PowerGuard™ System

PG26/01/09 VER1.00

Shenzhen FSTsystem Technology Co.,Ltd

01. General

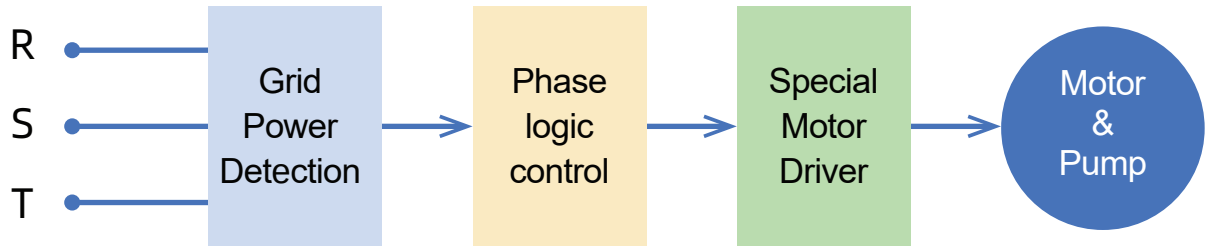
PowerGuard™: Intelligent VFD Control Cabinet

PowerGuard is an integrated electrical control solution designed for precision speed regulation, real-time monitoring, and robust protection. It is specifically engineered to handle unstable three-phase voltage and frequent phase loss, ensuring continuous operation by automatically switching input power to safeguard the motor and inverter.

Smart Connectivity: Featuring local/remote dual-mode control, PowerGuard integrates seamlessly with PLCs and host computers via standardized protocols for remote data acquisition, parameter adjustment, and fault diagnostics.

Versatile Applications: Ideal for fans, pumps, and compressors, it excels in demanding environments such as automated production lines and unmanned pumping stations.

Efficiency & Reliability: Easy to install and operate, PowerGuard streamlines maintenance, reduces labor costs, and bridges the gap between manual convenience and remote intelligence.



Key Features & Specifications:

1.Smart Monitoring & Switching:
Real-time detection of 3-phase input voltage/current with automatic phase loss sensing and power source switching.

2.Remote Intelligence:
Human-machine interface (HMI) for centralized management; supports remote parameter configuration and data monitoring.

3.Comprehensive Protection:
Full-spectrum safeguards including phase loss, under-voltage, over-voltage, and short-circuit protection.

4.Technical Parameters:
Input Voltage Range: 3-Phase 250VAC ~ 460VAC

5.Power Capacity:
0.75kW ~ 75kW

6.Motor Compatibility:
Standard for 3-phase asynchronous motors (3-phase synchronous motors optional).

****Installation Requirements:**

Power Supply: A stable 220V AC power source must be provided within the control room. In environments with unstable voltage, a Voltage Regulator or UPS (Uninterruptible Power Supply) is mandatory to ensure system stability.

Network Connectivity: For Remote Control functionality, the control room must be equipped with a reliable Wi-Fi network accessible by the control cabinet.

02. Warning symbols

Symbol	Name	Description	Abbreviation
Danger	Danger	Failure to comply with the relevant requirements can result in serious injury or even death.	
Warning	Warning	Failure to comply with the relevant requirements can result in physical injury or equipment damage.	
Prohibit	Electrostatic sensitivity	Failure to comply with the relevant requirementscan result in damage to the PCBA board.	
High temperature	High temperature	The base of the inverter produces high temperature. Do not touch it.	
5min	Electric	To prevent electric shock due to high voltage existing in the bus capacitor after power off, wait	5min

Symbol	Name	Description	Abbreviation
	shock	at least 5 minutes (or 15 minutes, 25 minutes, refer to the warning symbols on the machine).	
	Read manual	Read the manual before operating the equipment.	
Note	Note	Steps taken to ensure proper running.	Note

