

**EYELA**

Environmental Chamber

**Key Operation Manual**KCL-2000A  
KCL-2000W**Important**

This manual is designed to use this unit safely with the best performance.  
**Read carefully the chapter [For safety operation]  
before operating this unit.**

Keep this key operation manual beside the unit.

Thank you for choosing **EYELA** products.

## Introduction

This instruction manual describes the procedure of key operation for Environmental chamber model KCL-2000A and KCL-2000W.

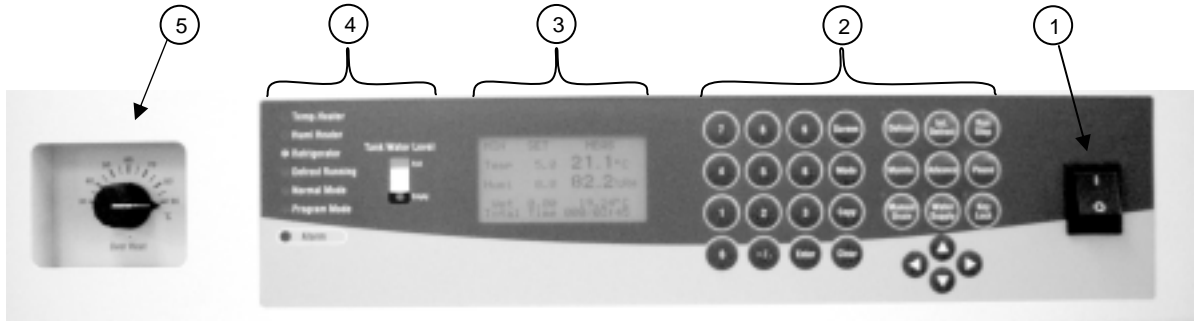
Read this manual carefully before operation.

## Contents

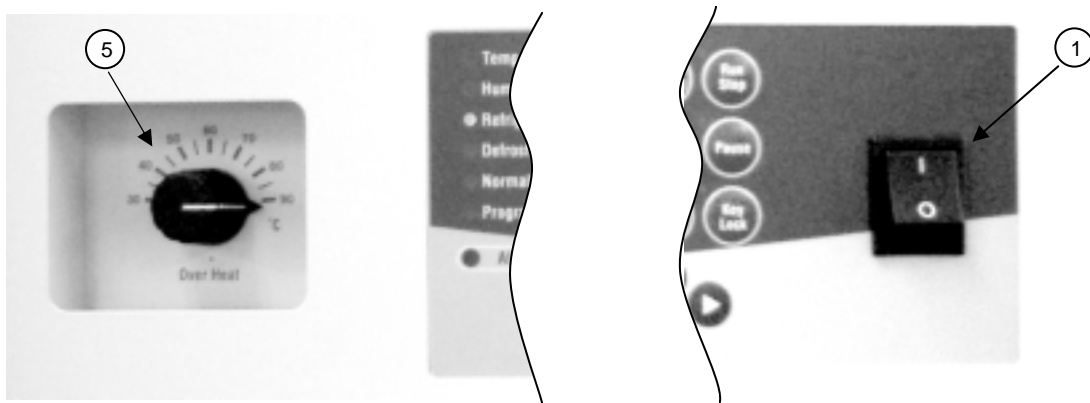
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# 1 Description and function of control panel

The control panel equips power switch, operation, LCD panel, LED indicator, and over temperature protection knob from the observer's right.

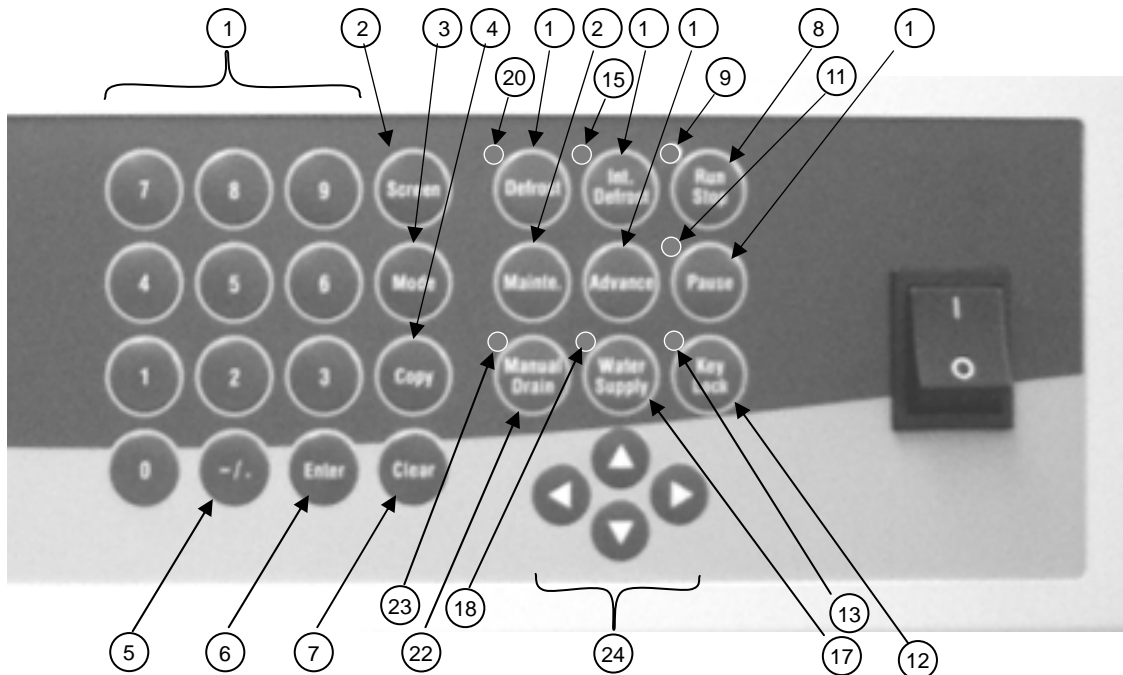


## 1. Power switch and over temperature protection knob



No.	Description	Function
1	Power switch	It turns on and off the unit.
5	Over temperature protection knob	<p>You can set a over temperature protection temperature within the range 30 ~ 90 (Maximum : 93 ).</p> <p>If the set temperature is less than 80 , set the protection temperature 10 higher than the set temperature. When the set temperature is 80 or higher, turn the knob clockwise fully (set at the maximum 93 ).</p> <p>* In the event that the chamber temperature reaches to the set protection temperature, the alarm message [TH] is shown on LCD panel and the operation stops. Refer to the section of [Alarm function] on P.9 to know more details.</p>

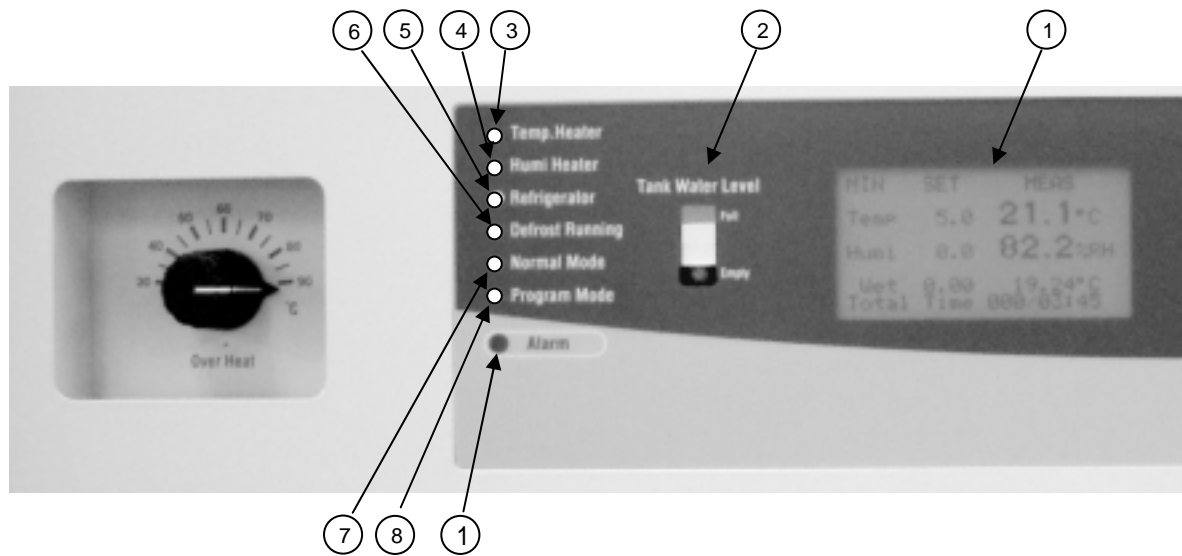
## 2. Operation key and operating lamp



No.	Description	Function
1	Numeric key pad [0] ~ [9] key	It is used to enter a value.
2	[Screen] key	The indication is switched among to [Measured value], [Temperature graphic] and [Humidity graphic].
3	[Mode] key	The indication is turned over [Normal mode] and [Program mode].
4	[Copy] key	If you press this key while controlling an user's program, the set value for temperature and humidity of the previous segment is copied. This function is void in the segment 0.
5	[-./] key	If you press this key in the lead of the value, [-(minus sign)] is entered, and if you press in the middle of the value, [.(decimal point)] is entered.
6	[Enter] key	It sets the input data entry, switch of input mode
7	[Clear] key	It clears the input data, releases alarms. * Some alarms cannot be released by this key. (Refer to the chapter [Release of alarm] on P.10.)
8	[Run/Stop] key	Press and hold this key for more than 1 sec. to prevent operation mistake. The control operation is started or stopped
9	[Run] lamp	It illuminates while controlling.
10	[Pause] key	If you press this key while operating any user's program, the control condition at that time are kept. If you press the key once again, the [Pause] function is released, the operation is continued. This function is void in other than control of user's program.
11	[Pause] lamp	It illuminates while the pause function is active.
12	[Key Lock] key	Press and hold this key for more than 3 sec. to prevent operation mistakes. All operation keys are locked except this key, and any key operation is not accepted. If you press the key once again for more than 3 sec., the [Key Lock] function is released.
13	[Key Lock] lamp	It illuminates while operation keys are locked.
14	[Int. Defrost] key	It turns ON/OFF the automatic defrosting operation.
15	[Int. Defrost] lamp	It illuminates when the Automatic defrosting mode is active.

No.	Description	Function
16	[Advance] key	If you press this key while operating any user's program No.3 ~ 11, the operation is proceeded to the next segment by compulsion. This function is void in other than control of user's program.
17	[Water Supply] key	Water is supplied to the inner tank from the outer tank by this key. If you press this key, water supply is started, and it stopped automatically when the internal tank is full. If the internal tank level reaches to the level 1 (low level), water is supplied automatically from the external tank until the internal tank is full. * To see the level indication of internal tank, refer the LCD panel and LED indicator on P.4.
18	[Water Supply] lamp	It illuminates when the water supply is active.
19	[Defrost] key	It turns ON/OFF the forced defrosting operation.
20	[Defrost] lamp	It illuminates when the forced defrosting operation is active.
21	[Mainte] key	This key changes the operation to the maintenance mode.
22	[Manual Drain] key	The top and bottom humidification vat, wet-bulb wick holder can be drained by compulsion. While executing forced draining, the humidification control is stopped.
23	[Manual Drain] lamp	It illuminates when the forced draining operation is active.
24	Cursor key [ ] key [ ] key [ ] key [ ] key	Move the cursor ( ) upward. Move the cursor ( ) downward. Move the cursor ( ) leftward. Move the cursor ( ) rightward.

### 3. LCD panel and LED indicator



No.	Description	Function
1	LCD panel	It displays the setting of temperature, humidity and time, measured data (Numeric indication and graphic indication), and alarm messages.
2	Tank Water Level Empty ~ Full	The water level of inner tank is indicated on a scale of one to four. When the level is normal, the green lamp illuminates. When the level is low, the red [Empty] lamp illuminates. (See [Humidification procedure] on P.33.)
3	Temp.Heater	It illuminates when the temperature heater is active.
4	Humi.Heater	It illuminates when the humidification heater is active.
5	Refrigerator	It illuminates when the refrigeration unit is active.
6	Defrost Running	It illuminates when either forced defrosting or automatic defrosting operation is active.
7	Normal Mode	It illuminates when the normal mode is active.
8	Program Mode	It illuminates when the program mode is active.
9	Alarm	It illuminates when some alarm occurs,

## 2 Overview of operation

There are two operation modes normal and program (5 patterns).

The recorder output port for measured temperature and humidity and RS-232C interface are included as standard equipment.

### 2-1. Data setting and measurement

Temperature setting range	-15.0 ~ 85.0
Temperature measurement range	-30.0 ~ 100.0
Humidity setting range	0.0 ~ 98.0%RH
Humidity measurement range	0.0 ~ 100.0%RH
Time setting range	1 ~ 99 days 23 hours 59 minutes (Smallest unit : 1 minute)
Total time measurement range	1 ~ 999 days 23 hours 59 minutes (Smallest unit : 1 minute)
Setting range of repetition times	0 ~ 999 times (If is set to 0 time, the operation is repeated endlessly until you press [Run/Stop] key.)

\* To see more details of the specification, refer the instruction manual.

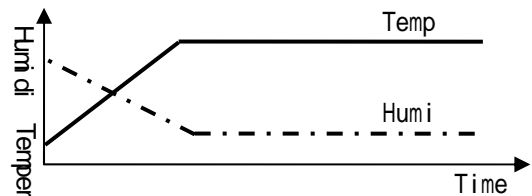
### 2-2. Control mode

#### 2-2-1. Normal mode (Set point control)

(Refer to P.11 ~ 13)

After setting a temperature and start the operation, the unit controls the temperature at the set point.

To start and stop the operation,  
Press [Run/Stop] key.



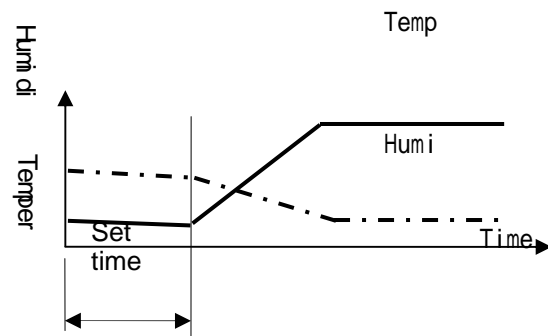
#### 2-2-2. Program mode

##### 1) Auto-start program (Program 1)

(Refer to P.14 ~ 17)

You can set a temperature, humidity and start delay time. After the set time elapses, the operation starts and continues at the set temperature.

To start and stop the operation,  
Press [Run/Stop] key.

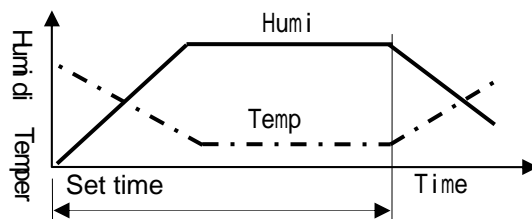


##### 2) Auto-stop program (Program 2)

(Refer to P.18 ~ 20)

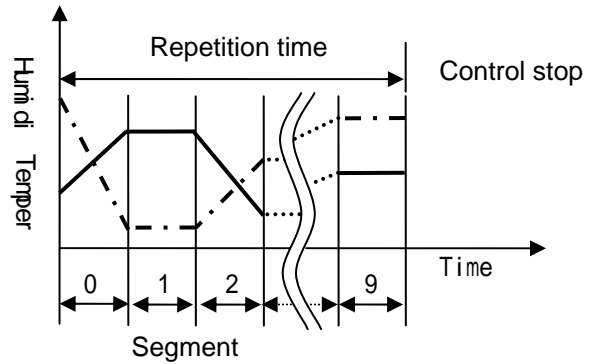
You can set a temperature, humidity and operation stop time.

After the set time elapses, operation sto



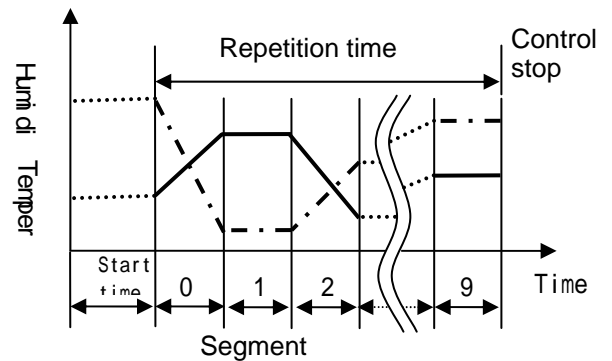
3) User's program (Program3 ~ 9)  
 (Refer to P.21 ~ 28)

You can set a temperature, humidity, time and repetition times to operate the program.  
 One program consists of 10 segments (Seg.0 ~ 9), and you can set a temperature, a humidity and a time to each segment.  
 The repetition time can be set in advance to each user's program No. 3 ~ 9.



4) Auto-start & User's program (Program10)  
 (Refer to P.29 ~ 35)

You can set an user's program (including 10 segments, repetition times) and the start delay time. When the start delay time elapses, the set user's program is started.  
 After the program is repeated as you set, the operation stops automatically.



5) Combination program (Program11)  
 (Refer to P.36 ~ 40)

You can combine some user's programs (No. 3 ~ 9) and set the repetition times.  
 Normal control can be combined at the end of the combination program.

\* 6 programs (including normal) can be combined as a maximum.

\* The setting of the repetition times for each user's program (No.3 ~ 9) becomes void, and you can set the repetition times for whole of combined programs.



## 2-3. Convenient function

### 2-3-1. Graphic display function

The settings and control status of user's program can be checked visually by a graphic indication. (Temperature and humidity is switched over to indicate them.).

Press [screen] key to switch over the indication.

\* To know more details, refer to the section [Graphic function] on P.41

### 2-3-2. Maintenance function

Temperature and humidity indication calibration can be set, and the operating time of humidification vat, wet-bulb wick, condenser filter, and total operation time of chamber unit

To change to the maintenance mode, press [Mainte.] key.

\* Refer the [Maintenance function] on P.42 to know more details.

### 2-3-3. Pause function

This function can be active only when controlling by some user's program. The operation is kept by the set point control mode with the measured values of temperature and humidity at the time when you press [Pause] key. Press [Pause] key again to release the pause function and continue the control from the paused segment.

