

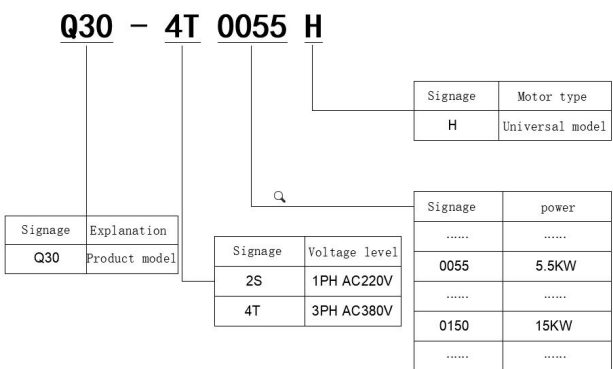
Q30 Series Water Pump Variable Frequency Drive User Manual

Thank you for using our product. Please read this manual carefully before operation.◆

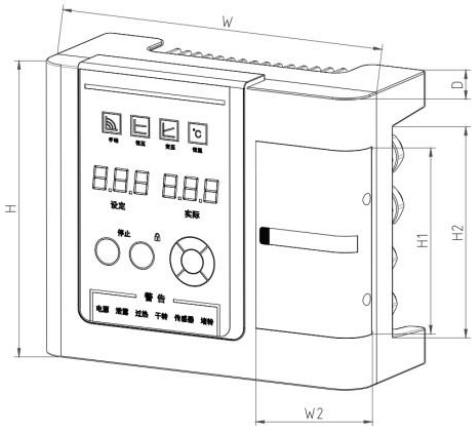
◆ Safety Precautions

- Upon receipt, do not install or operate the drive if damaged or missing parts. Failure to comply may cause equipment damage or personal injury.
- Installation must be performed by qualified electrical engineers. Ensure power is disconnected and wiring terminals are correctly connected to prevent electric shock or fire hazards.
- Position the inverter away from flammable or explosive materials and heat sources. Mount it on flame-retardant materials such as metal.
- Ensure the earth terminal is securely grounded to prevent the risk of live parts on the inverter casing.
- The PCB board contains CMOS integrated circuits. Do not touch with bare hands, as static electricity may damage components.
- Unauthorised modification of the inverter is strictly prohibited, as it may cause personal injury or death. Modified units will void the warranty.
- Do not touch the inverter terminals when powered on, as this may cause electric shock.
- Do not use circuit breakers to control the inverter's stop/start functions, as this may damage the inverter.
- Certain functional parameters are not specified in this manual. Contact the company's after-sales technical personnel if required.

◆ Model Specifications

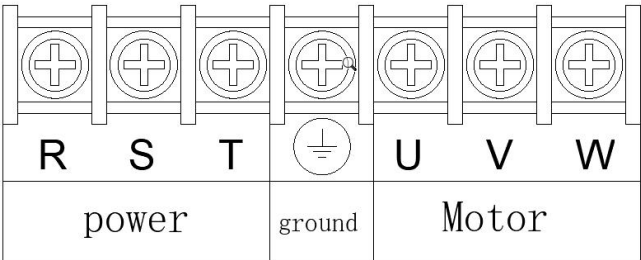


◆ Dimensions Specification

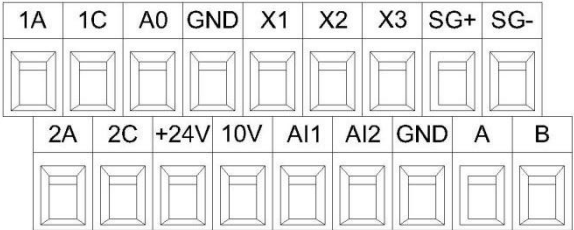


VFD Model	Rated Power (kW)	Output Current (A)	Suitable Motor (kW)	Dimensions (mm)					
				H	H1	H2	W	W2	D
Q30-2S0015H	1.5	7	1.5	212	155	155	257	90	110
Q30-2S0022H	2.2	9.6	2.5						
Q30-2S0030H	3	12.5	3						
Q30-4T0015H	1.5	4.2	1.5						
Q30-4T0022H	2.2	5.5	2.2						
Q30-4T0030H	3	6.2	3						
Q30-4T0040H	4	9	4						
Q30-4T0055H	5.5	13	5.5	276	180	196	312	95	140
Q30-4T0075H	7.5	17	7.5						
Q30-4T0110H	11	24	11						
Q30-4T0150H	15	32	15						
Q30-4T0180H	18.5	38.5	18.5						
Q30-4T0220H	22	45	22						

