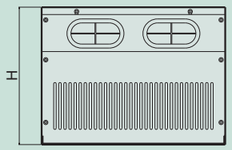
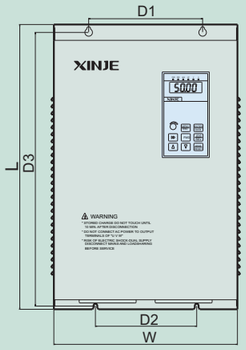
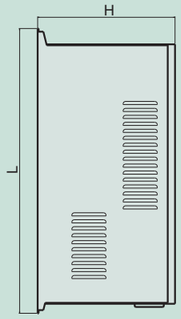
V5 series 3-phase 11 ~ 55KW







Type	W	D	L	D2	H	D3
V5-4011	230	120	420	160	218	400
V5-4015						
V5-4018						
V5-4022	290	180	450	210	217	430
V5-4030						
V5-4037	375	230	581	230	261	551
V5-4045						
V5-4055						

SCANTECH
automacao industrial

Excellent performance
Stable and reliable

SCANTECH
automacao industrial

VB3/VB5/V5 series general types of inverters
compatible motor power 0.4~55 kW

Excellent
product performance

Add vector control to enhance the performance

1 High starting torque
- Open loop vector control for current obtains high torque at low speed, output torque can up to 100% of rated torque at 1 Hz.

2 Auto–learning
- 3-phase 380 V inverters support vector control function. The inverters can read the motor information and match to the motors automatically in auto-learning mode.

Perfect basic functions

3 Two types option (G / P)
- There are two types (G / P) for selection. G is fit for general situations. P is ideal in the situation of fan, pump and so on. Inverter power will improve one level automatically.

4 Built–in PI adjustment function
- It is easy to build the closed-loop process control system, improve the system precision.

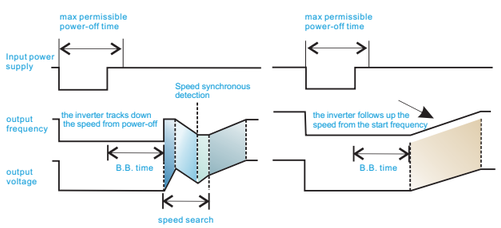
5 Multi–speed running
- Implement the multi-speed running through the built-in PLC orcontrol terminals. Support up to 7 speeds.

6 High speed pulse I/O
- Terminal X6 can input pulse up to 20 kHz which is used to control the pulse frequency;
- Terminal DO can output pulse up to 20 kHz. Self-defined functions, PLC or other controllers can read the internal variable value of the inverter via frequency measurement.

7 Flexible I/O terminals
- The I/O can be defined as a variety of functions which makes the products easier to be controlled and more selections to be chosen.

8 On–line parameters modification
- Change the parameters without stopping the inverter which makes the operation more convenient.

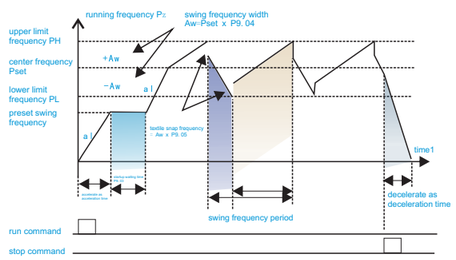
9 Speed tracking function
- If needs to startup the motor again when the motor is about to stop, the inverter can track the current speed and startup it without impact.



10 9 frequency setting modes, users can select the best mode according to the machine conditions
- Users can set the frequency through panel potentiometer,numeric keyboard, terminal UP/DOWN, analog terminal VI/CI, pulse, combination and serial port remote setting.

11 Fixed–length control
- The inverter stops running when reaching the preset length.

12 Swing frequency control
- Group P9 is swing frequency parameters which are designed for textile, fiber and other industries need traverse and winding functions. Users can adjust the preset frequency and center frequency.



