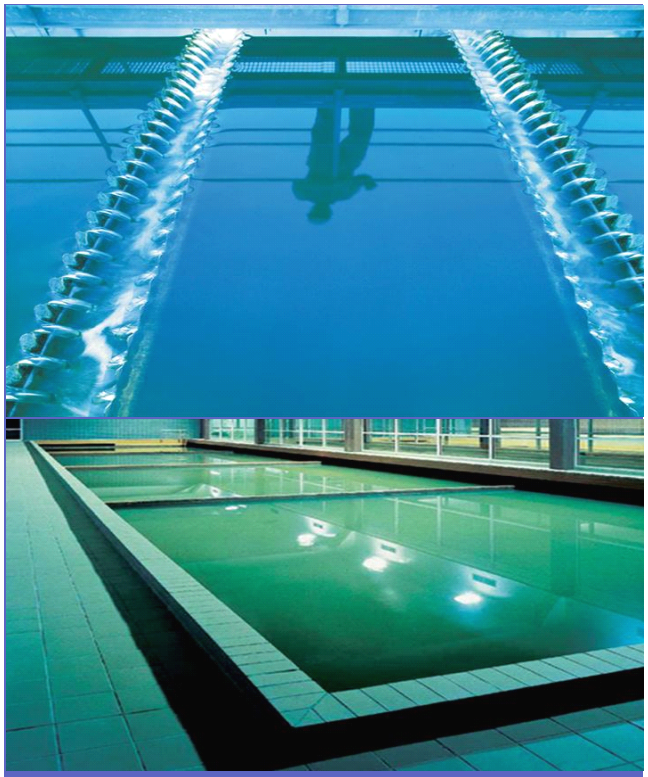
ACS800 and 600 Commision Guide and Thoubleshooting

ACS800 /600调试指导与故障分析

Content 内容

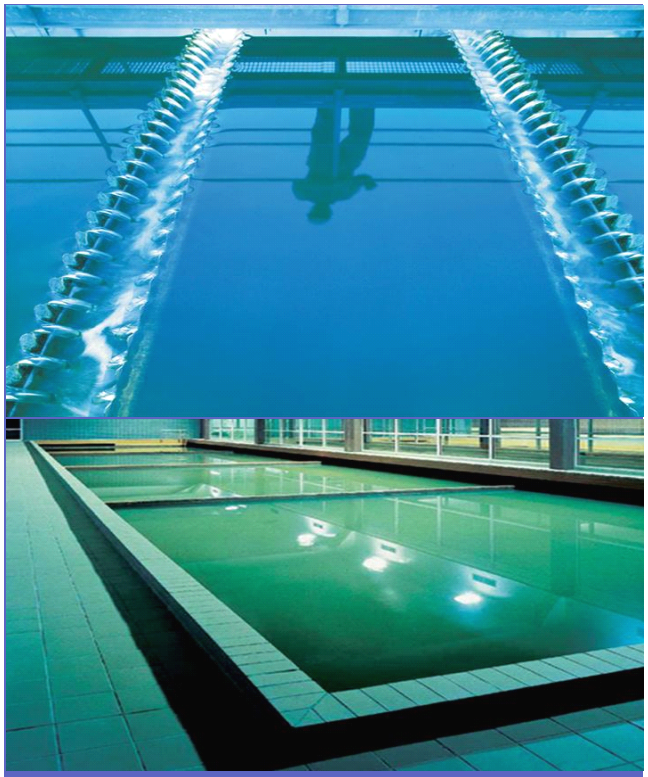


1.Drive units fault

传动单元故障

2.Fieldbus fault

现场总线故障



1. Drive units fault

传动单元故障

DC OVERVOLTAGE——1

Possible Reason	Action
Deceleration time is too short. 减速时间过短。	[1]Set longer ramp time or use brake unit. 设置更长的斜坡时间或使用制动单元。 [2]Use Coasting Stop to Stop Function(if applicable). 使用自由停车方式（如果允许）。 [3]Resistance of the Braking Resistor is too high. 制动电阻的阻值过高。

DC OVERVOLTAGE——2

- Possible Reason

Parameter 20.05 overvoltage controller disabled and there is no brake unit or TSU/ISU.

