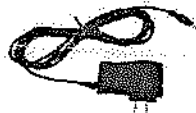# User manual

1. Product specifications

1.0. Components

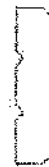A. controller EB-L2-W   B. 5V DC power adapter (2A)   C. 2x Temperature sensor
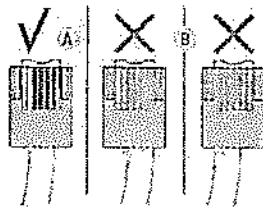with cable (5m/16ft)

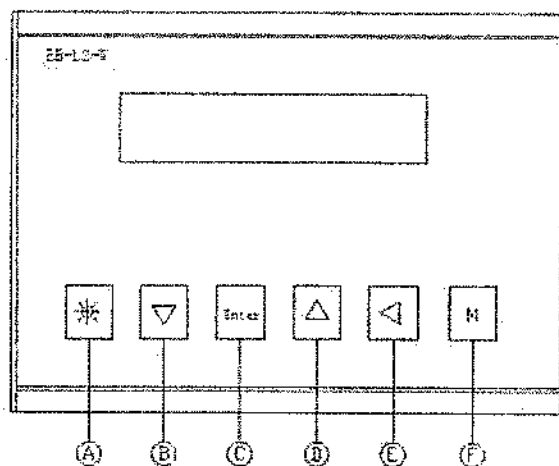D. 2x Controller cable (5m/16ft)   E.Bracket

I. RJ9 (4P4C) plug (connect to controller)
II. RJ14 (6P4C) plug (connect to ballasts)

Push the four wires into the middle openings of a RJ14 plug. The orientation of the
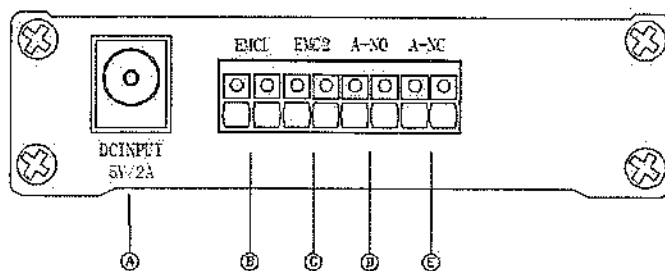plug does not matter as long as the wires are entered in the central four openings

1.1. Controls

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	KEY	
A	Quick-key	View and adjust output level
B	Down	Navigate down in menu/decrease value
C	Enter	Go to menu/confirm
D	Up	Navigate up in menu/increase value
E	Back	Navigate back in menu/cancel/reset
F	M	Show EMC1 EMC2 status and 100% or 115%

1.2. Connections

A. 5V DC input
B. Cage clamp connector ECM1 (output is active when main channel is on)
C. Cage clamp connector ECM2 (output is active when main channel is off)
D. Cage clamp alarm Normally Open (potential free contact)
E. Cage clamp alarm Normally Closed (potential free contact)
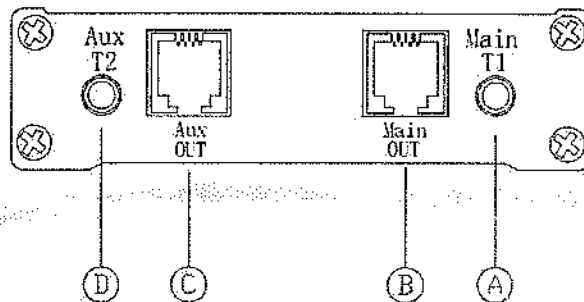
A. 3,5 mm jack main temperature sensor (T1)
B. RJ9 (4P4C) Main port for controlling up to 40 ballasts
C. RJ9 (4P4C) Auxiliary port for controlling up to 40 ballasts
D. 3,5 mm jack auxiliary temperature sensor (T2)

