Advanced solutions for AHU
Programmable controllers for air handling units

Dixell™
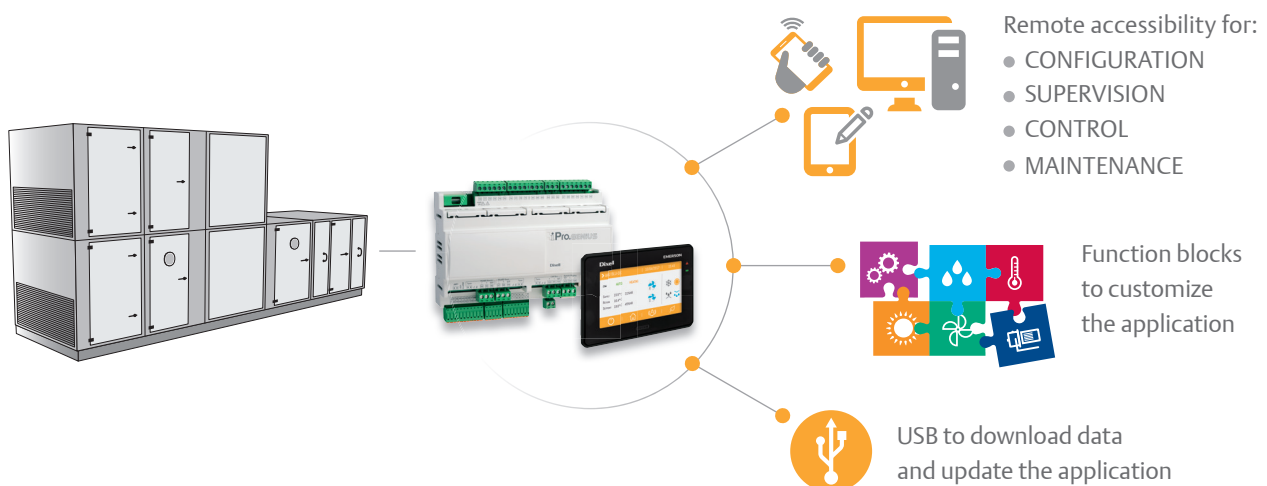
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Advanced solutions for AHU

Dixell presents a solution for the complete management of air handling units which includes programmable controllers, LCD graphic and touch screen terminals, accessories and sensors. A dedicated and easily configurable application allows to handle regulations dedicated to thermos-hygrometric conditions, ventilation, filtration, air control and quality.
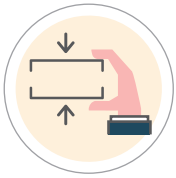
This solution can boast high flexibility in the composition of the unit, multiple solutions for the available actuators and the optional functionalities dedicated to energy saving, planning and plant management.

The AHU application has been developed in particular for OEMs and plant's System Integrators, ensuring a high-performing hardware and a configurable and easy-to-use application software.

Optimized management of the unit

The high connectivity and simplified configurability allow an efficient, quick and intuitive management of the unit even by remote. The application is based on function blocks and is customizable in an easy and fast way.

Remote accessibility for:
- CONFIGURATION
- SUPERVISION
- CONTROL
- MAINTENANCE

Function blocks
to customize
the application

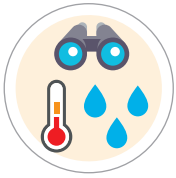USB to download data
and update the application

Flexibility and compactness

With just one application you can manage the most of the AHU units even with different functions and features. The compact and powerful hardware is ideal even on units where the electrical board's size is limiting.

High level of configurability

Optimized regulation algorithms for each specific function of the AHU and a graphic and interactive system allow to configure the unit in an easy and quick way reducing the possibility of errors.
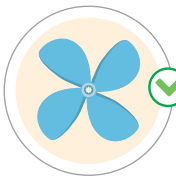
Temperature and humidity regulation

The air temperature and humidity management by advanced and optimized algorithms ensures a high level of accuracy combined with tangible energy saving.

Advanced humidification

The advanced functions dedicated to the humidification (adiabatic, water discharge, conductivity control, etc.) increase the unit's efficiency without the use of additional electronic regulators.
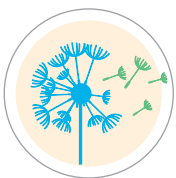
Optimized ventilation

The solution ensures an efficient management of the fans (supply and return) keeping pressure, flow or speed constant. In addition, specific regulation functions allow the use of ventilating double units used for example in the process or medical field.
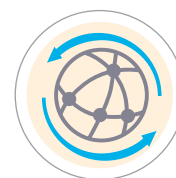
Energy saving

Dixell's solution, for each main function of the AHU (thermoregulation, ventilation, air quality management, humidity control, etc.), proposes specific algorithms and is able to respond to all energy saving requests congruently.

