



SURFACE HEATING

Electric Switch and Control Cabinets

Klöpfer-Therm designs and manufactures specified switch and control cabinets in various designs – for nearly all types of electric surface heating.

By the installation of electronic controllers, heating systems can be controlled in dependence of temperature and/or humidity. Arising disruptions during the control of temperature measuring sensors such as e.g. a falling below temperature, can be signalled or transmitted via indicator lights and/or dry contacts. The operating conditions of each heating circuit in the cold store is indicated by LED-indicator lights. Via keylock or push buttons, all heating circuits can be checked quickly and simply. You can easily get an overview about economic efficiency and energy consumption of your heating system incl. documentation with an operating hours counter or energy meter.

Switch and control cabinets can be operated within a temperature range of 0 °C up to +40 °C. For temperatures below 0 °C, additional thermostat-controlled heating systems are mounted. All installed components are labelled and ready wired for connection on terminals upon delivery.

Switchboard panels made by Klöpfer-Therm – as individual as your requirements.

Applications:

Low-voltage switchgear and controlgear assemblies made by Klöpfer-Therm for controlling:

- ▶ frost heave protection heating
- ▶ public and private outdoor surface heating for e.g. traffic routes, roads, driveways, exits and stairs
- ▶ outdoor surface heating in industrial plants
- ▶ heating systems within domestic applications (gutters, downpipes and drains)
- ▶ floor heating systems

Technical Data

Nominal voltage:	1/N/PE 230 V AC / 50 Hz or 3/N/PE 400 V AC / 50 Hz
Types of protection:	IP54, IP65
Designs:	wall-mounted distribution board for on-wall installation, floor-mounted distribution board, with or without transparent door
Case:	thermoplastic, colour: RAL 7035; steel plate, RAL 7035 coated; stainless steel 1.4301
Individual equipment:	temperature controller, differential temperature controller, ice and snow detector, NH-fuse switch disconnecter, power and load disconnecter, miniature circuit breaker, residual current devices (RCD), overcurrent circuit breakers, contactors, overvoltage protection, switching and alarm devices (e.g. indicator lights), counter and measuring devices (voltmeter and ammeter, operating hour meter), mains monitoring relay with or without LCD-display), monitoring devices, additional fuse outputs for door frame heating, lighting, pressure discharge valve etc.

Different design sizes according to customers' requirements.

Klöpper-Therm switchboard and control panels are manufactured and tested according to relevant directives and technical standards.

Application Example for Switchboard Panel:

- ▶ Cold store with electrically heated floors and foundations, walls, column bases and heads as well as concrete heating systems in sluices and door areas, floor space 2,000 m² approx.
Design as floor-mounted distribution board incl. base and transparent doors, steel plate, wired ready for connection on terminals and labelled

Equipment:	<ul style="list-style-type: none"> ▶ temperature controller incl. display and monitoring system ▶ NH-fuse switch disconnecter ▶ residual current device ▶ miniature circuit breaker ▶ contactors ▶ universal screw-type terminals (circuit and terminal block)
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Basic Control Panel KT 1

For connection of a heating mat with nominal voltage 230 V AC and a temperature sensor.

Equipment:	<ul style="list-style-type: none"> ▶ on-off temperature controller type 1780 incl. display ▶ miniature circuit breaker ▶ current display incl. miniature fuse for heating mat ▶ universal screw-type terminals (circuit and terminal blocks)
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Basic Control Box KT 2 with Individual Extensions

For connection of two heating mats with nominal voltage 230 V AC and two temperature sensors.

Equipment:	<ul style="list-style-type: none"> ▶ on-off temperature controller type 1780 incl. display ▶ miniature circuit breaker ▶ current display with miniature fuse for heating mat ▶ fuse outputs for door frame heating, lighting, pressure discharge valve ▶ universal screw-type terminals (circuit and terminal block)
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Klöpper-Therm offers complete electrical heating systems from planning to installation.

Components matched with each other guarantee trouble-free and economic operation.

All services from one source.

