

ThermoQ

Indoor Film Heating System

INSTALLATION MANUAL

[Floor : Under laminate floor]



uniplatek

Safety indication for installation of film heater

Safety indication

This notice describes the very important contents, before installing film heater you must read the installation manual carefully and understand the knowledge of product, every warning, caution and notice.



Danger

When handling without care will cause death or disaster.



Warning

When handling without care might cause death or disaster.



Caution

When handling without care will cause accident.

For installation



Caution

- : Qualified personnel must do installation.
- : Before installation all electric power must be off. (electric shock is existed)
- : After tightening the terminal bolt, torque the bolt with standard value, loosened bolt will cause fire.
- : A thermostat must be attached on the plane and level place firmly

For control



Danger

- : Never touch the terminal of the main circuit, control circuit and terminal apply electric current electric shock is existed.



Caution

- : When the circuit breaker is off, after solving the problem, on the circuit. It could break out fire.

For repair, inspection and replace the parts.



Caution

- : Qualified personnel must do repair, inspection and replace the parts.
- : After off the circuit breaker, do the work.
- : Torque the terminal bolt periodically with standard value. Loosened bolt will cause fire.

■ *Safety indication for installation of film heater*

■ *Description of label & installation manual mark.*



General notes direct you to pay special attention to these items.



This symbol indicates that a shock hazard may exist if a particular action is not followed.



This symbol indicates that a fire hazard may exist if a particular action is not followed.



Class II appliance.

Appliance in which protection against electric shock does not rely on basic insulation only but in which additional safety precautions are provided, such as double insulation or reinforced insulation, where being on provision for protective earthing or reliance upon installation conditions.

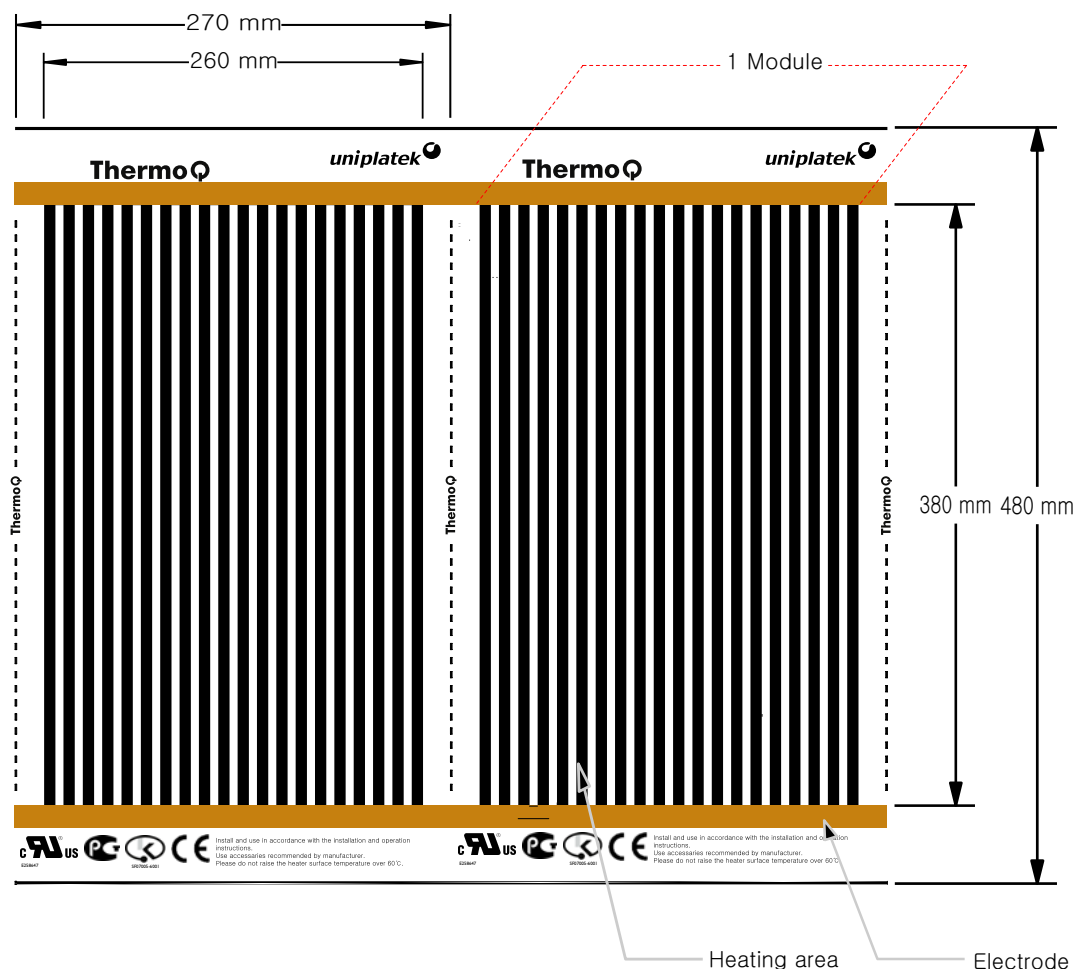
IPX7 Protection level for water proof
(Protection for temporary submergence)