2. Connecting the controller to External Contactor Modules

(ECMs) to control auxiliary equipment

Caution! To prevent potential crop damage, ECMs are automatically shut down after a temperature alarm, a sensor removed, a sensor failure, overloaded, during a power interruption. This function only works in the "Auto" mode,

	OUTPUT MODE							
	Inverse mode				**Follow mode**			
	Main Work		Aux Work		Main and Aux Work		Main and Aux no Working	
	T1T2		T1T2		T1		T1	
	OFF — a temp shutdown, a sensor failure, a sensor removed, MAIN OR AUX OUT overloaded	ON — OK	OFF — a temp shutdown, a sensor failure, a sensor removed, MAIN OR AUX OUT overloaded	ON — OK	a temp shutdown, a sensor failure, a sensor removed, MAIN OR AUX OUT overloaded	OK	OK	a temp shutdown, a sensor failure, a sensor removed
MAIN OUT	OFF	ON	OFF	ON	ON		OFF	OFF
AUX OUT	OFF	ON	ON	ON	ON		OFF	OFF
EMC1	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
EMC2	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
A-NO	ON	OFF	ON	OFF	ON	ON	OFF	ON

Note: a CO2 source, light or watering unit may be activated during lights-on periods.

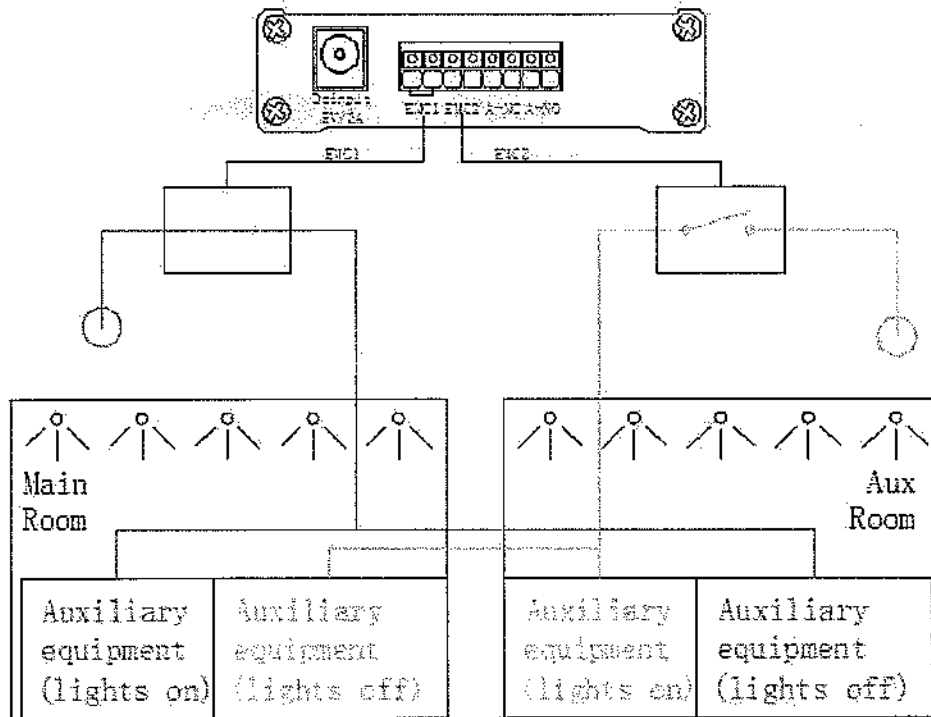**Note:** a heater may be activated during lights-off periods.

