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# 使用操作说明

**1.三个数码显示的内容如下:**

  **D1**显示实时水温度，设定状态时显示设定项目。

 **D2**显示设定值，设定状态时显示设定项目的值，报警时显示错误代码。

  **D3**显示制冷系统工况的监测温度，一直按可调节LED功率时显示功率值。

 **出厂设定默认值：C0:15 C1:1.5 C2:60 C3:1 C4:20 C5:30 C6:3 C7:50**

**2.按键功能介绍：**

 **AUTO:(智能模式)** 进入方式：按一次进入模式，再按一次D1显示室温，3秒后自动返回显示水温。

 **CONSTANT(恒温模式)** 进入方式：与智能模式进入方法和功能一样

 **SET(设置)：**进入方式：按一下进入设置状态，可调所有默认参数C0到C8，超过10秒无操作按键或者第再按SET键退出设定并保存参数.

 **- +（减加键）：**所有参数的修改通过加减键来操作。

 **（上下键）：**进入SET状态时按 上下键可切换C0到C8；未进入SET状态按上下键可调节UV灯功率（是否可调根据UV厂家实际情况而定）

 **长按SET键4秒，复位所有设定值为初始状态。**

 **3.控制模式选择与工作方式详细说明**

 **CONSTANT(恒温模式)：(**出厂默认值:26℃）

 D2显示当前设定温度值，直接按加减键改变设定值，实时水温（D1）=设定温度 （D2） ± 回差值（C1）。设定范围5℃--40℃，默认30℃。此外设定温度值不可超出上限（C5）、

 下限(C4)温度的范围。

 **AUTO:(智能模式)**(出厂默认值:-2℃)

 D2显示屏显示数值是水温与室温温差值，直接按上下键改变设定值，设定温度偏差范围（-5℃

 --+5℃)，水温（D1）范围 =室温温度+（D2） ± 回差值（C1）。当D1范围不在C4-C5之间时，

 水温＝上限（C5 ± 回差值（C1））、或下限(C4 +回差值（C1）)。例设定D2=1℃,

 室温=25℃,实时水温度D1=26℃ ± 回差值（C1）,实际水温D1控制在24.5至27.5℃间。

 不论智能模式或者恒温模式，如果水温低于（下限C4-0.5℃），则不再制冷,水温高于（下限C4

+0.5℃)恢复正常控制。

 如果水温低于（加热棒的设定温度C6-0.5℃）时打开加热棒；水温高于（加热棒的设

定温度C6+0.5℃）时停止加热。(加热棒可根据需要配备，默认不配)

 **4.设定项目参数代码介绍：**

**C0**:调节报警差值（5.0-15.0度）：在恒温模式下，表示目标值与设定值的差超过CO值时输出报警信号；智能模式下：当水温与（室温+智能模式的偏差值）的差超过C0值输出报警信号。

**C1**:回差值（0.1℃-2.0℃，默认1.5℃）：智能模式和恒温模式时水温与目标温度允许上下差值,此值太小时压缩机启动会频繁。

**C2**:冷水机系统监测温度报警设定值（1℃-100℃）：此参数由厂家设置默认为60度。要修改此参数请联系厂家。

**C3**:缺水报警延时时间（1S – 100S）：检测到缺水的时间小于此值时继续正常工作。

**C4**:下限温度设定（1℃-25℃），低于此值时不再制冷；此值不能高出恒温模式的设定温度值。

**C5**:上限温度设定（25℃-50℃），水温保持在（C5+C1）的数值以下。

此值须比加热棒启动温度C6高2℃以上，也不能低于恒温模式的设定温度值,否则无法调节。

**C6**:加热棒启动温度（1℃-20℃）:C6要比C4低2度以上，否则无法调节。

**C7**:最高室温报警功能（42℃-50℃）：当室温超过这C7时输出报警信号冷水机压缩机停止工作。

**C8**：启动模式，ON-机器上电即启动，OFF-通电后按开机键才启动

**通用参数说明：**

※所有温度的测量显示范围：-20℃~99.9℃。

※在调节时当出现以下情况时会造成冲突，将停止调节，同时蜂鸣器响3声报警表示调节无效：

.恒温模式的设定温度超过上限温度C5的值；

.恒温模式的设定温度低于下限温度C4的值；

.启动加热棒的温度高于（下限温度C4-2℃）；

 当出现以上错误冲突而不能调节时，可以返回与之冲突的项目对其进行修改以解决冲突。

**5.故障保护功能：**

 故障代码的意义如下:

**E0：**2块电路板通信异常。一般是因为2块板子的连接线有损坏或松动 。

**E1**:水温过高保护。水温超过（目标值+C0）时，过高保护故障输出中断信号。

**E2**:水温过低保护。水温低于（目标值-C0）时，水温过低保护故障输出中断信号。

**E3**:缺水保护。水泵不泵水，水管管路堵塞或水流不畅启动缺水保护，输出中断信号。

**E4**:制冷系统故障。造成故障原因有排风扇坏，冷凝器被灰尘堵塞，进风口进风不良等，输出中断信号。

**E5**:高压保护。高压开关断开启动保护。输出中断信号。

**E6**:低压保护。低压开关断开启动保护。输出中断信号。

**E7**:室温过高保护。输出中断信号。

保护或解除保护延时时间2秒，小于2秒视为干扰不启动保护。

如果不需要E3/E5/E6这3项保护，可以直接把传感器的线短路即可。

故障保护启动后，关闭压缩机和发热棒，打开保护输出，打开电磁阀。故障解除时

自动恢复工作状态。但如果是E3和E4保护，则只对保护继电器动作，其它工作不受影响。

在刚开机时，水温与目标值的差值可能超过高、低温报警限值，这时并不能报警，而是同时

检测温度变化趋势：

如果是朝目标值方向变化，且每30秒变化超过0.3度，则是正常。

如果连续3次\*30秒变化都不符合要求，然后报警程序检测如果温差达到报警值则启动报警。

出现错误报警后，先排除故障，或修改设定参数，然后按开关键重启，或断电重启可继续工作。

如果水温过高或过低造成的报警，在调节过温度后或转换恒温/智能模式后也可以暂时取消报警。

 (高新专利产品,防造必究!)

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**OPERATION INSTRUCTION MANUAL**

**1. The contents of the three digital displays are as follows:**

   D1 displays the real-time water temperature and displays the setting items when the status.

   D2 displays the set value, displays the setting item value when setting the status, and displays the error code during the alarm.

   D3 displays the monitoring temperature of the cooling system working condition, and displays the power value when pressing and holding the adjustable LED power.

   **Default factory setting :** C0:15 C1:1.5 C2:60 C3:1 C4:20 C5:30 C6:3 C7:50

**2. Button function introduction:**

      **AUTO: (Smart mode)** Entry method: Press once to enter the mode, press AUTO key (D1) again to display the room temperature, and automatically return to the display water temperature after 3 seconds.

  **CONSTANT (constant temperature mode)** Entry method: same as smart mode entry method and function

 **SET (Settings):** Entry method: Press SET key to enter the setting state, can adjust all the default parameters from C0 to C8, no operation button for more than 10 seconds or press SET button to exit the setting and save the parameters.

 **- + (minus and plus key):** All parameters are modified by the plus or minus key.

           **(Up and down keys):** Press the up and down keys to switch from C0 to C8 when entering the SET state; press the up and down keys to adjust the UV lamp power without entering the SET state (whether it is adjustable according to the actual situation of the UV manufacturer)

  **QA**: phase A loss **QB**: phase B loss **QC**: phase C loss **QF**: phase sequence error **OK**: three phase normal

          **Press and hold the SET button for 4 seconds to reset all set values to the initial state.**

**3. Control mode selection and working mode details**

**CONSTANT (Constant temperature mode):** (factory default: 26℃)

    D2 displays the current set temperature value, directly press the plus or minus button to change the set value, real-time water temperature (D1) = set temperature (D2) ± return difference value(C1). The setting range is 5℃ - 40℃, the default is 30℃. In addition, the set temperature value cannot exceed the upper limit (C5),    Lower limit (C4) temperature range.

**AUTO: (Smart mode)** (factory default: -2℃)

    The D2 displays the difference value between the water temperature and the room temperature. Press the up and down keys to change the set value and set the temperature deviation range (-5℃--+5℃), water temperature (D1) range = room temperature + (D2) ± return difference value (C1). When the D1 range is not between C4-C5, the water temperature = upper limit (C5 ± return difference value (C1)), or lower limit (C4 + return difference value (C1)). For example, setting D2=1℃, Room temperature = 25℃, real-time water temperature D1 = 26℃ ± return difference value (C1), the actual water temperature D1 is controlled between 24.5 and 27.5℃.

    Regardless of the smart mode or the constant temperature mode, if the water temperature is lower than (lower limit C4-0.5℃), the cooling is no longer performed, until the water temperature is higher than (lower limit C4+0.5℃), then resume normal control.