\* The time count of the paused segment is continued from the temporary suspension.

### 2-3-5. Interval function

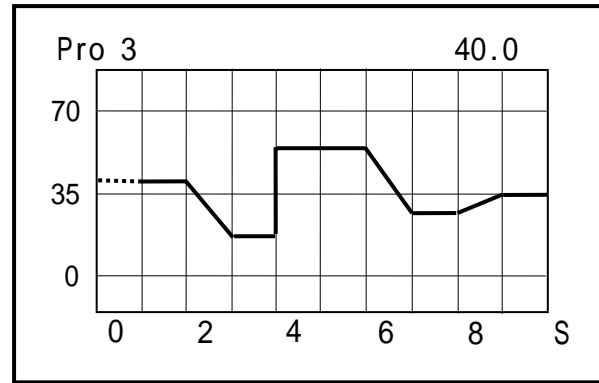
Automatic defrost operation is provided. Use this function for a long-term continuous operation.

- \* The defrost operation runs every hour when the set temperature is less than 40 °C or lower.
- \* While defrosting, the chamber temperature and humidity will be varied up to 3 °C and 20%RH each under the 20 °C of room temperature.

### 2-3-7. Key lock function

All operation keys are locked except this [Key Lock] key to prevent operation mistake. Press and hold this [Key Lock] key for more than 3 seconds to be active the key lock function. Any key operation cannot be accepted except [Key Lock], and its indicator illuminates.

Temperature graphic display



Maintenance screen

MAINTENANCE MODE	
1.Temp.Cal	0.0
2.Humi.Cali	0.0 %RH
3.Humi.Pan	800 h
4.Wet-bulbwick	720 h
5.C.Filter	820 h
6.TotalRunTime	34567 h

### 2-3-4. Advance function

This function can be active only when controlling by some user's program. If you press [Advance] key, the current segment is forced to quit and proceeds to the next segment.

### 2-3-6. Defrost function

Forced defrost operation is provided. When frost can be found through the observation window, and the temperature control condition becomes wrong, set this function manually.

\* This function can be set only while the control operation stops.

To release the key lock function, press and hold this [Key Lock] key for more than 3 seconds. The indicator of Key Lock darkens.

\* While being active the key lock function, you cannot start or stop the control operation, change the mode, control the maintenance mode, and not be released alarms.

### 2-3-8. Copy function

The set temperature and humidity value of the previous segment are copied into the current segment.

\*It is void in the segment 0.

### 2-3-10. Analog recorder output function of measure temperature

You can select either [All clear of the selected program data] or [All set data clear].

\* Refer to the [Clear function] to see more details.

### 2-3-9. Clear function

The measured temperature is output by CD1mV per 1 .

<Example of setting>

Measured temp.: -10 Recorder output: -10mV  
Measured temp.: 60 Recorder output: 60mV

### 2-3-11. Analog recorder output function of measure humidity

The measured humidity is output by CD1mV per 1%RH.

<Example of setting>

Measured temp.: 10%RH Recorder output: -10mV  
Measured temp.: 90%RH Recorder output: 90mV

### 2-3-12. RS-232C communication function

The control equipments can communicate with a host computer through the RS-232C interface.

\* The communication speed is 9600BPS fixedly.  
Refer to the page for [Communication specification for RS-232C] to know more details.

## 2-4. Alarm

This unit has the following alarm function.

Alarm indication in Normal mode

		<b>██████████</b>
Temp	23.0	<b>20.6</b>
Humi	50.0	<b>40.1%RH</b>
Total Time		<b>000/00:00</b>

Alarm indication in Program mode

Pro 4		<b>██████████</b>
Seg 3		
Repeat	123	<b>001/02:03</b>
	SET	MEAS
Temp	36.0	<b>21.3</b>
Humi	55.0	<b>48.2%RH</b>
Total Time		<b>001/23:45</b>

\* The alarm message is shown in the **██████████** position. When several alarms occurs simultaneously, they are indicated up to four in descending order of their priority.

### 2-4-1. Alarm function

Alarm name	Indication/Action	Cause
Over temperature protection of chamber	T H (Blinking) 【 B 】【 x 】	The overheat protector for chamber works.
Over temperature protection of top humidification heater	T H 1 (Blinking) 【 B 】【 x 】	The overheat protector for top humidification vat works.
Over temperature protection of bottom humidification heater	T H 2 (Blinking) 【 B 】【 x 】	The overheat protector for bottom humidification vat works.
Overload of refrigeration unit	O L R (Blinking) 【 B 】【 x 】	The overload relay for refrigeration unit works.
High pressure of refrigeration unit	H P (Blinking) 【 B 】【 x 】	The high pressure switch for refrigeration unit works.
SSR fault of temperature controlling heater	S S R (Blinking) 【 B 】【 x 】	The SSR (noncontact relay) breaks down which turns on and off the temperature controlling heater.
SSR fault of humidity controlling heater (Top/Bottom)	H S S R (Blinking) 【 B 】【 x 】	The SSR (noncontact relay) breaks down which turns on and off the humidity controlling heater.
Disconnection of temperature controlling heater	H T R (Blinking) 【 B 】【 x 】	The temperature controlling heater is disconnected.
Disconnection of humidity controlling heater (Top/Bottom)	H H T R (Blinking) 【 B 】【 x 】	The humidity controlling heater (Top/Bottom) is disconnected.
Sensor fault of dry-bulb temperature sensor	S N S 1 (Blinking) 【 B 】【 x 】	The dry-bulb sensor is disconnected or short-circuits.
Sensor fault of wet-bulb temperature sensor	S N S 2 (Blinking) 【 B 】【 x 】	The wet-bulb sensor is disconnected or short-circuits
Door open	D O O R (Blinking) 【 b 】【 Chamber fan stops 】 【 Temp control/Humidification heater stop. 】	The door is opened while controlling.

Alarm name	Indication/Action	Cause
Low level of water supply tank	T A N K (Blinking) 【 B 】【    】	The inner tank level is left being empty for 10 minutes.
Level sensor fault of water supply tank	T K S N (Blinking) 【 B 】【    】	The level sensor of inner tank breaks down.
Water supply failure	F L W (Blinking) 【 B 】【    】	Even if water is supplied by a pump, water cannot be pooled in the humidification vat (top/bottom) and wick holder.
Drain tank full (when you attach an optional drain tank.)	D T K (Blinking) 【 B 】【    】	The drain tank (option) is filled up. (Approx. 10L)
Upper limit failure of humidity	H U 2 (Blinking) 【 B 】【    】	The measured humidity is left being at 100% or 0% for 15 minutes
Overheat	O V R (Blinking) 【 B 】【    】	After the measured temperature reaches to the set point, it exceeds 5 °C or higher than the set point.
Overcool	O V C (Blinking) 【 B 】【    】	After the measured temperature reaches to the set point, it exceeds 5 °C or lower than the set point.
Power failure	O F F (Blinking) 【 B 】【    】	The unit is shut down while operating.
Temperature control failure	H U 1 (Blinking) 【 B 】【    】	The measured humidity deviates from the set value $\pm 20\%$ , and it is left for more than 60 minutes.
Cooling failure	C O L (Blinking) 【 B 】【    】	Although the refrigeration unit works and the heater stops, the temperature cannot be lowered 1 °C under the below conditions.
Temperature gradient failure	P R G (Blinking) 【 B 】【    】	The measured humidity deviates from the target value $\pm 5\%$ during the gradient control, and it is left for more than 10 minutes.
Watch-dog	* Indications disappear, and any key operation is not accepted. 【 x 】	It detects crash of CPU due to an excess noise and stops the microprocessor.

【 B 】 : Buzzer sounds for 15 seconds.

【 b 】 : Buzzer sounds for 1 second.

【 x 】 All operations are stopped

【    】 Only humidity control is stopped.

【    】 All operations are continued.

## 2-4-2. Release of alarm

### 1) In case of the overheat protection alarm for chamber and the overload alarm or high pressure alarm for refrigeration unit.

Turn off the power switch of the unit once, solve the cause of alarm, and turn on the power switch again.

When the door is closed, the alarm is released automatically.

\* Even if you press [Clear] key, the alarm cannot be released.

### 3) In case of other alarms

When you press [Clear] key, the alarm is released.

If the cause of the alarm is not solved, the alarm occurs again.

### 4) In case of watch-dog

Turn off the power switch of the unit once, and turn on the power switch again.

### 2) In case of the door alarm

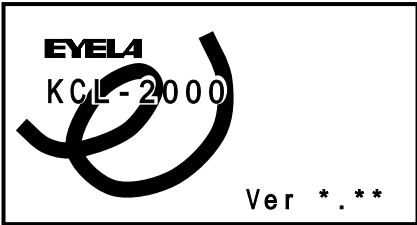
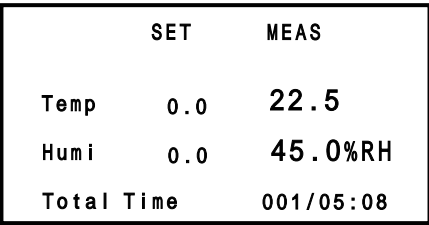
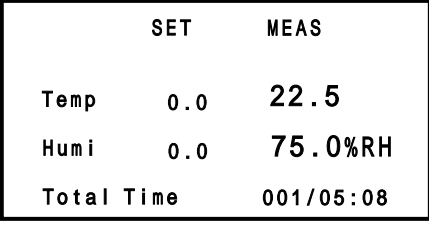
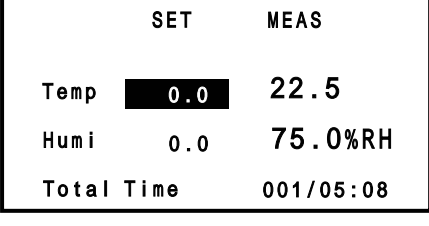
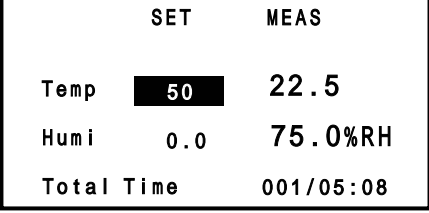
## 3 Setting and running of Normal mode operation

In the normal mode, a pair of temperature and humidity is set and it is held constant. (set point control)

### 3-1. Setting of Normal mode

《Example of setting》

Temperature is at 50 and humidity is at 70%RH.

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
	About 5 seconds elapse.	 <p>* If you turned off the unit previously when the normal mode is active, the normal mode is started.</p>
Switch over to the normal mode.	Press [Mod] key, if the normal mode is not active.  * If you turned off the unit previously when the normal mode is active, the normal mode is started.	 <p>The measured value display of normal mode is shown.</p>
Change to the temperature setting display.	Press [Enter] key.	 <p>The cursor for temperature value is active. You can enter a value there.</p>
Enter a set value (50 )	Press [5] key. And press [0] key successively.  * If you mistake to enter the value, press [Clear] key and enter again.	

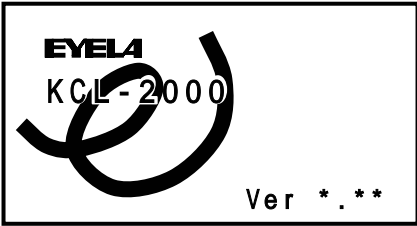
Procedure	Key operation	Indication												
Set the temperature and change to humidity setting display.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>50.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>0.0</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> <p>The entered temperature is set and the cursor moves to the humidity value position.</p>		SET	MEAS	Temp	50.0	22.5	Humi	0.0	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	50.0	22.5												
Humi	0.0	75.0%RH												
Total Time		001/05:08												
Enter the humidity value (70%RH).	Press [7] key. And press [0] key successively.  * If you mistake to enter the value, press [Clear] key and enter them again.	<table border="1"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>50.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>70</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table>		SET	MEAS	Temp	50.0	22.5	Humi	70	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	50.0	22.5												
Humi	70	75.0%RH												
Total Time		001/05:08												
Set the humidity and quit the setting of normal mode.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>50.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>70.0</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> <p>The entered humidity is set and the display returns to the measured value of normal mode.</p>		SET	MEAS	Temp	50.0	22.5	Humi	70.0	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	50.0	22.5												
Humi	70.0	75.0%RH												
Total Time		001/05:08												

To start controlling, refer to the chapter [Running of Normal mode] on the next page.

Memo

Set temperature : Control target temperature value (Temp SET)  
Set humidity : Control target humidity value (Humi SET)  
Measured temperature : Current chamber temperature (Temp MEAS)  
Measured humidity : Current chamber humidity (Humi MEAS)  
Operating time : Operating time in normal mode (Total Time)

### 3-2. Running of normal mode (Start and stop of control operation)

Procedure	Key operation	Indication												
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 * The default display is shown for about 3 seconds.												
Switch over to the normal mode.	Press [Mod] key, if the normal mode is not active.  * If you turned off the unit previously when the normal mode is active, the normal mode is started.	<table border="1" data-bbox="963 555 1394 770"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>0.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>0.0</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> The measured value display of normal mode is shown.		SET	MEAS	Temp	0.0	22.5	Humi	0.0	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	0.0	22.5												
Humi	0.0	75.0%RH												
Total Time		001/05:08												
Start the control operation of normal mode.	Press and hold [Run/Stop] key for more than 1 second.  * The indication of "MEAS" blinks, and the control starts.	<table border="1" data-bbox="963 857 1394 1072"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>50.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>70.0</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> MEAS blinks, and the control starts.		SET	MEAS	Temp	50.0	22.5	Humi	70.0	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	50.0	22.5												
Humi	70.0	75.0%RH												
Total Time		001/05:08												
Stop the control operation of normal mode.	Press and hold [Run/Stop] key for more than 1 second.  * The blinking indication of "MEAS" illuminates, and the control stops.	<table border="1" data-bbox="963 1137 1394 1352"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>50.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>70.0</td> <td>75.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> MEAS illuminates, and the control stops.		SET	MEAS	Temp	50.0	22.5	Humi	70.0	75.0%RH	Total Time		001/05:08
	SET	MEAS												
Temp	50.0	22.5												
Humi	70.0	75.0%RH												
Total Time		001/05:08												

\* If you press [Enter] key while controlling, the set temperature and humidity can be changed. Refer to the section [3-1 Setting of Normal mode], to see the setting procedure.

## 4 Setting and running of Program mode operation

You can set and run programmable auto start and stop operation and following user's programs.

- Program 1 . . . . Setting and running of Auto-start program
- Program 2 . . . . Setting and running of Auto-stop program
- Program 3 ~ 9 . . . . Setting and running of user's program
- Program 1 0 . . . . Setting and running of the combination of auto start and an user's program
- Program 1 1 . . . . Setting and running of combination program,

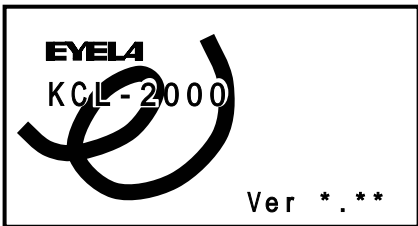
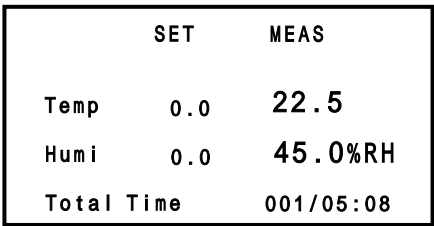
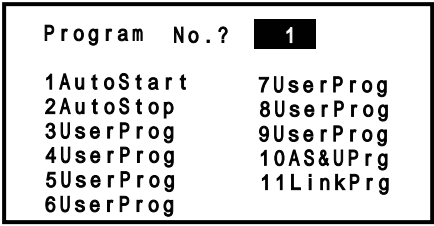
### 4-1. Auto-start program (Program 1)

You can set a pair of temperature and humidity, the control starts after elapsing the delay time which you set..

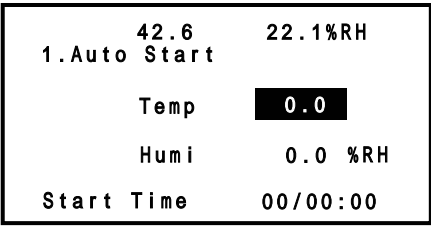
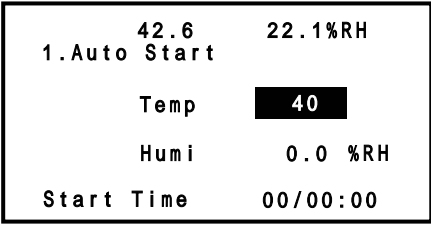
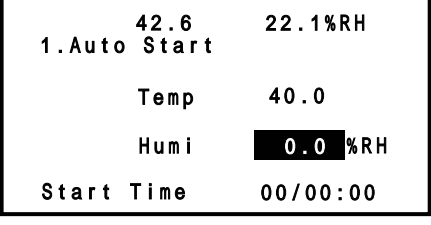
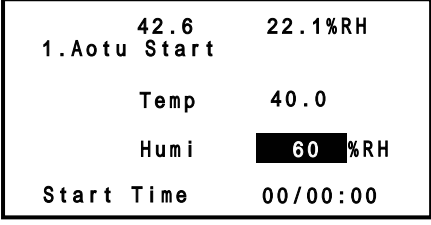
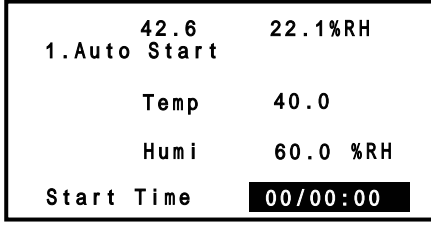
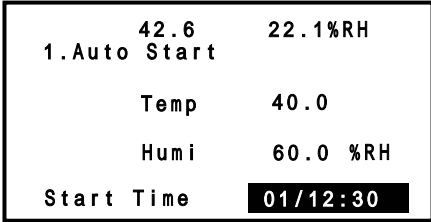
#### 4-1-1. Setting of Auto start program (Program 1)

《Example of setting》

Set temperature is 40.0 , set humidity is 60.0%RH and the control is started after elapsing 1 day, 12 hours and 30 minutes as .