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2.1. Controlling auxiliary equipment in "Follow mode" (one room)
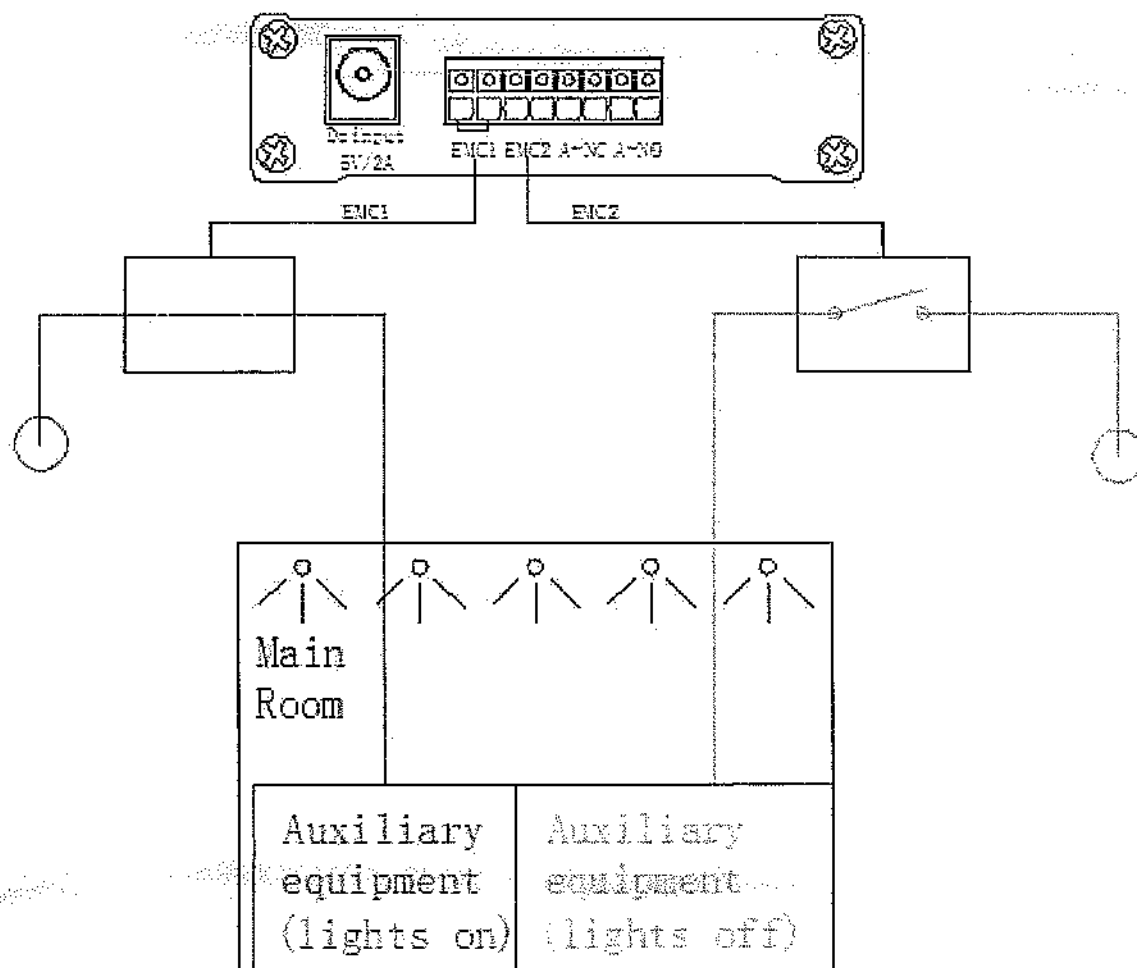
2.2. Controlling auxiliary equipment in "Inverse mode" (two rooms

12h/12h)

Main Room				
Auxiliary equipment (lights on)	Auxiliary equipment (lights off)			

|		Aux Room
Auxiliary equipment (lights on)	Auxiliary equipment (lights off)	

2.3. Connecting a temperature shutdown, sensor failure or power-off alarm to the controller

The controller has two pairs of cage clamps marked "A-NC" (normally closed) and "A-NO" (normally open).

When a temperature shutdown, sensor failure, or power failure occurs, the "A-NC" contact opens and the "A-NO" contact closes. Both pairs of cage clamps may be connected to an alarm installation or a text messaging module.

