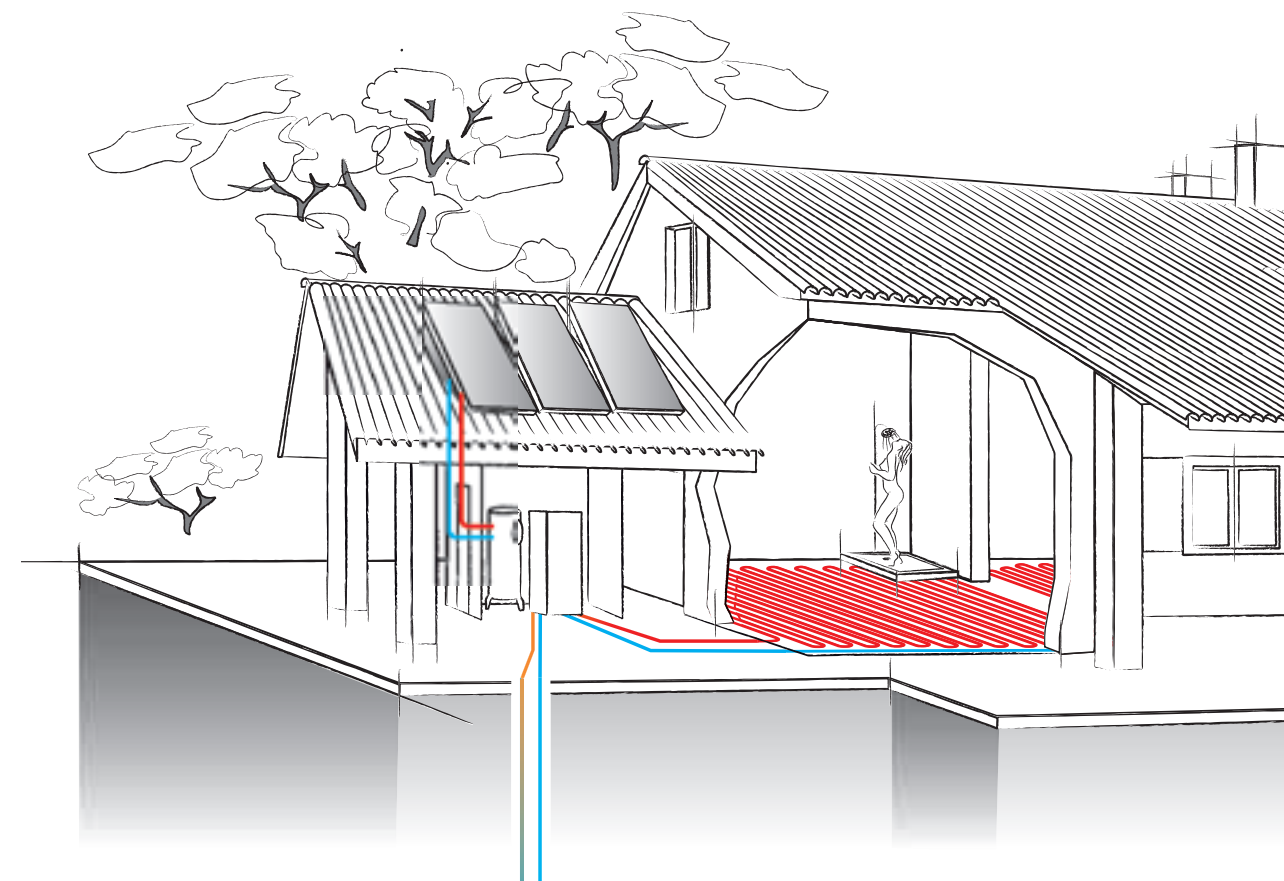


Integrated solutions for ground source heat pumps

Range of controllers for systems with ground source heat pumps



Following years of success in air-conditioning controllers, CAREL offers the first complete integrated electronic solution for managing ground source heat pumps, for residential applications and swimming pools, ensuring energy savings and optimising the management of the entire system. Within the many possible applications, CAREL guarantees a range of solutions that can adapt to the growing levels of integration between the heat generator and the system.