在没有制动单元或TSU/ISU的情况下，参数20.05 过压控制器被关掉。

- Action

Disable controller only when using brake unit or TSU/ISU.

仅当使用制动单元或TSU/ISU时才能关闭过压控制器。

DC OVERVOLTAGE——3

Possible Reason	Action
Supply voltage is too high. 供电电压过高。	Check mains for static or transient overvoltage. 检查主电源的静态或瞬态过电压。

DC OVERVOLTAGE——4

- Possible Reason

Faulty Braking Chopper.

制动斩波器故障。

- Action

Check Braking Chopper and Braking Resistors.

检查制动斩波器和制动电阻。

DC OVERVOLTAGE——5

- Possible Reason

Internal Fault.

内部故障。

- Action

Replace xINT-board .

更换xINT板。

DC OVERVOLTAGE——6

- Possible Reason

Earth fault in IT(floating network).

IT(浮地网络)接地故障。

- Action

Check there is no earth fault in supply .

检查供电电源没有接地故障。

DC OVERVOLTAGE——7

- Possible Reason

Incorrect inverter type.

不正确的逆变器型号。

- Action

Compare the rating plate of the drive and configuration in the sw from CDP panel(drive) or par.112.7 and 101.2.

比较传动单元的额定铭牌与软件中的参数配置。

Note:see RMIO configuration instructions

DC OVERVOLTAGE——8

- Possible Reason

EMC—boards are connected to IT network.

EMC板连接到了IT 浮地网络。

- Action

Disconnect common mode capacitors from the gnd.

断开共模电容器与gnd的连接。

Note:see Modifications to the RFI Filtering when used in the IT Networks.

DC UNDERVOLTAGE——1

Possible Reason	Action
Too low input voltage. 过低的输入电压。	[1]Check input fuse and the OESA is closed. 检查输入保险丝和OESA是否闭合。 [2]Measure the input and DC voltage in the stop,start and running(with multimeter or from actual signals). 分别在停止、起动和运行期间测量进线和DC电压（利用万用表或从实际信号观察）。 [3]Check phase voltage of the supply. 检查供电电源的相电压。

DC UNDERVOLTAGE——2

- Possible Reason

Incorrect inverter type.

不正确的逆变器类型。

- Action

Compare the rating plate of the drive and configuration in the sw from CDP panel(drive) or par.112.7 and 101.2

比较传动单元的额定铭牌与软件中的参数配置。

Note:see RMIO configuration instructions

DC UNDERVOLTAGE——3

- Possible Reason

Internal Fault.

内部故障。

- Action

[1]Check cabling between AINP and rectifier bridges.

检查AINP板与整流桥之间的电缆连接。

[2]Check the cable between +DC-bus and AINT-board.

检查AINT板与+DC-bus 之间的电缆连接。

[3]Replace AINP-board.

更换AINP板。

[4]Replace xINT-board .

更换xINT板。

Earth Fault——1

- Possible Reason

Motor cable or motor is damaged.

电机电缆或电机损坏。

- Action

[1]Megger the motor and motor cable.

用高阻表或摇表检测电机或电机电缆。

[2]Disconnect motor cables and run the drive in scalar control

⟶ if the drive does not trip,the drive is ok.

分断电机电缆与变频器的连接，在标量模式下运行变频器，如果变频器不跳闸，则说明变频器是好的。

Earth Fault——2

Possible Reason	Action
Long motor cables or high stray capacitance to the ground. 过长的电机电缆或过高的对地离散电容。	[1]Check earth fault trip level. 检查接地故障跳闸等级。 [2]Use output chokes. 使用输出电抗器。 Note:Maximum Motor Cable length see ACS600/ACS800 DU/DT Filter Selection Guide and NOCHxxxx, AOCHxxxx du/dt Filters Installation Guide

Earth Fault——3

- Possible Reason

Power factor correction capacitor or surge absorbers.