◆ Main Circuit Terminals

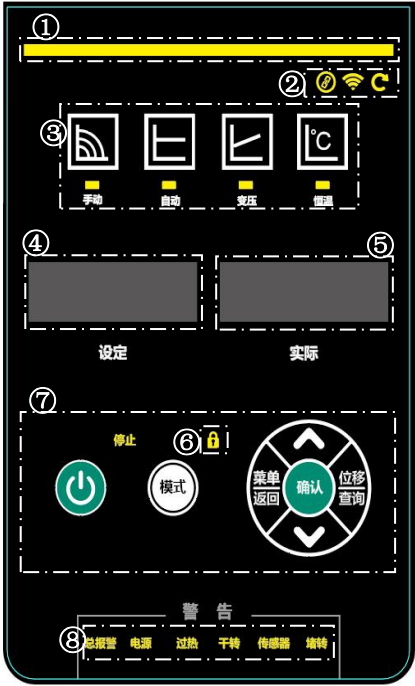


◆ Control Circuit Terminal Description



Terminal Description		
1A/1C	Relay Output	Normally open terminal, AC 250V/3A, DC 30V/1A, function setting parameter P0-40
2A/2C	Relay Output	Normally open terminal, AC 250V/3A, DC 30V/1A, function setting parameter P0-41
X1~X3	Multifunction digital inputs	Terminal functions modifiable via parameters, function setting parameters P0-35 to P0-37
+24V	Analogue reference voltage	Analogue reference voltage DC 24V voltage, maximum output current 100mA
10V	Analogue reference voltage	Analogue reference voltage DC 10V voltage, maximum output current 50mA
AI1	Analogue Input 1	Default 4-20mA input, modifiable to 0-10V input via parameter P0-30
AI2	Analogue Input 2	Default 0-10V input, modifiable to 4-20mA input via parameter P0-30
A0	Analogue Output	Voltage 0-10V or current 4-20mA output, adjustable via jumper cap
SG+/SG-	Communication Port 1	485 communication, SG+: 485 signal positive terminal, SG-: 485 signal negative terminal
A/B	Communication Port 2	485 communication, A: 485 signal positive terminal, B-: 485 signal negative terminal
GND	Analogue Ground Terminal	Provides reference zero potential for analogue voltage

◆ Control Panel Description



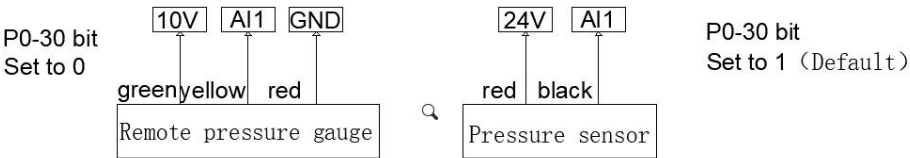
No.	Item	Description
①	Status Indicator	a) Running: Green light cycling left to right b) Standby: Green light slowly flashing c) Fault: Red light flashing
②	Online, Network, Direction Indicator	Online symbol: Used for pump coordination control; main pump steady, auxiliary pump flashing Communication Symbol: Illuminates during touchscreen communication Motor Direction: Reverse rotation when lit; forward rotation when unlit
③	Control Mode Display	Manual Mode, Automatic Mode, Variable Pressure Mode, Constant Pressure Differential Mode, Variable Pressure Differential Mode, Constant Temperature Mode
④	Setpoint Display Area	Shows set frequency or set pressure
⑤	Actual Value Display Zone	Shows feedback pressure or actual output frequency
⑥	Child Lock Indicator	Illuminates when child lock is enabled.

⑦	Operation Buttons	Functional buttons; see detailed button descriptions below
⑧	Fault Indicator	Common fault indicator lights

Button Descriptions	
Power Switch	1. In stopped state, pressing Start/Stop initiates automatic operation. 2. During operation, pressing the Start/Stop button automatically halts the system. Operating modes include Run and Sleep.
Mode Button	1. Switches between operating modes: Manual Mode, Automatic Mode (factory default). 2. In the parameter modification interface, a short press of the Mode button returns to the main interface.
Menu/Back Button	A short press on the main interface enters parameter settings; pressing during parameter adjustment returns to the previous interface.
Up/Down Button	1. Press to modify set pressure or set frequency on the main interface. 2. Within parameter groups, press to adjust values.
Confirm Button	1. During parameter modification, press to advance to the next level or confirm changes.
Shift/Query Button	1. On the main interface, press to cycle through operational statuses. 2. During parameter modification, press to shift values.

Quick Operations
Press OK + Up simultaneously for 2 seconds: Lock parameters.
Press OK + Down simultaneously for 3 seconds: Reset to factory defaults.
Press Back + OK simultaneously for 3 seconds: Set pump model.
Press Up + Down simultaneously for 3 seconds: Change operating direction.

