NO.7 Maintenance and Fault Information

Regular maintenance and inspection during the application shall make your inverter in normal condition for long period.

7.1 Maintenance and inspection cautions

1 Be sure to first cut off power supply of inverter (L1. L2. L3.L.N) during maintenance and inspection.
2 Be sure cut off power supply of the inverter and make the display disappear; conduct maintenance and inspection till high-voltage indicator is off.
3 Never pull up or mismatch internal power supply, wires and cables during the inspection; otherwise the inverter shall not operate or be damaged.
4 During installation, do not leave the screws and other fittings inside the inverter so as to avoiding short circuit of circuit board.
5 After the installation, keep the inverter clean and prevent the dust, oil mist or moisture invading.

7.2 Regular inspection items

1 Confirm the voltage meets the demand of inverter;
(In particular, pay special attention to the damage of power line and motor)
2 Whether the terminal and connector are loose;
(Whether power line and terminal connecting line suffer from strand breakage)
3 Whether there is dust, scrap iron and corrosive liquids inside the inverter;
4 Prohibit measuring insulation impedance of the inverter;
5 Measure output voltage, output current and output frequency of the inverter;
(avoid big difference in measurement results)
6 Inspect whether the ambient temperature is around -5℃-40℃ and installation environment has good ventilation;
7 Keep the humidity below 90% (without condensing into water droplet);
8 Whether there is abnormal sound or abnormal vibration during the running (avoid placing the inverter in the place with severe vibration);
9 Please regularly clean venthole.

7.3 Fault information and fault clearing

Inverters of H100 feature more perfect protection function in terms of overload, interphase short circuit, earthing short circuit, undervoltage, overheating and overcurrent, etc. In case of occurrence of inverter protection, ascertain the cause as per the information shown below. After handling, perform the running operation newly; if incapable of handling, please contact local dealer.

Fault display	Fault content and description	Handling method
E.oc (E.oc)	Overcurrent during running	1：Inspect whether the motor is in short circuit/ partial short circuit and the insulation of output line is in good condition 2：Inspect whether the motor is locked and mechanical load changes abruptly 3：Extend acceleration time or deceleration time 4：Reducing torque boost value 5：Whether network voltage changes abruptly 6：DC braking amount is too large, so reduce it 7：Unreasonable inverter configuration, increase the capacity of inverter
E.ou (E.ou)	Overvoltage during running	1：Extend deceleration time or install brake resistor 2：Whether network voltage changes abruptly
E.Lu (E.Lu)	Variable frequency low voltage	1: Inspect network voltage 2: Send for repair
E.oH (E.oH)	Inverter overheating	1: Inspect whether the fan is locked and radiating fin is free of foreign matter 2: Whether ambient temperature is normal 3: Whether there is air space enough for air convection 4: Inspect whether the thermistor and connecting line are in open circuit
E.FoP (E.FoP)	Inverter power tube protection	1：Inspect whether the motor is in short circuit/ partial short circuit 2：Inspect whether insulation of output line is in good condition 3：Send for repair
E.GFF （E.GFF）	Short circuit to ground	1：Inspect whether the motor is in short circuit 2：Inspect whether insulation of output line is in good condition 3：Send for repair
E.oLd (E.oLd)	Inverter overloading 150% For 1min	1: Inspect whether the capacity of inverter is too small; if yes, increase the capacity 2: Inspect whether mechanical load is locked 3: Poor V/F curve setting, so reset
E.oLL (E.oLL)	Motor overloading 150% For 1min	1: Whether mechanical load changes abruptly 2: Too small motor adapted 3: Heating insulation of the motor becomes poor 4: Whether the voltage fluctuates greatly

		5: Whether open-phase exists 6: Mechanical load increases
E.PLo (E.PLo)	Output phase lost	1：whether the three-phase stator windings of the motor phase lost 2：Inspect output cable
E.PL 1 (E.PL1)	Input phase lost	1：whether power supply input phase lost
E.HHC (E.HHC)	Abnormal internal communication of inverter	Send for repair
Er	Wrong parameter setting	Correct parameter setting

Code table:

A	b	C,c	d	E	F	G	H	O,o	S	n	L	T	P	r	u	2
AB	b	CC	d	E	F	G	H	Oo	S	n	L	T	P	r	u	2

7.4 Fault and analysis

1. Motor fails to run after operating key is pressed

(1) Operating mode is set in error, that is, the operating mode is enabled together with external control terminal on the condition of external control terminal.
(2) Frequency instruction is low level or not given.
(3) Peripheral wiring is in error, such as wrong two-wire system and three-wire system wiring and relevant parameters setting.
(4) Setting of multi-function input terminal is in error (on the condition of external control).
(5) The inverter is in fault protection condition.
(6) Fault of motor or inverter.

