

**IN310 Integrated system for HVLS**

**Industrial Ceiling Fan**

**Technical Manual**

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# Chapter 1 Safety Precautions

In order to ensure the safe and reasonable use of this product, please fully understand the safety precautions described in this manual before using this product.

## Warning Signs and Meanings



## Operational Qualification

This product must be operated by trained professionals. In addition, operators must be trained in professional skills, familiar with the installation, wiring, operation and maintenance of the equipment, and properly respond to various emergencies in use.

## Safety Information and Matters

It is strictly forbidden to carry out work with electricity. When carrying out wiring and inspection operations, it must be turned off after 10 minutes, otherwise there is a risk of electric shock.

The main circuit terminal and the cable must be firmly connected, otherwise the machine will be damaged due to poor connection.

Make sure that no foreign objects enter the machine, such as wire claws, solder pots, zinc screws, etc., to prevent damage to the product caused by short circuit.

Since the output voltage of the inverter is a pulse waveform, if a device for improving power factor or a varistor for lightning protection is installed on the output side, it must be removed or modified on the input side of the inverter.

Our company is responsible for the warranty and maintenance of this product in accordance with the "Product Quality Management Law", and is not responsible for the continuous responsibility relationship. If the motor fails or is damaged after the user uses this product, the company is not responsible for repairing or replacing the motor and the impact of the machine failure on the user. The company does not assume joint responsibility.

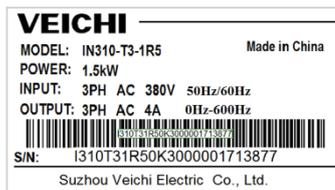
## Chapter 2 Product Overview

IN310 integrated all-in-one system is mainly composed of variable frequency drive, power-on rotary switch, speed control locator, LCD screen. The driver adopts the internationally leading magnetic field-oriented vector control technology, compatible with asynchronous and synchronous (including synchronous reluctance) motor control; the product adopts an integrated small volume design, saves installation space, realizes installation and use, and makes the user experience more perfect Comprehensive fault protection, guarantee product reliability, and make users more at ease; support a variety of expansion accessories, make product elements richer, and achieve the characteristics of high performance, high reliability, high power density, and high versatility; and the product is widely used in speed control applications, such as fans, pumps, transmission, food packaging and other industries. It is a "Small & Smart" integrated system.

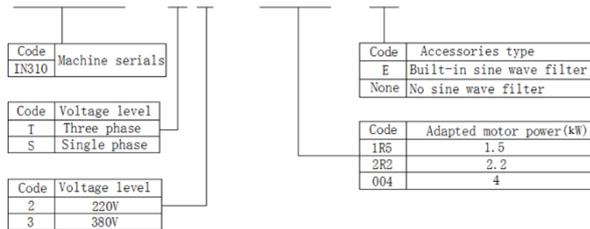
## Chapter 3 Model and Electrical Parameters

When you receive the product you ordered, please check whether the outer package is damaged, open the outer package after confirming that it is intact, and confirm whether the inverter is damaged, scratched or dirt (the damage caused by the product transportation does not belong to the company's "Three Guarantees" scope); If the product you received is damaged in transportation, please contact our company or the transportation company immediately. After confirming that the received product is intact, please confirm whether the received inverter model is the same as the product you ordered.

### 3.1 Nameplate and Model Description



### IN310 - T3 - 1R5 - E



### 3.2 Electrical Rated Features

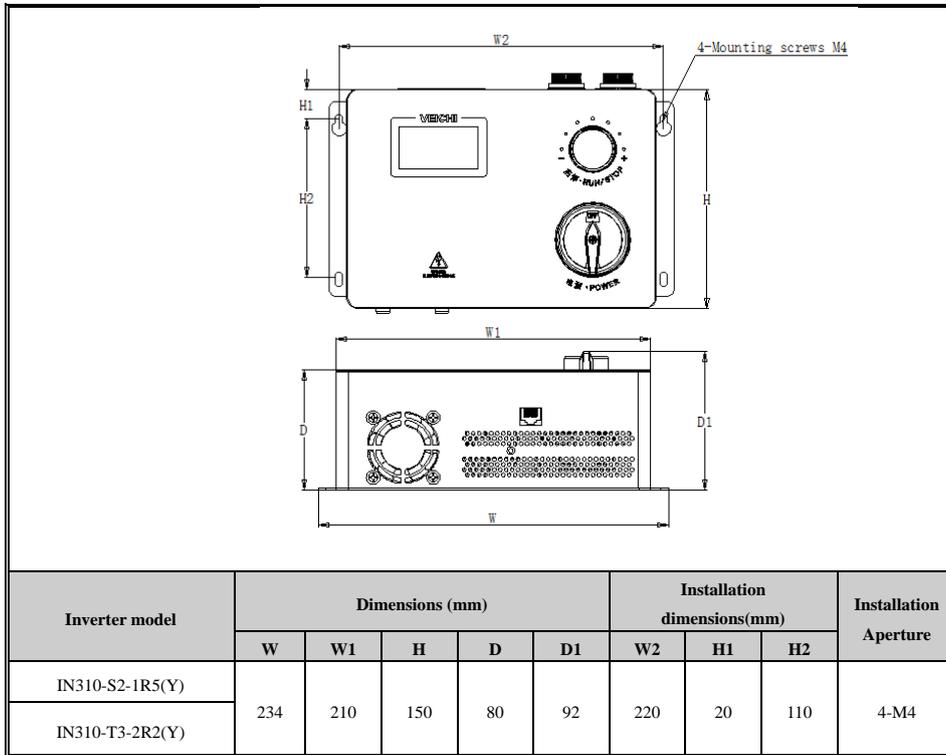
Model	Input voltage	Rated output current	Support motor
IN310-S2-1R5(Y)	220V	7A	Permanent magnet synchronous motor, synchronous reluctance motor, asynchronous motor, etc.
IN310-T3-2R2(Y)	380V	6A	