Main functions:

- separate control of the water and ambient set point;
- domestic hot water & hot water for home heating or swimming pools;
- outside temperature compensation;
- high efficiency ensured by the use of the electronic expansion valve;
- dedicated room terminal;
- management of tandem compressors.



energy savings

dynamic optimisation of system performance and integration



dhw management

integration of domestic hot water production



reversible

integrated management of heating and cooling



connectivity

possibility to connect to different supervisor systems: Modbus®, BACnet™, LON, ecc.



flexibility

ample adaptability to various different installations, customisable software



scalable solution

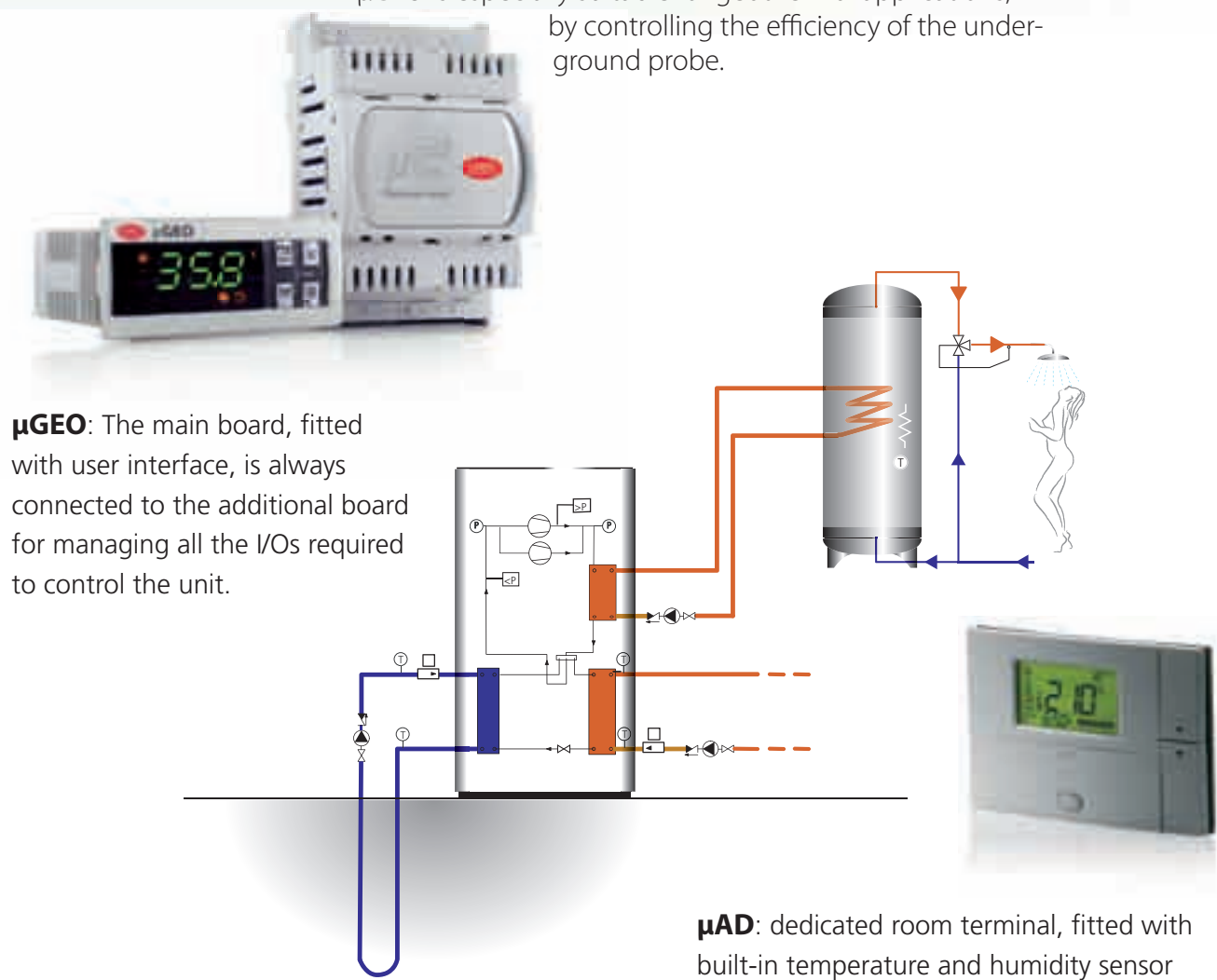
parametric controller (μGEO) and programmable controller (pCO³) available in different sizes

