Installation Instructions for Carbon Heating Film

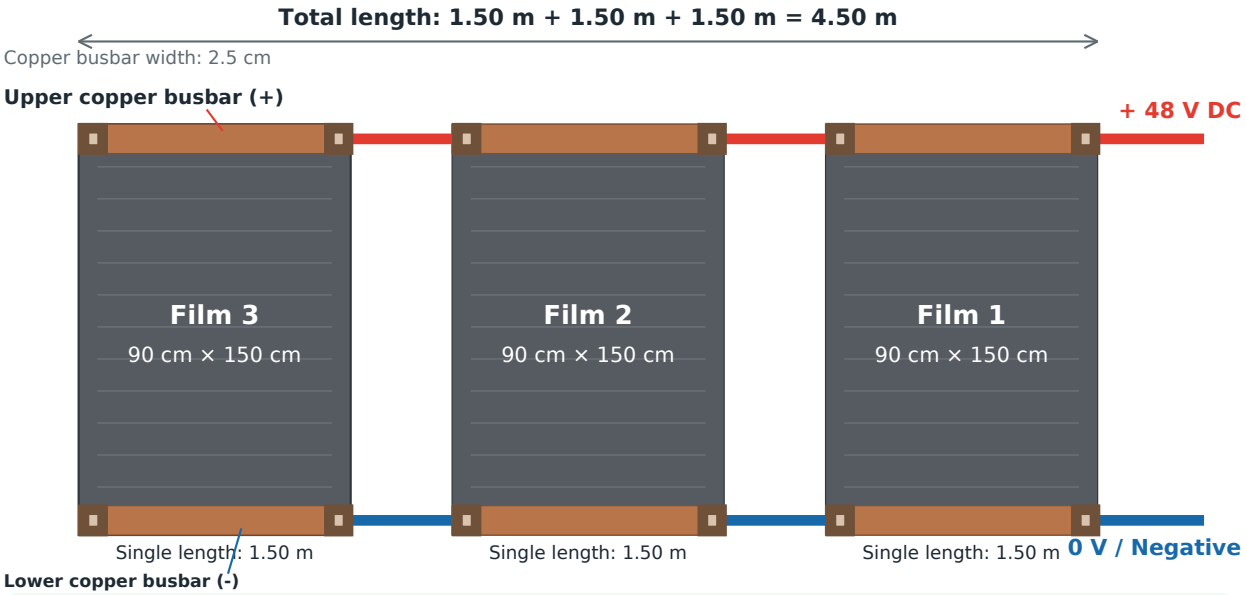
Wall and ceiling installation | 48 V DC | Wiring diagram and installation notes

Important technical requirements

- Maximum length of a single heating strip: 3.50 m
- Maximum total length per heating circuit with 2.5 mm² supply cable: 5.50 m
- Electrical connection: parallel - upper copper busbars to positive, lower copper busbars to negative
- Larger areas must be divided into several separately protected heating circuits

✓ CORRECT INSTALLATION - ELECTRICALLY IN PARALLEL

Example: 3 film sections of 1.50 m



Permitted: Each strip ≤ 3.50 m; total of all strips in the circuit ≤ 5.50 m.

All upper copper busbars are interconnected; all lower copper busbars are interconnected.

Not permitted: electrical series connection.
Positive and negative copper busbars must never be connected to each other.

Operating principle: The film sections may be arranged physically in a row, but they are electrically connected in parallel. Therefore, the full operating voltage of 48 V DC is applied to every film section.

Installation procedure

Safety: Planning, connection, measurement and commissioning of the electrical installation may only be carried out by a qualified electrician in accordance with the approved heating circuit and cable schedule.

1. Prepare the substrate

The substrate must be dry, solid, level and load-bearing. For ceiling installations, the structure must be sufficiently stable. Completely remove dust, dirt, oil and loose material; apply a suitable primer where required.

2. Mark the heating areas

Mark the position and length of each individual film strip on the wall or ceiling. The maximum individual length of 3.50 m and the permitted total length of the respective heating circuit must be observed.

3. Plan the cable routes

Define the cable routes from the control cabinet to the heating films and the bridges between the individual film sections. Clearly identify the positive and negative cable routing.

4. Create cable channels

Create the necessary cable channels or cable routes in the wall or ceiling. Protect cables against mechanical damage and avoid areas intended for later drilling or fixings.

5. Lay the supply cables

Lay the specified copper cables from the control cabinet to the heating areas. For the heating circuit described here, a 2.5 mm² cable may only be used within the approved load, length and installation conditions.

6. Make the connections

Use suitable tools to attach the crimp contacts correctly to the copper busbars and cables. Check every contact for secure seating and correct polarity.

7. Install the heating film

Bond the heating film evenly over the full surface without folds or air pockets. Film strips must not touch or overlap.

8. Connect the heating films electrically in parallel

Interconnect all upper copper busbars of the films in one heating circuit and connect them to + 48 V DC. Interconnect all lower copper busbars and connect them to 0 V / negative. Positive and negative must never be interconnected between film sections. The total length is the sum of all individual strips in the heating circuit and must not exceed 5.50 m.

9. Check resistance and circuit assignment

Measure and document the resistance of every heating circuit and compare it with the calculated target value. Also check polarity, assignment to the correct control channel and secure seating of every connection. Continue only when all readings are correct.

Completion and testing

10. Cover the heating film

Completely cover the heating film with suitable gypsum plaster or filler in accordance with the manufacturer's instructions. Observe the permitted layer thicknesses and the requirements of the coating system used.

11. Insulate and secure all connections

Permanently insulate all electrical connections correctly and protect them against moisture and mechanical stress. No contact point may remain exposed.

12. Connect thermostat and control system

Connect the thermostat and control cabinet according to the approved circuit diagram. Every heating circuit must be clearly assigned to the correct room or control channel.

13. Ensure a heat-insulating substrate

Install the heating film on a substrate that is suitable for the system, heat-insulating and sufficiently temperature-resistant. The exact build-up must be compatible with the wall or ceiling construction.

14. Check bonding and fixation

Check the entire area for even bonding, secure adhesion and absence of air pockets. Damaged films must not be installed or covered.

15. Observe requirements in special areas

In wet rooms, around built-in components and near other electrical equipment, comply with the applicable protection zones, IP requirements and manufacturer instructions.

16. Carry out the final electrical test

After installation, test and document resistance, insulation, polarity, current draw and heating output of every heating circuit. Testing must be completed before the final covering is closed and repeated before commissioning.

17. Observe the drying time

Allow plaster, filler and all further coatings to dry completely in accordance with the manufacturer's instructions. The heating system may only be commissioned after approval by the responsible qualified electrician.

> Mandatory connection rule: Upper copper busbars = positive. Lower copper busbars = negative. Multiple film sections in one heating circuit are connected electrically in parallel.

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