功率因数校正电容器或浪涌吸收器。

- Action

Check there are no power factor correction capacitor or surge absorbers in the motor cable.

检查电机电缆上没有功率因数校正电容器或浪涌吸收器。

Earth Fault——4

- Possible Reason

Internal Fault .

内部故障。

- Action

[1]See ACS 600 Earth Fault Protection Service Manual.

[2]Replace xINT-board.

更换xINT板。

[3]Replace Current Transducer.

更换电流互感器。

[4]Replace xPBU-board if used.

更换xPBU板。（如果使用了）

[5]Replace all optic fibres between AINTs and NPBU.

更换AINTs 与NPBU之间的光纤。

FLT(x_x)

- Possible Reason

(F1_4...7)Flash memory;

闪存。

(F2_x)Processor or memory。

处理器或内存。

- Action

Replace RMIO-board,inform Supportline.

更换RMIO板。

I/O Communication Fault——1(1)

- Possible Reason
- Action

A communication error has occurred on the I/O Link.

在I/O 链路上出现了通讯错误。

[1]Check the connections of the fibre optic cables on the I/O Link.

检查I/O 链路上的光纤连接。

[2]Check a correspondence between parameter settings and HW configuration on the I/O Link(all I/O Modules).

检查I/O 链路上所有模块的硬件配置是否与参数设定相对应。

I/O Communication Fault——1(2)

- Possible Reason

A communication error has occurred on the I/O Link.

在I/O 链路上出现了通讯错误。

- Action

[3]Check a correspondence between parameter settings and HW configuration ,when Pulse Encoder Module(NTAC) is connected to CH1.[if the Pulse Encode Module is connected to CH1 instead of CH2,par.70.03 CH1 BAUDRATE ,The communication Speed must be changed to 4Mbits.

当脉冲编码器接口模块(NTAC) 连接到CH1时，检查硬件配置与参数设置的对应关系。（如果脉冲编码器接口模块连接到了CH1，参数70.03 应被设置为4Mbits。

I/O Communication Fault——2

- Possible Reason

Electromagnetic interference.

电磁干扰。

- Action

[1]Check for proper earthing of the equipment.

检查设备是否正确接地。

[2]Check for highly emissive components nearby .

检查附近是否有高放射元件。

I/O Communication Fault——3

- Possible Reason

Internal Fault。

内部故障。

- Action

[1]Replace option module.

更换可选模块。

[2]Replace the fibre optic cables on the I/O Link.

更换I/O 链路上的光纤。

[3]Replace RDCO Module.

更换RDCO模块。

[4]Replace AIMA-board.

更换AIMA板。

[5]Replace RMIO-board.

更换RMIO板。

NO Communication(1...8)——1

- Possible Reason

(8)=Panel Link between RMIO-board and control panel is faulty.

RMIO板与控制盘之间的连接故障。

- Action

Check the panel Link connections.

检查控制盘连接。

NO Communication(1...8)——2

- Possible Reason

(4)=Panel type is not compatible with the version of the drive application program.

控制盘型号与传动应用程序的版本不兼容。

- Action

Check the panel type and the version of the drive application program.

检查控制盘型号以及传动应用程序的版本。

NO Communication(1...8)——3

- Possible Reason

(1-4)=Internal fault.

内部故障。

- Action

[1]Replace RMIO-board.

更换RMIO板。

[2]Replace CDP 312R Panel.

更换CDP 312R 控制盘。

NO Communication(1...8)——4

- Possible Reason

(3)=Internal fault.

内部故障。

- Action

[1]Check the external +24VDC supply for voltage dips.

检查外部+24VDC 供电的压降。

[2]Check setting of par.16.09 CTRL BOARD SUPPLY.

检查参数16.09 的设置。

Note:see External +24 V Powering of the RMIO Board

Overcurrent——1

- Possible Reason

Sudden load change or stall.

突然的负载变化或堵转。

- Action

Check the load,the motor current and mechanics of the system.

