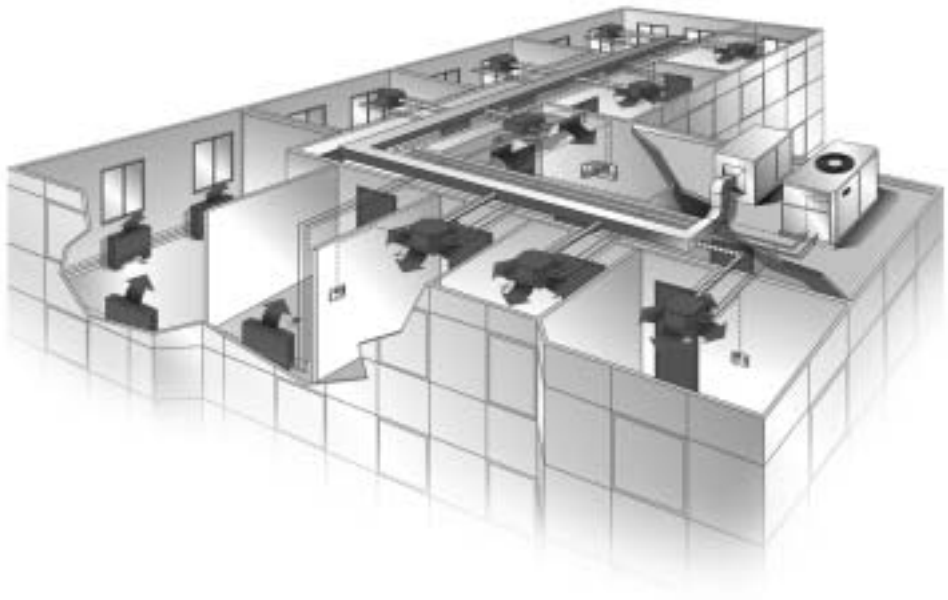


Water terminal control solutions

Carrier offers a wide range of fan coil units designed to meet the needs of different systems and applications: from cabinet units in the room, through cassettes and a variety of ducted units that allow remote installation. The benefits and advantages of the different offers are described in the Hydronic Fan Coil Solutions brochure.

To complement the different fan coil solutions, Carrier offers a range of electronic controllers, developed and tested to ensure correct management of hydronic terminal fan coil units and to deliver maximum satisfaction to the user. These controllers are available for all system configurations including: 2-pipe, 2-pipe changeover, 2-pipe + electric heater and 4- pipe applications.

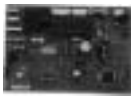
A selection of fan coil controllers is available, designed to offer the best solution for each installation, with the performance features required by the customer.

Features

- **Stand-alone electronic thermostats** offer a cost-effective solution that does not compromise on features and includes enhancements such as an energy-saving option (eco mode).
- **Grouped and remote control needs** are met with the HDB controller. This is factory-installed in the units, making installation easy. Only the power supply and the user interface connections for the wall-mounted or infrared remote control need to be field-connected. Where grouping of the fan coil units is required by the application, the simple addition of an optional communication board and the corresponding daisy-chain bus wiring will provide this functionality.
- **The communicating control system** offer includes the new NTC communicating controller. This advanced controller can integrated into the Carrier Aquasmart Evolution hydronic system range or into any Carrier system using the Carrier Comfort Network (CCN) protocol. Depending on the application needs, this controller offers a broad range of user interfaces, and advanced functionalities such as variable-speed fan control or Demand Control Ventilation.

Whatever the customer requirements, Carrier offers a solution.