2. Parameter setting failure

(1) Password is locked; conduct setting after decoding.
(2) The inverter is operating.
(3) Abnormal connection of connector assemblies and abnormal communication of digital actuator; remove the actuator and reinstall after cutting off power supply.

3. Motor fails to reversely rotate

Reverse is prohibited.

4. Motor rotates in opposite direction

Motor output connecting line is wrong, it is only necessary to exchange any two connecting lines among U, V and W.

5. Motor decelerates too slowly

(1) Too long deceleration time set, reduce deceleration time.
(2) Install brake resistor.
(3) Install DC brake.

6. Motor overheating

(1) The load is too large and actual torque has exceeds rated torque of the motor, so it is proposed to increase the capacity of motor.
(2) Ambient temperature is overhigh; the motor may be burn out in the environment with high temperature, so it is necessary to reduce ambient temperature of the motor.
(3) Interphase withstand voltage of the motor is insufficient, on/off action of the inverter shall produce impulse wave among winding coils of the motor; generally the maximum impulse voltage shall be 3 times input power of the inverter, and the motor with interphase impulse withstand voltage higher than the maximum impulse voltage shall be used.

7. Starting of inverter interferes in other control devices

(1) Reduce carrier frequency and the times of internal on/off action.
(2) Set up noise filter respectively on power input side and output side of the inverter.
(3) Please properly earth the inverter and motor.
(4) Encase the cable with metal tube for shielding.
(5) Separately route main circuit wiring and control line.

8. Overcurrent stall of inverter is detected during starting of fan

(1) When the start is performed, the fan is in idling condition, so DC braking during starting is required to be set.
(2) DC braking during starting has been set, and it is required to increase DC braking value.

9. Vibration or roaring of the machine

(1) For resonance of vibration frequency of mechanical system and carrier wave, adjust carrier wave to avoid resonance point.
(2) Resonance of vibration frequency of mechanical system and inverter output frequency.

a. Set skipping function to avoid the resonance point;

b. Set rubber vibration insulator on bottom board of the motor.

7.5 Common anomalies and countermeasures

Analysis, judgment and countermeasures of common anomalies are shown in the table below:

Anomaly		Possible causes and countermeasures
Motor fails to run	No keyboard display	Inspect whether power failure occurs, input power is in open-phase and input power is connected in error.
	No keyboard display while charging indicator inside is on	Test the connecting wire and socket relating to keyboard are in good condition. Measure the voltage of each control power supply inside to confirm whether switching power supply is in normal operation. In case of abnormal operation of switching power supply, inspect the socket of switching power incoming line (DC+, DC-) is well connected, start-oscillation resistor is damaged or voltage regulator tube is normal.
	No voltage or low voltage of DC+ and DC- terminals	Inspect charging circuit.
	Buzzing of motor	Too big load of motor, try to reduce it.
	Anomaly not found	Confirm whether it is in tripping state or reset is not performed after tripping, whether it is in restarting state after power failure, whether the keyboard is reset, whether program operating state, operating state of multi-segment speed, set operating state or non-operating state is accessed; try restoring ex-factory value to confirm whether operating instruction is provided and inspect whether running frequency is set to 0.
Unfavorable acceleration/deceleration of motor		Improper setting of acceleration/deceleration time. Too low current limit is set. Overvoltage protection during deceleration. Improper setting of carrier frequency, overloading or oscillation.
Overhigh or overlow motor speed		Improper selection of V/F characteristic. Improper selection of reference for V/F characteristic and resetting shall be performed. Substandard or non-standard rated voltage of the motor. Low voltage of power supply. Wrong setting of frequency signal gain. Wrong setting of output frequency.