For other detailed performance indicators, please refer to the "AC310 series inverter" product specifications;

# Chapter 4 Installation Guide

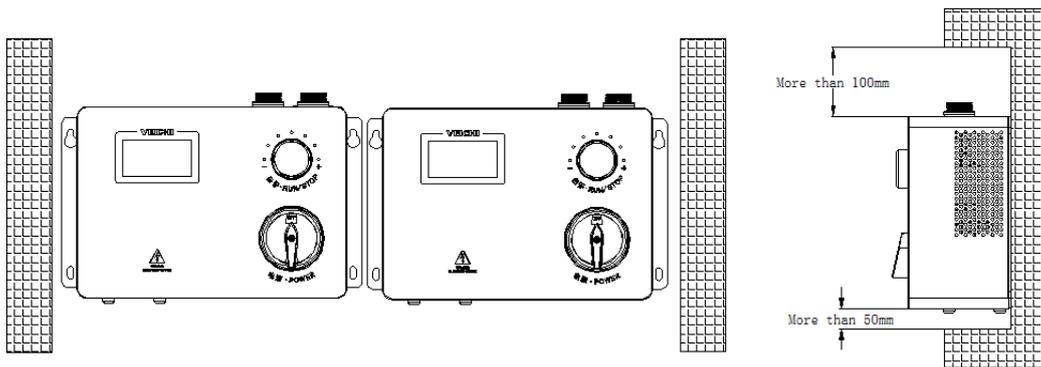
To ensure users use this product safely, maximize the performance of the inverter, and ensure the reliable operation of the inverter, please use this product strictly in accordance with the requirements of the environment, wiring, and ventilation described in this chapter.

## 4.1 Installation Size



## 4.2 Inverter Installation Space

### Installation Space Requirements of Inverter



Any size of left and right space

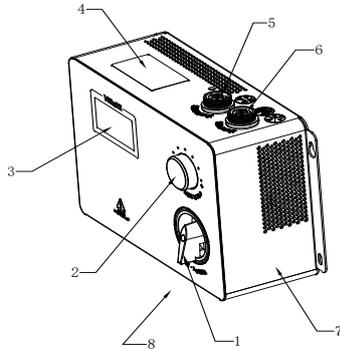
Up and down space

### Wiring Requirements for Input and Output Waterproof Terminals

1. Mark the input and output waterproof terminals with a 1.5 square cable.
2. The input and output waterproof terminals are normally connected to the cable without crimping nose. There is a separation wall at the connection to ensure the safety of the interphase power supply.
3. Input and output waterproof cable terminal cable dial specifications: the maximum length of the cable is 6mm.

# Chapter 5 User Instruction

## 5.1 Hardware Introduction



Number	Part name
1	Knob switch
2	Speed switch
3	LCD
4	Nameplate
5	Output terminal (waterproof)
6	Input terminal (waterproof)
7	Chassis
8	RJ45 Network port (under chassis)

**1. LCD Screen:** LCD display: rpm(Output speed)、A (Operating current)、V (Input voltage)、Operating status、Whether the status of "Output speed" is locked、Fault interface, etc.

Note:

- 1) The fault interface is displayed when a fault occurs, and the corresponding status interface is displayed normally.
- 2) The user has nothing to do with the product within 1 minute, the LCD screen changes from bright to dark to off, and the brightness is restored after the operation.

	Operation interface	Stop interface	Setting interface	Fault interface
2.				

**Power on Rotary Switch:** When the switch points to OFF , machine power off; when the switch points to ON , machine power on.

**3. Knob:** "One knob, multiple functions"

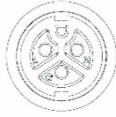
Function	Adjust speed	Run, stop button	Fault reset
Definition	The faster the adjustment knob, the greater the "Output Speed" adjustment range: increase clockwise and decrease counter clockwise .Note: The "knob key" is a digital potentiometer, which can be rotated by an angle.	Short press "knob key" to start, then short press "knob key" to stop, cycle in sequence Note: Short press time is below 2s.	When the product fails, short press the "knob key" to reset the fault. If the fault cannot be restored after a short press, please contact the manufacturer according to the contact information on the LCD screen .Note: Short press time is below 2s.