Electronic fan coil controllers - Quick reference table

	Thermostats	HDB	NTC	Aquasmart
Control algorithms				
On-off	x	x		
Proportional-integral			x	x
Valve management				
Air flow control only (no valve)	x	x		x
On-off actuators	x	x	x	
Proportional valves			o	
Fan control				
Three speeds	x	x	x	x
Optimum fan speed selection	x	x	x	x
Variable speed			o	
Main functions				
Setpoint control	x	x	x	x
Occupied/unoccupied mode	x	x	x	x
Frost protection mode	x	x	x	x
Window contact input	x	x	x	x
Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)	Type A	x	x	x
Automatic seasonal changeover (4 pipes and 2 pipes + electric heater)	Type B	x	x	x
Manual changeover	x	x	x	x
Frost protection mode	x	x	x	x
Continuous ventilation within dead-band	x	x	x	x
Periodical ventilation within dead-band	x	x	x	x
Unit grouping		x	x	x
Louvre control		x	x	x
On-site configuration		x	x	x
Supply air temperature monitoring limiting			x	x
Communication (CCN)			x	x
Electrical heater loadshed			x	x
Dirty filter alarm			x	x
Alarm reporting			x	x
IAQ control			o	
Demand control ventilation (DCV)			o	
Free cooling mode			o	
User interface				
Digital display		x	x	x
Automatic or manual fan speed control	x	x	x	x
Operating mode selection	x	x	x	x
Occupancy (eco) button	x	x	x	x
System management				
Management of zones				x
Set-point management according to occupancy				x
Management of system heating/cooling mode according to building demand				x
Scheduling of system operation per zone				x
Centralised management of operating parameters, alarms and maintenance				x

o = available as an option

Electronic thermostats

Features

- **Fan operation**
  With the fan speed selector, fan mode can be set either manually or automatically. In the manual mode it is possible to select three fan speeds (low/medium/high) according to personal preference. In the auto mode fan speed is regulated by a microprocessor in the control, based to the temperature chosen.
- **Temperature selector**
  This is designed to maintain the temperature at the desired level. The reference value at the centre of the range is 20°C. By turning the knob towards the symbol (-) the temperature is reduced from the original setting (minimum value is 10°C). By turning the knob towards the symbol (+), the temperature is raised from the original setting (maximum value is 30°C).
- **Energy saving mode**
  This function is especially useful when air conditioning at night or in rooms where the user is likely to be absent for a longer period of time. In this case, pushing the button raises the temperature during cooling by 4°C and lowers it during heating by 4°C.
- **Frost-protection**
  This function keeps the temperature from dropping below 7°C in rooms not used for long periods of time.
- **Seasonal changeover**
  - **Manual**: Selection of heating/cooling is done manually by pushing the button on the control.
  - **Centralised (only for type A control)**: Centralised seasonal changeover is possible in two ways:
  - by a switch located on the central control panel that allows heating/cooling mode changeover (to be provided by the installer).
  - by a temperature sensor located in contact with the entering water pipe
  - Automatic, based on air temperature (only for type B control): The automatic seasonal changeover allows automatic switching of the fan coil operating mode to cooling or heating, depending on the temperature set by the user and on the room temperature.
- **External contact**
  The control has a 230 V input that can be used as window contact or presence detector. When such a signal is activated (presence of line voltage on the terminal block contact) the control is set to OFF mode. As a consequence, all outputs (fan, valves etc.) are disconnected, and only frost protection is active, if switched ON by the appropriate dip-switch.

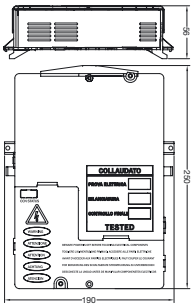
The Carrier electronic thermostats are designed to control and optimise the operation of hydronic terminal fan coil units. They exist in two versions (types A and B) that match all terminal fan coil configurations.