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1. Product information

ThermoQ's heating structure being repeated as a regular pattern. Its design and installation will be done by repeating the minimum size 1 module which is standard.



Standard structure Length : 50M Roll type
1 Module size : 500x270mm
Heating size : 380x270mm

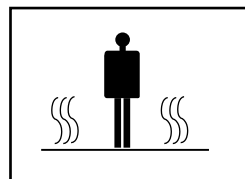
Spec.

Model	Voltage	Power consumption (1 module)	Power consumption (1 m ²)
ThermoQ-ES-A0103	AC220V, 60Hz	22W	154W
ThermoQ-ES-A0203	AC220V, 60Hz	30W	210W
ThermoQ-ES-B0103	AC110V, 60Hz	22W	154W
ThermoQ-ES-B0203	AC110V, 60Hz	30W	210W

2. Illustration of installation (ThermoQ-ES)

Product picture

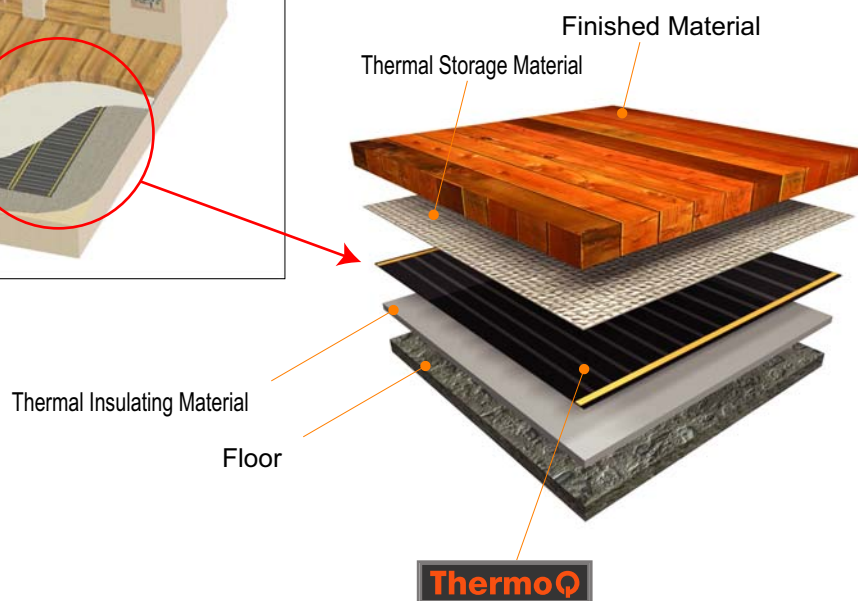
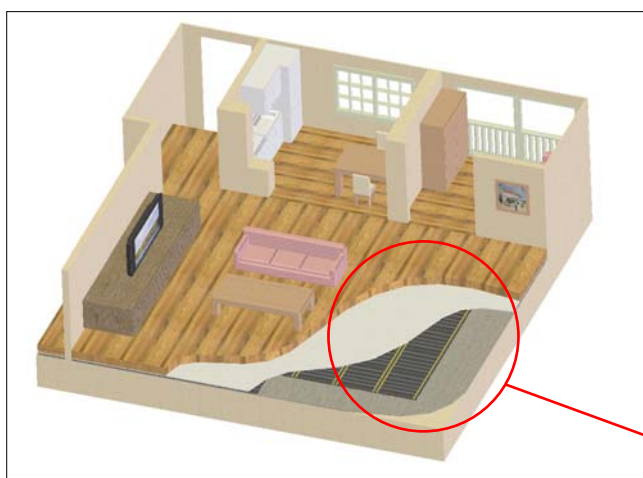
ThermoQ-ES(22/30W) 50M Roll Type



Application (floor)