parametric solution

heat pump management

μGEO is the parametric solution for the complete control of the heat pump, able to manage - according to the priority set by the user - the production of domestic hot water and hot or cold water for heating or cooling system.

μGEO is especially suitable for geothermal applications, by controlling the efficiency of the underground probe.



μGEO: The main board, fitted with user interface, is always connected to the additional board for managing all the I/Os required to control the unit.

μAD: dedicated room terminal, fitted with built-in temperature and humidity sensor

comtool
μGEO is compatible with the new configuration tool for CAREL parametric controllers, for fast and practical setup of the application.



TS series probes: new immersion measurement system for quicker and more precise assembly and faster measurement of the water temperature.

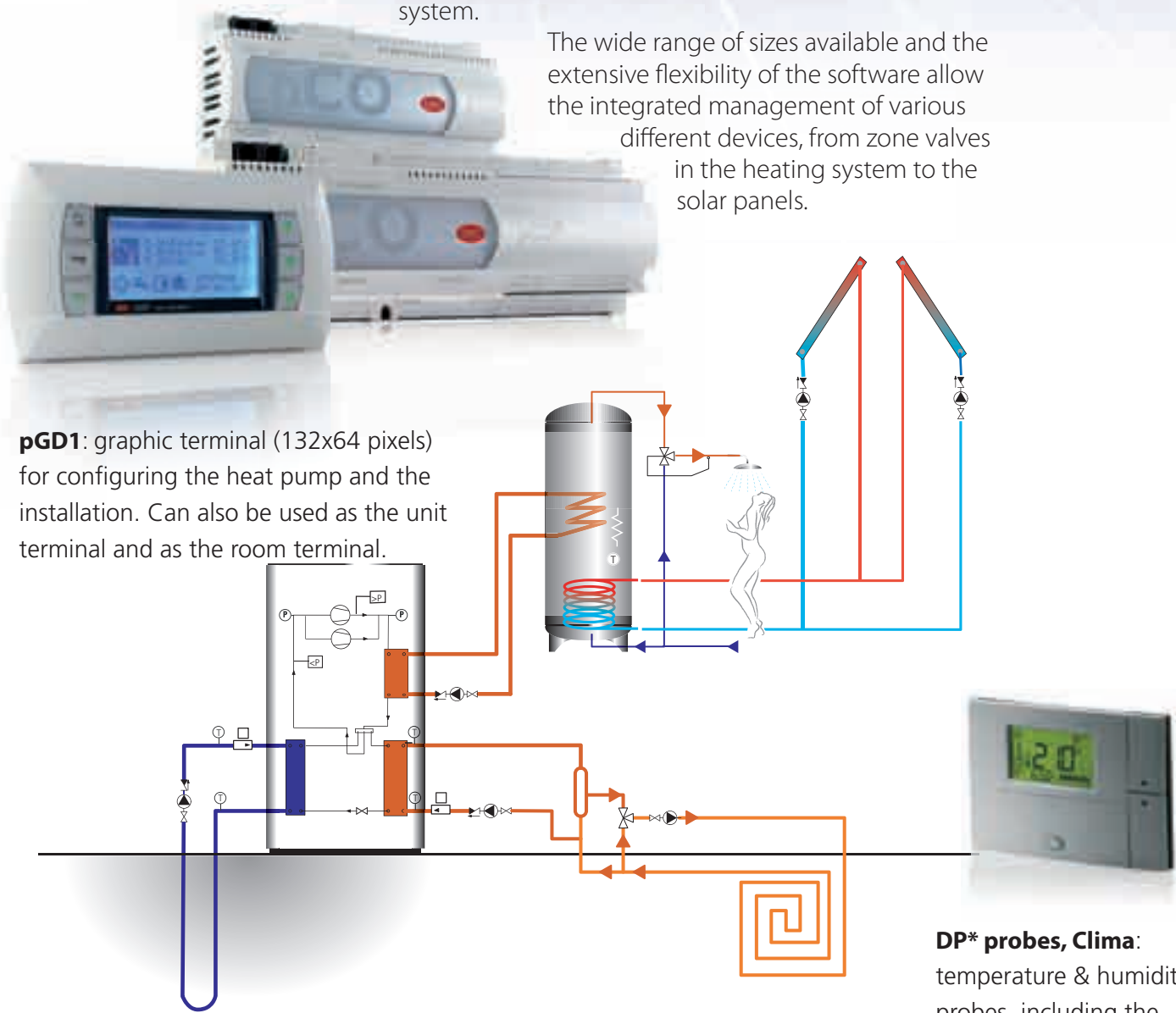


programmable solution

system integration

New software, based on the pCO sistema platform, designed for heat pump applications. Ensures complete control of the production of domestic hot water and hot or cold water for the air-conditioning system.

The wide range of sizes available and the extensive flexibility of the software allow the integrated management of various different devices, from zone valves in the heating system to the solar panels.



pGD1: graphic terminal (132x64 pixels) for configuring the heat pump and the installation. Can also be used as the unit terminal and as the room terminal.

DP* probes, Clima: temperature & humidity probes, including the sensors included in the room terminal.

1tool : flexibility and simple customisation of the application thanks to the power of this new programming software.

