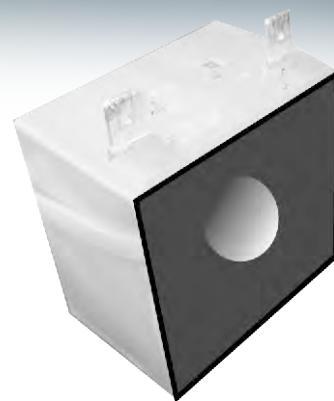
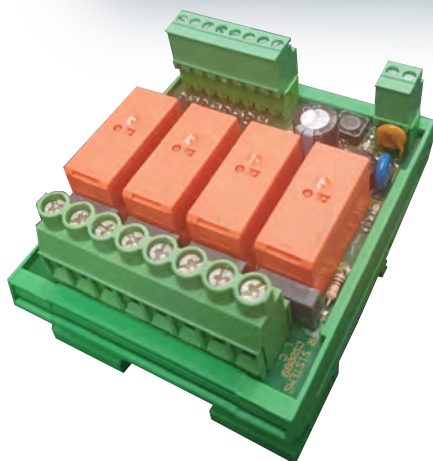


DATA SHEET

HEAT ROOM CONTROL



HEAT ROOM CONTROL

The **Power Manager Control is an advanced device** designed to efficiently and safely manage and control room heating. This system uses a microcomputer to monitor **and regulate the power distributed to different heating zones**, ensuring optimal energy use.

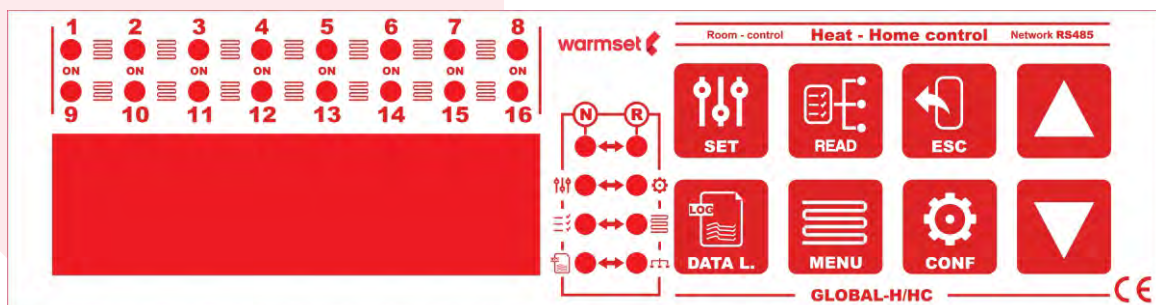
The device features an intuitive user interface with 8 keys and 5 LED displays, allowing **easy access to parameters and settings**.

The **control unit consists of the main unit**, a TA module for current reading (which can be integrated with two additional modules for three-phase systems), a 12V power supply transformer, and relay modules with 4 outputs (16A for each module). The control unit can manage **up to 4 relay modules for a maximum of 16 inputs**.

The 4-zone control system allows precise and **independent management of different heating areas**, optimizing energy efficiency and improving user comfort. Communication via RS485 Modbus enables remote control of the device, facilitating integration with other automation systems.

In case of power excess, the Power Manager Control is designed to **automatically shut down the relays, preventing overloads** and ensuring system safety. Additionally, the device offers manual ignition, bypassing power excess control for emergency or specific needs.

The included MODU-4RL relay module consists of 4 relays of 16A each, allowing flexible and powerful output management. The device complies with European Union directives, ensuring compatibility and safety according to standards EN61000-6-2:2005, EN61000-6-4:2007, and 2004/108/CE.



WORKING EXAMPLE

The control unit is a device designed to **manage temperature control** in different rooms, optimizing the use of electrical energy. This system prioritizes the coldest rooms and adjusts the heating **based on the difference between the ambient temperature and the desired set point**.

In this example the control unit has a total installed power of 8.5 KW, but the electric meter is sized for 6 KW. To ensure safe and efficient operation, the maximum usable power has been set at 4 KW.

Operating Logic

The operation of the control unit is based on some key logics:

Maximum Load Threshold: The sum of the loads must not exceed the maximum threshold set at 4 KW.

Heating Priority: The control unit prioritizes the coldest rooms, i.e., those with a temperature difference greater than 1 °C compared to the set point. Rooms that are already close to the set point receive less priority, while those that have already reached the desired temperature are not heated.

Rotation Recalculation: Once the set point is reached in a room, the control unit recalculates a new rotation based on the coldest room.