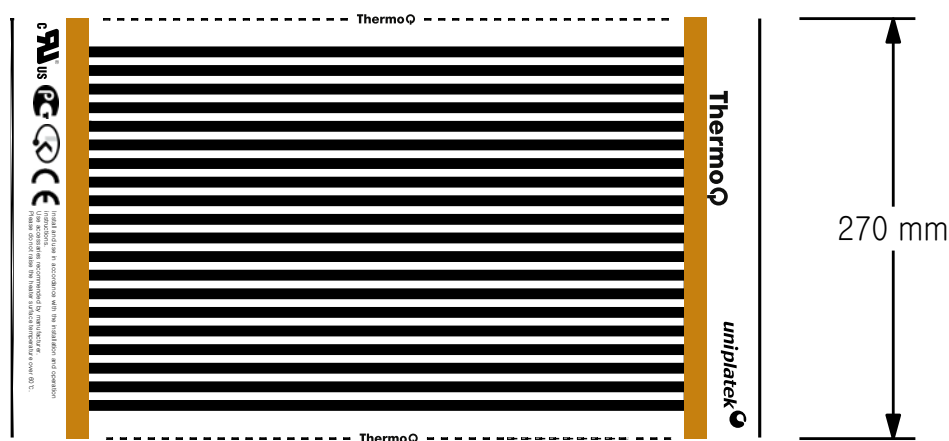
Heating mode : Direct heating

A cross sectional view of Installation



3. Design

- Decide the module's number that you need through the drawing of installing place.
ex) If 100% install (at 3.3m^2) : 24 modules need.
(At least 70% installation is need for heating, usually 80~90% installation have done)
- Calculate the total power consumption after decide film's quantity and size.
Check the power capacity if it possible without increase installation.
(you should increasing power if you need)
- Thermostat's number is belong to power consumption.



ThermoQ film heater indicate a power consumption by 1 module as above picture.
You can connect maximum 2.5kw on 1 thermostat.

- Next table shows maximum module number of products which can connect with 1 Thermostat(3kw).

Products	power consumption	maximum module number which can connect 1 thermostat
ThermoQ-ES-A0103	22W	Maximum 109 modules(Max. 80%)
ThermoQ-ES-A0203	30W	Maximum 80 modules(Max. 80%)
ThermoQ-ES-B0103	22W	Maximum 54 modules(Max. 80%)
ThermoQ-ES-B0203	30W	Maximum 40 modules(Max. 80%)



You should have the meeting with installer before the installation because home power is smaller than others.

■ 4. *Installation preparation*

- Make a plan for work.
- Film heater should be installed in room it's temperature is over 5°C.
- Film heater should keep away from other heat sources such as luminaires chimneys and hot water pipes. (more than 200mm)
- It should keep away from the conductor like water pipe.(more than 50mm)
- To protect the film heater from damage and bend, level the surface of working area. (remove the nails and projection)
- Installer who qualified by manufacturer should work the construction.
Installer should have the knowledge of how to cut the film, how to seal the cutting edge, how to connect the electricity line to film heater, how to insulate and how to connect the controller.
- When building the film heater, the most careful and important thing is to protect the moisture from the bottom. The moisture is always generated by difference of temperature.(change of the season, etc)
- We recommend the P.E film(0.25mm thickness) installed on the bottom first and then install the insulator which endures the high temperature.
- To install the P.E film on the bottom firmly, use the adhesive partially or 3M glue spray.

■ 5. *Installation of insulation*

- Install the insulator to increase the heat efficiency.
 - Encouraged insulation : Artiron(5mm, fire-resistance)
- Fix the insulation and other insulation with tape, so it can't move.
- Level and even the surface.



When you install the insulation, be sure that aluminum side of insulation is forced to below side.

■ Example of Installation



6. *Installation of ThermoQ film heater*

■ Install the ThermoQ harmoniously with drawings.

■ When you install the ThermoQ notice the bellows.

① Full knowledge before the Installation of ThermoQ film heater.

② Arrangement of ThermoQ film.

③ Installation of terminal and Insulation.



Do not bend film heater under radius 40mm.