检查负载、电机电流和系统的机械部分。

Overcurrent——2

- Possible Reason

Closing contactor in output.

闭合输出接触器。

- Action

If output contactor is used,stop modulation at first and then close the contactor.

如果使用了输出接触器，则应先停止变频器的调制，再闭合接触器。

Overcurrent——3

- Possible Reason

Motor connection is wrong(Star/Delta).

电机连接错误。（星角连接）

- Action

Check motor voltage and its connection from the rating plate and compare with values of parameter group 99.

检查电机铭牌上的电机电压与连接方式，并与99组参数相比较。

Overcurrent——4

- Possible Reason

Too short ramp times,so that overcurrent controller does not have enough time to grip.

过短的斜坡时间，以至于过流控制器没有足够的控制时间。

- Action

Check the load and increase ramp times.

检查负载并增加斜坡时间。

ABB

Overcurrent——5(1)

- Possible Reason

Oscillation in motor speed/torque .

电机的速度或转矩振荡。

- Action

[1]Caused by speed ref:Check that the speed reference does not oscillate.(par.122.2 speed ref3).

由速度给定引起：检查速度给定值是否振荡（P122.2)。

[2]Caused by torque ref:Check that the torque referencies do not oscillate(par.137.3 torq used ref,122.10 torq ref1 and 122.11 torq ref2).

由转矩给定引起：检查转矩给定是否振荡（ par.137.3 ； 122.10 ； 122.11 ）。

[3]Caused by overcompensation in a speed response:Check the speed controller parameter settings.(Autotune does not bring a satisfactory result in some cases).

由速度响应的过补偿引起：检查速度调节器的参数设定。（在某些情况下，自整定不一定能带来令人满意的结果。）

Overcurrent——5(2)

- Possible Reason

Oscillation in motor speed/torque .

电机的速度或转矩振荡。

- Action

[4]Caused by Too high Feedback filtering time(par.121.9):See ACS600 SPEED CONTROLLER TUNING.

由过高的反馈滤波时间引起： par.121.9。

[5]Caused by wrong value of the encoder pulse:Check the waveform of the pulse and the pulse number from the 155.2 encoder nr.

由错误的脉冲编码器值引起：检查脉冲编码器的波形并且检查P 155.2 的脉冲数。

[6]Caused by Motor Model:Check correct motor data from motor name plate and compare to group 99.

由电机模型引起：从电机铭牌获得正确的电机数据并且对照99组参数。

Overcurrent——6

- Possible Reason

Output short circuit:Damage motor cable(s) or damaged motor.

输出短路：损坏的电机电缆或电机。

- Action

[1]Check motor and cable insulation's.

检查电机和电机电缆的绝缘。

[2]Disconnect motor cables and run the drive in scalar control ⟶

if the drive does not trip it's ok.

分断电机电缆与变频器的连接，在标量模式下运行变频器，如果变频器不跳闸，则说明变频器是好的。

Overcurrent——7

Possible Reason	Action
Output earth fault in TN-s(grounded network). 接地电网中的输出接地故障。	Check and megger motor(s) and cables. 检查并用高阻表或绝缘表测量电机和电机电缆。

Overcurrent——8

- Possible Reason

Wrong motor and drive dimensioning.

错误的电机和传动选型。

- Action

[1]Check the value of the motor nominal current is inside 1/6 *par112.2 to 2*par112.2.

检查电机额定电流值是否位于1/6~2倍的par112.2 。

[2]Measure output current,torque and limit word.

检查输出电流、转矩和极限字。

Overcurrent——9

- Possible Reason

Power factor correction capacitors or surge absorbers.

功率因数校正电容器和浪涌吸收器。

- Action

[1]Check there are no power factor correction capacitors or surge absorbers in the motor cable.

确认电机电缆上没有功率因数校正电容器和浪涌吸收器。

[2]Measure output current,torque and limit word.

检查输出电流、转矩和极限字。

Overcurrent——10

- Possible Reason

Encoder connection.

