Laboratory Equipment Manufacturer
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INSTRUCTION MANUAL FOR

PCG80/120

Bench Top Constant Temp & Humid Chamber

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

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Warning

Before connection the power to Mains supply and operating the equipment check the following:

1. Make sure that Mains supply is correctly grounded
2. Use only distilled water

Non-implementation of the requirement in this warning revokes the warranty of the goods

Checking Power:

1. Power Input: 230V/50Hz, 25amp
    a. Use single socket only. Dangerous in combination with other electrical equipments.
    b. Shut down when the power shortage.
    c. Keep the system working in a normal
2. Grounding is of necessity for security.

Cleaning:

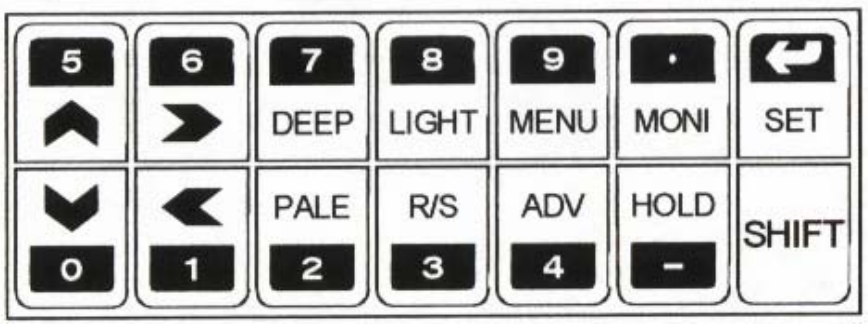
Use soft wet cloth to clean the system first. Then, use dried cloth to wip the system dryness. Use neutral detergent and clean water to wipe the system if it is dirty.

Caution:

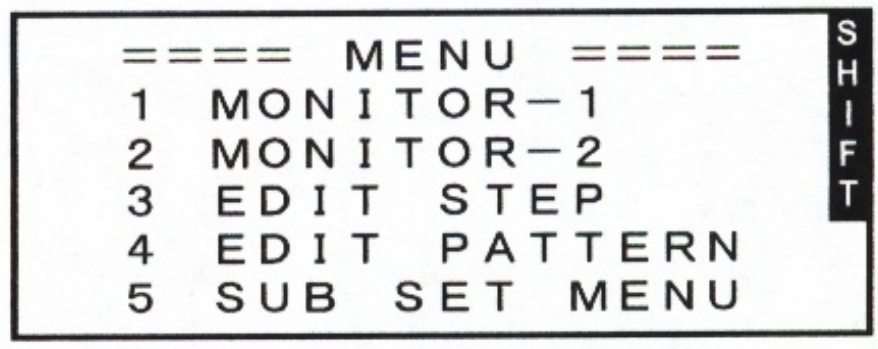
1. Uneven floor would cause vibration and noise to the system.
2. Back or lateral vent improper would cause performance.
3. The system is not to meet corrosive materials contained for use.
4. The system can not be placed beside the hot apparatus and sunshiny area directly.
5. The system can not be titled over 45 degree when the system is transported or carried.
6. Prudent operation will be able to extend the life of system.
7. If the system is not to be used for a long time, it has to remove the wire plug away from the socket, then, use neutral detergent to clean the chamber inside and the elements of equipment and keep ventilation and dryness

Operation Instruction

Press Key Board: two lines, each line contains 7 keys total 14 keys. To press “SHIFT” key can be changed into “NORMAL’ type or normal ‘SHIFT’ type.



Under any appearance of figure to press ‘SHIFT’ key as following:



The “SHIFT’ at the upper concern would be changed into highlight charaters. On the contrary, it is called as NORMAL type.

NORMAL TYPE

Press dark color digits, those are to be used under NORMAL type

■ [0]～[9]:to be input 0～9 digits (setting parameter and value)

■[·]: input decimal point(s)。

■[—]: input negative。

■ [↵]: by RETURN key to input value, then, it may transfer the next setting item. If there is nothing to be input, use [▶] key to move the setting item(s) you required。

SHIFT KEY

To press light color digits, characters are to be used under SHIFT key.

■ ▲ ▶ ▼ ◀: Arrow sign keys allow to move the cursor to set items you required.

■ DEEP: May display the pictures brightness, the DEEP key function can be used at any display. Also, it may adjust brightness high or weak. It contains 32 sections adjustably.

■ PALE: Functions as same as DEEP key. ,

■ LIGHT: It can put out back-ligh. It has function under any display. At put out condition, you may press any may light. Time Length of light up can be set up by the Back-Light of the SUB MENU' s display.

■ MENU: basically, the FK5481 parameter is an echelon-shape arrangement. The display is from MENU display goes into display of the picture. At the B display to press MENU returns back to A display. At the "A" figure to press MENU returns back MENU figure. It is workable under any fugure(s).

■ MONI: To press MONI goes into MONITOR-1 figure under any figure(s).
At the MONITOR figure to press MONI may change MONITOR-1 figure and MONITOR-2 figure. The following KEYS are only to be used by MINITOR -1 and MONITOR-2

■ SET: When the action MODE on F.STOP or F.RUN may press SET key and to set up TEMP-HUMID SV directly.

■R/S: Action MODE is F.STOP→F.RUN→F.PAUSE→P.STOP by sequence choice.
F.PAUSE is to confirm F.STOP practicing or not, at this time, all power are changed as "OFF" unless RUN joint point power.
Under the PAUSE mode, press SET key to change it as F.RUN and at the PAUSE mode to press R/S key to change it as F.STOP.
P.PAUSE mode is as same as F.PAUSE.

■ADV: when action MODE at the P.RUN.HOLD, press ADV key, PROGRAM STEP would skip over to a next STEP.

■ HOLD: when action MODE at P.RUN.WAIT or F.RUN, press HOLD key, the action MODE would appear HOLD, the realized time would be kept and stop. It would execute P.RUN.WAIT or F.RUN continuously after the HOLD key being released.

DATA INPUT DISPLAY

The main DATA input display is as following instruction

■ TEMP-HUMID SV=MONITOR-1 display, MONITOR-2 display and FIX CONTROL SET display.

■STEP set up=EDIT STEP display.

■PATTERN set up=EDIT PATTERN display.

■Operation MODE choice=SUB SET MENU display.

■Time Length of Light up=SUB SET MENU display.

■Cooling re-starting/hating re-starting after power cut off=WAIT & DISPLAY & START DISPLAY.

■SET UP of the fix value=SUB SET MENU' s FIX CONTROL display.

■Execution of TEMP-HUMID auto-operation(ON/OFF) choice=FIX CONTROL display.

Remark: When the mentioned above items at the KEY LOCK ON except the action MODE at F.STOP and P.STOP, it can not be changed.

The following items can be changed frequently

■ON/OFF of KEY LOCK choice=SUB SET MENU display.

■A period of PID CONTROL=INNER SET 1 sisplay.

■The SET UP of PID ZONE=PID ZONE display.

■The SET UP of PID VALUE=PID CONSTANT display.

■Correction of TEMP/HUMID error=OFFSET ADJUST display.

■SET UP of ON/OFF SYSTEM=ON/OFF SYSTEM display.

■SET VALUE of ON/OFF output for TEMP displaying range and HUMID of set up=HUMI CONTROL display.

■SET UP of TEMP SETTING range=TEMP RANGE display.

The method of DATA Input Choice of Input Target

■Let Input space to express as white base. When it is on SHIFT MODE, you may use keys ▲ ▶ ▼ ◀

■When it is on NORMAL MODE, you may select Input Space by ↵ key.

■When it is on MONITOR-1 and MONITOR-2 display, you may make change by SET key in SHIFT MODE.

