NEXGEN

THE FUTURE OF HEATING

# INSTALLATION MANUAL

# Contents

## About The System:

NexGen heating film is a zero-maintenance low voltage nanotech heating film system, suitable for walls and ceilings. The heating film is powered from a very low and safe voltage. A power supply converts the mains power to the correct voltage.

The output power of the film depends on the voltage applied to the film. For walls and ceilings, 24 volts **must** be used.

## Installation:

Please read these instructions prior to planning design and installation.

- The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction, children being supervised not to play with the appliance.
- The heating units have to be separated from other heat sources such as luminaires and chimneys.
- The advice of the manufacturer is to be requested before materials other than those recommended are used.
- Maximum temperature for the Nexgen product must NOT exceed 80°C.
- Warranty may be affected if downlight cutouts are not done according to the manufacturers specifications.
- Performance will be affected if the cable from the heating element to the transformer exceeds the specified length of 5m.
- Precaution needs to be taken to avoid creasing the heating element.
- The maximum thermal resistance between the heating unit and the room. < for example, 0.25 m2 ·K/W >.
- The system can be used safely in any room including bathrooms and kitchens and is AS/NZS 60335.2.96:2002 approved.
- A label is to be fixed adjacent to the distribution board and it has to contain the locations of the heating units. An additional label in the same location will need to include the following information.

| NEXGEN | Nexgen heating system |
|---|---|
| Trademark: Nexgen | Rated Frequency: 50Hz |
| 24VAC Heating System | Rated Power Input: 97W/m |
| Maximum Current: 15A | Intended installation: Ceiling/Walls ONLY |
| IPX1 | Maximum operating temperature: 60°C |

DO NOT insert any nails or screws in the copper conductors
DO NOT affix any materials other than those recommended
DO NOT restrict thermal emission of the heated Wall or Ceiling

**NexGen heating film system includes:**

1. NexGen Film
2. Cable Assembly
3. Film Crimps
4. Transformer
5. Contact Adhesive or Tile Adhesive and Notched Trowel
6. Chosen Hotwire Thermostat
7. Installation Manual
8. Installation Certificate and Distribution Board Sticker

**Room Design and required Product:**

- In order to work out film sheet numbers and position, it is recommended to draw the wall to scale on a piece of graph paper, so you can work out a suitable design configuration.
- The room size and insulation affects the total power per square metre (W/m2). This must be taken into consideration when planning the system for each room.
- Transformer position
- The heating sheet lengths position

**Preparation:**

- The wall/ceiling must be firm with no cracks or loose plaster. Repair any loose or damaged areas before installation.
- The wall/ceiling must not have uneven, rough or sharp edges within it.
- The wall/ceiling should be thoroughly clean and dry and any water ingress sources sealed.
- Ensure electrically conductive materials are kept away from the ends and contacts of the NexGen heating film.
- Esure any insulation material is not sticking out of the wall/ceiling surface and is firmly glued to the substrate according to the manufacturer's instructions.

**Note: insulation levels**

Insulation will always enhance the performance of any heating, particularly outer exposed walls. For uninsulated walls a minimum of 5mm of EPS/XPS board is recommended.