脉冲编码器连接。

- Action

Check encoder,encoder cables(including phasing)and xTAC module.

检查脉冲编码器、脉冲编码器接线（包括相序）和xTAC模块。

Overcurrent——11

Possible Reason	Action
Incorrect motor data. 不正确的电机数据。	Check correct motor data from motor rating plate. 根据电机铭牌检查并校正电机数据。

Overcurrent——12

- Possible Reason

Incorrect inverter type.

不正确的逆变器类型。

- Action

Compare the rating plate of the drive and configuration in the sw from CDP panel(drive) or par.112.7 and 102.2.

比较传动的铭牌与软件参数par.112.7和102.2。

Note:see Parameter settings for ACS 800 SingleDrive.

Overcurrent——13

- Possible Reason

Incorrect motor norminal cos fii.

不正确的电机额定cos fii。

- Action

Check motor norminal cos fii value from hidden parameter .

NOTE:Compare norminal cos fii value from a motor name plate and par.110.7 Motor_NOM_COS_FII.

If there are big differences,set the above-mentioned parameter by changing first par.110.5 POWER_IS_GIVEN to COS FII.Note that you have to perform the Motor Identification Run after changing any motor data.

在隐含参数中检查电机额定cos fii 值。

注意：比较电机铭牌上的额定cos fii 值与par.110.7 。

如果二者偏差较大，则在设置par.110.7 之前，应首先将par.110.5 改为COS FII。另外如果改变了任何电机参数，应执行电机辨识。

Overcurrent——14

- Possible Reason

No communication between RMIO-RINT/AINT-and AGDR boards.

RMIO板与RINT/AINT及AGDR 板之间无通讯。

- Action

[1]Check and replace fibre optic cable.

检查并更换光纤。

[2]Check flat cable connections.

检查扁平电缆。

Note:see PPCC Link - Short Circuit - Overcurrent fault caused by inadequate flat cable connection.

Overcurrent——15（1）

Possible Reason	Action
Overcurrent in Scalar Control. 标量控制模式下的过流。	[1]Check or replace current tranceducers. 检查并更换电流互感器。 Note:see How to Check ACS 600 Current Transducers . [2] [See Overcurrent or Motor Temperature Fault with Scalar Control.

Overcurrent——15（2）

- Possible Reason

Overcurrent in Scalar Control.

标量控制模式下的过流。

- Action

[3]Check output current,torque and limit word.

检查输出电流、转矩和极限字。

Note:if there is oscillation in the torque and the motor current use 191.29 Scalar stab gain to stabilize system. If the current limit of the drive is active,increase current limit level or decrease load. Note that the drive trips easier to overcurrent in scalar control than in DTC in case of current limitation.

注意：如果转矩有振荡，并且电机电流使用了参数191.29 用于稳定系统。

如果传动的电流极限被激活，则增加电流极限等级或降低负载。注意在电流限制的情况下，标量模式比DTC模式更加容易由于过流而跳闸。

Overcurrent——16

- Possible Reason

Functioning of the contactor used in the auxiliary control circuit for e.g motor heating or motor external fan control.

用于辅助控制回路(如电机加热器或电机外部风扇控制）的接触器功能故障。

- Action

[1]Replace the contactor.

更换接触器。

[2]Equip the contactor with surge suppressor.

为接触器安装浪涌抑制器。

Overcurrent——17

Possible Reason	Action
Internal Fault. 内部故障。	[1]Check or replace current transducers. 检查并更换电流传感器。 Note:see PPCC Link - Short Circuit - Overcurrent fault caused by inadequate flat cable connection. [2]Replace xINT-board. 更换xINT板。 [3]Check the flat cables are connected properly. 确认扁平电缆是否正确连接。 [4]Replace all optic fibers between INTs and xPBU if used(if parallel connected). 更换INTs 板和 xPBU 板之间的所有光纤。（并行连接的情况下）

PPCC LINK Fault——1

- Possible Reason

No communication between RMIO-RINT/AINT and AGDR bords.

