

Standard specifications VF-AS1

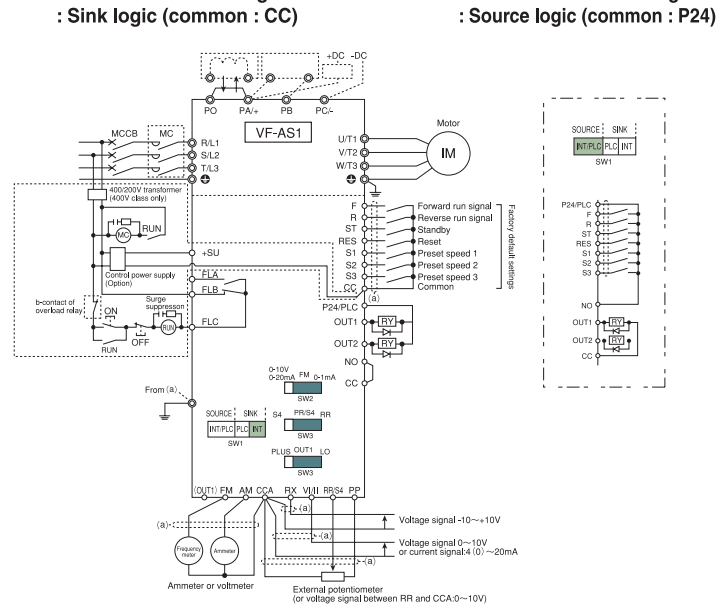
| Item | Specification | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|--|--|-------|-------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0.4 | 0.75 | 1.5 | 2.2 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 200 | 220 | 280 | 355 | 400 | 500 | | |
| Applicable Motor (kW) | VFAS1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Machine type | Input voltage class | Model | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rating | 3-phase 200 V class | VFAS1-- | 204PL | 207PL | 215PL | 222PL | 237PL | 255PL | 275PL | 211PM | 215PM | 218PM | 222PM | 230PM | 237PM | 245PM | 255PM | 275PM | — | — | — | — | — | — | — | — | — | |
| | 3-phase 400 V class | VFAS1- | — | 407PL | 415PL | 422PL | 437PL | 455PL | 475PL | 411PM | 415PM | 418PM | 422PM | 430PM | 437PM | 445PM | 455PM | 475PM | 490PM | 411PM | 418PM | 422PM | 430PM | 437PM | 445PM | 455PM | 475PM | 490PM |
| Output current (A) | 3-phase 200 V class | — | 1.1 | 1.8 | 3.0/3.1 | 4.2/4.4 | 6.7/8.0 | 10/11 | 13 | 21 | 25 | 29/31 | 34/37 | 46/50 | 55/60 | 67/72 | 84/88 | 109/122 | 136 | 164 | 197 | 239 | 295 | 325 | 419 | 511 | 578 | 717 |
| | 3-phase 400 V class | — | 3 | 4.8 | 8 | 11 | 17.5 | 27.5 | 33 | 54 | 66 | 75 | 88 | 120 | 144 | 176 | 221 | 285 | — | — | — | — | — | — | — | — | — | |
| Power Supply | Voltage/frequency | 200 V class: 3-phase 200 to 240 V, 50/60 Hz, 400 V class: 3-phase 380 to 480 V, 50/60 Hz | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated output voltage | Tolerance | Voltage +10%, -15% (±10% during continuous 100% load) Frequency ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 200V class | 3 phase 200 to 240V, 400V class: 3 phase 380 to 480V (The maximum output voltage is same as the input source voltage.) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Output frequency range | 0.01 to 500 Hz (Default setting 0.01 to 80.0 Hz) For 0.4 to 37kW, 1000Hz is possible with special modifications | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Overload current rating | 150%~60 seconds, 165%~2 seconds (Anti-time limit characteristic) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dynamic breaking circuit | 0.4 to 160 kW: built-in dynamic breaking circuit, 200 kW or more: External option | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dynamic breaking resistor | External option | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Main functions | Parameter setup quick mode, learning function, programmable I/O terminal block, multi-PID control, hoisting function, break sequence function, My function | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient temperature/Relative humidity | -10 to 60°C (current decreases when over 50°C)/5 to 95% (no condensation or steam allowed) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protective method | 200 V class 0.4 to 45 kW, 400 class 0.75 to 75 kW: IP20, 200 V class 55 to 75 kW, 400 class 90 to 500 kW IP00 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cooling method | Forced air cooling | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Built-in filter | 200 V class 0.4 to 1.5 kW, 400 V class 0.75 to 4.0 kW: EN55011 class A, EN61800-3 category C2 compliant (built-in EMI noise filter) 200 V class 2.2 to 7.5 kW, 400 V class 5.5 to 500 kW: EN55011 class A, EN61800-3 category C3 compliant (built-in EMI noise filter) 200 V class 11 to 45 kW: basic noise filter | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Built-in reactor | 200 V class 11 to 45 kW, 400V class 18.5 to 75 kW: Built-in DC reactor 200 V class 55 to 75 kW, 400V class 90 to 500 kW: Attached DC reactor | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Exterior dimensions and weight