Dcinput 5V/2A   EMC1 EMC2 A–NC A–NO
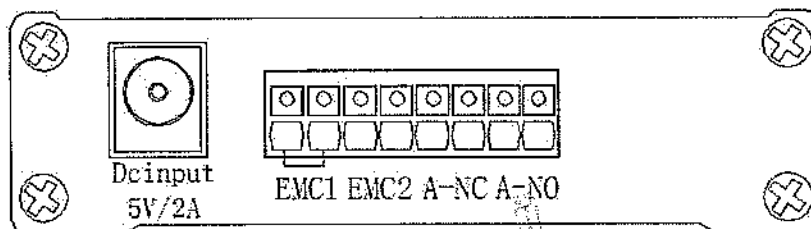
Warning! The alarm feature only works in the "auto" mode

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3. Preparations before use

Note: after 60 seconds of inactivity the controller interface will return to the main menu.

Note: to leave any screen without saving changes, press the arrow key◀.

3.1. setting the time

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "System time" and press "enter".
The "System Time" screen will open. In this screen
The "hour" indication will start blinking
• Press the arrow keys▲▼ to select the correct hour.
   Press "enter" toconfirm.
• Use the same procedure▲▼ to set the "minutes". Press "enter" to confirm your choice and return to the controller menu.

SHUTDOWN TEMP >SYSTEM TIME	>SYSTEM TIME TEMP UNITS	24 HOUR 21:45:17	24 HOUR 21:45:17

3.2. Switch temperature units between°F and °C

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "Temp units" and press "enter".
The "temperature units" screen will open
• Press the arrow keys ▲▼to switch between°F and °C. Press "enter" to confirm your choice and return to the controller menu.

SYSTEM TIME >TEMP UNITS	>TEMP UNITS CALIBRATE	TEMP UNITS >°C	TEMP UNITS >°F

3.3. Switch Percent mode between115% and 100%

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "100% OR 115%" and press "enter".
The "100% OR 115%" screen will open
• Press the arrow keys ▲▼to switch between 115% and 100%. Press "enter" to confirm your choice and return to the controller menu.

FACTORY RESET >100% OR 115%	>100% OR 115% OUTPUT MODE	100% OR 115% >100%	100% OR 115% >115%

3.4. Calibrating the temperature sensor(s)

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "Calibrate" and press "enter".
The "Calibration" screen will open . This screen displays the temperature measured by the main temperature sensor "T1" and auxiliary

temperature sensor"T2". If one or both temperature sensors are not or incorrectly connected, the text ""failure" will be displayed behind the applicable temperature sensor.

• Use the arrow keys to switch between "T1" or "T2" and press "enter" to select the temperature value you wish to adjust
• Use the arrow keys to adjust the temperature to the desired value and press "enter" to confirm your choice.

Note: The calibrated temperature values are stored in the internal memory of the controller. Resetting the controller will restore these values

TEMP UNITS >CALIBRATE	>CALIBRATE FACTORY RESET	>T1:22.5℃ T2:22.5℃	>T1:22.5℃ T2:22.5℃	T1:22.5℃ >T2:22.5℃	T1:22.5℃ >T2:22.5℃

4. Programming and using the controller

4.1. Adjust ballast output to change light intensity

The controller can set the output of a ballast between 50 and 100 percent (50 and 115 percent)
Adjusting this ballast output enables the user to change the light intensity in the climate room.

• Press the quick-key ☀, the "output level" screen opens
• Press the arrow keys ▲▼ to set the ballast output between 50 and 100(50 and 115 percent)
percent
• Press "enter" to confirm your choice.

Note: the output level can also be found in the general menu.

OUTPUT MODE >OUTPUT LEVEL	>OUTPUT LEVEL LIGHT CYCLE	OUTPUT LEVEL >100%

4.2. Programming a light cycle

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "Light Cycle" and press "enter". The "Light Cycle" screen will open. (23) In this screen the hour indication behind "ON" blinks
• Press the arrow keys▲▼ to select the hour on which the lights must be activated and press "enter" to confirm your choice.
• Use the same procedure to set the minute on which the lights must be activated and the hour and minute on which the lights must be deactivated.