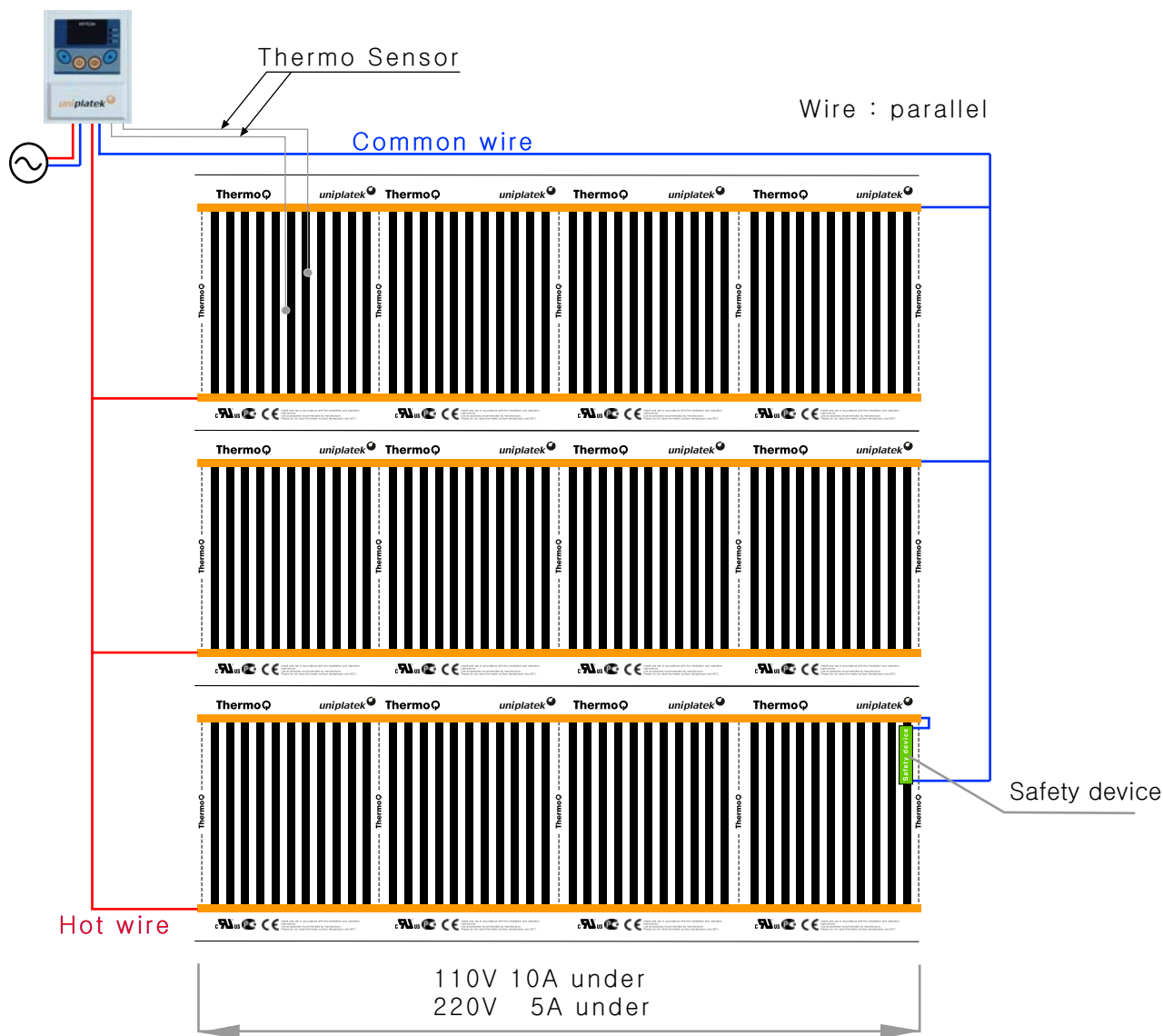
(Do not bend or fold film)



6. Installation of ThermoQ film sheet

6-1 Knowledge before the Installation of ThermoQ film heater

The way of electric line arrangement.



Reference

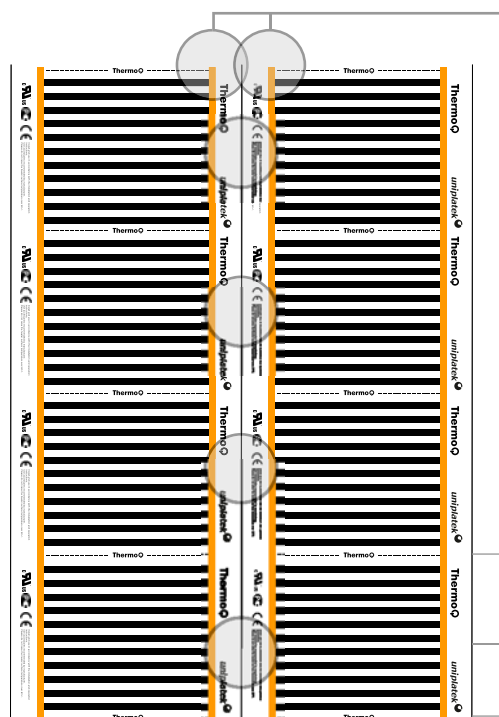
- 1) Sealing of safety device : Using the silicon tube or heat shrink tube.
- 2) Check the operation of controller.