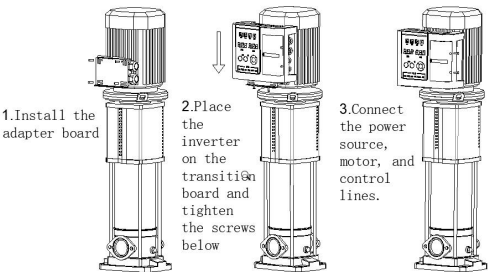
The frequency converter supports two sensor types: remote pressure gauges or pressure sensors. Wire according to the sensor type as per the diagram:



◆ Pressure Setting

Pressure setting: Directly adjustable via Up/Down keys on the main menu interface; automatically saved.	
Factory default: 2.4 kgf/cm² (0.24 MPa), displayed as 2.4.	
P0-02 (Sensor Range) Factory default: P0-02=16.0 (1.6 MPa)	
Step 1:	Press Menu key to display P0-, then press Confirm key
Step 2:	Use the up/down keys to navigate to P0-02, then press the confirmation key
Step 3:	Press the up key to modify the value; pressing the return key shifts the digits left to adjust to the corresponding sensor range. Press the confirmation key
Note	Factory value = 16 kg; If the inverter's feedback pressure is excessively high, refer to parameter groups P2-54, P2-55, P2-56, P2-57 and make adjustments
Final: Verify the pump rotation direction aligns with the motor impeller's directional arrow. Alter pump rotation via any of these three methods: (1) Halt the inverter and modify parameter P0-80 (Motor Forward/Reverse Setting). Default: 0; (2) Disconnect the input power supply. Once all VFD indicators have fully extinguished, swap any two phases (U, V, W) of the output cables; (3) On the main interface, simultaneously press and hold the up and down keys until the reverse indicator light illuminates in the top-right corner.	

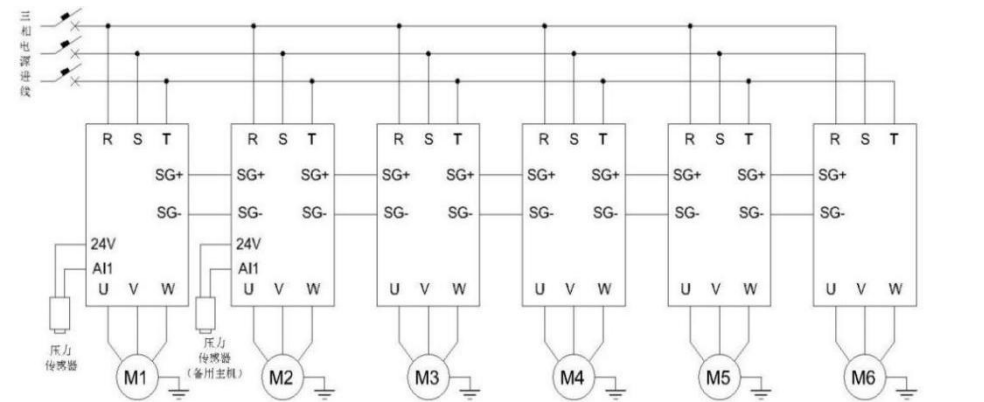
◆ Machine Installation Procedure (Pump Wiring – Mounting the Installation Plate – Installing the VFD – Opening the Terminal Cover – Connecting Wires and Sensors – Replacing the Terminal Cover)



◆ Multi-pump parallel operation configuration (all units must connect SG+ and SG- in parallel during operation)

Pump configuration	Primary unit	Auxiliary pump 1	Auxiliary pump 2	Auxiliary pump 3	Auxiliary pump 4	Auxiliary pump 5
Two-pump parallel	P0-56=2	P0-56=7	/	/	/	/
Three-pump paralle	P0-56=3	P0-56=7	P0-56=8	/	/	/
Four-Pump Parallel	P0-56=4	P0-56=7	P0-56=8	P0-56=9	/	/
Five-Pump Parallel	P0-56=5	P0-56=7	P0-56=8	P0-56=9	P0-56=10	/
Six-pump parallel	P0-56=6	P0-56=7	P0-56=8	P0-56=9	P0-56=10	P0-56=11
Sequential Pump	P0-58=1100	/	/	/	/	/
Timed Pump Rotation	P0-58=0100 P0-55=Time	/	/	/	/	/
Standby Host	/	P0-58=1101 ~ 1105(corresponding to two-pump to six-pump parallel operation)	/	/	/	/
Emergency Water Supply Mode	Press mode button to adjust to manual mode Wiring Diagram					

Wiring Diagram



Q30 Parameter Table

Note: Parameter Attributes:

- Standard: No password protection; modifiable at any time;
 - ◎ Unconditional Parameter Lock: Modifiable during operation when unlocked;
 - Conditional Parameter Lock: Cannot be modified during operation when unlocked;
 - ※ System Lock: Modifiable only when system unlocked and in standby state;
- Note: Set P0-71 to 0 for asynchronous motors, and to 1 for synchronous motors.

