

TOSHIBA

Variable Speed Drive

TOSVERT VF-nC3E



3 Phase 400V Class - 0.4 kW to 11 kW

Simple. Strong. Smart.

Minimum structure achieves Maximum possibilities

Toshiba's VF-nC3E is a compact and high performance low voltage variable speed drive designed for simple and smart usability. VF-nC3E allows competitiveness for wide applications in the global market.

Simple Usability.

Simple Operation

The large setting dial in front allows you to control local speed and set the parameters easily. For setting parameters, just turn the dial and push to select. The VF-nC3E can easily be operated with the RUN and STOP keys.



Simple Installation

Multiple drives are mountable side-by-side, saving space when installation. The removable cover for the main circuit ensures safety.



Simple Settings

The EASY Key provides quick access up to 24 frequently-used parameters (Easy Mode).

The EASY key allows to switch between Easy Mode and Standard Mode that shows all the parameters.



Strong Durability.

Designed for Longer Life Span

► The life span of main parts: up to 10 years (capacitor, cooling fan).

*Condition: Input voltage: 380V, Ambient temperature: 40°C (24 hours, 365 days), Output current: 80% of the rated current.

► Strong against dust: strengthened coating circuit board and the new cooling systems.

► Can resist in harsh ambient temperature from -10°C up to 60°C. *Conditions: See Note 7 in the right specification table.

► Max usable altitude: 3,000m *Conditions: See Note 6 in the right specification table.

Smart Functions.

Ideal for Various Applications

VF-nC3E features meet the demand of most industrial applications. It is a reliable choice for various machines, such as fan, pump, conveyor, food processing machinery, car washing machinery, packing machinery, etc.

Fan & Pump

- 1. Energy-Saving
- 2. Prevent unpredictable stop
- 3. PID control

1. Save energy with Energy-saving mode by passing optimal current in accordance with the load.

2. Operation uninterrupted even under instantaneous power failure by regenerative energy from motors. (**Regenerative power ride-through control, Auto restart control**)

3. Control temperatures, pressures and flow rates with automatic process control by simplified system. (**PID control**)

Conveyor

- 1. Soft start & stop
- 2. High Torque
- 3. Improved braking

1. Prevent cargo collapse by mitigating shocks with acceleration / deceleration rates. (**S-pattern acceleration / deceleration**)

2. High output torque provides smooth start up by vector control and auto torque boost control achieving strong and stable start for motor. Auto-tuning can setup motor constant easily.

3. Improved braking performance without causing overvoltage trip with motors. (**Quick deceleration control, DC Brake function, Built-in dynamic braking circuit** *for 1.5kW or above)

Food processing machinery

- 1. RS485 communication
- 2. Protected parameter
- 3. Preset speed

1. Control machines with multiple inverters, through RS485 communication without overlapping. (**Built-in RS485 communication**)

2. Protect parameters from being altered with a password lock. (**Password Lock**)

3. The frequency is selectable up to 15 steps through external contact inputs. (**Preset speed operation**)

Compact Low Voltage Drive TOSVERT VF-nC3E



| Voltage Class | Applicable Motor Capacity (kW) | | | | | | | |
|---------------|--------------------------------|------|-----|-----|-----|-----|-----|----|
| | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 |
| 3-phase 400V | | | | | | | | |