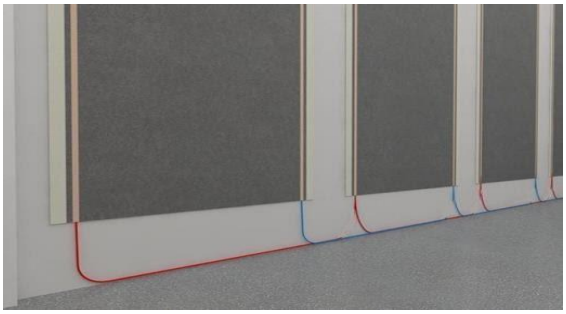
# Wall Heating Installation

**Installation Steps:**

1. Alway install the foil with the copper side facing into the room.
2. Roll the heating sheets out on the floor and check there has been no transit damage.
3. Using a resistance meter, check the resistance of the sheet.
   Standard 1.5m long sheet resistance should be approx 2 to 3.5 Ohms.
   Standard 1.8m sheet resistance should be between 2 and 3 Ohms.
   Standard 2.5m to 3m sheets 5 to 7 ohms.
4. Mark the heating sheet positions on the wall/s and the power supply to the chosen position. Avoid laying the foil over joints.
   Make sure the cable supply lengths can reach the transformer avoiding sharp bends.
   Ensure the power pre-wire and thermostat position has been installed.
   Make sure the power cable supply from the thermostat position can reach the Transformer.
5. Prepare and clean the wall, plaster substrates and other absorbent surfaces a primer may be required before applying the Contact Adhesive.
6. **Ready to start?** Cut a groove into the wall for the temperature sensor so it can be placed directly under one of the heating foil lengths (close to the thermostat). Place the temperature sensor into the recess and mask with tape. **Spray approved contact adhesive evenly to the wall and the heating film**. Place the top 200mm of the first sheet on the wall and press firmly onto the adhesive. Using the flat side of the trowel, work your way down pressing the remainder of the foil onto the adhesive making sure that the heating foil is smooth.
   **Note:**
   You **MUST** cover the wall sheeted area evenly and pay special attention to the edges.
   **There MUST BE NO wrinkles or air pockets**

7. Repeat the #6 as per your design to all heating sheets.

8. Wiring can be run behind the skirting.
9. Connect the power supply from the thermostat position to the transformer.
   **Note:**
   **Do NOT turn on.**
   **Double check all connections** are secure.
10. Then connect the heating film cable assemblies to the heating sheets to the Transformer.
    **Note:**
    Each heating sheet should be connected directly to the Transformer and not connected to each other.
    **Do NOT turn on.**
    **Double check all connections** are secure.



11. It is recommended for standard domestic rooms, that wall film is positioned vertically using 1.2 to 2.5 meter long sheets, as close to the floor as possible and the connections made either at the bottom of the wall, covered by skirting board as best option or at the top if there is attic space.
12. There is no minimum distance between sheets however, sheets must not overlap.
13. There must be a 3cm gap (minimum) to any plumbing.
14. The film may be fitted horizontally, however this may make wiring concealment more difficult.
15. The maximum operating temperature of the film is 50C.

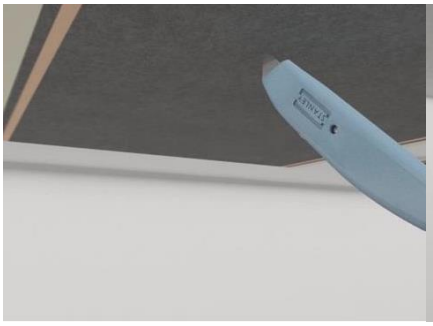
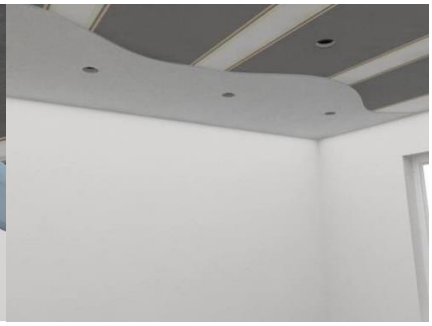
# Ceiling Heating Installation

**Installation Steps:**

1. Alway install the foil with the copper side facing into the room.
2. Roll the heating sheets out on the floor and check there has been no transit damage.
3. Using a resistance meter, check the resistance of the sheet.
   Standard 1.5m long sheet resistance should be approx 2 to 3.5 Ohms.
   Standard 1.8m sheet resistance should be between 2 and 3 Ohms.
   Standard 2.5m to 3m sheets 5 to 7 ohms.
4. Mark the heating sheet positions on the ceiling and the power supply to the chosen position. Avoid laying the foil over joints.
   Make sure the cable supply lengths can reach the transformer avoiding sharp bends.
   Ensure the power pre-wire and thermostat position has been installed.
   Make sure the power cable supply from the thermostat position can reach the Transformer.
5. Prepare and clean the wall, plaster substrates and other absorbent surfaces a primer may be required before applying the Contact Adhesive.
6. **Ready to start?** Cut a groove into the ceiling for the temperature sensor so it can be placed directly under one of the heating foil lengths (close to the thermostat). Place the temperature sensor into the recess and mask with tape. **Spray approved contact adhesive evenly to the wall and the heating film**. Place the top 200mm of the first sheet on the ceiling and press firmly onto the adhesive. Using the flat side of the trowel, work your way down the sheet length pressing the remainder of the foil onto the adhesive making sure that the heating foil is smooth.
   **Note:**
   You **MUST** cover the ceiling sheeted area evenly and pay special attention to the edges.
   **There MUST BE NO wrinkles or air pockets**

7. Repeat the #6 as per your design to all heating sheets.

8. Cut out holes needed for lights only cut the film, do not cut the copper conductors that run down each side of the film.

