mControls is the latest in-home climate control technology
Designed by Messana with over twenty years experience in hydronic systems

mZone
Zoning module (available for 8 or 12 zones)

The mZone module connects up to 12 mSense room sensors. It is installed at the manifold location to activate thermal actuators, recirculating pumps, mixing valves, 2-way and 6-way zone valves and air handlers. It is designed for 2-pipe as well as 4-pipe distribution systems capable of simultaneous heating and cooling demand. It also works with hybrid radiant/forced-air cooling and heating systems.

mSense
a new generation of room comfort sensors

mSense measures the three fundamental indoor environmental parameters that influence the wellbeing and thermal conditions of occupants: operative temperature, relative humidity (dew-point) and air quality. In the past, typical room thermostats only provided air temperature as the sole index of thermal conditions in your home.

mBox
HVAC/Radiant automation and control module

The main unit of the home climate control system. Typically installed in the mechanical room, it regulates the home energy flow to deliver optimal Thermal Wellbeing™. It controls energy resources (heat pumps, chillers and boilers) with multi-staging, domestic hot water (DHW), heat recovery ventilation (HRV) based on indoor air quality (IAQ) and neutral temperature dehumidification (NTD).

Integrating radiant cooling and heating into smart homes

One unique control platform for combined radiant and air systems

radiantcooling.com
Control technology to manage your radiant and air systems into one automated cloud solution

Control energy sources for optimized efficiency
- Single-stage or two-stage controls of chillers, heat pumps and boilers. Maintains optimum buffer tank temperature (primary loop) and controls supply temperature (secondary loop) by modulating 3-way mixing valve as function of supply and return temperatures.

Manage ideal indoor humidity for maxim comfort
- Controls humidifiers, dehumidifiers and air treatment units (ATUs) to maintain optimal ThermalWellbeing™.

Improve indoor air quality (IAQ)
- Based on true CO₂ or VOC readings optimizes heat recovery ventilation (HRVs, ERVs) to save energy and improve quality of life.

SMART domestic hot water (DHW) control
- Optimizes multi-stage heating supplies (boiler, solar, heat pump) as well as recirculating pumps through programmed scheduling, temperature and/or room based presence sensors to provide instantaneous hot water supply only when needed.

Control for fan coils
- Gentle control of air handlers as convective integration of the radiant system. Support for major HVAC air handlers (Daikin, Hitachi, LG, Mitsubishi, Samsung)².

Energy Saving advanced features
- Delivers just enough heat (or “cool”, by radiant heat extraction) to meet internal loads avoiding heat pump cycling.

Optimized control for radiant ceiling panel (Ray Magic)¹
- Based on a proprietary technology that optimizes the radiant system performance in terms of energy efficiency and comfort, while and always maintaining an accurate and uniform indoor temperature. It also controls 4-pipe system for simultaneous radiant cooling and heating.

Radiant floor control for both heating and cooling¹
- Controls radiant fluid to maintain a comfortable floor and room temperature.

Monitors advanced room comfort sensors (mSense) to offer unlimited zoning
- Connects with mSense to monitor operative temperature, humidity and indoor air quality (IAQ) to deliver the best comfort in your home.

Integrates with home automation systems and BMS²
- Integrates with Control4, Lutron, Savant, Crestron and many more. BacNet and Modbus compatibility.

Messana App, web and mobile full-system control app
- Gives you full control of your radiant cooling and heating system from anywhere in the world. The easy to use, at your fingertips interface manages even the most sophisticated systems. It fits seamlessly into your life to provide the perfect ThermalWellbeing™ precisely when and where you want it.

mConnect remote monitoring service for VIP clients
- Helps propriety managers and homeowners to control HVAC systems in high-end residences.

Other unique features
- Universal schedules applicable to different functions. Historical data analysis (mGraph) with custom templates. Setback function to use less energy when you are away or sleeping.

Notes
1. Based on proprietary PID control logic technology to modulate radiant fluid temperatures so that surfaces always stay above the room dew point temperature to prevent condensation.
2. Requires additional gateway module (CoolMasterNet).
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