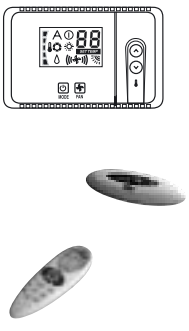
	Type A	Type B
2-pipe	x	
2-pipe changeover	x	
2-pipe and electric heater		x
2-pipe changeover and electric heater		x
4-pipe		x

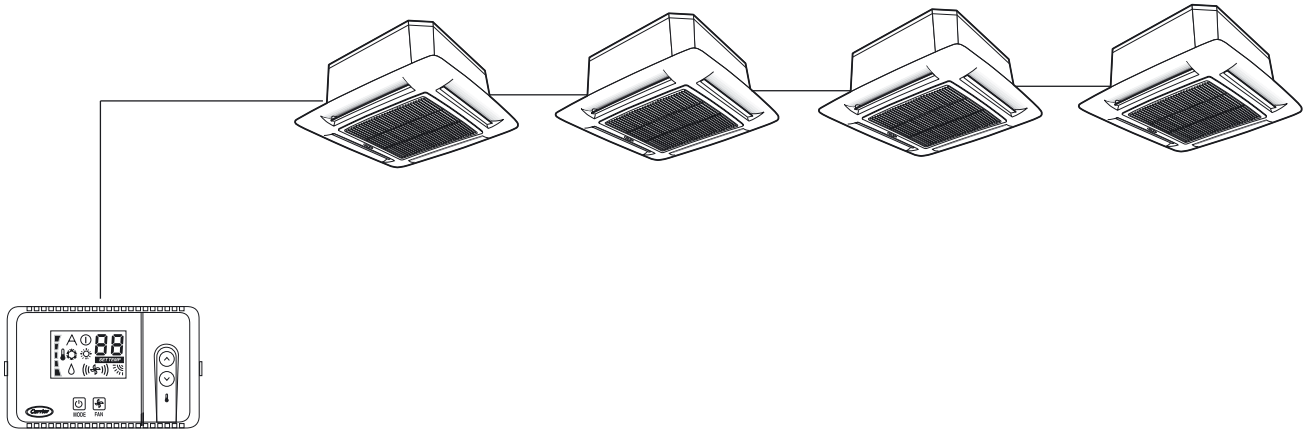
HDB controller

Features

- The HBD controller is a microprocessor-based controller designed to control and optimise the operation of hydronic terminal fan coil units.
- **Factory-installed on the terminal fan coil**
  The controller is factory-installed on the terminal fan coil; the assembly is also tested at the factory. As a result, field installation is extremely simple.
- **User interfaces**
  Depending on the application, two user interface types can be selected:
  - a wired user interface that can be mounted on the wall or inside compatible terminal fan coils (42N)
  - an infrared user interface to be used together with a wall-mounted infrared received or a receiver incorporated in compatible terminal fan coils (42GW)
- **Ease of grouping**
  As an option, the HDB control can be equipped with a grouping board that is used to connect up to 15 units with a bus. All units connected together will operate under the same conditions.
- **Louvre control**
  For terminal fan coils equipped with motorised louvres, the HDB controls the louvre position as defined by the user or in swing mode.
- **External contact**
  The control has an input that can be used to remotely set the unit to economy mode.
- **Scheduling**
  If the unit is used with an infrared user interface, unit operation time can be scheduled on a daily basis. Three start times and three stop times can be programmed.
- **Timer**
  If the unit is used with an infrared user interface it can operate for a predefined duration before switching to eco mode or off.