Check total current per a row of film (Under AC 220V 5A/AC110V 10A)
Recommendation : use the one safety device per one controller.

6. Installation of ThermoQ film heater

6-2 ThermoQ film arrangement

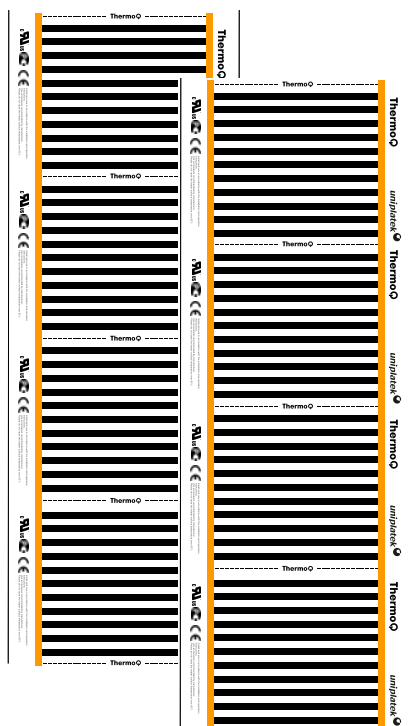


■ Do not pile up two electrode.
Film interval depend on install environment.

■ If there is difference of temperature,
you need save heat materials.

■ The area which touch each film,
use the OPP tape to fix them.

Bad arrangement



Do not pile up the electrodes on the film heater.
See the reference picture.

6. Installation of ThermoQ film sheet

6-3 ThermoQ terminal installation and Insulation



This part is the most important thing and the most disfunction due to this part,
So be careful before installation.

Parts list for installation



Replacement is acceptable

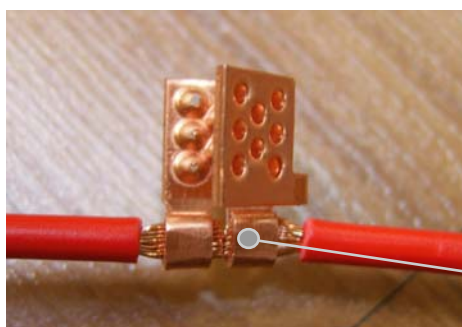
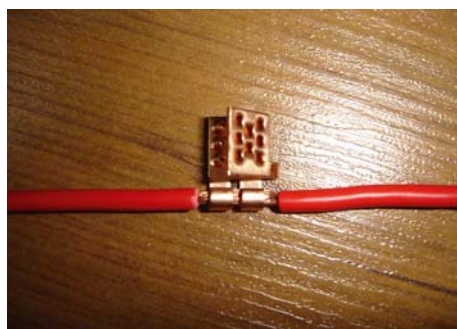
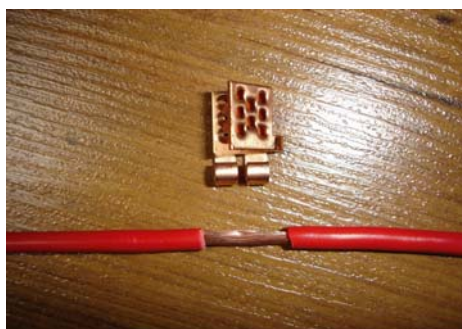
Lucky LC-109
(fire-resistant)



The tools which need to installation are used for standard regulation
If you use replacement, you must contact UNIPLATEK, if you don't
UNIPLATEK has exemption of responsibility.

If you perfectly ready, install as the below sequence.

1.Connection wire and terminal



Use stripper

Be careful not to be slipped off.