RMIO板与RINT/AINT及 AGDR 板之间无通讯。

- Action

[1]Check the flat cable connections.

检查扁平电缆的连接。

NOTE:see PPCC Link - Short Circuit - Overcurrent fault caused by inadequate flat cable connection.

[2]Check the fibre optic cables are connected between RMIO-AINT-boards(+xPBU if parallel connected) and replace if needed.

检查并更换RMIO板与AINT板（并行连接时使用的+xPBU板）之间的光纤电缆。

[3]Check the DC is alive.

检查直流DC仍有电压。

PPCC LINK Fault——2

- Possible Reason

Functioning of the contactor used in the auxiliary control curcuit for e.g motor heating or motor external fan control.

用于辅助控制回路(如电机加热器或电机外部风扇控制）的接触器功能故障。

- Action

[1]Replace the contactor.

更换接触器。

[2]Equip the contactor with surge suppressor.

为接触器安装浪涌抑制器。

PPCC LINK Fault——3(1)

- Possible Reason

Inverter hardware failure.

变频器硬件故障。

- Action

[1]Replace xINT-board.

更换xINT-板。

[2]Check all connections from xINT(some connections can overload the xINT-board).

检查所有到xINT板的连接。（一些连接可能造成xINT板过载）

[3]Check and replace current transducers.

检查并更换电流互感器。

Note:see How to Check ACS 600 Current Transducers .

[4]Check and replace IGBT-modules.

检查并更换IGBT模块。

Note:see Replacing the IGBT modules of ACS800-02 frame R7 drive and Replacing the IGBT modules of ACS800-02 frame R8 drive.

PPCC LINK Fault——3(2)

- Possible Reason

Inverter hardware failure.

变频器硬件故障。

- Action

[5]Check and replace APOW.

检查并更换APOW板。

[6]Check and replace xPBU.

检查并更换xPBU板。

[7]Check all flat cable connections.

检查所有扁平电缆的连接。

[8]Check all connections from APOW(some connection can overload the APOW-board).

检查所有到APOW板的连接（一些连接可能会造成APOW板过载）。

PPCC LINK Fault——4

- Possible Reason

Incorrect inverter type.

不正确的逆变器类型。

- Action

Compare the rating plate of the drive and configuration in the sw from CDP panel(drive) or par.112.7 and 102.2.

比较传动额定铭牌数据与参数par.112.7和102.2的设置。

Note:see Parameter settings for ACS 800 SingleDrive.

PP Overload

- Possible Reason

The temperature difference between heat sink(cool environment) and IGBT module too high(driven in max current).

散热器（冷却环境）与 IGBT 模块（运行于最大电流下）之间的温度偏差过大。

- Action

Run the drive with smaller current until heat sink is warmed up.

将传动运行于更小一些的电流直到散热器变热。

Short curcuit——1

- Possible Reason

Damaged motor cables or damaged motor.

损坏的电机电缆或损坏的电机。

- Action

[1]Check motor and cable insulation's.

检查电机和电缆的绝缘。

[2]Check motor windings.

检查电机绕组。

Short curcuit——2(1)

- Possible Reason

Internal fault.

内部故障。

- Action

[1]Check there is no external object inside drive.

检查变频器内部没有外部物体。

[2]Check or replace IGBT modules.

检查并更换IGBT模块。

Note:see Replacing the IGBT modules of ACS800-02 frame R7 drive and Replacing the IGBT modules of ACS800-02 frame R8 drive.

[3]Repalce xINT-boards.

更换xINT板。

Short curcuit——2(2)

- Possible Reason

Internal fault.

内部故障。

- Action

[4]Replace xPBU-board if used.

更换xPBU板。（如果使用了该板）

[5]Replace AGPS-board.

更换AGPS板。

[6]Check flat cables are connected properly.

检查扁平电缆的连接是否正确。

Note:see PPCC Link - Short Circuit - Overcurrent fault caused by inadequate flat cable connection.

Supply Phase——1

- Possible Reason

One input phase is missing.

输入缺相。

- Action

Check fuses and installation,measure the supply voltages from input terminals.