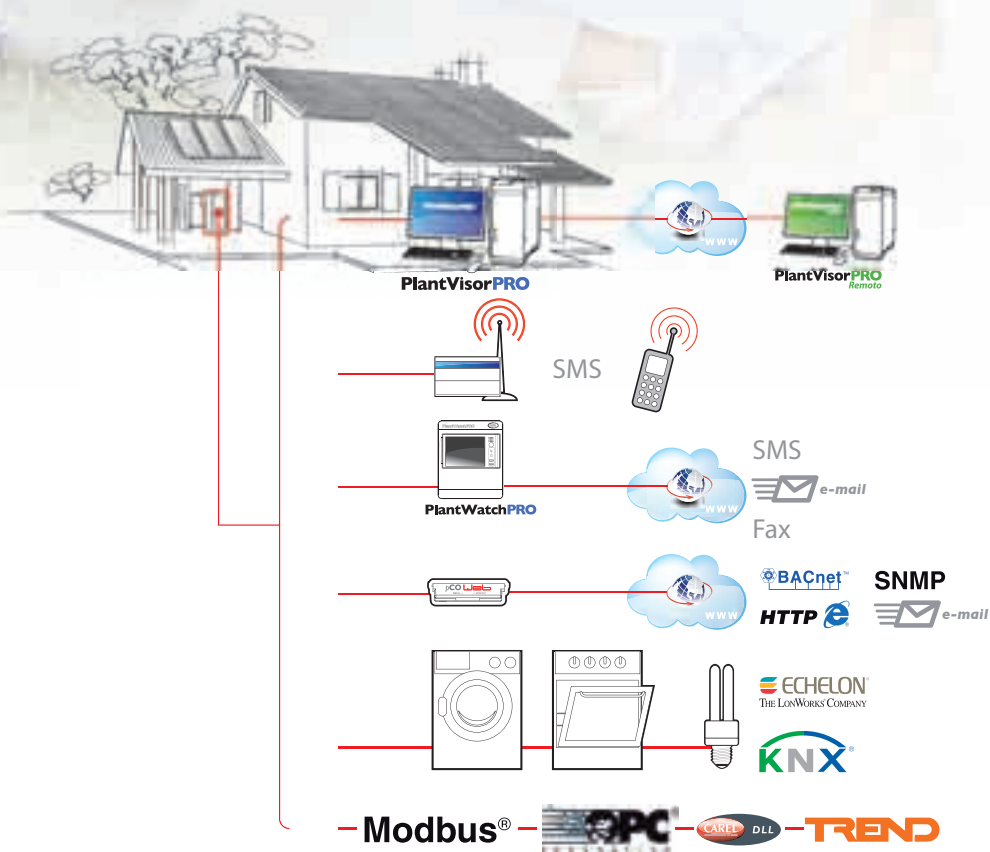


connectivity and supervisory systems

system in one click

The system becomes interactive, capable of interacting with different supervisory and communication systems. The wide range of protocols available over different types of network make the system open to the world.

Examples of standard applications:



VFD series inverters

wide range of control solutions for motors

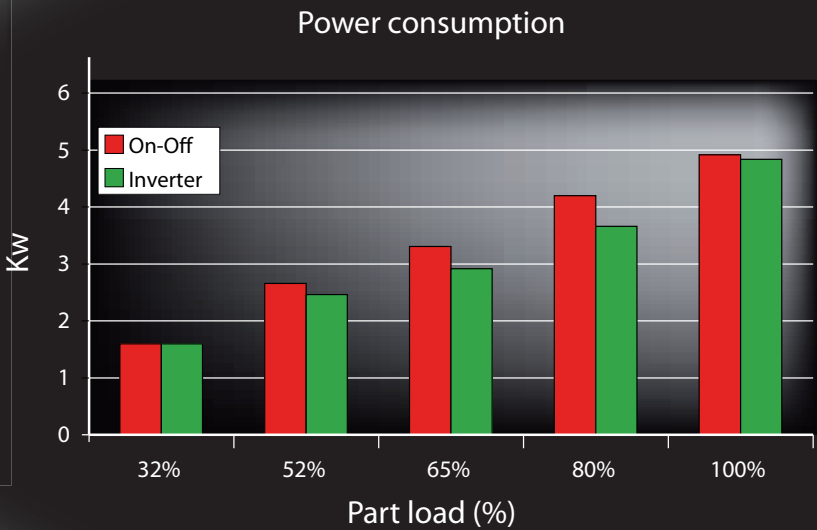
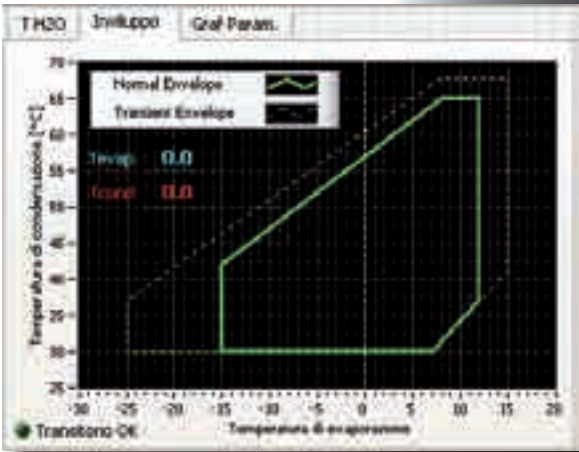
CAREL proposes a wide range of inverters especially designed for applications where the main focus is energy savings and high efficiency.

electronic expansion valve

energy savings & reversibility

All the controllers guarantee optimum integration with electronic expansion valves. Using these valves improves performance in terms of energy savings and offers a sound solution for the reversibility of the refrigerant circuit. As well as energy savings, the CAREL valves help make the systems environmentally compatible, in line with the parameters established by the "Kyoto Protocol" (international treaty on environmental protection and policy).

A series of tests have been conducted at the CAREL thermodynamic laboratory on heat pump systems fitted with electronic expansion valves and inverters. The results demonstrate the possibility to control the range of compressor operating pressure and achieve significant energy savings at part loads.



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