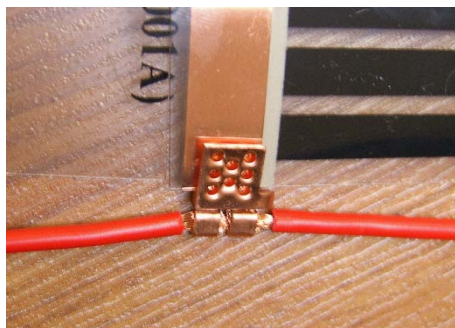
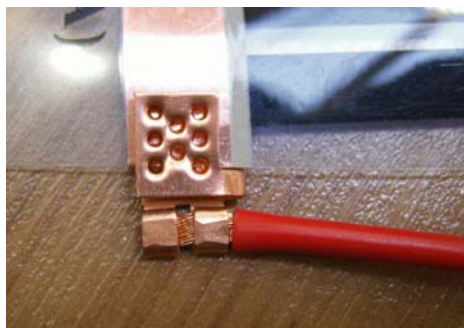
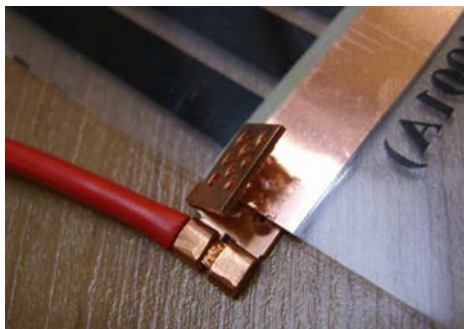
① Strip the covering of wire and connect with terminal. Use the press, so it can't loose.

6. Installation of ThermoQ film heater

2. Connection terminal and sheet

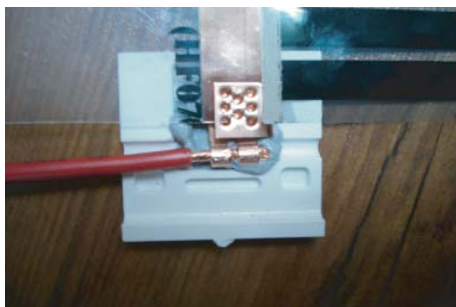


Use only press.



① Connect terminal which connect exothermic sheet's electrode and press.

3. Insulation



① after soldering put silicon into a cap and place under terminal, then cover with cap.



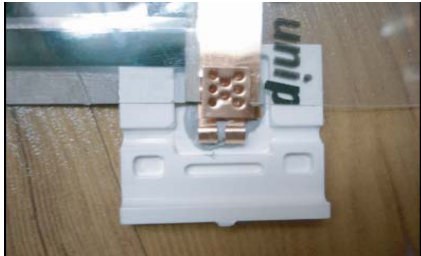
② Inject silicon through big hole which place on the cap.
At this time the silicon should inject until silicon come out through small hole.



After inserting silicon into a cap, fix firmly the cap with a tape not to slip.

6. *Installation of ThermoQ film heater*

4. Insulation of cutting sheet



- ① Insulate the electrodes of cutting sheet.
Do not connect the wires, connect the terminal and insulation cap and with equal then treat the silicon.
 - Insulate the edge part of film by good adhesive strength buthyl type.



If you did wrong construction or find out any problems on the insulation area, remove the insulation cap and the terminal reconnect the terminal and sheet



At this time, never re-use the once connected electrode area cut the used area and connect a new terminal to clean electrode area. (Don't use the used terminal)
Place the electric wire on the wall, out of the film heater.

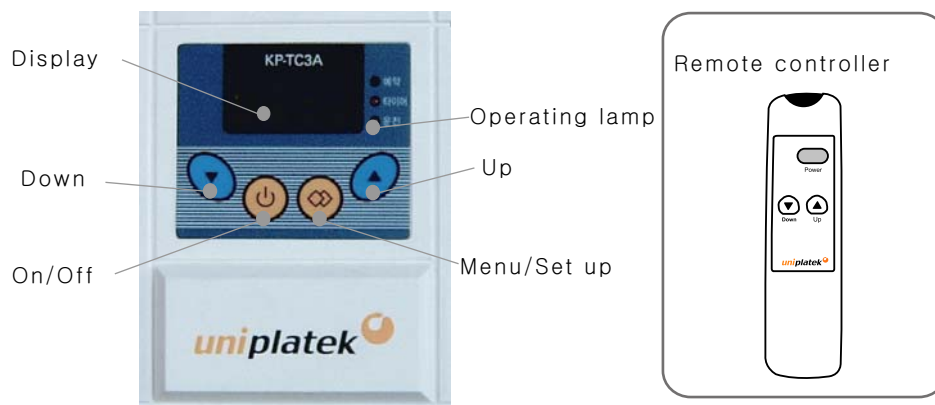


Keep away the electric wire from the film heater(farther than 20mm) and fix it.

7. Installation of thermostat

Operating manual

Instruction



Function

On/Off Switch : Power On/Off

Down Switch : Temp. down

Up switch : Temp. up

Menu/Set up switch : Select the menu. After setting up, press it more than 3sec, then it works as a check switch.