■When it is on SUB SET MENU and INNER SET-1, you may carry out input by homologous numbers.

METHOD OF NUMERICAL VALUE INPUT

The display space has to be highlight when the Numerical Value input. When install [—] [·] [0]~[9] the original DATA would change to a new printed Charater(s) and the installed unit's place would be a highlight expression.
When the input range is a positive number or is an integer (without decimal) [—] key and [·] are not to be used.
If a negative number want to be installed, you may use [—] key for input, and use [↵] key for ending input.
If the first unit place is zero(0) or below the decimal, you may use the following procedures for omission:

Example 1: when it is 1.0, the status to be as [1] [↵] or [1] [·] [↵] or [1] [·] [0] [↵]

Example 2: when it is 0.1, the status to be as [·] [1] [↵] or [0] [·] [1] [↵]

Example 3: when it is 1.30 the status to be as [1] [·] [3] [↵] or [1] [·] [3] [0] [↵], when use [↵] key to install for ending; if the input is correct, the highlight would disappear or run to an another line; if the input is wrong, the site would be highlight. It means that re-input is required.

CHANGE NUMERICAL VALUE INPUT

Before press [↵] keyfor setting the [◄] key would become as BACK SPACE. The last input numbers would be deleted one by one after to press [◄] key. At this time, you are allowed to install again.

CHOICE OF FUNCTION

The choice of function must be either such as COLD/HOT、FIX/PRG、ON/OFF HIGH/LOW.
When set up function of SUB SET MENU 及 INNER SET 2 display, use preceeding number(s) to set up first. If it is not so, press [0]~[9] key to install.

ACTION OF POWER SUPPLY INPUT

It would be auto memorable after the bpower cut off. If the power is reinstated, It would display the prior cut off state of the power.

■When F.STOP or P.STOP in MODE action, it would leap back to MENU display. All output would leap back to off.

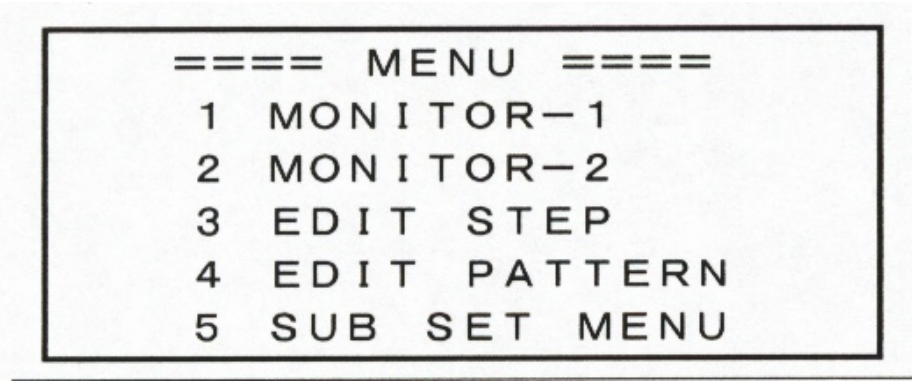
■When F.STOP and P.STOP beyond MODE action in WAIT/DELAY/START SET display and at in cold duration, the MONITOR-1 would express an initial PROGROM display. It depends upon the R/S re-starting F.STOP→F.RUN or P.STOP→R.RUN.

■When F.STOP and P.STOP beyond MODE action on WAIT/DELAY/START SET display and AT POWER ON in HOT duration, the MONITOR-1 would display last memory of initial power cut off then re-starting.

■When the MONTOR-1 display, action MODE would be "highlight" display. To press any key would restore to original display.

MENU DISPLAY

Operation or setting up from MENU display, press 1～5 key, it goes into MENU keys display.



■Press 1、2、5 key, it appears the number display. ,

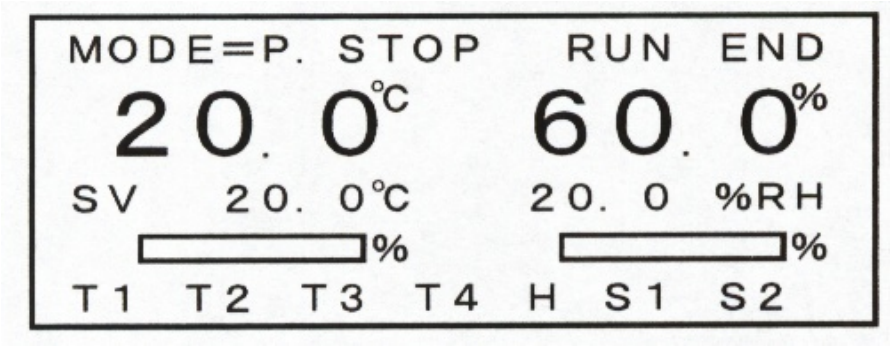
■When press 3 key, EDIT STEP [redacted] sets up initial STEP display, input 0-5 or direct to press ↵ key.

■When press 4 key, EDIT PATTERN [redacted] sets up initial PATTERN display, input 0~5 direct to press ↵key.

■When press 5 key: please refer to P.13 SUB SET MENU display instruction

MONITOR-1 DISPLAY

MENU display press 1 or other displays, to press MONI key, they leap to MONITOR-1。



Remark 1: when it is in FIX MODE, the TIME SIGNAL output would show『S1』, but, it does show『S2』.

Remark 2: when PROGRAM is at ending output showing 『END』, it would be auto ending at time finished, or operate R/S key, the action MODE is F.PAUSE →F.STOP or P.PAUSEP→P.STOP display, the END output changes as ON at the sametime.

When END output is under the MONI figure, you may press any key to release power, in the meantime, the END figure disappear as well.

■MODE=: is an action expression, by R/S key or external joint point action control, the changes are as below.

FIXED VALUE OPERATION MODE

■F.STOP: all output OFF, the fixed value is under standby.

◦ ■F.RUN: When F.STOP press R/S the MODE changes into F.RUN, it begins fixed value control. After setting until fixed value ending, the action MODE would change into F.STOP. If fixed time to be setup as OHOOM, the fixed value control will be continuously.

■F.PAUSE: When F.RUN press R/S key, e action MODE changes into F.PAUSE◦ at this time, all output changes into OFF unless **RUN joint power.**

PROGRAM OPERATION MODE

■ When P.STOP is all output as OFF state, the PROGRAM control is under standby.

■ When P.RUN is on action MODE to press R/S key, the action MODE changes into P.RUN to perform PROGRAM.

■ P.PAUSE: when it is on P.RUN to press R/S key, the MODE changes into PAUSE . All output is on OFF state unless RUN joint power. , When it is on P.PAUSE to press P.PAUSE R/S key, the display changes into P.STOP.

■ WAIT: When is on P.RUN MODE after WAIT setting and STEP time is "0" state. If the PV of temperature and humidity is located within WAIT district, the WAIT would not be active, if the PV of temperature and humidity have not entered into the WAIT district, the MONITOR MODE shows WAIT state and the STEP rest time shows "0", the CONTROL state is still under control continuously. If temperature and humidity is under WAIT control, such as PV of temperature and humidity raise to WAIT district range, you may keep on to execute the next STEP.

■ HOLD: To press HOLD key, the PROGARM would suspend to perform. , The P.RUN, WAIT, F.RUN are on the action MODE to press HOLD key, the HOLD would display on the MONITOR figure, but, the Timer suspend on a HOLD state to press HOLD key, the original P.RUN WAIT, F.RUN of MODE would keep on the performance.

■ WATER/TEMP/COMPRES/FAN(i.e.TROUBLE IN): means WATER shortage、the TEMP,COMPRES, and FAN are on abnormal state. If the joint point is at ON state (i.e.TROUBLE IN), the MONITOR would display abnormal signal and the WATER/TEMP/COMPRES/FAN become highlight and all power changes into OFF.
When the joint point is at OFF state (abnormal being released), you may press R/S key, it would continue to execute F.RUN or P.RUN.