| Input voltage Class | Applicable motor (kW) | Inverter model | Dimensions (mm) Note 1 | | | Approximate Weight (kg) Note 1 |
|---------------------|-----------------------|----------------|------------------------|-----------|----------|--------------------------------|
| | | | Width | Height | Depth | |
| 3-phase 200 V | 0.4 | VFAS1-2004PL | 130 | 230 | 152 | 3 |
| | 0.75 | VFAS1-2007PL | 130 | 230 | 152 | 3 |
| | 1.5 | VFAS1-2015PL | 130 | 230 | 152 | 3 |
| | 2.2 | VFAS1-2022PL | 155 | 260 | 164 | 4 |
| | 4.0 | VFAS1-2037PL | 155 | 260 | 164 | 4 |
| | 5.5 | VFAS1-2055PL | 175 | 295 | 164 | 5.5 |
| | 7.5 | VFAS1-2075PL | 210 | 295 | 191 | 7 |
| | 11 | VFAS1-2110PM | 230 | 400 | 191 | 9 |
| | 15 | VFAS1-2150PM | 230 | 400 | 191 | 9 |
| | 18.5 | VFAS1-2185PM | 240 | 420 | 212 | 30 |
| | 22 | VFAS1-2220PM | 240 | 420 | 212 | 30 |
| | 30 | VFAS1-2300PM | 320 | 550 | 242 | 37 |
| | 37 | VFAS1-2370PM | 320 | 550 | 242 | 37 |
| | 45 | VFAS1-2450PM | 320 | 550 | 242 | 37 |
| | 55 | VFAS1-2550P | 310(320) | 680(920) | 370 | 59(91) |
| | 75 | VFAS1-2750P | 350(360) | 782(1022) | 370 | 72(106) |
| | 3-phase 400 V | 0.75 | VFAS1-4007PL | 130 | 230 | 152 |
| 1.5 | | VFAS1-4015PL | 130 | 230 | 152 | 3 |
| 2.2 | | VFAS1-4022PL | 130 | 230 | 152 | 3 |
| 4.0 | | VFAS1-4037PL | 155 | 260 | 164 | 4 |
| 5.5 | | VFAS1-4055PL | 175 | 295 | 164 | 5.5 |
| 7.5 | | VFAS1-4075PL | 175 | 295 | 164 | 5.5 |
| 11 | | VFAS1-4110PL | 210 | 295 | 191 | 7 |
| 15 | | VFAS1-4150PL | 230 | 400 | 191 | 9 |
| 18.5 | | VFAS1-4185PL | 230 | 400 | 191 | 9 |
| 22 | | VFAS1-4220PL | 240 | 420 | 212 | 19 |
| 30 | | VFAS1-4300PL | 240 | 550 | 242 | 26 |
| 37 | | VFAS1-4370PL | 240 | 550 | 242 | 26 |
| 45 | | VFAS1-4450PL | 320 | 630 | 290 | 44 |
| 55 | | VFAS1-4550PL | 320 | 630 | 290 | 44 |
| 75 | | VFAS1-4750PL | 320 | 630 | 290 | 44 |
| 90 | | VFAS1-4900PC | 310(320) | 680(920) | 370 | 60(92) |
| 110 | | VFAS1-4110KPC | 350(360) | 782(1022) | 370 | 74(108) |
| 132 | VFAS1-4132KPC | 330(340) | 950(1190) | 370 | 80(116) | |
| 160 | VFAS1-4160KPC | 430(440) | 950(1190) | 370 | 110(164) | |
| 200 | VFAS1-4200KPC | 585(595) | 950(1190) | 370 | 140(199) | |
| 220 | VFAS1-4220KPC | 585(595) | 950(1190) | 370 | 140(207) | |
| 280 | VFAS1-4280KPC | 585(595) | 950(1190) | 370 | 140(207) | |
| 355 | VFAS1-4355KPC | 880(890) | 1150(1390) | 370 | 225(314) | |
| 400 | VFAS1-4400KPC | 880(890) | 1150(1390) | 370 | 225(337) | |
| 500 | VFAS1-4500KPC | 1110(1120) | 1150(1390) | 370 | 300(433) | |

Note 1: Value in () includes attached DC reactor

Standard connection diagram



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, aviation and space flight control, traffic, and safety, 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. Special precautions must be taken and 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 issuing an inverter failure 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.
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High-performance Inverter TOSVERT™

VF-AS1

3-phase 200V class 0.4kW to 75kW
3-phase 400V class 0.75kW to 500kW



coming soon

Flexible for you

I need the most suitable inverter for my application, which has low noise, low harmonics, minimal parameter setting, high torque and control. We meet all your requirements with VF-AS1. It has outstanding performance, including high torque, fast response, high accuracy and excellent environmental compatibility with easy operation. The VF-AS1 is an advanced inverter evolved to satisfy all your needs in one comprehensive product.