13 Brake unit
- The inverters have built-in brake unit for power less than 18.5 kW (include 18.5 kW). The inverters for power larger than 22 kW (include 22 kW) need external brake unit, please refer to page 8 for details.

14 Auto–energy–saving running
- Optimize the V/F curve according to the load conditions to fulfill energy-saving running.

Excellent product performance

15 Group functions make the setting easier and faster
- Group P0 to PB can help to search and set the parameters easily.

16 Built–in simple PLC running mode
- The simple PLC running mode is a multi-speed generator; inverter can change the frequency and direction as the running time to meet the technical requirements.

Communication function

17 RS–485 interface supports Modbus–RTU protocol.

18 Support master–slave multi–machine linkage function.

Exhaustive protection function

19 overcurrent protection

20 overvoltage protection

21 undervoltage protection

22 overheat protection: inverter will lock the output and stop freely when overheating

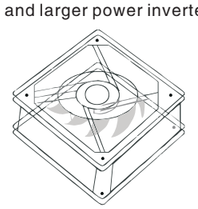
23 overload protection: inverter will lock the output and stop freely when overloading

Human oriented design of the structure

24 The installation environment is compliant to IP20

25 Compact volume, space saving, can be installed side by side seamlessly

26 Removable cooling fan
(11 kW and larger power inverters support this function)



27 Removable control panel

28 Removable potentiometer

29 Optional equipped with mounting base of control panel and extension cable
- Users can operate the inverter from a long distance with these accessories

30 Filter unit
- The power of inverters equal to or larger than 30 kW have reactor inside which can be used for choking the high harmonics and improving the power factor.

Diverse types(rich models)

Xinje inverters have rich models including VB3, VB5, V5 series; voltage level contains single-phase 220 V, 3-phase 380 V; motor capacity contains 0.4 to 55 kW.

Types selection

Power range (kW)	Current (A)	Single-phase 220 V		3-phase 380 V		
		VB3	VB5	VB3	VB5	V5
0.4	3.0	VB3-20P4				
0.75	4.7	VB3-20P7	VB5-20P7			
	2.5			VB3-40P7	VB5-40P7	
1.5	7.5		VB5-21P5			
	4.0			VB3-41P5	VB5-41P5	
2.2	10.0		VB5-22P2			
	6.0			VB3-42P2	VB5-42P2	
3.7	9.6			VB3-43P7	VB5-43P7	
5.5	14.0				VB5-45P5	
7.5	17.0				VB5-47P5	
11.5	25.0					V5-4011
15	33.0					V5-4015
18.5	38.0					V5-4018
22	46.0					V5-4022
30	60.0					V5-4030
37	75.0					V5-4037
45	90.0					V5-4045
55	110					V5-4055

Type code

VB5 - 4 3P7

Max compatible motor capacity
011：11KW
3P7：3.7KW (P: decimal point)

Voltage level
2：200V
4：380V

Series name
VB3: VVVF/vector control, mini type
VB5: VVVF/vector control
V5: VVVF/vector control

Note: 220 V types do not have vector control function.

Specifications

220V types

Type		VB3-20P4	VB3-20P7	VB5-20P7	VB5-21P5	VB5-22P2
Output	Compatible motors (kW)	0.4	0.75	0.75	1.5	2.2
	Rated current (A)	3.0	4.7	4.7	7.5	10.0
	Rated voltage (V)	AC 220				
	Frequency (Hz)	0~500				
	Frequency resolution (Hz)	0.01				
	Overload capability	1.5×rated current 1 minute, 1.8×rated current 1 second				
Input	Rated voltage/frequency	Single-phase 220 V, 50/60 Hz				
	Allowable range of AC voltage fluctuation	Voltage: -20% to 20% , voltage imbalance rate: < 3%				
	Allowable range of frequency fluctuation	± 5%				
	Power supply capacity (kVA)	0.9	1.5	1.5	2.8	4.5

