Floor heating

LARX Carbon Kit eco

Installation manual

A simple solution for efficient heating in households, for dry installation

Type	Width [m]	Length [m]	Area [m²]	Power per area [W/m²]	Power [W]	Electrical resistance [Ω]
LARX-CKE100W050S160L	0,5	1,6	0,8	100	80	661
LARX-CKE100W050S200L	0,5	2,0	1,0	100	100	529
LARX-CKE100W050S260L	0,5	2,6	1,3	100	130	407
LARX-CKE100W050S300L	0,5	3,0	1,5	100	150	353
LARX-CKE100W050S360L	0,5	3,6	1,8	100	180	294
LARX-CKE100W050S400L	0,5	4,0	2,0	100	200	265
LARX-CKE100W050S500L	0,5	5,0	2,5	100	250	212
LARX-CKE100W050S600L	0,5	6,0	3,0	100	300	176
LARX-CKE100W050S800L	0,5	8,0	4,0	100	400	132
LARX-CKE100W050S10XL	0,5	10,0	5,0	100	500	106

LARX Carbon Kit eco power tolerance is 10 %.

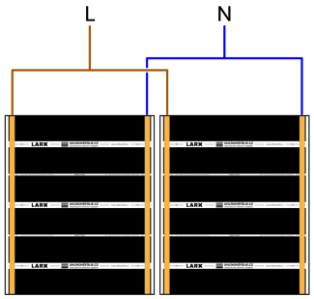
Package content

- LARX heating film (1 stripe) with power cables
- Installation manual and Warranty certificate
- Switchboard sticker
- Round insulation stickers for cutting edge after shortening

Mandatory installation conditions

- LARX Carbon Kit eco must be installed and used according to the valid local standards and requirements in that country.
- LARX Carbon Kit eco is designed to be installed dry way. It must be fixed to the ground in a suitable way to prevent its displacement.
- Inside the floor construction under LARX Carbon Kit eco must be a waterproofing to prevent raising humidity to LARX Carbon Kit eco. Humidity of the ground must be less than 2 %. LARX Carbon Kit eco must not be installed on constructions with excessive humidity.
- The ground for installation of LARX Carbon Kit eco must be flat, without unevenness and dirt. LARX Carbon Kit eco can't be bent.
- LARX Carbon Kit eco must be protected against damage during installation and after.
- Individual LARX Carbon Kit eco strips must not cover each other. LARX Carbon Kit eco can't be installed over expansion joints and under door.
- LARX Carbon Kit eco can be cut every 20 cm following cut markings and then insulated. It is not allowed to make holes in it.
- It is not possible to place LARX Carbon Kit eco under non-movable furniture and bathroom equipment.
- LARX Carbon Kit eco can't be installed in temperatures under 3 °C and exposed to temperatures over 60 °C.
- LARX Carbon Kit eco can't be covered by flooring or a barrier with thermal resistance higher than 0,14 m2K/W.
- LARX Carbon Kit eco must be over the entire surface covered by a PE film with minimum thickness 0,2 mm and minimum overlap 10 cm. The PE film must fulfil the local standards for electrical isolation (protection class II).
- The installation must allow electrical disconnection of all poles of LARX Carbon Kit eco, the distance of the disconnected contacts must be at least 3 mm.
- The power circuit must have an RCD with I∆n = 30 mA.
- Every supplier and user must be instructed to avoid drilling, digging or nailing into floor with LARX Carbon Kit eco.
- 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 glued a label indicating floor heating.
- User must be instructed how to operate LARX Carbon Kit eco.
- Installation and use of LARX Carbon Kit eco must fulfil conditions listed in this manual. Other installation and use can be dangerous, and the warranty is void.

Connecting two LARX Carbon Kits eco



Parallel connection

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

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

Heating regulation

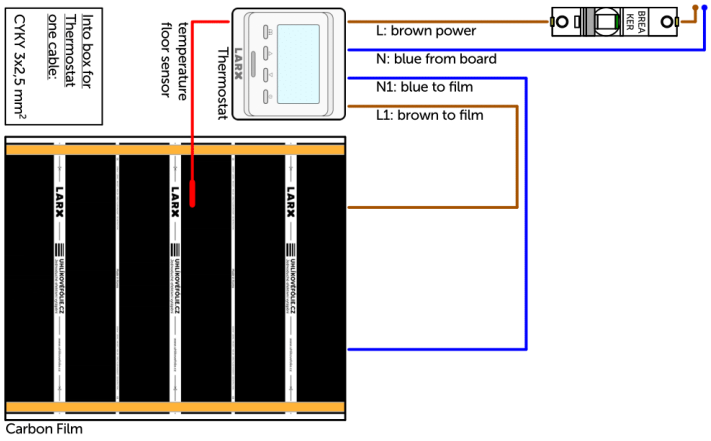
Floor heating LARX Carbon Kit eco must be controlled by a thermostat with a floor sensor. The floor sensor must limit the maximum floor temperature in living rooms according to the local standards.