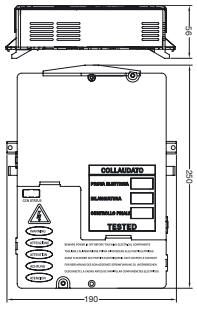


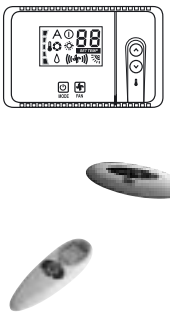


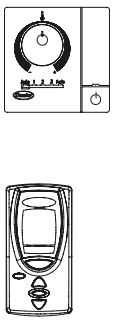
NTC communicating controller

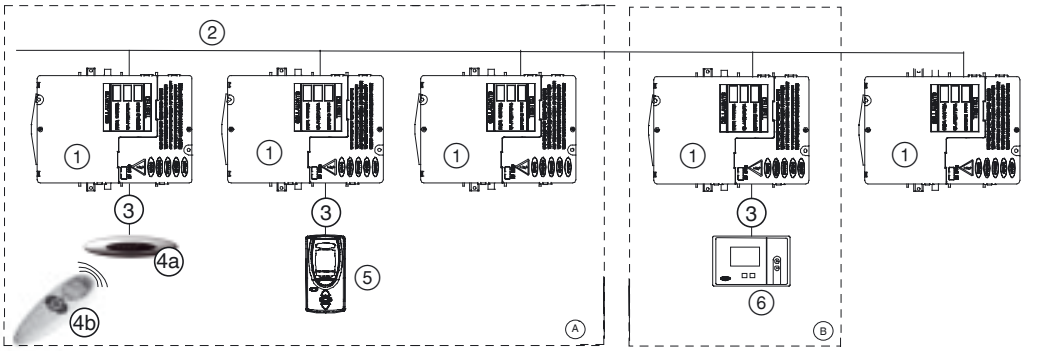
Features

- The NTC controller is a microprocessor-based, CCN (Carrier Comfort Network) compatible communicating controller designed to control and optimise the operation of hydronic terminal fan coil units.
- The controller can function as either a standalone control or as part of the CCN.
- **Factory-installed on terminal fan coils**
  The HDB controller is factory-installed on the terminal fan coil; the assembly is also factory-tested. As a result, field installation is extremely simple.
- **User interfaces**
  Depending on the application, two user interface types can be selected:
  - a simplified wired user interface (SUI) that can be wall-mounted
  - a wired user interface (CRC2) that can be wall-mounted or incorporated in compatible terminal fan coils (42N)
  - an infrared user interface (IR2) for use together with a wall-mounted infrared received or a receiver incorporated on compatible terminal fan coils (42GW)
  - a multifunction user interface (ZUI) that can control comfort, lights and blinds within a Carrier system
- **Network communication**
  The NTC communicating controller can be connected on an RS 485 bus, using the Carrier Comfort Network (CCN) protocol.
- Units equipped with the NTC communicating controller can be part of the Aquasmart Evolution system.
- In addition, the NTC communicating controller can offer the following functions as options (not available within Aquasmart Evolution environment):
  - **Variable speed management**: The NTC controller can drive the speed of the fan continuously within a configurable range for optimal thermal and acoustic comfort.
  - **Demand controller ventilation (DCV)**: On fan coils equipped with CO_2 sensors and fresh air dampers, the NTC controller can adjust the amount of fresh air admitted to the room, as required by the occupants
  - **IAQ management**: The NTC controller can control all features related to Indoor Air Quality that are included in Carrier terminal fan coil units.