■ PV means a Practical Value, the numeral would be display with twofold.

■ SV means a Save Value, when it is on MODE F.STOP、F.RUN、F.PAUSE and with FAX CONTROL SET figure, it is as same as S.V. If you want to change SV, it can be done on a FAX CONTROL SET figure.When the MODE is on P.RUN, the SV can be alteration along with the STEP set value.

■ ▮▮▮▮▯▯▯▯% is PID power to display power 50%, ▯▯▯▯is 0% , ▮▮▮▮ is 100%. When AUTO TURING is in performance state, it would demonstrate AT.

■ ON/OFF T1 T2 T3 T4 H1 means ON/OFF output display. ,T1 T2 T3 T4 means ON/OFF output, H1 is for Humid output. When the ON **is output, it would be demonstrated by highlight.**

■ use SET key, to make the SV changing into highlight, furthermore, it would change into TEMP setting value mode. (KEY LOCK is on OFF state and action MODE is on F.STOP, F.RUN state,the TEMP range is installed under TEMP RANGE SET display and from LOW to HIGH LIMIT range. If the SV setting value is not covered within the range, it would demonstrate old DATA, but, it needs to install again.

■ Complete the TEMP set value then press SET or ↵ key, but the Humid value would be a highlight, at this time, you may install Humid value. The limitation is from 0-100%. If there a beyond numerical(s), the DATA can not be installed. You have to install again.

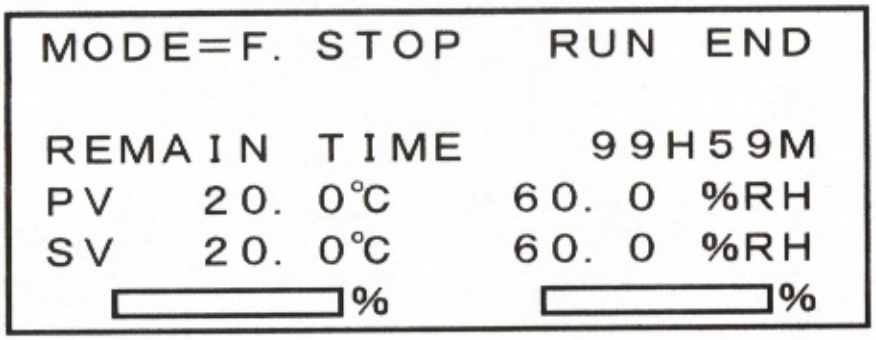
■ When the Humid value is installed complete, you may press SET or ↵ key for conclusion.

■ When it is on INPUT mode, you may press MONI key, it would display MONITOR2。

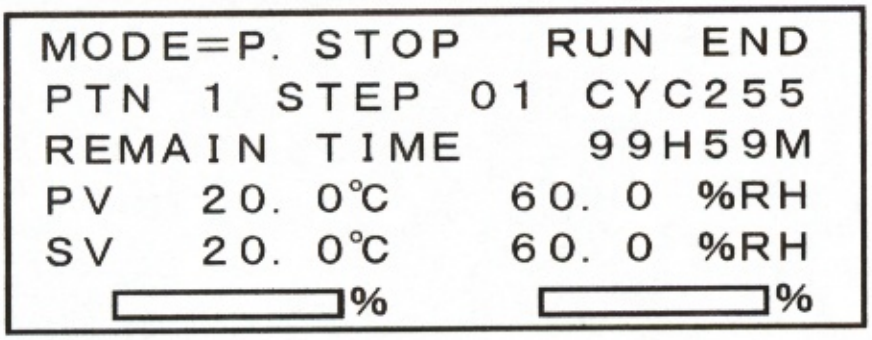
MONITOR-2 FIGURE

When it is on MENU figure to press 2 or press MONI key under MONITOR-1 figure, it would display MONITOR-2 figure.

■ When it is on OPERATE MODE=FIX:



■ When it is on OPERATE MODE=PRG



■ When STEP REMAIN TIME is on FIX MODE, it means Set Value control time, when it is on PROGRAM, It means STEP performance time. When it is on F.RUN or P.RUN, the WAIT HOLD time shows a rest time, when it is on F.STOP or P.STOP, it would shows Set Time.

■SV input and R/S HOLD ADV key operation are as same as MONITOR-1.

MONITOR-1 and 2 FIGURE
(APPLICABLE TO BOTH)

The following Humid PID power and HI power are not to be demonstrated, due to, Humid is concerned.

1. Humid Set Value is 0% H.

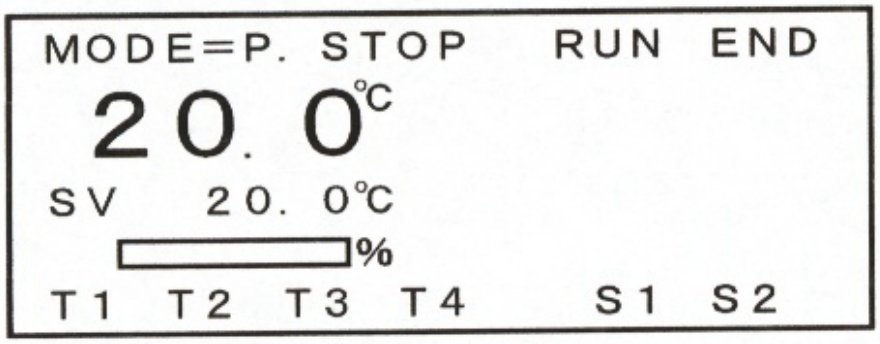
2. Temp Set Value covering HUMI CONTROL SET display is beyond of HUMID LIMIT TEMP setting.

\

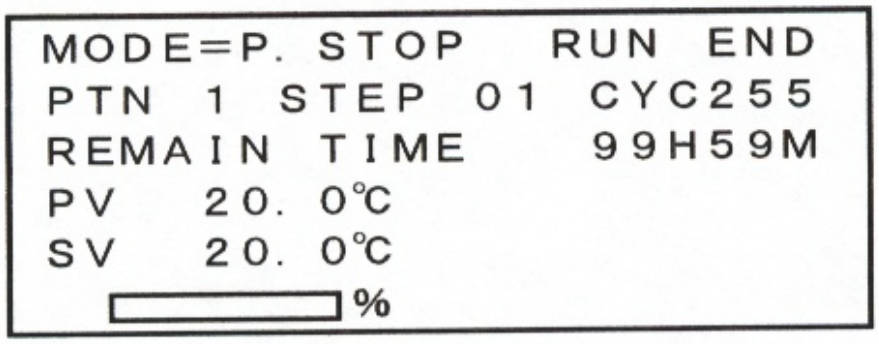
3.Dry Ball Temperature and Moist Temperature is 100℃ up.

