

# MCBOX5

Messana Mbox5 climate controller



## Technical Specification

- NTC 10kΩ@25°C analog Inputs:  
Flow, return, DHW temperatures
- Digital Inputs:  
Alarms, On/Off
- Digital Outputs:  
Thermal actuators, zone valves, pumps, actuators, air units
- Number outputs: 5 zone, 3 pump
- Analog Outputs:  
Mixing valves, servo motors, actuators, fan-coils  
0-10Vdc with 24V power supply for mixing-valves
- Number of outputs: 2 mixing, 3 fan
- Zone bus:  
Air & Radiant temperature, humidity & VOC
- Number of Zones: 5
- Modbus RTU communication outputs:  
Heat pumps, ATU's



## Application

The Messana Mbox5 climate controller is used in heating & cooling systems to control functionality of the system and is installed mostly in plant rooms.

## Warranty

[Download the latest warranty statement](#)

## Features

mBox is a fully programmable controller integrated with the Messana climate control platform and developed with more than 20 years of experience in radiant cooling and heating technology. It connects with mBox via Ethernet or, alternatively, via serial bus (RS485 slave) and it interfaces with the Messana web and mobile App. mBox is powered with a dedicated Emerson programmable I/O module based on a high performance 32-bit ARM9 (200 MHz) microprocessor. mBox integrates a 24Vdc switching power supply (120-230 Vac with 85W output power). The mBox5 connects up to 5 mSense room sensors daisy-chained via serial bus (RS485 master zone bus). mBox modules are typically installed in the plant room. mBox can also control a local mixing and pumping station with a PID close control loop. Based on the current supply fluid temperature, mBox adjusts the position of a proportional 3-way mixing valve and modulates the fluid temperature. Compared to a traditional On/Off control, this technology allows to deliver just enough heating or cooling to avoid temperature swings and oscillations. With the PID control logic the radiant system always achieves optimized performance in terms of energy efficiency and comfort maintaining an accurate and uniform indoor temperature. mBox can also control heating and cooling seasonal changeover (manually or following a schedule) or automatic changeover based on the internal load and external conditions (adaptive-comfort). It works also with hybrid radiant/forced-air cooling and heating systems and can activate fan-coils when supplemental convective integration is necessary.