

# **HVLS** Operation Manual

NEW INTELLIGENT IOT LARGE ENERGY-SAVING FANS MANUFACTURER

FOCUS EFFICIENT SAFETY

JIANGSU DAWANG VENTILATION MACHINERY CO., LTD.

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Installation Video





### Acknowledgement

#### Dear customers,

Thanks for purchasing Dawang products .

This manual mainly serves the installers and daily users of Jiangsu Dawang Ventilation Machinery Co.,Ltd (Hereafter referred as Dawangfan), providing the instructions and guidance for the possible problems and precautions during installation,daily use,routine maintenance and troubleshooting.

This manual systematically explains the structure, main components, installation sequence, precautions, common faults, daily operation and safe use of Dawangfan. Please read this manual carefully before installation and operation, abide the safety regulations and installation procedures required by national laws, operate the Dawangfan safely and efficiently. For any problems or malfunctions not covered in this manual during daily application, please contact us or your local authorized distributors.

### **Safety Precautions**

#### General Notes

In order to clarify the installation process of the product, some of the illustrations in this manual are in the state of breakdown drawing. When operating this product, please be sure to operate it according to the instruction manual.

### ▲ Dangerous

Please read the contents of the Instruction Manual carefully before installation.

### ▲ In order to avoid electric shock

Non-professionals are not allowed to repair, inspect or replace parts.

explosive, and dust-laden gas concentrations exceeding the standard.

Please do not perform wiring work when the power is turned on, otherwise there will be a risk of electric shock, even if the power supply is disconnected, there is still high voltage power remaining in the capacitor. When replacing or moving the power cable, firstly turn off the power and wait until all the indicators go out, and then wait for one more minute before proceeding.

### ▲ Warning

Please confirm the power supply before use, and connect them according to the logo. When starting up, please make sure that there are no other obstacles within the range of the fan, and make sure that the fan rotates in correct direction. It is strictly forbidden to use controllers from other companies, otherwise the motor and controller will not be matched. Fans can't be operated in harsh environments, such as freezing, corrosive,

#### ▲ Fan installation

The installation and maintenance must be operated by person who are professionally trained, or by the experienced person with electrician certificate or related professional person.



### Installation instructions and diagrams

Our industrial fans requires no less than 375KG load-bearing at the installation point, and torsion will be generated during fans normal running, the the installation point structure must have min. 525N/M torsional strength.

Step 1 : Place the installation board into the bottom of the I-beam, place the pressure board and pad board as shown in the drawing, and use 4 pieces of M14\*60 high strength inner-hexagonal bolts to lock them tightly.



Step 2: Put the extension rod into the opening of the installation bracket, insert 2 pieces of M14\*130 high-strength inner hexagonal bolts; Use horizontal ruler to straighten the extension rod at 2 directions and lock the nuts:



Lock nut M14

Step 3: Insert the four-core cable from the gap between the installation bracket and the extension rod, and pull it out from the lower opening of the extension rod;



Step 4 to step 8 are the detailed installation for PMSM motor & Geared motor, each step needs to be operated carefully, making ensure to assemble them accurately to enable the equipment can run stably.

### Installation for PMSM motor

Step 4: Place the motor as shown in the drawing, and use 2 pieces of M14\*130 highstrength inner-hexagonal bolts to lock it;





Step 5: Divide the wire rope in the accessories into 4 pieces, and after one end goes around the upper beam on the roof, use 2 wire rope clips to tie them up in sections, and put one end of the M12 turnbuckle hook into the corresponding hole of the connecting plate, and the other of wire rope goes through the round hole of M12 turnbuckle, cut off the excess length and tie them up in sections with 3 tie heads. Rotate the turnbuckle bolt to tighten the wire rope. The angles between the installed steel wire ropes and the horizontal plane should be controlled between 40-50°, and the two directions of the extension rod should be kept perpendicular to the horizontal plane.



Step 6: Connect the reserved wire of the fan motor with the lead-in wire of the connecting rod, and then wrap the joint with insulating tape to prevent leakage. Step 7: Insert the fan blade into the end of the petiole and lock it with high-strength inner hexagonal bolts; the upper side of the blade is fixed with the petiole by a reinforced connector to prevent falling;



#### Step 8: Install 5 blades into the motor one by one



### Installation for geared motor

Step 4: Place the motor as shown in the drawing, and use 2 pieces of M14\*130 highstrength inner-hexagonal bolts to lock it;





Step 5: Divide the wire rope in the accessories into 4 pieces, and after one end goes around the upper beam on the roof, use 2 wire rope clips to tie them up in sections, and put one end of the M12 turnbuckle hook into the corresponding hole of the connecting plate, and the other of wire rope goes through the round hole of M12 turnbuckle, cut off the excess length and tie them up in sections with 3 tie heads. Rotate the turnbuckle bolt to tighten the wire rope. The angles between the installed steel wire ropes and the horizontal plane should be controlled between 40-50°, and the two directions of the extension rod should be kept perpendicular to the horizontal plane.