Set up the menu

When press the manu/set up switch a message on 'table 1' will show up, you can vary the condition with the switch. Menu switch toggles the next step in other

After changing the values using "up or down switch" if you want to recover it, press the "Menu/Set up switch" for 3sec, then it goes to normal mode.

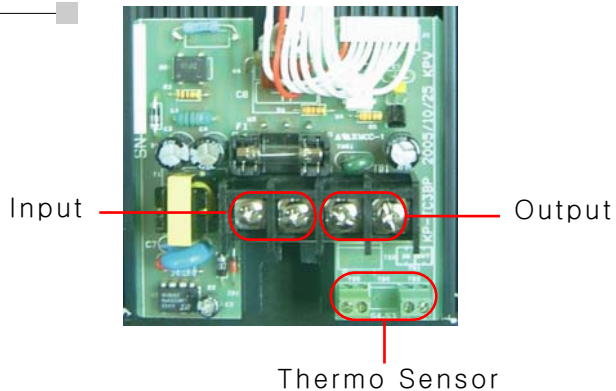
While setting up, giving no input more than 10 seconds, makes it return to the original set up automatically.

Table. 1 : Menu set up

Procedure	Function	View	Base	Setup up range	Discription
1	Thermal control/Timer	St	S	S, t	S-thermal control, t-timer control.
2	Air conditioning/Heating	HC	H	H, C	H - Heating, C - Airconditioning.
3	Minium value of temp. set up	tLo	0℃	-20℃ ~ 120℃	Setting up the minimum temp. value.
4	Maximun value of temp. set up	tHi	+80℃	-20℃ ~ 120℃	Setting up the maximum temp. value.
5	Setting up the differences of temp.	dIF	0℃	0~10℃	Setting up temperature - on/off at the differences persent temp.
6	Delay time for out put power	dLy	1sec	0~100sec	When on and off, after certain amount of time it out puts the power.
7	Protection for over heating temp.	OHt	80℃	-20℃~80℃	Setting out the out put power whe over the pre-set value.
8	Compensating the temp.	rES	0	-30~30	Setting u the resistance.

7. Installation of thermostat

Interior wiring



⚠ Caution

- 1) Do not exceed the rated capacity, if you exceed it it will cause the damage and the fire.
- 2) Wire the electric wire after attaching the produce and use the correct electric wire for proper load capacity.
- 3) Warning sound for over temperature : -OH-, is blinking.
- 4) Connect through the circuit breaker below 30mA of rated residual operating current to operate thermal controller.



Do not open the cover to avoid shock of high voltage.

Wire coupling

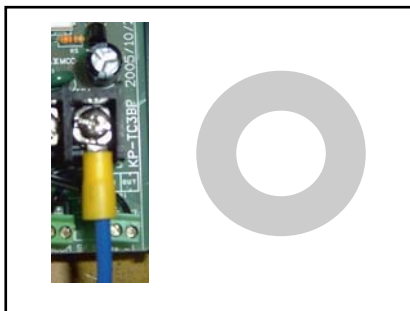
Fasten the bolt using ring terminal, shown fig (1)



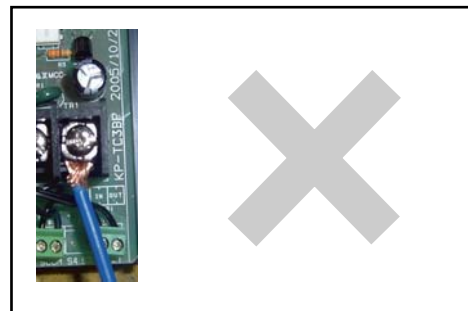
Becareful not to be loosened of bolt, loosened bolt will cause fire due to over temperature



Direct wiring cause a electric short, must use ring terminal

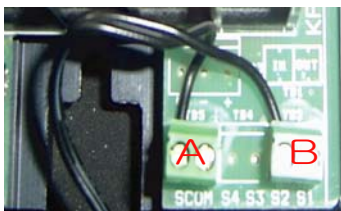


(1) Standard



(2) Bad coupling

Temperature sensor should connect to one for A on for B shown figure 1. (Use two sensor line)



(1)



(2)

7. Installation of thermostat

Connecting sensor

Two sensor line is included in temperature controller.
It has 3M and 5M sensor line, controls the higher temperature sensed by two sensor
We recommend that you leave spaces between two sensors

Attach two sensors on the heating area of the film using a tape.