P0 Basic Function Parameter Group						
N0.	Function Description	Setting Range		Unit	Factory Default	Attribute
P0-00	Control Mode	00:Speed Mode 01:Automatic Mode 02:Variable Pressure Mode	03:Constant Pressure Differential Mode 04:Variable Pressure Differential Mode 05:Constant Temperature Mode	⬆	01	◎
P0-01	Product Application	00: Water Supply: Speed, Constant Pressure, Variable Pressure modes 01: Others: All 6 control modes selectable		⬆	00	◎
P0-02	Sensor Range Setting	0.10~320.00		Bar	16.00	●
P0-03	Maximum Output Frequency	5.00~320.00		Hz	50.00	●
P0-04	Lower Limit Output Frequency	10~99%, as percentage of maximum frequency		%	50	◎
P0-05	Feedback Source Setting	00: AI1 Input 01: AI2 Input 02: Reserved 03: AI1-AI2 as PID control error 04: No sensor		⬆	00	●
P0-06	Speed signal	00: Panel input		⬆	00	●

	source setpoint	01: AI1 input 02: AI2 input 03: Communication input			
P0-07	Zero Flow Fluctuation Pressur	0.00~1.00	Bar	0.20	⊙
P0-08	Zero Flow Delay	00~130S	S	100	⊙
P0-09	Pulsation Frequency	0.0~50.0%, as a percentage of maximum frequency	Hz	3.0	⊙
P0-10	Transition Time	0.0~10S	S	4	⊙
P0-11	Lower Limit Setting	00~99%	%	90	⊙
P0-12	Lower limit delay	01~50S	S	6	⊙
P0-13	Upper limit setting	105~150%	%	110	⊙
P0-14	Upper limit delay	01~50S	S	10	⊙
P0-15	First acceleration time	0.1~3000.0	S	5.0	⊙
P0-16	First deceleration time	0.1~3000.0	S	5.0	⊙
P0-17	PID Proportional Regulation	0.0~100.0	⬆	2.0	⊙
P0-18	PID Integral Regulation	0.01~10.00	S	0.20	⊙
P0-19	PID Derivative Regulation	0.00~10.00	S	0.00	⊙
P0-20	Sleep Frequency Parameter	50~150	%	110	⊙
P0-21	Sleep Detection Time	00~1000S, 00: No Sleep	S	10	⊙
P0-22	Pump Control 1 Settings	Tens: Standby Pump Enable: 00: Disabled; 01: Enabled Hundreds: Zero Flow & Sleep: 0: Shutdown; 1: No shutdown Thousands: PID Regulation Direction: 0: Forward regulation; 1: Reverse regulation	⬆	0000	●
P0-23	Specific Alarm Delay	0.0~100.0S	S	15.0	⊙
P0-24	Overpressure Alarm	00~200%; 00 disables function	%	00	⊙
P0-25	Overpressure Alarm Delay	0.0~20.0S	S	5.0	⊙
P0-26	Dry Run Pressure Setting	10~100%;	%	50	⊙
P0-27	Dry Run Protection Coefficient	00~90%, 00cancels	%	15	⊙
P0-28	Dry Run Auto-Recovery Time	00~1000	min	10	⊙
P0-29	Dry Run Auto-Recovery Count	00~1000	⬆	6	⊙
P0-30	Function Mode 1 Setting	Units: AI1: 0: 0 - 10VDC; 1: 4 - 20mA; Tens: AI2: 0: 0 - 10VDC; 1: 4 - 20mA; Hundreds: AO: 0: 0 - 10VDC; 1: 4 - 20mA	⬆	0001	●
P0-31	Pump Control 2 Settings	Units: Sensor Detection; 0: Off; 1: Detection On (4-20mA valid) Hundreds: PID Output Limit Integral Mode: 0: Continue; 1: Stop Thousands: Pump Stall Protection: 00: Disabled; 1: Enabled;	⬆	1001	●
P0-32	Function Mode 2 Settings	Units: Panel Command Memory: 0: Disabled; 1: Enabled; Tens: Panel Frequency/Pressure Memory Function: 0: Memory; 1: No Memory Hundreds: Fan Control: 0: Temperature Control; 1: Always Active; 2: Disabled Thousands: Reverse: 0: Permitted; 1: Prohibited;	⬆	0001	●
P0-33	Start Mode	00: Local Start 01: Terminal Start 02: Communication Start	⬆	00	●
P0-34	Stop Mode	00: Deceleration Stop; 01: Free Stop	⬆	00	●