4. Dry Ball Temperature and Moist Temperature is below -10℃.

■MONITOR-1



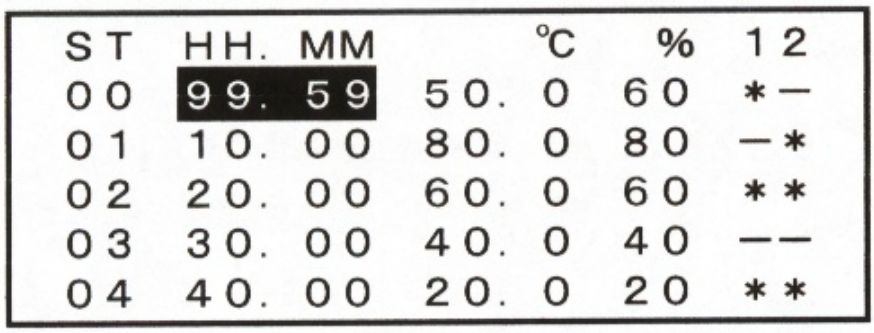
■MONITOR-2



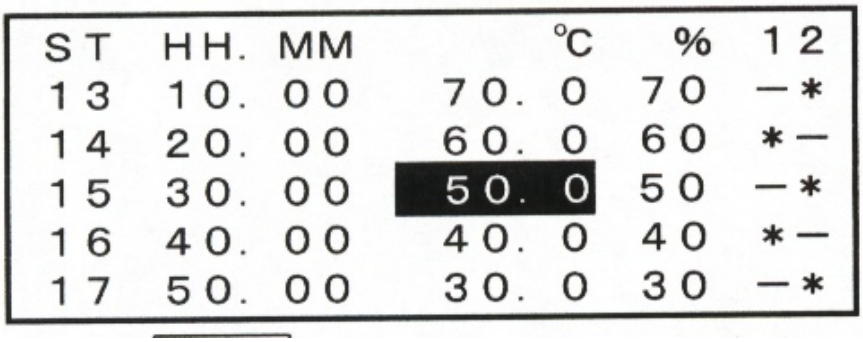
The above two figures are OPERATE MODE=PRG

EDIT STEP FIGURE

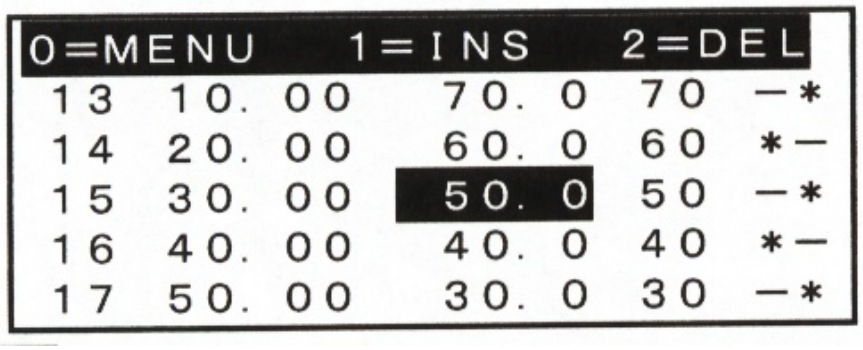
By the MENU figure press 3 key to display EDIT STEP figure, install STEP numerical(s) again that you want to start, it would start to display from this stage after installed.



ST	HH. MM	℃	%	12
00	99. 59	50. 0	60	*—
01	10. 00	80. 0	80	—*
02	20. 00	60. 0	60	**
03	30. 00	40. 0	40	——
04	40. 00	20. 0	20	**



ST	HH. MM	℃	%	12
13	10. 00	70. 0	70	—*
14	20. 00	60. 0	60	*—
15	30. 00	50. 0	50	—*
16	40. 00	40. 0	40	*—
17	50. 00	30. 0	30	—*



0=MENU	1=INS	2=DEL		
13	10. 00	70. 0	70	—*
14	20. 00	60. 0	60	*—
15	30. 00	50. 0	50	—*
16	40. 00	40. 0	40	*—
17	50. 00	30. 0	30	—*

■ ST/STEP numerical(s) is/are from 00-99.

■ H.M is an execution time of STEP, it may start from 00 hour, 00 minute to 99 hours 59 minutes.

■ ℃ is a ultimate temperature of STEP, the input range must be within the LOW LIMIT and HIGH LIMIT.

■ % is an ultimate humidity of STEP, the input range must be within 0-99% RH.

■ Program initial temperature/initial humidity (SV0) and is as same as starting determined temperature PV value (initial humidity is a determined humid PV Value and is an integer value of decimal rounding.

■ Program ultimate temperature/ultimate humidity (SV1) and intitial temperature/ initial humidity (SV0), it appears linear elevating/declining by means of determined practical time. {(SV1-SV0)÷ practical time }.

■T1、T2 are a determination of TIME SIGNAL;『＊』is ON,『－』is OFF。When it is on highlight, press 0-9 key, the 『＊』change into 『－』 、『－』change into 『＊』。

When it is on『＊』=ON, the TIME SIGNAL power is ON during the stage of STEP execution. The place of hlghlight may be movement by using of ↵ and ▲ ▶ ▼ ◀ Keys.

■ highlight expressing UP/DOWN movement. If it is on STEP 04 line, press ▼ key again, the is down moving with one line, but, it changes

■ into STEP 05 line with highlight, or direct to bconfirm and determine this figure from STEP00 to STEP99
totally 100 STEP.

■If it is on KEY LOCK as ON or action mode is not at F.STOP and P.STOP, there is no highlight and can not be set, at this time, press ▲ ▶ ▼ ◀ key, the display will be once moving 5 STEPs alteration to demonstrate.

EDIT PATTERN FIGURE

When it is under MENU figure, you may press 4, key, it shows EDIT PATTERN figure. Install PATTERN code again what you expecte to begin, it will start to demonstrate program from this group after installed.

#	TOP	END	CYC	JP	EXE
0	01	01	1	—	—
1	10	20	5	8	*
2	15	20	1	—	—
3	01	50	1	9	—
4	40	50	2	4	—

The above figure is 00-99STEP, it may split into 10 PATTERN randomly.
Each PATTERN may set Topping and Ending to execute STEP, program cycling

number(s), program ending JUMP and program execution priority assignment.

■Pn is program (PATTAIN) 0-9.

■TOP is the program Topping signment number to be insttalled by STEP0-99.

■END is a final Ending number to be installed by STEP0-99.

Remark: when input is TOP>END, it would re-condition as TOP=END, you may install again.

■CYC(CYCLE) is an execution cycling number of PATTERN, it may set 1-999.

■JP(JUMP) points out the program cycling number(s) being executed completely, it needs to execute the program setting by next. If JP settimg makes program itself code number(PARRERN NO.), it would course infinite and repeated execution (the above figure PATTERN #4 is an example).

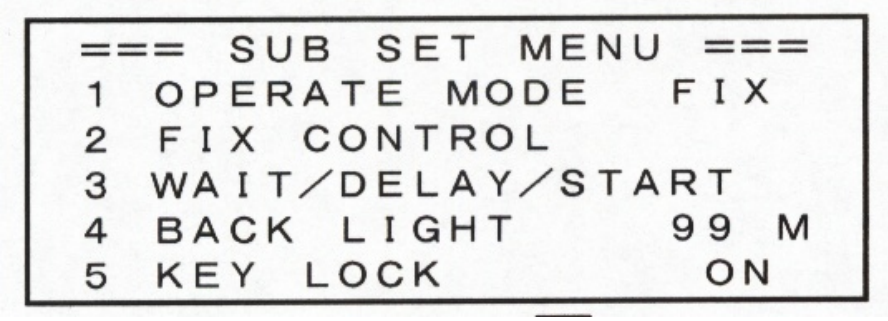
If the input numbers show partly 『－』mark, it means no JUMP, it would be ending after this group of program executed.

■When it is on EXE(EXECUTE) to press R/S key, it would practically execute PATTERN assignment.

To use highlight cursor move to behind of executive PATTENR, press 0~9 key to appear 『＊』, the other PATTERN are expressed by『－』. (PATTERN0~9 only te be set a priority executive program)

SUB SET MENU FIigure

Under the MENU figure, press 5 to show the sub set menu FIGURE



■Press 1 key, the OPERATE MODE may be changed to choose FIX/PRG(FIX=setting mode, PRG=program mode).

