

Floor heating LARX Heating Mat

Installation manual

A simple solution for efficient heating in households, under ceramic tiles

| Type | Width [m] | Length [m] | Area [m ²] | Power per area [W/m ²] | Power [W] | Electrical resistance [Ω] |
|----------------------|-----------|------------|------------------------|------------------------------------|-----------|---------------------------|
| LARX-HM160W050S0200L | 0,5 | 2,0 | 1,0 | 160 | 160 | 330 |
| LARX-HM160W050S0300L | 0,5 | 3,0 | 1,5 | 160 | 240 | 220 |
| LARX-HM160W050S0500L | 0,5 | 5,0 | 2,5 | 160 | 400 | 132 |
| LARX-HM160W050S0800L | 0,5 | 8,0 | 4,0 | 160 | 640 | 83 |
| LARX-HM160W050S1200L | 0,5 | 12,0 | 6,0 | 160 | 960 | 55 |
| LARX-HM160W050S1600L | 0,5 | 16,0 | 8,0 | 160 | 1280 | 41 |

LARX Heating Mat power tolerance is 10 %.

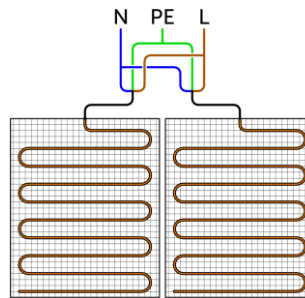
Package content

- > LARX Heating Mat (1 piece) with power cables
- > Installation manual and Warranty certificate

Mandatory installation conditions

- > LARX Heating Mat must be installed and used according to the valid local standards and requirements in that country.
- > LARX Heating Mat is designed to be installed wet way. Fixation of the heating cable to the net is only supportive for the installation.
- > Inside the floor construction under LARX Heating Mat must be a waterproofing to prevent raising humidity to LARX Heating Mat. Humidity of the ground must be less than 2 %. LARX Heating Mat must not be installed on constructions with excessive humidity.
- > The ground for installation of LARX Heating Mat must be flat, without unevenness and dirt.
- > LARX Heating Mat must be protected against damage during installation and after.
- > Individual LARX Heating Mat pieces must not cover each other. LARX Heating Mat cannot be installed over expansion joints and under door.
- > The minimum space between heating cables is 3 cm.
- > It is not possible to place LARX Heating Mat under non-movable furniture and bathroom equipment.
- > LARX Heating Mat cannot be installed in temperatures under 3 °C and exposed to temperatures over 60 °C.
- > LARX Heating Mat cannot be covered by flooring or a barrier with thermal resistance higher than 0,14 m²K/W.
- > The installation must allow electrical disconnection of all poles of LARX Heating Mat, the distance of the disconnected contacts must be at least 3 mm.
- > The power circuit must have an RCD with I_{Δn} = 30 mA (especially bathrooms). Grounding must be correctly connected.
- > After installation it must be checked that insulation resistance between heating cable and integrated grounding is higher than 0,5 Mohm.
- > Every supplier and user must be instructed to avoid drilling, digging, or nailing into floor with LARX Heating Mat.
- > During installation can be used only construction chemistry suitable for floor heating.
- > In the switchboard of the heating system must be placed filled and signed Warranty certificate. In the switchboard must be information indicating floor heating.
- > User must be instructed how to operate LARX Heating Mat.
- > Installation and use of LARX Heating Mat must fulfil conditions listed in this manual. Other installation and use can be dangerous, and the warranty is void.

Connecting two LARX Heating Mats



Parallel connection

Standard, full power, any number of strips up to 10 A, when connecting in parallel different strip lengths can be connected

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

Heating regulation

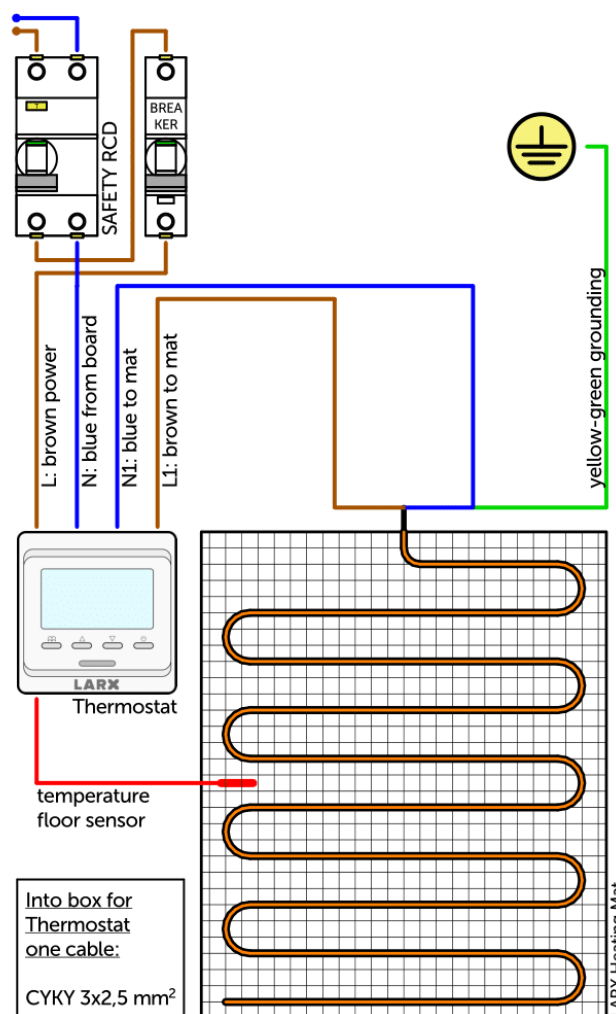
Floor heating LARX Heating Mat must be controlled by a thermostat with a floor sensor. The floor sensor must limit the maximum floor temperature in living rooms according to the local standards.