### 4. Waterproof Terminals for Input and Output:

Our S2 voltage grade drive: the input terminal is 3P wires, and the output terminal is 4P wires. When users connect, please check the numbers and letters on the terminals corresponding to the silk screen on the machine.

Our T3 voltage grade drive: the input and output are 4P wires. When users connect, please check the numbers and letters on the terminals corresponding to the silk screen on the machine.

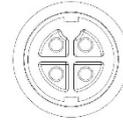
M19 Female terminal



G: Ground

L、N:Connected with power line

M19 Female terminal



4: Ground

1、 2、 3: Connected with power line

**5. LED Indicator Light:** The indicator is the output speed indicator, the rated speed and the number of indicators are linear relationship (a total of 7 LED indicators).

## 5.2 Precautions

1. Do not perform wiring, inspection, or repair work while the power is on.
2. Please connect the input and output power wires and ground wires correctly according to the mark on the product.
3. After confirming that the wiring is correct, power on the product.
4. According to their own needs, users can use the "speed control knob" to start, stop or debug.
5. The product fails and cannot be reset, please contact the manufacturer.
6. It is recommended that before the drive is powered off, please ensure that the drive is completely stopped to ensure safety and reliability.

## Chapter 6 Debugging Instructions

Step 1: Enter the rated parameters of the motor nameplate into the parameter group F02.01-F02.06.

Step 2: After ensuring that the above parameters are correct, set F02.07 to 2 (static self-learning), the keyboard displays F-00, then press the RUN key on the keyboard, the drive enters the motor parameter Auto-tuning, and automatically exits after learning.

Step 3: Set other function codes as needed.

Function code	Function	Explanation
F1.01	Run command channel 0: keyboard control (external keyboard priority) 1: Terminal control 2: RS485 communication control 3: Optional card 4: Terminal switching command given	The default is 2: RS485 communication control .After using an external keyboard, you can only start and stop, a given frequency, etc. through the external keyboard
F21.00	Synchronous / asynchronous motor parameter code switching	4: asynchronous motor (default) 3: Synchronization motor Note: The change function can be set by the screen button
F21.01	Factory mode	0: Universal motor 1: Particular manufacturer Note: After setting, power on again, the changed parameters will not be provided to the manufacturer
F21.03	Motor code 1	Read-only parameter: Identify the motor code, different motor codes are different
F21.04	Motor code 2	Read-only parameter: Identify the motor code, different motor codes are different
F21.08	Specify the maximum speed after setting the speed coefficient	After filling in F21.16, the speed display is incorrect, you can directly set the actual maximum speed by changing the parameters(Change the parameter is not commonly used, use the default value of 0)
F21.09	Frequency digital setting follows the motor frequency	Default is 0: Follow                      1: do not follow
F21.10	Start automatically 0: Determined by confirm key (press to run, press to stop) (default) 1: Start automatically	Default: 0
F21.11	Service Phone number 1	Hexadecimal, A-F is omitted and not displayed
F21.12	Service Phone number 2	Hexadecimal, A-F is omitted and not displayed
F21.13	Service Phone number 3	Hexadecimal, A-F is omitted and not displayed

F21.15	Motor direction: 0: Forward 1:Reverse	Default: 0
F21.16	Speed coefficient (default 1.000)	Fill in the reduction ratio of the asynchronous machine
F21.17	Gear setting	Default: 0 0-1: Stepless speed regulation 2-30: Gear setting: the larger the number, the more gears

## Chapter 7 Common Fault Solutions

1. When a fault code appears on the product, please press the "knob key" (below 2s) to reset the fault.
2. If the fault is reset, long press the "knob key" (over 2s), select the "self-learning" function, enter the self-learning screen, and then press the "knob key" to start after successful self-learning.
3. If the fault cannot be reset, please contact the manufacturer.

## Chapter 8 Accessories Selection

Serial number	Accessories name	Model	Description
1	Built-in output sine wave filter	IN310-S2-1R5-E IN310-T3-2R2-E	When the distance between the inverter output line and the motor is too long (more than 120M), it is recommended to cooperate with the output sine wave filter to reduce the damage to the motor and ensure the efficient and reliable operation of the motor. Just add "E" after the machine model, that is Indicates built-in output sine wave filter.
2	Internet of Things GPRS card	GPRS-AC300	In order to meet the customer's remote operation, start and stop, you can use the Internet of Things (website or mobile APP) for real-time monitoring, periodic sampling, remote modification of device parameters, real-time location tracking, intelligent display location, etc. You can configure the Internet of Things GPRS card to meet the above demand.
3	Wireless remote control module(including remote control)	IN310-WXYK	The machine can be configured through a wireless remote module, the user can operate the remote control to adjust the speed, start and stop operations ; Note: The user of the wireless remote control module installs it outside the machine by himself, it is recommended to install it under the machine.
4	IO terminal expansion card	AC300IO1	Four digital inputs (X10 supports 50K pulse input), one digital output, one analog input, and one relay output. Support temperature detection (PT100 and KTY84).
5	It can support differential and resolver PG cards, CANopen communication, Profibus-DP communication, Profinet communication, etc. If you need other expansion cards, please contact the manufacturer.		