380V types

Type		VB3-40P7	VB3-41P5	VB3-42P2	VB3-43P7
Output	Compatible motors (kW)	0.75	1.5	2.2	3.7
	Rated current (A)	2.5	4.0	6.0	9.6
	Rated voltage (V)	AC380			
	Frequency (Hz)	0~500			
	Frequency resolution (Hz)	0.01			
	Overload capability	1.5×rated current 1 minute, 1.8×rated current 1 second			
Input	Rated voltage/frequency	3-phase 380 V, 50/60 Hz			
	Allowable range of AC voltage fluctuation	Voltage: -20% to 20% , voltage imbalance rate: < 3%			
	Allowable range of frequency fluctuation	± 5%			
	Power supply capacity (kVA)	2.1	2.5	3.0	5.9

Type VB5-4_ _ _		0P7	1P5	2P2	3P7	5P5	7P5
Output	Compatible motors (kW)	0.75	1.5	2.2	3.7	5.5	7.5
	Rated current (A)	2.5	4.0	6.0	9.6	14.0	17.0
	Rated voltage (V)	AC380					
	Frequency (Hz)	0~500					
	Frequency resolution (Hz)	0.01					
	Overload capability	1.5×rated current 1 minute, 1.8×rated current 1 second					
Input	Rated voltage/frequency	3-phase 380 V, 50/60 Hz					
	Allowable range of AC voltage fluctuation	Voltage: -20% to 20% , voltage imbalance rate: < 3%					
	Allowable range of frequency fluctuation	± 5%					
	Power supply capacity (kVA)	2.1	2.5	3.0	5.9	8.5	11

Type V5-4_ _ _		011	015	018	022	030	037	045	055
Output	Compatible motors (kW)	11	15	18.5	22	30	37	45	55
	Rated current (A)	25	33	38	46	60	75	90	110
	Rated voltage (V)	AC380							
	Frequency (Hz)	0~500							
	Frequency resolution (Hz)	0.01							
	Overload capability	1.5×rated current 1 minute, 1.8×rated current 1 second							
Input	Rated voltage/frequency	3-phase 380 V, 50/60 Hz							
	Allowable range of AC voltage fluctuation	Voltage: -20% to 20% , voltage imbalance rate: < 3%							
	Allowable range of frequency fluctuation	± 5%							
	Power supply capacity (kVA)	15	20	25	30	40	50	60	75

Environment and structure

Item		specification
Environment	Using sites	Indoor, protect from direct sunlight, dustless, no corrosive gas, no oil mist, no steam
	Altitude	Lower than 1000 meters, (need derate when higher than 1000 meters)
	Ambient temperature	–10℃~ +40℃
	Humidity	< 90% RH, no condensation
	Vibration	< 5.9 m/s2 (0.6 G)
	Storage temperature	–20℃~ +60℃
Structure	Protection structure	IP20 (when selecting the status display unit or control panel)
	Cooling mode	Forced air-cooling
Installation		Wall-mounted, cabinet-mounted