| Item | Specification | | | | | | | |
|--|--|----------|--|----------|----------|-----------|----------|--------|
| | 3-phase 400V Class | | | | | | | |
| Input Voltage Class | 3-phase 400V Class | | | | | | | |
| Applicable Motor (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 |
| Type | VFNC3E | | | | | | | |
| Form | 4004P | 4007P | 4015P | 4022P | 4037P | 4055P | 4075P | 4110P |
| Capacity (kVA) *Note 1 | 1.1 | 1.8 | 3.1 | 4.2 | 7.2 | 9.6 | 13 | 18 |
| Output Current (A) *Note 2 | 1.5(1.2) | 2.3(1.5) | 4.1(4.0) | 5.5(4.2) | 9.5(8.8) | 12.6(9.5) | 17(16.2) | 24(17) |
| Rated Output Voltage *Note 3 | 3-phase 380V to 460V | | | | | | | |
| Overload Current Rating | 150% - 60 seconds, 200% - 0.5 seconds | | | | | | | |
| Voltage-frequency | 3-phase 380V to 460V - 50 / 60 Hz | | | | | | | |
| Allowable Fluctuation | Voltage +10%, -15% (323V to 506V)*Note 4, Frequency ±5% | | | | | | | |
| Required Power Supply Capacity (kVA) *Note 5 | 1.5 | 2.7 | 4.8 | 6.4 | 10.0 | 15.6 | 19.7 | 26.6 |
| Protective Method (IEC60529) | IP20 | | | | | | | |
| Cooling Method | Self-cooling | | | | | | | |
| Color | Forced Air-cooling | | | | | | | |
| Environments | Indoors; not exposed to direct sunlight, corrosive gas, explosive gas, flammable gas, oil mist, or dust; and vibration of less than 5.9m/s ² (10 to 55Hz) | | | | | | | |
| | Altitude | | 3000m or less (current reduction required above 1000m) *Note 6 | | | | | |
| | Ambient Temperature | | -10 to +60°C *Note 7 | | | | | |
| | Storage Temperature | | -25 to +70°C (Temperature applicable for a short term) | | | | | |
| | Relative Humidity | | 5 to 95% (free from condensation and vapor) | | | | | |

*Note 1 Capacity is calculated at 440V for output voltage.

*Note 2 Indicates rated output current setting when the PWM carrier frequency (parameter F300) is 4kHz or less.

Over 4kHz, the rated output current is indicated in the (). The default setting of the PMW carrier frequency is 4kHz.

*Note 3 Maximum output voltage is the same as the input voltage.

*Note 4 ±10% (342V to 506V) when the inverter is used continuously (load of 100%).

*Note 5 Required power supply capacity varies with the value of the power supply side inverter impedance (including those of the input reactor and cables).

*Note 6 Current must be reduced by 1% for each 100m above 1000m (e.g. 90% at 2000m, 80% at 3000m).

*Note 7 Above 50°C: Remove the protective seal from the top of the inverter.

Above 55°C: Remove the seal from the top of the inverter and use the inverter with the output current reduced.

Side by side installation (with no space between inverters): Remove the seal from the top of each inverter. When installing the inverter where the ambient temperature rises above 50°C, remove the seal from the top of the inverter and use the inverter with the output current reduced.

Certification

VF-nC3E is in conformity with the requirements of the following directives.

- LV Directive

- EMC Directive

*Only limited to the immunity parts

- RoHS Directive



External options

Extension panel
- RKP007Z



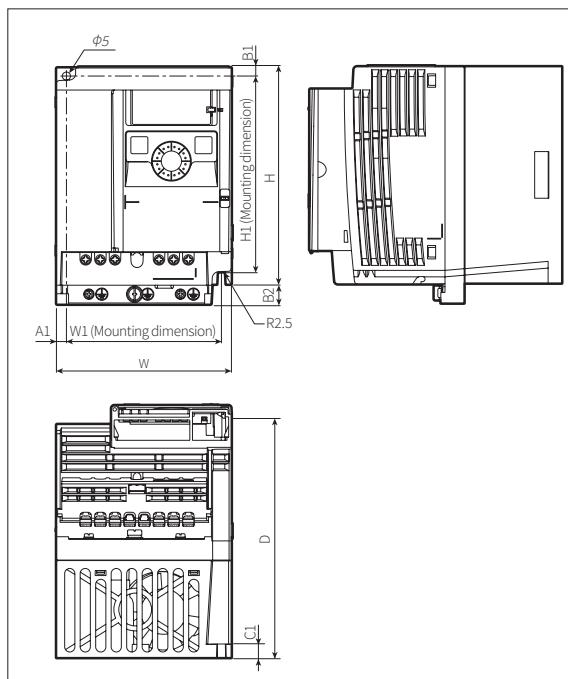
USB communication conversion unit
- USB001Z