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
	About 5 seconds elapse.  * If you turned off the unit previously when the auto start mode is active, the auto start mode is started.	 <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>
Change to the program selecting display.	Press [Mod] key, if the program selecting display is not active.  * If you turned off the unit previously when the auto start mode is active, the auto start mode is started.	 <p>The cursor for program number is active. You can enter a value there.</p>

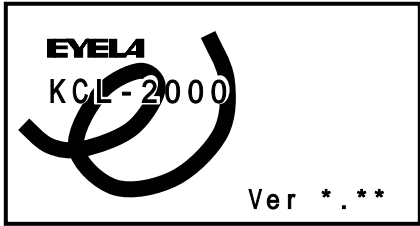
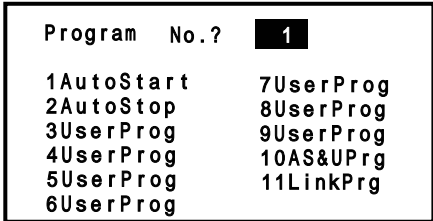
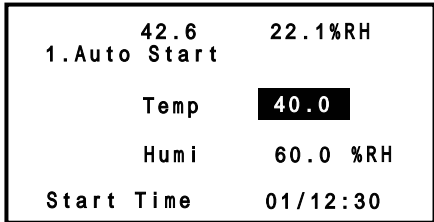
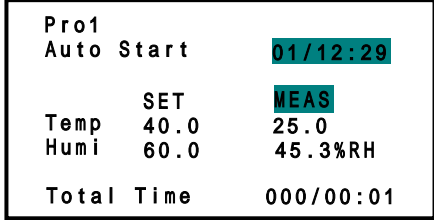
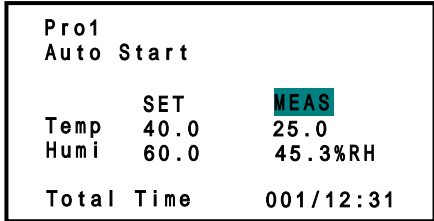
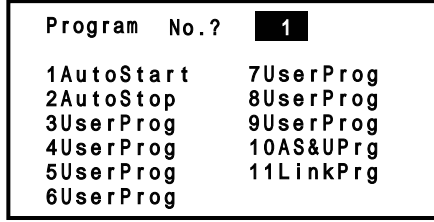


Procedure	Key operation	Indication
Change to the temperature setting display.	Press [1] and [Enter] key. * When you mistake the input value, press again [0], [1] and [Enter] key successively. * If you enter the value into the another program by mistake, press [Mode] key to return to the program selecting screen and enter the value again.	 <p>The cursor for temperature value is active. You can enter a value there.</p>
Enter a set value (40 )	Press [4] key. And press [0] key successively. * If you mistake to enter the value, press [Clear] key and enter them again.	
Set the temperature and change to humidity setting display.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The entered temperature is set and the cursor moves to the humidity value position.</p>
Enter the humidity value (60%RH).	Press [6] key. And press [0] key successively. * If you mistake to enter the value, press [Clear] key and enter them again.	
Set the humidity and change to start delay time setting display.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The entered humidity is set and the cursor moves to the start delay time value position.</p>
Enter the start delay time. (1 day, 12 hours and 30 minutes.)	Press [1], [1], [2], [3] and [0] key. * If you mistake to enter the value, press [Clear] key and enter them again.	

Procedure	Key operation	Indication
Set the start delay time and quit the setting of auto start program.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div data-bbox="965 241 1401 461" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>           42.6      22.1%RH 1.Auto Start           Temp      40.0           Humi      60.0 %RH           Start Time 01/12:30           </pre> </div> <p>The entered delay time is set and the setting of auto start mode is completed. The cursor moves to the position of temperature setting.</p>

\* To start the auto start program, refer to the section of [Running of auto start mode] on the next page.

#### 4-1-2. Running of Auto start mode (Program 1) (Start and stop of control operation)

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
Switch over to the program selecting screen, and select the auto start program.  (In case that you start the control through the program selecting screen, and any settings are not changed.)	Press [Mode] key to change to the program selecting screen. Press [1] to select the auto start program.  * If the auto start mode has already selected, this action can be skipped.	 <p>Select the program No. 1.</p>
Switch over to the screen of auto start program.  (In case that you start the control through the program setting screen, and some settings are changed.)	Press [Enter] key.  * If the auto start mode has already selected, this action can be skipped.	
Start the auto start program control. * The start delay time is counted down. Temperature and humidity control are stopped.) * The operation can be started through any screen of program selecting, program setting or graphic.	Press [Run/Stop] key for more than 1 second.  * The screen changes to the control status, and start delay time is counted down. * The start delay time indication (00/12:29) and "MEAS" blink.	 <p>The count down of start delay time is started.</p>
The time is up, and the temperature and humidity control start.	When the time is up (000/00:00), the start delay time indication disappears and the temperature and humidity control start. * "MEAS" indication keeps blinking.	
Stop the auto start program control.	Press [Run/Stop] key for more than 1 second.  * The control operation stops and the screen changes to the program selecting display.	

\* You can change settings of each program by pressing [Mode] key while controlling. (The current controlling auto start program can also changed.) Though the current control is continued until it is completed, and the change is reflected to the next operation.

\* To set each program, see the section of program setting ([4-\*.\*. Setting of \*\*\*\*\* program]).

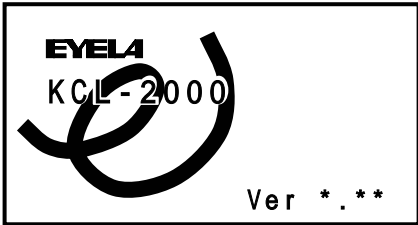
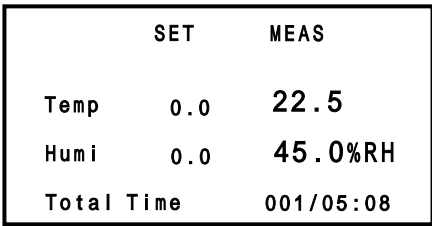
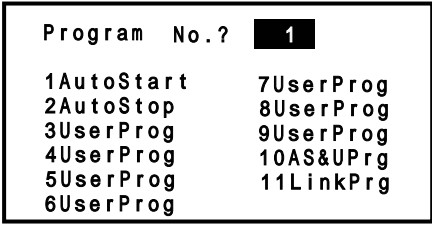
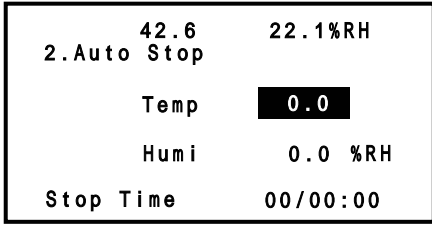
## 4-2. Auto-stop program (Program 2)

You can set a pair of temperature and humidity, and the control operation stops after elapsing the operation time which you set.

### 4-1-1. Setting of Auto stop program (Program 2)

《Example of setting》

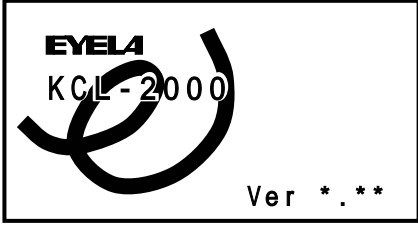
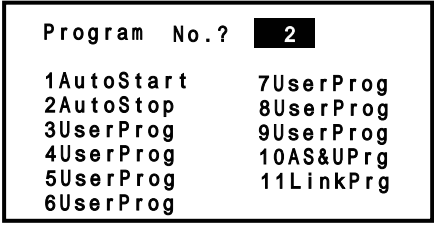
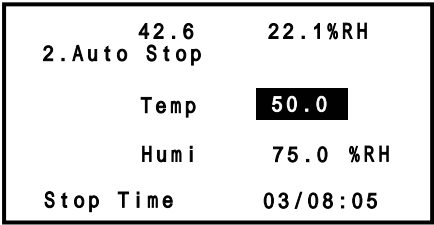
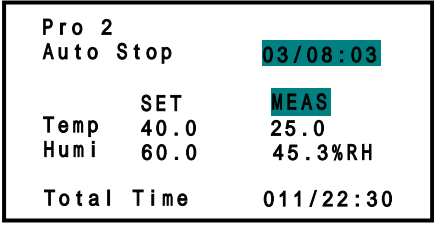
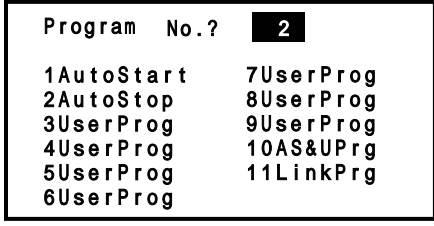
Set temperature is 50.0 , set humidity is 75.0%RH and the control is stopped after elapsing 3 days, 8 hours and 5 minutes as the operation time.

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
	About 5 seconds elapse.  * If you turned off the unit previously when the auto stop mode is active, the auto stop mode is started.	 <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>
Change to the program selecting display.	Press [Mode] key, if the program selecting display is not active.  * If you turned off the unit previously when the auto stop mode is active, the auto stop mode is started.	 <p>The cursor for program number is active. You can enter a value there.</p>
Change to the auto stop program setting screen.	Press [2] and [Enter] key.  * When you mistake the input value, press again [0], [2] and [Enter] key successively.  * If you enter the value into the another program by mistake, press [Mode] key to return to the program selecting screen and enter the value again.	 <p>The cursor for temperature value is active. You can enter a value there.</p>

Procedure	Key operation	Indication										
Enter a set value (50 )	Press [5] key. And press [0] key successively.  * If you mistake to enter the value, press [Clear] key and enter again.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td><b>50</b></td> </tr> <tr> <td>Humi</td> <td>0.0 %RH</td> </tr> <tr> <td>Stop Time</td> <td>00/00:00</td> </tr> </table>	42.6	22.1%RH	2.Auto Stop		Temp	<b>50</b>	Humi	0.0 %RH	Stop Time	00/00:00
42.6	22.1%RH											
2.Auto Stop												
Temp	<b>50</b>											
Humi	0.0 %RH											
Stop Time	00/00:00											
Set the temperature and change to humidity setting display.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td>50.0</td> </tr> <tr> <td>Humi</td> <td><b>0.0</b> %RH</td> </tr> <tr> <td>Stop Time</td> <td>00/00:00</td> </tr> </table> <p>The entered temperature is set and the cursor moves to the humidity value position.</p>	42.6	22.1%RH	2.Auto Stop		Temp	50.0	Humi	<b>0.0</b> %RH	Stop Time	00/00:00
42.6	22.1%RH											
2.Auto Stop												
Temp	50.0											
Humi	<b>0.0</b> %RH											
Stop Time	00/00:00											
Enter the humidity value (75%RH).	Press [7] key. And press [5] key successively.  * If you mistake to enter the value, press [Clear] key and enter them again.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td>40.0</td> </tr> <tr> <td>Humi</td> <td><b>75</b> %RH</td> </tr> <tr> <td>Stop Time</td> <td>00/00:00</td> </tr> </table>	42.6	22.1%RH	2.Auto Stop		Temp	40.0	Humi	<b>75</b> %RH	Stop Time	00/00:00
42.6	22.1%RH											
2.Auto Stop												
Temp	40.0											
Humi	<b>75</b> %RH											
Stop Time	00/00:00											
Set the humidity and change to operation stoptime setting display.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td>40.0</td> </tr> <tr> <td>Humi</td> <td>75.0 %RH</td> </tr> <tr> <td>Stop Time</td> <td><b>00/00:00</b></td> </tr> </table> <p>The entered humidity is set and the cursor moves to the operation time value position.</p>	42.6	22.1%RH	2.Auto Stop		Temp	40.0	Humi	75.0 %RH	Stop Time	<b>00/00:00</b>
42.6	22.1%RH											
2.Auto Stop												
Temp	40.0											
Humi	75.0 %RH											
Stop Time	<b>00/00:00</b>											
Enter the operation stop time. (1 day, 12 hours and 30 minutes.)	Press [3], [0], [8], [0] and [5] successively.  * If you mistake to enter the value, press [Clear] key and enter them again.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td>40.0</td> </tr> <tr> <td>Humi</td> <td>60.0 %RH</td> </tr> <tr> <td>Stop Time</td> <td><b>03/08:05</b></td> </tr> </table>	42.6	22.1%RH	2.Auto Stop		Temp	40.0	Humi	60.0 %RH	Stop Time	<b>03/08:05</b>
42.6	22.1%RH											
2.Auto Stop												
Temp	40.0											
Humi	60.0 %RH											
Stop Time	<b>03/08:05</b>											
Set the operation stop time and quit the setting of auto stop mode.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <tr> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>2.Auto Stop</td> <td></td> </tr> <tr> <td>Temp</td> <td><b>50.0</b></td> </tr> <tr> <td>Humi</td> <td>75.0 %RH</td> </tr> <tr> <td>Stop Time</td> <td>03/08:05</td> </tr> </table> <p>The setting of auto stop mode is completed. The cursor moves to the position of temperature setting.</p>	42.6	22.1%RH	2.Auto Stop		Temp	<b>50.0</b>	Humi	75.0 %RH	Stop Time	03/08:05
42.6	22.1%RH											
2.Auto Stop												
Temp	<b>50.0</b>											
Humi	75.0 %RH											
Stop Time	03/08:05											

\* To start the auto stop program, refer to the section of [Running of auto stop mode] on the next page.

#### 4-1-2. Running of Auto stop mode (Program 2) (Start and stop of control operation)

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
Switch over to the program selecting screen, and select the auto stop program.  (In case that you start the control through the program selecting screen, and any settings are not changed.)	Press [Mode] key to change to the program selecting screen. Press [2] to select the auto stop program.  * If the auto stop mode has already selected, this action can be skipped.	 <p>Select the program No. 2.</p>
Switch over to the screen of auto stop program.  (In case that you start the control through the program setting screen, and some settings are changed.)	Press [Enter] key.  * If the auto stop mode has already selected, this action can be skipped.	
Start the auto stop program control. * The operation can be started through any screen of program selecting, program setting or graphic.	Press [Run/Stop] key for more than 1 second.  * The screen changes to the control status, and operation stop time is counted down. * The operation stop time indication (03/08/05) and "MEAS" blink.	 <p>The count down of operation stop time is started simultaneously when the control operation starts.</p>
Stop the auto stop program control.	The operation stops automatically after elapsing the set operation stop time. * The control operation stops and the screen changes to the program selecting display. * You can force into stopping the operation with pressing [Run/Stop] key for more than 1 second.	

\* You can change settings of each program by pressing [Mode] key while controlling. (The current controlling auto stop program can also be changed.) Though the current control is continued until it is completed, and the change is reflected to the next operation.

\* To set each program, see the section of program setting ([4-\*]. Setting of \*\*\*\*\* program)].

### 4-3. User's program (Program 3 ~ 9)

You can set a pair of temperature and humidity in one segment. A program consists of 10 segments from 0 to 9, and you can set repetition times of segments to operate the program.

Depending on each setting, the operation allows "Temperature precedence control", "Humidity precedence control" or "Time precedence control (Set point / Gradient)".

#### 4-3-1. Each control operation

##### 1) Temperature precedence control

It runs when you set the time [00:00] and various temperature. The operation proceeds to the next segment regardless that the humidity reaches to the target point or not.

##### 2) Humidity precedence control

It runs when you set the time [00:00] and same temperature. When you vary the set temperature, the humidity precedence control is executed.

When the humidity reaches to the target point, the operation proceeds to the next segment.

##### 3) Time precedence control

When you set a time within the setting range 1 minute ~ 99 days 23 hours 59 minutes, the time precedence control is executed. The operation proceeds to the next segment regardless that the temperature and the humidity reach to the target point or not.

###### (1) Set point control

When the settings of the previous segment is same as the current, the constant temperature and humidity are kept to control.

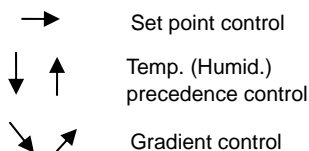
###### (2) Gradient control

If you change the temperature of current segment from the previous, the gradient control is executed by calculation of the difference of temperature with the set time.

If you change the humidity of current segment from the previous, the gradient control is executed by calculation of the difference of humidity with the set time.

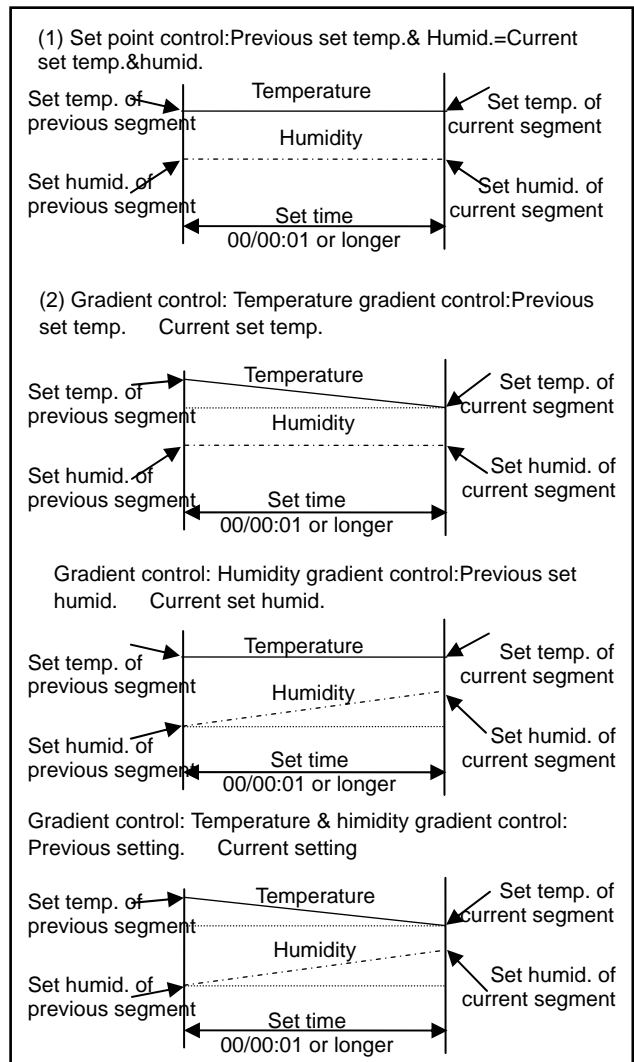
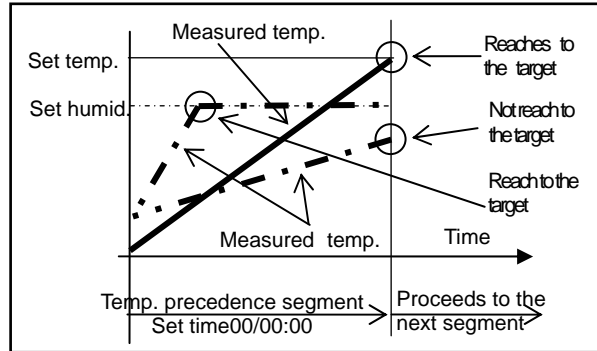
\* When gradient control of both temperature and humidity is executed, the temperature gradient is prior to the humidity.