9. Wiring can be run in the ceiling void.
10. Connect the power supply from the thermostat position to the transformer.
    **Note:**
    **Do NOT turn on.**
    **Double check all connections** are secure.
11. Then connect the heating film cable assemblies to the heating sheets to the Transformer.
    **Note:**
    Each heating sheet should be connected directly to the Transformer and not connected to each other.
    **Do NOT turn on.**
    **Double check all connections** are secure.
12. It is recommended for standard domestic rooms, that film is positioned on the ceiling and the connections made either in the ceiling or in ducting along the top of the wall.
13. There is no minimum distance between sheets however, sheets must not overlap.
14. There must be a 3cm gap (minimum) to any plumbing.
15. The maximum recommended operating temperature of the film is 50C.

## Power supply setup and connections

Use a junction box to join the cables if there are too many wires for the power supply ensuring the correct cable sizes are used to accommodate the combined loading and to

avoid possible voltage drop.

It is recommended that the wiring for the wall film is fed to the power supply using a duct adjacent to the floor. Ducts are available in forms which resemble standard skirting boards which can completely hide the installation.

Always use a suitable crimping tool to ensure a good termination of the wires. Do not use pliers.

The power supply should be placed in a ventilated area to avoid the possibility of overheating.

Ensure that the power supply is mounted according to local electrical regulations in a wet room such as a bathroom etc.

Check that all connections are correct and check voltages on each sheet.

To check the sheets are correctly connected, push the pins of a voltmeter through the plastic and down to the copper electrode at the far end of the terminals. It should read 24 volts.

## Covering the NexGen heating wall film

Note that the installation should be tested before covering, as it will be easier to fault find.

The NexGen heating film must be covered with plaster. Always check with The Heating Company if in any doubt. The following are approved by The Heating Company

- Toupret Fibacryl Movement Crack filler
- Ever build Fill and skim
- Polycell finishing skim

After skimming, the desired finish can be applied to the wall with a level 5 plasterer.

If there are any imperfections after the first skim, thicker layers could be required for final finish.

Following final coating, it is recommended to wait at least 8-10 days before turning on the heating foil system to ensure sufficient drying. If the system is operated at full power too early, cracking may occur in certain types of coverings.

# ADVICE APPLICABLE TO ALL INSTALLATIONS

## Tips use and service

After one year of running, the connections to the power supply and any terminal blocks should be checked and tightened if necessary. Otherwise there are no other maintenance requirements for your system.

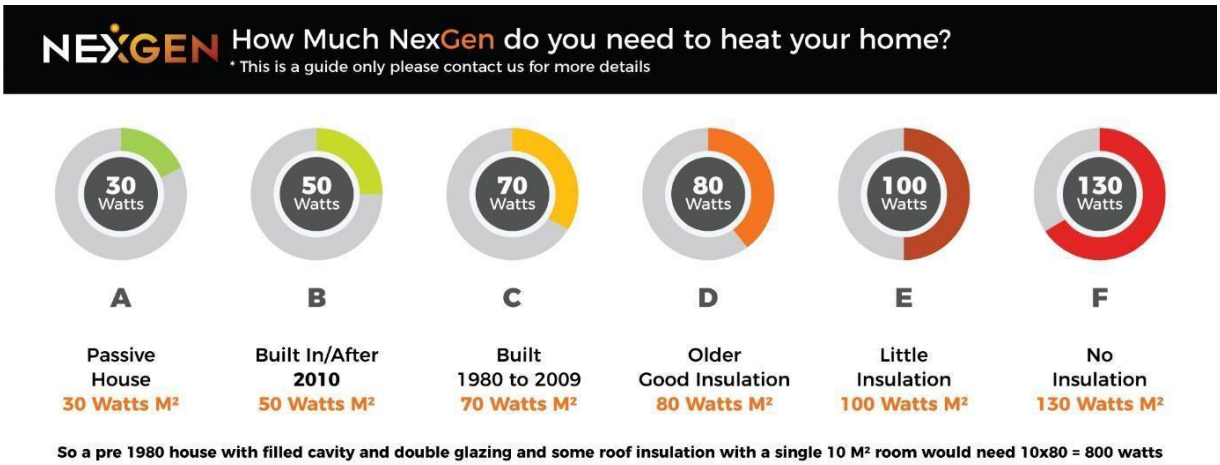
The addition of a programmable thermostat or control allows the system to be programmed/controlled as and when needed. Most brands/types of programmer/thermostat can be used as they are simply fitted to the 230v supply to the power supply. A thermostat is advised to run the heating during summer months or to heat areas subject to strong occasional sunlight.