Performance

	Item	Specification
Control functions	Modulation mode	Space voltage vector modulation SVPWM
	Control mode	Optimal vector control (Optimal low-frequency dead zone compensation)
	Frequency accuracy	Digital setting: the highest frequency × ±0.01% Analog setting: the highest frequency × ±0.2%
	Frequency resolution	Digital setting: 0.01 Hz Analog setting: the highest frequency × 0.1%
	Startup frequency	0.40 Hz to 20.00 Hz
	Torque increase	Automatic increase the torque, manual increase the torque by 0.1% to 30.0%
	V/F curve	Five modes Constant torque V/F curve 1 kind of user-defined multi-segment V/F curve 3 kinds of torque curve (2nd power, 1.7th power, and 1.2nd power)
	Acceleration and deceleration curves	Two modes Linear acceleration/deceleration S curve acceleration/deceleration 7 kinds of acceleration/deceleration time, unit options: minute/second, up to 6000 minutes
	DC brake	Start frequency of DC brake: 0 to 15.00 Hz Brake time: 0 to 60.0 s Brake current: 0 to 80%
	Energy consumption brake	Built-in energy consumption brake unit, enable to connect external brake resistor
	Jog	Jog frequency range: 0.1 to 50.00 Hz Jog acceleration/deceleration time: 0.1 to 60.0 s
	Built-in PID	Easy to form the closed loop control system
	Multi-speed running	Run in multi-speed mode via built-in PLC or control terminals
	Textile swing frequency	Swing frequency with adjustable preset and center frequency
	Automatic voltage regulation (AVR)	Maintain the stability of the output voltage when the power line voltage is changing
	Automatic energy-saving running	Automatic optimize the V/F curve according to the load condition to fulfill the energy-saving running
	Automatic current restriction	Automatic limit the current to prevent from overcurrent and trip when running
	Fixed-length control	The inverter stops running when reaches the preset length
	Communication function	RS-485 port, support Modbus-RTU protocol
		Support master-slave linkage function (developing)
Running functions	Command running channel	Three modes can switch to each other Set via control panel Set via control terminals Set via serial port
	Frequency setting channel	Nine modes can switch to each other Set via potentiometer Set via Up/Down buttons Set via function code Set via serial port Set via analog voltage Set via analog current Set via pulse Set via combination
	Switch setting channel	Forward/backward command 6 channels programmable digital input 35 kinds of functions (X6 supports 0 to 20 kHz pulse input)
	Analog input channel	2 channels analog input Options: 4 to 20 mA / 0 to 10 V
	Analog output channel	1 channel analog input 0 to 10 V Output the preset frequency, output frequency
	Switch/pulse output channel	1 channel programmable open collector output 1 channel relay output 1 channel 0 to 20 kHz pulse output (open collector signal) Output multi-signal
Control panel	LED digital display	Display the preset frequency, output voltage, output current
	External meter display	Display the output frequency, output current, output voltage
	Key lock	Lock all the keys
Protection function		Overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection
Accessories		Brake unit, extension cable of the control panel, control panel

Main circuit terminals

Figure A

Figure B

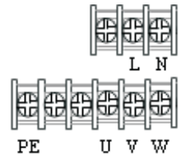


Figure C

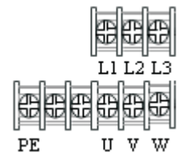


Figure D

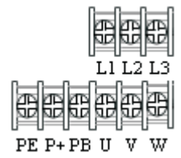


Figure E

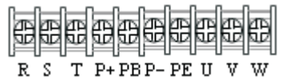


Figure F

Figure G

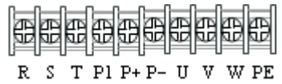


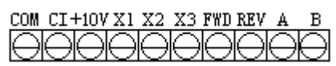
Figure H

The relationship between main circuit terminals and types:

Voltage level	Power (kW)	Figure	Series
220V	0.4 ~ 0.75	figure A	VB3
	0.75 ~ 2.2	figure B	VB5
380V	0.75 ~ 3.7	figure C	VB3
	0.75 ~ 3.7	figure D	VB5
	5.5 ~ 7.5	figure E	VB5
	11 ~ 18.5	figure F	V5
	22 ~ 30	figure G	V5
	37 ~ 55	figure H	V5