Safety guidelines

<table>
<tr><td></td><td>Only qualified personnel are allowed to perform relevant operations.
Do not perform operations such as wiring, inspection and replacing components while the power is on. Before wiring and inspection, confirm that all input power supplies have been disconnected, and wait for not less than the time marked on the inverter or confirm that the DC bus voltage is lower than 36V. The minimum waitingtime is as follows:
<table>
<tr><th>Inverter model</th><th>Minimum waiting time</th></tr>
<tr><td>380V0.75kW~110kW</td><td>5 minutes</td></tr>
<tr><td>380V132kW~315kW</td><td>15 minutes</td></tr>
<tr><td>380V 355kW above</td><td>25 minutes</td></tr>
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</td></tr>
<tr><td></td><td>Unauthorized modification of the frequency converter is strictly prohibited; otherwise it may cause fire, electric shock or other injury.</td></tr>
<tr><td></td><td>When the machine is running, the radiator base may produce high temperature. Do not touch it to avoid burns.</td></tr>
<tr><td></td><td>The electronic components in the frequency converter are electrostatic sensitive, and anti-static measures must be taken during related operations.</td></tr>
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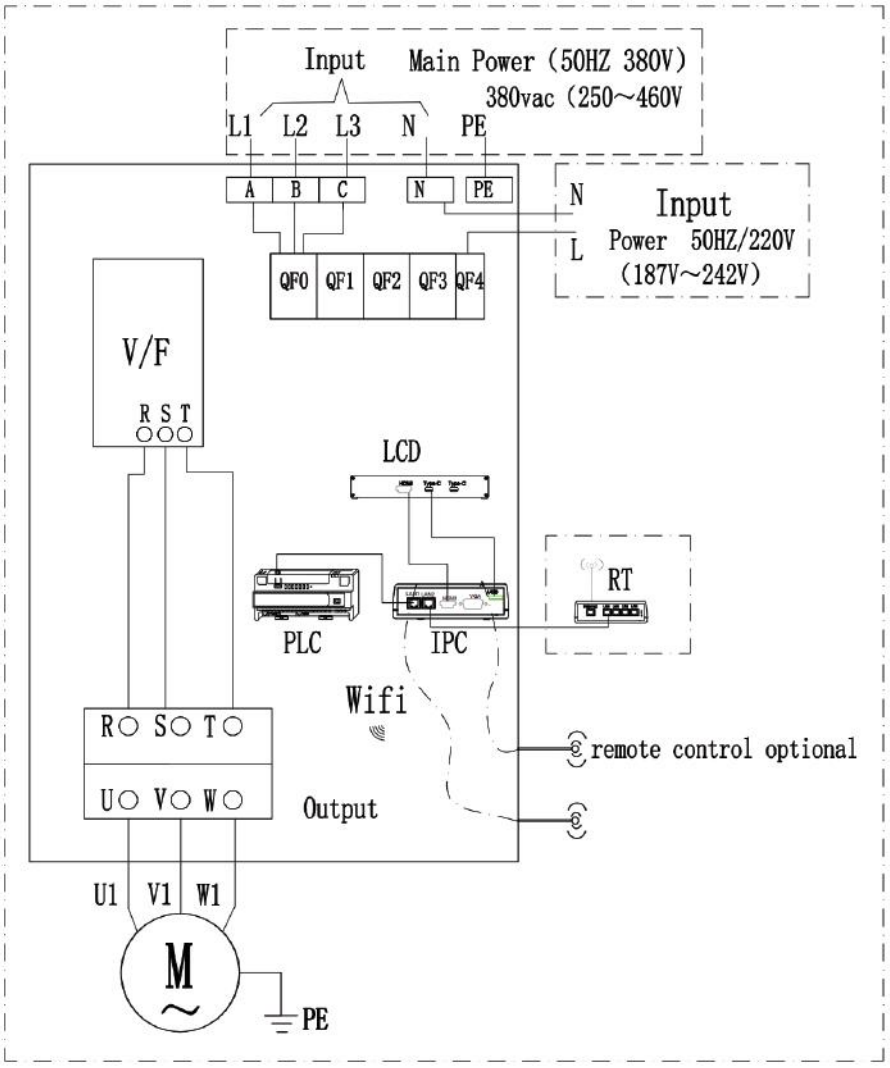
03. Electrical Installation

1.Main Circuit Terminals and Wiring



2.Control Panel and display

（1）Front Panel Component aGuide

	Name/Color	Type	Function description
1	Power supply/Red	220V AC	The power indicator lights up when power is connected to the cabinet
2	Multi-function meter/Black	Three phase -four wire	Displays data such as 380V incoming phase voltage, line voltage, and current.
3	Power switchover Input(sT1)/Green	Momentary Push Button	When the SA1 switch is set to 'on-site', the 'sT1' function can be activated via this button. The VFD (water pump) can only be controlled when the 'sT1' function is enabled
4	Power switchover stop (SP1)/Red	Momentary Push Button	When the SA1 switch is set to 'on-site', the 'SP1' function can be disable via this button
5	Inverter start(ST2)/Green	Momentary Push Button	When the SA1 switch is set to 'on-site',the VFD(pump)can be started via this button
6	Inverter stop(SP2)/Red	Momentary Push Button	When the SA1 switch is set to 'on-site',the VFD(pump)can be stopped via this button
7	Inverter operation indicator/Green	220V AC	The indicator lights up when the VFD is running (pump in operation)
8	Inverter operation failure indicator/Yellow	220V AC	The indicator lights up when the VFD is in a fault state
9	On-site stop remote (SA1)/Black	3 positions	Remote mode(Right): Control via PC/Smartphone. On-site mode(Left): Control via cabinet buttons Stop mode(middle):Disable

（2） Wire connection step

Step 1

Connect 380VAC input to the A-B-C phase, Neutral (N), and Protective Earth (PE) terminals.

Step 2

Apply 220V AC to the designated terminals.

Step 3

Connect pump motor to terminals R, S, T.
(Swap any two motor wires if the rotation is reversed.)

Step 4

Close QF0, QF1, QF2, QF3, and QF4 in sequence

Step 5

Input the motor nameplate parameters into the VFD
F1.01=Motor power
F1.02=Motor voltage
F1.03=Motor current
F1.04=Motor frequency
F1.05=Motor rotation speed

Step 6

Connect internet from IPC (only for remote version, optional!!)

Step 7

Download ‘anydesk’ to mobile or Laptop, logi-in and control(optional)

End