\* In the program setting screen (P.23 ~ ), each control mode is shown by an arrow as follows.



#### \* Segment

The segment is a step (process) of program. They are operated in ascending order from the segment 0. When each set condition is fulfilled, the operation proceeds to the next segment. The operation is completed when the set condition of the last segment is fulfilled.



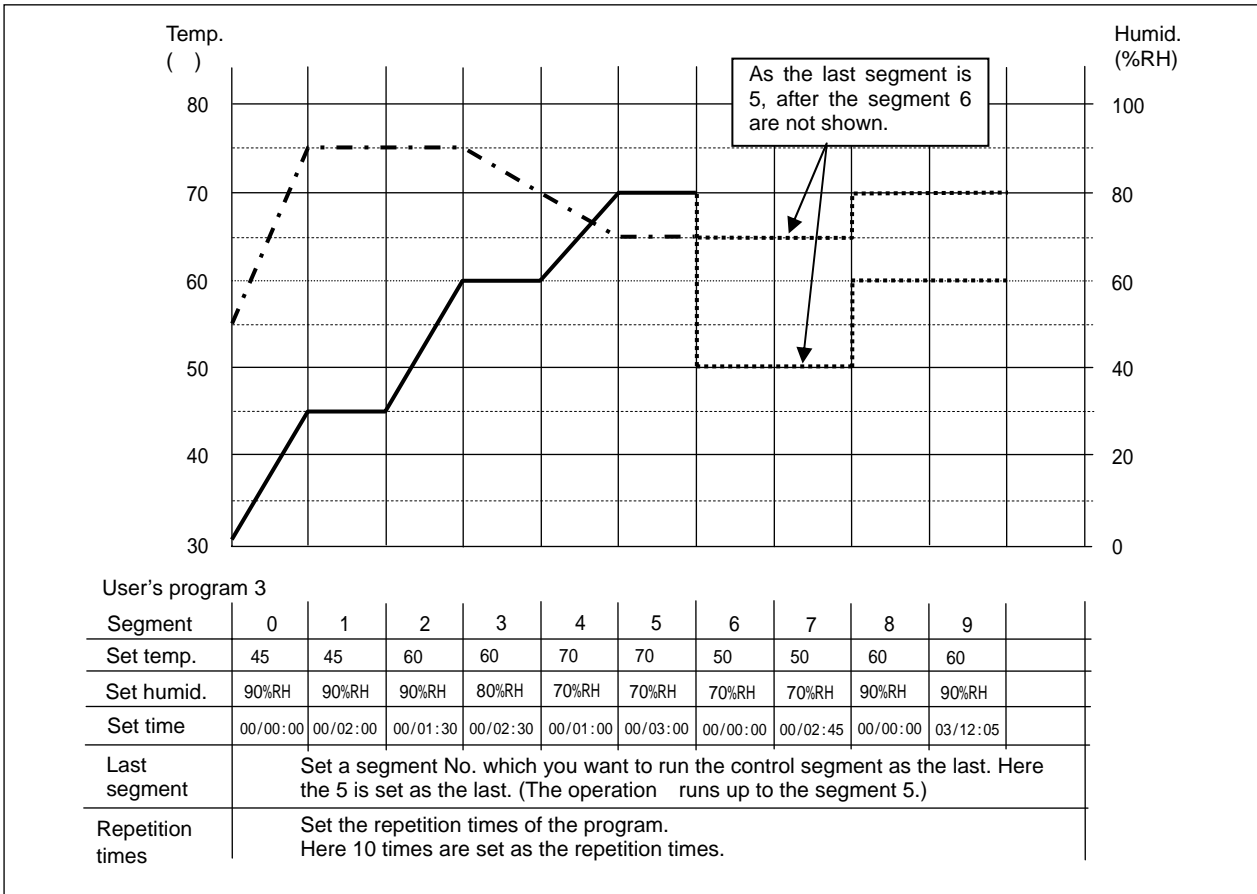
### 4-3-2. Setting (input) into User's program (Program 3 ~ 9)

All settings for user's program [Program No. 3 ~ 9] are followed in a similar procedure.

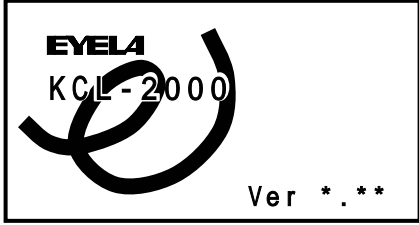
《Example of setting》

A pattern is set in the user's program 3 (Segment 0: 45 °C, 90%RH, Time 0, Segment 1: 45 °C, 90%, 2 hours, Segment 2: 60 °C, 90%RH, 1 hour and 30 minutes, Segment 3: 60 °C, 80%RH, 2 hours and 30 minutes, Segment 4: 70 °C, 70%RH, 1 hour, Segment 5: 70 °C, 70%RH, 3 hours (The Last segment), Segment 6: 50 °C, 70%RH, Time 0, Segment 7: 50 °C, 70%RH, 2 hours and 45 minutes, Segment 8: 60 °C, 90%RH, Time 0, Segment 9: 60 °C, 90%RH, 3 days, 12 hours and 05 minutes), and the program of the segment 0 to 5 (It is set as the last segment.) is repeated 10 times.

ee

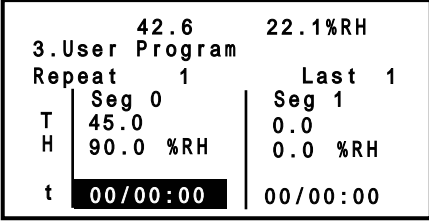
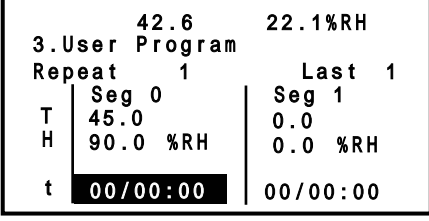
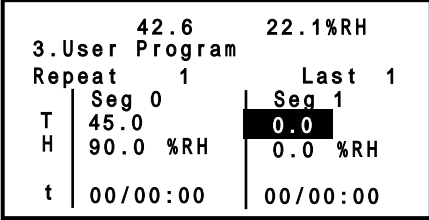
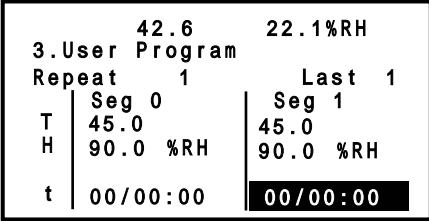
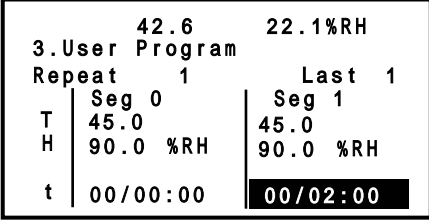


Setting of User's program (following to the above sample values.)

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 * The default display is shown for about 5 seconds.



Procedure	Key operation	Indication																					
	<p>About 5 seconds elapse.</p> <p>* If you turned off the unit previously when the user's program mode is active, the user's program mode is started.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">SET</td> <td style="width: 35%; text-align: center;">MEAS</td> </tr> <tr> <td>Temp</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">22.5</td> </tr> <tr> <td>Humi</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">45.0%RH</td> </tr> <tr> <td>Total Time</td> <td colspan="2" style="text-align: center;">001/05:08</td> </tr> </table> </div> <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>		SET	MEAS	Temp	0.0	22.5	Humi	0.0	45.0%RH	Total Time	001/05:08										
	SET	MEAS																					
Temp	0.0	22.5																					
Humi	0.0	45.0%RH																					
Total Time	001/05:08																						
<p>Change to the program selecting display.</p>	<p>Press [Mod] key, if the program selecting display is not active.</p> <p>* If you turned off the unit previously when the user's program mode is active, the user's program mode is started.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Program No.?</td> <td style="width: 40%; text-align: center;">1</td> </tr> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </table> </div> <p>The cursor for program number is active. You can enter a value there.</p>	Program No.?	1	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg								
Program No.?	1																						
1AutoStart	7UserProg																						
2AutoStop	8UserProg																						
3UserProg	9UserProg																						
4UserProg	10AS&UPrg																						
5UserProg	11LinkPrg																						
6UserProg																							
<p>Change to the user's program setting screen.</p>	<p>Press [3] and [Enter] key.</p> <p>* When you mistake the input value, press again [0], [3] and [Enter] key successively.</p> <p>* If you enter the value into the another program by mistake, press [Mode] key to return to the program selecting screen and enter the value again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td colspan="3">3.User Program</td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">0.0 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div> <p>The cursor for temperature value of the segment 0 is active. You can enter a value there.</p>		42.6	22.1%RH	3.User Program			Repeat	1	Last 1		Seg 0	Seg 1	T	0.0	0.0	H	0.0 %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
3.User Program																							
Repeat	1	Last 1																					
	Seg 0	Seg 1																					
T	0.0	0.0																					
H	0.0 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Enter a temperature value for the segment 0. (45 )</p>	<p>Press [4] key. And press [5] key successively.</p> <p>* If you mistake to enter the value, press [Clear] key and enter them again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td colspan="3">3.User Program</td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">45</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">0.0 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div>		42.6	22.1%RH	3.User Program			Repeat	1	Last 1		Seg 0	Seg 1	T	45	0.0	H	0.0 %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
3.User Program																							
Repeat	1	Last 1																					
	Seg 0	Seg 1																					
T	45	0.0																					
H	0.0 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Set the temperature of the segment 0 and change to humidity setting display.</p>	<p>Press [Enter] key.</p> <p>* If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td colspan="3">3.User Program</td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">45.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">0.0 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div> <p>The entered temperature of the segment 0 is set, and the cursor moves to the humidity value position.</p>		42.6	22.1%RH	3.User Program			Repeat	1	Last 1		Seg 0	Seg 1	T	45.0	0.0	H	0.0 %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
3.User Program																							
Repeat	1	Last 1																					
	Seg 0	Seg 1																					
T	45.0	0.0																					
H	0.0 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Enter the humidity value for the segment 0 (90%RH).</p>	<p>Press [9] key. And press [0] key successively.</p> <p>* If you mistake to enter the value, press [Clear] key and enter them again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td colspan="3">3.User Program</td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">45.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">90 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div>		42.6	22.1%RH	3.User Program			Repeat	1	Last 1		Seg 0	Seg 1	T	45.0	0.0	H	90 %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
3.User Program																							
Repeat	1	Last 1																					
	Seg 0	Seg 1																					
T	45.0	0.0																					
H	90 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					

Procedure	Key operation	Indication
Set the humidity of the segment 0 and change to the time setting display.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The entered humidity of the segment 0 is set, and the cursor moves to the time value position.</p>
Enter the time for the segment 0. (0 day, 0 hour and 0 minute.)	Press [0], [0], [0], [0], [0] and [0] successively.  * If you mistake to enter the value, press [Clear] key and enter them again.	
Set the time for the segment 0 and proceed to the temperature setting of the segment 1.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The setting of the segment 0 is completed. The cursor moves to the position of temperature setting for the segment 1.</p>
Copy the temperature and humidity settings of the segment 0 and change to time setting display.	Press [Copy] key.  * The temperature and humidity settings of the segment 0 are copied to the segment 1. (You can omit input action of same set values of temperature and humidity, when the set point control is executed,)	 <p>The temperature and humidity setting of the segment 1 is completed. The cursor moves to the position of time setting for the segment 1.</p>
Enter the time for the segment 1. (0 day, 2 hours and 0 minute.)	Press [2], [0] and [0] successively.  * If you mistake to enter the value, press [Clear] key and enter them again.	

Procedure	Key operation	Indication
Set the time for the segment 1 and proceed to the temperature setting of the segment 2.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 1   Seg 1          Seg 2 T   45.0          0.0 H   90.0 %RH     0.0 %RH t   00/02:00    00/00:00           </pre> </div> <p>The setting of the segment 1 is completed. The cursor moves to the position of temperature setting for the segment 2.</p>
Set the segment 2 ~ 9.	Set temperature, humidity and time for the segment 2~9 in manner of the mentioned above.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 1   Seg 8          Seg 9 T   60.0          60.0 H   90.0 %RH     90.0 %RH t   00/00:00     03/12:05           </pre> </div>
Set the time of the segment 9 and quit the setting of temperature, humidity and time.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 1   Seg 8          Seg 9 T   60.0          60.0 H   90.0 %RH     90.0 %RH t   00/00:00     03/12:05           </pre> </div> <p>The setting of time for the segment 9 is completed. The cursor moves to the position of temperature setting for the segment 9.</p>
Change to the setting screen of the last segment.  * you can set the last segment through any segment from 0 to 9.	Press [ ] key when the cursor is at the set temperature position of the right column of segment.  If the cursor is not at this position, move it by [ ], [ ], [ ], or [ ] key.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 1   Seg 8          Seg 9 T   60.0          60.0 H   90.0 %RH     90.0 %RH t   00/00:00     03/12:05           </pre> </div> <p>Move the cursor to the setting position of the last segment by [ ] key.</p>
Enter the value of last segment (5).	Press [5] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 5   Seg 8          Seg 9 T   60.0          60.0 H   90.0 %RH     90.0 %RH t   00/00:00     03/12:05           </pre> </div>
Set the last segment No. and change to the setting of repetition times.  * you can set the last segment through any segment from 0 to 9.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <pre>               42.6    22.1%RH 3.User Program Repeat 1          Last 5   Seg 8          Seg 9 T   60.0          60.0 H   90.0 %RH     90.0 %RH t   00/00:00     03/12:05           </pre> </div> <p>The setting of the last segment No. is completed. The cursor moves to the position of repetition times setting.</p>

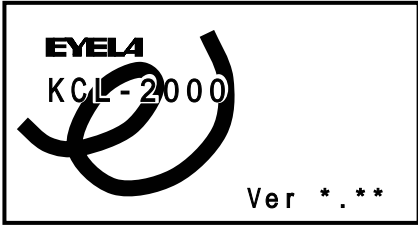
Procedure	Key operation	Indication
Enter the repetition times of the program. (10 times)	Press [1] and [0] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px;"> <pre> 42.6      22.1%RH 3.User Program Repeat 10      Last 5   Seg 8      Seg 9 T 60.0      60.0 H 90.0 %RH  90.0 %RH t 00/00:00  03/12:05 </pre> </div>
Set the repetition times of the program, and quit the settings of user's program 3.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px;"> <pre> 42.6      22.1%RH 3.User Program Repeat 10      Last 5   Seg 8      Seg 9 T 60.0      60.0 H 90.0 %RH  90.0 %RH t 00/00:00  03/12:05 </pre> <p>The setting of the last repetition times of the program is completed. The cursor moves to the position of the last segment No. setting.</p> </div>

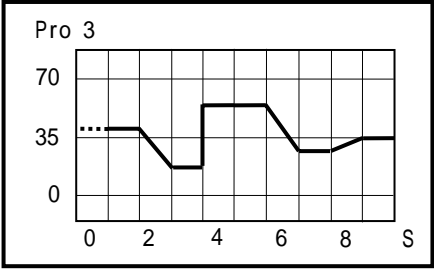
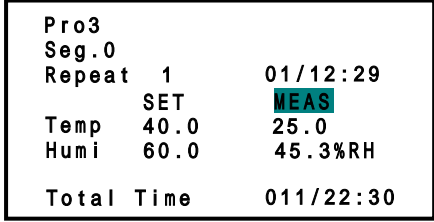
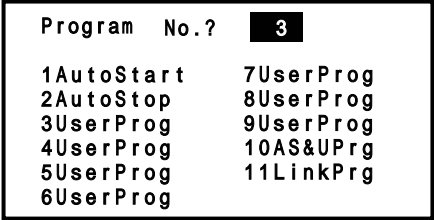
\* To start the user's program, refer to the section of [Running of User's program] on the next page.

### 4-3-3. Running of User's program (Program 3 ~ 9) (Start and stop of control operation)

Any user's program (Program 3 ~ 9) is run by the same procedure.

\* You can control the user's program through program selecting screen, program setting screen or graphic screen.