Heating Cycles

The control unit manages heating through three main cycles:

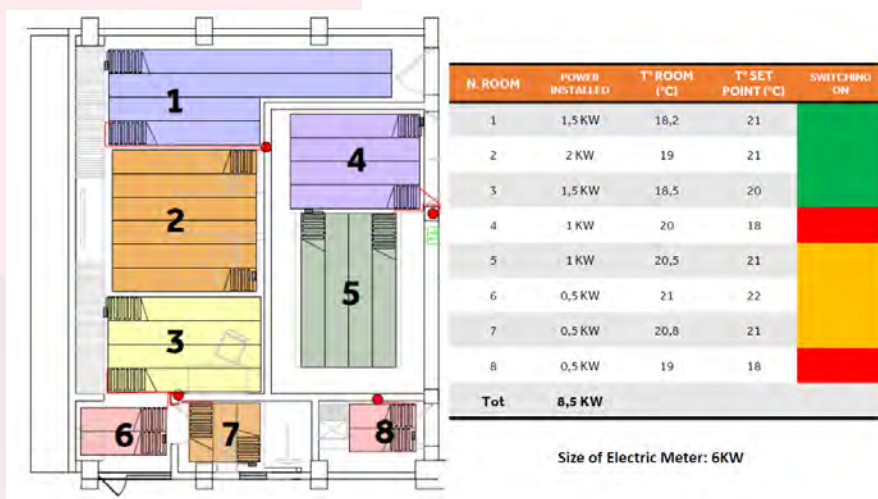
Cycle 1: Rooms 1, 2, 3, 5, 6, 7, 8

Cycle 2: Rooms 2, 3, 6

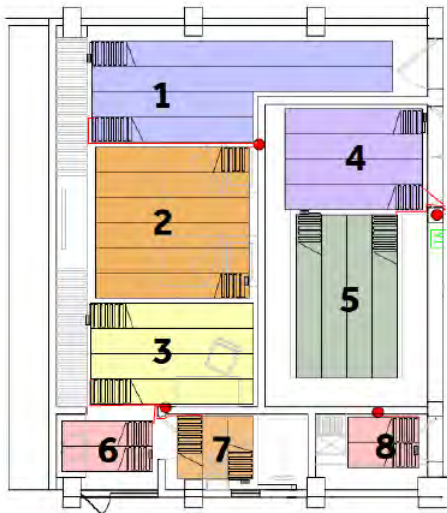
Cycle 3: Rooms 1, 3, 6

Usage Management

When appliances such as the washing machine, oven, or hairdryer are turned on, the system gives absolute priority to these users. In this way, the heating loads are turned off to keep the maximum load below the meter threshold of 6 KW.



Set the maximum usable power in the control unit at 4KW

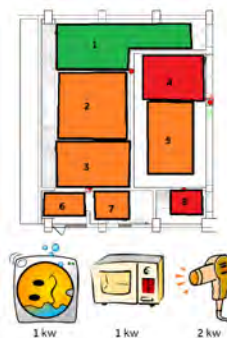


	Delta t° set point - t° room $> 1^{\circ}\text{C}$	➡	I MUST TURN THE ROOM ON → PRIORITY
	Delta t° set point - t° room $< 1^{\circ}\text{C}$ e $> 0^{\circ}$	➡	I MUST TURN THE ROOM BUT I AM ALMOST AT THE SET POINT → NON PRIORITY
	Delta t° set point - t° room $< 0^{\circ}\text{C}$	➡	I'M ALREADY BEYOND THE SET POINT → I DO NOT HAVE TO TURN ON

t° set point = temperature I want to reach
 t° room = ambient temperature



N. ROOM	POWER INSTALLED	Cycle 1	Cycle 2	Cycle 3
1	1,5 KW	10/180		
2	2 KW	10/180		
3	1,5 KW		10/180	10/180
4	1 KW			
5	1 KW		9/180	
6	0,5 KW	9/180		9/180
7	0,5 KW		9/180	
8	0,5 KW			
TOT KW	11,4 KW (max)	4	3	4



N. ROOM	POWER INSTALLED	Cycle 1	Cycle 2	Cycle 3
1	1,5 KW	10/180		
2	2 KW			
3	1,5 KW			
4	1 KW			
5	1 KW			
6	0,5 KW			
7	0,5 KW			
8	0,5 KW			
Washing machine	1 KW			
Oven	1 KW			
Hair-dryer	2 KW			
TOT KW	11,4 KW (max)	5,5	6	5,5

TECHNICAL CHARACTERISTICS

TA Ampere Control: 4-zone control

Operator Interface: Lexan® membrane

Dimensions: H 90 mm, L 156 mm, P 61 mm

Weight: 260g

Power Supply: 230 Vac (other voltages on request)

User Interface: 8 keys, 5 LED displays

Serial Interface: RS485 Modbus

Material: ABS

RAM: 2 Kbyte volatile

Modbus Protocol: 50/60 Hz frequency, asynchronous RS 485 interface

Maximum Consumption: 6 VA

Processor: 8-bit Flash Ram 60 Kbyte non-volatile

Inputs: 16 voltage inputs 220/240vac optoisolated, 3 inputs for CT 1:1000

Outputs: 16 transistors 12v 5mA, external relay outputs