Step 6: Connect the reserved wire of the fan motor with the lead-in wire of the connecting rod, and then wrap the joint with insulating tape to prevent leakage. Step 7: Insert the fan blade into the end of the petiole and lock it with high-strength inner hexagonal bolts; the upper side of the blade is fixed with the petiole by a reinforced connector to prevent falling;



### Step 8: Install 5 blades into the motor one by one



Step 9: After penetrating the cable into the pipe, arrange the wire layout to the installation place of the control box, the pipe is fixed on the I-beam with clamp. The conduit and the controller are connected by corrugated hose. Step 10: Connect the fan lines according to the diagram;



Single-phase input wiring diagram



Three-phase input wiring diagram



Step 11: After confirming that all the steps are correct, turn on the power, press the "start" button & clear all the data, and then restart the fan when the light turns red.

Mobile App

Daily Operation Instructions (Controller)

Tips: Before operating the device, please read the Operation Manual carefully and clear all obstacles that may exist around the range to ensure that the fan has sufficient safe net distance. Before processing any electrical and fan maintenance, please turn off the power first and operate it by a professional person to avoid any risk of electric shock, otherwise you will be responsible for the consequences!

	Key Name	Definition and Operating Instructions
	MENU	Click on the 0-level menu to shift to view the parameter function, long pressfor 25 to enter the 1-level menu; long press the shift for other level menus, and click to return to the previous menu
50.00	START/STOP	Click Run/Stop/Reset in Level 0 menu, click Confirm in 1/2/3/Password input menu
	"+"	Level 0 menu click to increase the setting gear, 1/2/3 click, long press toincrease the parameter value
	"_"	Level 0 menu click to decrease the setting gear, 1/2/3 click, long press todecrease the parameter value
MENU INCREASE DECREASE START/STOP	"RUN"Light	Always on when running and off when stopped
Simi-up operation: in the stop state,     present the "starting" subort, the running-light turns co.     Subdown operation: in the power on state, press the "startistop" button,     materio-dicater light turns on.	"STOP"Light	Always on when stopped and off when running;
Speed adjustment: press*e* or "." to adjust the speed     The wring job can only be operated after 5 minutes when the power is off	"ALARM"Light	Always on when there is a fault, and off when it is not in a fault state:

Installation Instructions For Remote Intelligent Control System

Connection Method For Remote Intelligent Control System







LiNux QT	LiNux QT	
Touch screen	Resistance-type	
Resolution ratio	1024x500	
Power consumption	Standard 24V DC (Optional 12~28VDC)	
Frame material	≤10W	
LiNux QT	PC+ABS (Flame retardant grade)	
IP grade	The board meet Ip65	

#### 09 / DAWANG FAN



Operation Panel Description For Remote Intelligent Control System

## HVLS CENTRAL REMOTE CONTROLLER 2022/08/04 10:05:00 ORPM 0.00A ORPM 0.00A ORPM 0.00A ORPM 0.00A



In the general operation interface, the fans in the same group can be operated. Press total start /total stop to achieve fans starting/stopping at the same group. Press the buttons of "Total Acceleration/Total Deceleration" to achieve total acceleration/total deceleration for the fans at the same group, and the default maximum gear is 8.

The displayed status is for Fan #1 in the current group, and the status of other fans needs to enter into the corresponding control interface to view. Click "Next" to choose single control. Data Interface For Remote Intelligent Control System



1. There is only one HMI on site: the default frequency band of the wireless module is 0, and there is no need to modify the wireless frequency part. Number the fans according to 1, 2, 3...N (need to start from 1), connect the driver to the wireless module and power on, set the parameter station address Fd.01=fan number, connect the touch screen and power on, and then control the corresponding fan.

2. There are multiple touch screens on site: each touch screen is a group, and set a wireless frequency band, and each touch screen controls the same group of fans. According to the "proximity principle", the fans closest to the touch screen are set as a group; The touch screen is connected and powered on, enter the system & set parameters, click to select the wireless frequency band, the frequency band of each touch screenmust be different; Please number the fans in the same group as 1, 2, 3...N (need to start from 1), and connect the driver to the wireless module and power on, set the parameter wireless frequency band Fd.00=touch screen wireless frequency band, station address Fd.01=fan number, have power off and re-start, you can control the corresponding fan.