Procedure	Key operation	Indication																		
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>																		
	About 5 seconds elapse.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	<table border="1" data-bbox="960 645 1393 869"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>0.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>0.0</td> <td>45.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>		SET	MEAS	Temp	0.0	22.5	Humi	0.0	45.0%RH	Total Time		001/05:08						
	SET	MEAS																		
Temp	0.0	22.5																		
Humi	0.0	45.0%RH																		
Total Time		001/05:08																		
Change to the program selecting display.	Press [Mod] key, if the program selecting display is not active.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	<table border="1" data-bbox="960 940 1393 1164"> <thead> <tr> <th>Program No.?</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </tbody> </table> <p>The cursor for program number is active. You can enter a value there.</p>	Program No.?	1	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg					
Program No.?	1																			
1AutoStart	7UserProg																			
2AutoStop	8UserProg																			
3UserProg	9UserProg																			
4UserProg	10AS&UPrg																			
5UserProg	11LinkPrg																			
6UserProg																				
Select the user's program 3.  (In case you start the control through the program selecting screen : Any setting is not changed.)	Press [3] key.  * It is convenient for that the previous setting is used repeatedly without changing.	<table border="1" data-bbox="960 1254 1393 1478"> <thead> <tr> <th>Program No.?</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </tbody> </table> <p>Select the user's program 3.</p>	Program No.?	3	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg					
Program No.?	3																			
1AutoStart	7UserProg																			
2AutoStop	8UserProg																			
3UserProg	9UserProg																			
4UserProg	10AS&UPrg																			
5UserProg	11LinkPrg																			
6UserProg																				
Change to the setting screen of the program 3.  (In case you start the control through the program selecting screen : The setting is checked and changed a portion of it.)	Press [Enter] key.  * It is convenient when you change a portion of the previous setting. * You can start from any segment.	<table border="1" data-bbox="960 1523 1393 1747"> <tbody> <tr> <td></td> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>3.User Program</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td>10</td> <td>Last 5</td> </tr> <tr> <td>T</td> <td>Seg 8 60.0</td> <td>Seg 9 60.0</td> </tr> <tr> <td>H</td> <td>90.0 %RH</td> <td>90.0 %RH</td> </tr> <tr> <td>t</td> <td>00/00:00</td> <td>03/12:05</td> </tr> </tbody> </table> <p>The repetition times are set, and quit the setting of the user's program 3. The cursor moves to the setting position of the last segment.</p>		42.6	22.1%RH	3.User Program			Repeat	10	Last 5	T	Seg 8 60.0	Seg 9 60.0	H	90.0 %RH	90.0 %RH	t	00/00:00	03/12:05
	42.6	22.1%RH																		
3.User Program																				
Repeat	10	Last 5																		
T	Seg 8 60.0	Seg 9 60.0																		
H	90.0 %RH	90.0 %RH																		
t	00/00:00	03/12:05																		

Procedure	Key operation	Indication
<p>Check the user's program 3 with graphic screen.</p> <p>(In case you check the setting on the graphic screen.)</p>	<p>Press [Screen] key. Changes to the temperature screen.</p> <p>Press [Screen] key. Changes to the humidity screen.</p> <p>Press [Screen] key. Returns to the setting screen.</p> <p>* It is convenient for when you check the temperature and humidity setting status.</p>	 <p>The graphic screen for the user's program 3 (Temp. or Humid.).</p>
<p>Start the control operation of the user's program 3.</p>	<p>Press [Run/Stop] key for more than 1 second.</p> <p>* The screen changes to the control status, and "MEAS" blink.</p>	
<p>Stop the user's program control.</p>	<p>The operation stops automatically after each segment in ascending order from segment No.0, and they are repeated for the set times as a program.</p> <p>* The control operation stops and the screen changes to the program selecting display.</p> <p>* When the repetition time is set "0" or when you force into stopping the operation, press [Run/Stop] key for more than 1 second.</p>	

\* You can change settings of each program by pressing [Mode] key while controlling. (The current controlling user's program can also be changed.) Though the current control operation is continued until it is completed, and the change is reflected to the next cycle of operation (if you set repetition time 1 or more.) or after the current operation.

\* To set each program, see the section of program setting ([4-\*-\*]. Setting of \*\*\*\*\* program)].

## 4-4. Auto start and User's program (Program 10)

You can set an user's program (including 10 segments, repetition times) and the start delay time. When the start delay time elapses, the set user's program is started.

After the program is repeated as you set, it stops automatically.

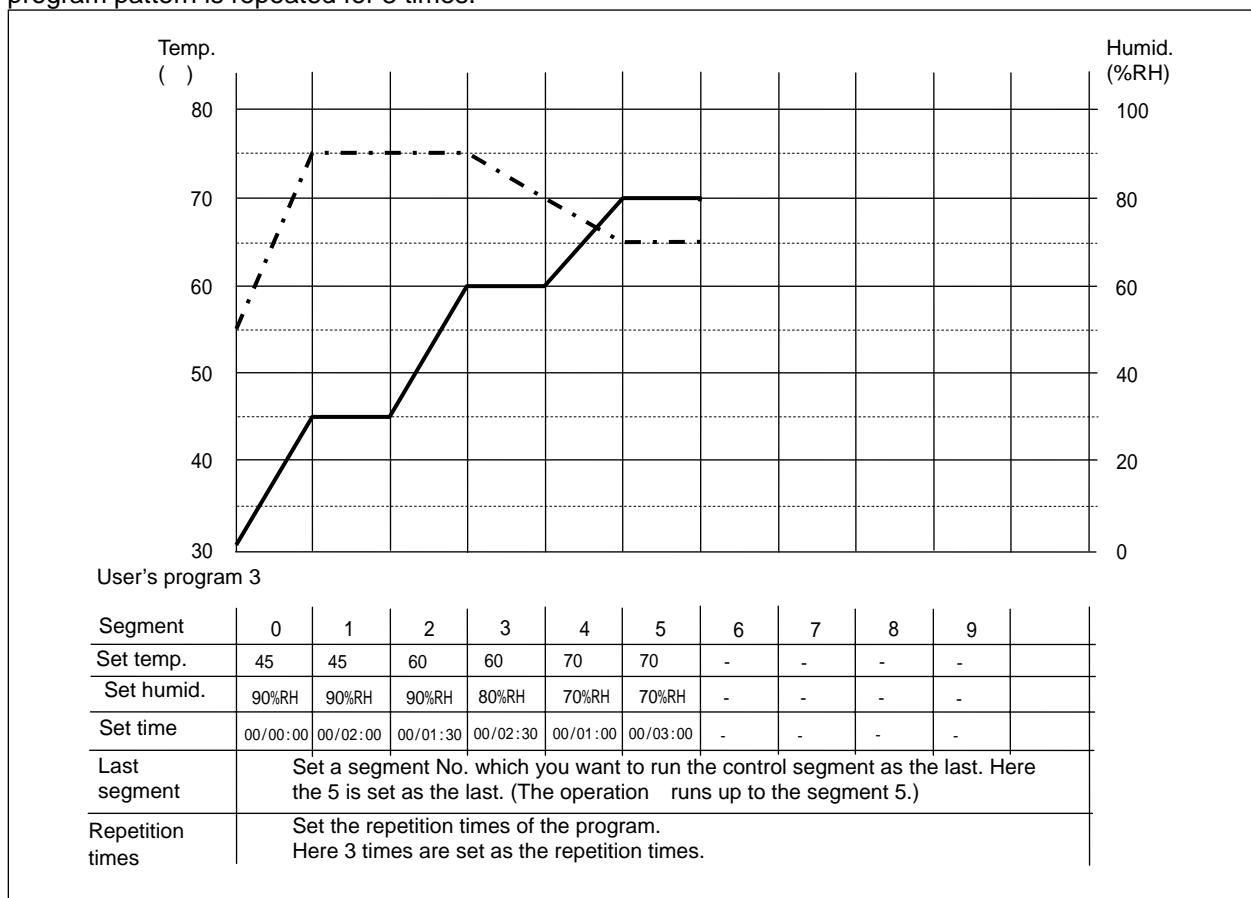
\* To know more details of user's program, see the section [4-3. User's program (Program 3 ~ 9)]

### 4-4-1. Setting of Auto start and User's program (Program 10)

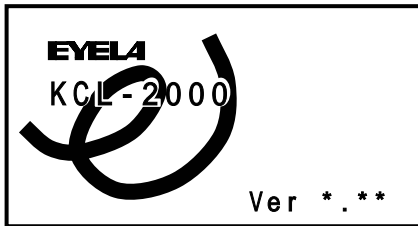
All settings for user's program [Program No. 3 ~ 9] are followed in a similar procedure.

《Example of setting》

The operation is executed after elapsing the start delay time 10 hours and repeated 3 times with the following user's program (Segment 0: 45 , 90%, Time 0, Segment 1: 45 , 90%, 2 hours, Segment 2: 60 , 90%RH, 1 hour and 30 minutes, Segment 3: 60 , 80%RH, 2 hours and 30 minutes, Segment 4: 70 , 70%RH, 1 hour, Segment 5: 70 , 70%RH, 3 hours (The Last segment), and this program pattern is repeated for 3 times.

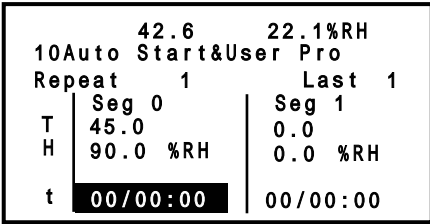
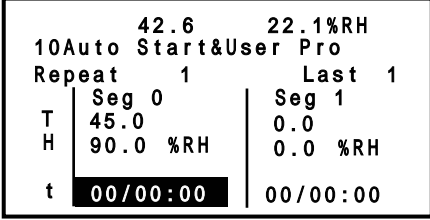
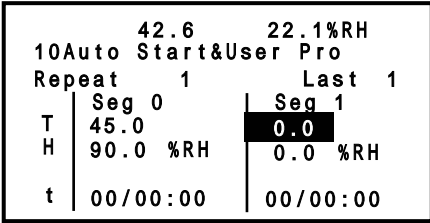
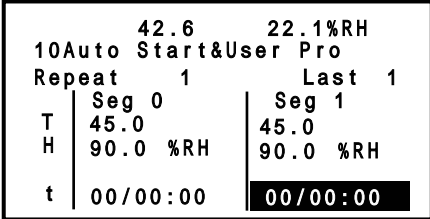
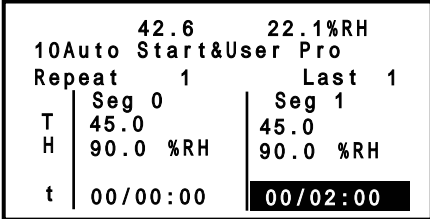


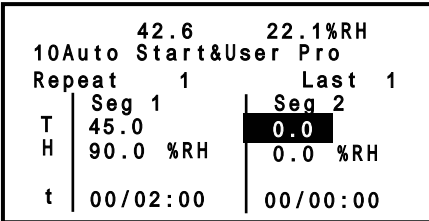
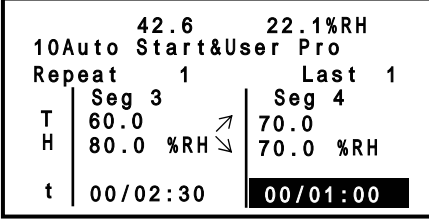
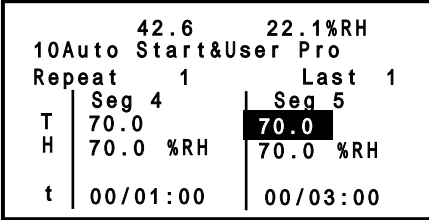
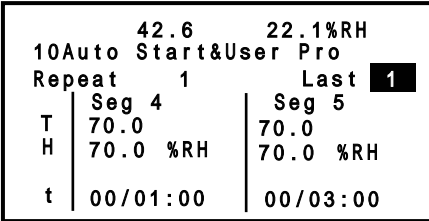
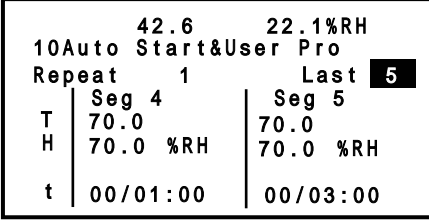
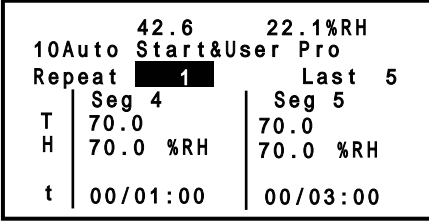
Setting of User's program (following to the above sample values.)

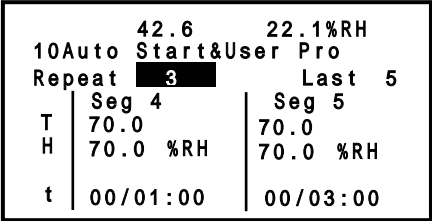


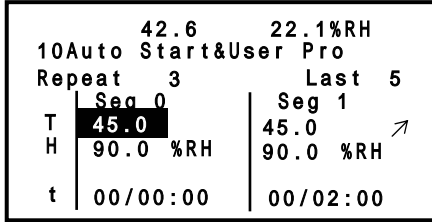
Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 * The default display is shown for about 5 seconds.

Procedure	Key operation	Indication																					
	<p>About 5 seconds elapse.</p> <p>* If you turned off the unit previously when the user's program mode is active, the user's program mode is started.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">SET</td> <td style="width: 35%; text-align: center;">MEAS</td> </tr> <tr> <td>Temp</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">22.5</td> </tr> <tr> <td>Humi</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">45.0%RH</td> </tr> <tr> <td>Total Time</td> <td colspan="2" style="text-align: center;">001/05:08</td> </tr> </table> </div> <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>		SET	MEAS	Temp	0.0	22.5	Humi	0.0	45.0%RH	Total Time	001/05:08										
	SET	MEAS																					
Temp	0.0	22.5																					
Humi	0.0	45.0%RH																					
Total Time	001/05:08																						
<p>Change to the program selecting display.</p>	<p>Press [Mode] key, if the program selecting display is not active.</p> <p>* If you turned off the unit previously when the user's program mode is active, the user's program mode is started.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Program No. ? <span style="background-color: black; color: white; padding: 0 5px;">1</span></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </table> </div> <p>The cursor for program number is active. You can enter a value there.</p>	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg										
1AutoStart	7UserProg																						
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4UserProg	10AS&UPrg																						
5UserProg	11LinkPrg																						
6UserProg																							
<p>Change to the auto start &amp; user's program setting screen.</p>	<p>Press [1], [0] and [Enter] key.</p> <p>* When you mistake the input value, press again.</p> <p>* If you enter the value into the another program by mistake, press [Mode] key to return to the program selecting screen and enter the value again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td>10Auto Start&amp;User Pro</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;"><span style="background-color: black; color: white; padding: 0 5px;">0.0</span></td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">0.0 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div> <p>The cursor for temperature value of the segment 0 is active. You can enter a value there.</p>		42.6	22.1%RH	10Auto Start&User Pro			Repeat	1	Last 1		Seg 0	Seg 1	T	<span style="background-color: black; color: white; padding: 0 5px;">0.0</span>	0.0	H	0.0 %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
10Auto Start&User Pro																							
Repeat	1	Last 1																					
	Seg 0	Seg 1																					
T	<span style="background-color: black; color: white; padding: 0 5px;">0.0</span>	0.0																					
H	0.0 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Enter a temperature value for the segment 0. (45 )</p>	<p>Press [4] key. And press [5] key successively.</p> <p>* If you mistake to enter the value, press [Clear] key and enter again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td>10Auto Start&amp;User Pro</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;"><span style="background-color: black; color: white; padding: 0 5px;">45</span></td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;">0.0 %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div>		42.6	22.1%RH	10Auto Start&User Pro			Repeat	1	Last 1		Seg 0	Seg 1	T	<span style="background-color: black; color: white; padding: 0 5px;">45</span>	0.0	H	0.0 %RH	0.0 %RH	t	00/00:00	00/00:00
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H	0.0 %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Set the temperature of the segment 0 and change to humidity setting display.</p>	<p>Press [Enter] key.</p> <p>* If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td>10Auto Start&amp;User Pro</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">45.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;"><span style="background-color: black; color: white; padding: 0 5px;">0.0</span> %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div> <p>The entered temperature of the segment 0 is set, and the cursor moves to the humidity value position.</p>		42.6	22.1%RH	10Auto Start&User Pro			Repeat	1	Last 1		Seg 0	Seg 1	T	45.0	0.0	H	<span style="background-color: black; color: white; padding: 0 5px;">0.0</span> %RH	0.0 %RH	t	00/00:00	00/00:00
	42.6	22.1%RH																					
10Auto Start&User Pro																							
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	Seg 0	Seg 1																					
T	45.0	0.0																					
H	<span style="background-color: black; color: white; padding: 0 5px;">0.0</span> %RH	0.0 %RH																					
t	00/00:00	00/00:00																					
<p>Enter the humidity value for the segment 0 (90%RH).</p>	<p>Press [9] key. And press [0] key successively.</p> <p>* If you mistake to enter the value, press [Clear] key and enter them again.</p>	<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%; text-align: center;">42.6</td> <td style="width: 35%; text-align: center;">22.1%RH</td> </tr> <tr> <td>10Auto Start&amp;User Pro</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Last 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Seg 0</td> <td style="text-align: center;">Seg 1</td> </tr> <tr> <td>T</td> <td style="text-align: center;">45.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>H</td> <td style="text-align: center;"><span style="background-color: black; color: white; padding: 0 5px;">90</span> %RH</td> <td style="text-align: center;">0.0 %RH</td> </tr> <tr> <td>t</td> <td style="text-align: center;">00/00:00</td> <td style="text-align: center;">00/00:00</td> </tr> </table> </div>		42.6	22.1%RH	10Auto Start&User Pro			Repeat	1	Last 1		Seg 0	Seg 1	T	45.0	0.0	H	<span style="background-color: black; color: white; padding: 0 5px;">90</span> %RH	0.0 %RH	t	00/00:00	00/00:00
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H	<span style="background-color: black; color: white; padding: 0 5px;">90</span> %RH	0.0 %RH																					
t	00/00:00	00/00:00																					



Procedure	Key operation	Indication
Set the humidity of the segment 0 and change to the time setting display.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The entered humidity of the segment 0 is set, and the cursor moves to the time value position.</p>
Enter the time for the segment 0. (0 day, 0 hour and 0 minute.)	Press [0], [0], [0], [0], [0] and [0] successively. * If you mistake to enter the value, press [Clear] key and enter them again.	
Set the time for the segment 0 and proceed to the temperature setting of the segment 1.	Press [Enter] key. * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The setting of the segment 0 is completed. The cursor moves to the position of temperature setting for the segment 1.</p>
Copy the temperature and humidity settings of the segment 0 and change to time setting display.	Press [Copy] key. * The temperature and humidity settings of the segment 0 are copied to the segment 1. (You can omit input action of same set values of temperature and humidity, when the set point control is executed,)	 <p>The temperature and humidity setting of the segment 1 is completed. The cursor moves to the position of time setting for the segment 1.</p>
Enter the time for the segment 1. (0 day, 2 hours and 0 minute.)	Press [2], [0] and [0] successively. * If you mistake to enter the value, press [Clear] key and enter them again.	