P0-35	X1 Input Terminal Mode	00: No Function 01: Forward (FWD) 02: Reverse (REV) 03: Three-wire mode 04: Fault reset input (RESET) 05: Run enable input (emergency stop) 06:Low water protection input (disconnects to indicate low water)		⧈	01	●
P0-36	X2 Input Terminal Mode	07:Motor thermal protection (Disconnects for thermal protection) 08:First/Second Stage Acceleration/Deceleration Time Switch		⧈	11	●
P0-37	X3 Input Terminal Mode	09: Emergency Forward Input (Jog) 10: Emergency Reverse Input (Jog) 11: Low Water Protection Input (Closed for low water alarm) 12: Multi-Speed Command 1 13: Multi-Speed Command 2 14: Multi-speed command three 15: PID pause 16: Frequency source switch (P0-06 and P0-82) 17: External fault input 18: Timer input 19:External frequency increment command 20:External frequency decrement command 21: Mode switch: Current mode to speed mode 22: Anti-condensation function enable		⧈	0	●
P0-40	Relay Function Setting 1	00:Run Indication 01:Fault Indication (excluding warning errors)	08:Sleep mode indication 09:Frequency reached indication 10:Arbitrary frequency reached indication 11: Timer output 20: F1 output 21: F2 output 22:X1 Status Output 23:X2 Status Output 24:X3 Status Output 29:Communication Control 30: No Output	⧈	0	◎
P0-41	Relay Function Setting 2	02:Motor Overload Warning Indication 03:Warning Indication 04: Torque output exceeding P1-37, set 5% deviation 05: Stop delay P2-16 disengaged 06:Pressure reached indication 07:Zero flow indication		⧈	1	◎
P0-42	Communication Port 1 Address (SG+, SG- Ports)	00~31		⧈	01	◎
P0-43	Communication Port 2 Address (A, B Ports)	00~31		⧈	02	◎
P0-44	Communication Format	Communication Port 1: Tens digit; Communication Port 2: Thousands digit	Communication Port 1:Units digit Communication Port 2:Hundreds digit	⧈	0303	●
		1x: Data format <8. N, 2> 2x: Data format <8. E, 1> 3x: Data format <8. E, 2> 4x: Data format <8. 0, 1> 5x: Data format <8. 0, 2>	dx0:1200 bps dx1:2400 bps dx2:4800 bps dx3:9600 bps dx4:19200 bps dx5:38400 bps dx6:57600 bps dx7:115200 bps			
P0-45	Carrier Frequency Setting	0.8~16.0; fc=1.0kHz~15.0kHz		⧈	8.0	●
P0-46	Anti-Freeze/Patrol Operation	00~99		Hz	20.00	◎

	Frequency					
P0-47	Anti-freeze operation time	00~120, 0:无效		min	0	⊙
P0-48	Anti-freeze operation interval	01~2400		min	120	⊙
P0-49	Pipe burst /water shortage pressure setting	20~100%;		%	20	⊙
P0-50	Pipe Burst Detection Time	00~1000;00: Invalid		S	180	⊙
P0-51	Inlet Sensor Range	0.10~320.00		Bar	10.00	●
P0-52	Inlet Low Liquid Level Alarm Setting	0.00~P0-51		Bar	1.00	⊙
P0-53	Inlet Liquid Level Sensor Signal Source Setting	00: Invalid 01: AI1 Input 02: AI2 Input 03: Inlet Pressure Setpoint (P0.52)		↕	00	⊙
P0-54	Pump Reduction Frequency	90~150		%	105	⊙
P0-55	Pump Cycling Interval	00~200; 0.00 Invalid		H	24	⊙
P0-56	Multi-Pump Function	00: Invalid 01: Single Pump Mode; 02: Dual-pump mode; 03: Triple-pump mode; 04: Quad-pump mode; 05: Quintuple-pump mode;	06: Sextuple-pump mode; 07: Auxiliary pump 1 08: Auxiliary pump 2 09: Auxiliary pump 3 10: Auxiliary pump 4 11: Auxiliary pump 5	↕	00	●
P0-57	Pump Communication Method	00:RS485 Communication 1 (SG+, SG-Ports) 01:RS485 Communication 2 (A, B Ports)		↕	00	●
P0-58	Online Function Settings	Low-order Bit: Standby Function; 0: Disabled; 1: Dual-Pump Standby Host Function; 2: Three-pump standby host function; 3: Four-pump standby host function; 4: Five-pump standby host function; 5: Six-pump standby host function; Tens digit: Multi-pump control mode: 0: Multi-pump master-slave control; 1: Multi-pump synchronous control; Hundreds digit: Online operation mode;0: Overflow mode;1: Average distribution of operating frequency among pumps; Thousands place: Online pump rotation timing mode; 0: Timed pump rotation; 1: Sequential pump startup;		↕	1100	●
P0-64	Pump model	Option 1: Motor power	Option 2: Motor speed	↕	0	●
		0.37~22.0KW	3000/3600			
P0.65	Maximum Pump Head	00~1000m		m	Model Setting	●
P0.66	Rated Pump Pressure	0.00~P0.02, also user-set pressure		BAR	3	⊙
P0.67	Rated Pump Frequency	10.00~60.00		Hz	Motor Setting	●
P0.68	Pump rated speed	1000~9999		rpm	Motor setting	●
P0.69	Pump power setting	0.1~110.0KW		KW	Motor setting	●
P0.70	Synchronous motor back EMF	100.0V~500.0V		V	Motor setting	●
P0.71	Motor Selection Shortcut	00: Asynchronous Motor; 01: Synchronous Motor		↕	Motor setting	●
P0-76	External Feedback Signal Loss Inverter Operation Status	00: Stop 01: Emergency Run Frequency: P0.81 02: Set Frequency: P2-19		↕	00	⊙
P0-77	Speed Mode External Reference	00: Stop 01: Minimum Speed: P0-04 02: Maximum Speed: P0-03		↕	00	⊙