■Press 2 key, the FIX CONTROL may enter into FIX CONTROL setting value

■Press 3 key entering into WIAT/DELAY/START setting figure.

■BACK LIGHT is a setting Back-Light time, press 4 key, the numerical part display highlight, the time input is 0-99 minutes.

Install 0, the controller is a long range Back-Light time mode. If install 0-99 minutes, the last key in operation finished and after the setting time, it is no longer as Back-Light.

No Relationship With Setting Time: when the lamp is light, you may put out the light and press any key to turn on the light.

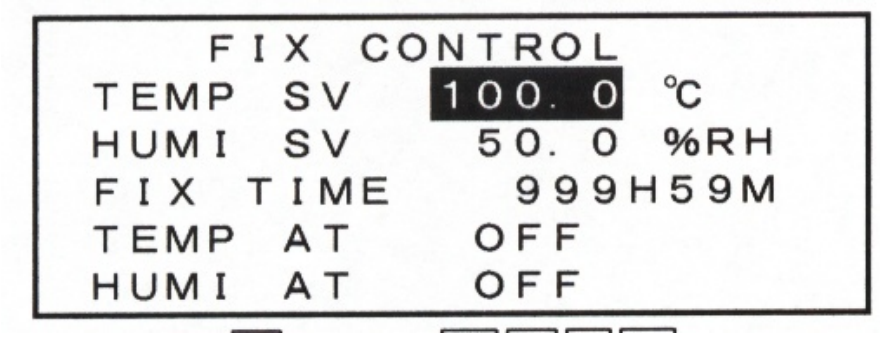
■To press [5] key may switch to choose KEY LOCK function ON/OFF.

When it is on KEY LOCK ON, all kinds of DATA value of setting figure covering in MENU and SUB SET MENU figures are unable to be changed. When the action MODE is on F.RUN, P.RUN, WAIT, HOLD, it would change into KEY LOCK ON mode automatically. When it is on F.RUN mode, the Temp and Humid setting value and the ON/OFF of auto-operation may set.

FIX CONTROL SET Figure

When it is on SUB SET MENU figure, press [2] key then enter into FIX CONTROL Setting value mode setting figure.

To press [MENU] key return to SUB SET MENU figure.



■When it is on FIX CONTROL figure to press [↵] and [▲] [▶] [▼] [◀] key moving highlit cursor.

■TEMP SV is temperature setting value input. The input range is TEMP RANGE SET figure to set LOW LIMIT to HIGH LIGHT LIMIT. Beyond the data, will not be able to change, it must be re-installed.

■HUMI SV is humidity setting value input. The input range is 0.0-100.0%, it is unable to change beyond the data.

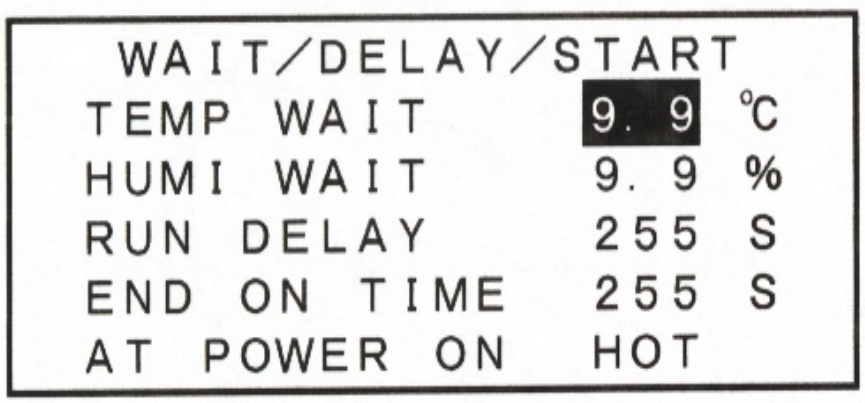
■FIX TIME is an executive time of setting control, it is from 0-999 hours 59 minutes, separate to install hour and minute.

■TEMP AT is temperature auto-operation to ON/OFF setting. In order to execute auto-operation, use the highlight cursor to move it to temperature

or humidity AT OFF part, press 0~9 key, the OFF changes into ON, it begins to execute auto-operation. At the auto-operation MONITOR-1 figure, the left side of PID control output volume would display AT. The operation would be ending after three times of ON/OFF control. The operations' PID parameter would be recorded within all homologus PID ZONE. Furthermore, it would change auto-operation from AT ON into AT OFF.

WAIT/DELAY/START SET Figure

When it is on SUB SET MENU figure, press 3 key to enter into WAIT/DELAY/START SET figure. Press MENU key to return to SUB SET figure.



■ From the above figure, you may press ↵ and ▲ ▶ ▼ ◀ key move the highlight cursor.

■TEMP WAIT and HUMI WAIT may set up the range from 0.09～9.9℃RH%.

■RUN DELAY is behind F.STOP/P.STOP, the RUN power joint point signal DELAY showing time length to OFF. Its setting range is 0～255 seconds.

■When END ON TIME is F.STOP/P.STOP, the END power joint point signal holds time length to OFF. The setting range is 0～255 seconds.

■AT POWER ON is an action mode of power reinstated after power failure. You may choose HOT or COLD. When you choose HOT, it would continue to execute it from power pre-failure; when you choose COLD, it would re-execute it from the initial program.

■HOT/COLD Choice=when the highlight cursor on HOT or COLD position, you may press 0~9 key to switch.

INNER SET 1 figure

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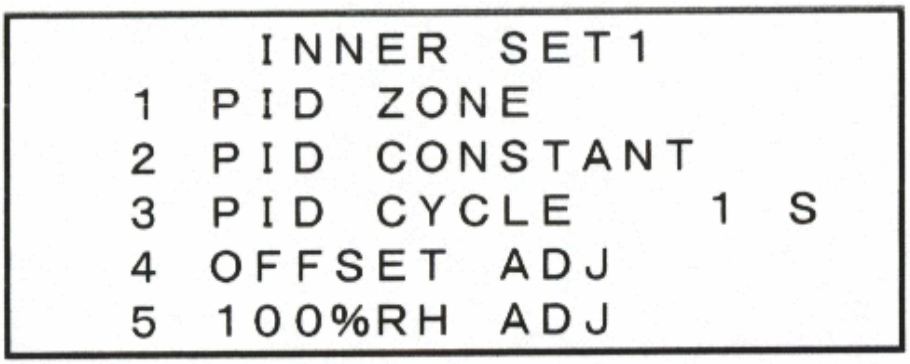
When it is on MENU figure, press code [·] [0] [1] to enter into INNER SET 1 figure data.
There is no relation amongst data setting, KEY LOCK and action mode. These are able to be set and changed

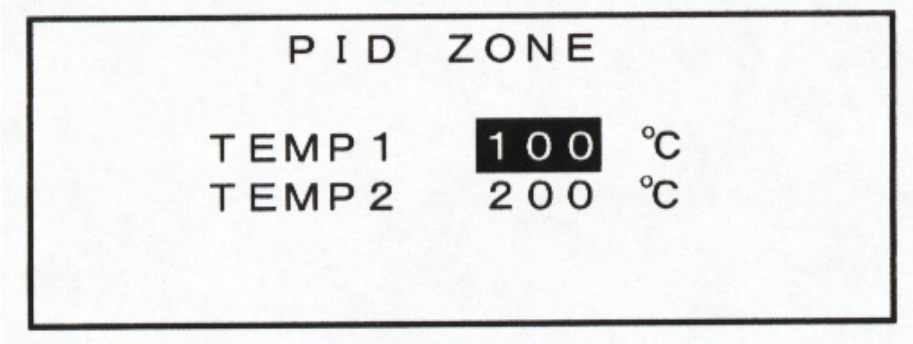


■[1] [2] [4] [5] keys are containing homologous expression figure.