High-performance Inverter TOSVERT™

VF-AS1

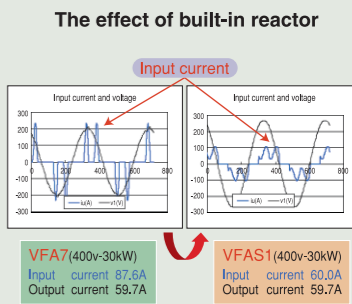
| Voltage Class | Applicable Motor Output (kW) | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|------|-----|-----|-----|-----|-----|----|----|------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.4 | 0.75 | 1.5 | 2.2 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 200 | 220 | 280 | 355 | 400 |
| 3-phase 200 V | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-phase 400 V | | | | | | | | | | | | | | | | | | | | | | | | | |

Up to 5.5kW, 3-phase 200V class can be applied to 1-phase input power supply by using 1 size-up rating.



For your electronic products that might interfere with peripheral devices!

The integrated noise filter*1 and reactor*2 drastically reduce high-frequency noise and harmonics generated by the inverter to improve the power factor. This makes the inverter ideal for your electronic applications such as washing machines, treadmill, showcase refrigerators for stores, medical equipment, and stage equipment where attention must be paid to peripheral devices.



For simple machinery with only a few parameters setting!

In the Quick mode, pressing the EASY key displays only eight basic parameters, thus facilitating parameter selection and setup. In addition, you can customize and display maximum of 32 target from all kinds of parameters to suit your specific setup requirements. This makes the inverter ideal for simple operations such as drilling machines, handling machines, conveyors, semiconductor production equipment, cutting machines, and woodworking machinery.

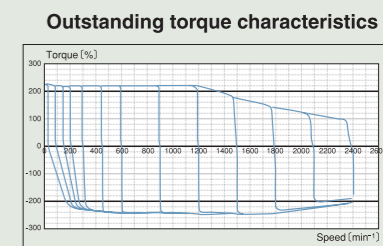
Quick mode (EASY)

| Title | Function |
|-------|-----------------------------------|
| AU4 | Parameter setting macro function |
| Pt | V/F control mode selection |
| FH | Maximum frequency |
| ACC | Acceleration time 1 |
| dEC | Deceleration time 1 |
| tHr | Motor overload protection level 1 |
| FM | FM terminal meter selection |
| PSEL | Parameter display selection |



For machinery that requires high torque and a large capacity!

This inverter accelerates instantly from low speeds at a starting torque of 0.3 Hz - 200%*3. Excellent performance of the regenerative mode as well as that of the motoring mode has been achieved by applying the smart vector control technology developed by Toshiba originally. Wide capacity range up to 500 kW for a 400 V class inverter. This makes it ideals for cranes, mining machinery, refrigerator, presses, compressors, crushing machine and other machinery that require a high torque and large capacity.



For system devices requiring flexibility!

The My function allows you to program logic operations and internal data operations as you desire so that you can customize the inverter to match your system or machine. This also achieves high-precision, high-speed torque control with or without sensors. RS485 (TOSHIBA/Modbus protocol) communications is equipped as standard, and DeviceNet*4, Profibus, and CC-Link fieldbuses are also supported as options. The PCM001Z communications software allows you to edit, monitor, and trace parameter data on a PC easily. This makes the inverter ideal for paper and film lines, printing machines, presses, coils/uncoilers and other systems that require flexibility.



*1. 200 V class models, 0.4 to 7.5 kW : EMI noise filter (complies with the European EMC Directive) built-in standard, 200 V class models, 11 to 45 kW : Basic noise filter (not complies with the European EMC Directive) built-in standard, 400 V class models, 0.75 to 75 kW : EMI noise filter (complies with the European EMC Directive) built-in standard, 400 V class models, 90 to 500 kW : EMI noise filter (complies with the European EMC Directive) built-in standard.
 *2. 200 V class models, 11 to 45 kW : DC reactor built-in standard
 55 to 75 kW : DC reactor attached.
 400 V class models, 18.5 to 75 kW: DC reactor built-in standard
 90 to 500 kW : DC reactor attached.
 *3 When a TOSHIBA standard 3-phase, 200 V - 2.2 kW 4-pole motor is driven, (Specifications may differ according to voltage and model.)
 *4 DeviceNet is a registered trademarks of ODVA (Open DeviceNet Vendor Association).
 *5. Photos of machinery are for illustrative purposes only.