	Loss Inverter Operation Status	03: Emergency Operation Frequency: P0-81 04: Pre-Loss Operation Frequency				
P0-80	Motor Forward/Reverse Setting	00: Forward rotation 01: Reverse rotation		⬆	00	●
P0-81	Inverter emergency operation frequency	00-99		%	70	◎
P0-82	Pressure source setting Secondary frequency source setting	00: Panel input 01: AI1 input 02: AI2 input 03: Communication input		⬆	00	◎
P0-83	Analog Output A0 Model	01: Set Frequency 02: Output Current 03: Output Voltage 04: Output Torque 05: Set Pressure	06:Feedback Pressure 07: Analog Signal 1 08: Analog Signal 2 09: Output Power 10:P1.32:V0 Voltage Setting	⬆	00	◎

◆ Communication Protocol

The Q30 series frequency converters come standard with two RS485 communication interfaces, utilizing the international standard ModBus communication protocol for master-slave communication. Users can achieve centralized control via upper-level devices such as PCs/PLCs/touchscreens (setting frequency converter control commands, operating frequency, modifying relevant function code parameters, monitoring converter operating status and fault information, etc.) to meet specific application requirements. RS2 applications have specific limitations: it cannot be used for master-slave pump coordination control and is restricted to centralized control via external host computers. Specific communication details are outlined in the table below.

Command Codes and Communication Data Description

Descriptio n	Address Definit ion	Data Meaning	Read /Wri te
Parameter Read/Write (8-byte read)	0x0000-0x00FFH	Read/write parameter table addresses and save them. Examples: P0.15 address 0x000F; P0 group: starting address 0x00; P1 group: starting address 0x3C; P2 group: starting address 0x70;	R/W
	0xF000-0xF0FFH	Applies only to parameter read/write without saving; address e.g., P0-15 address 0xF00F;	R/W
Communication Control Commands	0x2000	01: Forward Run, 02: Reverse Run, 03: Forward Jog, 04: Reverse Jog, 05: Free Stop, 06: Deceleration Stop, 07: Fault Reset	W
Communication Data Write (Single Word Write)	0x2001	Frequency Setpoint Address, Range (0 - 100.00%, corresponding to maximum frequency)	R/W
	0x2002	Control Mode Switching (5 control modes: 0=No Speed, 1=Constant Voltage, 2=Variable Voltage, 3=Constant Voltage Differential)	R/W
	0x2003	PID feedback, range (0-100.0%, 100.0% corresponds to full scale)	R/W
	0x2006	D0 output: 1: Relay output; 0: Relay reset	W
Stand-alone or networked host operation/stop parameter address description (up to 8 bytes read)	0x2100	Fault code (corresponding to fault type sequence number)	R
	0x2101	Inverter status: 1: Forward operation; 2: Reverse operation; 3: Stopped;	R
	0x2102	Set frequency (2-digit decimal)	R
	0x2103	Output Operating Frequency (2 decimal places)	R
	0x2104	Bus Voltage (1 decimal place)	R
	0x2105	Output Current (2 decimal places)	R
	0x2106	Output Voltage (0 decimal places)	R
	0x2107	Output Power (2 decimal places	R
	0x2108	Cumulative Operating Time (Unit: hours, 0 decimal places)	R
	0x2109	Operating Speed (0 decimal places)	R
	0x210A	Feedback Pressure (2 decimal places)	R
	0x210B	Inverter Temperature (0 decimal places)	R
	0x210C	Output Torque (1 decimal place)	R

	0x210D	Setpoint Pressure (2 decimal places)							R	
	0x210E	Inlet Pressure (2 decimal places)							R	
	0x210F	Terminal Input/Output Flag Status (0 decimal places)							R	
		Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6		Bit7
		X1	X2	X3	X4	X5	X6	Reserved		A1/1C
		Bit8	Bit9	Bit10	Bit11	Bit12	Bit13	Bit14		Bit15
		A2/2C	R_reI	S_reI	T_reI	U_reI	V_reI	W_reI	Y2_reI	
	0x2110	Analog Input AI1 Value (2 decimal places): 0~100.0%							R	
	0x2111	Analog Input AI2 Value (2 decimal places): 0~100.0%							R	
	0x2112	Analog Output AO Value (2 decimal places): 0~100.0%							R	
	0x2113	Reserved							R	
	0x2114	Rotor Angle 0.0~359.9							R	
	0x2115	Initial Rotor Angle 0.0~359.9							R	
0x2116	Analog Feedback Pressure Value (2 decimal places)							R		
Host Communication	0x3000	Current Set Pressure							R	
	0x3001	Host fault information							R	
	0x3002	Host set frequency							R	
	0x3003	Auxiliary pump 1 set frequency							R	
	0x3004	Auxiliary pump 2 set frequency							R	
	0x3005	Auxiliary pump 3 set frequency							R	
	0x3006	Auxiliary Pump 4 Set Frequency							R	
	0x3007	Auxiliary Pump 5 Set Frequency							R	
Auxiliary Unit 1 Communication Information	0x3100	Auxiliary Unit 1 Current Operating Frequency							R	
	0x3101	Auxiliary Unit 1 Operating Time							R	
	0x3102	Auxiliary Unit 1 Fault Information							R	
Auxiliary Unit 2 Communication Information	0x3200	Auxiliary Unit 2 Current Operating Frequency							R	
	0x3201	Auxiliary Unit 2 Operating Time							R	
	0x3202	Auxiliary Unit 2 Fault Information							R	
Auxiliary Unit 3 Communication Information	0x3300	Auxiliary Unit 3 Current Operating Frequency							R	
	0x3301	Auxiliary Unit 3 Operating Time							R	
	0x3302	Auxiliary Unit 3 Fault Information							R	
Auxiliary Unit 4 Communication Information	0x3400	Auxiliary Unit 4 Current Operating Frequency							R	
	0x3401	Auxiliary Unit 4 Operating Time							R	
	0x3402	Auxiliary Unit 4 Fault Information							R	
Auxiliary Unit 5 Communication Information	0x3500	Auxiliary Unit 5 Current Operating Frequency							R	
	0x3501	Auxiliary Unit 5 Operating Time							R	
	0x3502	Auxiliary Unit 5 Fault Information							R	
Fault	0x8000	Fault Code							R	
RS1 supports all of the above. RS2 only supports purple addresses (0x2000~0x2003) and only supports single-word operations each time.										