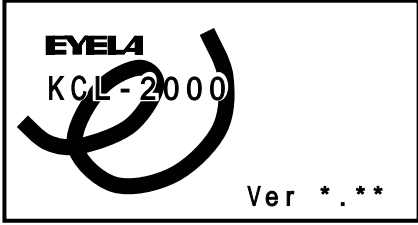
Procedure	Key operation	Indication
Set the time for the segment 1 and proceed to the temperature setting of the segment 2.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The setting of the segment 1 is completed. The cursor moves to the position of temperature setting for the segment 2.</p>
Set the segment 2 ~ 5.	Set temperature, humidity and time for the segment 2 ~ 5 in manner of the mentioned above.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	
Set the time of the segment 5 and quit the setting of temperature, humidity and time.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The setting of time for the segment 5 is completed. The cursor moves to the position of temperature setting for the segment 5.</p>
Change to the setting screen of the last segment.  * you can set the last segment through any segment from 0 to 9.	Press [ ] key when the cursor is at the set temperature position of the right column of segment.  If the cursor is not at this position, move it by [ ], [ ], [ ], or [ ] key.	 <p>Move the cursor to the setting position of the last segment by [ ] key.</p>
Enter the value of last segment (5).	Press [5] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	
Set the last segment No. and change to the setting of repetition times.  * you can set the last segment through any segment from 0 to 9.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p>The setting of the last segment No. is completed. The cursor moves to the position of repetition times setting.</p>

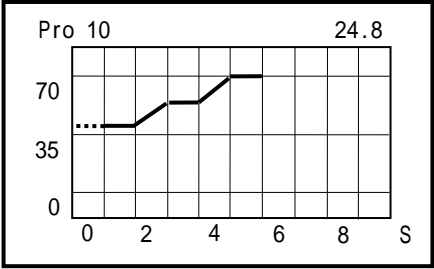
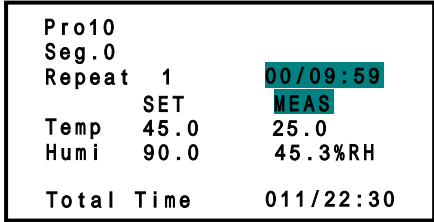
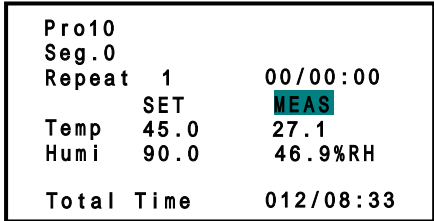
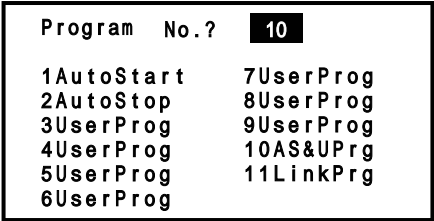
Procedure	Key operation	Indication
Enter the repetition times of the program. (3 times)	Press [3] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	
Set the repetition times of the program, and proceed to the settings of start delay time.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p data-bbox="911 725 1430 853">The setting of the last repetition times of the program is completed. The cursor moves to the position of the start delay time setting.</p>
Enter the start delay time. (10 hours)	Press [1], [0], [0] and [0] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	
Set the start delay time and quit the settings of the user's program 10..	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	 <p data-bbox="911 1332 1430 1491">The start delay time is set and then the setting of the user's program 10 is completed. The cursor moves to the position of the temperature setting of the segment 0.</p>

\* To start the auto start & user's program, refer to the section of [Running of Auto start & User's program] on the next page.

#### 4-4-2. Running of Auto start & User's program (Program 10) (Start and stop of control operation)

\* You can control the user's program through program selecting screen, program setting screen or graphic screen.

Procedure	Key operation	Indication																					
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>																					
	About 5 seconds elapse.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	<table border="1" data-bbox="960 649 1396 869"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>0.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>0.0</td> <td>45.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>001/05:08</td> </tr> </tbody> </table> <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>		SET	MEAS	Temp	0.0	22.5	Humi	0.0	45.0%RH	Total Time		001/05:08									
	SET	MEAS																					
Temp	0.0	22.5																					
Humi	0.0	45.0%RH																					
Total Time		001/05:08																					
Change to the program selecting display.	Press [Mod] key, if the program selecting display is not active.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	<table border="1" data-bbox="965 1003 1401 1220"> <thead> <tr> <th>Program No.?</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </tbody> </table> <p>The cursor for program number is active. You can enter a value there.</p>	Program No.?	1	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg								
Program No.?	1																						
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4UserProg	10AS&UPrg																						
5UserProg	11LinkPrg																						
6UserProg																							
Select the auto start & user's program.  (In case you start the control through the program selecting screen : Any setting is not changed.)	Press [1], and [0] key.  * It is convenient for that the previous setting is used repeatedly without changing.	<table border="1" data-bbox="965 1328 1401 1545"> <thead> <tr> <th>Program No.?</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>1AutoStart</td> <td>7UserProg</td> </tr> <tr> <td>2AutoStop</td> <td>8UserProg</td> </tr> <tr> <td>3UserProg</td> <td>9UserProg</td> </tr> <tr> <td>4UserProg</td> <td>10AS&amp;UPrg</td> </tr> <tr> <td>5UserProg</td> <td>11LinkPrg</td> </tr> <tr> <td>6UserProg</td> <td></td> </tr> </tbody> </table> <p>Select the user's program 10.</p>	Program No.?	10	1AutoStart	7UserProg	2AutoStop	8UserProg	3UserProg	9UserProg	4UserProg	10AS&UPrg	5UserProg	11LinkPrg	6UserProg								
Program No.?	10																						
1AutoStart	7UserProg																						
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3UserProg	9UserProg																						
4UserProg	10AS&UPrg																						
5UserProg	11LinkPrg																						
6UserProg																							
Change to the setting screen of the auto start & user's program 10.  (In case you start the control through the program selecting screen : The setting is checked and changed a portion of it.)	Press [Enter] key.  * It is convenient when you change a portion of the previous setting. * You can start from any segment.	<table border="1" data-bbox="960 1590 1396 1809"> <tbody> <tr> <td></td> <td>42.6</td> <td>22.1%RH</td> </tr> <tr> <td>10Auto Start&amp;User Pro</td> <td></td> <td></td> </tr> <tr> <td>Repeat</td> <td>10</td> <td>Last 5</td> </tr> <tr> <td></td> <td>Seg 0</td> <td>Seg 1</td> </tr> <tr> <td>T</td> <td>45.0</td> <td>45.0 ↗</td> </tr> <tr> <td>H</td> <td>90.0 %RH</td> <td>90.0 %RH</td> </tr> <tr> <td>t</td> <td>00/00:00</td> <td>00/02:00</td> </tr> </tbody> </table> <p>The setting screen of the auto start &amp; user's program 10 is active.</p>		42.6	22.1%RH	10Auto Start&User Pro			Repeat	10	Last 5		Seg 0	Seg 1	T	45.0	45.0 ↗	H	90.0 %RH	90.0 %RH	t	00/00:00	00/02:00
	42.6	22.1%RH																					
10Auto Start&User Pro																							
Repeat	10	Last 5																					
	Seg 0	Seg 1																					
T	45.0	45.0 ↗																					
H	90.0 %RH	90.0 %RH																					
t	00/00:00	00/02:00																					

Procedure	Key operation	Indication
<p>Check the auto start &amp; user's program 10 with graphic screen.</p> <p>(In case you check the setting on the graphic screen.)</p>	<p>Press [Screen] key. Changes to the temperature screen.</p> <p>Press [Screen] key. Changes to the humidity screen.</p> <p>Press [Screen] key. Returns to the setting screen.</p> <p>* It is convenient for when you check the temperature and humidity setting status.</p>	 <p>The graphic screen for the auto start &amp; user's program 10 (Temp. or Humid.).</p>
<p>Start the control operation of the auto start &amp; user's program.</p> <p>* You can start the control operation though any the program selecting screen, program setting screen or graphic screen.</p>	<p>Press [Run/Stop] key for more than 1 second.</p> <p>* The screen changes to the control status, and the start delay time (00/09:59) is counted down.</p> <p>* The start delay time and "MEAS" indication blink.</p> <p>When the time is up (000/00:00), the start delay time indication disappears and the control operation start.</p> <p>* The start delay time indication changes to illumination though "MEAS" indication keeps blinking.</p>	 <p>The measurement screen of the start delay time</p>  <p>The control screen after the delay time is up.</p>
<p>Stop the auto start &amp; user's program control.</p>	<p>The operation stops automatically after each segment in ascending order from segment No.0, and they are repeated for the set times as a program.</p> <p>* The control operation stops and the screen changes to the program selecting display.</p> <p>* When the repetition time is set "0" or when you force into stopping the operation, press [Run/Stop] key for more than 1 second.</p>	

\* You can change settings of each program by pressing [Mode] key while controlling. (The current controlling user's program can also be changed.) Though the current control operation is continued until it is completed, and the change is reflected to the next cycle of operation (if you set repetition time 1 or more.) or after the current operation.

\* To set each program, see the section of program setting ([4-\*.\*. Setting of \*\*\*\*\* program]).

## 4-5. Combination program (Program 11)

You can combine normal mode operation and some user's programs (No. 3~9) up to 6 and set the repetition times. Normal control can be combined at the end of the combination program.

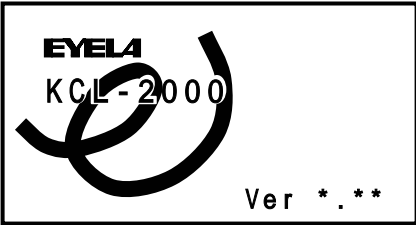
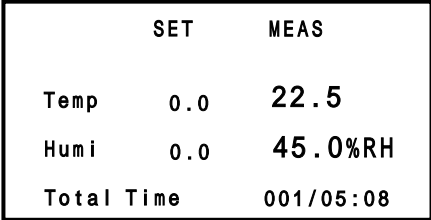
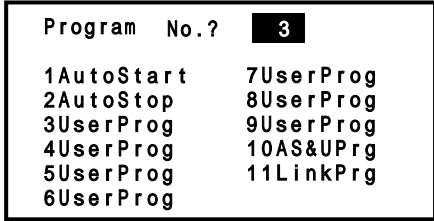
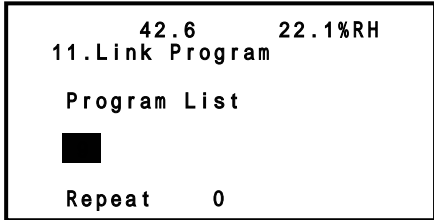
\* The setting of the repetition times for each user's program (No. 3~9) becomes void, and you can set the repetition times for whole of combined programs.

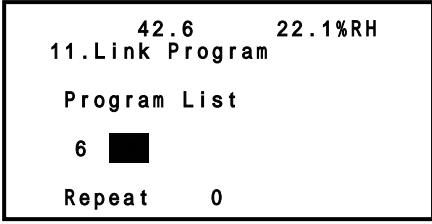
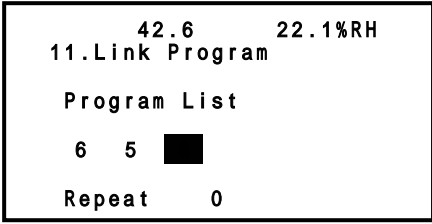
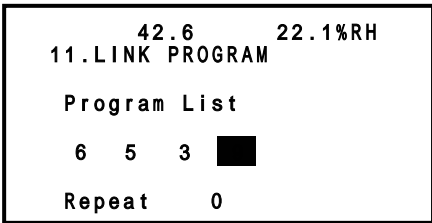
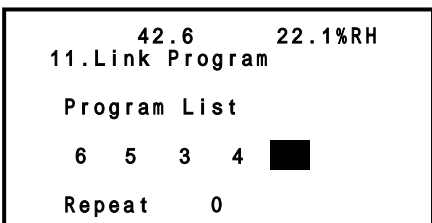
\* Enter [0] to set a normal mode operation. The normal mode cannot be set except the 6th of the program list.

### 4-5-1. Setting of Combination program (Program 11)

《Example of setting》

Combine programs [User's program 6]→[User's program 5]→[User's program 3]→[User's program 4] in this order, and repeat this combination pattern 5 times. Then the operation is executed with the normal mode.

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 * The default display is shown for about 5 seconds.
	About 5 seconds elapse.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	 * The indication of the previous operation is shown. (Initial setting of each mode)
Change to the program selecting display.	Press [Mode] key, if the program selecting display is not active.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	 The cursor for program number is active. You can enter a value there.
Change to the combination program setting screen.	Press [1], [1] and [Enter] key.  * When you mistake the input value, press again.  * If you enter the value into the another program by mistake, press [Mode] key to return to the program selecting screen and enter the value again.	 The cursor is shown at the head of the program list, and you can select a program.

Procedure	Key operation	Indication
Set [User's program 6] into the head of the program list.	Press [6] and [Enter] key. * When you mistake the input value, press [ ] key and enter the program No. again.	 <p>The top program No, of the list is set, and the cursor moves to the second program position.</p>
Set [User's program 5] into the 2nd of the program list.	Press [5] and [Enter] key. * When you mistake the input value, press [ ] key and enter the program No. again.	 <p>The 2nd program No, of the list is set, and the cursor moves to the 3rd program position.</p>
Set [User's program 3] into the 3rd of the program list.	Press [3] and [Enter] key. * When you mistake the input value, press [ ] key and enter the program No. again.	 <p>The 3rd program No, of the list is set, and the cursor moves to the 4th program position.</p>
Set [User's program 4] into the 4th of the program list.	Press [4] and [Enter] key. * When you mistake the input value, press [ ] key and enter the program No. again.	 <p>The 4th program No, of the list is set, and the cursor moves to the 5th program position.</p>

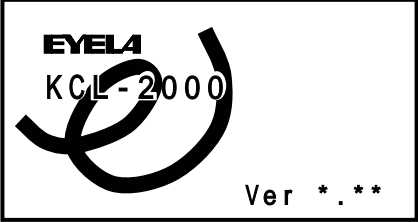
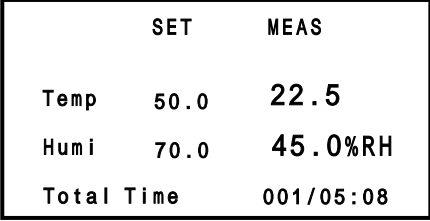
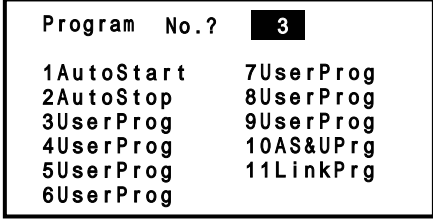
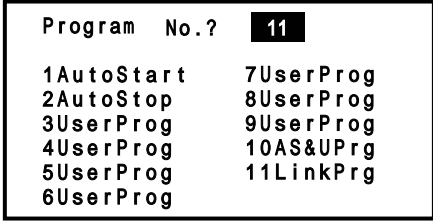
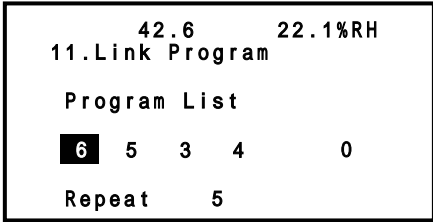
Procedure	Key operation	Indication
The 5th of the program list is not set.	Press [Enter] or [ ] key..  * When you mistake the input value, press [ ] key and enter the program No. again.	<div data-bbox="967 277 1402 497" style="border: 1px solid black; padding: 5px; text-align: center;">             42.6      22.1%RH              11.Link Program              Program List              6   5   3   4   <span style="background-color: black; color: black;">█</span>              Repeat    0           </div> <p>The 5th of the program list is not set, and the cursor moves to the 6<sup>th</sup> position.</p>
Set [Normal mode] to the 6th of the program list.	Press [0] and [Enter] key.  * When you mistake the input value, press [ ] key and enter the program No. again.	<div data-bbox="967 633 1402 853" style="border: 1px solid black; padding: 5px; text-align: center;">             42.6      22.1%RH              11.Link Program              Program List              6   5   3   4      0              Repeat   <span style="background-color: black; color: black;">█</span> 0           </div> <p>The 6th program No, of the list is set, and the cursor moves to the repetition time setting position.</p>
Set the repetition time (5 times), and quit the setting of combination program.	Press [Enter] key.  * When you change any setting, move the cursor to the desired position, and enter the set value again.	<div data-bbox="967 985 1402 1205" style="border: 1px solid black; padding: 5px; text-align: center;">             42.6      22.1%RH              11.Link Program              Program List  <span style="background-color: black; color: black;">█</span> 6   5   3   4      0              Repeat      5           </div> <p>The repetition times are set, and quit the setting of combination program. The cursor moves to the head of the program list..</p>

\* To start the combination program, refer to the section of [4-5-2 Running of Combination program] on the next page.



**4-5-2. Running of Combination program (Program 11 ) (Start and stop of control operation)**

\* You can control the combination program through program selecting screen, program setting screen or graphic screen.