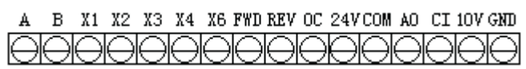
Control circuit terminals

VB3 series single-phase 0.4 to 0.75 kW

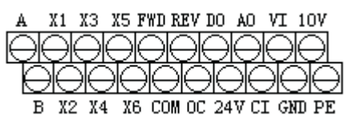


VB5 series single-phase 0.75 to 2.2 kW

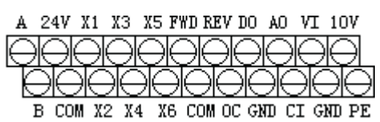
VB3 series 3-phase 0.75 to 3.7 kW



VB5 series 3-phase 0.75 to 3.7 kW



VB5 series 3-phase 5.5 to 7.5 kW



V5 series 3-phase 11 to 55 kW

Error output terminals

Wiring diagram

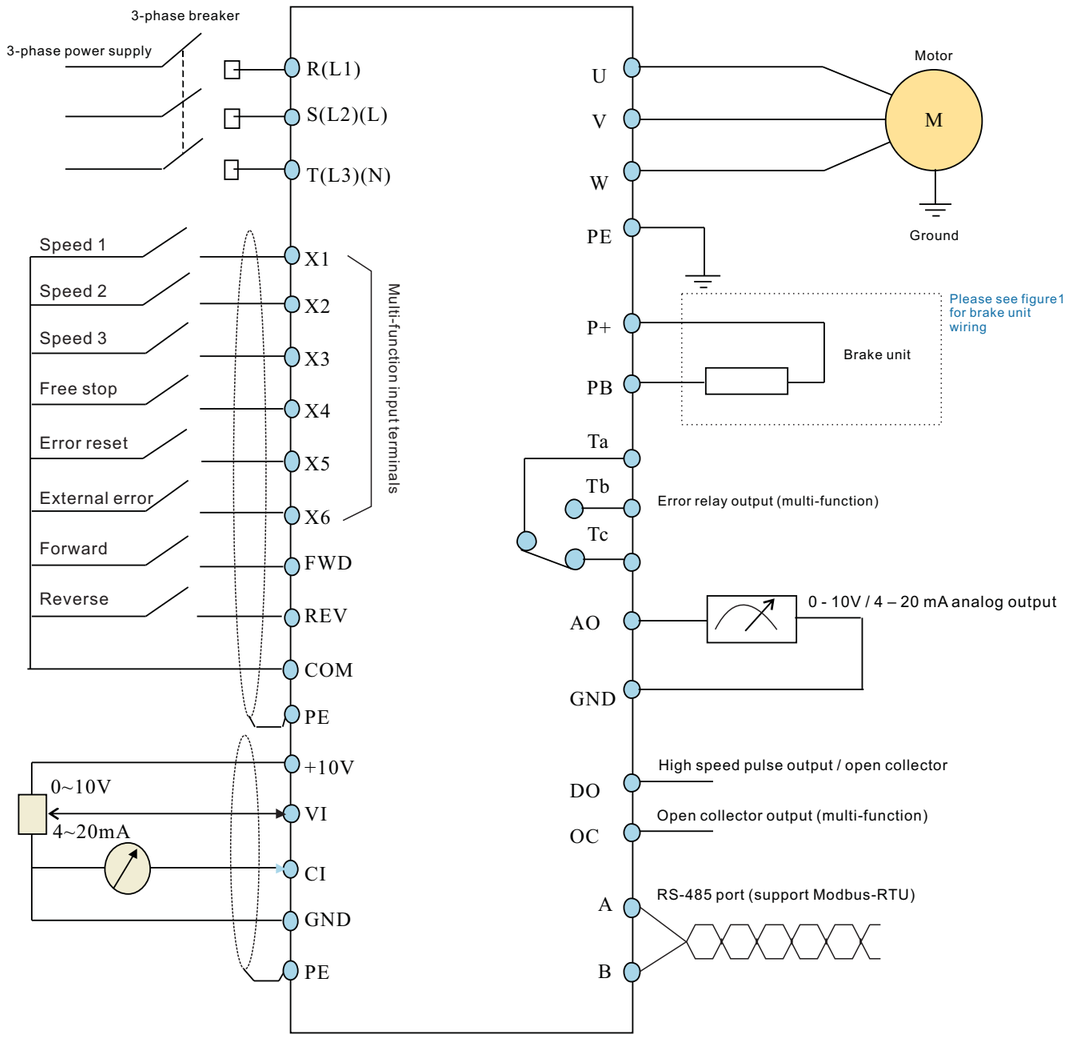
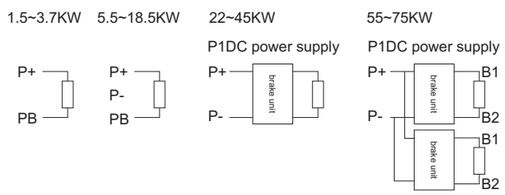