■3 OID CYCLE SET is the time period of PID control. Press [3] key entering into PID CYCLE SET[1]S input change mode, setting seconds become highlit, input range 1～30 may change the setting.

PID ZONE SET figure

When it is on INNER SET1 figure, press [1] key, then, enters into PID ZONE SET figure.

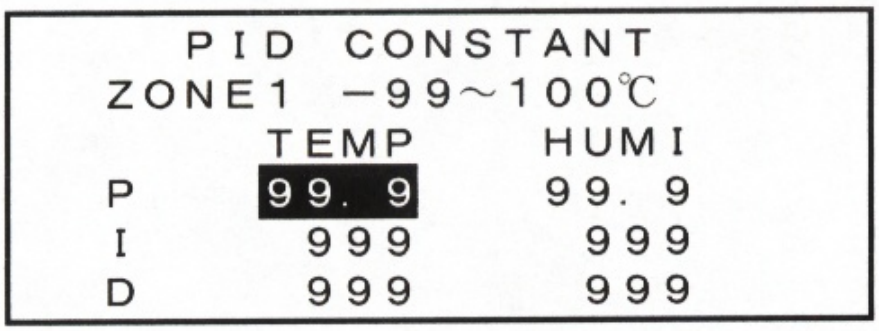


To set TEMP1 and TEMP2 make the temperature range to be distinguished as below:
ZONE1 =99.9℃～TEMP1
ZONE2 =TEMP1～TEMP2
ZONE3 =TEMP2～200℃ of 3 regions, the input range of TEMP1/TEMP2 is 99～200℃

TEMP1 and TEMP2 by ↵ key (or ▲ ▶ ▼ ◀ key) choose the switch. After setting 3 different ZONEs, it may homologously be set different from 3 groups PID parameter. When temperature SV value at ZONE2, however, use ZONE2 PID parameter, the priority sequence is ZONE1, ZONE2 ZONE3, but, when it is on TEMP1=200, ZONE1=99.9～200℃ with full temperature range, however, the ZONE2 and ZONE3 are unable to be used.

PID CONSTANT SET figure

When it is on INNER SET 1 figure, press 2 key, then, enters into PID CONSTANT SET figure.



Install ZONE1,2,3 PID parameter.

P is a proportion bar, the input range is 0～0.00.9℃/%RH.

I Integration Time, D is Differential Time, the input range are all 0～999 seconds.

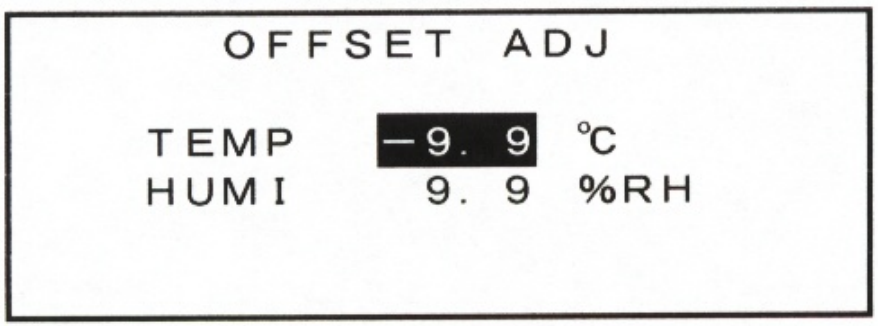
You may press ↵and ▲ ▶ ▼ ◀ key from the figure to move the highlight Cursor.

When the highlight cursor is on the D (Differential Time), you may press ▼ key, however, the ZONE would be changed by ZONE3→ZONE2～ZONE3.

When the highlight cursor is one the P (proportion bar), you may press ▲ key, however, the ZONE would be changed by ZONE3→ZONE2～ZONE1.

OFFSET ADJUST figure

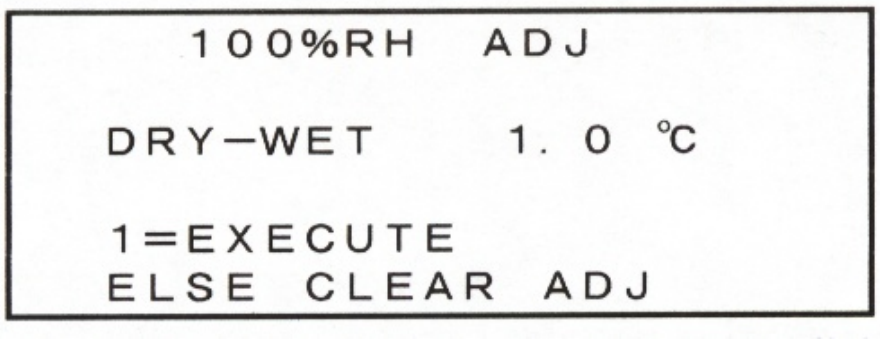
When it is on INNER SET 1 figure, you may press 4 key, it would enter into OFFSET ADJUST figure.



To set up error correction value for determination value.
Input range is +/- 9.9℃RH.
Example: when it is -0.2 error, you may install +0.2

100% RH ADJUST figure

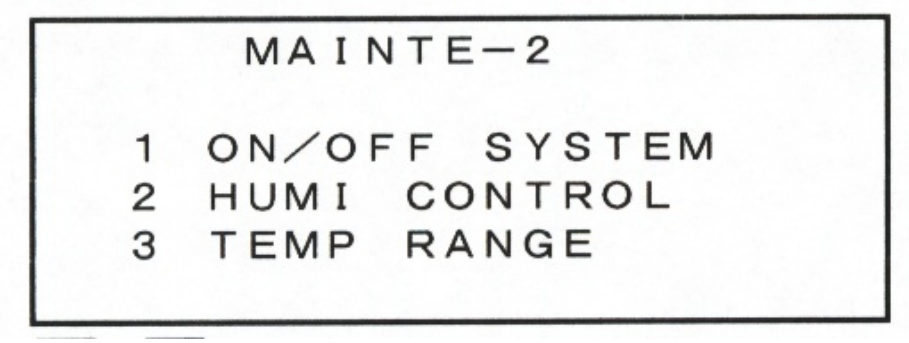
When it is on INNER SET 1 figure, you may press 5 key, it would enter into 100% RH ADJUST figure.



Relative humidity is Dry Ball and Wet Ball being at same state as well (take off the cloth from Dry Ball, make it having a sufficient time for temperature equilibrium), make the Wet Ball temperature correction as same value as Dry Ball temperature correction. It will express the error value between Dry Ball temperature and Wet Ball temperature
Press 1 key to execute correction.
Press 0 or 2~9 key to express non-execute correction.

INNER SET 2 figure

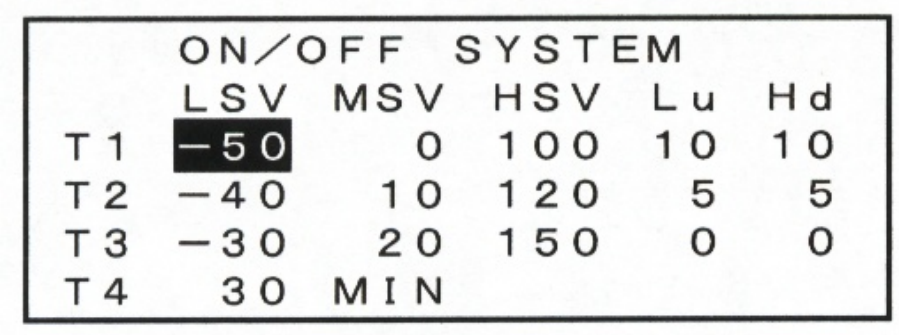
When it is on MENU figure, you may press [·] [0] [2] key to enter into INNER SET 2 figure.