Example 6-1-2

For parameters and status, the maximum consecutive read count is 8; all others support single reads only. Supported functions: 03H for read, 06H for single write, 08H for fault feedback.

Example read/write parameter commands: Column P0-12

	Inverter Address	Command	Parameter High Address	Parameter Low Address	Data Content High	Data Content Low	CRC Low	CRC High
Read Command	01	03	00	0C	00	01	44	09

(03H)								
Write Command (06H)	01	06	00	0C	00	20	48	11
Write RAM Command (06H)	01	06	F0	0C	00	20	7B	11

Host Communication RS1 Example:

A. Read Frequency Setting Value: Address 2001H, supports reading only one address

Send: 010320010001DE0A Return: 01 03 02 11 AC B4 69

B. Writing the frequency setpoint: Address 2001H, Data 4800

Send: 0106200112C0DF3A Return: 01 06 20 01 12 C0 DF 3A

◆ 常见故障代码及对策

Code	Fault Type	Possible Causes	Countermeasures
Err01	Short-circuit protection	1.Excessive acceleration rate 2.Internal IGBT damage 3.False triggering due to interference 4.Poor grounding	1. Increase acceleration time 2. Seek technical support 3. Inspect peripheral equipment for strong interference sources 4. Check grounding wire
Err02	Overcurrent during constant speed operation	1. Sudden load change or abnormality 2. Low grid voltage 3. Inverter power rating too low	1. Inspect load or reduce load fluctuations 2. Check input power supply 3. Select a higher-rated inverter
Err03	Overcurrent during acceleration	1. Acceleration too rapid 2. Low grid voltage 3. Inverter power rating too low	1. Increase acceleration time 22. Check input power supply 3. Select a higher-rated inverter
Err04	Overcurrent during deceleration	1. Deceleration too rapid 2. High load inertia torque 3. Inverter power rating too low	1. Increase deceleration time 2. Install appropriate regenerative braking components 3. Increase VFD power rating
Err05	Motor Overload	1. Low grid voltage 2. SVC vector control enabled when motor and inverter are mismatched 3. Prolonged excessive load 4. Acceleration/deceleration time too short 5. Inverter power rating undersized	1. Check grid voltage 2. Adjust P1-00=01 3. Reduce load 4. Extend acceleration/deceleration time 5. Replace with appropriately rated VFD
Err06	Inverter Overload	1. Low grid voltage 2. Incorrect motor rated current setting 3. Motor stalled or sudden excessive load change 4. Inverter power rating undersized	1. Check grid voltage 2. Reset motor rated current 3. Inspect load and adjust torque boost 4. Select appropriate motor
Err07	Wave-by-Wave Current Limiting Fault	1. Torque exceeds P1-37 value	1. Check if external load has increased
Err08	Over voltage	1. Abnormal input voltage 2. Attempting restart on rotating motor after momentary power loss 3. Excessively rapid deceleration 4. High load inertia	1. Inspect input power supply 2. Avoid stopping and restarting 3. Increase deceleration time 4. Install appropriate regenerative braking components
Err09	Undervoltage	Low grid voltage	Check grid input power supply
Err10	Inverter over-heating	1. Inverter instantaneous overcurrent 2. Phase-to-phase or ground short circuit in output three-phase 3. Air duct blocked or fan damaged 4. Ambient temperature too high 5. Control board wiring or connectors loose 6. Power circuit malfunction 7. Control board malfunction	1. Refer to overcurrent countermeasures 2. Rewire connections 3. Clear air duct or replace fan 4. Reduce ambient temperature 5. Inspect and reconnect components 6. Contact service support
Err11	Motor PTC overheating	Motor overheating detected	
Err12	Input phase loss	1. Abnormal three-phase input power 2. Drive board malfunction	1. Check external wiring integrity 2. Seek technical support
Err16	Reference Current Abnormal	1. Loose internal connector in inverter 2. Internal switching power supply fault 3. Signal sampling/comparison circuit fault	1. Seek technical service
Err17	Ground Detection Abnormal	Detected abnormal ground signal in inverter	Verify proper grounding of inverter or motor
Err18	Relay abnormality	Detected abnormality in relay or contactor	Seek technical service

