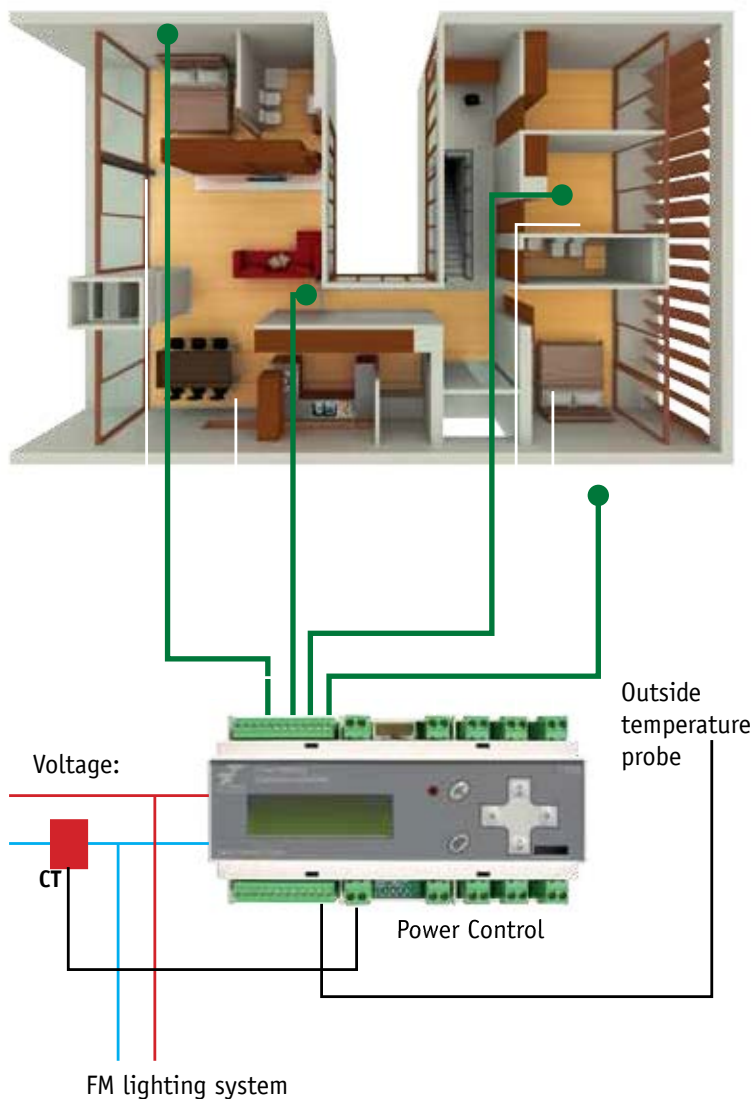




Temperature Control T705 Power Control Unit T706 Output Expansion Pack



Thermal Technology® heating systems are usually controlled by room thermostats acting directly on the heating element by means of a relay.

If a Thermal Technology® heating system is installed in more than one room, an electronic control unit is recommended. Thermal Technology has developed a current draw reducing control unit. This analyses the actual power consumption of the system at every moment. In case of over-absorption, the unit switches off the connected fixtures according to the priorities established by the user, thus avoiding a power shut off. This results in a permanent control of consumption and in reduced management costs.

The Power Control unit controls up to 14 outputs and operates in combination with the thermostat or temperature probe of each single area (we recommend using a thermostat/probe in every room). While establishing priorities, not only the heating system outputs are taken into account, but also common electrical appliances such as the washing or dish-washing machine or the oven, so that these can be switched off in case of over-absorption.

The Power Control unit also modulates heating ignition through an outdoor probe.

How it works

The control unit powers the various areas to be heated. Each output is connected to a heating carpet or a wall heater and is associated to a thermostat (or wall probe). If the thermostat/probe requires heating, the control unit activates the circuit.

If the number of thermostats requiring heating causes pre-set On, Eco or Start absorption peaks to be exceeded, the control unit will activate fewer outputs and start a cyclic activation programme. This programme orders timed operation of individual outputs while allotting longer operation time to prioritized outputs (1=high priority, 3=low priority).

As the Power Control software is aware of the degree of absorption of the whole system, it will limit overall absorption values so that they do not exceed the boundaries set by the meter.

Modulation working

Modulation working requires an outside temperature probe and individual in-room probes.

A calculated value from 0 to 100 based both on outside and inside temperature is assigned to each output.

The maximum heat loss under minimum design temperature conditions should be calculated for each building. This information is the starting point for establishing the rated voltage of the heating system (with a small additional percentage).

Heat loss is reduced proportionally with the minimum design temperature increase, so the room can be heated with a lower voltage than the rated one.

The Power Control unit is provided with relay outputs, so it is not

Code	Description
T705.0.000.000	Indoor Power Control Unit
T706.0.000.000	Power Control unit expansion pack

SPECIFICATIONS:

- Voltage: 12V AC/DC
Absorption: Max 1.5A
Size: 9 DIN-rail sockets (+4 with T706 expansion pack)
8 inputs to connect to a voltage-free thermostat contact (common +12V)
8 NTC 10K (AT-103AT) inputs (common to the probe earth +5V) (configurable as a thermostat input)
8 one-way relay outputs, 8A 230 VAC voltage-free contact (resistive load)

Each relay output can be specifically configured for the heating system or to cut out other fixtures which should not be included in the thermostat programme.

TA transformer input (C,T1 clamps):

- 0-50 A (0-5V) (tolerance 0,2A)

Ports:

- Slave RS485 Port, Modbus protocol
- CanBus Port, remote IO extension proprietary protocol

possible to reduce power by cutting half waves. The output can actually be either switched on or switched off.

In order to reduce the system power (e.g. to 70%), one output remains switched on 7 minutes out of 10.

This reduces both heat mass and power consumption.

How to calculate working percentage

If the outside temperature is the same as the design temperature (e.g. -5°C), the working percentage will be 100%. If the outside temperature is higher than the design temperature, working temperature will be lower as heat loss is lower.

System power control by means of a current transformer (for single-phase systems only)

A current transformer (CT) allows to measure and display the current running in the system. It is installed upstream of the main switch so that the power absorption of all domestic appliances (both heating and household equipment) is measured.

This additional monitoring helps minimize energy absorption, which can be set to not exceed a given number of absorbed Watts.

In this way, besides the advantage of limiting consumption, the Power Control unit allows for some power to be permanently available for additional electrical or domestic appliances.

FUNCTIONS

- Instantaneous power absorption control of the system thanks to a current transformer (CT);
- Load cut-off with priority scale (heating system or other domestic fixtures);
- Modulated working of the heating system thanks to an outside temperature probe;
- Timer-set night attenuation;
- 8 thermostat inputs;
- 8 probe/thermostat inputs;
- 8 8A relay outputs with expansion module providing 6 more outputs.

Output expansion pack - T706



Power Control - T705