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OUTPUT LEVEL	>LIGHT CYCLE	ON 09:00	ON 09:00	ON 09:00	ON 09:00
>LIGHT CYCLE	AUX FUNCTION	OFF 21:00	OFF 21:00	OFF 21:00	OFF 21:00

4.3. Set follow- or inverse mode (aux function)

The controller can be set to activate and deactivate all ballasts connected to it simultaneously. In this manual, this mode will be referred to as the "Follow Mode".

The controller may also be set to invert the output of its main and the auxiliary channel. Such a system may be used in the generative phase to optimize power utilization. In this manual this mode will be referred to as the "Inverse Mode".

• Press "enter", the controller menu will open
• Press the arrow keys▲▼ to locate "Aux function" and press "enter".
The "Aux Function" screen opens.
• Press the arrow keys ▲▼to switch between "follow" and "inverse".
• For the "Inverse mode", select "inverse" and press "enter". The output of the Aux channel will now be off when the main channel is on.

LIGHT CYCLE	>AUX FUNCTION	AUX FUNCTION	AUX FUNCTION
>AUX FUNCTION	AUTO-DIM TEMP	>FOLLOW MAIN	>INVERSE

4.4. Setting the auto-dim temperature

Note: The default auto-dim temperature is set at 30 °C / 86°F
Note: The auto-dim temperature cannot be set higher than the shutdown temperature.
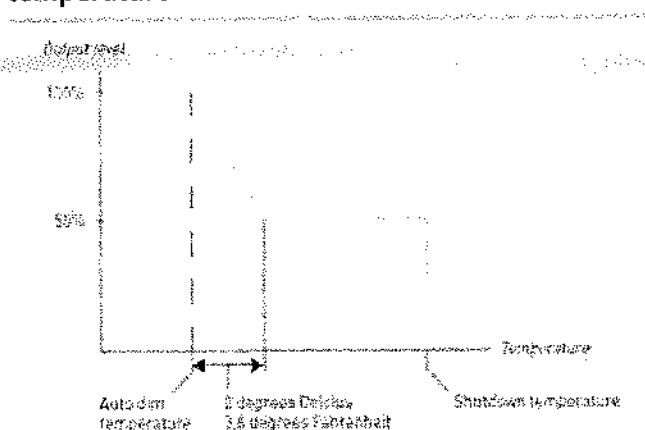
• Press "enter", the controller menu will open
• Press the arrow keys ▲▼to locate "Auto-Dim Temp" and press "enter".
The auto-dim temperature screen opens
• Press the arrow keys▲▼ to increase or decrease the temperature.

• Press "enter" to confirm.

Once the auto-dim temperature is reached, the controller will automatically start dimming the lights. No auto-dim will occur if the shutdown temperature is set at the auto-dim temperature.

AUX FUNCTION >AUTO-DIM TEMP	>AUTO-DIM TEMP SHUTDOWN TEMP	AUTO-DIM TEMP >30. 0℃

4.5. Setting safety shutdown temperature

Note: The default shutdown temperature is set at 35 ℃ /95℉.

Note: The safety shutdown temperature of the controller cannot be set lower than the auto-dim temperature.

Warning! Always set the shutdown temperature so it does not accidentally deactivate the lights.

Warning! After a shutdown, Wait for 10 minutes to reset   or   a manual reset is required.

• Press "enter", the controller menu will open

• Press the arrow keys ▲▼ to locate "Shutdown Temp" and press "enter".

The "Shutdown temperature" screen opens

• Press the arrow keys▲▼ to increase or decrease the temperature.

• Press "enter" to confirm.