    If the water temperature is lower than (the set temperature of the heating rod C6-0.5℃), turn on the heating rod; When the water temperature is higher than (the set temperature of the heating rod C6+0.5℃), heating is stopped. (The heating rod can be equipped as needed, it is not equipped by default)

 4. Setting item parameter codes introduction:

C0: Adjust the alarm difference (5.0-15.0 degrees): In the constant temperature mode, it indicates that if the difference between the target value and the set value exceeds the CO value, then the alarm signal is output; in the smart mode: if the difference between the water temperature and (the room temperature + the smart mode deviation value) is greater than the value of C0, then output an alarm signal.

C1: return difference value (0.1℃-2.0℃, default 1.5℃): In the smart mode and constant temperature mode, the up and down difference value that water temperature and the target temperature allowed. When this value is too small, the compressor starts frequently.

C2: Cold water machine system monitoring temperature alarm setting value (1℃-100℃): This parameter is set by the factory to default to 60 degrees. Please contact the factory to modify this parameter.

C3: Water shortage alarm delay time (1S –100S): Continue to work normally when the water shortage time is detected is less than this value.

C4: Lower limit temperature setting (1℃-25℃). If it is lower than this value, it will not be cooled; this value cannot be higher than the set temperature value of the constant temperature mode.

C5: Upper limit temperature setting (25℃-50℃), the water temperature is kept below the value of (C5+C1).

This value must be 2℃ higher than the heating rod start temperature C6, and can not be lower than the set temperature value of the constant temperature mode, otherwise it cannot be adjusted.

C6: Heating rod start temperature (1℃-20℃): C6 is 2 degrees lower than C4, otherwise it cannot be adjusted.

C7: Maximum room temperature alarm function (42℃-50℃): When the room temperature exceeds this C7, the alarm signal is output and the Cold water machine compressor stops working.

C8: Start mode, ON-machine starts when the machine is powered on, OFF-powers on and presses the power button to start.

**General parameter description:**

※ All temperature measurement display range: -20℃ ~ 99.9℃.

※ When the following conditions occur during the adjustment, the conflict will be caused, the adjustment will stop, and the buzzer will sound 3 alarms to indicate that the adjustment is invalid:

.The set temperature of the constant temperature mode exceeds the value of the upper limit temperature C5;

.The set temperature of the constant temperature mode is lower than the value of the lower limit temperature C4;

.The heating rod start temperature is higher than (lower limit temperature C4-2℃);

When the above error conflict occurs and cannot be adjusted, you can return the conflicting items to modify them to resolve the conflict.

**5. Fault protection function:**

    The meaning of the fault code is as follows:

E0: 2 PCB communication anomalies. Generally due to the connection lines of the 2 boards are damaged or loose.

E1: Too high water temperature protection. Water temperature exceeds (target value + C0), too high protection fault output interrupt signal.

E2: Too low water temperature protection. Water temperature lower than (target value -C0), too low water temperature protection fault output interrupt signal.

E3: Water shortage protection. The pump does not pump water, the water pipe is blocked or the water flow is not smooth, and the water shortage protection is started, and the output interrupt signal.

E4: Refrigeration system fault. The cause of the fault is that the exhaust fan is broken, the condenser is blocked by dust, the air inlet is not smooth and etc., and output interrupt signal.

E5: High voltage protection. The high voltage switch is disconnected and start protection. Output interrupt signal.

E6: Low voltage protection. The low voltage switch is disconnected and start protection. Output interrupt signal.

E7: High room temperature protection. Output interrupt signal.

The protection or de-protection delay time is 2 seconds, and less than 2 seconds is regarded as interference and do not start protection.

If you do not need the E3/E5/E6, these 3 protection, you can directly short the sensor line.

After the fault protection is started, turn off the compressor and the heating rod, open the protection output, and open the solenoid valve. When the fault is removed, automatically resume working status. However, if it is E3 and E4 protection, only the protection relay will be activated, and other work will not be affected.

When the power is turned on, the difference between the water temperature and the target value may exceed the high and low temperature alarm limits. At this time, the alarm cannot be made, but at the same time detect temperature trends:

It is normal if it changes toward the target value and changes more than 0.3 degrees every 30 seconds.

If the change of continual 3 times \*30 seconds does not meet the requirements, then the alarm program detects if the temperature difference reaches the alarm value and then starts the alarm.

After an error alarm occurs, first troubleshoot, or modify the set parameters, then press the on/off key to restart, or power off and restart to continue working.

If the alarm is caused by the water temperature being too high or too low, the alarm can be temporarily canceled after adjusting the temperature or after switching the constant temperature/smart mode.

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