Figure1



Notes:

(1) P- is only used in 5.5 kW and larger power inverters.
(2) L, N are only used in 220 V single-phase inverters.
(3) L1, L2, L3 are only used in VB3 and VB5 series 3-phase 0.75 to 3.7 kW inverters.
(4) There are no X5, X6, VI, DO, P+, P-, PB in VB3 series 3-phase 0.75 to 3.7 kW inverters.
(5) There are no X5, VI, DO in VB5 series 3-phase 0.75 to 3.7 kW inverters.
(6) There are no X4, X5, X6, VI, DO, OC, P+, P-, PB in VB3 and VB5 series single-phase inverters.

Brake resistor

1.5 to 18.5 kW inverters have built-in brake unit. Please refer to the following table to select brake unit. 22 kW and larger power inverters need to connect the external brake unit, please refer to page 7 for wiring.

- Brake unit and resistor table

Power		Brake unit		Brake resistor	
		Type	Quantity	Equivalent value of the brake resistor (Ω)	Equivalent brake power (W)
380V	1.5	Built-in	1	300	400
	2.2		1	200	500
	3.7		1	200	500
	5.5		1	100	500
	7.5		1	75	1000
	11		1	50	1000
	15		1	40	1500
	18.5		1	32	5000
	22	External	1	27.2	5000
	30		1	20	6000
	37		1	16	9600
	45		1	13.6	9600
	55		2	10	12000

Note: you can select the external brake unit from other suppliers such as BRU–4045.

Dimension and type of the control panel

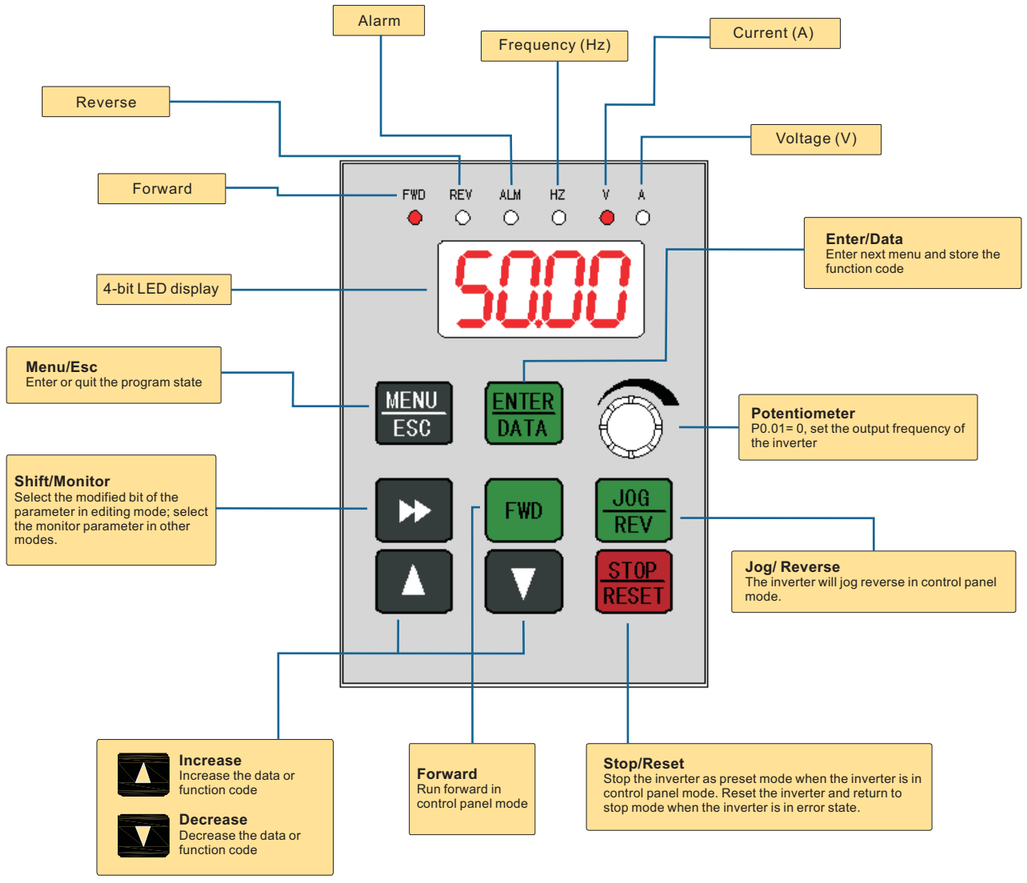
Control panel	Power range (kW)	Compatible inverters	Installation dimension W×H (mm)
V5–OPU–01	0.75~2.2	VB5 series single–phase	62*75
	0.75~3.7	VB3, VB5 series 3–phase	
	5.5~7.5	VB5 series 3–phase	
V5–OPU–03	11~55	V5 series	71*131