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Err19	Start-up resistor overheating	1. Damaged relay 2. Frequent power-ups	1. Seek technical service 2. Avoid frequent power-ups
Err20	Phase loss protection	1.Phase loss output on U/V/W 2.Severe three-phase load imbalance	1. Check output wiring 2. Inspect motor and cables
Err21	Self-tuning fault	1.Self-tuning timeout 2. Incorrect parameter settings	1.Verify motor wiring connections 2.Reset parameters
Err22	System fault	Operating time reached preset limit	Seek technical service
Err23	Home position fault	1.Inverter Hall sensor current detection failure 2. Output phase loss	1. Inspect Hall sensor and troubleshoot 2. Inspect motor wiring and troubleshoot
Err24	Back EMF fault	1. Incorrect motor parameter settings 2. Actual abnormal motor back EMF 3. Incorrect P3-03 back EMF setting	1. Correctly set motor rated frequency 2. Correctly set motor back EMF 3. Check for motor demagnetization
Err25	Overpressure Alarm	1. Abnormal sensor feedback signal 2. High-voltage alarm threshold set too low 3. Alarm detection time set too short	1. Inspect sensor wiring 2. Verify relevant parameter settings
Err26	Pipe Burst Alarm	1. Sensor feedback signal abnormal 2. Alarm detection time set too short 3. P0-50=0 cancels alarm	1. Inspect sensor wiring 2. Verify relevant parameter settings
Err27	Terminal Water Absence Alarm	1. Water shortage detected 2. Sensor feedback signal abnormal	1. Check for water shortage 2. Inspect sensor wiring
Err28	Internal Dry Run Alarm	1. Water shortage detected 2. Sensor feedback signal abnormal 3. Alarm threshold set too high (P0-27) 4. P0-27=0 cancels alarm	1. Check for water shortage 2. Inspect sensor wiring 3. Verify relevant parameter settings
Err29	Inlet Water Shortage Alarm	1. Water shortage detected 2. Sensor feedback signal anomaly 3. Alarm threshold set too low (P0-26)	1. Check for water shortage 2. Inspect sensor wiring 3. Verify relevant parameter settings
Err31	AI1 Abnormal	1. Signal wiring anomaly 2. AI1 input signal abnormality 3. AI1 internal circuit abnormality	1. Check AI1 wiring 2. Measure AI1 signal 3. Contact technical support
Err32	AI2 abnormality	1. Signal wiring abnormality 2. AI2 input signal abnormality 3. AI2 internal circuit abnormality	1. Check AI2 wiring 2. Measure AI2 signal 3. Contact technical support
Err40	External Fault Input	Detected signal from external fault input terminal	Check signal integrity
Err41	Communication Alarm	1. Abnormal communication between mainboard and panel 2. Abnormal communication between inverter and external devices	1. Inspect mainboard-panel connection cables 2. Verify correct communication protocol between external devices and inverter
Err45	Motor Tuning Failure	1. Improper motor parameter settings 2. Parameter identification process timed out	1. Set motor parameters according to nameplate 2. Inspect wiring from inverter to motor 3. Contact technical support
Err50	Motor Locked Rotor	1. Inverter and motor mismatch 2. Check pump	1. Set inverter parameters according to motor nameplate 2. PM motors require motor identification 3. Verify pump operation

Warranty Terms

Our company solemnly promises that, starting from the date the user purchases the product from us, the user is entitled to the following warranty services:

1. The warranty covers the inverter unit itself.
2. The warranty period is eighteen months. During this period, if the product malfunctions or is damaged under normal usage as specified in the manual, our company will provide free repair services.
3. The warranty period commences on the product's date of manufacture. The machine serial number serves as the sole basis for determining warranty eligibility. Equipment without a serial number will be treated as out of warranty.
4. Exclusions: During the warranty period, repair fees will apply for damage caused by the following reasons:
 - A. Damage resulting from misuse, unauthorized repairs, or modifications;
 - B. Damage caused by fire, flood, earthquake, lightning, abnormal voltage, other natural disasters, or secondary disasters;
 - C. Damage resulting from accidental drops or transportation after purchase;
 - D. Malfunctions or damage caused by factors unrelated to the product itself (e.g., external equipment issues);
 - E. Malfunctions or damage arising from use in harsh environments exceeding specifications (e.g., gas corrosion, salt corrosion, metal dust exposure).



Official Account

Zhejiang Ruizhicheng Electric Co., Ltd.

Service Hotline: 18005773791 18106726858