## Troubleshooting

If a fuse blows, before changing it, the installation must be turned off and the cause should be found. Contact an electrician or the supplier for further information or assistance.

1. Check fuse/trip in mains supply box or plug. Reset or change if necessary.
2. If the system is fitted with a thermostat: Reset the thermostat. The best way is to reset to factory settings and then reprogram to your settings.
3. Reset the thermal fuse in the power supply by turning off the power, wait 2 minutes then turn it back on.
4. The thermostatic power supply contains 1 to 4 fuses. Check and replace if necessary. If any of these are blown, then the circuit of the blown fuse should be checked for faults.
5. If the above hasn't solved the problem then reset the thermostat again and retry.
6. If the problem STILL persists then the thermostat should be checked for faults:
    a. If the thermostat contains batteries, try replacing them.
    b. If it is a wireless type, then try overriding the thermostat at the mains power connection.

## Sizing




## Warnings

IMPORTANT Please do not lay Nexgen in areas including fitted furniture or under baths or showers. ALWAYS CHECK LATEST REGULATIONS. If installing under pet beds or bean bags it would be advisable to use the floor thermostat in that area. IF IN ANY DOUBT PLEASE ASK

### Warranty

All information and advice in relation to product suitability is for general guidance only. We cannot guarantee that any product is suitable for your requirements or that your electrical system has the capacity to safely power the products that you purchase from us.

In some cases, changes to your electrical system may be required. This is your responsibility and

We recommends that you seek the professional opinion of a qualified electrician

before placing your order.

All products must be installed and operated strictly in accordance with the manufacturers guidelines in conjunction with the chosen floor wall or ceiling covering manufacturer. These should take priority over all other information and advice. Failure to do so may compromise your safety and invalidate any manufacturer's guarantee that comes with the Product.

Warranty Card Terms and Conditions

The Heating Company provides a limited 15 year warranty on all Nexgen heat films. A limited warranty on any thermostats, power supplies or cables supplied.

In the case of a defective heating film supplied we will either repair or

replace the defective heating film.

Faults caused by incorrect installation or fitting procedure, misuse or damage caused by others, will not be covered under this warranty. This warranty does not cover installations completed by unqualified electricians.

Under no circumstances is The Heating Company liable for any consequential damages or losses (materials or monetary) associated with the wall or ceiling heating system.

**To complete and activate your warranty your electrician must fill in all Installers/Electrical Installation Details and complete the warranty form at https://www.theheatingcompany.co.nz/warranties.**

Limitations

Under no circumstances will The Heating Company be liable for labour or other charges related to the installation and use of any Nexgen products. This warranty does not cover labour or removal or reinstallation of the product and is void on any product installed improperly, or in an improper environment, overloaded, misused, abused or altered in any manner.

The warranties stated herein are exclusive of all other warranties, written or oral, statutory

express or implied, including any warranties or merchantability and fitness for a particular

purpose, none of which shall apply to the sale of the company's products hereunder. This