Air quality

The algorithms present in the iPro controllers not only allow the VOC carbon dioxide control and the efficiency of filtration, but also the management of a smart air turnover.
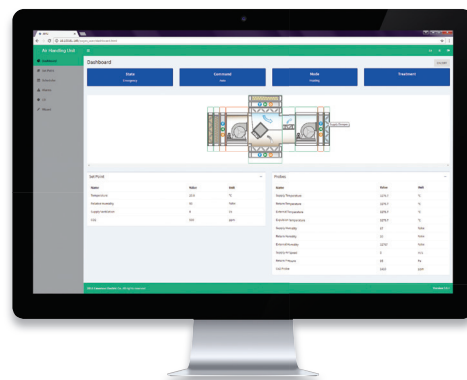
High connectivity

The powerful hardware platform with USB, RS485, LAN, TCP/IP, CANbus, LON and BACnet ensures the highest level of connectivity in every application situation.

Web site

The website in the iPro controllers is characterized by an intuitive interactive graphical interface and allows you to quickly configure the unit via wizard on common browsers present on the market. The remote access allows supervising and control actions of the unit providing to the service an important tool of assistance in case of any necessary maintenance action.
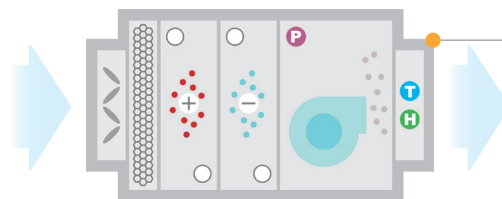
Applications

Below some examples of units manageable with iPro controllers.

The probes are identified as:

T Temperature   **P** Pressure   **H** Humidity   **Q** Air quality   **S** Speed
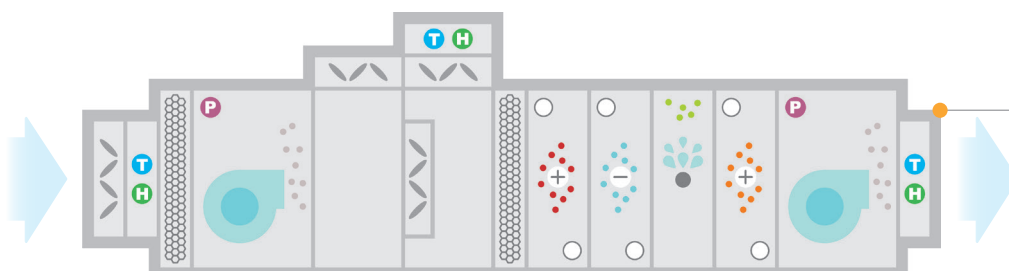
Fresh air only unit

For fresh air only units, the IPG208D controller allows the management of heating and cooling resources, of the external air damper and the modulating supply flow ventilation. The solution ensures an optimal management of single-flow units and of set-point temperature control.

Double flow unit (supply and return)

For double flow AHU units with supply and return, the IPG215D controller allows the management of the heating, cooling, post-heating and steam humidification resources. The supply and return fans can be modulated, for example, depending on a constant pressure control.
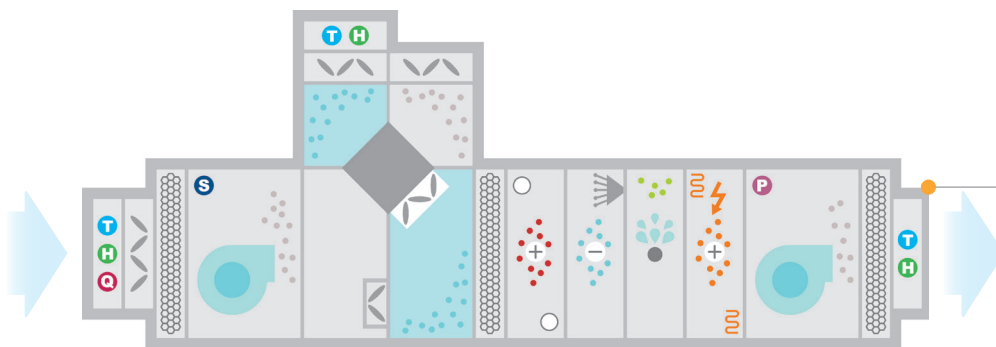
The solution guarantees the optimal management of the mixing chamber with return dampers, expulsion and fresh air (with minimum fresh air regulation, air quality control, free-cooling or free-heating also in enthalpy mode).