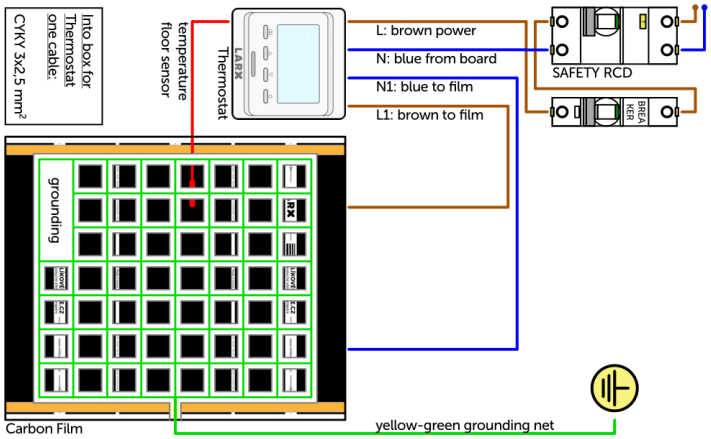
The current through the thermostat must not exceed 80 % of the nominal maximum current indicated on the thermostat.

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

Simple way of switchboard connection

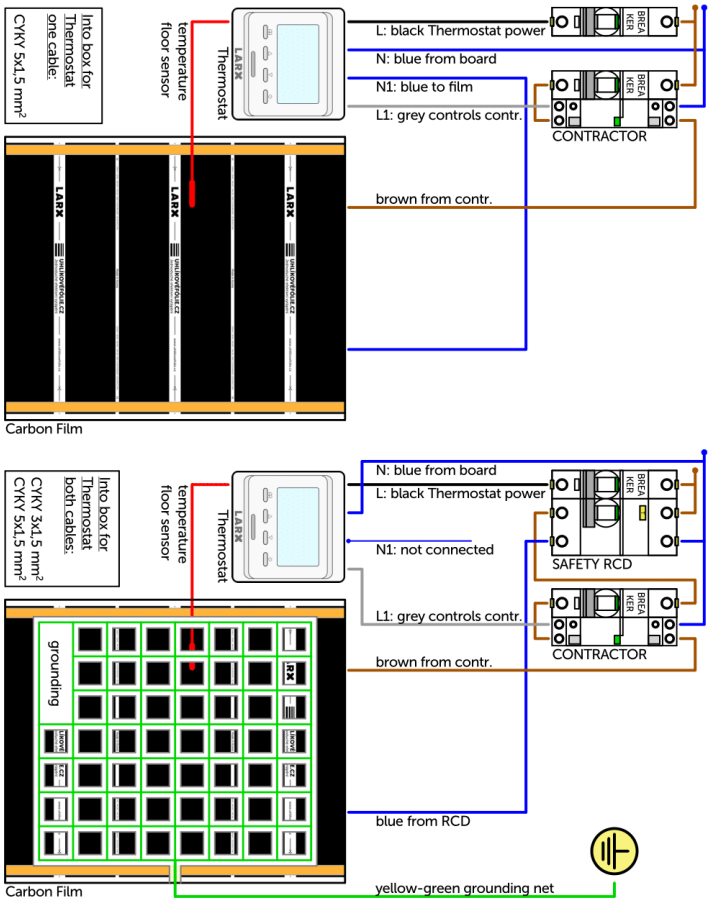
Basic way. Thermostat directly switches carbon film power.





Recommended way of switchboard connection

More complicated but more convenient way of connection. Thermostat only controls contractor in switchboard. The contractor switches carbon film 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 directly under floating flooring

Installation procedure

1. On a cleared floor without unevenness place an acoustic insulation (e.g. hobra). It serves also as a thermal insulation. The LARX Carbon Kit eco power cables are laid into grooves in this acoustic insulation.
2. Measure electrical resistance according to the Warranty certificate.
3. If required, LARX Carbon Kit eco can be shortened at the end without cables. Cut by scissors following cut markings. Never cut into black areas. After cutting it is necessary to re-insulate the cutting edge at the place of copper bars – use round stickers.
4. Lay LARX Carbon Kit eco in the designated place and fix it against displacement in a suitable way (e.g. tape). Never use nails or screws.
5. Prepare grooves in the acoustic insulation and lay the power cables into them. The cables are not allowed to cross and must be fully imbedded.
6. Professional person with the electrician certificate connects LARX Carbon Kit eco inside a wiring box or a thermostat.
7. In the case of more LARX Carbon Kit eco 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.
8. For floor heating it is necessary to place a floor temperature sensor of the thermostat. It must be placed into a groove directly under LARX Carbon Kit eco (sensor is sold with thermostat).
9. Cover all LARX Carbon Kit eco with a PE film with minimum thickness 0,2 mm and minimum overlap 10 cm.
10. Measure the electrical resistance according to the Warranty certificate and draw the position of every LARX Carbon Kit eco, cable, connection and device.
11. Check everything and lay flooring with click system according to instructions of the manufacturer. Be careful to avoid damage of LARX Carbon Kit eco.

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 Carbon Kit eco 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 Carbon Kit eco delivery note or invoice is submitted.
- LARX Carbon Kit eco 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-carbon-kit

info@carbon-film.com

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