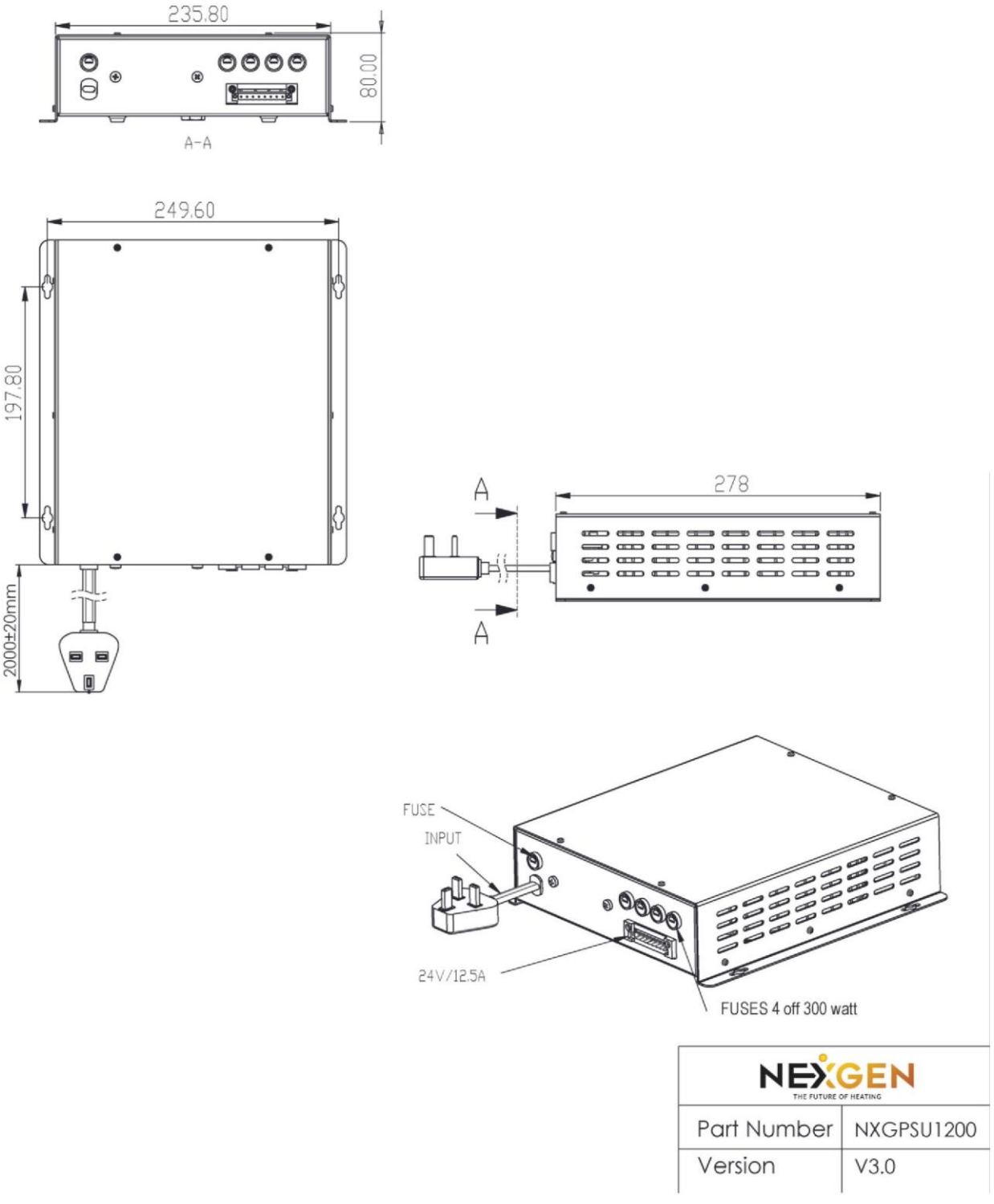
warranty also excludes incidental or consequential damages for breach of any warranty on the products.

Limitations of Liability

The Heating Company shall not be liable for any loss, claim, expense or damage caused by ,

contributed to or arising out of the acts or omissions of buyer or third parties, whether negligent or otherwise. In no event shall The Heating Company be liable for any cause of action whatsoever exceeding the cost of the product giving rise to the claim, whether based in contract, warranty, indemnity or tort (including negligence and strict liability) or otherwise. In no event shall The Heating Company be liable for any special, incidental, consequential or other such indirect damages (including, without limitation, loss of revenue, profits or opportunities), whether arising out of or as a result of breach of contract, warranty, tort (including negligence), strict liability or otherwise.

## PSU Dimensions 1200 Watt




| NEXGEN THE FUTURE OF HEATING | |
|---|---|
| Part Number | NXGPSU1200 |
| Version | V3.0 |

# TECHNICAL DATA

| | |
|---|---|
| Voltage range | 12 to 24 volts DC or AC RMS |
| Normal operating voltage | 24 volts |
| Nominal sheet resistance | 11.5 Ohms +/- 1 Ohms per square |
| Efficiency | 100% |
| Nominal thickness | 500um |
| Temperature range | -20C to +60C |
| Maximum voltage | 50 volts (thermal dissipation must ensure max temp not exceeded) |
| Dimensions | Active width 53cm<br>Total width 60cm |
| Power output at 24 volts | 82 Watts per metre length<br>136 Watts per m² at nominal resistance |
| 1 m² Length | 166cm length equates to 1 m² |
| Termination | 6.3mm tinned copper crimp blade |
| Maximum current | 15 Amps – equates to length of 3.71m at nominal resistance and 24 volts |
| Maximum length | 3.71 metres at 24 volts, determined by maximum current rating above |
| Composition | Non-woven PET fabric surfaces<br>Internal PE + carbon nanocomposite active layer Copper busbars |
| Surface material | Non-woven PET fibre fabric |
| Weight | 254g per metre length |
| Approval | CE |

Note that due to manufacturing variations and local mains voltage variations when operated on unregulated transformers or power supplies, the resistance / power output should be checked before first use to ensure the power supply cannot be overrated