Extension cable of the control panel

Type	Length
V5–ECC–05	0.5
V5–ECC–10	1.0
V5–ECC–15	1.5

Control panel

The control panel and terminals can set the parameters of start, speed-tuning, stop, brake, run and control the external devices. Please see the explanation of each part.



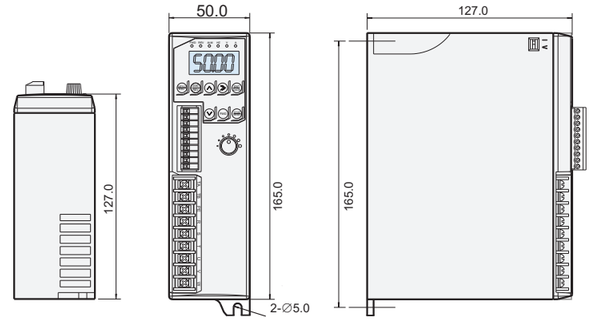
VB3 series single-phase

V5-OPU-01

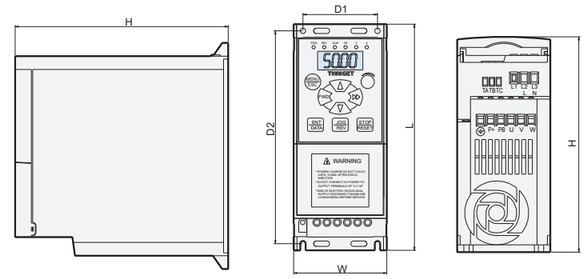
V5-OPU-03

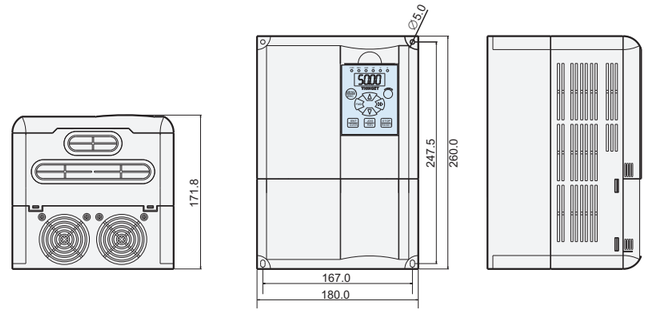
Dimension

VB3 series single-phase 0.4 to 0.75 kW



VB3, VB5 series 0.75 to 3.7 kW



Type	W	D1	L	D2	H
VB5-20P7	70	56	170	160	162
VB5-21P5					
VB5-22P2					
VB3/VB5-40P7	80	56	200	190	162
VB3/VB5-41P5					
VB3/VB5-42P2					
VB3/VB5-43P7					

VB5 series 3-phase 5.5 to 7.5 kW