Procedure	Key operation	Indication
Turn on the switch.	Turn on the power switch.  * [Ver *.*] in the default display is the version number of software.	 <p>* The default display is shown for about 5 seconds.</p>
	About 5 seconds elapse.  * If you turned off the unit previously when the user's program mode is active, the user's program mode is started.	 <p>* The indication of the previous operation is shown. (Initial setting of each mode)</p>
Change to the program selecting display.	Press [Mod] key, if the program selecting display is not active.  * If you turned off the unit previously when the combination program mode is active, the combination program mode is started.	 <p>The cursor for program number is active. You can select a program.</p>
Change to the program selecting display..  (In case you start the control through the program selecting screen : Any setting is not changed.)	Press [1], and [1] key.  * It is convenient for that the previous setting is used repeatedly without changing.	 <p>The cursor for program number is active. You can select a program.</p>
Change to the setting screen of the combination program.  (In case you start the control through the program selecting screen : The setting is checked and changed a portion of it.)	Press [Enter] key.  * It is convenient when you change a portion of the previous setting. * You can start when the cursor is placed at any position.	 <p>The cursor moves to the head of the program list. Select the first program.</p>

Procedure	Key operation	Indication
<p>Start the control operation of the combination program.</p> <p>* You can start the control operation through the program selecting screen or program setting screen.</p>	<p>Press [Run/Stop] key for more than 1 second.</p> <p>* The control operation starts, the screen changes to the control status display, and "MEAS" indication blink.</p>	<div style="border: 1px solid black; padding: 5px;"> <pre> Pro5 Seg.0 Repeat 5      01/12:29           SET  MEAS Temp  40.0    25.0 Humi  60.0    45.3%RH  Total Time    011/22:30 </pre> </div>
<p>Run the combination program.</p>	<p>Each program runs in order of the program list. And this combination is repeated the set times, then the operation stops automatically.</p> <p>* If the normal mode is set as the last program, the operation is kept by the set point control.</p>	<p>The control status of the current operating program.</p> <div style="border: 1px solid black; padding: 5px;"> <pre> Pro5 Seg.0 Repeat 5      01/12:29           SET  MEAS Temp  40.0    25.0 Humi  60.0    45.3%RH  Total Time    011/22:30 </pre> </div> <p>If the normal mode is set as the last program, the control status display for normal mode is shown.</p> <div style="border: 1px solid black; padding: 5px;"> <pre>           SET  MEAS  Temp  50.0    22.5 Humi  70.0    45.0%RH  Total Time    001/05:08 </pre> </div>
<p>Stop the combination program.</p>	<p>The operation stops automatically when the combination consists of Program 3 ~ 9 only, or when the repetition times are set except [0].</p> <p>* Press [Run/Stop] key for more than 1 second to force into quitting the operation, when the normal mode is set as the last or when the repetition time is set to [0].</p>	<p>When the combination program consists of Program 3 ~ 9 only, the screen changes to the program selecting screen after operation.</p> <div style="border: 1px solid black; padding: 5px;"> <pre> Program No.? 11  1AutoStart   7UserProg 2AutoStop    8UserProg 3UserProg    9UserProg 4UserProg   10AS&amp;UPrg 5UserProg   11LinkPrg 6UserProg </pre> </div> <p>If the normal mode is set as the last program, the control status display for normal mode is shown.</p> <div style="border: 1px solid black; padding: 5px;"> <pre>           SET  MEAS  Temp  50.0    22.5 Humi  70.0    45.0%RH  Total Time    001/05:08 </pre> </div>

\* If you press [Mode] key while controlling, you can change the setting of each program. (The current controlling combination program can also be changed.)

\* You can change the current controlling program No. in the combination. Though the current control operation is continued until it is completed, and the change is reflected to the next cycle of operation (if you set repetition time 1 or more.) or after the current operation is stopped. Except the current controlling program, the changed program No. becomes effective simultaneously when you change.

\* To set each program, see the section of program setting ([4-\*.\*. Setting of \*\*\*\*\* program]).

# 5 Convenient function

## 5-1. Graphic function

The setting or controlling status of User's program (Program 3 ~ 9), Auto start & User's program (Program 10 and Combination program (Program 11) are shown in a graph.

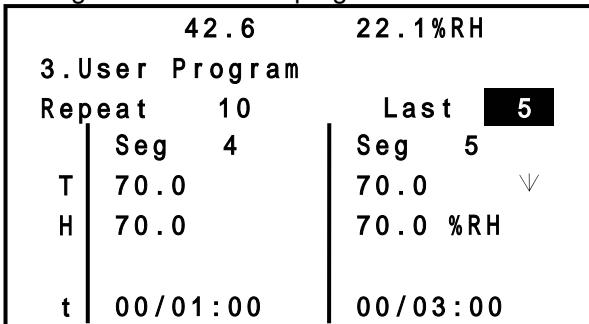
\* You cannot check the time in the graph indication. Check the elapsed time of the segment, the total operating time, and the start delay time in the control status screen.

\* The setting status of each user's program can be checked in the setting status of combination program. Press [ ] and [ ] key to change over each program, in the combination, and check the setting status.

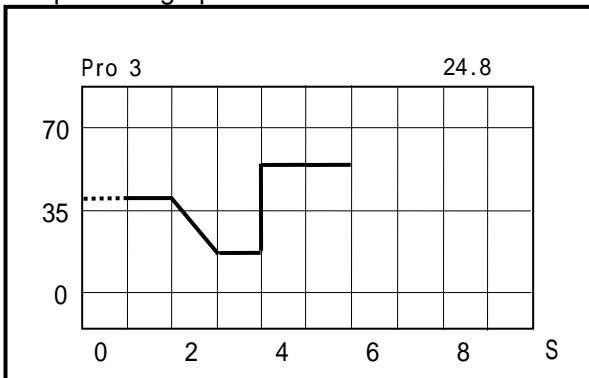
### 5-1-1. Graphic function for setting

If you press [Screen] key while setting the user's program, the graph indication changes over as below.

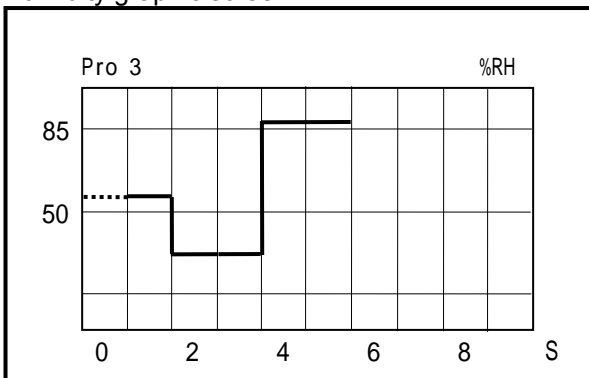
Setting screen of User's program



Temperature graphic screen



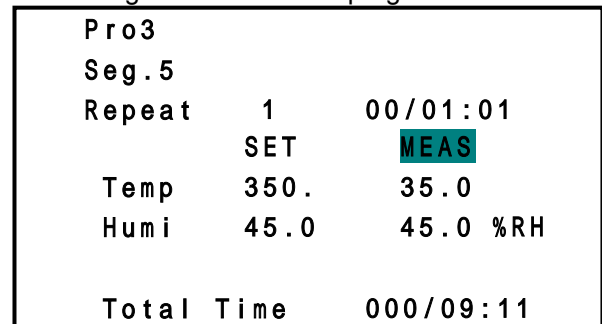
Humidity graphic screen



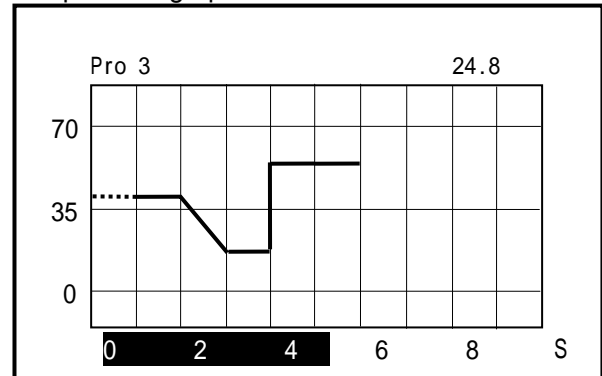
### 5-1-2. Graphic function for controlling

If you press [Screen] key while controlling the user's program, the graph indication changes over as below.

Controlling screen of User's program

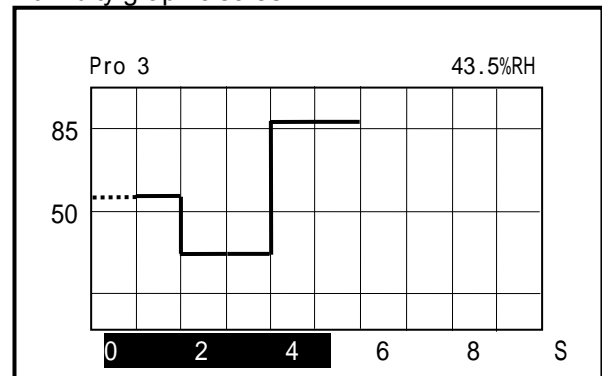


Temperature graphic screen



The part [ ] indicates the advanced operation.

Humidity graphic screen



The part [ ] indicates the advanced operation.

## 5-2. maintenance function

If you press [Mainte.] key, the screen changes to the maintenance mode. You can check the calibration of temperature/humidity indication, and the operating time of humidification vat, wet-bulb wick, condenser filter, and the chamber unit.

\* The mode can be changed regardless of controlling or stopping (in the program selecting screen, setting screen, or graphic screen)

The display is as shown the right, and you can select a parameter by [ ] or [ ] key.

Parameter

1. Temp.Cali: Temperature indication calibration
2. Humi.Cali: Humidity indication calibration
3. Humi.Pan: Humidification vat operating time
4. Wet-bulbwick: Wet-bulb wick operating time
5. C.Filter: Condenser filter operating time
6. Total Run Time: Chamber unit operating time

Maintenance mode screen

MAINTENANCE MODE			
1.Temp.Cali	0.0		
2.Humi.Cali	0.0	%RH	
3.Humi.Pan	12345		h
4.Wet-bulbwick	23456		h
5.C.Filter	34567		h
6.TotalRunTime	45678		h

### 5-2-1. Temperature indication calibration function

The temperature indication of this unit can be adjusted to a standard thermometer. Select the item of temperature indication calibration by [ ] and [ ] key. (When you change to the maintenance mode, the temperature calibration item is selected.) The cursor moves to the temperature calibration position.

\* Input range of temperature calibration is -10.0 ~ 10.0 .

《Example of setting》

The indicated temperature of the unit is 25.1 , and a standard thermometer's temperature is 25.6 , so calibrate the temperature 0.5 .

Procedure	Key operation	Indication																												
Change to the maintenance mode.	Press [Mainte.] key.  * When you change to the maintenance mode, the temperature calibration item is selected first. If the cursor is at any item other than the temperature calibration, move it to the temperature calibration by [ ] and [ ] key.	<table border="1"> <thead> <tr> <th colspan="4">MAINTENANCE MODE</th> </tr> </thead> <tbody> <tr> <td>1.Temp.Cali</td> <td>0.0</td> <td></td> <td></td> </tr> <tr> <td>2.Humi.Cali</td> <td>0.0</td> <td>%RH</td> <td></td> </tr> <tr> <td>3.Humi.Pan</td> <td>123</td> <td></td> <td>h</td> </tr> <tr> <td>4.Wet-bulbwick</td> <td>121</td> <td></td> <td>h</td> </tr> <tr> <td>5.C.Filter</td> <td>1234</td> <td></td> <td>h</td> </tr> <tr> <td>6.TotalRunTime</td> <td>12345</td> <td></td> <td>h</td> </tr> </tbody> </table>	MAINTENANCE MODE				1.Temp.Cali	0.0			2.Humi.Cali	0.0	%RH		3.Humi.Pan	123		h	4.Wet-bulbwick	121		h	5.C.Filter	1234		h	6.TotalRunTime	12345		h
MAINTENANCE MODE																														
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4.Wet-bulbwick	121		h																											
5.C.Filter	1234		h																											
6.TotalRunTime	12345		h																											
Enter the calibration value. (0.5 )	Press [0], [/.] and [5] key.  * If you mistake to enter the value, press [Clear] key and enter again.	<table border="1"> <thead> <tr> <th colspan="4">MAINTENANCE MODE</th> </tr> </thead> <tbody> <tr> <td>1.Temp.Cali</td> <td>0.5</td> <td></td> <td></td> </tr> <tr> <td>2.Humi.Cali</td> <td>0.0</td> <td>%RH</td> <td></td> </tr> <tr> <td>3.Humi.Pan</td> <td>123</td> <td></td> <td>h</td> </tr> <tr> <td>4.Wet-bulbwick</td> <td>121</td> <td></td> <td>h</td> </tr> <tr> <td>5.C.Filter</td> <td>1234</td> <td></td> <td>h</td> </tr> <tr> <td>6.TotalRunTime</td> <td>12345</td> <td></td> <td>h</td> </tr> </tbody> </table>	MAINTENANCE MODE				1.Temp.Cali	0.5			2.Humi.Cali	0.0	%RH		3.Humi.Pan	123		h	4.Wet-bulbwick	121		h	5.C.Filter	1234		h	6.TotalRunTime	12345		h
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4.Wet-bulbwick	121		h																											
5.C.Filter	1234		h																											
6.TotalRunTime	12345		h																											
Set the calibration value. (0.5 ) and proceed to the humidity calibration.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<table border="1"> <thead> <tr> <th colspan="4">MAINTENANCE MODE</th> </tr> </thead> <tbody> <tr> <td>1.Temp.Cali</td> <td>0.5</td> <td></td> <td></td> </tr> <tr> <td>2.Humi.Cali</td> <td>0.0</td> <td>%RH</td> <td></td> </tr> <tr> <td>3.Humi.Pan</td> <td>123</td> <td></td> <td>h</td> </tr> <tr> <td>4.Wet-bulbwick</td> <td>121</td> <td></td> <td>h</td> </tr> <tr> <td>5.C.Filter</td> <td>1234</td> <td></td> <td>h</td> </tr> <tr> <td>6.TotalRunTime</td> <td>12345</td> <td></td> <td>h</td> </tr> </tbody> </table>	MAINTENANCE MODE				1.Temp.Cali	0.5			2.Humi.Cali	0.0	%RH		3.Humi.Pan	123		h	4.Wet-bulbwick	121		h	5.C.Filter	1234		h	6.TotalRunTime	12345		h
MAINTENANCE MODE																														
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4.Wet-bulbwick	121		h																											
5.C.Filter	1234		h																											
6.TotalRunTime	12345		h																											

### 5-2-2. Humidity indication calibration function

The humidity indication of this unit can be adjusted to a standard hygrometer. Select the item of humidity indication calibration by [ ] and [ ] key. (When you change to the maintenance mode, the humidity calibration item is selected.) The cursor moves to the humidity calibration position.

\* Input range of humidity calibration is -10.0%RH ~ 10.0%RH.

《Example of setting》

The indicated humidity of the unit is 65.8%RH, and a standard hygrometer's temperature is 64.3%RH, so calibrate the humidity -1.5%RH.

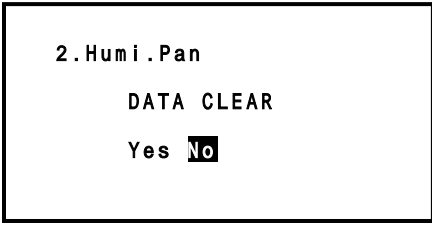
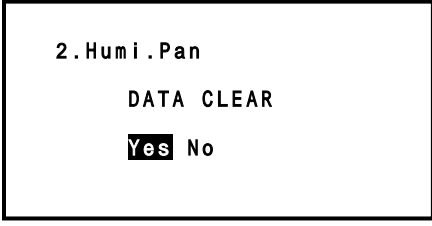
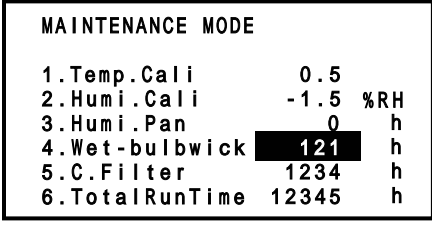
Procedure	Key operation	Indication
Change to the maintenance mode. And change over to the humidity calibration line.	Press [Mainte.] key.  * When you change to the maintenance mode, the temperature calibration item is selected first. If the cursor is at any item other than the temperature calibration, move it to the temperature calibration by [ ] and [ ] key.	<div style="border: 1px solid black; padding: 5px;"> <p>MAINTENANCE MODE</p> <p>1.Temp.Cali           0.5</p> <p>2.Humi.Cali           0.0 %RH</p> <p>3.Humi.Pan           123 h</p> <p>4.Wet-bulbwick       121 h</p> <p>5.C.Filter             1234 h</p> <p>6.TotalRunTime      12345 h</p> </div>
Enter the calibration value. (-1.5%RH)	Press [-/.] , [1], [-/.] and [5] key.  * If you mistake to enter the value, press [Clear] key and enter again.	<div style="border: 1px solid black; padding: 5px;"> <p>MAINTENANCE MODE</p> <p>1.Temp.Cali           0.5</p> <p>2.Humi.Cali           -1.5 %RH</p> <p>3.Humi.Pan           123 h</p> <p>4.Wet-bulbwick       121 h</p> <p>5.C.Filter             1234 h</p> <p>6.TotalRunTime      12345 h</p> </div>
Set the calibration value. (-1.5%RH) and proceed to the humidification vat operating time line.	Press [Enter] key.  * If you enter a value out of setting range, beep sounds are heard and the value cannot be accepted.	<div style="border: 1px solid black; padding: 5px;"> <p>MAINTENANCE MODE</p> <p>1.Temp.Cali           0.5</p> <p>2.Humi.Cali           -1.5 %RH</p> <p>3.Humi.Pan           123 h</p> <p>4.Wet-bulbwick       121 h</p> <p>5.C.Filter             1234 h</p> <p>6.TotalRunTime      12345 h</p> </div>

### 5-2-3. Humidification vat operating time

You can monitor the total operating time of humidification vat (heater). It tells the cleaning timing of the humidification vat (heater). Press [ ] or [ ] key to select the humidification vat operating time. You can clear the operating time when the cursor ■ is active on the Humi. Pan item.

\* The operating time is counted up again after it is reset.

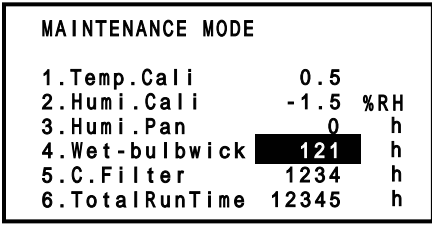
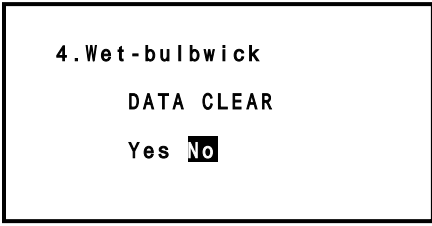
Procedure	Key operation	Indication
Change to the maintenance mode. And change over to the humidification vat operating time line.	Press [Mainte.] key.  Press [ ] and [ ] key to select the item of humidity vat operating time.	<div style="border: 1px solid black; padding: 5px;"> <p>MAINTENANCE MODE</p> <p>1.Temp.Cali           0.5</p> <p>2.Humi.Cali           -1.5 %RH</p> <p>3.Humi.Pan           123 h</p> <p>4.Wet-bulbwick       121 h</p> <p>5.C.Filter             1234 h</p> <p>6.TotalRunTime      12345 h</p> </div>

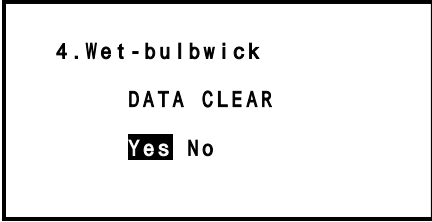
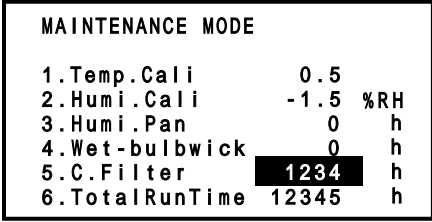
Procedure	Key operation	Indication
Clear the humidification vat operating time.	Press [Clear] key.  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 <p>The dialog for clear the time is shown. The cursor is on the [No] as the default.</p>
Clear the humidification vat operating time.	Press [ ], to select [Yes].  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 <p>Move the cursor to the [Yes] position.</p>
Clear the humidification vat operating time and proceed to the wet-bulb wick operating time line.	Press [Enter] key.  * If you do not clear the time, press [ ] key to move the cursor on the [No].	

