Indoor Film Heating System

INSTALLATION MANUAL

[ Floor : Under laminate floor ]
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.
  - 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.

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

⚠️ Thin 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Power consumption (1 module)</th>
<th>Power consumption (1 m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThermoQ-ES-A0103</td>
<td>AC220V, 60Hz</td>
<td>22W</td>
<td>154W</td>
</tr>
<tr>
<td>ThermoQ-ES-A0203</td>
<td>AC220V, 60Hz</td>
<td>30W</td>
<td>210W</td>
</tr>
<tr>
<td>ThermoQ-ES-B0103</td>
<td>AC110V, 60Hz</td>
<td>22W</td>
<td>154W</td>
</tr>
<tr>
<td>ThermoQ-ES-B0203</td>
<td>AC110V, 60Hz</td>
<td>30W</td>
<td>210W</td>
</tr>
</tbody>
</table>
2. Illustration of installation  *(ThermoQ-ES)*

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

- **A cross sectional view of Installation**

  - Application (floor)
  - Heating mode: Direct heating

- **Layers**
  - Finished Material
  - Thermal Storage Material
  - Thermal Insulating Material
  - Floor

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*UNIVERSAL PLASMA & PLASTICS TECHNOLOGY*
3. Design

- Decide the module’s number that you need through the drawing of installing place.
  ex) If 100% install (at 3.3m²): 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).

<table>
<thead>
<tr>
<th>Products</th>
<th>power consumption</th>
<th>maximum module number which can connect 1 thermostat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThermoQ-ES-A0103</td>
<td>22W</td>
<td>Maximum 109 modules (Max. 80%)</td>
</tr>
<tr>
<td>ThermoQ-ES-A0203</td>
<td>30W</td>
<td>Maximum 80 modules (Max. 80%)</td>
</tr>
<tr>
<td>ThermoQ-ES-B0103</td>
<td>22W</td>
<td>Maximum 54 modules (Max. 80%)</td>
</tr>
<tr>
<td>ThermoQ-ES-B0203</td>
<td>30W</td>
<td>Maximum 40 modules (Max. 80%)</td>
</tr>
</tbody>
</table>

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 endurest 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 electricity 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)
Recommandation: 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 dysfunction due to this part.
So be careful before installation.

Parts list for installation

<table>
<thead>
<tr>
<th>Insulation Cap (1)</th>
<th>Insulation Cap (2)</th>
<th>Terminal</th>
<th>Press tool</th>
<th>Silicon sealant tools</th>
<th>Electric wires (2.5mm²)</th>
</tr>
</thead>
</table>

Replacement is acceptable

⚠️ 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

1️⃣ 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 butyl type.

   ![Image of ThermoQ film heater](image1)
   ![Image of ThermoQ film heater](image2)

   - 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

Display

Operating lamp

Down

Up

On/Off

Remote controller

Menu/Set up

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

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Function Description</th>
<th>View</th>
<th>Base</th>
<th>Setup range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thermal control/Timer</td>
<td>St</td>
<td>S</td>
<td>S, 1</td>
<td>S=thermal control, 1-timer control.</td>
</tr>
<tr>
<td>2</td>
<td>Air conditioning/Heating</td>
<td>HC</td>
<td>H</td>
<td>H, C</td>
<td>H = Heating, C = Airconditioning.</td>
</tr>
<tr>
<td>3</td>
<td>Minimum value of temp. set up</td>
<td>lLo</td>
<td>0°C</td>
<td>-20°C ~ 120°C</td>
<td>Setting up the minimum temp. value.</td>
</tr>
<tr>
<td>4</td>
<td>Maximum value of temp. set up</td>
<td>hHI</td>
<td>+80°C</td>
<td>-20°C ~ 120°C</td>
<td>Setting up the maximum temp. value.</td>
</tr>
<tr>
<td>5</td>
<td>Setting up the differences of temp.</td>
<td>dIF</td>
<td>0°C</td>
<td>0~10°C</td>
<td>Setting up temperature.</td>
</tr>
<tr>
<td>6</td>
<td>Delay time for out put power</td>
<td>dLY</td>
<td>1sec</td>
<td>0~100sec</td>
<td>When on and off, after certain amount of time it out puts the power.</td>
</tr>
<tr>
<td>7</td>
<td>Protection for over heating temp.</td>
<td>OHT</td>
<td>80°C</td>
<td>-20°C~80°C</td>
<td>Setting out the out put power when over the pre-set value.</td>
</tr>
<tr>
<td>8</td>
<td>Compensating the temp.</td>
<td>rES</td>
<td>0</td>
<td>-30~30</td>
<td>Setting u the resistance.</td>
</tr>
</tbody>
</table>
7. Installation of thermostat

**Interior wiring**

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

**Wire coupling**

- Fasten the bolt using ring terminal, shown fig (1)
  - Be careful not to be loosened, bolt loosened bolt will cause fire due to over temperature
  - Direct wiring cause a electric short, must use ring terminal

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

**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.
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](image1)

**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)

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, becaful 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 personnel 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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