Sensor



Sensor must be put on the heating area(black color)



Fix the sensor on the film, never step on or impact to avoid the damage of film and sensor.

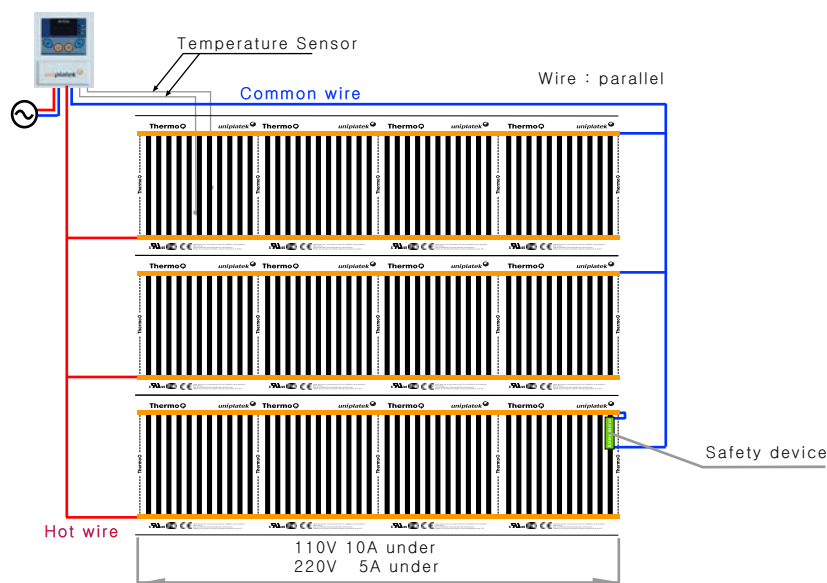
8. Heating test

Perfect model is as bellows.
Now we testing whether it working or not.

Testing procedure

1. Measure the all resistance of film heater, and compare the designed electricity.
(Verify that is under the 80% of capacity of the temperature controller)
2. Check the leakage, condition of insulation using Mega ohm tester.
(Over 5MΩ is good)
3. Heating test.

Power on and working for 20~30 minutes.
And check the next process.



- ① Check the temperature that heating is evenly distributed.

⚠ If circuit breaker is pop-up on no heating, check the wires and temperature controller for rated electric power

- ② Check the thermostat whether indicate temperature or not.

⚠ If indication of temperature is uncorrect, recheck the sensor and set up the temperature again.

- ③ Check the temperature on the electrode cap. The 10°C low is stable comparing with heating area.

⚠ The temperature of insulation campare is all most same as the heating area it could be wrong connected, then cut off the power, remove the insulation cap area, and then reconnected.

⚠ When you do connect again, never use the connected area again, cut the connected area and then do connect to clean electrode.

⚠ Place the label near the control device, it should indicate the position of heater system.

■ 9. *Installation of Thermal storage material*

- Thermal storage material raise the heating efficiency as well as protect the film sheet.
- spread on the film sheet with cutting.
- Thermal storage material's interval is fixed with opp tape.

■ Installation example



Notice: Never cover vinyl on the film sheet It cause electric leaking

10. Installation of finishing material



When installing the finishing material, use the recommended ones by UNIPLATEK.
The difference of heat transfer might happen by the thickness of the finishing material.

Finishing materials recommended by UNIPLATEK

- Reinforce wood, raw timber, bamboo(thickness : over 5mm)



Finishing the limited floor



Unrecommended finishing materials : P.V.C or decoration tile

- We do not recommend P.V.C or decoration tile for finishing material, because they have weak endurance, they could damage the films.



During the installation, be careful not to damage the film heater.
(Do not step on the film and treat them with care)



About the problems due to using unrecommended finishing materials, UNIPLATEK does not have any responsibility.



UNIPLATEK does not support to construct finishing materials.
Discuss with specialist about construction and repair for finishing work.



Do not restrict the emitting of the heat from the floor.



The direction for installing the finishing material must be lined up the length of the film.
(When removing the finishing materials for repair later, we could reach to insulator cap line with easy.)

■ 11. *ThermoQ Technical support*

■ UNIPLATEK as the manufacturer of ThermoQ is joining the PL.
We warrant quality of product.

■ We guide the way of installation for the ThermoQ.

⚠ Qualified personel should install the ThermoQ. Do not neglect the manual. If you do, we do not warrant it.

■ The products that are not sold by the main office and distributor or agency, We don't support the technical assistance.

■ If you need any help about ThermoQ, do not hesitate to call to the numbers here under.

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