External Dimensions & Weight

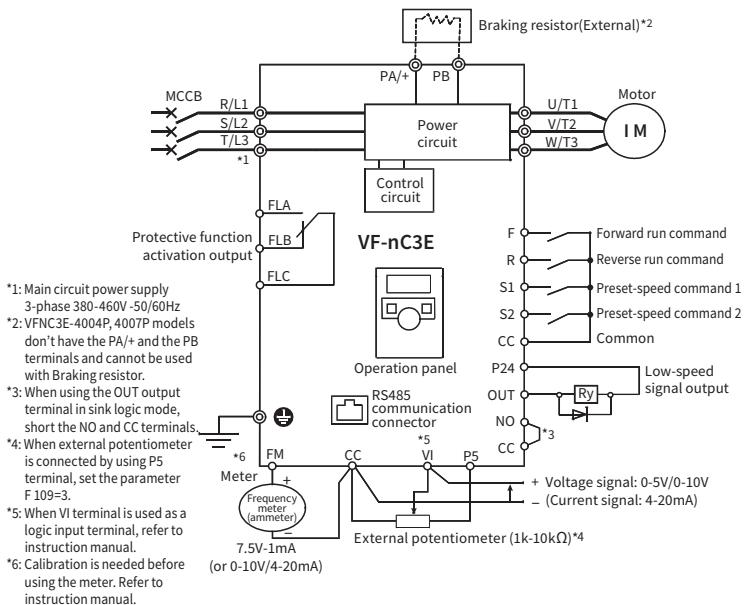
| Input Voltage Class | Applicable Motor Capacity (kW) | Drive Type-Form | Dimensions (mm) | | | | | | | | | Approx. Mass (kg) |
|---------------------|--------------------------------|-----------------|-----------------|-----|-----|-----|-----|-----|-----|----|----|-------------------|
| | | | W | H | D | W1 | H1 | A1 | B1 | B2 | C1 | |
| 3-phase 400V class | 0.4 | VFNC3E-4004P | 72 | 130 | 130 | 60 | 118 | 5.5 | 6 | 13 | 2 | 0.8 |
| | 0.75 | VFNC3E-4007P | | | 140 | | | | | | | |
| | 1.5 | VFNC3E-4015P | 105 | 130 | 151 | 93 | 118 | 6 | 5 | 13 | 8 | 1.2 |
| | 2.2 | VFNC3E-4022P | | | 151 | | | | | | | |
| | 3.7 | VFNC3E-4037P | 140 | 171 | 151 | 126 | 157 | 7 | 6.5 | 13 | 8 | 1.9 |
| | 5.5 | VFNC3E-4055P | | | 151 | | | | | | | |
| | 7.5 | VFNC3E-4075P | 150 | 220 | 171 | 130 | 210 | 10 | 5 | 12 | 15 | 3.6 |
| | 11 | VFNC3E-4110P | | | 171 | | | | | | | |

Outline



Standard Connection Diagram:

Sink logic(Negative)(common:CC)



For users of the products : Our variable speed drives are designed to control the speeds of three-phase motors for general industry.

⚠ Precautions

- * Please read the instruction manual before installing or operating the drive unit.
- * This product is intended for general purpose uses in industrial application. It cannot be used applications where may cause big impact on public uses, such as power plant and railway, and equipment which endanger human life or injury, such as nuclear power control, aviation, space flight control, traffic, safety device, amusement, or medical. It may be considerable whether to apply, under the special condition or an application where strict quality control may not be required. Please contact our headquarters, branch, or local offices printed on the front and back covers of this catalogue.
- * When exporting Toshiba variable speed drive separately or combined with your equipment, please be sure to satisfy the objective conditions and inform conditions listed in the export control policies, so called Catch-all restrictions, which are set by the Ministry of Economy, Trade and Industry of Japan, and the appropriate export procedures must also be taken.
- * Please use our product in applications where do not cause serious accidents or damages even if product is failure, or please use in environment where safety equipment is applicable or a backup circuit device is provided outside the system.
- * Please do not use our product for any load other than three-phase 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 variable speed drive is incorporated or to any equipment that is used in combination with the Toshiba variable speed drive. 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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