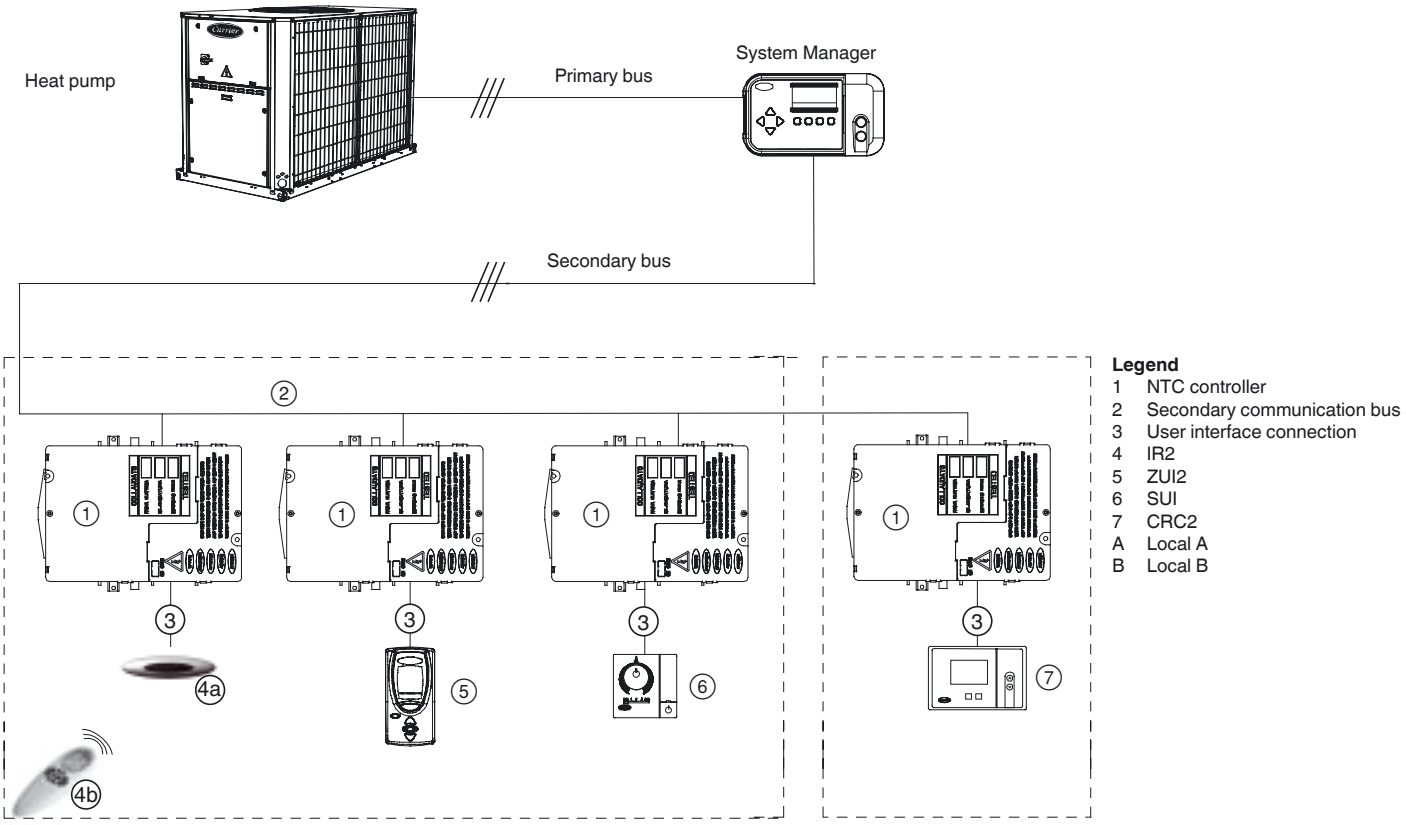
Legend

1	NTC controller
2	Secondary communication bus
3	User interface connection
4	IR2
5	ZUI2
6	CRC2
A	Local A
B	Local B

Aquasmart Evolution

Features

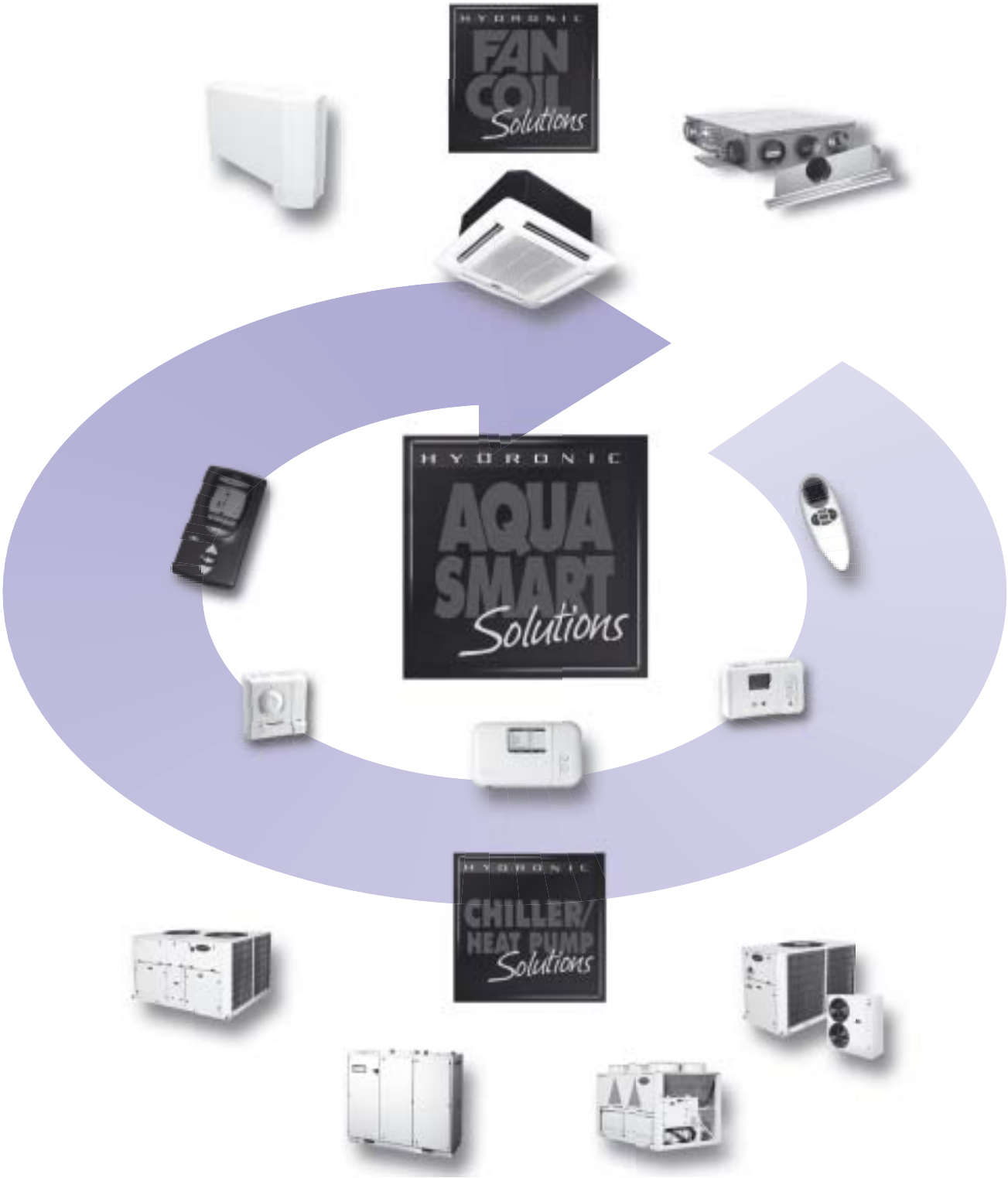
- Aquasmart Evolution is a complete HVAC system especially suited for residential and light commercial office buildings, hotels and hospitals.
- Aquasmart ensures perfect comfort for the building occupants. It allows both individual control, based on comfort parameters and central control to ensure optimisation of energy consumption.
- The Aquasmart System Manager is connected to the system components via a communication bus, and controls all air conditioning operating parameters. By coordinating the control intelligence in each component and by assembling all data at a single point, Aquasmart Evolution optimises energy consumption, monitors component operation and continually reports any system faults.
- The system can be composed of up to 128 terminal fan coil units that can be organised in 32 zones. Heating and cooling is coordinated by the System Manager for maximum comfort and optimal energy consumption.
- Occupied/unoccupied time schedules can be programmed, and the system includes smart start features to ensure that comfort requirements will be met from the very beginning of the occupied period.
- System configuration is simple through easily accessible menus. Unit grouping is managed by the network and requires no specific wiring. This means the system can be easily reconfigured to suit later modifications to the occupied area.
- The Aquasmart Evolution components are delivered complete, configured and factory-tested.



Legend

1	NTC controller
2	Secondary communication bus
3	User interface connection
4	IR2
5	ZUI2
6	SUI
7	CRC2
A	Local A
B	Local B

Carrier offers the right solutions to meet the requirements of each application



Air distribution

System Manager

Hot/cold water production

Order No. 14710-20, 05.2007. Supersedes order No.: New.
Manufacturer reserves the right to change any product specifications without notice.

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