[1]~[3] key are all the homologous display figure.
These are non-relations with figure input, data setup, KEY LOCK and action mode. They are all to be setting.

ON/OFF SYSTEM SET figure

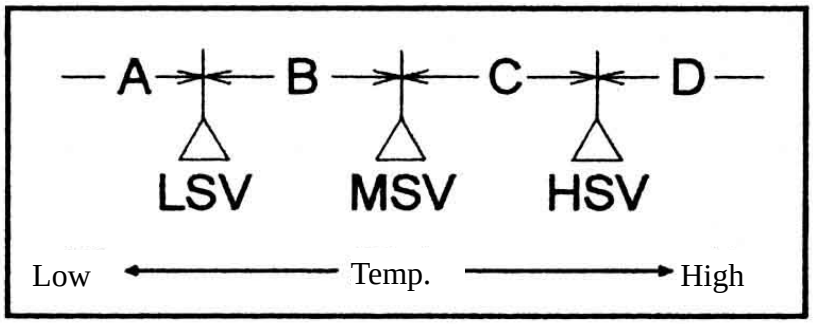
When it is on INNER SET figure you may press [1] key, it would enter into ON/OFF SYSTEM figure.



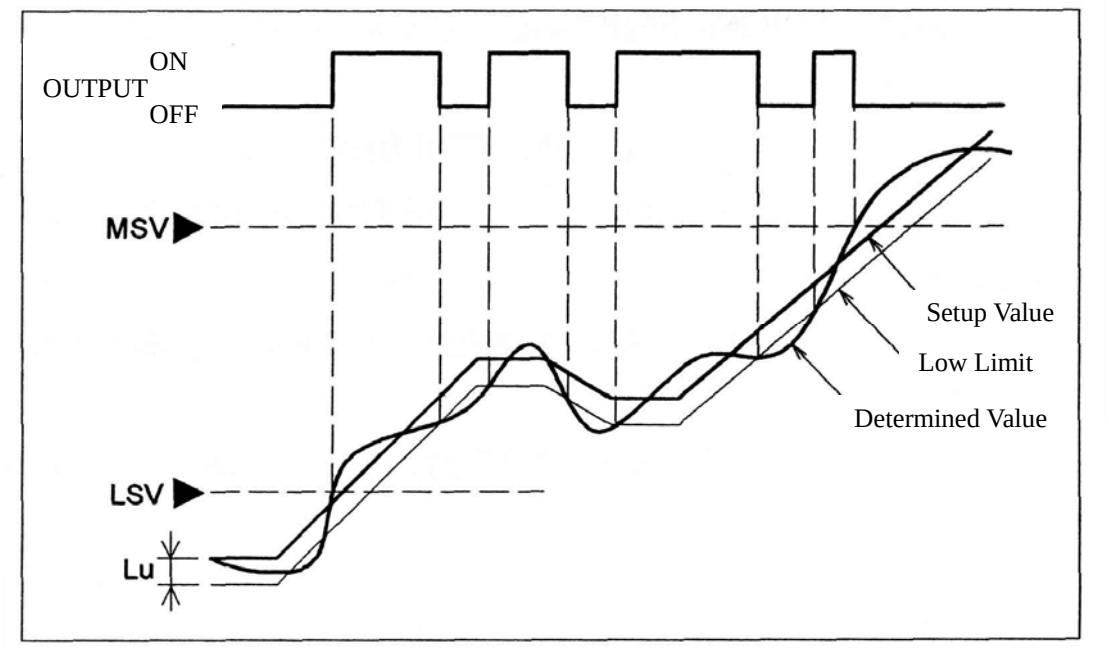
This figure is an ON/OFF power of temperature, there are T1～T4 totally 4 joint points output to be set. There is a temperature value setting among T1～T3, only the T4 is to set time value (minute is as a unit).

■LSV=LOW SET VALUE is the LOW side setting input.
■MSV=MIDDLE SET VALUE is the middle setting input.
■HSV=HIGH SET VALUE is the HIGH side setting input

■Lu=LOW LIMIT range (error setting) input.
■Hd=HIGH LIMIT range (error setting) input.
■LSV MSV HSV input range is -99~200℃, however, use ***LSV<MSV<HSV way*** to install.
■Lu、Hd input range is 0~30℃.
■T4 is the time delay of action input, the input range is 0-99 minutes.



It would be output A.B.C.D. totally 4 areas after setting the LSV LSV MSV as above figure.
Area A (Determination Value<LSV Range)
Joint point is Off, no power.
Area B (LSV≦Determination Value≦Range)
1. Lu=0 hour
   No relation with error value, joint point is ON
2. Lu≠0 hour (refer to the figure as below:
   Determination Value>Set Value—Lu joint point is ON
   Determination Value≦Set Value—Lu joint point is OFF



Area C (MSV>Determuned Value≦HSV Range)

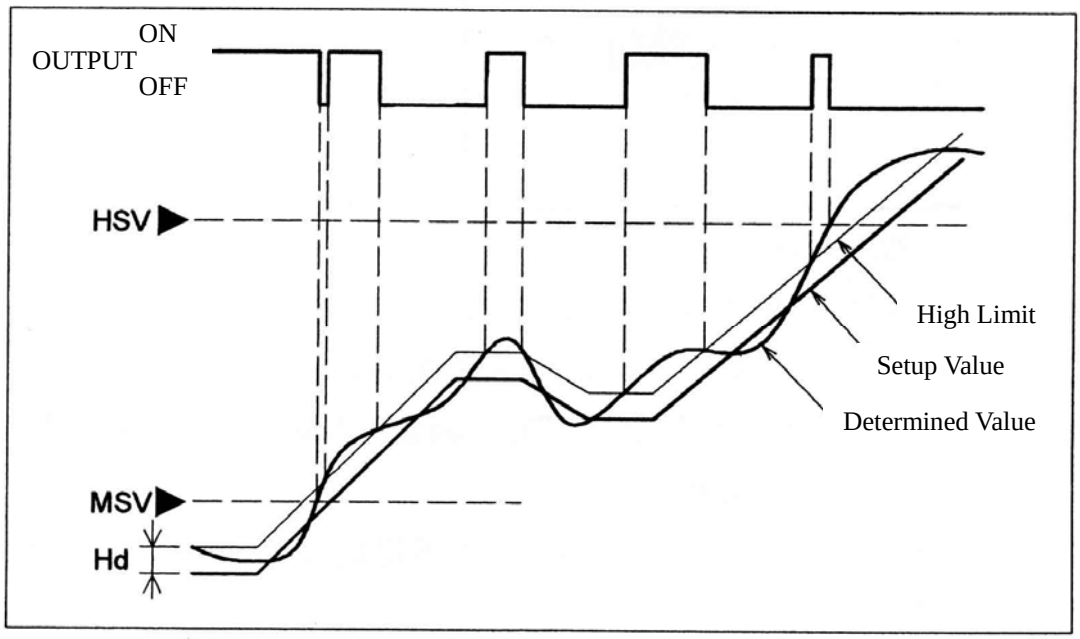
1. Hd=0

   Non-relation with error value, joint point is OFF.

2. Hd≠0 (Refer to the following figure)

   Determined Value<Seting Value + Hd is OFF.

   Determined Value ≧Seting Value+Hd is ON.