The current through the thermostat must not exceed 80 % of the nominal maximum current indicated on the thermostat.

A suitable regulation is at www.carbon-film.com/regulation

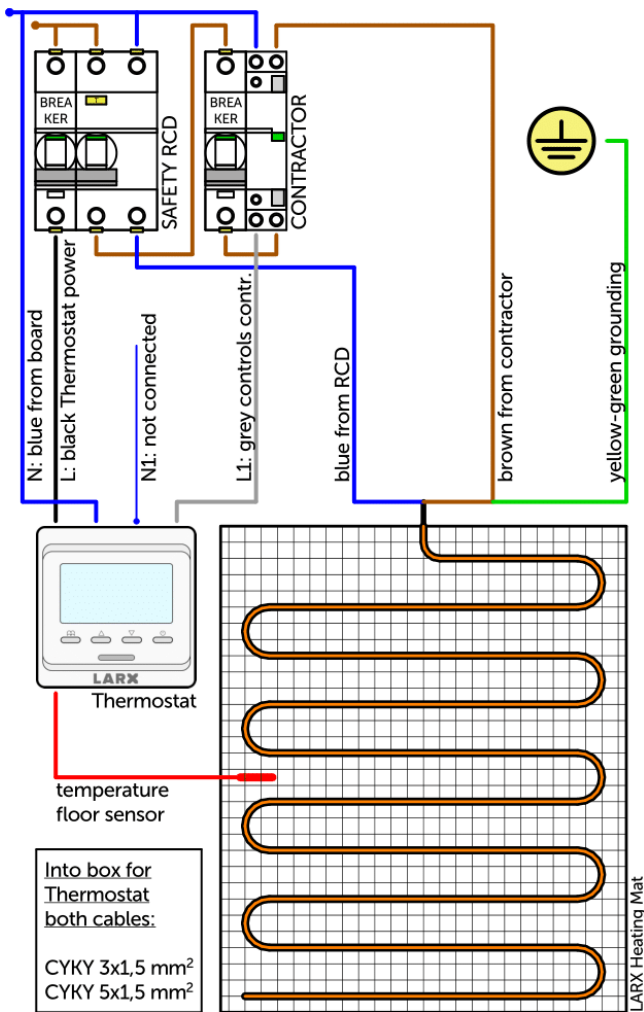
Simple way of switchboard connection

Basic way. Thermostat directly switches heating mat power.



Recommended way of switchboard connection

More complicated but more convenient way of connection. Thermostat only controls contractor in switchboard. The contractor switches heating mat power. The advantage is extended life of the thermostat and more possibilities.

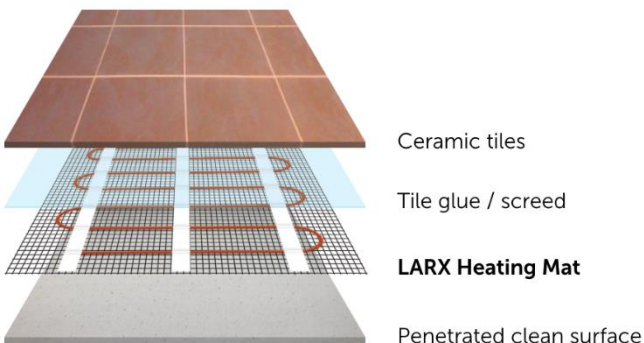


Note: Outputs marking is valid for LARX LCD Thermostat. For other thermostats check their manual.

Recommended minimal floor thermal insulation

| Floor positioning | Polystyrene thickness |
|--------------------|-----------------------|
| On terrain | 60 mm |
| Above cellar | 60 mm |
| Above heated space | 20 mm |
| Above exterior | 100 mm |

Application under ceramic tiles



Installation procedure

1. Prepare a penetrated cleared floor without unevenness.
2. Measure electrical resistance according to the Warranty certificate.
3. Lay LARX Heating Mat in the designated place. Never use nails or screws.
4. Power cables should not cross.
5. In the case of more LARX Heating Mat in one room it is possible to connect them in parallel up to maximum current 10 A (2 300 W). The best way to connect them is inside a wiring box using e.g. WAGO.
6. For floor heating it is necessary to place a floor temperature sensor of the thermostat at least 20 cm into the heated area. It must be placed into a flexible glue near LARX Heating Mat (sensor is sold with thermostat).
7. Check everything and glue ceramic tiles according to instructions of the manufacturer. Be careful to avoid damage of LARX Heating Mat.
8. Measure the electrical resistance according to the Warranty certificate.
9. Professional person with the electrician certificate connects LARX Heating Mat inside a wiring box or a thermostat.
10. Draw the position of every LARX Heating Mat, cable, connection, and device into the Warranty certificate.

First heating

- > On the first day set the floor temperature to current room air temperature (but maximum 18 °C).
- > In the following days increase the floor temperature gradually by 2 °C per day up to 28 °C.
- > Keep the floor temperature at 28 °C for next three days.
- > Then lower the floor temperature by 4 °C per day to 20 °C.

Warranty

Supplier of LARX Heating Mat provides a warranty on its operation for 2 years. The warranty period starts from the date of its installation, but not later than 6 months from the date of its sale.

Also, these conditions must be fulfilled:

- > Mandatory installation conditions and installation procedures in this manual have been fulfilled without an exception.
- > Installation has been done by a professional person with the electrician certificate.
- > Filled and signed Warranty certificate is submitted.
- > LARX Heating Mat delivery note, or invoice is submitted.
- > LARX Heating Mat has not been damaged by its user or a third person.

The Complaints procedure is at www.carbon-film.com/complaints-procedure

For more information



www.carbon-film.com/larx-heating-mat

info@carbon-film.com

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