

# CAREL



air-conditioning controllers

programmable controllers and E<sup>x</sup>V electronic expansion valve



Solution for screw chiller  
and heat pump units



[carel.com](http://carel.com)

# Integrated solution for air-conditioned and water cooled screw units

Following years of success in air-conditioning controllers, CAREL offers a complete integrated solution for screw chillers applications, ensuring energy savings of the entire unit.

## Screw Chiller / Heat Pump Solution

- integrated solution
- high efficiency
- energy saving of the unit.

The CAREL solution for screw units has been developed around to the new range of pCO<sup>5</sup> programmable controllers, increasingly powerful and enhanced with specific new functions for improving the efficiency of HVAC/R systems.

The CAREL solution is optimized for managing air/water or water/water chillers, with screw compressors featuring continuous or stepped capacity control. The maximum configuration includes 1 screw compressor for each circuit, up to 2 circuits.

Thanks to CAREL software library the application permits the envelop control of mainly screw compressors present in the market as Bitzer, RefComp and Hambell guarantying best performance and highest reliability.

Moreover, the integrated EVO driver and ultra capacitor present in the pCO<sup>5</sup>, which were previously managed by external devices, can save costs and spaces in the electrical panel.

Particular attention was paid to the development of a next-generation of user interfaces: pGD touch.

The new terminal 7" full touch screen provides an intuitive and easy navigation between pages, thus helping the end user to get a quick overview of the unit. The outstanding graphics capabilities also provide finally a high aesthetic standard.



### Compressor Protection

Screw compressor is the most expensive part in the unit. Carel solution offers the best protection to the compressor to minimize the potential risk of losses.



### Integrated EEV Driver

The EEV is controlled not only according to superheat but also other information of the system, which ensures the unit to work in the best condition with highest efficiency.



### Ultra Capacitor

Guarantee fully closing of the electronic expansion valve in case of power failure. The elimination of solenoid valve brings great cost saving.

# Designed to exploit of your machine

The CAREL integrated system permits the complete, safety and reliable control of your unit.

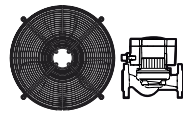
User interfaces



Software programming and application libraries



DC inverter fans and pumps



Wired/wireless communication



BACnet  
HTTP  
GPRS  
XML  
e-mail  
Modbus

EXV valves



refrigerant gas leak detector



## Envelope control

Software drivers approved by compressor manufacturers for best performance, highest reliability and longest life of your compressor.  
Using the 1tool HVAC libraries are available compressors as:

- Bitzer;
- RefComp;
- Hambell.

## Compressors features

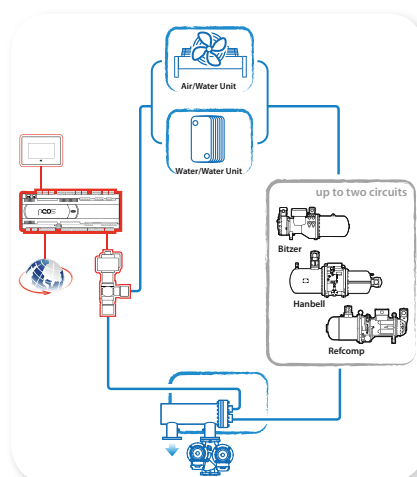
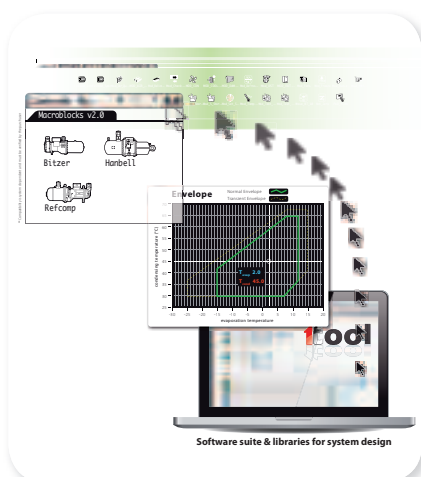
- Part-winding/Star-Delta start 3 or 4 capacity control steps, and step-less capacity control.
- Economizer/liquid injection solenoid valve control.
- High current alarm.
- Oil level alarm.

## Connectivity

With integrated BMS and FieldBus ports, pCO<sup>3</sup> controller can interface to Modbus<sup>®</sup> and CAREL protocols.

In additional, various communication standards are also supported, such as BACnet<sup>™</sup>, GSM, LonWorks<sup>®</sup>, TREND, and Konnex using serial card.

The pCO<sup>3</sup> controller can also be interfaced in the intranet/internet networks, using pCOWeb, the specific serial card that permits throughput TCP/IP Ethernet<sup>™</sup> 10 Mb/s.



# Solution Components

pCO<sup>5</sup> and pGD Touch, the result of 25 years of experience in the development of controllers for the HVAC/R

## pCO<sup>5</sup>

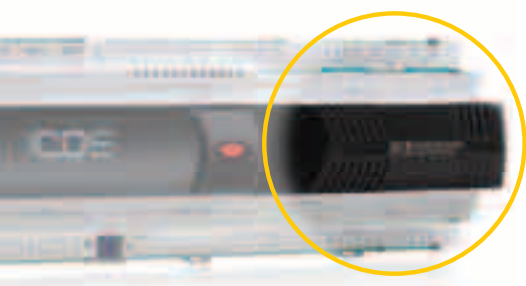
pCO<sup>5</sup> is the new proposal from CAREL in its range of programmable controllers. pCO<sup>5</sup> has been enhanced with specific new functions to improve the efficiency of HVAC/R systems, such as integration of the electronic expansion valve driver. In addition, the pCO<sup>5</sup> offers more demanding designers up to five serial lines that allowing management of smart actuators

and compatibility with most common BMS present in the air conditioning market.



## Ultracapacitor

The Ultra cap module guaranteed closing of the valve in the event of power failures.. This eliminates the need for the solenoid valve that was previously required to guarantee closing of the circuit if no battery module was available.



## pGD touch

pGD Carel Touch is the new terminal with 65,000 colours TFT display with a 800x480 resolution to ensure a high standard in terms of aesthetics. In fact, thanks to pGD Touch and the development tools, editors 1Tool touch is possible to manage advanced graphics features like alpha blending, ie the possibility to manage the transparency of objects, vector images and animations.



## Electronic valves

The most complete range of electronic expansion valves for controlling evaporation in air-conditioning applications.

EXV sistema guarantees maximum precision in proportional modulation, covering cooling capacities up to 2000 kW



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