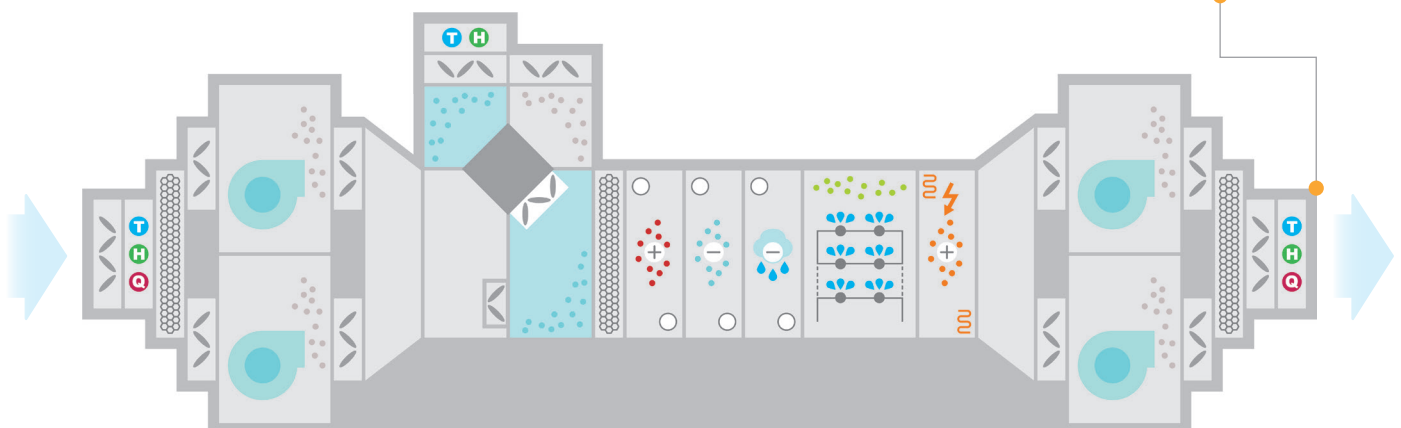## Double flow supply and return unit heat exchanger

For units with heat exchanger and double supply and return flow, Dixell's proposal includes the use of the IPG215D controller combined with an IPX206D expansion module. The solution allows to optimally manage the water heating coil, the direct expansion cooling coil, the steam humidification, the post-heating coil with electrical heaters and the supply and return modulating ventilation for example depending on a constant air flow control.

Complex AHU units

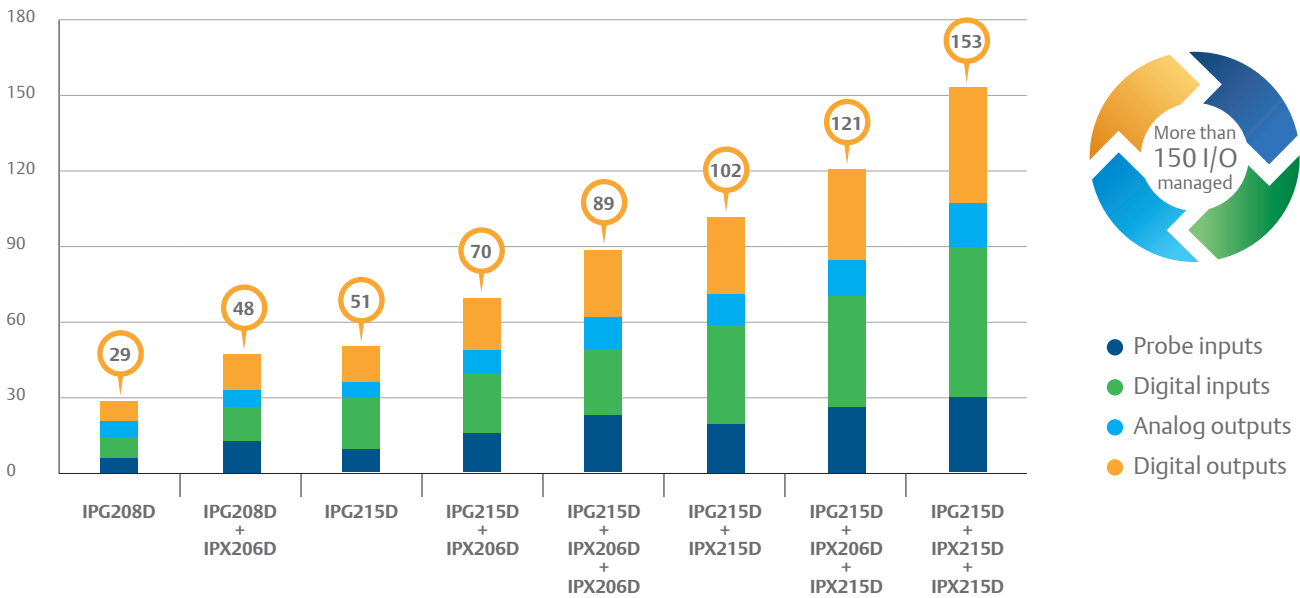For very complex units which require the use of a large number of I/O, the solution can consist of the IPG215D controller combined with one or more expansion modules (IPX206D or IPX215D).
This type of AHU unit, combined with Dixell's solution, features a high level of flexibility that allows its use in multiple applications covering the most demanding markets as the pharmaceutical, foods and process ones.