Once the shutdown temperature is reached, the controller will automatically shut down all the lights and all the equipment connected to the ECMs. The A-NC and A-NO alarm contacts will also switch

AUTO-DIM TEMP >SHUTDOWN TEMP	>SHUTDOWN TEMP SYSTEM TIME	SHUTDOWN TEMP >35. 0℃

4.6. Activate or deactivate the lights manually or set automatic mode

• Press "enter", the controller menu will open

• Press the arrow keys▲▼ to locate "Output mode" and press "enter"

• Press the arrow keys▲▼ to switch between "auto", "on" and "off"

-- Select "on" to turn all the lights on. This setting will ignore temperature safety settings.

-- Select "off" to turn all the lights off

-- Select "auto" to follow the programmed light cycle and temperature safety settings)

• Press "enter" to confirm your choice.

>OUTPUT MODE OUTPUT LEVEL	100% OR 115% >OUTPUT MODE	OUTPUT MODE >AUTO	OUTPUT MODE >ON	OUTPUT MODE >OFF

4.7. Resetting the controller to factory settings

• Press "enter", the controller menu will open

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- Press the arrow keys to locate "Factory Reset" and press "enter".

The "Factory Reset" screen opens

- Press the arrow keys to switch to "yes" and press "enter".

The controller is now reset to factory settings.

CALIBRATE	>FACTORY RESET	FACTORY RESET	FACTORY RESET
>FACTORY RESET	100% OR 115%	>NO	>YES

4.8. Show EMC1EMC2 state

- Press an arrow key   M in the default screen to show the emc1emc2 state display

EMC1	ON
EMC2	OFF

- Press an arrow key M again to return to A-NC display

	100%
A-NC	CLOSE

- Press an arrow key M again to return to the default screen.

4.9. Show system time

- Press an arrow key▲or▼ in the default screen to show the system time

SYSTEM TIME
13:43:45

- Press an arrow key ▲or▼again to return to the default screen.

5. Reading the default screen

5.1.Normal

22.5℃	100%
22.5℃	OFF

5.2. Auto-dim

AUTO-DIM	90%	<-	32.5℃	90%
22.5℃	OFF	->	22.5℃	OFF

When the auto-dim temperature has been exceeded, the message "auto dim"
will appear on the display next to the corresponding channel.

5.3. Sensor disconnected

SENSOR REMOVED	<-	0℃	OFF
22.5℃ OFF	->	22.5℃	OFF

The message "Sensor removed" appears when   T1   temperature
sensors are not good. the devices connected to the controller are all
deactivated.

- Plug in the missing sensor to resolve.
- Hold the reset button for 3 seconds.or After 15 minutes, the controller is reset automaticall

5.4. Sensor damaged

SENSOR FAILURE	<-	0°C OFF
22.5°C OFF	->	22.5°C OFF

The message "Sensor failure" appears when T1 temperature sensors are not plugged in. the devices connected to the controller are all deactivated.
- replace temperature sensor.
- Hold the reset button for 3 seconds.or After 15 minutes, the controller is reset automaticall

5.5 Temp Alarm

SHUTDOWN TEMP	<-	35.5°C OFF
22.5°C OFF	->	22.5°C OFF

When the shutdown temperature has been exceeded, the message "Temp alarm" will appear on the display and The
devices connected to the controller are deactivated. The controller must be reset;
- Ensure the temperature of the room is below the shutdown temperature. If the temperature is still above shutdown temperature, the controller cannot be reset
- Hold the reset button for 3 seconds.or After 15 minutes, the controller is reset automaticall

5.6 OVERLOADED

OVERLOADED	<-	25.5°C OFF
22.5°C OFF	->	22.5°C OFF

When the overloaded has been exceeded, the message "overloaded" will appear on the display and the devices connected to the controller are deactivated. The controller must be reset;
- Check whether the ballast connected to the controller is short circuited, or whether the quantity connected exceeds the specified quantity
- If there is no problem ,Hold the reset button for 3 seconds.or After 15 minutes, the controller is reset automaticall