteristics			V/f constant, variable torque, automatic torque boost, vector control, automatic energy saving, dynamic automatic energy saving, PM motor control, auto-tuning function										
Overload current rating			150% - 60seconds, 200% - 0.5second										
Dynamic breaking			Control and drive circuit is built in the inverter with the braking resistor outside (optional)										
Control terminal board			Removable (possible to internalize various transmission option circuit boards after removal)										
Input/output terminal logical switching			Sink logic (minus common)/source logic (plus common) can be switched with a switch										
Principal functions			PID control, acceleration/deceleration time (three patterns), S acceleration/deceleration time (controllable), forced deceleration, automatic adjustable speed, automatic torque boost, programmable input terminal (8 terminals with 65 functions), programmable output terminal (3 terminals with 58 functions can be divided in two), voltage/current analog output, pulse string output, lifespan warning monitor/output, 15 speed levels, detailed monitor display at trip, selectable units, selectable steps, droop, overwrite, regenerative power ride-through, auto-restart, history, customer parameter memory, and others										
Options			DIN rail kit (1.5kW or less), EMC foot-mounted filter, internal RS485 communication circuit board, various communication circuit boards, an assortment of other shared options for TOSHIBA inverters										
Ambient temperature/relative humidity			-10 to 60°C (Above 40°C: Remove the protective seal from the top /20 to 93% free from condensation and vapor										
Installation			Side by side installation (contiguous installation) possible										
Protective method			IP20 enclosed type (JEM1030)										
Cooling method			Self cooling (500V/600V class have forced air cooling) Forced air cooling										
Built-in filter			1-phase 240V class, 500V class: High attenuation EMI filter, 3-phase 240V class: Standard filter, 600V class: no filter										

Note: The L on the end of the model number indicates a built-in high-attenuation EMI noise filter, and the M indicates the standard built-in EMI noise filter.

External dimensions and weight

Input voltage class	Applicable motor (kW)	Inverter model	Dimensions (mm)			Approx. weight (kg)
			Width	Height	Depth	
1-phase 240V	0.2	VFS11S-2002PL	72	130	130	1.0
	0.4	VFS11S-2004PL			140	1.0
	0.75	VFS11S-2007PL			140	1.2
	1.5	VFS11S-2015PL			150	1.4
	2.2	VFS11S-2022PL			150	2.2
3-phase 240V	0.2	VFS11-2002PM	107	130	120	0.9
	0.4	VFS11-2004PM			130	0.9
	0.55	VFS11-2005PM			130	1.1
	0.75	VFS11-2007PM			130	1.1
	1.5	VFS11-2015PM			150	1.2
	2.2	VFS11-2022PM			150	1.3
	4.0	VFS11-2037PM			150	2.2
	5.5	VFS11-2055PM			180	4.8
	7.5	VFS11-2075PM			180	4.9
	11	VFS11-2110PM			245	9.3
3-phase 500V	15	VFS11-2150PM	245	310	190	9.6
	0.4	VFS11-4004PL	142	170	150	1.4
	0.75	VFS11-4007PL			150	1.5
	1.5	VFS11-4015PL			150	1.5
	2.2	VFS11-4022PL			150	2.3
	4.0	VFS11-4037PL			150	2.5
	5.5	VFS11-4055PL			180	5.0
	7.5	VFS11-4075PL			180	5.1
11	VFS11-4110PL	245			9.6	
3-phase 600V	15	VFS11-4150PL	245	310	190	9.6
	0.75	VFS11-6007P	142	170	150	1.3
	1.5	VFS11-6015P			150	1.3
	2.2	VFS11-6022P			150	2.1
	4.0	VFS11-6037P			150	2.2
	5.5	VFS11-6055P			180	4.7
	7.5	VFS11-6075P			180	4.7
11	VFS11-6110P	245			8.8	
15	VFS11-6150P	245	310	190	8.8	



Standard connection diagram