The complete solution
for the management of air handling units

- Quick installation and maintenance
- High level of communication
- 24 Vac power supply

- Disconnectable screw connectors
- Self-extinguishing ABS housing
- Din Rail or wall mounting through integrated brackets

Chart legend:
- Probe inputs
- Digital inputs
- Analog outputs
- Digital outputs

More than 150 I/O managed

Chart values: 29, 48, 51, 70, 89, 102, 121, 153

Chart x-axis labels:
- IPG208D
- IPG208D + IPX206D
- IPG215D
- IPG215D + IPX206D
- IPG215D + IPX206D + IPX206D
- IPG215D + IPX215D
- IPG215D + IPX206D + IPX215D
- IPG215D + IPX215D + IPX215D

Controllers

IPG208D A01

4 DIN model programmable controller with 6 probe inputs, 4 analog outputs, 11 digital inputs, 8 digital outputs, RS485 ModBUS, LON, BACnet, LAN for the connection with expansions, USB for application update, LOG download and TCP/IP connectivity.

IPG215D A01

10 DIN model programmable controller with 10 probe inputs, 6 analog outputs, 20 digital inputs, 15 digital outputs, RS485 Modbus, LON BACnet, CAN for the connection with expansions, USB for application update, LOG download, Ethernet TCP/IP.

Expansion modules

IPX206D

4 DIN expansion module with 7 probe inputs, 3 analog outputs, 3 digital inputs, 6 digital outputs, LAN and CANbus ports for the connection with the master controller.

IPX215D

10 DIN expansion module with 10 probe inputs, 6 analog outputs, 20 digital inputs, 15 digital outputs, LAN and CANbus ports for the connection with the master controller.

HMI

V2IPG A01
Remote keyboard with 240x96pixel LCD graphic display, on board probe for temperature and humidity control, double signaling led and panel or wall mounting.

VTIPG A01
4.3'' touch screen display (TFT 480x272pixel, 256 colors) with RS485, LAN and USB ports, on board probe for temperature and humidity control, double signaling led and panel or wall mounting.

Accessories

IP-FC
Connector kit with screw terminal blocks for programmable controllers and expansion modules.

USB-ETH-CONV
USB – Ethernet adapter for IPG208D.

CAB/WEB/NET - CAB/WEB/PC
Ethernet patch cable and Ethernet patch cross over cable.

KIT SIMULATORE
Kit to simulate inputs and outputs (analog or digital) with 110 or 230 Vac power supply.

Sensors

APH
Temperature/humidity probes are ideal both for residential comfort and industrial processes. This product is available in the stem version or for industrial mounting, wall or duct.

APG
Air quality probe and air speed probe (CO_2) are the ideal solution for the regulation of complex units (plant-side usable) both for residential comfort and for industrial processes. This product is available in wall or duct mounting.

APP
Differential pressure transducers designed both for environment monitoring and for the measurement of differential pressures on the mouthpiece of fans, thanks to the possibility to select the appropriate calibration range. The product is available in the industrial mounting version.

APS
Differential pressure switches have been developed to monitor and check the presence of air flow. The products are available for industrial mounting, have two different operation ranges and the activation point configurable on the device to be used in a simple and fast way in all the application fields.

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