## Common fault codes and countermeasures

Error code	Fault type	Possible cause of failure	Countermeasures
Err02	Accelerate overcurrent	<ol> <li>There is grounding or short circuit in the output circuit</li> <li>The acceleration time setting is too short</li> <li>Start the spinning motor</li> <li>The driver selection is too small</li> </ol>	<ol> <li>Check whether the motor is short-circuited</li> <li>Increase the acceleration time</li> <li>Start the motor after it stops</li> <li>Select a driver with a higher power</li> </ol>
Err03	Deceleration overcurrent	<ol> <li>There is grounding or short circuit in the output circuit</li> <li>The deceleration time setting is too short</li> </ol>	<ol> <li>Check whether the motor is short-circuited</li> <li>Increase the acceleration time</li> </ol>
Err04	Constant speed overcurrent	<ol> <li>There is grounding or short circuit in the output circuit</li> <li>The driver selection is too small</li> </ol>	<ol> <li>Check whether the motor is short-circuited</li> <li>Select the inverter with a higher power</li> </ol>
Err05	Accelerate overcurrent	<ol> <li>Abnormal input voltage</li> <li>After a momentary power failure, restart the rotating motor</li> </ol>	1. Check the input power 2. Avoid shutdown and restart
Err06	Overvoltage during deceleration	1. Slow down too fast 2. Abnormal input voltage	<ol> <li>Increase the deceleration time</li> <li>Check the input power</li> </ol>
Err07	Constant speed operation overvoltage	1. Abnormal fluctuation of input voltage	1. Check the input power
Err09	Bus undervoltage	1. The grid voltage is low	1. Check the grid input power
Err10	Inverter overload	<ol> <li>The load is too large or the motor is blocked</li> <li>The driver selection is too small</li> </ol>	<ol> <li>Reduce the load and check the motor and mechanical condition</li> <li>Select a driver with a higher power</li> </ol>
Err11	Motor overload	<ol> <li>The motor rated current F2.03 is set incorrectly</li> <li>The load is too large or the motor is blocked</li> </ol>	<ol> <li>Correctly set this parameter</li> <li>Reduce the load and check the motor and mechanical condition</li> </ol>
Err12	Input phase loss	1. Three-phase input power supply is abnormal	1. Check and rule out problems in peripheral circuits

Error code	Fault type	Possible cause of failure	Countermeasures
Err13	Output phaseloss	<ol> <li>Motor failure</li> <li>There is an abnormality in the lead wire from the driver to the motor</li> <li>When the motor is running, the three-phase output of the inverter is unbalanced</li> </ol>	<ol> <li>Check if the motor is open circuit</li> <li>Eliminate peripheral faults</li> <li>Check whether the three- phase windings of the motor are normal and trouble shoot</li> </ol>
Err14	Module overheating	<ol> <li>The air duct is blocked or the fan is damaged</li> <li>The ambient temperature is too high</li> <li>The control board connection or plug-in is loose</li> </ol>	<ol> <li>Evacuate the air duct and replace the fan</li> <li>Lower the ambient temperature</li> <li>Seek service</li> </ol>
Err16	Communication fail	<ol> <li>The upper computer is working abnormally</li> <li>The RS485 communication line is abnormal</li> <li>Communication parameter FD group setting is incorrect</li> </ol>	<ol> <li>Check the wiring of the host computer</li> <li>Check the communication cable</li> <li>Correctly set the communication parameters</li> </ol>
Err18	Current detection failure	1. Abnormal current detection circuit	1. Seek technical support
Err19	Motor tuning failure	<ol> <li>The motor parameters are not set according to the nameplate</li> <li>The parameter identification process timed out</li> </ol>	1. Set the motor parameters 2. Check the motor leads
Err22	EEPROM read and write failure	1. The EEPROM chip is damaged	1. Seek technical support
Err23	Short to ground fault	1. The motor or inverter output line is short-circuited to ground	<ol> <li>Use a shaker to measure the insulation of the motor and output wiret</li> </ol>
Err26	Accumulated running time reached	1. The cumulative running time reaches the set value	1. Seek technical support
Err30	Wave-by-wave current limiting fault	<ol> <li>The load is too large or the motor is blocked</li> <li>Inverter selection is too small</li> </ol>	<ol> <li>Reduce the load and check the motor and mechanical condition</li> <li>Select a driver with a higher power</li> </ol>