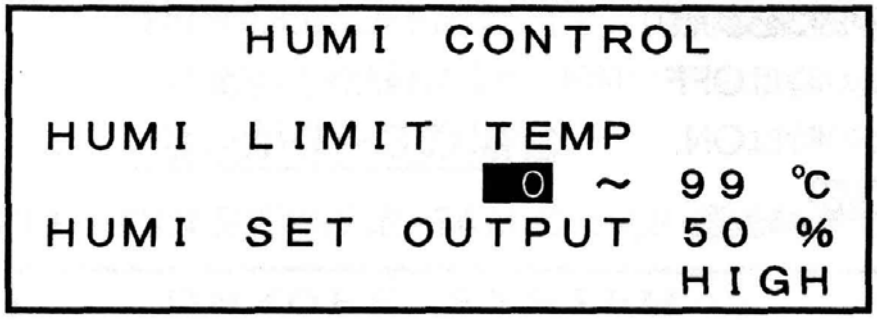
Area D (Determined Value<HSV Range)
Non-relation with error value, joint point is OFF.

■T4 output action

The output requirement of T4 begins to reckon by time after T3 ON. The T4 will be shown after time up.

HUMI CONTROL Figure

When it is on INNER SET 2 figure, press 2 kto entering into HUMI CONTRAL SET figure.



■HUMI LIMIT TEMP is a determined value display of himidity and control temperature range setup. Input range is 0～99℃. The humid setting value display would disappear if the temperature setting value beyond this range. Humid PID control output and ON/OFF control output are all OFF.

■HUMI SET OUTPUT is humid ON/OFF output setup, input range is 0-99%RH.

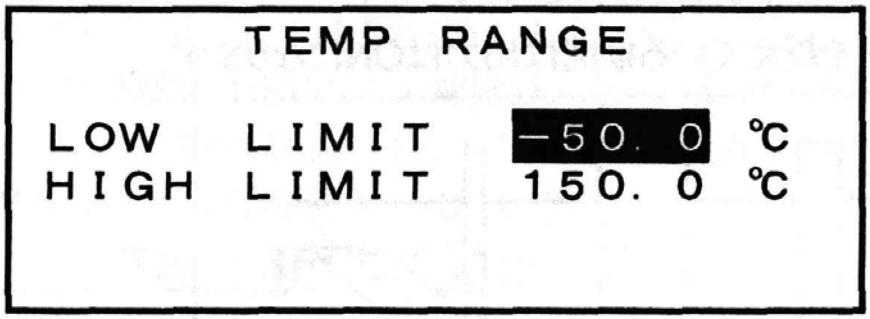
■If it is on HIGH or LOW highlight display, press 0~9 key to change. Press HIGH key to change into LOW, press LOW key again to change into HIGH.

■Set HIGH: when humid setting value≧HUMI SET OUTPUT' s setting time, humid ON/OFF output H1 joint point is ON.

■Set LOW: when humid setting value<HUMIS SET OUTPUT' s setting time, humid ON/OFF output joint point is ON

TEMP RANGE SET Figure

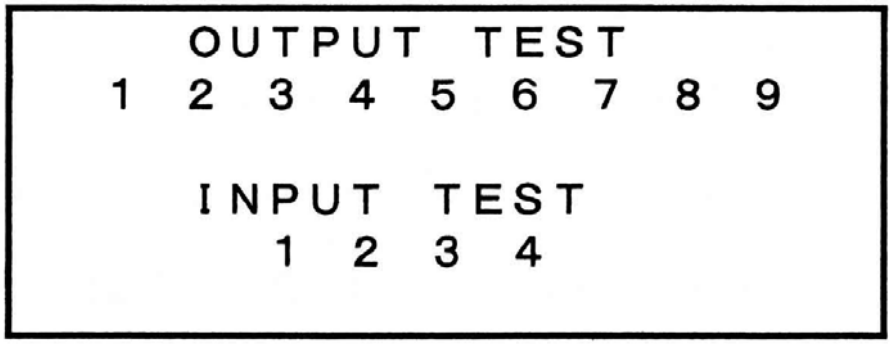
When it is on INNER SET 2 figure, press 3 key then enters into TEMP RANGE SET figure.



■TEMP RANGE SET is an input range of Temp SV.
■LOW LIMIT input range is -99.9～150℃.
■HIGH LIMIT input range is LOW LIMIT + 50.0～200℃.
When it is on MONITOR, EDIT STEP and FIX CONTROL SET figures' Temp setting value input, the controller would check whether it is covered by the above record. All input setting value would not be checked before this range setting.

OUTPUT . INPUT TESTING Figure

Whe all operation motion stop, you may press code press ·, 0 4 to enter into INNER SET 4 figure.



The above figure is PID output, ON/OFF output and joint point input Test figure.

■Temp, Humid PID output would be exchanging once an ON/OFF motion by each 0.5 second.

■OUTPUT TEST 1～9 second deferent homologous 1=END, 2=RUN, 3=T1, 4=T2, 5=T3, 6=T4, 7=H1, 8=TS1, 9=TS2.

■Press 1~9 key, the OUTPUT TEST 1～9 would be homologous highlight and the numbers 1～9 homogous output joint point is on ON state at the same time.

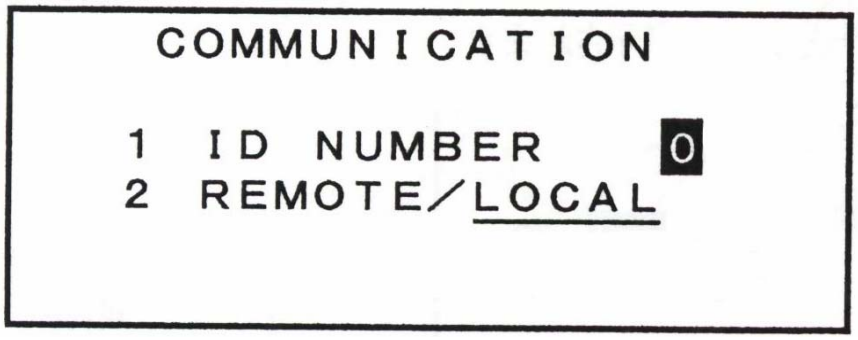
■INPUT TEST 1～4 different homologous 1-=COMP, 2=TEMP, 3=WATER, 4=FAN.

■Make the joint point input part trouble in, then, the INPUT TEST 1～4 would be homologous highlight.

ID NUMBER AND REMOTE/LOCAL SET Figure

When it is on MENU figure, press code 按 、0 3 entering into INNER SET 3 figure.

。



Press 1 key, you may set ID number 0～7. Fk5481 can operate communication Joint with 8 ID.

■Press 2 key it may change each other to execute REMOTE and LOCAL function. (when you execute this motion, it must stop all operation).

LOCAL Mode:

When you execute this mode, you may use remote control method to operate RUN, STOP, ADVANCE HOLD etc., functions.

REMOTE mode:

To execute this mode, you may use remote control to set PID local, Temp and Humid setup value, 9 ON/OFF output.

TROUBLESHOOTING

Problem with Temp dropping:

1. Check pressure whether it is in normal operation condition or not.
2. Does the dust accumulated much thicker on the radiator causing radiator abnormal or high voltage switch skip out.

Problem with Temp raising:

1. Radiator malfunction.
2. Temp protection switch skip out.

Problem with Humid raising:

1. Insufficiency of water level in Humidifier causing Humidifier damage.
2. Shortage of water.
3. Insufficiency of water level in drainage or pump no function or water Conduit blocked.

Problem with humid dropping:

1. Test rod without water or cloth inability to suck in water.
2. Humidifier malfunction or unable to moisten continyally.

MAINTENANCE PERIODICITY

Clean	Method	Period	Remark
Radiator	Flushing by using of high air ressure	3 months each	too much dust causing radiation
Water Tank	change	1-2 months each	Water deterioration
sensor with wet cloth	change	3 months each	sensor deteriorating

DISCRIMINATION OF EQUIPMENT CONSTRUCTION

Humidifier Water Level

Drain Outlet

Moist Sensor