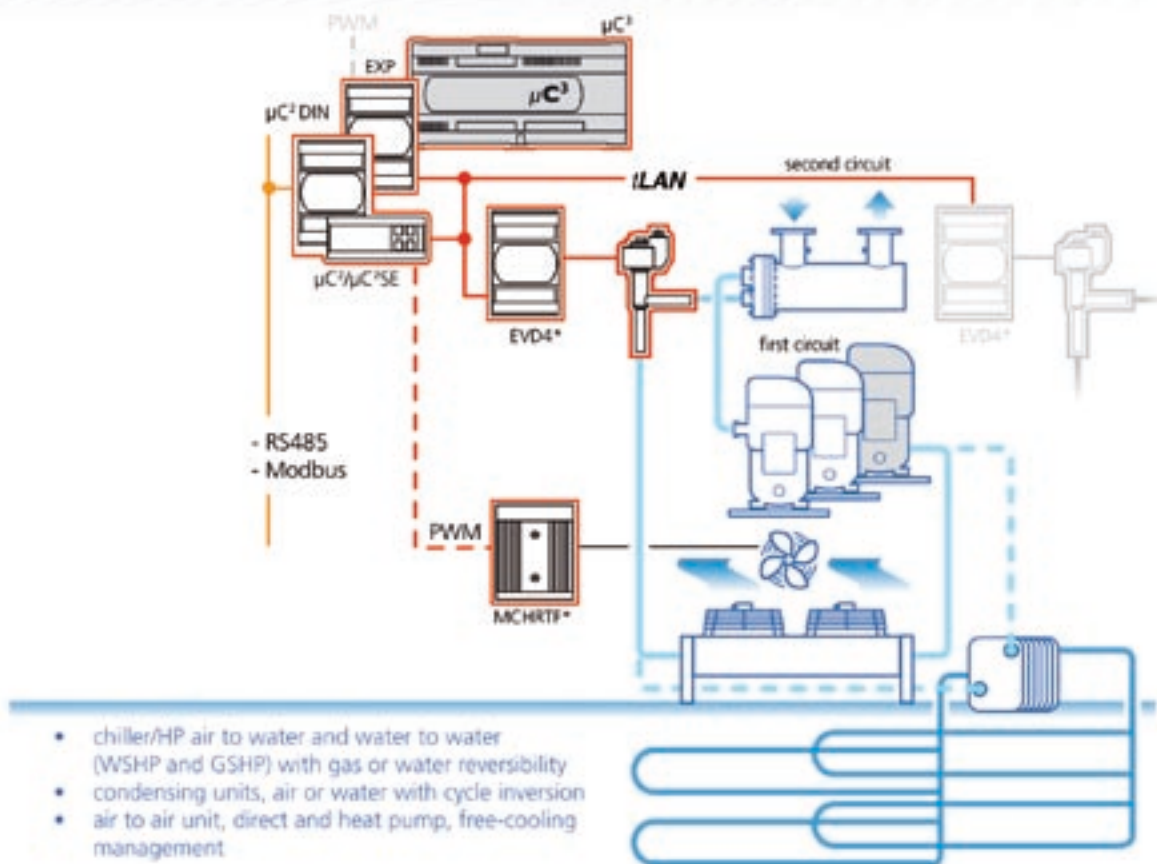




Integrated solutions for small and medium size chiller/heat pumps

# Integrated solutions for small and medium size chiller/heat pumps



## μC sistema

This is the result of CAREL's decades' long experience in the design and production of parametric controllers for HVAC units.

μC sistema is made up of parametric controllers, in both the panel mounted and DIN rail versions, user interfaces, both local and remote, communication interfaces, input/output expansions and electronic expansion valve drivers.

A wide range of applications can be customised by

setting specific parameters, for chillers, heat pumps, and condensing units:

- water cooled
- air cooled
- up to two circuits
- up to 3 steps per circuit.

All controllers can be equipped with accessories to ensure maximum performance and energy savings, such as electronic expansion valves and ratiometric pressure transducers.

µC sistema software functions	comfort chiller	process chiller	std/water source HP	condensing unit
Dinamic P+I control on inlet and outlet water temperature	●	●		
Condenser/evaporator control	●	●	●	●
Part-winding management		●		
Solenoid valve control and pump down management	●	●		
Sliding defrost in HP mode			●	●
Antifreeze electrical heater	●	●	●	
Electrical heater as support to compressors			●	
Control and warning of component operating hours	●	●	●	●
Unloading for high pressure in chiller mode	●	●	●	
Preventive ventilation when starting with high outside temperatures at startup	●	●		●
Stop compressors due to low outside temperature values			●	●
Unloading for low pressure (HP)			●	●
Low noise in chiller and HP mode	●		●	
Set point variation and ON/OFF from time bands	●		●	
Management of electronic expansion valve	●	●	●	
Event and data logging		●	●	
Smart key - download logged data to PC		●		
Send alarms by SMS	●		●	
Auto-tuning		●		
Self-diagnostics	●	●		
Automatic changeover			●	
Ground source water management			●	●
Smart defrost			●	●
µe-dronic	●		●	

## User terminals

The wide range of user interfaces makes interaction with µC sistema family controllers simple and effective, according to specific requirements.

## Communication

All the controllers, from µC<sup>3</sup> to µC<sup>2</sup>, are compatible with the CAREL protocol (PlantVisor) and Modbus® RTU, for third party BMS systems.

Moreover, connection to internet/intranet networks is available via the WebGATE gateway over Ethernet™ 10 Mb/s.

In particular, µC<sup>3</sup> can be connected, as an alternative to RS485, to an RS232 board for managing a GSM modem and consequently exchanging SMS messages, or a LON board for connection to LonWorks™ supervisory systems.

## µe-dronic

µAM area manager can manage one µC<sup>2</sup> SE controller and up to 10 e-drofan master fan coil controllers in synergy.

Each master can in turn be connected to up to 5 slaves.

The µe-dronic system monitors the alarms in the installation, allows synchronised management of the fan coils, and implements energy-saving strategies according to the load measured and the temperature and humidity in the room.



### µC sistema

#### up to 10 analogue inputs:

5 CAREL NTC,  
2 x 0 to 5 Vdc ratiometric transducers,  
1 x 4 to 20 mA current signal,  
2 CAREL NTC or 0 to 5 Vdc ratiometric transducers, configurable via software.

#### up to 18 digital inputs:

18 voltage-free contacts (not optically-isolated)

#### up to 6 analogue outputs:

4 x 0 to 10 Vdc, 2 PWM

#### up to 14 digital outputs:

12 electromechanical relays,  
2 electromechanical relays with changeover contacts.



**Fan speed control** up to 2-4-6-8-12 A,  
230 Vac single phase or 6-9-12-20-40 A three phase 400 Vac.

**Expansion board** for second circuit with up to 15 I/O.

**Serial card** for CAREL, Modbus®, LON®, GSM messaging.



**Remote user terminal** with LCD icons for wall-mounting featuring a built-in temperature and humidity sensor.

**Service remote terminal** for panel or wall mounting with a graphic LCD.

**Local user terminal:** simple and competitive LED display.