检查保险丝及其安装，从进线端子处测量供电电压。

Supply Phase——2

Possible Reason	Action
Supply net disturbance. 供电电网干扰。	[1]Check for mains supply imbalance. 检查主电源是否存在不平衡。 [2]Increase par 145.4 DC ripple limit value.Max value is 20%.Increasing the DC ripple will decrease the lifetime of the DC capacitors. 增加参数par 145.4 直流脉动极限值。最大值为20%。增加直流脉动值将会减少直流电容器的使用寿命。

Supply Phase——3

- Possible Reason

Oscillation problem under heavy load.

重载下的震荡问题。

- Action

[1]Check the load.

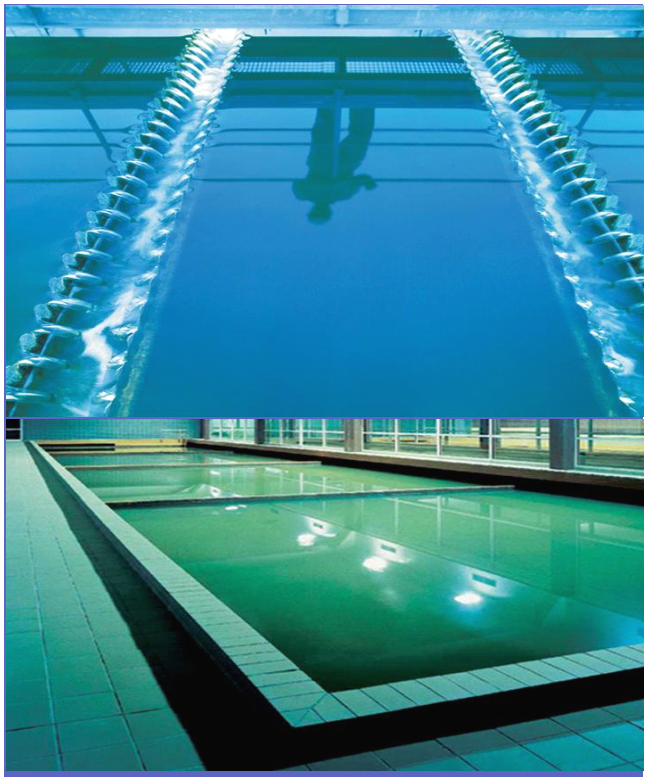
检查负载。

[2]Check parameter settings.

检查参数设定。

Supply Phase——4

Possible Reason	Action
Internal fault. 内部故障。	[1]Replace xINT-board. 更换xINT板。 [2]Repalce the rectifier bridge. 更换整流桥。 [3]Replace AINP-board.更换AINP板。 [4]Check cabling between AINP and rectifier bridge. 检查AINP板与整流桥之间的连接。 [5]Check the DC-capacitors.检查直流电容器。 [6]Check DC voltage measurement.检查直流电压测量值。 [7]In parallel connected drives check that the DC voltage is stabile when the drive is powered but not modulating.If the DC is not stabile one or more xINT's are broken. 几个变频器并联时，当传动上电但未调制时检查直流电压是否稳定。如果不稳定，则一个或更多的xINT板已经损坏。



2. Fieldbus fault

现场总线故障

Fieldbus fault——1

- Possible Reason

Communication can not be established or communication parameters can not be set when FB module of type Nxxx is used.

当使用Nxxx型现场总线模块时，通信不能够建立或者参数不能被设置。

- Action

Check par.70.10 CH0 node address.

检查参数par.70.10 CH0 的node号地址。

Fieldbus fault——2

- Possible Reason

FB status and Drive status word are not equal when FB module of type Rxxx is used.

当使用Rxxx型现场总线模块时，现场总线状态和传动状态不一致。

- Action

Check the operation mode configuration(ABB DRIVES/GENERIC) on the FB master and par98.07 in the drive.

检查现场总线主机的运行模式配置(ABB DRIVES/GENERIC）和变频器的参数par98.07 。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