#### 5-2-4. Wet-bulb wick operating time

You can monitor the total operating time of wet-bulb wick. It tells the replacement timing of the wet-bulb wick. Press [ ] or [ ] key to select the wet-bulb wick operating time. You can clear the operating time when the cursor ■ is active on the Wet-bulbwick item.

\* The operating time is counted up again after it is reset.

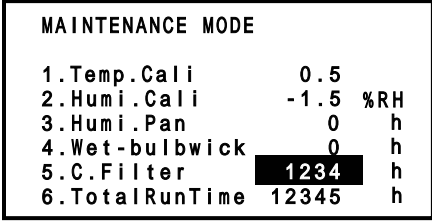
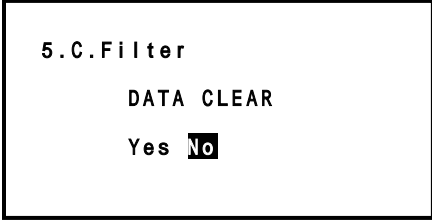
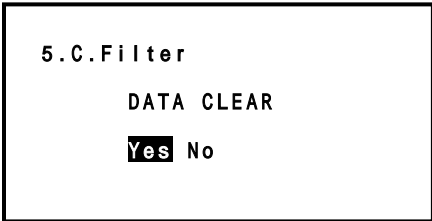
Procedure	Key operation	Indication
Change to the maintenance mode. And change over to the wet-bulb wick operating time line.	Press [Mainte.] key.  Press [ ] and [ ] key to select the item of wet-bulb wick operating time.	
Clear the wet-bulb wick operating time.	Press [Clear] key.  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 <p>The dialog for clear the time is shown. The cursor is on the [No] as the default.</p>

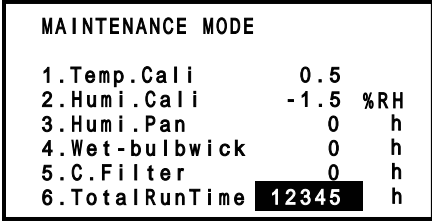
Procedure	Key operation	Indication
Clear the wet-bulb wick operating time.	Press [ ], to select [Yes].  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 Move the cursor to the [Yes] position.
Clear the wet-bulb wick operating time and proceed to the condenser filter operating time line.	Press [Enter] key.  * If you do not clear the time, press [ ] key to move the cursor on the [No].	

### 5-2-5. Condenser filter operating time

You can monitor the total operating time of condenser filter. It tells the cleaning timing of the condenser filter. Press [ ] or [ ] key to select the condenser filter operating time. You can clear the operating time when the cursor ■ is active on the C.Filter item.

\* The operating time is counted up again after it is reset.

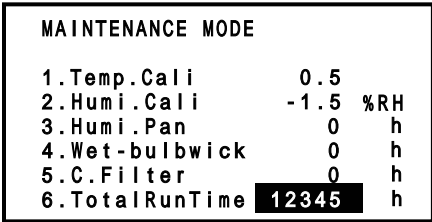
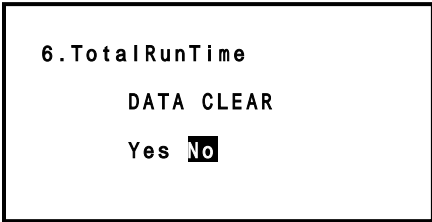
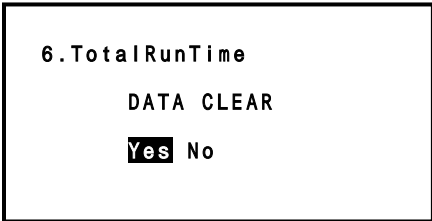
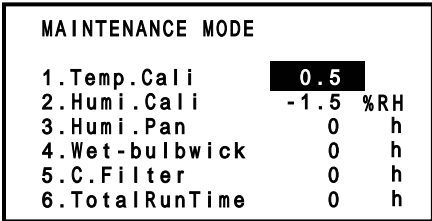
Procedure	Key operation	Indication
Change to the maintenance mode. And change over to the condenser filter operating time line.	Press [Mainte.] key.  Press [ ] and [ ] key to select the item of condenser filter operating time.	
Clear the condenser filter operating time.	Press [Clear] key.  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 The dialog for clear the time is shown. The cursor is on the [No] as the default.
Clear the condenser filter operating time.	Press [ ], to select [Yes].  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 Move the cursor to the [Yes] position.

Procedure	Key operation	Indication
Clear the condenser filter operating time and proceed to the chamber unit operating time line.	Press [Enter] key.  * If you do not clear the time, press [ ] key to move the cursor on the [No].	 <pre> MAINTENANCE MODE 1.Temp.Cali      0.5 2.Humi.Cali     -1.5 %RH 3.Humi.Pan       0 h 4.Wet-bulwick   0 h 5.C.Filter       0 h 6.TotalRunTime  12345 h </pre>

### 5-2-6. Chamber unit operating time

You can monitor the total operating time of chamber unit. It tells the maintenance timing of the chamber unit. Press [ ] or [ ] key to select the chamber unit operating time. You can clear the operating time when the cursor ■ is active on the Total Run Time item.

\* The operating time is counted up again after it is reset.

Procedure	Key operation	Indication
Change to the maintenance mode. And change over to the chamber unit operating time line.	Press [Mainte.] key.  Press [ ] and [ ] key to select the item of chamber unit operating time.	 <pre> MAINTENANCE MODE 1.Temp.Cali      0.5 2.Humi.Cali     -1.5 %RH 3.Humi.Pan       0 h 4.Wet-bulwick   0 h 5.C.Filter       0 h 6.TotalRunTime  12345 h </pre>
Clear the chamber unit operating time.	Press [Clear] key.  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 <pre> 6.TotalRunTime DATA CLEAR Yes No </pre> <p>The dialog for clear the time is shown. The cursor is on the [No] as the default.</p>
Clear the chamber unit operating time.	Press [ ], to select [Yes].  * The screen changes to the dialog for clear the time. Yes : Clear No : Not clear	 <pre> 6.TotalRunTime DATA CLEAR Yes No </pre> <p>Move the cursor to the [Yes] position.</p>
Clear the chamber unit operating time and proceed to the chamber unit operating time line.	Press [Enter] key.  * If you do not clear the time, press [ ] key to move the cursor on the [No].	 <pre> MAINTENANCE MODE 1.Temp.Cali      0.5 2.Humi.Cali     -1.5 %RH 3.Humi.Pan       0 h 4.Wet-bulwick   0 h 5.C.Filter       0 h 6.TotalRunTime  0 h </pre>

\* If you press [Mainte.] key, the screen returns to the previous before you press[Mainte.] key.



### 5-3. Clear function

This unit has two kinds of clear function, program clear and zero clear. The program clear function clears a certain program contents only which you select. Yet the zero clear function clears all of setting (Normal mode, All programs, and Maintenance mode).

#### 5-3-1. Program clear function

It clears a certain program contents only which you select.

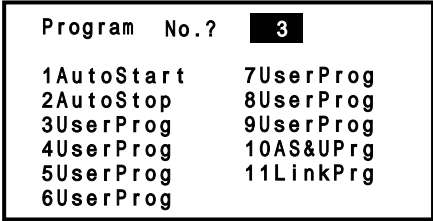
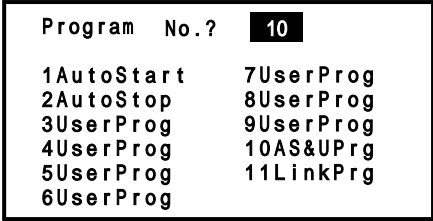

\* The contents can be cleared both while controlling and while stopping. (From any screen of program selecting, program setting or graphic,)


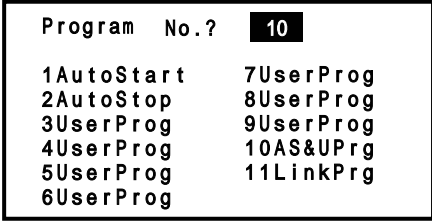
\* The program contents can be cleared even while it is controlling. The action is shown as follows, if you clear any program contents while it is controlling.

- 1) Auto start : The operation is continued with the current setting contents.
- 2) Auto stop : The operation is continued with the current setting contents and stops automatically.
- 3) User's program : Only the current controlling segment is continued, and stops automatically.
- 4) Auto start & User's program : While the start delay time is counted down, the operation stops after the count up is completed and the temperature reaches to 0.0 . When the control operation has already started, only the current segment is continued and stops automatically.
- 5) Combination program : The operation stops after the current operating user's program is completed. (Other combined programs are not executed.) The setting contents of other combined program are not cleared.

《Example of clear》

Clear the setting contents of auto start & User's program (Program10).

Procedure	Key operation	Indication
Change to the program mode screen and change over to the selecting display.	Press [Mode] key.	
Select the program No. which you clear. (Program 10)  * Use the numeric key pad.	Press [1] and [0] key.  * Press the value of program No. which you clear through the numeric key pad.	
Change to the program clear screen of the auto start & user's program.	Press [Clear] key.  * The screen changes to the dialog for clear the auto start & user's program. Yes : Clear No : Not clear	 <p>The dialog for clear the program is shown. The cursor is on the [No] as the default.</p>

Procedure	Key operation	Indication
Clear the all settings of the auto start & user's program.	Press [ ], to select [Yes].  * The screen changes to the dialog for clear the auto start & user's program. Yes : Clear No : Not clear	 <p>10Auto Start&amp;User Pro PROGRAM CLEAR Yes No</p> <p>Move the cursor to the [Yes] position.</p>
The all settings of the auto start & user's program are cleared, and the screen changes to the program selecting display.	Press [Enter] key.  * If you do not clear the time, press [ ] key to move the cursor on the [No].	 <p>Program No.? 10</p> <p>1AutoStart 7UserProg 2AutoStop 8UserProg 3UserProg 9UserProg 4UserProg 10AS&amp;UPrg 5UserProg 11LinkPrg 6UserProg</p>

\* If the screen is of the maintenance mode during the control operation, press [Mainte.] key to return to the controlling screen.

\* If the screen is of the maintenance mode during the setting, press [Mainte.] key to return to the setting screen of the normal mode.


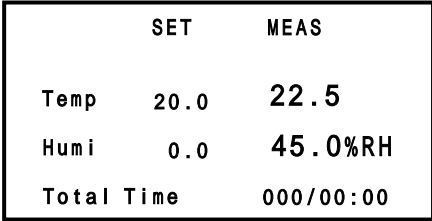
### 5-3-2. Zero clear function

The zero clear function clears all of setting (Normal mode, All programs, and Maintenance mode) and returns to the initial setting before shipment.

\* This function is workable only while the unit is turned on.

\* All settings which you have set for the control operation (Normal mode, All programs, and Maintenance mode) are **cleared in whole**, we recommend that you make a note set values.

《Procedure of Zero clear》

Procedure	Key operation	Indication												
Execute zero clear operation.  * Turn off the unit once.	Press and hold [0] and [Clear] key, and turn on the power switch.	 <p>EYELA KCL-2000 Ver *.*</p>												
Zero clear is completed.	You will heard three beep sounds of the buzzer, and the initial screen of normal mode appears 5 seconds later.	 <table border="1"> <thead> <tr> <th></th> <th>SET</th> <th>MEAS</th> </tr> </thead> <tbody> <tr> <td>Temp</td> <td>20.0</td> <td>22.5</td> </tr> <tr> <td>Humi</td> <td>0.0</td> <td>45.0%RH</td> </tr> <tr> <td>Total Time</td> <td></td> <td>000/00:00</td> </tr> </tbody> </table> <p>The measured value indication screen of normal mode is shown.</p>		SET	MEAS	Temp	20.0	22.5	Humi	0.0	45.0%RH	Total Time		000/00:00
	SET	MEAS												
Temp	20.0	22.5												
Humi	0.0	45.0%RH												
Total Time		000/00:00												

## 6 Specification of RS-232C communication interface

This unit can communicate with a host computer through the RS-232C interface. The set temperature, set humidity, measured temperature, measured humidity and alarm information can be sent to the host computer.

### 6-1. Communication specification

#### 6-1-1. RS-232C

Communication system : full duplex, asynchronous  
 Start bit : 1  
 Stop bit : 1  
 Data bit : 8  
 Parity bit : JIS (ASCII) 8-bit code  
 Baud rate : 9600bps (fixed)

#### 6-1-2. Communication protocol

Communication data : Set temperature, Set humidity, Measured temperature, Measured humidity, Alarm information  
 Received data : Set temperature & humidity of normal mode, Control start and stop

#### 6-1-3. Communication command and data

Delimiter for the data	: CR (&H0D)	: sent and received
Set temperature	: "T" (&H54)	: sent and received (including 5-digit data) : -2000 ~ 09000 ( = -20.0 ~ 90.0 ) Not included decimal point
Measured humidity	: "M" (&H4D)	: sent (including 5-digit data) -3000 ~ 10000 ( = -30.0 ~ 100.0 ) Not included decimal point
Set humidity	: "O" (&H4F)	: sent and received (including 5-digit data) 00000 ~ 10000 ( = 0.0%RH ~ 100.0%RH ) Not included decimal point
Measured humidity	: "U" (&H4D)	: sent (including 5-digit data) 00000 ~ 10000 ( = 0.0%RH ~ 100.0%RH ) Not included decimal point
Alarm message	: "A" (&H41)	: sent (including 2 ~ 4-digit data)

"TH" (Over temperature)  
 "TH 1" (Over heat of top humidification vat)  
 "TH 2" (Over heat of bottom humidification vat)  
 "OLR" (Overload of refrigeration unit)  
 "SSR" (SSR fault of temperature control heater)  
 "HSSR" (SSR fault of top & bottom humidification heater)  
 "HTR" (Disconnection of temperature control heater)  
 "HTR" (Disconnection of top & bottom humidification heater)  
 "SNS 1" (Dry-bulb temperature sensor fault)  
 "SNS 2" (Wet-bulb temperature sensor fault)  
 "TANK" (Low level of water supply tank)  
 "TKSN" (Level sensor fault of water supply tank)  
 "FLW" (Water supply fault)  
 "DTK" (Drain tank full)  
 "HU 2" (Upper limit failure for humidity)  
 "OVR" (Over heat)  
 "OVC" (Over cool)  
 "OFF" (Power failure)  
 "HU 1" (Humidity control failure)

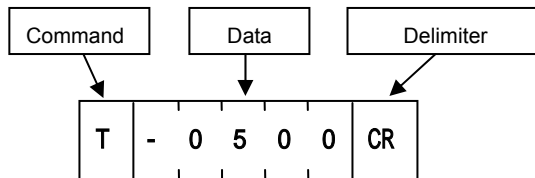
Alarm message : "A"(&H41) "COL" (Cooling fault)  
 "PRG" (Temperature gradient fault)  
 "DOOR" (Door open)  
 "HP" (High pressure of refrigeration unit)

Control start : "R" (&H52) : sent and received (without data)  
 Control stop : "W" (&H57) : sent and received (without data)  
 Release of alarm : "C" (&H43) : sent (without data)  
 Communication start : CTRL-Q(&H11) : sent and received (without data)  
 Communication halt : CTRL-S(&H13) : sent and received (without data)

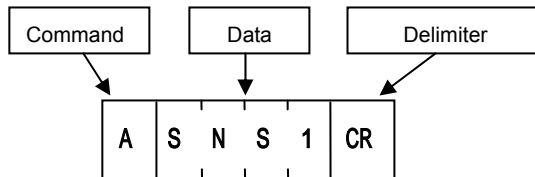
Note) The decimal point is not included in the number of data digit. It is fixed in each data.  
 If you include the decimal point in the data, they cannot be accepted as proper sent and received data. Attach the minus [-] sign at the head of data.  
 Do not attach "CR" (Delimiter) at the back of CTRL-Q, CTRL-S command.

#### 6-1-4. Format of data

Set the data at the back of the command, and attach CR (delimiter) at the last.  
 Example of sending) The set temperature -5 is sent from the host computer.



Example of sending) The host computer receives dry-bulb temperature sensor fault.



#### 6-1-5. Sending control and timing

The start and halt of communication are executed by CTRL-Q and CTRL-S command of X parameter.  
 The timing that the unit receives CTRL-Q (start sending) command and sends it is shown as follows.  
 Sending data : Measure temperature data and Measured humidity data are sent every 1 second.  
 Set temperature data and Set humidity data are sent every 1 second while controlling.  
 Alarm message is sent each occurrence.

Receiving data : It is received all time.

Note) Although the unit does not send data only by turning on, it can receive data.

#### 6-1-6. Terminal configuration and communication cable

##### 1) Pin position and signals

Pin No.	Sign	Description	Unit	direction of signal	Host
2	SD(T x D)	Sent data		→	
3	RD(R x D)	Received data		←	
5	SG(GND)	Ground for signal		—	

##### 2) Communication cable

Prepare a cross cable of 9 pins type (for connecting to the camber unit) as the communication cable.

[ Appendix ] Program time chart [ No. \_\_\_\_\_ ]

Temperature  
( )

Humidity  
(%RH)


Segment No.	1	2	3	4	5	6	7	8	9
Set temperature									
Set humidity	%RH	%RH	%RH	%RH	%RH	%RH	%RH	%RH	%RH
Set time	/ : /	/ : /	/ : /	/ : /	/ : /	/ : /	/ : /	/ : /	/ : /